



2019 Book of Accepted Abstracts

ACSP Annual Conference

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Greenville, South Carolina

*This book includes only the abstracts accepted for presentation at the
2019 Annual Conference in Greenville, South Carolina.*

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Notes about this Book

This book includes only the abstracts accepted for presentation at the 2019 Annual Conference in Greenville, S.C. This book was completed and posted to www.acsp.org on June 18, 2019.

Abstract ID

When submitted to the abstract management system, each abstract was assigned an abstract submission ID number for administrative search/find purposes. This is the number that authors should reference to staff with any questions regarding their abstract, their presentation, or their final paper submission. This number stays with the abstract throughout the process and becomes the ID of the presentation of the research at the conference.

Proposal

Organizers of groups of authors intending to submit as a pre-organized session used the abstract submission system to provide an overview or intent of the session, the name of a proposed discussant, and the authors and paper titles of those confirmed to be part of the session. The system assigned a proposal number to the grouping of these abstracts. This number stays with the session throughout the conference. When scrolling through this book and through each track, you'll find the pre-organized session *proposals*. Each proposal will indicate which of the abstracts in the track belong to that session. After the pre-organized session proposals are all of the numerically ordered accepted abstracts within that track. The abstract will also indicate if it is related to a pre-organized session.

Indexes Available

Separate indexes for Author Name and Keywords reference the Abstract ID #. These indexes can be found at the end of this book.

Order of Abstracts within Each Track

Abstracts are first ordered by the type of abstract.

- 1) Pre-organized Session Summaries – the overview describes the intent of the session and lists the abstract ID numbers for the included abstracts.
- 2) Abstracts for all roundtables, papers and posters sorted numerically by abstract ID.

Order of Authors

The abstract management system used by ACSP allows for author role declaration.

- **For paper and poster abstracts** - Authors of abstracts in this book and in the final program will be indicated as presenting, primary, or co-authors of the paper. The presenting author is always listed first. No more than eight authors for one paper are included.
- **Roundtables** will have a moderator. The remaining names listed are confirmed participants of the discussion. Anyone in the audience can also participate in the discussion. There is a maximum of eight names listed for each roundtable.
- **Pre-organized sessions** will have an organizer and some at the publishing of this book will have a proposed discussant. This proposed discussant has yet to be confirmed, and their participation will be verified prior to the schedule of presentations being created.

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Multiple abstract submissions on behalf of one author will be reviewed and may possibly be accepted and included in this book. However, more than one presentation of a paper and more than one appearance as a roundtable participant during the conference will not be allowed on the final schedule of presentations. It is, however, possible to present both a poster and a paper, if both proposals are accepted.

Participants on the final program will be limited to:

- one presentation of a paper whether in a formed paper session, or involved in a pre-organized paper session;
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- one placement in the poster session.

These roles are not interchangeable. If you have more than one submitted paper abstract accepted and are invited to participate on more than one accepted roundtable, in fairness to everyone, we will ask you to limit your participation.

Requests for Edits

All abstracts in this book are unedited and published as submitted by the author(s) for peer review. It is the policy of the ACSP that the abstracts will not be edited. This book is edited only for formatting consistency.

If information is missing about an author, it may not have been provided when submitting the abstract. We do understand the importance of names; that paper titles change as time goes on; and authors are added or dropped. In these instances, any necessary changes for the final program should be sent to abstracts@acsp.org. Updates to this book are not made immediately.

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TRACK 1 – ANALYTICAL METHODS, TECHNOLOGY AND SOCIETY

TRACK 1 – PRE-ORGANIZED SESSION SUMMARIES AND ABSTRACTS FOR THE SESSIONS

PRE-ORGANIZED SESSION - SCENARIOS AND URBAN FUTURES IN PROFESSIONAL PRACTICE

ID: 9

Pre-Organized Session Summary

Session will includes abstracts: 158, 159, 160, 161, 162

Is planning scholarship avoiding the future? Concern with the future has long been an important intellectual focus within the planning field. Although techniques such as forecasting, visioning, and scenarios are widely used by practitioners (Hopkins and Zapata, 2007), recently they have attracted only meager interest among planning researchers and educators. This pre-organized session is one of two sessions featuring scholarship on the problem of engaging the future in planning. Although long-range planning is only one component of professional practice, it carries disproportionate importance to the field's identity and leadership in civic affairs. Collectively the papers in this session speak to how practitioners engage the future, drawing connections to diverse theories of planning education and practice.

Objectives:

- Analyze the relationship between short- and long-term perspectives in planning practice
- Discuss the methods professionals use to engage the future in planning practice

EVALUATING THE PERFORMANCE OF SCENARIO PLANNING METHODS: A COMPARATIVE CASE STUDY

Abstract ID: 158

Group Submission: Scenarios and Urban Futures in Professional Practice

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The proponents of scenario planning have argued the method has many different types of benefits for practitioners, including better decision-making, enhanced collaboration, and improved planning performance (Hopkins and Zapata, 2007). There is a wealth of research, especially in other fields, about the small-scale benefits of scenario planning—especially learning outcomes among project participants (e.g., Knapp et al., 2017). However, there are few studies examining the benefits of scenarios at the scale that matters most to planning practitioners: that of planning processes resulting in plans. Furthermore, empirical studies of the use of scenarios in planning processes have often focused on projects that are relatively atypical of broader professional planning practice, such as complex regional visioning projects (Allred and Chakraborty, 2015). As a result, it is unclear how scenario methods are adapted for different

typical planning contexts. In addition to documenting the benefits, there is a need to clarify which of the many different types of benefits are most relevant to different types of practice. As a result, this paper addresses two research questions: (1) How is scenario planning adapted to different types of plans? and (2) What are the specific benefits of adopting scenario planning to create different types of plans?

Since this research is not yet complete, this abstract will describe the research design but not the specific empirical results that the final paper will contain. One challenge for conducting research on this topic is the need to combine a detailed analysis of processes with the consideration of the many different contextual factors that influence any particular plan, such as the number and types of participants, specific issues or problems to be addressed, and the type of plan being prepared. Consequently, this project will adopt a comparative case study design that compares planning projects that use scenario methodology with otherwise similar projects that do not. Pairs will be selected in three categories of professional practice: long-range transportation plan in a medium-sized MPO region, medium-sized city comprehensive plan, and corridor or district plan. This design is inspired by Ulibarri's (2015) analysis of collaboration in hydropower licensing. The scenario cases are tentatively the Miami Valley (OH) Regional Planning Commission Going Places Initiative, Imagine Madison Comprehensive Plan, and Honolulu TOD Scenarios.

The empirical analysis will be guided by a theoretical framework with two major components. First, collaborative planning theory will provide key process variables, such as the diversity of participants, interdependence of interest and authentic dialog central to the Booher and Innes' DIAD model (Booher and Innes, 2002), complemented by more recent theories of collaborative governance and the use of digital tools. Second, the literature on planning evaluation will guide the exploration of project outcomes. These may include outcomes described by both the performance and conformance paradigms in planning evaluation.

Given the growing nature of uncertainties in planning, scenario planning is attracting growing interest among practitioners. However, adopting the methodology requires translating it to particular planning settings, and the potential benefits of using scenarios remain vaguely defined. Using paired case studies, this paper hope to highlight both the diversity—and benefits—of scenario planning in professional planning practice

Citations

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Key Words: scenario planning, case studies, professional practice, evaluation, collaborative planning

ENGAGING FUTURES BY PLANNING PRESENTS: HOW LONG-RANGE PLANNING CAN MATTER TO MARGINALIZED COMMUNITIES

Abstract ID: 159

Group Submission: Scenarios and Urban Futures in Professional Practice

ZAPATA, Marisa [Portland State University] mazapata@pdx.edu, presenting author

Long range planning envisions ways futures could unfold decades later. Such planning, often done through comprehensive planning processes, brings together a range of data analyses and forecasts with community knowledge to identify preferred futures and priorities. Yet our futures planning efforts include many failures to meaningfully predict the future. Which city planner foresaw the great recession, forecasted a significant housing market down turn, or foretold a growing homelessness crisis across the west coast?

While planning scholars have emphasized the importance of relying on multiple forecasts (Moore 2007), scenario planning with multiple futures (Zapata & Kaza 2015), and building adaptive management and governance (Hetz & Bruns 2014) to address our less than ideal record in predictive power, I argue our futures planning failures point out our unrootedness in the most pronounced and entrenched present-day issues in our communities – racism and poverty. Planning struggles to engage our futures not because we lack future imagination or technical savvy, but because we continue to ignore how poverty and economic inequity along with structural, institutional, and interpersonal racism will forever drive our futures until we directly, and dramatically, intervene in them. Should planners want to be relevant in long range futures planning for our communities, I argue that we must better root our imagined futures in the reality of our presents.

In this paper I critically reflection (Knapp 2018) on my experiences as a community based researcher and advocate (Siemiatycki 2012). Starting my research career as a long-range planner, I now find myself as a co-founder to and the founding director of a university-wide homelessness research center in Portland, Oregon. Homelessness functions as the inverse of futures planning as one of the least preferred situations we envision in for our future utopias, and one of the most dramatic indicators of present day societal failure. I lead research on many of the issues that serve as chapters for comprehensive plans: community participation, infrastructure, natural resource management, economic development, community health, etc. But our center's research agenda focuses on what we can do today, tomorrow, and five years from now.

At the same time, we do not believe in incrementalism, and are guided by future visions that we can have a society that no longer produces or perpetuates such dramatic rates of homelessness. To do this, we are identifying core policies and programs that must be adopted, repealed, or modified in our local and state policy environment. We center on the unique way that race functions within homelessness, and are building a long range plan for 20 years out that focuses on addressing structural and institutional barriers that limit futures for people of color and people from low income background. Long range planner means I see the vast network of interconnected wicked problems touching homelessness. Bringing that thinking and rooting it to the deep understanding that social service providers, short-term policy makers, and people who have experienced as homeless have about yesterday and today, brings the present to future and future to the present. This approach to long-range planning rejects an emphasis on future uncertainty, and instead embraces the known reality that as long as we continue to weakly engage social justice, our plans will fail to achieve the radicalness necessary for real change. I believe this work demonstrates that by focusing on marginalized communities, and building towards the futures that matter to them, we can engage futures in the ways that planners once envisioned.

Citations

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Key Words: Futures, Long-range planning, Social Justice, Equity, Homelessness

TEACHING ABOUT THE FUTURE OF CITIES

Abstract ID: 160

Group Submission: Scenarios and Urban Futures in Professional Practice

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GEBSSELASSIE, Mahtot [Virginia Tech] gmahtot@vt.edu, co-author

The lack of scholarship regarding the future extends into planning curricula. Oddly enough, urban planning schools rarely offer courses explicitly about the future of urbanization and city form even though the essence of planning is future-oriented. In the past year while developing such a course at Virginia Tech, we found very few examples of university level courses on this topic. In fact, most of the examples we found in our search were from disciplines outside of urban planning, none of which having a focus on planning activities or perspectives. We posit that one of the ways in which the planning field at the present moment can engage the future is through the education of the next generation of planners. Such a course provides a platform for the young generation to be part of the conversation about the future, in essence their future. Incorporating in their education how the future is thought of prioritizes their voices and gives them the rights and responsibilities to conceive a better one. It also equips them with perspectives to influence it and inspires them to develop critical approaches to trends, such as technology, that are on a trajectory of shaping it. Our paper discusses our experience with both developing and offering the course for the first time at our university in Spring 2019. The first part of the paper focuses on the process of developing the course. We review course syllabi that we collected to identify topics that were included most often in the content, readings, and student activities. We also examined the course reference list to understand whether there were formats (e.g. books, films) and authors that recurred in the collected syllabi. The second part of our paper discusses how we approached the structure and content of our course in a way that relates the past, present, and future in social, economic, environmental, technological, and global dimensions. We also share the novel methods used in collecting a reference list, and present the various technology platforms used for the course which we believe will be part of the future classroom. In this part of the paper, we summarize feedback received from students both during and after the course; we also highlight lessons learned. The course addresses theoretical questions on the

conceptions of the future of cities. We believe that our experience is useful for other planning academics that are considering offering a course about the future of cities.

Citations

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Key Words: planning, education, future cities

ASSUMPTIONS IN/OF PLANNING ABOUT URBAN FUTURES IN A MEDIATIZED WORLD

Abstract ID: 161

Group Submission: Scenarios and Urban Futures in Professional Practice

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In countries with authoritarian top-down planning and state-owned media, the popular media's image of the city hardly represents the majority of citizens' everyday city experiences or perceptions of their future. This misrepresentation of urban conditions in media on one side creates processes of visibility and invisibility for the city, and on the other, effects and facilitates marginalization, disablement as well as socio-spatial injustices and the exclusion of vulnerable groups from services and infrastructure. In Egypt, these vulnerable groups form the majority of the population.

In the current time of "post-normal science" (Funtowicz and Ravetz (1994)) that is highly mediatized (Hjarvard, 2008) (Krotz, 2007), the position of media and visualizations in constructing and communicating planning as well as in structuring power is questioned. Using Egypt as the empirical setting for this investigation, this paper focuses on how planners are educated/reinforced to visualize (certain) urban futures in order to keep (certain) political and economic agendas and ruling bodies in operation. This is done in an attempt to understand how are conversations about the future, affect and are affected by the utopian and dystopian themes in current cultural narratives. Accordingly, this paper aims to identify the assumptions of/in planning about urban futures.

This is investigated through a qualitative research methodology involving interviews with planning professors and practitioners. In addition, content analysis of planning education curriculum as a medium which constructs the theatrical and conceptual background of future planners.

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Key Words: Urban planning, Planning assumptions, Mediatization, Urban future, Visualizations

A LONG GROUNDWORK FOR RECONFIGURING THE FUTURE: TELECOMMUTING ADVOCACY AS A CASE OF STRATEGIC NICHE MANAGEMENT

Abstract ID: 162

Group Submission: Scenarios and Urban Futures in Professional Practice

STILES, Jonathan [Rutgers University] jonathan.stiles@rutgers.edu, presenting author

The questions of how societal practices change over time in relation to technology, and the extent to which our actions can guide this change towards more beneficial outcomes are fundamental to the discipline of planning. Broadly defined, the aim of planning is to “relate scientific and technical knowledge to actions in the public domain” (Friedmann 1987). Yet the technical knowledge that planners apply does not simply consist of tools for analyzing, mapping, or modeling. It also includes judgments about new technologies in the context of society, be it new forms of transportation, communication, energy production, coastal resilience and others. Planners well understand that notions of simple substitution of one technology for a more sustainable or just alternative belie the complexity of the comingling of politics, technologies, and nature they confront on a daily basis. Furthermore, planners don’t just consider technologies in the present; they also guide them towards alternative futures, such as convincing through storytelling (Throgmorton 1992). In this paper I present an historical case study of three decades of telecommuting advocacy in which planning sought to guide society towards an alternative future of transportation. In doing so, I adopt a theoretical framework of sociotechnical transition wherein the management of change within complex sociotechnical systems is realized by the application of long-term thinking to guide short-term decisions (Rotmans et al. 2001). Planners are sociotechnical natives, and I argue that a sociotechnical system perspective is appropriate for considering the future orientation of planning in regards to technological change.

To explore telecommuting advocacy I conduct an historical analysis of primary and secondary sources. The notion of “telecommuting” emerged in the early 1970s as a strategy to confront societal problems related to the journey between home and workplace (Nilles et al. 1976). Automobile traffic and its relationship with land use had become a central concern of regional planning in the United States by 1970, particularly in its connection to challenges of roads congestion and air quality. This paper frames the decades-long efforts of its advocates to advance the notion of telecommuting as an example of strategic niche management, in which technological innovations are managed in the long term to help engender a beneficial change within a sociotechnical system. This promotion of telecommuting in its first three decades shows fundamental elements of strategic niche management as defined by Schot and Geels (2008): a vision and expectations, learning processes, and social networks among advocates, while providing protected spaces for the practice of telecommuting.

After an introduction of strategic niche management and the multi-level perspective on system change, I describe the origins of the notion of telecommuting in Los Angeles, California. The next sections review how trip reduction and travel demand management policies opened up protected spaces for telecommuting and other related innovations, and how public agencies were early experimenters with telecommuting. A subsequent section looks at how the evaluation of pilot programs formed a shared learning process that informed telecommuting advocacy, and gives examples of advocacy in the 1990s, such as guides and events used to promote the wider adoption of telecommuting among firms. Finally, in the conclusion I consider the outcomes of telecommuting advocacy as strategic niche management, using four pathways of sociotechnical system change, finding that it laid a groundwork for a reconfiguration, but in part due to a weakening of the environmental vision of telecommuting, its sustainability benefits are limited, and the ultimate outcome depends on factors beyond the control of its advocates.

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Key Words: Sustainability, Transportation, Sociotechnical Transition, Planning Theory

STORYTELLING, VISIONS, AND IMAGINARIES OF FUTURITY

ID: 13

Pre-Organized Session Summary

Includes abstracts: 165, 166, 167,

One could argue that the fortunes of communities depend on the co-creation of shared visions of the future. Yet, shared visions are hard to achieve and could be undesirable. Globally, slick visions of progress remake the image of the city into one that embraces technology to become ‘smart’ (Watson, 2015). Scholars in the social sciences and the humanities have documented how people think about the future as a key dimension of culture and also of the exercise of power (Appandurai, 2013). The development of rival futures can challenge essentializing and technocratic narratives. Dobraszczyk (2017) has argued that climate change adaptation requires the application of utopian and dystopian imagery in fiction, visual art, and renderings. He proposes that these open up “ways of thinking through the range of possibilities... in a world radically transformed (Dobraszczyk, 2017, p 868).” How does one draw the line between creativity and manipulation? This session, one of two focused on engaging the future, opens a dialog about the craft of urban imaginaries and planning practice and scholarship.

Objectives:

- This session seeks to open a critical dialog about orientations toward the future and the meaning of these orientations for social equity.
- Participants will learn about theories from Critical Indigenous Studies, Queer and Black urban theories, among other theories of futurity.
- Participants will learn about the importance of storytelling and urban imaginaries to planning scholarship, practice, and pedagogy.

CONSTELLATING WITH KIN AND URBAN FUTURITY: ASKING THE RIGHT QUESTIONS

Abstract ID: 165

Group Submission: Storytelling, Visions, and Imaginaries of Futurity

HARJO, Laura [The University of New Mexico] harjo@unm.edu, presenting author

Indigenous people make up 370 million of the world's population, yet still do not have the platform to articulate their formidable knowledge in shaping the future of the city. (Worldbank, 2018) The prevailing literature is the so-called expert outsider looking in, at what is best for Indigenous peoples, and is not sufficient for including Indigenous peoples in shaping Urban Futures. However, Indigenous planning scholars have grappled with community and temporality, for example, seven generation planning, walking backwards into the future, speculating futures (Harjo, 2012, Jojola, 2013, Matunga, 2013, Dorries, 2016) We need approaches theorized from Indigenous peoples' lived experiences by Indigenous peoples but even before taking that step, we need to ask the right questions about futures, time and the gaps that planners can detail and solve.

While there is a dearth of research on futurity in the planning field, Critical Indigenous Studies is rife with futurist inquiry and scholars, such as Grace Dillon, Elizabeth LaPensée, Eve Tuck, and Goodyear-Ka'ōpua are addressing futurity in literature, technology, and community engagement. By expanding on these initial inquiries, I discuss the role of futurist thinking but consider it within the context of kin-space-time. (Harjo, 2019) I move away from a linear order of past/present/future and train its focus on our kinship relationships. In this way, I move toward a framework for understanding how community operates socially, spatially, temporally, and cast this as kin-space-time. We are always in a present temporality, held in the interstice between past, and future; however, we are guided by ethical, and cultural responsibilities to kin who inhabit many temporalities. Inch argues that communities lament that they sit and plan and are told "not yet," the contribution of my work is to show how communities are living out the unactivated possibilities of their ancestors right now—they are living out old futures—which is a form of futurity. (Inch and Crookes, 2016; Lothian, 2018; Harjo, 2019)

Citations

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Key Words: Indigenous Futurity, Urban Indian, community, kin-space-time, spatial imaginary

LOCATING URBAN IMAGINARIES ON A JUST CITY

Abstract ID: 166

Group Submission: Storytelling, Visions, and Imaginaries of Futurity

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Planning practitioners are constantly reimagining our urban futures. Their images depict advancing technological processes, capital investment, and visions of affluence. This process of technocratic visioning creates narrative roles that shape belief and desire. The priority placed on and represented by aspirational aesthetics subordinates issues of justice and citizenship amongst existing residents. Representations function as agents with verdictive authority. Wielding that authority, they are directive signals to a network of decentralized actors to build and design uniform “ideal” cities with whatever means necessary. Critical examination of planning tools that imagine futurities may allow us to rethink questions of equity and diversity in planning practice. We focus on the homogeneity of the produced “future” aesthetic, broadly acceptable and non-confrontational. This aesthetic reflects middle- and upper-class sensibilities derived from a cosmopolitan framework. Planning theorists must be engaged with these processes of image creation. They must understand the problems created by imagining monolithic future cities. Images are imbued with power and knowledge, force and implication; they are inherently political.

This paper examines image production and its impacts in two bifurcated cities that have been actively and aggressively reinventing themselves over the past decade. Detroit and Delhi publish their aspirational futures as worlding cities, aiming to attract capital in an effort to erase their histories of degradation. As Delhi prepared itself for the Commonwealth Games, the emphasis was placed on become a world-class city. This was reflected in the city’s Master Plan and its urgent desire to become “slum-free”. The political and media narratives influenced the everyday image and understanding of the city on a world stage, causing citizens to understand themselves within this new paradigm. Once a pro-poor city, Delhi reclassified slums as a “nuisance”, actively seeking to erase or displace them. Detroit has taken an alternative approach, abandoning some areas while indiscriminately leveraging federal funds to demolish vacant housing in “savable” neighborhoods. Signaling that it is ripe for investment and development, new infrastructure was created to support the growing Downtown Detroit and Woodward Corridor while the rest of the city remains isolated from these new networks. This all happened in the wake of Detroit’s 2013 municipal bankruptcy stemming from the mortgage collapse. Both cities employ aesthetic to criminalize and subordinate “the other.”

Appadurai invokes a hopeful futurity, emphasizing on a need for multiple visions of future, integrating culture and voice to the capacity to aspire. Using the conjunctural cases of Delhi and Detroit, this paper examines the effects of non-critical imagery of futurity on the urban present. Further, it seeks alternatives to this limited way of exploring urban futurities. Further, it seeks inspiration from the imagery used by the grassroots counter-narratives from these two cities to imagine alternative futurities, embracing multiple ways of being and a varied cultural ethos.

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Key Words: futurity, just city, aesthetics, planning tools, techno-politics

STORYTELLING, CITY CRAFTING, AND THE FUTURE OF AMERICAN CITIES

Abstract ID: 167

Group Submission: Storytelling, Visions, and Imaginaries of Futurity

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In *Inventing Future Cities*, Michael Batty (2018) claims the future of cities cannot be predicted or formally planned; their futures will be invented and evolve from the present. I agree. However, Batty disregards or dramatically understates the ways in which diverse political actors can influence how cities evolve, the social dimension of cities, and the potential effects of climate change and mass extinction. Drawing partly upon my past ~8 years as an elected member of the City Council of Iowa City, Iowa (USA), ~4 of them as mayor, I argue in this paper that cities are “problems in organized complexity” (Jacobs 1961) which unfold (Alexander 2002-2004), and that the unfolding can be, and is being, invented step-by-step by through a process of co-crafting. Multiple actors (elected officials, professional staff, business people, nongovernmental organizations, and others) inter-act on a complexly interwoven mix of topics, and their actions take place step by step in an ever-shifting context, with each actor’s steps affecting other actors who respond in terms of their own interests, values, and stories. All of these actions produce effects that bleed across territorial and functional boundaries, escape the control of the initiating actors, and ultimately cause the city itself to unfold. Hurricanes, tornadoes, floods, droughts, flu viruses, earthquakes, forest fires, and other “actants” (Latour 2004) also play crucial roles in shaping this unfolding. The extraordinary complexity of cities and city crafting inevitably means that actions generate unpredictable consequences, which in turn produce what Rittel and Webber (1973) termed “wicked problems.” If this is the case, then planning theorists need to know a lot more about how elected officials affect that unfolding and about how stories and storytelling work. First, stories emerge to an important degree from action itself; when something happens, people tell stories about it, and these stories circulate in webs of relationships which involve both face-to-face interactions (which are deeply influenced by the spatial distribution of people by race, class and other key socioeconomic markers) and virtual interactions at the global scale via the Internet and social media. Second, many tales coalesce into and express locally-grounded versions of “common urban narratives” (Finnegan 1998). Shaped by their “situated imaginations” (Andrews 2015), tellers of common urban narratives are inclined to imagine futures that are consistent with their pasts, and they expect others to act in the future as they think those others have acted before. Third, one can craft stories that are intended to persuade. I distinguish between naïve, intentionally manipulative, and ethically sound forms of persuasive storytelling. In brief, specific actors – who change over time as individuals come and go – use stories and storytelling to influence the action of others and thereby co-craft a city’s unfolding future, with some storytellers getting prime-time attention and others being marginalized or trivialized or worse.

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Key Words: City crafting, Mayors, Storytelling, Just City, Growth Machine

FUTURE-DISORIENTED AND PUNK PLACEMAKING

Abstract ID: 284

Group Submission: Storytelling, Visions, and Imaginaries of Futurity

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“We shall define planning as future-oriented, public decision-making directed toward attaining specific goals.” (Fainstein & Fainstein 1971)

For decades, marxist, feminist, indigenous, and black scholars have offered critical deconstruction of the different expressions of democracy and rationality in planning and the ways they privilege capitalist, patriarchal, settler-colonial, Western interests. They have challenged the desire for justice, order, and efficiency—recognizing that these are hegemonic constructs supported by institutions that have historically and continue to exclude and burden marginalized groups. Far less attention has been focused on targeting and challenging the third defining criteria of planning, its future-orientation. When pursued uncritically, this future-orientation similarly risks reproducing hegemonic forms of oppression and exclusion. One potential dimension through which to consider why and how marginalized groups are excluded from planning is through their alternative temporalities, including the negation of future. What is the future planning plans for and who is the public planning plans for? What power does planning have to shape the public by planning towards a specific future? How do non-conforming and marginalized groups resist the normalizing forces of the future public and of a public future?

This paper draws on other theories of futurity, including queer and black futurities (Edelman 2004, Munoz 2006), and applies them to a critical auto-ethnography of the Ottawa punk scene. Punk is one of the many excluded marginalized and alternative urban groups who struggle to “make do” and make space for spatio-cultural codes that do not conform to mainstream normative values and expectations. Among its many subversions, transgressions, and denials, punk refuses to conform to normative future-oriented imperatives of life and death; and therefore refuses to conform to the ways in which future influences the social constructs of home, family, culture, and identity. I argue that this “radical negativity” of punk as sub/counterculture also has profound implications on how and why punks make place for themselves. Furthermore, punk is a subculture that arguably emerged from, and was shaped by and against, modernist utopian dreams of urban renewal and the “nameless housing estates” turned “slums-in-the-abstract” (Hebdige 1979), i.e. from a particular planning future. Hebdige argues that the generation of disenfranchised youth raised in this imaginary-future-made-present, that offered them no real future, were denied a sense of place. In return, punks were simultaneously able to deny and re-construct mainstream narrative of place and belonging in their own image.

This paper seeks to critically theorize future as a fractured and contested social construct. It further warns against imagined progressively ideal future that are disconnected from the actually existing day-to-day realities of the present, and deny continuity with the past. For planning to engage critically with the future, it must acknowledge the multiplicities of past, present, and future. This temporal rather than spatial dimension of exclusion might force planning to confront its privileging of future and those who position themselves relative to its particular future imaginary—a future which almost always reproduces the status quo. Building on the argument of Chantal Mouffe (2013), I argue that “radical negativity,” such as that expressed in punk placemaking, is able to de-code and re-code the desirability of space and may provide spaces of at least temporary resistance to forces such as gentrification, and challenge ideas of development and/as progress. Radical negativity of future-orientation might lead planning to better consider radically different futures.

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Key Words: futurity, imaginaries, punk, informality, radical planning

TRACK 1 – ROUNDTABLES

ROUNDTABLE - EXAMINING PRESENT AND FUTURE CHALLENGES/OPPORTUNITIES FOR ACADEMIC WOMEN IN THE GEO-SPATIAL SCIENCES

Abstract ID: 526

Roundtable

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The geo-spatial sciences, including geographic information science, cartography, remote sensing, spatial analysis, and the emergent discipline of urban informatics carry with them a distinctive set of academic and professional demands. Each discipline can be computationally intensive; rely on digital technologies to allow users to organize information, analyze data, and reach conclusions; and require some degree of spatial cognitive skills and an understanding of geographical perspectives to be able to structure problems and interpret the results.

All planning scholars and educators who specialize in the geo-spatial sciences as a primary area of specialization face significant challenges as they advance their career – often, their work is seen as technical or methodological, requiring them to specialize in a recognizable substantive disciplinary area, in addition to their own area of research specialization. These and other challenges are compounded for women in academia. The academic community of women geo-spatial scientists is much smaller when compared to other STEM disciplines and there are fewer opportunities for mentoring and leadership development. Additionally, the concerns of female geo-spatial scientists has not been the subject of research, nor has substantial attention been paid towards their professional development, when compared with other STEM fields. In this roundtable, we will discuss the opportunities and challenges that female geo-spatial scientists face while pursuing research/academic careers. We will report out results of our on-

going research (the TRELIS project) funded by the National Science Foundation. We will describe examples and case studies of best practices to develop leadership and mentoring networks to support female scientists. We will also explore future needs, the role of professional associations like the ACSP to support these cohorts, and to discuss the collective impacts on planning research, education, and practice.

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Key Words: GIS, urban informatics, leadership, gender, diversity

TRACK 1 - INDIVIDUAL ABSTRACTS

SPATIAL PLANNING AND FISCAL IMPACT ANALYSIS: A TOOLKIT FOR EXISTING AND PROPOSED LAND USE

Abstract ID: 20

Individual Paper Submission

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This presentation will summarize the process of developing and using a detailed parcel level database for spatial planning and fiscal impact analysis, as laid out in the book *Spatial Planning and Fiscal Impact Analysis: A Toolkit for Existing and Proposed Land Use*, by Dr. Linda Tomaselli. The book was published in February, 2019 by Routledge, a division of Taylor and Francis (London).

1. The spatial concept: all revenues and expenditures are a function of land use at the parcel level.
2. Previous non-spatial methods can be very inaccurate.
3. The analysis is based on actual revenues and expenditures for the most recent fiscal year.
4. Multipliers are developed by identifying measurable factors at the parcel level of things like police and fire/EMS calls, locally maintained road frontage, population, employment, assessed and building market value.

5. Each parcel's revenues and expenditures are calculated, and then summarized by detailed land use categories and/or neighborhoods that can in turn be used to project future fiscal impacts, or identify areas of the city that are in need of redevelopment, and can be the basis for establishing tax increment financing (TIF) districts.

6. Detailed appendices describe:

- A. Establishing a database for address matching to parcels.
- B. Address matching police and fire calls to parcels and allocating street calls to adjacent parcels.
- C. Reconciling census block data and assessor's housing unit counts.
- D. Estimating total as well as adult and school age population at the parcel level.
- E. Using ArcGIS Model Builder to automate and document the calculations.

The book provides detailed results of projects that have been conducted in Minnesota and Illinois, and also demonstrates how the method is easily transferable to other cities in the US. The project for Bloomington, Illinois, conducted in 2015, and the book provides the step by step description of how the method was applied. To see the final report for Bloomington, visit www.Bloomington-Fiscal-Impact.com.

The method requires substantial time and resources to apply, but much of the work involves creating what can be described as "information infrastructure" that will be usable for ongoing analysis in future years. Therefore, it outlines how planners, economic development directors, finance directors, and decision-makers can build upon the parcel level data. To see the final report for Bloomington, visit www.Bloomington-Fiscal-Impact.com.

This method was identified in the 1980's, and supported by a substantial grant from the National Science Foundation (NSF). The author wrote her PhD dissertation on the subject. However, the method was before it's time because cities did not have the data, trained staff or computer software to efficiently use it. By the late 2000's, things had changed, and several successful projects have been conducted.

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Key Words: information infrastructure, parcels, fiscal impact, spatial, police and fire

IMPLICATIONS FOR THE GEOGRAPHY OF URBAN FOOD RETAIL WITH INCREASES IN E-GROCERY SERVICE ADOPTION

Abstract ID: 37

Individual Paper Submission

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For much of the past century in western countries, the basic procedure for acquiring groceries remained unchanged. While there are many differences in the frequency of shopping trips, product preferences and diets, and food retail design and geography, a majority of grocery shoppers make a specific trip to one or more food retailers, pick out food items on their own, purchase these items, and return home. In August of 2017, the internet commerce giant Amazon.com, Inc. acquired the supermarket chain Whole Foods Market, signalling the potential for dramatic changes in the food retailing industry (Baskin and Olszyk, 2018). While grocery deliver services have been around in urban regions for decades (Newcomer and Perkins, 1939), and various grocery delivery internet start-ups have appeared after wide-scale adoption of the world wide web, Amazon's distribution network and widely used online retail portal have many media outlets reporting that online ordering and home delivery of groceries (known as e-groceries) could be commonplace in the near future.

There have been numerous studies and reports exploring the distribution and transportation logistics of implementing an effective and profitable e-grocery service (Punakivi and Saranen, 2001). These challenges are non-trivial, and range from shifting consumer preferences and trust to ensuring groceries are delivered in a timely manner, to a potentially massive consumer base (after all, we all have to eat). Despite this attention, to this point the authors have not identified any research examining the impact of a large scale shift to e-grocery shopping on the geography of the food retail environment. If demand for supermarkets and other food retailers decreases, especially amongst populations more willing to adopt e-grocery shopping early, there could be important implications for spatial access to food retail in urban regions in the short to medium term, as markets adjust to this disruptive shift.

In this study, a model is presented that explores what impact various levels of adoption of e-grocery services will have on brick and mortar grocery retailers, and how this shift will affect the access to food retailers for those not using e-grocers. Given the current higher costs of using e-grocery services, adoption of e-grocery services is assumed to be higher amongst high-income populations. Using data provided by a consumer research company and an iterative modelling approach, changes in spatial access to food retailers is measured for all populations in the large city of Toronto, Canada. Special attention is paid to lower-income populations, which are more price-sensitive when it comes to purchasing food.

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Key Words: retail food environment, e-groceries, consumer behaviour, food access

ACCESSIBILITY AND AUTONOMOUS VEHICLES: EXPLORING RESIDENTS' POTENTIAL ENGAGEMENT IN IN-VEHICLE ACTIVITIES THROUGH THE LENSES OF EQUITY

Abstract ID: 53

Individual Paper Submission

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Autonomous vehicle (AV) technologies are expected to reshape travel behavior by enabling various uses of travel time. Interests regarding how AVs will impact mobility and the subsequent broader social impacts are growing. However, few studies have investigated individuals' likely in-vehicle activities during AV travel and how this may impact welfare gains for different social groups. To address this gap, researchers designed a stated choice experiment to explore potential in-vehicle activities by individuals of different socioeconomic status. The experiment collected 19,921 in-vehicle activity choices from 1,881 respondents in small and medium-sized metropolitan areas of the United States. This paper begins with a summary of the overall in-vehicle activity preferences. Next, researchers examine various in-vehicle activity preferences based on respondents' socioeconomic status, commuting trip characteristics, and residential locations. Then, researchers use discrete choice models to reveal respondents' utilities from activity engagement. The paper highlights how in-vehicle activity engagement affects welfare gains due to improved utility/productivity of in-vehicle travel time, and discusses equity implications of the autonomous vehicles deployment.

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Key Words: Autonomous Vehicle, In-vehicle Activity, Accessibility, Distributive Justice, Midfare

THE THREAT OF TWITTER BOTS TO COMMUNITY ENGAGEMENT IN PLANNING PROCESSES

Abstract ID: 58

Individual Paper Submission

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Social media has changed the way in which people engage with urban issues by providing a digital landscape in which citizens can share their opinions on decision-making in real-time, ask questions, and actively participate in discussions around key areas of interest. With the rapid growth and massive uptake of social media into the broader population, there has been a surge in public interest in using such websites to engage with others around key place-based issues. Due to the low cost and high potential engagement, planners and policymakers have been quick to open electronic channels of participation to inform the decision-making process. In doing so, they have also created an opportunity for subversion from groups with alternate and possibly nefarious interests. While public opposition to planning projects or “NIMBY-ism” (Not In My Backyard) is not a new concept, social media has created an additional avenue for such expression. Automated social media accounts could be used to further inflate the voice, and therefore influence, of subversive groups in the participatory planning process.

Urban scholars have looked to internet-enabled communities to foster better discussions and debates around community visioning and planning (Mitchell 1995; Cowley and Hollander 2010). Research has focused around ways that the political processes of shaping places can benefit from online community engagement and dialogue, extending the work of communicative planning scholars like Forrester (1999) and Innes and Booher (2010). While the movement of community planning processes onto online platforms has largely occurred as prophesized, the risks of such a move have largely overlooked the influence of social media manipulation, NIMBY movements and discourse around local planning issues. Instead, concerns have focused around the digital divide, lack of human touch with online exchanges (Hollander, et al. 2016). In this project, we propose a study that employs deception to test the effect of a group of Twitter bots on the activities and conversations of real Twitter users. While scholars have begun to examine how tech-savvy social media users are manipulating political discourse through the medium of Facebook and Twitter, no research has yet sought to examine the potential harm that such manipulation could cause at the local level. This project seeks to study the risks that social media manipulation poses to online community discourse around urban policy and planning topics.

Using professional trade publications like the Urban Land Institute’s Urban Land magazine and the American Planning Association’s Planning magazine, we identified 20 current large-scale development projects in the USA. The sample was devised so as to select a diverse set of projects, across the following dimensions: 1) type of development (e.g. residential, mixed-use, sporting facility, etc.), 2) size (e.g. square feet and/or acreage), and 3) region of the USA. Only projects that generated three or more social media groups, blogs, or websites by non-developer entities were included in the study. For each project, we closely monitored Twitter account activity around the project by searching for project-related hashtags and keywords and attempt to identify whether any bots are actively attempting to distort or thwart real-world community debate and decision-making. For any bots that appear to be doing so, we monitored their activity and the extent to which their posts, likes, and re-posts appear to be shaping real world conversations. We constructed social network maps to assess how influential each follower is, allowing us to project the possible influence each bot is generating.

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Key Words: community engagement, social media, Twitter, social network analysis

LOCATION CHOICE OF AIRBNB LISTINGS IN DIFFERENT CITIES: A COMPARATIVE ANALYSIS IN SIX US CITIES

Abstract ID: 70

Individual Paper Submission

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In the past ten years, Airbnb has rapidly grown from a small, online bed and breakfast product to a leading peer-to-peer hospitality magnate which operates in 34,000 cities globally. It now offers rooms-for-rent, entire houses for rent, and even allows people to book “experiences” through the platform. In general, a property owner (i.e. houses, apartments, condos, cabins, etc.) can list their property on the platform with some introductory information. Airbnb users will select properties to rent based on the host’s information and reviews left by previous guests. The “live like local” marketing strategy and cheaper price have made Airbnb popular among tourists, especially young generations who are more open and mobile.

Since the outburst of Airbnb in 2014, it has drawn so much attention from public sectors, its commercial competitors, and the academia who would like to understand the business more aiming to warrant a benign concurrence between existing local industries and new inventions from the platform economy. Besides, the popularity of Airbnb provides a great opportunity for planning scholars and practitioners to recognize the overall patterns of individual economic activity in our cities systematically via sufficient data support. However, the overall patterns are somewhat inconsistent. For example, researchers in Barcelona used Geographic Information System (GIS) to map out the spatial distribution of both hotels and Airbnb listings in Barcelona and concluded that not only did Airbnb have different spatial patterns from traditional hotels, but the explanatory factors to the location of Airbnb listings were also different from those for traditional hotels. (Gutierrez et. al, 2017). A similar study of Airbnb in Barcelona found that Airbnb served a very distinct market segment of foreigners in Barcelona with German, Italian and Portuguese speakers overrepresented in the market (Sans & Quaglieri, 2016). It is arguable that Airbnb is serving a niche market in these cities. Wegmann and Jiao used web-scraped Airbnb data in five US cities to analyze the spatial distributions of listings and found that Airbnb listings were mainly concentrated in certain neighborhoods with good transportation, more storefronts, and more college-educated young people (Wegmann & Jiao, Jiao & Wegmann, 2017). This finding implied that the ability to use Airbnb realistically (i.e. to list your property on the site and generate worthwhile income) may not be evenly distributed.

Although previous case studies have covered a lot of cities with flourishing local markets, the gap between listing location patterns and their discrepancy among different cities still persists. The objective of the paper is to answer the following two research questions: (1) what is the relationship between Airbnb concentration and its external indicators? (2) how does the relationship vary among different city sizes?

To answer the questions above, the paper chose six US cities based on their population sizes (large, medium, small, two cities per category) and performed correlation analyses between Airbnb concentration (i.e. the number of listings per 10,000 households) and eleven variables representing socioeconomic status (SES) and urban form condition. Further, the paper fit an OLS regression model for each city and compared the outputs. Results showed that the distance to the city center negatively correlated with Airbnb distribution among all cities; tourist sites and food access were significantly positively associated, and the distance to transit stops was negatively related to Airbnb concentration only in Chicago. The results contribute to planning scholarship and practice by indicating that the prevalent expansion of sharing economy like Airbnb is context-dependent and by proposing prudent previews on the local status quo before joining the party.

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Key Words: Platform economy, Airbnb, Location choice

TOWARDS RESPONSIVE & RESILIENT CITIES: BETERMS FOR CROWDSOURCING PERCEIVED BUILT ENVIRONMENT

Abstract ID: 74

Individual Paper Submission

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The built environment is at the transformative stage towards being smart, sustainable, healthy and resilient. Cities, as the most populated areas of the world, are facing complex grand challenges including rapid population, environmental issues (e.g., pollution, inadequate waste management, noise, ecological disruptions), aging infrastructure, disasters, and diseases, blighted vacant or abandoned land (ASCE 2017; Branas et al. 2018). These constant stressors of cities require more responsive, transparent, inclusive and creative urban planning and governance, especially in the digital era with the emerging Internet of Things. In light of this, communicative planning has been encouraged among citizens, planners, and decision makers (Seltzer & Mahmoudi 2013).

Crowdsourcing - an approach to produce data collectively on particular issues - can help urban managers produce more effective and targeted services at lower cost and place citizens' needs at the center of thinking and planning for future cities (Klein et al. 2017; Caprotti 2018). Crowdsourcing can also fully consider place-specific characteristics of distinct urban areas, which were poorly addressed in traditional research and management due to limited data and approaches. Although some platforms with specific focuses have been designed, few have been proposed for citizens' perception of their built environment

from a multidisciplinary perspective. Such a comprehensive crowdsourcing platform is important because urban problems are always complex and multi-dimensional, and they require integrated knowledge and analysis from various research communities, e.g., hydrology, health science, criminology, human geography, and urban planning.

This research will develop a built environment (BE)-specific automatic term extraction system and create a terminological resource specifically for BE: BETerms, and use the BETerms as the keywords query to consistently crowdsource citizens' opinions, sentiments and comments on their perceived environment from an open-sourced social media platform (i.e. Twitter) in real time. The BETerms will be a comprehensive, specific and accurate lexical and terminological resource that has the potential to retrieve data from online communities and other short blogs. The BETerms will also have different categories that address the most critical topics and challenges faced by cities. Specifically, the terms can be related to the perceived poor-condition infrastructure (ranging from aviation, bridges, coastal areas, ports, roads, schools, or transit), urban conservations, blighted vacant or abandoned land, and other physical components of urban environments.

The generated BE-specific terms will provide the terminology basis for crowdsourcing opinions in the context of responsive and resilient cities. The collected data can be used to evaluate citizens' sentiment towards different physical environments and infrastructures with supervised sentiment analysis, and to model the topics related to BE across cities of different cultures and spatial scales with Latent Dirichlet Allocation (LDA) topic modeling. These findings will also inspire future research on creating place-specific BETerms for local planning purposes. Additionally, the developed methodology for constructing a terminological resource will also provide a new paradigm for data collection as a supplementary to traditional surveys (e.g., questionnaire survey and interviews). Case studies of different cities using text mining technique can be incorporated in a new course of urban analytics. The collected social media data using the BETerms can inform smart, sustainable, healthy and resilient urban planning with the bottom-up approach.

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Key Words: built environment, crowdsourcing, resilient cities, social networking platform, urban analytics

EVALUATION OF LIVING CENTERS IN CHONGQING CENTRAL CITY USING MOBILE PHONE DATA

Abstract ID: 75

Individual Paper Submission

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Living centers, the agglomeration of shopping, leisure, education, healthcare, and other urban activities, are an important component of the urban spatial structure, reflecting the physical, social, political, economic and technological conditions (Dadashpoor & Yousefi, 2019). As a result, evaluation and monitoring of the living centers are prerequisites for urban planning. There has been a long tradition in evaluating living centers from attractiveness perspective (Huff, 1962; Reinartz & Kumar, 1999; Teller & Reutterer, 2008). Some studies have argued that amount of functions and how they are mixed are the most important issues (Teller, Reutterer & Schnedlitz, 2008). In addition, traffic condition, population size, and shopping environment, can all influence attractiveness of living centers (Reimers, Clulow, 2004). However, the indicators, influencing attractiveness, of existing research are complex and are not able to figure out the actual number of visitors.

With the increasing pervasiveness of new technologies, individual-level and activity-travel data from mobile phones became available, which may provide new opportunities to move beyond indicators of attractiveness, enabling accurate evaluation of living centers (Xiao, Wang & Fang, 2019). Using mobile phone data to detect consumers' behavior and open data to analyze living centers' physical conditions, this study compares the actual development of living centers as well as the theoretical development potential to evaluate the spatial performance of the high ranking living centers. Specifically, three factors were included in the evaluation of consumers' behavior: volume of visitors, residence time, as well as service area, and three factors were included in the evaluation of physical conditions: number of POIs, service distance and population size.

The result indicates that Chongqing central city is marked by the polycentric urban spatial structure, but the trend of agglomeration is still obvious. Living centers are mainly located in the built-up areas between Zhongliang Mountain and Tongluo Mountain. Besides, rail transit has a huge impact on the distribution of living centers. According to spatial performance, the high ranking living centers in Chongqing central city can be divided into five categories. Guanyinqiao, Jiefangbei, Nanping and Sanxia Square, the most famous living centers, with good physical conditions and active consumers' behaviors, developed well. Shiqiaopu, Baotong Road, Yudong Wharf, Baguocheng and Jiandingpo have good physical conditions, while their consumption behaviors are inactive. Lianglukou, Jiangbei Airport, Xinshan Village, Beibei and Dushihuayuan Road developed generally. Daping, Yangjiaping, Jinyu, Zhuangyuanbei and Jinzhou Avenue developed well with poor physical conditions. Garden Expo garden, Renhe Interchange and Jiangbeizui, which were not well developed, should change their functions to format their specific advantages. This study is helpful for planning and building living centers.

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Key Words: living centers, mobile phone data, evaluation, Chongqing, China

TRACKING URBAN LANDSCAPE CHANGE PROGRAMS THROUGH AERIAL IMAGERY: CHALLENGES AND OPPORTUNITIES

Abstract ID: 100

Individual Paper Submission

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Many water agencies are implementing landscape programs to manage water consumption or stormwater flows. Programs often target both public and private lands, subsidizing or creating incentives for installing green infrastructure, removing impervious surfaces, or replacing turf grass. There are many questions that could be asked of program implementation, such as: how are programs changing the urban landscape over space and time? What are the interactions between public investments and private investments? What is the relationship between a household's participation in a landscape program and subsequent neighborhood-level landscape changes? How is the landscape maintained? There is little empirical evaluation of the dynamics of most urban landscape programs, however, largely due to challenges in data quality and attribution.

One of the questions fundamental to evaluating landscape programs is parcel and sub-parcel level mapping of urban vegetation. At present, there are no affordable, scaleable methods to do this well. Landsat (30-meter resolution) has been used to evaluate urban landscape change, but is coarse relative to most urban parcels (Brelsford & Shepherd, 2014; Brent, 2016; Zhou and Wang, 2011). Higher resolution, parcel and sub-parcel studies of vegetation tend to use commercial imagery that can be expensive to scale over space and time (Brenner, Hey, Boettcher, & Tate, 2018; Mathieu, Freeman, & Aryal, 2007).

This paper presents two methods for evaluating urban vegetation at the parcel and sub-parcel scale with publicly available, high resolution aerial imagery. First, I examine changes in parcel spectral signatures associated with a lawn replacement program. Then, I discuss classifying vegetation, comparing three unsupervised learning methods. The paper concludes with ongoing challenges and opportunities for urban landscape change evaluation through aerial imagery.

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Key Words: remote sensing, landscape change, urban greening, turf replacement, program evaluation

A SYSTEMATIC REVIEW OF URBAN LAND CHANGE MODELING: DRIVING FACTORS, TOPICS, AND SCENARIOS

Abstract ID: 114

Individual Paper Submission

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As urban environments and societies rapidly change, uncertainty in future conditions calls for more technologically driven planning approaches. People continually transform the earth's surface for their own uses primarily through land use change (NRC, 2014), the result of interaction between human activity and land-related biophysical constraints (Agarwal et al., 2002). Understanding historic land development processes in order to better predict future circumstances through land change models (LCMs) helps support planning for potential future impact. LCM enables the ability to describe current and predict potential land use and land cover change (NRC, 2014). Over the past few decades, LCMs have been significantly developed in regards to modeling tools, predicting performance, and impact analysis (Güneralp, 2011). These advances allow the capability address the challenges of urbanization with better representation and can be used as a planning support system to supply future land prediction to the land use planning process (Berke et al., 2006). LCMs create the opportunity to mold an uncertain future into a determined condition with plausible future urban growth scenarios. These urban growth scenarios have been examined with several subsequent topics (e.g. hydrology, ecology) and their impact evaluation to determine the most desirable future.

Several reviews on land change models and drivers/processes of land change provide valuable and extensive insights for LCMs. Though some studies have reviewed driving factors for urban growth, the understanding of these factors remains unclear due to the distribution across multiple disciplines and the difference in temporal and geographic condition in study areas (ESF, 2010). Furthermore, as future uncertainty increases, urbanization impacts and capabilities for scenario making using LCMs have become more important, but no study has integrated drivers with subsequent impacts and scenarios. To fill the gap, this study reviews the driving factors behind predicting future urban growth scenarios and subsequent topics in LCM studies. The research asks: 1) What driving forces have been applied to urban growth?, 2) How/what kind of urban growth scenarios have been created using these drivers?, and 3) What are the purposes of these prediction studies? This research used SCOPUS as main search database using both backward and forward search capabilities, and reviewed 144 LCM related articles.

Results show that variable amounts for urban prediction range from only 3 to up to 20. Natural and built-environmental variables are normally applied as primary driving factors behind urban growth; these include distance to roads, slope, distance to existing urban area, and distance to water. The popular socio-

economic variables tend to be population density, gross domestic product, property value, employment, and income. Some studies consider disaster impacts as land change determinants and include floodplain, tsunamis, and seismicity. The primary topics of urban prediction studies are: to forecast future urban growth (70), to introduce a new model (31), to compare tools (4), and to examine urban growth-related impacts (39). In the impact analyses (39 articles in total), ecological impact analysis (13) is the most popular, followed by hydrologic impact (9) and flooding (7). Fifty-five articles out of the 144 use urban growth scenarios. Popularly applied future growth options include 'business as usual,' 'compact development,' and 'environmental protection.' To create urban growth scenarios, articles use three general methods: pixel number control for density (compact or loosen), location control by exclusionary layers, and driving factor influence control by using different driving factors or weighting driving factors. This study contributes to the understanding of LCM studies. It provides a comprehensive list of driving factors and their locations/disciplines, and topics. It also separates them according to scenario type. The results help researchers to identify trends in LCM studies to better predict for urban growth and differing scenarios.

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Key Words: land change model, urban growth, driving factors, topics, scenarios

USE OF DRONES IN BEHAVIOR MAPPING: A CASE STUDY OF NEIGHBORHOOD PARKS

Abstract ID: 119

Individual Paper Submission

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Behavior mapping may be an effective tool when exploring the interaction between people and place (Bechte et al., 1987; Goličnik, & Thompson, 2010; Ittelson et al., 1970). The behavior map is developed to uncover whether a location is used or not, at what time, by which type of people, and what activities are performed in different areas. Using behavior mapping, a researcher can collect both quantitative and qualitative information, which allows for more nuanced understanding of design and its consequences.

While various digital tools are now being used in behavior mapping, there is still some degree of error regarding recording the location of observed activities. The use of unmanned aerial vehicles (UAVs; drones) may be used in behavior mapping to address this issue, but this has not been studied. The use of UAVs in behavior mapping could be more efficient as it covers a larger area in a shorter amount of time. Using video recording, it could provide the exact location of individuals as well as more accurate attribute

information; thus, it could be reliable and informative. This makes UAVs appropriate to study micro-scale design implications. This study explores the applicability of UAVs in the behavior mapping of neighborhood park use.

In place-centered behavior mapping, it is necessary to clearly define the area of observation (behavior settings), the types of activities (affordances), and a system for recording and coding. Refining the Ittelson et al. (1970)'s elements of behavior mapping, this study developed a protocol of UAV-based behavior mapping: 1) creating a base map in GIS, 2) defining behavioral categories and developing a system of coding, 3) defining a schedule of observation, 4) establishing an observation procedure, and 5) data extracting and analysis.

We then explored the interaction between people and place using the behavior maps and quantitative information collected using UAVs from 30 neighborhood parks in Salt Lake County, UT, USA. The results showed that the use of UAVs can enhance our understanding of park-based behaviors through behavior mappings. The locations of park users were geocoded in GIS, which can be verified later by analyzing the video files. UAV-based behavior maps can provide both quantitative and qualitative data. Summary statistics, along with digital maps, provided accurate patterns of park use. For instance, this study showed disproportional usage of neighborhood parks by gender, more males than females, a gap which becomes larger in children and adolescent groups, and age where the percentage of seniors out of all park users is 3.5%, a much lower value than the 8.7% County population average. User density was higher in picnic areas and playgrounds and lower in lawn, baseball fields, and water features. In addition, we showed that park occupancy was different by sex, age group, and activity type across different times.

Practical implications of the use of UAVs toward evidence-based design and planning are discussed. For scholarship, the spatial data may be used to relate human behaviors to environmental attributes and model and predict those behaviors. Field experiments, or quasi-experimental strategies, can also benefit from the accurately geocoded data from UAV observation (e.g., post-occupancy evaluation; Cooper Marcus & Francis, 1998). As a reliable and effective tool for the observation of behavior, UAVs can also support practitioners' data-informed and responsive design and management efforts. The visualization of a behavior map may help designers understand the outcomes of their design practice more intuitively and meaningfully. We hope that design professionals will see UAV-based behavior mapping, supplemented by other data collection techniques, as an aid for developing evidence-based practice and for applying their creative skills for the best possible solutions.

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Key Words: Unmanned aircraft system, Unmanned aerial vehicles, Behavior setting, Evidence-based design, UAS

LONG-TERM PROSPECTS FOR LAND VALUE CAPTURE OF PLANNED URBAN SUB-CENTERS

Abstract ID: 128

Individual Paper Submission

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Despite a century-long effort in promoting planned new urban centers, most of these developments fail to materialize particularly in developing countries. Empirical evidence surrounding effective land value capture (LVC) is desperately needed in the face of rapidly polarizing urbanization. The unprecedented release of online administrative data on land market transactions and infrastructure construction by local governments, together with the proliferation of online social media and digital trace data on consumer activities, has created significant new potential for policy-makers and practitioners in developing countries to better understand, monitor and analyze what works and what does not regarding the development of new urban centres and any associated LVC schemes.

Can infrastructure-induced land value increments be better captured and the positive externalities (i.e., socio-economic benefits) be capitalized upon in planned new urban centers? This paper aims to develop a novel method for developing countries to measure the effects of the subcenter policy interventions, to understand the causal relationships regarding the influences of their successes and failures through building and empirically validating a theoretical model, and to apply this model in predicting the impacts of existing and new LVC options that may become necessary for funding infrastructure and social programs going forward.

Through assembling, corroborating, and validating multi-source urban datasets in a new spatial equilibrium framework, this study takes a new perspective of integrated policy dimensions by simultaneously considering infrastructure, business activities, residents, social networks, and local identities. The model is applied to Greater Shanghai in China, where there have been persistent efforts in creating new city centres and a vigorous interest in land value capture.

Robust land value appraisal and spatially explicit evidence derived from the analytics will underpin the identification of key influences on property value uplift over specified time horizons. Such an approach will plug a gap in current decision making regarding planning and development in low- and middle-income countries. Furthermore, this paper would materially improve local governments' ability to explore LVC options not only as a financing instrument but also as a wider policy apparatus to promote social equity, economic competitiveness, and environmental sustainability.

The exploratory scenario planning tool developed in this paper can (1) monetize the uplift in land values resulting from new center development, (2) interpret the complex causal relationships across boundaries, over long-time spans, and under conditions of uncertainty, (3) quantify the effectiveness of policy interventions on capitalization of land and other externalities, and (4) provide new evidence for

stimulating the successful establishment of planned new centers that mitigate and forestall the climate change induced by urban sprawl.

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Key Words: land value capture, urban spatial structure, new town, LUTI model

MEDIAN CALIBRATION OF SINGLE-PARAMETER SPATIAL INTERACTION MODELS

Abstract ID: 139

Individual Paper Submission

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Spatial interaction models help planners and geographers understand how the choice of activity location is mediated by distance, travel time, or travel cost. They are useful for understanding travel behavior, migration, property values, physical activity, as well as for making accessibility calculations to ascertain the benefits of changes to transportation infrastructure or land use patterns. In order to be useful and accurate, spatial interaction models have to be calibrated correctly based on observed interaction data. This paper proposes a fast-converging method that allows spatial interaction models to be calibrated with small samples, allowing the specific calibration of spatial interaction models for less-frequent travel purposes, travel modes, and/or population groups. For example, a spatial interaction model could be calibrated for senior walk trips to recreation facilities because of the minimal data requirements and rapid convergence of this method.

First this paper reviews the challenges in correct calibration of spatial interaction models. These include establishing the zonal structure, dealing with small samples and zero flows, handling self-potential or intrazonal trips, deciding upon an appropriate functional form, and calibrating the model parameters. For model calibration, this paper explores the interdependency of zone-specific balancing factors and model impedance parameters, and reviews various “fast” methods for calibrating model impedance parameters.

Then I present a new proposed method for calibrating the impedance parameter of a single-parameter spatial interaction model using only the median travel time from observed traveler behavior. Using computer-simulated square cities with 400 (20 x 20) zones and a total population and employment of 400,000, I attempt to recover the true (a priori known) impedance value using this method for a range of true impedance values between 0.003 and 0.300. The proposed method proves to be fairly accurate, with a mean percent error of 10.6%, but lower errors for values in the middle of the impedance range and higher values towards the extremes. Accessibility calculations using these estimated impedance parameters are highly correlated with accessibility calculations using the true impedance parameter values ($\rho \geq 0.970$).

The proposed method has three main advantages over existing methods. First, it is possible to identify the impedance parameter without previously determining the balancing factors. This makes the calibration

process faster and more accurate. Second, it is possible to accurately calibrate spatial interaction models without sophisticated statistical software necessary for maximum likelihood methods; in theory the proposed method could be accomplished with standard spreadsheet software. Third, because only the median value is necessary for calibration, it is possible to calibrate spatial interaction models with small samples of travel data, which allows for proper calibration for small population segments and specialized trip types. In summary, the proposed method offers several benefits over established methods for calibrating spatial interaction models.

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Key Words: Spatial Interaction Models, Accessibility, Calibration, Median, Gravity Model

EXPLORING THE SPATIOTEMPORAL RELATIONSHIP BETWEEN CHICAGO’S LARGE LOT PROGRAM AND NEIGHBORHOOD RATES OF CRIME

Abstract ID: 151

Individual Paper Submission

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While crime rates nationally are lower than at any point in recent American history, criminal activity remains a challenge for cities across the country. It is particularly true in the city of Chicago, Illinois where gun violence and homicides have reached record levels this decade where the South Side neighborhoods accounted for 45% of the increased homicides across the city (University of Chicago Crime Lab, 2017). Yet as violence has increased this decade, in some South Side neighborhoods where the city launched Large Lot program, some differences were observed. Established in 2014, Chicago’s Large Lot program, which sells city-owned vacant parcels to nearby homeowners for \$1 each, was a city of Chicago neighborhood stabilization initiative to help property owners, block curbs, and non-profit groups in selected Chicago neighborhoods. As of late November 2017, shootings were down 44% and homicides were down 45% over 2016 (Sweeney, 2017).

Numerous recent empirical studies have found a statistically significant relationship between the remediation of vacant lots and decreasing incidents of crime in the local area (e.g., Philadelphia, PA (Branas et al., 2012; Branas et al., 2016); Youngstown, OH (Kondo et al., 2016); Flint, MI (Sadler et al., 2017)). Those studies all considered the remediation of blighted city lots as transforming these lots into greenspace for the community and/or private reuse. To the best of our knowledge, however, there is the

limited study that has examined whether the transfer and remediation of vacant lots from absent, public ownership into local, private ownership, without consideration of the lots' post-sale land uses, in and of itself has a statistically significant impact on local crime. This study tries to fill this gap.

With the application of spatial-statistical approaches, this study examines the impact of the city of Chicago's Large Lot Program on the incidents of local crime. Using the location of 440 parcels sold in 2014 and crime data reported between the year 2013 and 2017, emerging hot spot analysis tool and geographically weighted regression (GWR) were applied to test the impact of the Large Lot Program on local incidences of crime. As emerging hot spot analysis examines clustering of crime reports over time, this analysis method was used to investigate the changing trends in crime patterns from 2013, a year before the program launched, to 2017, the last full year with available crime data. This study also applied the GWR to explain the causal relationship between the Large Lot Program and the local crime density. This analysis was able to show test crime incidents within each of the five years studied so that it could be apparent in how the crime was changing between the year 2013 and 2017. The result of this study shows a statistically significant reduction in property and drug crimes within 500 feet of sold 2014 Large Lots but not for violent crime. This result is encouraging in terms of policy implication. A detailed discussion regarding the positive relationship between blight remediation and changes in crime rate and the policy implication of this phenomenon will be provided in detail.

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Key Words: vacant lot, broken windows theory, large lot program, hot spot analysis, geographically weighted regression (GWR)

HOW ARE URBAN PLANNING ACADEMICS USING TWITTER?

Abstract ID: 177

Individual Paper Submission

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Academics have increased their uses of Twitter to share information, media, and other resources related to their profession. This includes sharing their own scholarship and that of others with similar disciplinary interests. And like other professionals, academics use Twitter for connecting and networking, requesting assistance and offering suggestions. Some academics have used Twitter to expand “learning opportunities beyond the confines of the classroom” (Veletsianos, 2001, p.342). Urban planning academics are active

Twitter users, but as of yet there have been no empirical analyses of how and why they use Twitter. This paper presents a descriptive analysis of Twitter use by urban planning faculty, reporting characteristics of users, the topics of Tweets, purposes of Tweets, and Twitter influencers within urban planning as well as those outside academic circles. The analysis uses data retrieved from the Twitter API for all active accounts for urban planning faculty in the U.S. and Canada. Only accounts identified as being used for professional purposes are included. Professional accounts are those that mention institutional affiliation or professionals titles. It is expected that patters of usage among planning faculty do not vary significantly from those of other academics, other than the specific topics that are most frequently mentioned.

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Key Words: planning scholarship, Twitter, social media

MULTITASK LEARNING DEEP NEURAL NETWORK TO COMBINE REVEALED AND STATED PREFERENCE DATA FOR ANALYZING THE ADOPTION OF AUTONOMOUS VEHICLES

Abstract ID: 201

Individual Paper Submission

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It has been an enduring question how to predict the demand of a new technology. One classical method is to combine revealed preference (RP) and stated preference (SP) data by using a nested logit model. RP data are commonly thought as more reliable because they represent the real behavior, and SP data are necessary when researchers seek to understand the effects of new attributes, new value ranges, or new alternatives. The nested logit approach was developed by Ben-Akiva and Morikawa (1990); more precisely, this is a method of pooled estimation with heteroscedasticity across RP and SP (Helveston et al., 2018).

This study presents a new approach of using multitask learning deep neural network (MTLDNN) to combine RP and SP data, incorporating the traditional nest logit approach as one special case. The architecture of MTLDNN starts with shared layers and ends with domain-specific layers, based on the insight that shared layers reflect the similarity across RP and SP domains and domain-specific layers represent RP and SP information separately. We have designed the hyper-parameter space of MTLDNN models with seven dimensions, among which the most important one is whether proportional parameter constraint is imposed. This constraint is derived from the nested logit approach, which assumes the

proportional scales of random utility terms between RP and SP data. The nested logit approach is only one special case with the sparsest structure and the weakest regularization of all the MTLDNN architectures.

Based on a combined RP and SP survey collected in Singapore, we designed, estimated and compared one hundred MTLDNN architectures for analyzing the adoption of autonomous vehicles, with two major empirical findings. First, the model with the highest prediction accuracy is the one with one shared layer, five domain-specific layers, and weak regularization. Some transformation of the raw inputs indeed helps prediction, which is in line with our intuition and the traditional approach of engineering features before feeding into the models. But somewhat surprisingly, the traditional nested logit approach also performs very well. Its prediction accuracy ranks as the second out of the 100 models. These results suggest that the traditional nested logit approach is still a viable alternative in combining RP and SP, particularly when the sample size is not very large. Second, the behavioral constraint of the nested logit approach effectively differentiates between the MTLDNN models with high and low prediction accuracy. This constraint is too restrictive in the deep architectures. However, this distinction does not exist when the architecture is very shallow.

This study makes two contributions. First, it is the first research of using the MTLDNN framework to combine RP and SP data for travel demand analysis. The MTLDNN framework is more general than the nested logit approach and is flexible with a great number of possible architecture designs. Second, we point out that the behavioral insights such as proportional scales of random utility terms can function as one hyper-parameter in MTLDNN framework. While this study only used MTLDNN to combine two domains RP and SP, it can be extended to scenarios in which the number of domains is larger than two. Researchers could also use this MTLDNN framework for other types of applications, such as jointly analyzing choices from different regions, different time periods, or data elicited from different procedures. With the flexibility and the extraordinary power of deep MTLDNN architectures, we believe that this new framework can improve demand prediction and provide new insights into travel behavioral analysis.

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Key Words: Deep Neural Network, Revealed Preference, Stated Preference, Multitask Learning

WHAT ARE THE CHALLENGES IN MAKING THE “SMART” INCLUSIVE? A CASE STUDY OF TRANSPORT APPS FOR PERSONS WITH DISABILITIES

Abstract ID: 216

Individual Paper Submission

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The term “smart cities” has become overused while being applied to an overly broad range of issues. While Fistola (2013, p.47) says urban planning is its “natural site of theoretical development” the topic has percolated into various disciplines with no one particular field claiming sole ownership of the concept. Variations in smart city definitions abound as a result, with a common theme highlighting the integration of technology with infrastructure. This is partly responsible, in addition to the role technology companies play, for the technology-focused approaches to “smart cities” that is dominating current debate. The emphasis on technology in the conception of “smart cities” fosters narrow points of view of “smart” initiatives and the technologies that support them, without regard to the dynamics between technology and social, cultural, and economic systems. One of the pitfalls of such outlooks is the disregard to matters of social inclusion. The lack of focus on social dimensions and equity in the “smart city” has been well-documented in academic literature (e.g. Hollands, 2008; Batty, 2012; Trencher, 2018). The broad concern of the study is to bring attention to this blind-spot of the “smart city” paradigm in order to make the “smart” inclusive. Accomplishing that goal requires an in-depth understanding of the challenges faced in achieving social inclusion as well as integrating solutions into practices and policies. This perspective is explored by examining smartphone applications (apps) used for urban transport in relation to the needs of persons with disabilities. Smartphone apps have a marked presence in transport-related systems. As technology becomes more integrated into transport networks, they will be indispensable for transport service in their current or advanced iterations. Do they create inclusive transport experiences? Gebresselassie and Sanchez (2018) found that the app technology may have the potential to encourage inclusion of transport-disadvantaged communities. However, the study states that there are socio-economic and cultural factors required for that to materialize, implying that the “smart” is not inclusive by default. Building on the study, our research investigates what hinders the “smart” from being inclusive in the case of transport apps in relation to persons with disabilities. The research will answer the following question. What challenges exist in the availability and usability of transport apps for persons with disabilities? Our research method includes a) interviews with users with disabilities, app developers, transit authorities, and regulatory bodies and b) document analysis of transit authority websites, legal documents, and regulations pertaining to disability. The preliminary findings of our primary and secondary data show that a) existing business models of the app industry are nonviable for these apps, b) some transit authority practices are not advancing inclusive goals in the apps with which they work, and c) there are no clear governmental regulatory frameworks. The purpose of the paper is to draw attention to the interplay between technology and social, economic, and cultural systems in the conception of “smart” to ensure inclusion, especially of groups historically marginalized from urban processes and services.

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Key Words: Smart and inclusive, Transport and disability , Smart mobility tools, Equity in transport, Technology and disability

URBAN EPISTEME: SEEING LIKE A SMART URBAN ENTREPRENEUR?

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Step back through time and it is evident that the figure of the male entrepreneur has played an outsized and problematic role innovating the future for more than 150 years. The male urban entrepreneur has performatively leveraged their purported mastery of science and technology to aggrandize their place in and influence over society. They have courted investment, hype, and public interest with the promise of making cities and their material infrastructures smarter. Thomas Edison's incandescent light bulb revolutionized the working day and the nocturnal urban landscape at the end of the nineteenth century as his modern electricity system gained momentum across urban USA (Hughes, 1983). With similar celebrity, much has been written about the "brilliant" Mr. Musk and his (mis/)(ad)ventures, which as Fortune Magazine put it, have made him "the one-man embodiment of the future." He is the entrepreneurial face of a string of Silicon Valley companies, such as Tesla, SpaceX, and SolarCity with ambitions to reinvent urban transportation and energy use. Other men of tech like Steve Jobs, Peter Thiel, and Travis Kalanick have built networks of power embedded with their own values and politics.

The epistemic culture of the male urban entrepreneur induces a particular way of seeing the city, which values and prioritizes certain categories, methods, and subjects, over others (Knorr-Cetina, 1999). Seldom, however, does the male technoliberal gaze extend to questions of how class, gender and race are subjugated by their technologies of transformation (Atanasoski and Vora, 2019). The city futures resident within this technoliberal order paper over, apolitically, and in contradiction to, the uneven urban geographies of difference and diversity they promise to rectify. Scrutiny of "Tech's Enduring Great-Man Myth" reveals the obfuscation of the technoscience that is to be found not only in their smart city rhetoric but embedded within the relational hinterlands of the things they make (Schaffer, 2015). Urban Epistemics is a call to move toward a more cosmopolitan view of smart city paradigms.

This paper, drawing on a systematic content analysis of North American and British media sources, shows how the disproportionately male leaders of tech see and seek to reconfigure the city. Studying the male urban entrepreneur tells us much about smart city categories and reveals that their tech industry culture is influential in the conceptualization of urban futures. The study also speaks to the reification of inequitable and uneven roles that class, gender and race play in shaping the futures of urban citizens the world over (and this paper). The growth and continued expansion of the dense and diverse urban landscapes that nourish and provide the impetus for the production of knowledge, in the first instance, are antithetical to the techno-fixes that shoehorn the colorful but dark art of city planning into universalizing and remote centers of command and control. There is a stark choice between the universalizing abstractions of a reincarnated modernity as smart cityness and the situated knowledge of local and timely political interventions (Sandercock, 1998). How these technoliberal figures relate to and reconfigure the city via new networks of power may render an increasingly urban future that is not so urbane.

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Key Words: Smart cities, Technology, Society, Technoliberalism

OFF THE GRID: THE EVOLUTION OF AMERICAN STREET NETWORK PLANNING AND DESIGN

Abstract ID: 269

Individual Paper Submission

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Street networks provide a substrate and connective tissue that organize a city's human dynamics. The pattern, texture, and grain of a street network reflect prevailing technologies, design paradigms, politics, expressions of power, underlying terrain, and local culture and economic conditions. The classic street grid's geometry and topology have been used for millennia to express human order over the landscape, to make travel more efficient, to organize the city around spaces of power, and to make land amenable to real estate speculation and development. The grid has a long history in the US; however, scholars have noted its decline over the past century, and the attendant declines in intersection density and connectivity, as well as increases in city block size and the urban fabric's grain. Much of this literature relies on case study research, but less is known about recent trends across the entire US. Barrington-Leigh and Millard-Ball, however, recently examined a subset of US counties, focusing on how street connectivity patterns changed over the 20th century.

This study expands on this work, using new computational network science and big data methods to examine the street networks of every census tract in the US (approximately 74,000 study sites), collectively comprising nearly 19 million network nodes and 24 million network edges. It builds models of each of these tract networks from OpenStreetMap data then calculates dozens of measures of the urban form and street network including street circuitry, the proportion of four-way intersections and dead-ends, average block lengths, street orientation entropy, and a composite grid index. It algorithmically tags each network with an estimated "initially-built" decade using the statistical distribution of structures-built dates and a sensitivity analysis to contrast multiple competing algorithms. Finally, it estimates spatial regression models identifying planning trends in each decade while controlling for other regional and urbanization factors, including topography.

It finds that griddedness declined steadily nationwide between 1940–2000 as street orientation entropy increased, circuitry increased, and the proportion of 4-way intersections decreased. Similarly, dead-end proportions and average block lengths increased while average intersection densities decreased. Most interestingly, however, all of these variables' trends have reversed over the past two decades, returning to levels not seen since the middle of the 20th century. Average griddedness is 38% higher in tracts built in the 2010s than it is in 1990s tracts, while four-way intersection proportions are 74% higher and dead-end proportions are 42% lower. Intersection densities are 60% higher in 2010s tracts than they are in 1990s tracts, while the average street segment length is 10% shorter. Controlling for covariates in a spatial regression model, every post-war decade predicts lower grid index values than the pre-1940 base class.

This study makes several contributions. No previous study has fully unpacked these relationships between topography and street network form, examined this rich basket of street network indicators by vintage, or comprehensively studied the patterns and structure of the circulation networks of every tract in the US. It also reveals an important facet of recent US planning history: how, over the past two decades, US transportation planning and urban design reversed their 20th century trends of increasing sprawl and disconnectivity. This paper explores these histories, considers reasons why they have occurred, and presents a reproducible big data methodology for urban form and transportation network analysis.

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Key Words: big data, sprawl, street networks, transportation planning, urban morphology

ANALYSIS OF THE RELATIONSHIP BETWEEN COMMUTER SPACE RECOGNITION AND LAND USE CHARACTERISTICS IN LARGE CITIES

Abstract ID: 273

Individual Paper Submission

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Based on the LBS data of mobile phones, the commuting data of mobile phone users in Wuhan should be recognized. Then, the paper judges the commuting spatial structure of the central Wuhan, and analyzes the intrinsic relationship between the commuting spatial structure and urban land use. Firstly, the commuting data of the central area are screened to identify the comprehensive commuting circle of the central area; secondly, based on the density of commuting intensity in the comprehensive commuting circle, the high-value clustering area is selected as the commuting center by using a method called local spatial autocorrelation analysis; on the basis of these analysis, the commuting spatial distribution of the commuting center can be analyzed, and the commuting life circle is classified according to commuting intensity between different regions. Finally, the paper analyzes the relationship between commuting life circle and land use characteristics. The study found that: (1) the internal commuting proportion of the comprehensive commuting circle has reached 95.7%; (2) the commuting center was a relatively

centralized multi-center structure; (3) the internal spatial distribution of the commuting life circle was circle-by-circle diffusion, and it's obvious that there are many enclave and cross-area commuting; (4) Because of the hierarchical location, land use and transportation facilities of each commuting center, the structure of each commuting life circle is significantly different. (5) There is a strong correlation between commuter life circle and land use pattern, such as land use constitution, the degree of land mixing, road transport and other influencing factors. This paper analyses the correlation between commuting space and land use characteristics from the perspective of urban spatial structure, and puts forward that the spatial unit of "commuting center-commuting life circle" should be used to readjust urban spatial structure. In order to improve commuting spatial structure, shorten commuting time and distance and improve urban spatial performance, urban planners should make rational use of land and transportation facilities and strengthen the relationship between public transport system and commuting spatial structure.

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Key Words: Commuting space, Recognition, Land use characteristics, Relationship, Wuhan

APPLY COMPUTER VISION AND MACHINE LEARNING TO MEASURES HUMAN PERCEPTION OF STREET DESIGN QUALITY: TAKING SHANGHAI PUDONG DISTRICT AS AN EXAMPLE

Abstract ID: 306

Individual Paper Submission

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It has long been difficult to measure the quality of streets in an effective way. Prior research suggests that the enclosure, the human scale, the diversity of a street is directly related to a person's appreciation of that place (Ewing & Clemente, 2013). Classical investigation of an urban street's design quality relies on the actual measures with massive comprehensive metrics, ranging from calculating the height-to-width ratio to counting the number of pedestrians. It requires extensive spatial data and observations for both buildings and streets. However, with the advance of the autonomous vehicle industry, nowadays computer vision and artificial intelligence have been widely applied to monitor road conditions. This study takes Shanghai as an example and applies those state-of-the-art technologies to identify street space quality in Pudong District. First, this study develops a method to apply semantic and instance segmentation to consistently quantify more than 30 dimensions of street environments from street view images based on a classical framework established by Ewing and Clemente (2013). The method is then applied to a training sample of 5000 street view images across Shanghai region from Baidu. This study then collects the public's preferences upon these 5000 photos by an online investigation with residences from local communities. These preferences are translated to ranking scores and the scores become the labels of our

training data. Based on the machine learning model, we predict scores for more than 40,000 unseen street view photos across the Pudong region to evaluate the human-perceived street quality. In order to justify our result, we also incorporate external datasets from point of interests (POI) and Dazhongdianping for the robust check. We find a significant correlation between the diversity score and the Dazhongdianping data. We also apply our method to evaluate other 5 cities across the world to set up benchmarks for Shanghai. This study advocates an efficient way of mapping street scores in urban and regional scale with reliable accuracy. While this method may not immediately replace the long-existing techniques in urban planning and urban design, it offers many merits, for example, being closely related to the pedestrians' perspective, low-cost, requesting nothing from proprietary software or methods, and is commonly applied any city as long as the city has a complete series of street view images. It provides a reliable alternative for planners and policymakers to assess the quality of the built environment.

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Key Words: Computer vision, Machine learning, Human-perception, Street view image, Street measures

STUDY ON THE LANDSCAPE VALUE PERCEPTION OF HISTORICAL PARK BASED ON STRUCTURAL EQUATION MODEL——TAKING ZHONGSHAN PARK IN TIANJIN AS A CASE

Abstract ID: 314

Individual Paper Submission

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The historical park, as a kind of significant green resource in the current high-density central city, is attracting more and more attention worldwide on its protection and renewal (Zhang et al, 2016; Daniel and Yang, 2009). In the context of the current rapid urbanization, several historical parks have begun to implement preservation and regeneration. However, due to the lack of specific protection measures and the insufficient understanding of landscape value, several problems have emerged, such as excessive reconstruction and disorderly expansion (Zhou and Liu, 2014). Nowadays, historical parks' heritage value evaluation has become the focus of historical park conservation (Zhou and Liu, 2014). Besides the top-down value evaluation led by the government, planning agencies, experts and scholars, it's extremely necessary to investigate the public's landscape value perception of historical parks from the perspective of bottom-up. Zhongshan Park is a cultural relic conservation unit in Tianjin, China, and it's also the first public garden in Tianjin. This park, which combines traditional Chinese garden art with western

architectural characteristics, is not only the materialization carrier of memorial discourse and state power, but also a public place for public recreation daily. Therefore, this paper will take Zhongshan Park in Tianjin as a case to explore the landscape value perception of visitors and the influence mechanism, in order to provide indispensable reference to the protection and development of historical parks.

In addition to the traditional research methods such as questionnaire and in-depth interview, this paper also uses Structural Equation Model (SEM) as the main quantitative analysis method to further explore the influence mechanism of landscape value perception. The Structural Equation Model contains both directly measurable variables and latent variables that cannot be directly observed (Yi, 2008). The landscape value perception is a kind of variable that cannot be directly measured, so it is an effective method to analyze the mechanism of landscape value perception based on Structural Equation Model. AMOS 22.0 software will be used in this paper for model construction, parameter estimation, model correction and other links, so as to complete model construction.

The research content includes three aspects: (1) Through literature review, this paper summaries the construction process and current situation of Zhongshan Park in Tianjin. (2) Through questionnaires and in-depth interviews, this paper explores visitors' landscape value perception of Zhongshan Park. The content of the questionnaire mainly includes four parts: personal characteristics, socio-economic attributes, landscape elements and landscape value. Based on the classification of landscape value by European landscape ecologist (Antrop et al, 2000) and the actual situation of Zhongshan Park, this paper divides landscape value into six categories: historical and cultural value, spiritual value, aesthetic value, ecological and environmental value, recreational value and characteristic value. (3) The influence mechanism of landscape value perception is analyzed by constructing SEM. On the one hand, this paper explores whether these influence factors (personal characteristics, socio-economic factors and landscape elements) have direct or indirect influence on the landscape value perception; On the other hand, this paper calculates the magnitude of the impact.

The result shows that: (1) Visitors believe that Zhongshan Park has a high spiritual value, followed by history, aesthetics and ecological value. (2) In terms of influence mechanism, socio-economic factors and landscape elements directly affect landscape value perception, while individual characteristics indirectly affect landscape value perception. Age, place of residence, purpose of visiting, education, occupation, architectures, plants, accessorial building, rockeries are the key influence factors for landscape value perception.

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Key Words: Zhongshan Park, Structural Equation Model, landscape value, influence mechanism

MODELING AND ANALYZING HUMAN MOBILITY TRAJECTORIES USING WI-FI SENSING TECHNOLOGIES: A PILOT TEST IN A UNIVERSITY CAMPUS

Abstract ID: 320

Individual Paper Submission

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With the increase of online shopping and globalization in recent years, small and independent retail businesses have struggled, despite providing benefits to local communities and contributing to the vitality of street life. In order to revitalize the small businesses in commercial districts, it is necessary to investigate how pedestrian activity along the commercial district streets where the small businesses are located. Currently, conventional methods such as count pedestrians is extensively applied in this field, but it requires considerable manual labor for monitoring and is limited by factors of cost, time, data accuracy, and subjectivity. In addition, other measurements such as trajectories of the pedestrians in real-time are needed to better understand the local street activity. In this context, we propose a methodology based on Wi-Fi sensing technologies, which allows to analyzing human mobility and activity patterns.

Wi-Fi sensing is one of the most useful technologies that can be employed to track the human mobility trajectories. As Wi-Fi-enabled devices send probe request frames to nearby access points, which includes the MAC address, it is possible to identify travel routes of people carrying the devices, based on multiple Wi-Fi scanners by developing an origin-destination matrix and classifying movement behavior patterns, such as those of passing directly by or remaining at a point for a while. Through such a method, the human mobility and activity patterns could be identified using Wi-Fi sensing technologies.

We design a prototype as a pilot study based on Raspberry Pi at a university campus, with the aim of capturing the Wi-Fi probe requests and uncovering student mobility trajectories. Algorithms are presented for hashing the MAC address for privacy concerns, dealing with randomized MAC address, and analyzing raw data. A combined dataset of Wi-Fi traces and GPS log from recruited participants is used to verify with a camera attached to the scanner. We further identify several differences in students' trajectory patterns between weekdays and weekends, depending on time of day and weather conditions. For example, during weekdays, students tend to pass through certain spots between classes with distinct peaks according to the university class schedule. With use of some features such as speed variance, the movement activity patterns are roughly classified into several types namely: necessary activity (i.e., attending to a class) and optional activity (i.e., sitting and resting for a while)

This research attempts to develop a methodology for analyzing human mobility and activity patterns based on Wi-Fi traces. When applied in a commercial district with public Wi-Fi networks, the trajectory and activity patterns can be used to characterize the district and evaluate the district's vitality at a street-level. Recognized patterns can subsequently be investigated with surrounded built environments and environmental factors such as temperature and noise. This work would help planners and policy makers to better understand pedestrian movement trajectories and activity patterns, and to identify potential interventions that could improve the vitality of the street, based on the real-time and high-resolution data obtained.

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Key Words: Human mobility, Activity patterns, Pedestrian trajectories, Wi-Fi sensing, Smart city

21ST CENTURY TOOLS FOR MEASUREMENT AND ANALYSIS OF METROPOLITAN REGIONS

Abstract ID: 370

Individual Paper Submission

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Since the early 20th century, rapid urban growth has led to evolving conceptions of urban systems. Conurbation (Geddes 1915) required a more regional perspective, leading to the metropolitan concept; however, measuring change in the metropolis was and still is a challenging endeavor. For example, the myriad definitions of “suburbs” (Forsyth 2012) complicate how we spatially delineate metropolitan regions. Researchers have primarily developed opportunistic techniques that apply existing statistical and spatial data, typically at the municipal or census tract scale to understand metropolitan spatial patterns of the 20th century, chief among them central city decline and outward expansion (“sprawl”). But the 21st century presents an evolving set of phenomena that require different approaches to measuring metropolitan change, especially urban environmental sustainability. Urban systems are a crucial scale for addressing global environmental problems (Sassen 2010) but applying traditional measurement strategies fail to capture many of the most important urban processes. This paper addresses the question “How can metropolitan measurement strategies evolve to better capture the complex and dynamic processes associated with urban environmental sustainability?”.

This paper first presents conceptual tools necessary for measuring metropolitan change. A researcher must first understand the difference between abstract and material findings associated with the application of spatial abstractions. The former represents findings associated only with changing spatial abstraction, such as changes in the counties that comprise a given metropolitan region. The latter are findings that represent actual changes in the region. Next, the researcher needs to define the phenomenon of interest as a relative versus absolute. Measurement of the former involves changing or dynamic spatial abstractions while the latter necessitates static abstraction. Taken together, these concepts guide researchers toward an appropriate measurement strategy. To illustrate these concepts, they are applied to a well-cited paper measuring 20th century metropolitan change (Baum-Snow 2007). The paper primarily uses a static approach to measure an absolute phenomenon, declining central city populations. However, the paper also addresses a relative phenomenon, suburbanization, which requires a dynamic approach to measurement. Failure to change the measurement strategy results in significantly different results, demonstrating the value of the conceptual tools described in this paper.

Next, a new metropolitan measurement strategy is presented that provides an improved approach to delineating metropolitan structure. This strategy uses the National Land Cover Database (NLCD), which identifies land cover at 30-meter resolution, as the foundation for a more flexible approach to measuring metropolitan change. In comparison to the commonly used census geographies, the NLCD reflects physical conditions on the ground at high resolution, allowing for fine-scale analysis of other data layers, such as census data, flood plains, building or parcel data, etc. This approach is demonstrated through a presentation of several measurement strategies that both target unique combinations of the relative-absolute and abstract-material concepts as well as demonstrate how NLCD data can be combined with additional layers to measure sustainability-related phenomenon. Applying the conceptual tools earlier in the paper using sophisticated spatial abstractions built around fine-scale land cover data further clarifies the challenges facing measurement of metropolitan sustainability and provides examples for researchers facing similar challenges.

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Key Words: Spatial Analysis, Metropolitan, Measurement, Sustainability, Land Cover

RESEARCH ON TEMPORAL AND SPATIAL CHARACTERISTICS OF PUBLIC SPACE VITALITY IN HUANGPU RIVERSIDE BASED ON MULTI-SOURCE DATA —TAKING THE LAOBAIDU SECTION OF HUANGPU RIVER AS AN EXAMPLE

Abstract ID: 386

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Abstract: With the rapid development of the city, the public space in the city is increasingly unable to meet the needs of urban residents. In the new era, the planning and updating of urban public space provides a feasible path for urban spatial transformation, urban spatial quality and image enhancement. Since 2013, Huangpu River Riverside Development has promoted the development of public space environment while promoting regional functional development and industrial transformation. In 2014, the ‘Three-Year Action Plan for Public Space Construction on Both Sides of the Huangpu River (2015–2018)’ clearly proposed to concentrate on building a number of high-quality public spaces for three years. At the end of 2017, Shanghai has basically realized the opening for the Public Space of Huangpu River, which is 45 kilometers from Yangpu Bridge to Xupu Bridge. In addition, the ‘Public Questionnaire Survey Report on the Open Space of the East Bank of the Huangpu River’ shows that the Laobaidu section of the East Coast is very popular among the public. 30% of the citizens in the survey have visited this section, which is a relatively dynamic section of the East Coast.

Based on the urban development background of the two banks of the Huangpu River, Laobaidu section on the east bank of the Huangpu River was selected as the research section of vitality measurement. With a drone's 90-degree overhead shot of the 1.5-km coastal waterfront public space, we collected aerial image data at different time periods with characteristics of human's location and activity type. We use people's point density of the public space of the Huangpu River to express the intensity of population activity, which is used as a quantitative measure of public space vitality. The research mainly focuses on several questions: 1. The differential distribution of the public space vitality of different sections? 2. Citizens' activity type preferences and material space preferences? 3. What are the different characteristics of riverside vitality at different times? 4. What is the correlation between the public space vitality of riverside and the surrounding hinterland (influencing factors such as population, housing price, land use function, location, etc.)?

The research expects that the dynamics of different sections of the Laobaidu Riverside section are obvious, and most of the high-energy sections are equipped with riverside seats, basketball courts or outdoor dining chairs; the riverside runway and bicycle lanes are highly used, but the riverside Walking is still the most important type of riverside activity. In addition, picnics are also popular in the riverside activities. The riverside vitality is distinct at different times, with the highest vitality at noon and afternoon, and relatively low morning and evening vitality; The population of the surrounding settlements, housing prices, land use function mix and location have different degrees of correlation. Compared with other sections of the riverside, the vitality of the Laobaidu section is highly influenced by the surrounding settlements.

The purpose of the study is to explore the use and preference of the public space in the riverside of the citizens, and to find the positive and negative areas of the riverside region. Besides, it is to find the influencing factors affecting the level of vitality, and provide suggestions for urban design of the riverside city on the next step. At the same time, the construction and investment development of different sections of Huangpu River in the future should be adjusted with the vitality of the hinterland, which is not suitable for investment and development evenly.

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Key Words: aerial image data analysis, Huangpu River through, riverside public space, urban vitality, hinterland

USING PHOTOVOICE AND QUALITATIVE GEOVISUALIZATION TO MAP HUMAN PERCEPTIONS AND EMOTIONS RELATED TO THE BUILT ENVIRONMENT

Abstract ID: 408

Individual Paper Submission

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Scholars across the social science and humanities disciplines recognize the importance of understanding the impact of human emotions because, according to them, human world is constructed and lived through emotions (Smith, Davidson, and Bondi 2016). In the field of urban planning, it is critical for planners to understand the role that they might play in increasing mental and emotional health, as well as spiritual well-being (Pfeiffer and Scott 2016). In this paper, we explore how people perceive elements of the urban built environment, including how people's emotions are attached to those elements within the context of post-industrial and socio-economic-environmentally disadvantaged urban neighborhoods being subjected to the forces of gentrification. Our study is connected to an EPA-funded brownfields revitalization planning project situated in an old industrial district in Philadelphia's North Kensington area. We seek answers to the following three research questions: (1) What types of emotions do people feel about the spaces or places in changing urban landscapes? (2) How can we map those emotions? (3) How can such maps be useful in community and environmental planning?

According to psychologist Robert Plutchik's psycho-evolutionary theory, emotions are understood to be adaptations to physical and social environments (Plutchik 2001). We collected qualitative data on physical and social environments through three sources: (1) focus group discussion transcripts (n=16), (2) photo captions and descriptions—oral and written—obtained through community photovoice activities (n=13; 20-23 photos each), and (3) in-depth interview transcripts (n=13). This data was subsequently analyzed through qualitative content analysis and coding, utilizing a Word-Emotion Association Lexicon (Mohammad and Turney 2013). After isolating the emotional content data, it was categorized in accordance with Plutchik's "emotion wheel", consisting of 8 primary emotions organized in contrasting pairs: joy and sadness, anger and fear, trust and disgust, and surprise and anticipation. Next, we mapped the emotion associations of spaces using a qualitative geovisualization methodology to analyze and visualize geospatial data in a GIS environment. This mixed-methods approach to representing the experiences and emotions associated with geographic spaces provides a non-numerical, personable, and rich account of people's lived experience (Cope and Elwood 2011).

Our analysis found that most people who participated in this study identified challenging neighborhood spaces (e.g., vacant or unmanaged lots, scrap yards) as their photo subjects and associated those spaces with negative emotions or feelings; however, some participants identified the same types of spaces as sources of anticipation or hope. We present our results using three major types of maps: (1) a heat map of all positive and negative emotions throughout spaces; (2) eight maps showing eight primary emotions (as described above) and their connection to spaces; and (3) examples of parcel-level maps connecting spaces, emotions, quotes, and photos. Based on these maps, we argue the importance of understanding people's perception of existing spaces and their emotions attached to those spaces before any actual planning or design processes take place. Finally, we discuss how maps such as those created in our analysis can be useful in community planning and how this methodology can be applied in other similar cities.

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Key Words: photovoice, qualitative geovisualization, GIS, emotions, built environment

AN EXAMINATION OF SOCIAL AND PLANNING NETWORKS: A POST-HARVEY RESILIENCE STUDY

Abstract ID: 423

Individual Paper Submission

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A notable result of climate change is that the frequency and costs of weather-related hazards and disasters continues to increase. 2017 was the costliest year on record for US disasters, with flooding alone accounting for over \$3 billion in damages. Costs continue to rise in large part due to a lack of coordination among decision makers and continued development in hazardous areas. The lack of coordination of hazard mitigation and land use planning, as well as community policies and plans may result in an increase of people, homes, and infrastructure exposed to flooding and climate change impacts. In Harris County, TX more than 7,000 homes were constructed in the 100-year floodplain since 2010, many of which suffered damage during Hurricane Harvey. Scholars and policymakers have pointed to the need for better coordination of plans that guide development as well as better integration of hazard mitigation throughout a community's network of plans. To address this dilemma, our research examines the interconnected network of governance structures that lead to integrated planning efforts and collaboration among stakeholders in extreme events.

We examine two sets of data, a stakeholder network and a network of plans. The purpose in examining these two sets of data is to more fully understand the individual actors and organizations involved in the planning process, as well as physical efforts around flood mitigation. By identifying who is listed in plans and who is responding to flood mitigation needs, we are able to more fully synthesize these distinct aspects of involvement in flood mitigation and hazard planning. This process allows us to answer a number of important questions, such as: Who are the actors in the hazard mitigation and planning networks? Are organizations listed in plans well connected in the hazard mitigation social network? And, what are the implications of the overlapping relationships in the two networks for hazard mitigation?

This analysis proceeds in two main steps. The first includes collecting and analyzing a comprehensive set of plans from the greater Houston region. We then create a network of plans that examines the organizational overlap and involvement in various aspects of the individual plans. The second includes the stakeholder survey which asked about levels of collaboration with other organizations on resilience mitigation. Both sets of data are analyzed using social network analysis techniques which examines the underlying structure of interaction among a set of social actors. We then compare and contrast the planning network and the stakeholder social network to identify overlaps, inconsistencies, and gaps in the two networks. Preliminary results suggest that there is overlap in those organizations involved in the

planning and flood mitigation processes. In other words, organizations listed in a plan in the greater Houston region are also likely to be collaborating with other organizations on flood mitigation efforts. There are some inconsistencies with the networks as well. Most notable, the stakeholder networks involves numerous nongovernmental organizations (NGOs) such as nonprofit organizations and private companies, that go nearly completely omitted from the planning networks. We conclude with comments about how an improved understanding of the relationship between these parallel networks may help to better coordinate approaches to planning, disaster recovery, and long-term risk reduction.

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Key Words: Plan integration, coordination, Network of Plans, Network Analysis

THE DEVELOPMENT AND MULTICITY EVALUATION OF A WALKABLE STREETSCAPE INDEX USING GOOGLE STREET VIEW AND COMPUTER VISION

Abstract ID: 438

Individual Paper Submission

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Many of the existing walkability indices do not include street-level streetscape characteristics in their calculation due to the lack of a scalable way to measure them. In a previous study, we demonstrated the effectiveness of measuring walkable streetscapes as measured at eye-level using over 44,000 Google Street View (GSV) images and a computer vision technique. Although this study showed that our method of measuring walkability outperforms Walk Score in explaining walking mode choice, it was limited in that the factor analysis approach for summarizing the image characteristics made inter-city comparisons difficult and that the generalizability of the finding to cities other than Atlanta was unknown. In this study, we extend our previous study through two innovations. First, we develop an intuitive ratio-based index converting GSV images into a single score that allows intuitive intra- and inter-city comparisons and test its effectiveness relative Walk Score as well as the factor analysis-based approach. Second, we expand the study area from Atlanta to multiple cities across the United States to examine the generalizability of the index construction.

Based on various descriptive and exploratory analyses, we formulated two ratio-based indices, each of which represents distinctive dimensions of the streetscape. They were then combined to create one composite index which is comparable across different cities. We found that the composite index provides

model fit measures that are as good as those provided by three factor scores from the previous study while being parsimonious. The multicity evaluation of the composite index can reveal the degree to which the effectiveness of the index found in Atlanta can be generalized to cities that have different characteristics and how the uniqueness of each city's built environment affects the association between the index and walking mode choice. The results can play an essential role in developing and refining a walkability index that measures the visual aspect of the built environment.

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Key Words: Google street view, computer vision, streetscape, walkability index, multicity study

ENGAGING STUDENTS IN STUDIOS THROUGH GEODESIGN: A HYBRID APPROACH FOR AN INTERNATIONAL GEODESIGN COLLABORATION PROJECT

Abstract ID: 465

Individual Paper Submission

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This research is part of an International Geodesign Collaboration project (www.geodesigncollab.org), intended to answer a common question to more than 50 universities worldwide: can we improve our global infrastructure using the Geodesign Collaboration approach? We established a local collaboration at the College of Environment and Design, University of Georgia. This collaboration was a partnership between graduate-level Landscape Architecture and Environmental Planning studios that involved three professor and 24 students. Our secondary research question was: can we engage and promote better-negotiated designs among students using a collaborative online design environment?

Geodesign is a collaborative planning and design environment with evaluation, sketching, visualization, and negotiation capabilities that allows participants from a variety of backgrounds to design future scenarios on a region. Geodesign is also a framework for improving decision-making in collaborative planning projects that integrates analysis, evaluation, design, and decision support techniques, generally using enabling technologies for planning for built and natural environments (Campagna et al. 2016). Several frameworks have been developed to implement and optimize the geodesign workflow. One of the most used in a variety of projects around the world is the one proposed by Carl Steinitz (Steinitz 2012) and implemented as an online tool by Hrishikesh Ballal. This framework is inspired by systems thinking and suitability overlay ideas first developed by Ian McHarg (1969) in his book *Design by Nature*.

Methods

To answer this question, the semester-long studio focused on the 10-county coastal region of Georgia, in collaboration with several local and regional stakeholders and institutions. The geodesign process for the

studio involved defining criteria for 10 systems pre-defined by the IGC, the creation of a set of evaluation maps for the 10 systems and the use of Geodesignhub (geodesignhub.com), an online geodesign workflow platform, to facilitate the mapping, visualization, and negotiation of future scenarios for the 10-county region (Rivero et al. 2015).

From the results of the geodesign process, we identified 3 target areas (Savannah, Hinesville, and Darien), where design strategies were applied to propose solutions, and expand policies and projects proposed during the first phase of geodesign.

The innovative aspect of this Studio is that we used a hybrid approach (traditional and geodesign Studio), allowing students to produce alternative design scenarios, that integrate the learning from a traditional inventory and design approach (inventory, review of plans, studies and other documents, synthesis and evaluation maps), with the evaluation, visualization and negotiation capabilities that geodesign offers. By doing this, students were deeply engaged throughout the process, and develop a more in-depth understanding.

Findings

- Projects and policies identified through the geodesign process, and local projects developed during the site design process, addressed some of the most important priorities identified for the region, consistent also with the systems established initially by the IGC project. Therefore, this hybrid approach proved the validity of the method.
- Priorities addressed through the proposed designs included: increasing the region's resilience to sea level rise, flooding, and storms; protection of water recharge areas and need for green infrastructure and water conservation projects and policies; addressing socio-economic needs; creating new job opportunities for a region with high levels of poverty; and increased infrastructure development associated with ports and transportation.
- Representing stakeholders' perspectives through the negotiation phase, proved to be an excellent approach to teach students about the importance of collaborative planning and negotiation. Therefore, the relevance of this work to planning scholarship, practice, or education
- There is still room for improvement in the tools and in the process, for effective implementation of these methods in the classroom.

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Key Words: Geodesign, Studios, Coastal Georgia, Education

A COMPARATIVE ANALYSIS OF THE LAST MILE PROBLEM IN CHICAGO AND STOCKHOLM USING A MACHINE LEARNING BASED MODEL

Abstract ID: 497

Individual Paper Submission

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An end-chain accessibility assessment, commonly referred to as the ‘last mile problem’ refers to an analysis of the bottlenecks incurred in the final leg of a network delivery system, typically the product delivery to end-users. In urban transit parlance this is the final leg of a commute. Some research suggests that the last mile problem (LMP) can play an important role in how public transit systems are perceived and used (Zellner et.al., 2016). Prior LMP studies have typically focused on walking/biking strategies for improving the last mile experience (Tight et.al., 2016). Missing however, has been an analysis on the potential destinations of public transit users and a standardized way for identifying the areas that warrant last mile strategic or design intervention on a large scale. The ability to do this would enable designers to focus specific strategic intervention to specific places.

This paper describes a machine learning approach for identifying residential areas that have the characteristics of LMP. We use the cities of Chicago, IL and Stockholm, SE to test and evaluate the performance of an LMP identification model. We compare outcomes in our two test cities in order to explore the differences between each condition, the potential differences in benchmarks for interpreting the issue, and potential localization problems that might be incurred in applying the model to two geographically disparate conditions.

Transit, transportation, land use and social media data are used to identify potential public transit based, travel routes to popular destinations for each residential parcel in each city. An easy to navigate, user interface is used to help visualize the assessment scores and collect public feedback. By considering transit destinations and not just potential walking distances, we begin help discern the link between destination, travel time, and the approach to the transit stop. We utilize user feedback and a Support Vector Machine algorithm to find an objective and locally recognized benchmark for score interpretation and weighting (Semanjski et al., 2017). These benchmark scores represent the local interpretation of public transit end-chain accessibility service levels. Exploring how the urban contexts and facilities impact last mile scores in the two cities can help to understand the differences in physical and socio-economic contexts between our test cases. This study will use a geographic weighted regression model to find the statistical relationship between context attributes such as road network density, public transit density, land use mix, amenity access, and the interpreted last mile scores in the two cities.

A comparative approach is increasingly important as new forms of urbanization unfold around the world, challenging inherited conceptions of cities as bounded and universally generalizable (McFarlane and Robinson, 2012; Brenner and Schmid, 2015). A common trap in comparative urban analysis however, is that the end result is a parallel description of the differences between cities without providing any contextual insights related to potential policy effectiveness. To address this, we extend comparative urban methods by developing a comparative modeling framework around the last mile issue. The process of constructing our model, data collection, data manipulation, and model calibration can reveal deep-rooted behavioral preferences, socioeconomic functions, urban structure, and core development patterns. The

inclusion of comparative analysis can help address the typical, overly context-specific shortcoming of typical spatial model applications (Pan et al., 2019), which prevents useful and easy application to different sites.

This research represents a potential approach to help reveal some of the complexity in urban transit system planning, and can also (at least) partly uncover causal relationships and feedbacks between system components (Pan et al., 2018b). We suggest the process is important for planning and urban design related planning support systems.

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Key Words: Last mile, User interface, Comparative analysis, Machine learning

ANALYSIS OF THE SERVICE CHARACTERISTIC OF METRO STATIONS USING MOBILE PHONE DATA: A CASE STUDY OF HANGZHOU CITY IN CHINA

Abstract ID: 534

Individual Paper Submission

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Over the past few years, big data is widely used to explore metro passengers' mobility pattern and evaluate the performance of the metro system. And with the rapid development of metro systems in big cities in China, recognizing and identifying the service characteristics of metro stations and passengers' spatial-temporal behaviors seems very important for TOD strategy and metro systems planning. Many scholars defined the linear distance of 500m or 1/4miles as the size of the catchment area of metro stations (Cervero, R. et al., 2008). However, the deficiency of this scope is that all the metro stations are the same, without considering the difference of metro stations, while in fact, the catchment area is largely affected by the built environment around stations. Therefore, the radius of 1/4 miles cannot accurately describe the actual service scope of metro stations (Li Chen et al., 2017; Lauren Alexander et al., 2015).

This article aims to clarify (1) The actual catchment area of each metro station and (2) The spatial-temporal distribution patterns of metro passengers' traveling before boarding and after alighting the metro

stations. (3) The influence factors of the catchment area.

In this paper, we identified the travel trajectory of metro passengers using mobile phones data and analyzed the catchment area of metro stations in Hangzhou, China. The advantage of mobile phone signaling data is that it has larger sample size compares to other data, and as long as the user turns on the phone, the moving track can be recorded continuously, and we can identify all the moving tracks of the user (Ding Liang et al., 2017). After cleaning data, totally 18,836,798 OD trips are calculated from a dataset of 1.3 billion anonymous mobile phones positioning records. And based on the underground base station code in the mobile telecommunication network, 584,632 trips using the metro system are identified and 348,587 mobile phone users who identified as metro passengers. Using the trajectories of passengers from mobile phones positioning records, their places of residence and places of work can be identified, as well as their trip OD of before and after they enter or exit the metro station.

Results show that the catchment area of many stations are not within the theoretical 1/4 mile radius, and stations can be divided into different categories according to their size of catchment area (Ma Xiaolei et al., 2017). Moreover, significant differences exist in spatial-temporal distribution patterns of passengers' traveling of different stations. The actual catchment area of stations located in the central area of the city is larger than that of the non-central area. Furthermore, passengers who alight terminal stations travel further than those alight from non-terminal stations. For the time-varying pattern of passenger flow, it shows that many stations have a bimodal distribution pattern, and most of the passengers use subway during rush hour. It also shows that the distribution of passengers after they take off train and exit station is influenced by many factors like road network structure and bus connection around the station, which means a good road network and bus connection can effectively extend the service distance of the metro station. Moreover, the land use around the stations has a significant influence on the time-varying pattern of passenger flow. The mixture of land use around stations is beneficial to alleviate the imbalance of passenger flow.

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Key Words: Metro Station, Service Characteristic, Mobile Phone Data, Spatial-Temporal Distribution, TOD

MEASURING LIFE QUALITY AND RETAIL VITALITY BASE ON BIG DATA REVEALED STREET CHARACTERISTICS

Abstract ID: 544

Individual Paper Submission

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The roles of street design and network characteristics on urban vitality have been discussed for a long time. But the conclusion is still unclear. Using the points of interest data and navigation data extrapolated from Baidu Maps, we investigate the relationship between road characteristics and retail distributions – an indicator of urban vitality. Our research applies K-means to cluster retails in light of three continuous factors of roads, including network density within $\frac{3}{4}$ miles, total network capacity within $\frac{3}{4}$ miles, and the Euclidean Distance to the nearest Central Business District. Incorporating the clustered categories of retails, we implement a logit regression model to estimate the determinants of retail categories in the context of their commercial definitions, e.g. café, restaurant, bookstore, etc. Results indicate that there are three types of retails. The first-tier retails cluster near the center of CBDs with high requirements of network density and relatively low network capacity; the second-tier retails are more widely distributed but still sensitive to network density and network capacity; the third-tier retails locate centerless with no connection to network density and network capacity. The logit regression model is non-significant. Only the distance to the nearest CBD exerts diminutive negative effects on the commercial definition of retail categories. This indicates that location strategies are different within each retail category.

The results contribute to the relevant fields in that it provides an empirical analysis of the relationship between basic elements of road design and retails. Urban road networks support the location strategy of retails. The policy implications of the research are in two folds. On the one hand, retailers could evaluate the match of retail locations with road networks and guide their location decisions. On the other hand, planners could leverage urban land use through dedicated road design. Further research might dig in the POI types beyond retail and reveal a more comprehensive influence of road networks on cities. In addition, researchers may develop thresholds/matrixes for certain type of roads to sustain urban vitality.

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Key Words: street characteristics, retail locations, points of interest, K-means, logit regression model

CALIBRATING TRAVEL DEMAND MODELS USING DATA ANALYTICS

Abstract ID: 556

Individual Paper Submission

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Transportation and land use planning heavily rely on travel demand models to predict how future cities will look like. The accuracy of these models, therefore, are important regarding the rapid change in urban infrastructure and mobility. Calibration and validation are critical tasks in increasing the reliability of the models. Traditionally, the models have been calibrated using observation data which are costly and unreliable since they do not take into account the real-time congestion, road conditions and peak hour traffic (Bedogni et al., 2015).

Advancement in information and communication technology (ICT) and the influx of smartphones provide a new venue for travel data collection. Google maps calculate travel times between origins and destinations using complex algorithms through anonymously recording travels data from the users who turn on their GPS location. Google Maps data for travel time is relatively accurate, up to date, easy to acquire and take into account the real-time conditions (Dumbliauskas, Grigonis, & Barauskas, 2017; Wang & Xu, 2011). The large penetration of smartphone usage in the USA provides a big dataset of real-time travel data including detailed information on congestion, road condition and peak hours (Cottrill & Derrible, 2015).

In this paper, we aim to provide a framework for validating and calibrating the regional travel demand models with real-time data obtained through Google Maps Distance Matrix Application Program Interface (API). This API is a service by Google that provides travel distance and time for a matrix of origins and destinations based on recommended routes between the two points (“Distance Matrix API,” 2019). We intend to use this novel technique to collect travel time data for each Origin-Destination (OD) pair for the 1075 Traffic Analysis Zones (TAZs) in the City of Dallas and use them to validate the travel times predicted by the regional travel demand model. Python will be used to automate the process of data extraction and create travel time (skim) matrices for the OD pairs.

The findings will be used to develop a new generation of low cost, time effective and highly accurate traffic forecasting methods using the emerging field of data analytics. This technique will help improve the forecasting capabilities of travel demands models which would assist the transportation agencies and stakeholders in making right decisions for infrastructure financing based on real-time demands.

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Key Words: Big Data, Google Maps API, Travel Demand Modelling, Data Analytics, Skim Matrix

URBAN PLANNING & OPERATIONS RESEARCH: A REVIEW AND CRITIQUE TO SUPPORT DECISION ANALYTICS FOR URBAN PLANNING AND COMMUNITY-BUILDING

Abstract ID: 581

Individual Paper Submission

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Operations research (OR) is a multi-disciplinary field devoted to the science and practice of improved decision-making through modeling and analytics. While inquiry in OR modeling of urban planning processes is long-standing (Rosenhead 1981), on the whole the OR discipline has not influenced urban planning practice, teaching and scholarship at a level of other domains such as public policy and information technology. Could an OR approach which focuses on the complex, emergent nature of cities and the institutional environment in which these urban planning models are implemented enable urban planning to better meet challenges that are complex, multi-stakeholder, data-intensive and stochastic in nature?

Given demographic shifts towards cities and urban areas, and with an eye towards the future, we identify nascent innovations and developing challenges within the urban planning space. Based on a review of research and practice in OR and urban planning, we argue that a prospective and prescriptive approach to planning that embraces mixed-methods can help researchers and practitioners develop interventions that are equitable and which reflect community concerns. Examples of these approaches are community operational research (Johnson, Midgley and Chichirau 2018), geodesign (Goodchild 2010) and complex adaptive systems (Holland 2006). We show that trends and developments within urban planning highlight the benefits of embracing an OR modeling approach both in the framing of the model and in its implementation, while emphasizing two cautionary themes. First, a mechanistic application of decision modeling principles rooted in stylized representations of institutions and systems using mathematics and computational methods may not adequately capture the central role that human actors play in developing neighborhoods and communities. Second, as innovations such as the mass adoption of automobiles decades ago led to auto-centric city design show, technological innovations can have unanticipated negative social impacts. Therefore, we emphasize the important role of critical approaches, community engagement and diversity, equity and inclusion in planning approaches that incorporate decision modeling.

We use “smart cities” programs as examples in illustrating our approach – documenting how many improvements from these programs have been incremental at best; in large part due to the inability to properly reflect the contextual realities and institutional environments in which they are implemented (Goodspeed 2015). We create an OR modeling framework robust enough to conceptualize and design smart cities solutions that make explicit consideration of the context in which the innovation will be implemented. Specifically, we make the case on the need to push back against the observed “off the shelf” mentality that has plagued most OR models applied to urban planning in the past, and instead argue for the need to subscribe to context-specific approaches that place the residents and the stakeholders at the center of the planning process.

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Key Words: Urban Planning, Operations Research, Smart Cities, Complexity, Stakeholders

ASSESSMENT OF CITIZEN’S ‘AFFECT’ FROM TWEETS IN DIFFERENT URBAN SETTING: COMPARING ATLANTA AND BOSTON

Abstract ID: 584

Individual Paper Submission

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Urban design of a city, characterized by its land use pattern, block sizes, building density, etc. are critical in generating urban vitality and encourage civic activities. Studies show that certain urban spaces have taken a crucial role in generating urban activities and in upholding the liveliness of urban areas while others have failed to do so. In this study, the key assumption is: the emotions felt by individuals engaged in different types of urban activities often differ in diverse urban settings. The situational emotion is often the result of the individual’s interaction with the environmental stimuli, and it is termed as ‘affect’ [1]. To conduct an extensive study and unravel how urban settings impact citizen’s affect and overall mental health two cities are chosen: Atlanta and Boston. The reason for the choice of these two cities (Atlanta and Boston) is the inherent difference in their urban characteristics. While, Boston has a dense urban fabric with smaller block sizes, providing a diverse land use choices to individuals; Atlanta is known for its sprawled development, larger block sizes, and less diverse land use.

This study looks at Tweets from both cities for a year period and uses applied machine learning [2][3] to gauge the urban activities [4][5] and identify the ‘affective measures’ associated with each of these tweets. The tweets are first classified to identify the associated urban activity [6]. Next, linguistic analysis is conducted to assess the ‘affect’ value associated with each urban activity identified. The result of the study intends to explain how the ‘affective measure’ associated with the urban activities differ in different areas of the city (characterized by the land use pattern, block sizes, and building density, etc.). Also, the study highlights the differences in ‘affective measures’ for urban activities between Atlanta and Boston. The results primarily show that land use is the crucial factor in determining the ‘affective measure’ of Tweets in both Atlanta and Boston. Building density, block sizes, and street network density also has the explanatory power in determining the frequency of reported urban activities on Twitter. Finally, the results reveal, Tweets in Boston and Atlanta has significant differences in the ‘affective measures’ for certain land use categories and associated urban activities.

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Key Words: social media, land use, twitter, urban activities, citizen's affect, land use

IS POLYCENTRIC SPATIAL STRUCTURE CONDUCTIVE TO JOBS-HOUSING MATCHING? A STUDY ON URBAN EMPLOYMENT CENTERS IN HANGZHOU USING MOBILE PHONE SIGNALING DATA

Abstract ID: 603

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Current studies show that since the reform and opening up, due to the constant diffusion of the housing and employment, an emerging polycentric spatial structure in Chinese mega cities has been confirmed in literature, but few empirical studies has payed attention to whether polycentric spatial structure is more conducive to jobs-housing matching, that is, people will choose jobs in the employment center close to their place of residence to reduce the commuting distance (co-location hypothesis). Taking Hangzhou as an example, this paper proposes two research hypotheses, namely (1) whether Hangzhou is a polycentric city; (2) whether the polycentric spatial structure of employment is conducive to jobs-housing matching.

Based on the location of the base station, mobile signaling data can identify the user's residence and work place, which is similar to the journey-to-work survey data with a large sample size. The paper uses the mobile phone user's residence and work place data to identify employment center and analysis its jobs-housing characteristics. Firstly, from the perspective of TAZ unit in the central urban area of Hangzhou, employment centers are identified by the method of the threshold value of employment density and employment to residence ratio. Secondly, the average distance from the boundary of the employment center is used as the buffer zone, and the commuting rate within the average commuting distance of the employees in employment center is taken as the index of jobs-housing matching rate. Finally, stepwise multiple regression analysis is adopted to study how the industry type, industry diversification level, industry specialization level, land mixed use level and supporting infrastructure affect the jobs-housing matching rate of the employment center.

The study found that Hangzhou identifies 42 employment centers, which are divided into six types: comprehensive, business-office, commercial-entertainment, commercial-logistics, R&D, and industrial manufacturing. Among them, the suburban agglomeration characteristics of commercial, R&D and industrial manufacturing employment centers are significant, indicating that Hangzhou has the characteristics of polycentric spatial structure. The Jobs-housing matching rate index of employment

centers shows that under the polycentric spatial structure, there are still a few employment centers with serious jobs-housing mismatch. The polycentric spatial structure may not guarantee the Jobs-housing matching of all the employment centers, but it can promote the Jobs-housing matching in whole city. Factors such as the type of industry, urban renewal mode, spatial location, functional mixing degree, traffic and natural barriers are important factors affecting the matching relationships. Multiple regression analysis found that the location entropy of finance and business service and industrial diversification level in the employment center had a negative impact on the jobs-housing matching rate, while the mixed use of land and industrial specialization level had a positive impact on the jobs-housing matching rate. Therefore, the employment center should avoid excessive agglomeration of multiple functions in urban planning, in particular, the financial, business and other high-level service industry agglomeration center should pay much more attention and relevant residential facilities must be provided surrounding such employment centers. In urban renewal and new town employment center planning, special attention should be paid to Jobs-housing mismatch, and we suggest to establish a policy zoning system based on employment centers and the Jobs-housing matching index in urban renewal and new city planning should be taken into consideration.

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Key Words: Jobs-housing matching, polycentric spatial structure, mobile phone signaling data, Jobs-housing mismatch, Hangzhou

ESTIMATING FUNCTIONAL URBAN AND REGIONAL BOUNDARIES FROM ROAD NETWORKS: THE CASE OF SOUTH KOREA

Abstract ID: 604

Individual Paper Submission

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How can we identify functional regions using alternative but more widely available data sources? For local economic and policy analysis, researchers often need to redefine urban or regional boundaries reflecting functional connectivity and complementarity, which do not necessarily respect administrative boundaries (Cörvers et al., 2009). Conventional methods employed for this purpose are based on detailed cross-municipality traffic and trade flows data, but application of the methods is highly constrained by data availability (Duranton, 2015). In the context of developing countries, lacking quality subnational data sets makes it hard for the application, although rapid urbanization and the imminent need for policy intervention increase demand for urban analysis (Glaeser and Henderson, 2017).

This study is motivated to fill the gap, and we introduce an alternative method subject to low data requirement, taking South Korea as an example. Our case selection is for the validation of our analysis results (vs. the results from conventional methods), although South Korea is far from a developing country in any standard. The method we employ is a percolation model in physics, which has also been applied for urban analysis (Arcaute et al., 2016; Batty, 2018). The only data input required for our model is national level road network data, which is widely available through various official and open sources. In this model, we focus on road junctions for connectivity, and convert the network data into an extensive origin-destination table. Then, we test a wide range of cross-junction distance thresholds to analyze system-level hierarchies and connectivity. From this analysis, we ultimately aim to demonstrate road network data can substitute for subnational flows data in drawing functional urban and regional boundaries.

Our results show that distance thresholds of 740 meter (~0.46 mile), 1.64 to 1.66 km (~1.02 miles), and 3.08 to 3.12 km (~1.93 miles) have particular importance in defining functional urban areas in Korea's context (Figure 1). When a distance threshold of 740 meter is tested, the model detects major cities and core urban areas. Applying a threshold of 1.64 to 1.66 km identifies Korea's major urban agglomerations or metropolitan regions, which are functionally well connected. Finally, a threshold of 3.08 to 3.12 km helps distinguish a few areas presenting exceptionally weak connectivity (and thus highly isolated) from other parts of the national urban system, which then can be considered with priority for publicly initiated transport infrastructure projects.

Figure 1. Urban Agglomeration Patterns Identified with Different Distance Thresholds.

Source: Created by the authors.

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Key Words: percolation, functional region, connectivity, network analysis, Korea

GIS-SUPPORTED MAPPING OF URBAN DISASTER RESPONSE CAPACITY: A CASE STUDY OF MIANYANG CITY

Abstract ID: 609

Individual Paper Submission

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Mianyang city suffered huge losses in “5.12 Wenchuan earthquake” in 2008, which mirrored the lack of capacity of urban disaster prevention and mitigation. According to literature review, 17 times earthquake whose magnitude was larger than 5 occurred in Mianyang between 1579 and 1978, including 5 times earthquake whose magnitude was larger than 6. Mianyang is located at the junction of three tectonic domains, and Longmenshan fault zone across north Mianyang. Both geological condition and seismic belt make Mianyang to be one of the zones with higher disaster risk level in Sichuan province. Percent of area threatened by earthquake accounted for about 86% of total area of Mianyang. It is essential and typical to take Mianyang as an example in this research. Previous researches mainly used straight-line distance in space as threshold value to calculate the buffer area of facilities. However, there is a big discrepancy between results calculated by straight-line distance in space and results calculated by actual walking or driving path. In order to improve the accuracy of results, network analysis of GIS should be adopted in this research. Urban road distance would be used as threshold value to study on mapping of disaster prevention and mitigation of Mianyang city (take second ring road as research range). Capacity of urban disaster prevention and mitigation are mainly reflected on refuge and rescue, namely disaster response capacity. Six factors have been chosen in this research, including density of population, service area of emergency shelter, service area of police station, service area of hospital, service area of fire station and explosion range of hazardous products warehouse. All of these factors are directly related to disaster response capacity. Result of explosion range of hazardous products warehouse could be analysed by using buffer analysis of GIS and results of another 5 factors could be analysed by using network analysis of GIS. Data and visual image of urban disaster response capacity of Mianyang were analysed by using GIS overlay analysis which could get comprehensive result considering these 6 factors. Outcomes can be listed as follows: 1. Total area of research area is about 200.02km²(100%). Area with high capacity of disaster response is about 79.45 km² (39.72%), area with medium capacity of disaster response is about 91.68 km² (45.84%) and area with low capacity of disaster response is about 28.88 km² (14.44%). Area with medium and low capacity of disaster response accounted for 60.28%, which means more than half of research area is in a comparatively high risk level of urban disaster prevention and mitigation from the overall perspective. 2. From the visual image, districts with comparatively low capacity of disaster response are Yuanyishan district, Nanhe district, Science City district, Xiaojian district, west section of second ring road and east section of second ring road. Nanhe district and Science City district are old towns, and the main cause of low capacity of disaster response is high population density. Yuanyishan district and Xiaojian district are new districts, and the main cause of low capacity of disaster response is lack of capacity of urban disaster prevention and mitigation, including lack of urban disaster prevention planning and facilities such as emergency shelter, hospital, police station, fire station, etc. Main causes of west and east section of second ring road with low capacity of disaster response are lack of urban roads, number of facilities. This GIS-supported mapping research on urban disaster response capacity of Mianyang city could provide precise and intuitionistic guidance and suggestion for urban disaster prevention planning. Furthermore, research could provide the fundamental basic for further visualization research on urban disaster prevention and mitigation.

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Key Words: GIS, mapping, urban, disaster response, capacity

MAPPING THE LANDSCAPE OF BEHAVIOURAL THEORIES: SYSTEMATIC LITERATURE REVIEW

Abstract ID: 610

Individual Paper Submission

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The “behavioural” approach is receiving increasing attention in many disciplines including planning, attracting many academics and practitioners to apply various behavioural theories. However, there is yet limited understanding of the available theories and how they can be applied. This paper addresses the following research question: Can we create a more transparent list and classification of behavioural theories?

This paper argues that a “behavioural theory” explains some aspects of the process where a stimulus or situation gets imposed on a person, leading to an intention or motivation and a response or decision. It takes an approach of a systematic literature review of 963 publications that contain the word “behavio(u)ral theor(ies)” in the title between 2000 and 2017 and filters the key papers based on times cited and the scope of general human behaviour. As a result, 62 behavioural theories are identified and are classified into four groups. The first group explains the factors that affect behaviour such as attitudes, norms, risks, heuristics, institutions and rationality explained in theories like the theory of planned behaviour, prospect theory, collective action theory, and the theory of bounded rationality. The second group focuses on the strategies to influence behaviour and gets used in public policy and business management such as nudge theory and diffusion of innovation theory. The third group includes learning and conditioning theories such as reinforcement conditioning theory that can modify the response and is largely applied in topics like artificial intelligence and machine learning. Finally, the fourth group focuses on the modelling of behaviour such as neural networks theory, game theory, complexity theory and fuzzy theory, and gets mostly used in computer science and neuroscience as the basis of techniques such as dynamic network analysis, agent-based modelling and microsimulation.

Based on the literature review, the paper discusses the following five points. First, there needs to be a further clarification of what theories can be classified as “behavioural theory”, and in what fields behavioural approaches are applied to transfer models and compare results. Second, further classification of the types of behaviour is important because different behaviour gets affected by different variables. There is also a need to identify the hierarchy, family trees, and overlapping concepts of theories. Third, more guidance on the selection and use of appropriate behavioural theory is needed by building a portfolio of theories linked with variables, type of behaviour, and research methods. Fourth, behavioural theories can be more included in data-driven research and agent-based modelling. Computer science, artificial intelligence, and big data analytics are very important in the behavioural research at present, all part of the bigger effort towards the development of data science which is closely related to planning in the era of smart cities. Behavioural theories can play a critical role in bridging the traditional theory-

based, aggregate, quantitative and equation-based approaches with the new data-based, disaggregate, qualitative and language-based approaches such as agent-based modelling (Parunak, Savit, and Riolo, 1998; Ahmed and Klischewski, 2017). Finally, behavioural theories are ever more important because they can answer “how and why”, provide rationale for the rules, variables, assumptions and parameters of models, and help researchers generalize results (Wise and Shaffer, 2015). Furthermore, this paper proposes complexity theory as the overall theoretical concept (de Roo and Silva, 2010) and suggests that behavioural theories can play an important role in spatial planning in the bigger picture of integrating spatial and a-spatial approaches of modelling human behaviour. This paper is greatly relevant to planning research and practice because it helps navigate behavioural theories and highlights the importance of them in the era of big data analytics where data seem to speak for themselves.

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Key Words: Behavioural theories, Data-driven research, Theory-driven research, Agent-based modelling, Urban and environmental planning

SCENARIO PLANNING FOR TRANSFORMATIVE ALTERNATIVES UNDER CLIMATE CHANGE – FUTURE DIRECTIONS FOR TOOL DEVELOPMENT

Abstract ID: 614

Individual Paper Submission

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Municipalities have many incentives to maximize property values, even when they know they are developing in areas that will increasingly be prone to hazards. If we want cities to conform their land use planning practices “with nature” (Burby, 1998) – instead of relying solely on disaster preparedness or building stronger infrastructure – then they need to be able to evaluate the fiscal implications of land use alternatives. Sea level rise (SLR) is an increasing challenge for coastal cities in terms of fiscal sustainability as it claims land, devalues and damages property that local governments have to repair. However, it is not clear the extent to which current planning support software facilitates assessment of vulnerability to SLR. To address this gap, we conducted a systematic review of existing scenario planning software for their ability to assess SLR scenarios. Because fiscal considerations often drive land use policy, including common strategies for SLR adaptation, like open space acquisition and down zoning (Schmidt, 2008), we focus our assessment on assessment of fiscal impacts.

First, we conducted a systematic review of software packages for their capabilities to assess fiscal vulnerability and tested three of them. We tested Envision Tomorrow, Urban Footprint, and Geodesignhub to calculate fiscal impacts of multiple SLR and adaptation scenarios. Our criteria for assessment include the ability to (1) compare fiscal impacts of multiple land use changes; (2) present results in multiple time periods to allow planning phased responses in step with projections that SLR will

accelerate, (3) and integrate development pathways and multiple jurisdictions. We found that the three tested packages facilitate some part of a fiscal impact assessment and require use of a general GIS to complete the assessment. None of the software packages create scenarios in multiple time periods; instead scenarios allow comparison between one baseline and one or more future states. Finally, each combination of policy responses must be treated as a separate scenario, posing challenges to incorporating contingencies in SLR adaptation planning.

Second, we share our experience assessing fiscal vulnerability under multiple scenarios for three municipalities in Boston's regional planning area. The research was conducted alongside a student workshop and land use planning class with three South Shore municipalities (Cohasset, Hingham, and Hull) and the regional planning authority, MAPC. Hull is one of the densest and most built-out coastal peninsulas in New England and will be a series of islands in 2100. Cohasset and Hingham are more inland and less developed, with more opportunities to adapt to changing coastlines. Each of these municipalities is pursuing strategies to secure their own future, though the strategies will also impact the other municipalities. To coordinate multiple local responses along with climate uncertainty results in hundreds of scenarios; a simplified model is necessary to be useful for planning (Kirchhoff, Lemos, & Engle, 2013; Kirshen, Merrill, Slovisky, & Richardson, 2012). Due to issues with scenario planning tools discussed above we found it challenging to articulate the breadth of possibilities and explore the interactions among them. Instead, we developed and evaluated a subset of likely scenarios selected with input from local elected officials, local and regional planners, and consultants familiar with the region.

Our assessment of scenario planning tools suggests a need for tool development that (1) integrates fiscal policy and sea level rise; (2) takes a spatially explicit approach to account for interaction of multiple local government strategies; and (3) includes multiple time periods, for example by incorporating discount rates. Finally, this research contributes practical guidance for fiscal and land use planning practitioners to mainstream sea level rise information and contributes more broadly into research on drivers of climate change adaptation planning.

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Key Words: scenario planning, planning support systems, adaptation, sea level rise, land use planning

DETECTING ABANDONED FARMLAND USING TIME-SERIES AND MACHINE LEARNING ANALYSIS OF REMOTE-SENSING IMAGERY - A CASE STUDY OF GWANYANG CITY, SOUTH KOREA

Abstract ID: 631

Individual Paper Submission

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Farmland abandonment has been an increasing worldwide concern. Diversified reasons would explain this phenomenon, while main anthropogenic ones include aging rural population, the shortage of agricultural labors, restructuring industrial sectors and excess urbanization. Farmland abandonment have divergent effects. On the negative side, the invasion of native plant species on an abandoned land parcel would be likely to spread to nearby parcels that are still actively used for agricultural production. Some of such abandoned farmlands have been converted to a building site and accommodated haphazard property developments, which further ruined rural communities. Also, the removal of crops would increase the possibility of soil erosion, desertification, and the occurrence of wildfires.

Detecting abandoned farmland has been a challenging task. First, it requires a tremendous level of manual works, involving site visits and investigations to confirm the abandonment. Considering that those sites have inconvenient accessibility in general, precisely inventorying those might not be possible in most of the cases. Remote-sensing techniques have supplemented the manual efforts, however, limitations still exist. First, it is not easy to identify common and representative characteristics of abandoned farmlands in general, since the current status of those widely varies. The presence and types of vegetation are heterogeneous by the local contexts, and the reasons for and the length of abandonment; some of those sites experienced ecological succession and turned to a piece of naturalistic ecosystem, such as forests/thickets, while others remained barren or were cleared for human uses. And second, because the abandonment is determined after a certain period of time without agricultural productions on it, a cross-sectional analysis is not appropriate for detecting, classifying or mapping those conditions.

Against this backdrop, this study aims to detect abandoned farmlands from active croplands, through discerning the phenological trajectories, fully utilizing parameters derived from harmonic analysis of vegetation index, one of the time-series analyses for periodic cycle, and support vector machine, one of the machine learning classification techniques. In the first step, using harmonic analysis on the reference data, the characteristics of each land-cover type is derived from the remote-sensing imagery, and second, using the test set, classification is conducted using support vector machine. This study is the first attempt to utilize only the raw form of harmonic coefficients for the classification of abandoned farmlands, rather than using composited amplitudes and phases of vegetation index trajectory or estimated phenology matrix. Unlike other studies, the coefficients of the higher-order harmonic components enable more accurate detection of the differences in vegetation index trajectory of abandoned farmlands in case only short-term observation is available.

The study site is Gwangyang, in South Korea, one of the cities experiencing increasing farmland abandonment. The study period is from Jan. 2016 to Oct. 2017. The definition of the abandoned farmland varies by countries as well as government authorities in a country, and we follow one of the widely used ones in Korea defined by Korea Rural Community Corporation.

This study will shed light on land and resource planning literature, emphasizing the new analytical techniques, and will provide a useful reference to urban and rural planners on a mission of effective land management and revitalization of rural communities.

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Key Words: Abandoned farmland, Remote-sensing, Harmonic analysis, Machine learning

SOCIAL HOTSPOTS AND SOCIAL CONNECTIVITY: A BIG-DATA BASED EXPLORATION

Abstract ID: 633

Individual Paper Submission

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Individual's social networks can be formed by their social activities in the physical and cyber environments. Although previous empirical studies on social network and activity travel behavior provide useful insights, they are also constrained by data limitations in terms of spatial and temporal coverage and sample size. In this study, we investigate the relationship between social hotspots and individuals' social networks, taking advantage of a unique mobile phone dataset of millions of anonymous subscribers. Our main objectives include 1) exploring new determination technics for social hotspots and social connectivity using mobile phone data, 2) documenting empirical features of social hotspots and social connectivity, and 3) analyzing the relationships between individuals' social network structure, their activity travel patterns and social hotspots, and identifying empirical features that need new theories and explanations.

In conventional studies, social hotspots are often identified based on static geographic features such as point of interest, which is unable to capture the dynamic nature of these social spots. Our datasets allow us to characterize social hotspots in terms of land use characteristics and time characteristics (working hours, night time and holidays), and participant characteristics (neighborhood residents, national residents, and foreign visitors). We are able to analyze the interactions between individuals and the physical environment and the interactions among individuals in the cyber and physical environments to provide a complete plot of linkage between social connectivity and social hotspots.

In this study, the mobile phone data consists of millions of anonymous subscribers' detailed call records including the location and time stamp of each connection from March 2011 to May 2011 in Singapore. Firstly, we combine static geographic data such as points of interests, land use and infrastructure with dynamic population distribution derived from mobile phone data to characterize social hotspots, taking their activeness and service radius into account. We also develop algorithms to infer individuals' home location, work location and the spatiotemporal patterns of their visits to social spots. For social connectivity, we measure the number of contacts, connection frequency as well as spatial features of individuals' social networks, such as the distance from an individual's home to their contacts' home. With these features, we apply quantile regression models to conduct association analysis among individual social network, social hotspots, and their activity mobility patterns.

Our preliminary findings suggest that active social hotspots during after-work hours are close to active social hotspot during the working hours which implies that social activities after work are more likely to happen near people's working places. Besides, the increase in the distance of individuals' home/work

locations to downtown is associated with a decrease in their social network size at different extents. Regarding the spatial feature of their social network, people who live distant from downtown have contacts who appear to live far from them. While for people who work near downtown, their contacts tend to live close to them. Moreover, the results also indicate that the diversity of their social activities is positively related to the size as well as the spatial attributes of their social networks. In terms of the effectiveness of hotspots, the contribution of active social hotspots and non-active social hotspots to individuals' social connectivity varies.

The unique mobile phone data enable us to examine the complicated interactions among social network, social activities and social hotspots. This study demonstrates an innovative big-data-based approach in social behavior research. The findings could contribute to the planning practice in multiple ways, for example, to assist land use planning to improve the spatial distribution and efficiency of social hotspots to better meet neighborhood's demand for social interactions.

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Key Words: social network, social hotspots, social activities, big data

EXPLORING STREET DESIGN SCENARIOS USING GEOSPATIAL 3D PARAMETRIC MODELING

Abstract ID: 656

Individual Paper Submission

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Background:

To enhance livability of our cities, planners and urban designers make efforts to improve the design of streets to accommodate all transportation modes and road users. Successful designs in the addition to the street proper should encompass other aspects of built environment such as buildings, streetscape, and sidewalks. Recent developments in rule-based parametric modeling inherently integrated into a geospatial framework, offer opportunities to support visual design of complete streets by blurring the lines between CAD, GIS, BIM and 3D modeling and visualization. The objective of this study is to apply such technology integration to explore parametric street design.

Study Design:

More specifically in this study we explore the application of complete streets rules to interactively develop several street design scenarios in a geospatial parametric environment. To support our methodology, we use several city blocks in need of redevelopment in Gainesville, Florida. We model the fundamental street and block morphology using Sketchup and 3D ArcGIS Pro and import the model into City Engine where we apply the ESRI's Complete Street Rules to develop several scenarios by parametrically manipulating numerous variables including physical layout, mode, on-street parking, street lighting, street trees, medians and sidewalks to name a few. The model includes additional parameters to redesign building size, roof types and façade textures to create a complete parametric environment for exploratory planning and design. Next, we import the model in a VR environment and simulate various design scenarios using walking, bicycling and driving modes of travel. Finally, we conduct a comparative analysis of traditional 3D modeling and visualization methods applied to street design with the rule-based approach taken in this study.

Results:

The use of 3d modeling and visualization, animation and even interactive visual simulation is not uncommon for street design. The difference in this study is in the use of the rule-based visual design which allows for development and exploration of scenarios interactively by dynamic manipulation of input variables. In addition, we publish various scenarios as web scenes for interactive exploration, especially to garner public input on the proposed designs, a typical requirement for plan approval by most planning agencies. Our comparative analysis shows clear advantages of the rule-based methodology. Such advantages include (a) rapid generation of scenarios leading to major reduction in modeling and visualization time; (b) modeling and visualization on a geospatial framework makes it possible to evaluate scenarios in the real-world context including buildings, streetscape, and zoning regulations; (c) enabling of opportunities for innovative public engagement by using web-scene interactive environment for exploration of planning and design scenarios; (d) future opportunities to expand this framework toward a more complete civil integrated management environment.

Conclusion/Contribution:

In conclusion, we find that 3D rule-based complete streets geospatial parametric modeling is a promising and effective integrated framework for street planning, design and evaluation.

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Key Words: 3D visualization, Parametric modeling, Rule based modeling, Street design, Complete streets

HISTORIAN FOR A DAY: A USE CASE OF AUGMENTED REALITY IN COMMUNITY DEVELOPMENT AND CIVIC ENGAGEMENT

Abstract ID: 711

Individual Paper Submission

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History offers lessons and insights for any effort or attempt to make a neighborhood a better place to live, work, and play. It builds a foundation for the connections between people and people as well as between people and the place to be formed (Billig, 2005; Borer 2006). To reveal the history of any place in a city, proper tools are needed (Devisch, et al., 2016). This collaborative project demonstrates a new way to combine data visualizations, Augmented Reality (AR), and story-telling with narratives to engage community members in an effort to revisit the history of their neighborhood and in turn to re-create a common ground for mutual understanding and consensus-building necessary for meaningful community engagement and development.

Levine Museum of the New South is currently developing a new project, called #HomeCLT. It is imagined as an urban autobiography, peeling back the layers of time to show the city in new ways through a wide variety of voices and perspectives. The collection of stories, past and present, is the cornerstone of these exhibits. Levine Museum has built two proof-of-concept prototype models as a pilot version that were installed temporarily at two different locations in a pop-up style. The Augmented Reality Team (ART) at UNCC has been working with Levine Museum to organize two community events for two Charlotte neighborhoods of Eastland and Hidden Valley to include these indoor pop-up exhibits at two branch libraries. In addition, a neighborhood walking tour was conducted to accompany the indoor exhibit and allow visitors to go around the surrounding area and learn about the history of the neighborhood. To enrich visitors' experience with these pop-up exhibits, ART developed an experimental AR app, which works with the physical displays to offer visitors additional visual contents associated with the theme of the pop-up exhibits. These contents combine historical photographs, video clips, and illustrative figures of quantitative information in 3D. The underlying principle behind this AR app and these community events is the belief that innovative digital tools for information-sharing and broad-based public engagement can help build inclusive, healthy, and livable communities.

The goals of this project include: 1) to explore the potential of AR in community development and civic engagement; 2) to introduce AR to the general public through the use of mobile AR apps developed by ART in a series of community events; 3) to build partnership with local organizations, such as Charlotte-Mecklenburg Library and Levine Museum of the New South to develop and conduct community events as a platform to achieve these goals; 4) to develop AR mobile apps using Niantic's AR platform and other open-source software programs and assets and explore potential use cases in the field of community development and public participation.

The surveys conducted during the events provide initial findings as the following: 1) event participants learned about AR and gained first-hand experience about its potential in promoting civic engagement and public education; 2) participants were able to get involved in community affairs and learn more about

their own places and people through the exhibits and the AR app; 3) event organizers got hands-on experience about how the mobile app can be a fun way to engage community members.

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Key Words: Community Development, Civic Engagement, Neighborhood History, Augmented Reality, Mobile Games

UNCERTAINTY IN FLOOD MITIGATION PRACTICES: ASSESSING THE ECONOMIC BENEFITS OF PROPERTY BUYOUTS AND FREEBOARD ELEVATION IN FLOOD PRONE COMMUNITIES

Abstract ID: 714

Individual Paper Submission

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In the aftermath of repetitive flood events in the United States and their associated impacts on property damages, adopting effective flood mitigation practices continues to play a prominent role in preventing future damages and fostering resilience to residential flooding. Two common mitigation practices for reducing residential flood risk from both inland and storm surge-induced flooding are raising an existing structure to or above base flood elevation (Montgomery & Kunreuther, 2018), and acquiring chronically damaged properties in flood prone areas, restoring them back to serve their natural functions as green open spaces (Tate et al, 2016). However, among decision-makers and planners there is a discrepancy between where mitigation is implemented and an approach that is financially optimal from a flood-risk perspective. This discrepancy is due in part to data accuracy and limitations. We address this problem through the following research questions: What does the optimal allocation of flood mitigation resources look like under data uncertainty, and what are the optimal methods to combining mitigation measures with consideration for the best economic benefits? Using the Exploratory Modelling and Analysis (EMA) uncertainty workbook (Kwakkel, 2017), we assess how uncertainty in property values, construction and demolition costs, as well as policy implementation options such as structure selection and budget allocation influence the final benefit to cost ratio. Results suggest that clustered buyouts, the amount budgeted for mitigation, and how those funds are allocated directly influence the selection of the most economically viable mitigation practices. These findings highlight the importance of evaluating parcel-level mitigation strategies at the community scale (Highfield et al, 2014) and shed light on the opportunity that strategic buyout selection and post-construction elevation provides planners in channeling scarce monetary resources to locations that are both economically viable and benefit open space restoration. Our research also contributes to the growing need for evaluating specific flood mitigation strategies which can be applied in congruence with other non-structural approaches of flood risk reduction (Brody et al., 2009).

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Key Words: Uncertainty Analysis, Scenario Planning , Urban Flooding, Flood Mitigation

MEASURING HOUSEHOLDS' AWARENESS AND UTILITY VALUE OF SMART CITY IN SONGDO, KOREA

Abstract ID: 722

Individual Paper Submission

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Smart cities are expected to improve people's quality of life by using state-of-the-art urban management technologies in service delivery. Although, there is no consensus on the definition of the smart city yet (Caragliu et al., 2011; Albino et al., 2015). The concept of smart cities has become a popular urban planning strategy, and in recent times, many countries both developed and developing have announced various smart city-led development models. In this paper, we critically evaluate South Korean's smart city of Songdo International Business District (Songdo IBD).

Songdo IBD is one of the first smart city in the world that has been constructed from scratch in a city of Incheon, Korea. Songdo has invested heavily in cutting edge sensing technologies and networks which helps make transportation, and other public service deliveries smarter. However, although the utilization of smart technologies may improve the quality of life for most, it can also exacerbate the inequalities of the city (Odendaal, 2003). We analyzed 2017 Korea Housing Survey and found housing and living costs in Songdo higher than surrounding areas, and widespread differences in the households' characteristics, leading to inequality, between Songdo and neighboring urban areas in Incheon City. In addition, Songdo is currently in danger of being underpopulation and has a high vacancy rate. According to Statistics Korea, the current population of Songdo, which is 131,309 in 2018, is only about half of the projected population, which is 265,611. The vacancy rate of office spaces in Songdo is about 40 percent, while the national rate is only about 13 percent which raises an important question of financial sustainability.

Meanwhile, the regional government is promoting to invest additional smart infrastructure to make Songdo more attractive to residents and businesses. However, there is no universal solution for the success of a city in its path towards smartness, and smart city project requires taking account of different aspects (Pellicer et al., 2013). In the case of Songdo, people-centric policies can be key factors to lower

the inequality and improve the sustainability and livability of the city, instead of advanced technologies.

Encouraged by the secondary data analysis, we plan to undertake primary household survey (100 surveys) of Songdo residents along with semi-structured interview (18-20) of business owners, policy makers, and residents to understand the level of awareness about smart cities and the technologies implemented, their residential satisfaction, and willingness to pay (WTP) for smart services. We will calculate WTP by contingent value method (CVM) and will analyze the impact of households' characteristics on WTP.

This research has huge policy implication as it is important to understand the effectiveness of smart city initiatives as a new planning strategy.

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Key Words: Smart City, Residential Satisfaction, Contingent Value Method, Willingness to Pay, Songdo

SENSITIVITY ANALYSIS OF HOUSING MARKET SIMULATIONS

Abstract ID: 790

Individual Paper Submission

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Advances in technology have made it computationally feasible to simulate travel decisions and household relocation at individual scale (Hunt, 2007). Modelling daily housing market behavior becomes more desirable than annual or even monthly aggregate adjustment to supply and demand in order to avoid ecological fallacy concerns and to capture the impact of market shocks. However, as the models become more disaggregate, the variability increases, and the simulations are more prone to stochastic variation and parameter sensitivity (Raftery, 2007). More research is needed to determine whether the increased variability outweigh their operational usefulness. This paper addresses these questions by examining the sensitivity of the land use portion of one microsimulation platform—SimMobility (Zhu, 2018), which uses a daily bidding model to simulate household relocation decisions.

First, we test model stability and sensitivity to initial conditions with five-year 'dynamic equilibrium' runs that have no new units developed or demolished, and no changes in population. The results demonstrate that, with plausible parameter choices, stable market behavior can be simulated. Using Singapore data and econometrically estimated supply and demand submodels, the model can be calibrated

to approximate observed market behavior during 2012 with parameter choices that also approach dynamic equilibrium conditions after five years and are relatively insensitive to initial conditions.

In addition, we evaluate uncertainties arising from submodels that ‘awaken’ households who then search actively, and that construct each household’s housing ‘choice set’ from the available supply. We know that all households are not equally likely to move during the next period and to examine all vacancies. The SimMobility Long-term model uses targeted awakening and choice set submodels to simulate a more realistic search process. We conducted ten simulations for each of the three cases: a base model with targeted awakening and targeted choice sets, and two other cases with either random awakening or random choice set construction. The coefficients of variation (CoV) were calculated for the number of bidders and sales. The base model has the largest variability because the targeted awakening and choice sets induce more competition, which leads to higher volatility. Nevertheless, the higher CoV is still reasonably small (1-5%) suggesting that ten Monte Carlo simulations of each case are adequate to distinguish significant differences across cases.

Lastly, we analyze the effect of varying supply and demand. The number of sales and average prices can be sensitive to the ratio of actively-searching households (the demand) and available-for-sale housing units (the supply). Model calibrations appeared to be most realistic when this ratio was in the range of 2-7%. In these cases, housing units that receive bids on any particular day tended to average 1.2 – 2.0 bids. Lower averages resulted in too little competition for the available housing, and higher averages yielded too much competition whereby housing prices escalated rapidly. Across 35 planning areas, we observed spatial heterogeneity because supply and demand are uneven. However, the volatility across sub-markets was still low enough to allow meaningful scenario comparisons of 10-run averages. To illustrate this point, we compared one-year simulations of housing market behavior with and without that year’s supply of new public housing, and with/without the introduction of a ‘car-lite’ neighborhood that improved first/last mile accessibility.

This paper demonstrates the feasibility of using an agent-based urban simulation platform (SimMobility) to study housing market behavior through daily bidding at disaggregated scales. The results identify key parameters that could be estimated from survey data and the calibrated model is used to examine the market effect of new public housing and of accessibility improvements within a study area. The methodology could also be applied to analyze the sensitivity of other urban simulation platforms.

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Key Words: microsimulation, housing market, sensitivity analysis, land use and transportation interactions

EXPLORING SCENARIOS OF PLANNING/POLICY INTERVENTION IN REGIONAL EMPLOYMENT LOCATION: AN AGENT-BASED MODEL

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The complex social-ecological systems for which we plan change, whether or not we intervene through policies. This is partly due to the numerous individual and organizational actors who make self-interested, unilateral decisions in the regional space. Their joint outcomes at any point in time are difficult, if not impossible to predict. Nevertheless, we expect planners and public decision makers to act in the public interest and to be accountable to constituents. They need the ability to explore alternatives, select ones that benefit the public, and reduce the likelihood of negative outcomes. Predicting decision outcomes in the context of complex systems is risky, because mistakes can be costly and/or irreversible. One alternative to relying on predictions is to switch to anticipation, which consists of generating a range of scenarios—possible system responses to specific decisions—instead of attempting to predict the response that will actually prevail. Then planners can select decisions that are robust—wise for a broad range of possible futures (Avin 2007, Chakraborty & McMillan 2015).

We propose a dynamic, agent-based spatial model for generating scenarios that allow anticipation of employment location in an economic region in response to various policies. The model (Kaufman et al. 2018) is based on Krugman's (1996) market potential characterizing localities, such that employment flows from places with lower-than-average market potential to places with higher-than-average market potential. The model has four parameters, estimated using the first two years of an employment time series for all localities in a region. The model can then be used to generate employment in time at each location in the region.

To test the model and its potential use as a scenario-generating tool, we selected two regions that differ from each other in terms of their economies. Northeast Ohio is a legacy region, relatively stagnant and trying to revive its economy; it is mature, with its 241 localities ranging from very large to very small. The Dallas-Fort Worth region has a growing economy and a younger structure, whose 358 localities consist of two major cities and much smaller places surrounding them. We asked whether the model we propose performs well in such different circumstances, in terms of actual versus predicted employment values.

First, we used 2001-20015 number and location of jobs in each of the two regions (Longitudinal Employer-Household Dynamics, U.S. Census Bureau [<https://lehd.ces.census.gov/>]), to estimate region-specific parameters, and to validate results against the actual data. The model performed well for both regions: the correlations between actual and predicted employment at of the 241 localities in Northeast Ohio was .988 in year 2015, while for Dallas-Fort-Worth the corresponding correlation was .996 for the 358 localities. Thus the model performed very well in predicting actual values over a 15-year span, in regions with very different economic characteristics. This validation gave us confidence in using the model as a scenario-generating tool to anticipate outcomes of decisions that affect employment location in a regional space.

Next, we show how planners can use the model: we generated illustrative scenarios of spatial outcomes of policies intended to either attract employment at specific locations or discourage growth in environmentally sensitive parts of the region. Results revealed some interesting and surprising region-wide consequences of both tax incentives at some locations and conservation set-asides in environmentally sensitive areas. These region-wide consequences are difficult to foresee by other means.

The results of the policy scenarios allow planners to debate the wisdom of alternatives and share the information with regional stakeholders. Thus the model can be used to generate alternatives in participatory settings.

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Key Words: anticipatory scenarios, regional employment, agent-based models, complex systems

RESEARCH ON THE SPATIAL CHARACTERS AND PLANNING STRATEGY FOR THIRD PLACE BASED ON THE NETWORK DATA

Abstract ID: 845

Individual Paper Submission

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With the advance of globalization and network technology, the flexibility of time and space is increasing, and the concept of third place arises. In the process of building a smart city, the third place plays an important role in promoting the communication between innovative people and attracting the science and technology enterprises.

This paper introduces the concept, origin and research progress of the third place. It proposes a method for identifying the third place based on semantic analysis. Through the use of network data, this paper analyzes the spatial distribution characteristics and mechanisms of the third place. And some planning strategies to guide the healthy and orderly development of the third place are put forward.

Firstly, this paper obtains the user's evaluation information on the recreational and leisure sites by analyzing the data of crowd-sourced reviews websites. According to the definition of the third place, this paper sets the accessibility, social interaction, information intensive, and sharing as keywords through which the user evaluation information is semantically analyzed to identify the public places that meet the third place characteristics. Then the paper obtains the spatial location information of these public places through open source map data, and uses ArcGIS software to perform nuclear density analysis on these public places. At the same time, the public service level was evaluated by the user's reviews. Based on these analyses, the spatial distribution characteristics of the third place in the city is revealed.

The result shows that the third place tends to concentrated in urban centers and scattered in urban peripheral areas. In terms of location selection, it tends to be close to business centers and research intelligence centers, and it is integrated with various types of urban spaces. The paper considers that the

third place, as a platform for information exchange and social interaction, needs to highlight the flow, agglomeration and sharing of innovation elements. They are more dependent on intellectual and information resources, have more demand for funds and services, and have higher requirements for environmental quality. Therefore, gathering around the business centers will help the third place to enjoy good transportation and communication services, rich information resources, perfect surrounding environment and high-quality professional services. And close to the intelligence centers, the third place can attract more creative people, and use their advantages to provide a good display and practice platform. In conclusion, the article argues that the distribution of the third place tends to form a community that integrates resources, saves costs, and promotes innovation. The third space is deeply integrated with the urban space in a flexible way which promotes the formation of urban innovation networks, the renewal and utilization of urban stock space, and the growth of public social space.

Based on the distribution characteristics and mechanism of the third place, this paper proposes some planning strategies to guide the healthy and orderly development of the third place. In the urban comprehensive planning, the strategic orientation of encouraging the sharing of the third space should be established. In the regulatory detailed planning, the third space should be provided with more compatible land use regulations. And urban design should provide flexible design guidelines for the third place, encouraging the integration and sharing of the third place with other functional spaces in the city.

This paper proposes a third place recognition method based on semantic analysis, reveals the spatial distribution characteristics and mechanism of the third place, and puts forward some planning strategies to guide the development of the third place which is of great significance for activating social interaction, promoting information sharing, and building innovative cities.

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Key Words: Third Place, Semantic Analysis, Distribution Characteristic, Mechanism, Planning Strategy

FROM HERE TO WHERE? THE ROLE OF SCALE IN THE MEASUREMENT OF SPATIAL MISMATCH

Abstract ID: 855

Individual Paper Submission

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A substantial body of research has examined spatial mismatches between housing and employment, though there is considerable variation in the metrics with which (Wu, Zhang, and Yang, 2015) and the spatial scales at which (Benner & Karner, 2016, Wang, 2000) such housing/employment imbalances are measured. This paper examines the issue of scale in detail with the purpose of evaluating the impact of research design decisions on the estimation of housing and employment imbalance.

Building off the prior literature, we hypothesize that the suitable commute distance at which to measure spatial mismatch may vary by local context. To test this hypothesis, we use data from the Longitudinal Employer-Household Dynamics Origin Destination Employment Statistics data set, published by the U.S. Census Bureau, and detailed road network data from Open Street Map to measure jobs-housing imbalances in the Detroit and Grand Rapids, Michigan, metro areas. We use network analyst in ArcGIS to create commute sheds of varying distances (.5, 1, 2.5, 5, and 10 miles) from the population-weighted centroid of each census block. We then use descriptive statistics and regression analysis to examine how estimates of jobs-housing imbalance vary based on the selection of commute shed distance thresholds and characteristics of the local urban form (housing and road density). Our analysis illustrates that measures of spatial mismatch are highly sensitive methodological decisions regarding the appropriate unit of analysis and to variations in urban form. Our paper suggests the need for robust testing of and justifications for the units of analysis in examinations of spatial mismatch.

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Key Words: Spatial Mismatch, Jobs-Housing Imbalance, Spatial Methods

URBAN-GANS: A GENERATIVE ADVERSARIAL NETWORKS MODEL FOR URBAN DESIGN COMPUTATION

Abstract ID: 922

Individual Paper Submission

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In recent years, increasing applications of machine learning techniques and big data enrich our understandings of cities greatly. However, there are limited discussions on how to apply those technological advances to facilitate urban design process by enhancing current design computation methods as “Design in Science” (Batty, 2013). Design computation has two parts: representation and process (Knight and Stiny, 2001). Both parts could have their current struggles better addressed by applying machine learning techniques. On one hand, current urban form representations in design computation are mostly symbolic, which are analyzed and predefined by designers as schemata (Rowe, 1987). Such symbolic representation is often too simplified comparing to actual urban form, which leads to design generation results that mostly seem rigid and unrealistic. On the other hand, the process in design computation deals with the design generation and selection, which can be viewed as searching toward certain objectives in a design space (Rowe, 1987). Advanced studies follow the optimization-oriented process, integrating scientific modeling and optimization techniques to guide the design generation (Knight and Stiny, 2001). However, such integration is sophisticated, and the modeling is often limited in its accuracy and capability to deal with qualitative performance such as human perception.

The strength of machine learning techniques to identify complex patterns in a huge dataset provides new solutions for design computation. For the representation, techniques such as Convolutional Neural Networks (CNN) widely used in spatial data learning allow analysis with the sub-symbol representation of urban form as raster, which preserves more spatial information. For the process, the emerging Generative Adversarial Networks (GANs) model provides a coherent framework to integrate neural networks models that can connect urban form with various performance observations including those hard to quantify, into design generation. The GANs is a generative model that uses two adversarial neural networks, a generator (G) and a discriminator (D), to engage in a two-player minimax game to find an equilibrium (Goodfellow et al., 2014). Such a technique has been widely and successfully used in producing photorealistic images.

This study aims to develop an Urban-GANs model that uses both techniques of CNN and GANs, to enhance urban design computation by generating more realistic and creative design solutions with certain performance criteria, based on real urban form datasets. This model has five stages. In the preparation stage, the urban form dataset is sampled and represented as raster images with the same size and labels. In the training stage, sample batches are used to train a GANs model, resulting in generator weights. In the generation stage, the trained generator is used to synthesize design solutions from random noise inputs with objective labels. The generated designs are further processed and transformed into 3D models in the post-processing stage. This Urban-GANs model will be applied to a hypothetical urban design case based on urban form datasets including building, street and vegetation in three megacities: New York, Seoul and Shanghai. Over 100,000 training samples with the size of 500m x 500m will be drawn from the datasets, labeled with city names and different types of percepts such as safe and beautiful, acquired from crowdsourcing datasets including geo-tagged tweets and the MIT Place Pulse dataset (Zhang et al., 2018). As a demonstration, designs will be generated with certain label combinations such as “New York + safe”, which are supposed to share same complex patterns as real urban forms of that kind. The Urban-GANs model can provide urban designers a more powerful design computation tool to generate realistic and creative designs with certain performance criteria, and similar methods can be applied to other planning fields for scenario generation to better inform decision-making.

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Key Words: Urban Design, Design Computation, Generative Adversarial Networks, Machine Learning, Big Data

A PLANNING SUPPORT TOOLKIT

Abstract ID: 934

Individual Paper Submission

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An impressive array of planning support systems has been developed and employed around the world as described in several edited volumes including Brail and Klosterman (2001) and Brail (2008).

Unfortunately, these systems have not been widely used in planning practice for several reasons identified in the literature. Experience suggests that most PSS provide sophisticated analysis and spatial modeling systems that do not meet user's needs (Vonk, Geertman, and Schot 2007). Partially as a result, there is little awareness of, and practical experience, with PSS among planning practitioners (Von, Geertman and Schot (2005).

This paper illustrates a different approach to PSS development. It describes a collection of planning support tools that abandon the attempt to develop sophisticated, complex and expensive models for simple, easy-to-use urban and regional analysis and projection methods at the core of planning education and practice. It similarly avoids sophisticated "cutting edge" technologies by employing only the ubiquitous Microsoft Excel and freely available open source QGIS.

Methods provided in the tool set include: (1) demographic and economic analysis tools such as location quotients, Gini coefficients and population pyramids; (2) trend, share, and cohort component projection methods; and (3) and vector land suitability analysis. The methods are thoroughly described and applied to a real community in a recently published text (Klosterman et al, 2018), which identifies data sources for applying the methods in the United States. The paper describes and illustrates the analysis and projection tools and considers their advantages and limitations for planning education and practice.

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Key Words: urban and regional analysis, planning support, demographic analysis, economic analysis, projection

A METHOD TO ASSESS ALGORITHMS FROM THE PERSPECTIVE OF JUSTICE

Abstract ID: 935

Individual Paper Submission

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With new algorithms being developed constantly, city governments worldwide are encountering novel automated decision-making systems. Policymakers and planners are consequently faced with assessing systems that they and their agency staff do not adequately understand. These systems' range extends from

traffic management to deciding benefits eligibility to school assignments to parole and sentencing decisions. In each of these applications, algorithms promise practical benefits for urban governance such as efficient and consistent decision-making, among others. At the same time, governing-by-algorithm raises serious concerns about justice—though policymakers currently lack an adequate method for assessing algorithms from the perspective of justice. We propose such a method.

First, we draw on the emerging literature on algorithms and justice to describe how our understanding of a sector's justice concerns are systematically altered when seen through the lens of algorithms. In particular, the algorithmic lens has tended to focus attention on justice concerns that are readily operationalized in statistical terms. These concerns are typically only a subset of long-standing justice concerns in a sector. For example, the literature on criminal justice algorithms has focused heavily on discrimination, thereby drawing attention away from other long standing criminal justice concerns such as proportional punishment and due process. Then, we describe a differential method to assess how a domain's justice concerns are altered by seeing them through the lens of an algorithm.

To illustrate, we apply our method to several algorithms in use in New York City. In each of these cases, we argue that policymakers' knowledge of key justice concerns and performance targets be the starting point for evaluations of these automated decision-making systems. This approach forces us to consider the full range of justice concerns and standards of justice existing in a sector, ignoring whether they are easily operationalized or not. As a consequence, we take a critical view toward the current tendency to assess algorithms primarily using measures derived from easily operationalized concerns of justice.

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Key Words: Algorithms, urban governance, justice, automated decision-making, machine learning

SOCIAL MEDIA AND DIGITAL PUBLIC DISCOURSE: EXAMINING THE ROLE OF CROWDCULTURE IN PORTRAYING PLACE BRANDING AND STIGMA IN DALLAS, TX

Abstract ID: 968

Individual Paper Submission

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A central feature of the digital age and the network society is the emergence of social media as a game changer in the landscapes of networked power of mass-self communication (Castells, 2013) and crowd cultures (Holt 2016). Social media has become a powerful wheel of social change, shaping the urban experience (Zukin, 2009) and augmenting or leveling the asymmetries in symbolic power of actors

(Fuchs, 2017). Aided by the Internet and social media, cities and places may bask in their positive urban imaginaries as promoted through place brands or endure negative territorial stigmas associated with their past or most vulnerable distressed places (Audirac, 2018).

This study uses tweet data to decipher positive and negative urban and social imaginaries associated with the City of Dallas. Drawing on the concept of “crowdculture” via social media, as framed by Douglas Holt (2016), this research examines the link between urban imaginaries and places in the city identified as racially/ethnically concentrated area of poverty (R/ECAPs). Holt suggests that crowdculture involves diverse spontaneous sub-cultures seemingly isolated, but that collectively can forge powerful challenges to traditional branding campaigns and ultimately to place marketing regimes. Despite the place branding efforts to create a “geography of buzz” (Currid & Williams, 2010) led by Dallas’ municipal planners and city leaders, social media crowdcultures as manifest in tweets, while raising challenges to these efforts, may uplift traditionally stigmatized areas or inspire more community-based action. This posits the possibility of new forms of digitally produced public spheres (Fuchs, 2017). This research aims to identify the leading digital public-sphere discourses associated with Dallas’ “elite” and “distressed” places and to provide insights into the crowdcultures behind these urban and social imaginaries. To accomplish this, the authors draw on the classification and sentiment analysis of tweeted data. These data profiles are compared with the urban imaginary promoted by the city’s official Tweeter outlets.

Preliminary findings suggest that tweeting subcultures relate positively to Dallas “elite” places regarding sports events, and negatively around social issues, and economic malaise. Following Schweitzer (2014), social media has the ability to influence decision-making in planning processes, with the potential to tap into the digital-public-sphere discourses of specific crowdcultures. Thus, big data sentiment analysis by local planning agencies may contribute to identifying what residents think of the city and to help improve policy making in practice.

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Key Words: Urban Imaginary, Social Media, Twitter, Sentiment Analysis, Place Branding and Stigma

CAN ADVANCED TIME SERIES MODELS ACCURATELY PREDICT FUTURE POPULATION AND INCORPORATE UNCERTAINTY THROUGH THE PROVISION OF REASONABLE PREDICTION INTERVALS?

Abstract ID: 999

Individual Paper Submission

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Planners often rely on forecasts of future population when working in a broad range of activities, from estimating global impacts of climate change to the development of local land use, infrastructure, and transportation plans. These forecasts are typically single point values around which the full plan is then crafted. This approach, however, ignores the inherent uncertainty in any prediction about the future. This has led one of planning's most prominent methods academics to conclude, "I agree with a growing number of scholars who suggest that planners abandon the futile effort to predict what the future will be" (Klosterman 2013, p. 164).

However, what if forecast future values of variables such as population could be bracketed with the high and low values of a reliable prediction interval? Any plan dependent on the projection could then be designed to be as robust as possible over the likely range of future population values. This paper explores the question of whether a suite of advanced time series (or "ATS") models can provide both reasonably accurate 20-year population forecasts and reasonably valid statistically-based prediction intervals for those forecasts.

The suite consists of three ARIMA models, two exponential smoothing models, and two damped trend models. Also calculated are three models using different combinations of the seven individual models: an average of all seven, a maximum-and-minimum trimmed average of the five remaining models, and a trimmed average of the three remaining models after discarding the two highest and two lowest projections.

To test this hypothesis I use a dataset of Census Bureau annual U.S. state population estimates covering the years from 1900 to 2018. Using R open-source statistical software and the R forecast package, I adopt a 25-year base period to fit the models and a 20-year forecast period to produce retrospective forecasts for every fifth year from 1945 to 2015. I then compare actual population to forecast population and calculate several common error measures.

To establish a set of baseline forecasts I construct and apply a similar suite of well-researched traditional extrapolation (or "TEX") models. The (preliminary) overall findings are that individual ARIMA models and combinations of all the advanced statistical models are more accurate than any of the competing traditional extrapolation models, although the magnitude of the difference(s) is not large. I also compare both suites of models to a historic set of Census Bureau cohort component state projections and discover that models from both the ATS and TEX suites have lower errors than the Census Bureau models.

The R forecast package can also produce statistically-based prediction intervals for each individual model in the ATS suite. For the three ATS combination models, I calculate the prediction intervals of the model combinations by applying the same process used to calculate the point forecasts. I then ask whether the proper percentage of actual values falls within prediction intervals ranging from 5% (which should encompass 5% of actual values) to 95% (which should contain 95% of actual values). The preliminary results from the full dataset of projections (forecast years from 1945 to 2015) are disappointing. For example, for most models only 25% of the actual values fall within the 50% prediction interval. However, when I calculate separate results for the most recent period of projection years (1995-2015), the combination models have projection intervals that work well or are even slightly too narrow over the 5% to 80% range of intervals.

In conclusion, advanced time series models show substantial promise. They enable planners to project population more accurately, but their real benefit is their ability to directly incorporate future uncertainty through research-verified prediction intervals.

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Key Words: population projection, uncertainty, prediction intervals, ARIMA models, transportation and infrastructure planning

THE PURSUIT OF HAPPINESS: RE-THINKING NEIGHBORHOOD SATISFACTION USING GEO-SOCIAL MEDIA DATA AND GIS IN TURIN, ITALY

Abstract ID: 1012

Individual Paper Submission

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Central theme

Assessing life satisfaction at the neighborhood scale has long been a focus area for researchers (Jokela, Bleidorn, Lamb, Gosling, & Rentfrow, 2015). The major weaknesses of previous studies have been the use of untimely and aggregated data that is tangentially linked to mental health. This fault likely due to traditional assessment techniques, such as survey instruments (Mitchell, Frank, Harris, Dodds, & Danforth, 2013). The advent of geosocial-media (GSM) data, however, have opened-up new channels of exploring links between place and human satisfaction (Frank, Mitchell, Dodds, & Danforth, 2013). The data, and approach, contains three attributes which sets it apart from other data: a timestamp, location, and syntax. These can collectively reveal previously unknown psychosocial relations to one's environment. Our main goal was to harness this information and answer the question: can we more re-imagine and consider how neighborhood composition, environment, transportation, and time affect life satisfaction using GSM?

Approach and methods

The GSM data was obtained from the Twitter open-source API. The database was filtered and used to derive a valance (i.e. sentiment) index. Compositional and contextual information for each statistical zone were then collected from government sources and then linked to the Twitter database using GIS. The zonal indicators included in this research consisted of: public health, infrastructure, travel safety, incivilities, accessibility, socioeconomic standing, and density. Exploratory spatial data analysis (ESDA), GIS, and spatial regression modeling were implemented to investigate the spatial patterning of sentiments, and highlight important explanatory factors associated with increased or decreased values.

Results

The ESDA results showed that the spatial patterning of Tweets clustered near the central portion of the city. Unsurprisingly, it was also found that sentiment values differed depending on time-indicating the importance of temporality on life satisfaction when neighborhood effects are controlled for. The regression model's diagnostics were marginal ($R^2 = .03$) though revealed statistically significant relations ($p\text{-value} < 0.05$) to sentiments. Most notably, urban density, mortality rates, and disturbances negatively affected values, while pedestrian infrastructure had the opposite influence. The results validate a growing body of work on how urban stressors affect life satisfaction spatially and within neighborhoods.

Conclusions

The research has provided valuable evidence on the nuanced relationships among mental health, neighborhood, time, and space. Our results show how GSM may potentially be used to estimate neighborhood life satisfaction, when neighborhood effects are controlled for. We expect the results of this research to be valuable for practitioners and researchers on two fronts. First, the models' displayed several noteworthy coefficients indicating the importance of time, space, and neighborhood effects on life satisfaction. Second, we showed that the combination of GSM data and GIS is valid approach that could be used to examine mental health in neighborhoods in other cities.

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Key Words: GIS, Neighborhood, geo-social media, public health, big data

COMPACT AND GREEN URBAN DEVELOPMENT – TOWARDS A FRAMEWORK TO ASSESS URBAN DEVELOPMENT FOR HIGH-DENSITY METROPOLIS

Abstract ID: 1015

Individual Paper Submission

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As we are entering the urban age, urbanization has been identified as one of the most development challenges in the 21st century by the United Nations. While cities worldwide have manifested a diverse range of spatial patterns, from the typical suburban sprawl to densely developed urban core or new towns

at the urban fringes, compact and green urban development has been gradually gained attraction in recent years, considered as one of the most viable solutions to this development challenge. Despite the numerous literature on topics of compact or sprawl urban development, there is lack of consensus on concepts or measurements for either urban compactness or urban sprawl (Bhatta, 2010; Ewing et al., 2002). In a comprehensive literature review, Bhatta (2010) found that various dimensions and associated indicators have been suggested to identify urban sprawl or compact development. For example, Galster et al. (2001) enlisted 8 such dimensions for sprawl, including continuity, concentration, clustering, centrality, nuclearity, mixed uses, and proximity. Meanwhile, public urban green space has been increasingly recognized as an important dimension for sustainable urban development and assessing accessibility of urban green space to local residents is therefore essential to ensuring quality of city life (Artmann et al., 2019; Fan et al., 2017).

This paper proposes a concept of Asian urbanism and a framework for measuring compactness and green urban development in high-density transit-oriented metropolis by looking at density, diversity, connectivity, and accessibility (centers, transit, and Green Infrastructure/Blue Infrastructure). It focuses on the conceptual development and proposes a general framework of measurements of the above-mentioned dimensions, emphasizing dense, mix-used, connected, polycentric, accessible, and green urban format. It then uses a high density Asian metropolis, Taipei, as a case to illustrate the concept and the measurement framework. A comprehensive index, urban compact-green index (UCGI) is developed to integrate six aspects of a sustainable urban built environment in the context of high-density metropolis, including density of residents and commercial activities, land use mix, street connectivity, access to center/subcenters, access to transit stops, and access to public urban green spaces. We found that while great spatial variations exist among different parts of Taipei Metropolitan Area, the metropolitan area had a distinguished polycentric pattern of UCGI index with several clusters around the center and sub-centers illustrating higher index values. Using the outcomes of our assessment, we further compare them with the planning maps of Taipei and discussed major factors contributed to planning-led or non planning-led compact-green urban development in Taipei Metropolitan Area. Our framework can be applied and used to assess other cities and is particularly useful for high-density metropolis in Asia and Europe. It can provide insights and policy recommendations to urban planners to address different dimensions of compact and green urban development.

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Key Words: Urbanization, compact, green, indicator

URBAN AIR MOBILITY: ASSESSING VIABILITY AND EQUITY WITH AN URBAN PLANNING LENS

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Connected, autonomous vehicles (CAV) on the ground and Unmanned Aerial Systems (UAS) in the sky are among a suite of smart mobility technologies that have captured the attention of planning practice, planning scholarship, and the broader public. In the barest description, all of these smart mobility technologies function as machines equipped with sensors to detect real-time information about the vehicle-operating environment, internal computation capabilities to optimize routing decisions across a variety of constraints, and wireless networks to share information with other machines. Specifically, urban air mobility (UAM) leverages UAS to impose an urban model of air service to transport passengers and cargo (in contrast to the more familiar global model of air service). As the engineering and computational sciences continue to advance toward a world where smart mobility is possible both on the ground and in the air, urban and regional planners have the difficult position of guiding implementation across uncertain futures of technology ownership, policy, and markets.

In the context of America's urban history, there is cause for reflection and caution to ensure that the business plans, land uses, and travel behaviors stemming from smart mobility systems do not further exacerbate existing spatial patterns of social isolation or exclusion. My intent in this research is to assist practitioners and theorists with a treatise for framing the social impacts of implementation, with the goal to broaden the conversation surrounding this technology beyond traffic operations and towards urban outcomes. Thus, I propose the following research question: If we prioritize social inclusion and equity, how might a transportation planner conceptualize and define effective integration of urban air mobility into the built environment? Alternatively, and perhaps more optimistically, if urban air mobility provides the opportunity to re-imagine transport services, what service characteristics would improve accessibility for those who have been historically excluded or marginalized?

To address the question, I reviewed the planning literature to contextualize prevailing theories on the socio-technical interface, frameworks for assessing viability of speculative smart mobility technologies, and frameworks for assessing equity outcomes. After evaluating the existing theories and framework, I summarize three perspectives familiar to the transportation planning profession. First, system design with an emphasis on physical, digital, human, and social components. Second, travel behavior with an emphasis on demand, utility, consumer surplus, and travel costs. Third, spatial design with an emphasis on the scale of the body, the building, the neighborhood, and the city region. Within each of these perspectives, I develop examples of service characteristics that may appear as part of proposed business models and implementation scenarios.

As part of the exploratory findings, I evaluate and reflect on whether those service characteristics would likely exacerbate social exclusion or promote social inclusion. Ultimately, the three perspectives are repackaged to represent inclusive principles: system design relates to fair and equitable opportunities regarding the choice to participate in the new mode of mobility; travel behavior relates to willingness to pay and the balance of incentives to participate in the new mode of mobility; and spatial design relates to the intentional design of the built environment in response to the new mode of mobility.

The contribution of this work is to use prevailing urban theories to unpack the significance of changes to space, place, and social inclusion in urban landscapes that deploy smart mobility services, particularly in the context of urban air mobility. Machine platoons alone will not bring us closer to social inclusion, rather our human spirit as exercised through our socio-technical-spatial design intentions must be at the center of the narrative if we are to hope to construct more equitable, just, and inclusive societies.

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Key Words: Urban air mobility, Transportation, Social inclusion

EFFECTS OF MORE ADVANCED FAST CHARGING INFRASTRUCTURE ON ELECTRIC VEHICLE PREFERENCES

Abstract ID: 1037

Individual Paper Submission

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With lower operation cost and reduced greenhouse gas emissions, alternative fuel vehicles, such as electric vehicles (EVs), have a great potential to drive us to a sustainable future. It is generally accepted that the relative attractiveness of EVs and other alternative fuel vehicles depends on several factors. In the case of EVs, many of these factors are determined by the characteristics of the charging infrastructure, i.e. the number, type, locations, and pricing of charging stations. Since charging infrastructure has a significant effect on the adoption of electric vehicles, prior research generally indicates that to make EVs more attractive to consumers, we should make charging opportunities ubiquitous, fast, and inexpensive. However, in a world with budget constraints, tradeoffs must be made between these goals. Fortunately, many charging needs can be satisfied through relatively inexpensive infrastructure such as home-based Level 1 charging (< 2 kW), workplace and other intracity charging provided mostly by less costly Level 2 charging (> 2 kW and < 10 kW) (TRB & NRC, 2015). Although they serve relatively few charging events, expensive, high power direct current fast charging (DCFC) (> 20 kW and < 120 kW) and extreme fast charging (XFC) (> 350 kW) are a key to making EVs feasible for longer, interurban trips, which is necessary if EVs are to attract mainstream consumers (Botsford & Szczepanek, 2009; Fontaine, 2008). However, the findings of previous research on the effects of attributes of fast charging stations on EV adoption are inconsistent, resulting in a lack of reliable guidance and strategy on new vehicle technology development and sustainable transportation infrastructure planning.

To fill in the gap, this study conducted a stated preference experiment by collecting data via an online survey to investigate the effects of fast charging characteristics on EV purchase preference. Previous studies show that up-front cost, operating costs including fuel (electricity) and maintenance, range, refueling/recharging time, the availability of refueling infrastructure, environmental impacts, and government incentives, as well as those factors that affect any vehicle purchase decision, such as vehicle size, performance, and features, affect the attractiveness of EVs (Hoen & Koetse, 2014; Tanaka et al., 2014). Based on the previous findings, targeting at potential car buyers, the survey presented respondents

a combination of conventional gasoline car, battery electric car, and plug-in hybrid electric car purchase choices with the attributes of purchase price, energy cost, and driving range. In addition, for the choice of battery electric car, the charging facility availability such as distance to home and the spacing along highways, and charging features including price and charging time are also provided. Since previous studies seldom investigated the impact of a shorter charging time with a lower bound of 10 minutes of full charge, this study explores ways to enable a more reliable inference of the effects of reduced charging time on EV preferences, as well as to envision the benefits of more advanced fast charging technologies.

This study applied a discrete choice model to examine the impacts of all the factors on consumer preference, where the interaction between EV battery range and recharging time is also investigated. The results reveal car buyer preferences on vehicle-specific attributes and how their preferences change according to the availability of fast charging infrastructure for electric cars. Additionally, the results identify that the impacts of the vehicle-specific and infrastructure-specific factor differ for consumers with different socio-economic background. With the findings, the study provides implications on sustainable transportation infrastructure planning in terms of addressing and discussing how to direct investments in order to get the greatest public benefit from new charging infrastructure.

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Key Words: Electric vehicles, charging infrastructure, sustainable transportation, discrete choice model

DATA SCARCITY IN THE ERA OF BIG DATA

Abstract ID: 1040

Individual Paper Submission

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A recent report by the World Bank, *Data Deprivation: Another Deprivation to End*, discusses the fact that data is so scarce in developing countries that it makes it hard to track simple, sustainable development goals, including poverty reduction. According to the report, fifty-seven countries have only one or no poverty estimate; this roughly amounts to a third of the world's developing or middle-income countries missing essential data to track poverty. One of the main reasons these countries lack such data is that they do not have the means, either technological or financial, to collect it. Some believe that data scarcity amounts to a new societal divide: the needs of those not counted are forgotten. The United Nations Report, *A World That Counts*, argues that a lack of data can lead to a “denial of basic rights.”

Indeed the development of population data, then, is not only essential because everyone must be counted, but also because data regarding population distribution and urban infrastructure mapping are essential for governments and NGOs to develop and improve both infrastructures and social services. At the same time, data does exist locked in the databases of corporations such as Facebook, Google, LinkedIn and Telecoms who hold vast quantities of human interaction data in these countries. Analyzing this data can provide insights on everything from mobility to internet access should it be anonymized and released to governments and intuitions for planning. Recently there have been examples of private organizations collaborating with governments and institutions to share this data. This research project set out to understand the benefits, barriers, and limitations of these partnerships. Illustrating lessons from these unique partnerships provides a framework for how private data can be used for policy change. Looking at three cases studies including Facebook's openly available population data set, Orange's Data for Good Challenge, and the World Bank's collaboration with Grab Taxi, the research highlights the challenges of working with private institutions to use data for civic change. Data licensing issues was found to be one of the biggest barriers, sometimes taking years for agreements to be made, making the data outdated. Having pre-negotiated license terms could help these partnerships. Finding mutual interests in planning outcomes helps data sharing partnerships. For example, upgrading infrastructure might be beneficial to both parties and using data to help develop those plans provide a benefit to both the government and the private agency. Governments need to provide more incentives for private companies to share the data – perhaps even regulating the data. This may include mandatory data sharing agreements in return for allowing them to operate in their territory. Ultimately this research illustrates pathways for how planners and policy experts can work with private companies to use their data for as a public good and answer questions important to society.

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Key Words: Big Data, International Planning, Data Ethics, Sustainable Development Goals, Public / Private Partnerships

DIGITAL REDLINING? EVIDENCE FROM LOS ANGELES COUNTY 2014-2016

Abstract ID: 1055

Individual Paper Submission

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Broadband is the lifeblood of some of the most vibrant and innovative industries. It is also a vital tool for individuals and families that enhances economic, educational and civic engagement opportunities (Chang et al. 2004; DiMaggio & Hargittai 2001; Prieger & Hu 2008). However, broadband infrastructure investments in many cities and regions are not keeping pace with the growing demand for high-quality, affordable Internet connectivity from households and businesses. Further, there is evidence that investments in next-generation technologies (such as fiber and 5G) are bypassing low-income and minority communities (Strain et al. 2017; Tomer et al. 2017). These market failures are compounding preexisting socioeconomic differences, thus exacerbating inequality by skewing digital opportunities in favor of wealthy residents.

Using Internet service deployment data from the California Public Utilities Commission (CPUC) and sociodemographic data from the American Community Survey (ACS), this study explores the statistical and spatial links between broadband competition and neighborhood characteristics in Los Angeles County. In particular, it seeks to determine the relationship between broadband investments and the share of low-income residents at the census block group level for the 2014-16 period.

Our preliminary results (limited to DSL, cable Internet, and fiber-based services) find that broadband competition remains weak throughout Los Angeles County. While the share of residents able to choose between two or more broadband ISPs increased in the study period, about half of the county residents still lacked choice in broadband provision at year-end 2016. In addition, increased competition mostly benefited higher-income areas, and largely bypassed block groups with higher shares of Latino residents. Our multivariate regression model shows a statistically significant negative association between broadband investments and the share of poor households in a census block. However the link between investments and race is less conclusive, and we explore how spatial autocorrelation may be affecting these results.

While our results are preliminary and require further investigation, they suggest that incumbent ISPs are bypassing areas that need digital infrastructure investments the most. Further, they suggest that efforts by local policymakers concerned with the inequality effects of the digital divide should focus on actions that address market failures in infrastructure investments in low-income areas.

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Key Words: Digital-divide, Broadband, Internet, Access, Los Angeles

EXPLORING THE NEXUS BETWEEN KNOWLEDGE CAPITAL AND SOCIAL VULNERABILITY: A COMPARATIVE STUDY ON THE U.S. AND AUSTRALIAN CITIES

Abstract ID: 1057

Individual Paper Submission

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This paper investigates the interactions between knowledge capital and social vulnerability through a comparative study on the U.S. and Australian cities. Based on the theoretical framing of knowledge city and social vulnerability, it explores how knowledge city opportunities interact with social vulnerability, and how cities should be prepared for the dual challenges of technological shift and social vulnerability to natural hazards. Frey and Osborne's (2013) study on the future of work in US cities found that 47 per cent of all extant jobs were susceptible to automation or could otherwise be made redundant by the advancement of various technologies. Study on 25 Australian cities (Pratchett, et.al, 2017) found that some Australian cities are well positioned to grow and advance in the emerging technology-driven and knowledge-based economy, but others lack the infrastructure and capacity to resist and survive the impacts of technological redundancy. However, this dichotomy of decline and resilience is not equally distributed across the geography of the U.S. and Australian cities. The theoretical framework of Social Vulnerability can help us to study this unequal geography of knowledge capital. Studies on social vulnerability have widely documented how vulnerability to natural hazards vary by socioeconomic characteristics like age, race, income, etc. (Fothergill, 2004; Peacock et al., 1997). While prior studies have highlighted the importance of considering the changing dimensions of social vulnerability in the adaptation plans of cities (Kashem et al., 2016), a very few studies have looked at the causalities behind such differential outcomes and how the changing nature of work may improve or exacerbate existing social vulnerability in our cities. To explore this question, we apply a quantitative approach using the Census data of selected Australian and U.S. cities. Extending the previous work on Australian cities (Pratchett, et.al, 2017), we created a knowledge cities index for cities in the U.S. and applied it to explore the spatial variation of knowledge capital at the census tract level of three cities. In addition to knowledge cities index, a parallel social vulnerability index is also developed to measure how the level of social vulnerability interacts with knowledge cities index. Our analysis shows that in both Australian and US cities, there are significant overlaps between high social vulnerability and low knowledge capital. It indicates that while cities are planning for climate adaptation, they should also consider how technological shift may exacerbate the prevailing social vulnerability within the cities. This paper gives an understanding of the extent to which the U.S. and Australian cities have the capacity to respond to the complex challenges of technological change, and how they should address the dynamics of social vulnerability.

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Key Words: knowledge cities index, social vulnerability, comparative study

PROMOTING AND DETECTING ACTIVE TRANSPORTATION THROUGH MACHINE LEARNING APPROACHES

Abstract ID: 1125

Individual Paper Submission

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Background and Purpose: Walking and bicycling are common types of physical activity (PA) and widely promoted as ways to promote healthy living that can also bring many environmental benefits as carbon-free modes of transportation. The roles of community environments in promoting or hindering such physical activities are increasingly recognized with the growing evidence establishing the link between the two. However, the challenges related to obtaining precise, objective, and quantitative measures of PA (and also the environment) still remain as barriers to advancing research on this topic. Recent development of wearable technologies has contributed to improving accuracy in measuring PA intensity and duration. However, detecting the specific types of PA from these devices has not been as easy or accurate. Studies in computer science, public health, and transportation/planning have each explored ways to recognize PA using accelerometer or GPS data. Most previous studies focused on detecting a small number of target activity types in controlled test settings.

Objectives: This study presents a machine learning approach to detect a wide range of PA and sedentary behavior based on the GPS and accelerometer data collected in community settings. It also incorporates a hyper-parameter optimization algorithm to reduce noises/errors prevalent in this type of data/approach.

Methods: Accelerometer and GPS data were collected from 25 participants who performed eight target activities in community settings: driving, biking, walking, strolling, standing, sitting, jogging, and running. Data from 15 participants served as the training data and 10 participants as the test data. The two-phase algorithm first employed a standard machine learning approach to classify windows of data as one of the eight activities in Phase 1, based on 17 features calculated from the data. Phase 2 involved a novel smoothing algorithm to remove errors/noises produced in Phase 1. To determine the optimal parameters, we performed hyper-parameter tuning using a Tree-structured Parzen Estimator (TPE) approach, which considers previous parameters during the testing often producing better results than other methods.

Findings: The optimum parameters of our algorithm were 13-second Phase 1 windows, Random Forest as the Phase 1 classifier, 6 neighbors for Phase 2, and the logarithmic scoring function. This algorithm assigns weights to the six neighbors of each target window based on their proximity to the target window

using a logarithmic scoring function, to determine whether the target window has been correctly classified or should be adjusted to one of the neighbor classes.

Tuning on the training data, we achieved an accuracy of 96.7% using 10-fold cross-validation. The optimized model achieved an overall accuracy of 77.3% based on the test data. It is worth noting that our data were self-collected in free-living community settings, which tend to contain significant noises. The two main outputs from the algorithm are a master table populated with a wide range of variables (e.g. average frequency of walking trips per week day, % of all walking performed within the target community) that can be used for statistical analyses, and a bar-chart graphic that visually presents PA types, intensities and locations for each day.

Conclusions: Our method is a promising approach to improve PA recognition, facilitating future research efforts on environment-PA relationships and allowing for reducing participant burdens by removing the labor-intensive travel/activity log requirement.

Implications for Practice and Policy: With its web-based user interface currently under development, our method can serve to facilitate future population studies and intervention efforts aimed at promoting PA and active transportation.

Note: An earlier version of this work has been presented as a poster at the 2019 Active Living Research conference.

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Key Words: machine learning, physical activity, active transportation

TOWARDS A FORM DATA-BASED DEFINITION OF INFORMAL SETTLEMENTS: FINDINGS ON THE GLOBAL PATTERNS FROM THE ATLAS OF INFORMALITY.

Abstract ID: 1129

Individual Paper Submission

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A discussion is happening today regarding the growth of informal areas globally, despite an apparent decrease in the percentual proportion of the population “the absolute number of urban residents who live in slums continued to grow”. Surprisingly, despite the scale of the phenomena of informality, we lack a comprehensive, database that presents these cases globally. Scholars map informal urban development at two scales: the national scale and the neighborhood scale. At the national level, based on data collected by

states or international agencies, these entities use national indexes that can be compared across region. These studies focus on indexes have little reliability at the city scale. The second group of studies focuses on case studies at the neighborhood scale. While these exercises present fabulous detail, the single case selection presents problems of generalization of findings. These two scales of measurement create blindness of informality at an urban scale and its relationship with global trends. The Atlas of Informality is an attempt to broaden understanding of such overlooked phenomena.

The primary goal of this research is first creating a database that breaches the data gap between measurements of informality at national level and those single case at the local scale for neighborhoods comparison of informal settlements across geographies. And second to critically answer, how such geographies of informality change at the neighborhood scale globally? And, how does this compare to current informal area growth indexes?

This research uses a robust definition of informal settlement, incorporating global database cases designated as informal settlements in any of its diverse interpretations to include the broad spectrum of informal settlement urban form. A defining characteristic of informal settlements as an urban form is their constant state of change due to the piecemeal additive process of construction. This persistent state of change complicates the study of these urban forms. However, it is necessary to study the variation of the change of settlements over time to further understand their urban processes. This research collects standardized measurements of 420 informal settlements to provide a tool to geolocate, at the neighborhood scale, each one of these places. It then focuses on the mapping of urban growth. For the mapping of informal settlements, the Atlas uses a combination of remote sensing and direct mapping with readily available satellite photography. For this project, we use manual digitization from high-resolution satellite data over fifteen years to construct all cases. The direct measure is a more labor-intensive process but provides more accurate and standardized data.

The survey of growth corroborates the idea of informality as expanding geography. Since the cases selected are the most known in the literature, the expectation is that old cases will consolidate and stop expanding. This mapping revealed the contrary: the entire sample continued expanding. The average increase in the sample is .005 percent per year, meaning that approximately 81,000 hectares of informal settlements are added per year globally, just in already existing informal areas. The data made evident that there are significant differences between regions. Latin America, as expected, presents a less accelerated growth whereas Africa exhibits a more substantial number of entries with an increase between .7 and 1.9 percentage area expansion per year.

Findings of measuring informal areas at neighborhood scale contradict current data on informality that show a deacceleration in the rate of growth of such places. However, this finding raises important questions about the value multi-scale measurements of informal settlements across the world. The discrepancies presented here are crucial to clarify since global measurements of the scale and change of the problematic of informality guide global urban policy.

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Key Words: Informal Settlements, Mapping, Urban policy, Urban Growth, Urban land management

DELINEATING AND VISUALIZING URBAN PARK CATCHMENT AREA USING MOBILE PHONE GPS DATA: A CASE STUDY OF TOKYO

Abstract ID: 1175

Individual Paper Submission

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Urban parks provide both physical and mental health benefits to visitors and residents nearby and, therefore, are an important element of city planning. While the catchment area of a park, how a wide area is served by a park, needs to be investigated and measured for more reasonable and systemic park planning, in many cases it is simply assumed without much empirical evidence. One main reason for this lack of evidence is that actual service areas are difficult to measure with previous survey methods such as individual travel-activity data.

Since the turn of the millennium, the emergence of big data provides inspiring potentials to examine urban mobility at low cost and a large scale such as social media and crowdsourcing data. (Yuan et al., 2012; Liang and Zhang, 2018; Zhai et al., 2018) This study aims to propose and exemplify a new way to understand actual park catchment areas based on these newly available data, particularly mobile phone GPS location records.

The study area of this study is the 23 special wards of Tokyo, or tokubetsu-ku, the core of the capital of Japan. Sample urban parks were selected through stratified random sampling based on park size. We divided urban parks into five groups (A to E) and sampled six parks from each group. To minimize the bias due to seasonal variation, we included visitors during March, June, September, and December to the visitor sample. We roughly estimated park visitors' home locations based on the mobile GPS data, while all other information of visitors is anonymized.

We proposed a method using density distance gradients to delineate and visualize park catchment area, instead of the conventional distance-based buffers, mapping and counting cells (100m by 100m) based on the park visitor density of each cell. Using kernel density functions, we interpolated overall density distribution within the mapping areas. For mapping and counting, we used six density levels, of which thresholds are 0.001, 0.01, 0.1, 1, 10, and 100 GPS points per km². We introduced three spatial scales of searching radius for the kernel density mapping, 5,000 m for the city scale, 10,000 m for the metropolitan scale, and 20,000 m for the regional scale, and compared how each scale works well for different park size groups.

The mapping showed that there were striking differences in terms of park visitor distribution pattern. Maps of some parks exhibited concentric circles, as often assumed in many existing studies, while those of other parks showed linear expansions, irregular shapes, and even discontinued hot spots around the city. These various typologies require further discussions connecting park characteristics and other urban

infrastructure. In addition, the spatial scales of visitor density distribution mapping and cell-counting should be chosen according to the park size. For example, park catchment areas investigated and quantified on the city scale can explain almost all visiting activities for the category A parks (0.5-1ha) and most of the visiting activities for the category B parks (1-3ha). However, for the category D or E parks (10-50ha and larger than 50 ha, respectively), the city scale can only explain a small portion of activities and the metropolitan and regional scales should be examined.

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Key Words: urban park, catchment area, mobile phone GPS, density mapping

URBAN ROBOTICS, CITIES, AND PLANNERS

Abstract ID: 1188

Individual Paper Submission

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This paper explains why cities are optimal sites of experimentation for emerging technologies such as robotics, and argues that city planners should play a pivotal role in regulating these technologies for the public good. The paper begins with an introduction to the nature and current state of robotics technologies being tested in cities, and the institutional economics and potential hazards for cities that open their public rights of way to experimentation with new technologies. There are numerous unintended consequences of urban robotics, and this paper includes a discussion of the privacy impacts of robots for cities, and local government's role in reshaping concepts of privacy in public space. To give shape to the existing institutional environment for cities, the paper clarifies the legal authority of cities to regulate urban robots within the complicated schema of federal and state laws that touch this technology. Lastly, it situates planning as a profession at the intersection of the governance of public space, the advocacy of public interests, and the emergence of urban robotics in the marketplace of cities, and provides a framework for their evaluation. Co-authored by a legal scholar, a designer of robots, and a planning academic, the purpose of this work is to further planners' understanding of the beneficial yet disruptive forces of technology--from autonomous vehicles to follow-me drones and security bots--that are seek purchase in the city.

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Key Words: Robotics, Artificial Intelligence, Infrastructure, Economics, Law

MASS EVACUATION MODELLING: A MULTIDISCIPLINARY ANALYSIS OF TRANSPORTATION PLANNING FOR COASTAL FLOODING

Abstract ID: 1189

Individual Paper Submission

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This study contributes to a growing discussion of how planners should prepare for a mass evacuation event. The literature in this field is limited when it comes to multidisciplinary analysis and training to evacuation from coastal floods. Transportation modeling centers on traffic simulations and road network performance, whereas evacuation planning focuses on vulnerability assessments and policy development. There is a gap in developing a holistic and robust understanding of how transportation models inform evacuation decision-making. The purpose of this research is to utilize a simulation study and mixed method approach to determine planning parameters to help inform evacuation plans.

The study first developed a large scale, sequential modeling framework that utilizes a flood risk model, a transportation network model and a traffic micro-simulation model. The flood risk model generates the extent of the flooding scenarios and their associated disruptions in the road network. The model results in four flood level scenarios, which includes flood levels at 0 m, 2.9 m, 3.9 m and 7.9 m. The network connectivity is disrupted by 0%, 23.3%, 27.3% and 31.2% respectively (Alam and Habib, 2019). Then, the study develops a transportation network model that generates evacuation demand for auto and transit users. The origin and destination matrices were extracted from the transportation network model to feed into the traffic micro-simulation model. This micro-simulation model builds upon dynamic traffic assignment procedures. The Halifax Peninsula, the urban core of Nova Scotia's capital was used to develop the traffic simulation model. This simulation model identified that it would take 22 hours to evacuate the Peninsula for the first two scenarios and this would increase to 23 hours for scenario 3 (3.9 m) and 4 (7.9 m). However, only 87% of evacuation can be achieved in scenario 4 because the network capacity is significantly reduced.

The study also utilizes a mixed method approach for a vulnerability assessment, the evaluation of evacuation routes, siting shelter locations and counter measures to improve evacuation planning. The study involved a stakeholder workshop, which saw 46 attendees from many sectors including government and non-government agencies. The workshop included focus discussions and participatory activities that inquired, for instance, what are the major considerations in selecting areas to evacuate? and how would stakeholders prioritize areas for a mass evacuation? Experts who attended the workshop identified potential locations for evacuation shelters and vulnerability weighting schemes. The lessons learned from

the workshop and the results of the traffic micro-simulation model inform developing operational plans for The Halifax Peninsula, which includes delineations of evacuation routes and potential shelter locations. A multiple-criteria analysis was used to validate emergency shelter locations choices. The study also proposed a framework for assessing vulnerability that accounts for long-term neighborhood changes, socio-demographic characteristics, residential locations and vehicle ownership (Alam, Habib, Quigley, and Webster, 2018). They found that clearance time was the key determinant of mobility vulnerability and the ‘presence of female’ and the ‘presence of seniors’ were found to be the two primary contributors to social vulnerability. Additionally, several peripheral zones were found to be at a higher risk due to their proximity to the flood source.

This multi-disciplinary research results in alternative scenarios which will be utilized within the traffic micro-simulation models to examine alternative strategies. A graphical user interface for scenario building will aid decision-makers to review alternative counter measures. The study will assist to identify alternative ways to improve mass evacuation operations in the event of coastal flooding. This research illustrates the importance of enabling a multidisciplinary approach in transportation planning and modeling to prepare for mass evacuations.

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Key Words: Mass Evacuation, Traffic Micro-simulation, Vulnerability, Planning Consideration, Stakeholder Workshop

EFFECTS OF URBAN GROWTH BOUNDARIES ON STREETSCAPE URBAN FORM IN 50 U.S CITIES

Abstract ID: 1199

Individual Paper Submission

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In the U.S, Urban growth boundary has become one of the most popular adopted development management policies to promote growth and control urban sprawl. Although the literature on growth management is extensive, few researchers have explored policy-oriented evaluation methodologies.

This article applied a new methodology to measure urban forms at streetscape level via deep learning in order to evaluate the geographical effects of urban growth boundaries in 50 cities in the U.S, selected from Oregon, Washington, California Virginia, and Florida State. The methodology utilizes google

streetview data from 2009 to 2018 that were further analyzed by the deep learning image segmentation model to extract the proportion of built environment factors in each streetview images, including building, sky, tree, grass, road, sidewalk. After joining with some traditional GIS urban form measures, we will compare how the urban streetscape forms shifted within and outside the urban growth boundary from 2009 to 2018. Then using the coarsened exact matching method, the selected 50 cities will be matched with another 50 U.S cities with similar urban form attributes to compare the effect of UBG on urban form from city level scale.

The results of our study are expected to be that urban growth boundaries would lead to a substantial change the streetscapes, increase building density, sidewalks and decrease the sky view inside those boundaries. The implications of these findings are important for planning practitioners and the evaluation of growth management policies throughout the United States and elsewhere.

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Key Words: Urban growth boundary, Streetscape, Image segmentation

A MULTI-METHOD APPROACH: USING SURVEY, ONLINE INTERACTIVE MAP AND ENVIRONMENTAL AUDIT TO INVESTIGATE PHYSICAL ENVIRONMENT INFLUENCES ON PHYSICAL ACTIVITIES

Abstract ID: 1206

Individual Paper Submission

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Background:

In the past decades, decreased level of physical activity (PA) has significantly contributed to the obesity epidemic in the U.S. (Flegal et al., 2012). Physical environment plays an important role in people's PA (Zimring et al., 2005). In the active living literature, many methods have been introduced to measure the physical environment objectively and subjectively (Brownson et al., 2009). Objective measures include GIS and environmental audit; subjective measure can be achieved via interview and survey. Moreover, travel diary and drawing on a map are useful to identify participants' PA routes and places, especially in complex environments. Yet, it is difficult to administer and the results are often not reliable. This study

proposes a multi-method approach that integrates a survey, an online interactive map (i.e., WikiMapping), and an environmental audit to measure the physical features of routes chosen for walking, running and biking. WikiMapping is an online tool originally developed for urban planners to obtain public inputs, allowing participants to provide route and place information by directly drawing lines or dots on an interactive GIS map and answering related questions (e.g., frequency of use and comments).

This study aims to better understand how specific routes/places and their features influence people's choices of routes/places for PAs, and to test the WikiMapping tool for a larger-scale study.

Methods:

Settings: This study was conducted in the Mueller Community in Austin, Texas. Mueller is a mixed-use, healthy community with a 711-acre land, 140-acre green spaces and 13-mile walking/biking trails.

Participants: Mueller residents who were 18 years or older, and able to read and write English.

Measurement instruments: (1) A survey was administered to inquire participants' socio-demographic status, PA frequency and duration, and their perceptions of the built environment; (2) an environmental audit tool was used to objectively record conditions of all the streets in Mueller, including land use, street characteristics, sidewalk conditions, pollution, buildings and overall perceptions; (3) the WikiMapping collected GIS/visual information of the PA routes and up to six PA places, frequency/purposes/types of PAs and reasons for route/place selection. A unique ID was used to link a participant's WikiMapping results to his/her survey responses. **Analysis:** The unit of analysis was the street segment. There were a total of 151 street segments audited during the time the WikiMapping was conducted. GIS, descriptive statistics and multivariate regression model were used for data analysis.

Results

Seventy-two of 395 survey participants participated in the WikiMapping exercise. 111 routes were identified for walking, 66 for running, 34 for biking, and 207 places for various PAs. A large percentage of PA places were located in neighborhood parks and community green areas. Multivariate analysis indicated: (1) Walking route choice ($R^2=.494$) was significantly associated with 'distance from home' (-), 'number of recreational land uses' (+), 'average building height' (+), 'tree/vegetation conditions' (+), and 'number of park land uses' (+); (2) Biking route choice was associated with 'distance from home' (-), 'speed limit' (-), 'visual quality of tree/vegetation' (+), 'number of bicycle facilities' (+), 'number of recreational facilities' (+), 'presence of education/office land use' (-), and 'presence of residential land use' (-); (3) Running route choice was related to 'distance from home' (-), 'type of recreational land uses' (+), 'average building height' (+), visual quality of street' (+), and and 'presence of residential land use' (-).

Discussion/conclusion

WikiMapping helps visualize the PA routes and link PA with specific street characteristics. However, the response rate was low due to the learning curve and the difficulty for participants to manipulate/modify the routes.

Citations

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Key Words: WikiMapping, Interactive Map, Physical Activity, Active Living, Healthy Community

ABSTRACT: THE PAN-ARAB CORRIDOR: GEOSPATIAL ANALYSIS CASE STUDY.

Abstract ID: 1223

Individual Paper Submission

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The 'Pan-Arab Highway', conceived in the early 1950's, was designed to connect the Mediterranean Sea to the Persian Gulf by way of Lebanon, Syria, Iraq, Saudi Arabia, and Kuwait (Manasseh, 1958). Plans for its construction folded in the wake of armed conflict that started in the region in the late 1950's. Lebanon proceeded to construct its section of the highway outside of this regional framework and is expecting to complete the highway segment within the next 10 years. The slow and interrupted construction process spurred land use responses to materialize along the highway. These responses serve as built-in pilots that are telling of how land use will change as the highway construction continues.

My paper discusses geospatial methods in land use classification and techniques in forecasting land change by borrowing concepts from urban ecology to address what is traditionally reserved for land-use – transportation interaction models. This framework has the potential to overcome challenges in acquiring data and in representing the diversity of the mixed-use land classes exhibited by this case study.

The paper will first discuss the progression of creating a land use classification schema unique to the Pan-Arab Corridor (combining satellite imagery analysis to ancillary datasets and ground proofing), then proceed to use the classification dataset's applicability in populating landscape ecological assessment frameworks, in an effort to contribute to their growing impact on urban planning research by addressing the specificities of the case study area. Contemporary examples of ecology applications to urban planning are the use of graph theory to assess a transportation network's impact on habitat fragmentation (Girardet, Foltête, & Clauzel, 2013) and the use of fractal theory to understand and simulate land use contagion (Carrizosa Umaña, 2014). Applying urban ecology will serve the premise that the urban form itself behaves much like a living organism, and exhibits its reaction to changes by displaying fragmentation, boundary shifts, and landscape pattern changes (Forman, 1995) (Batty, 2013).

The research, joining a case-specific land use classification set to a geospatial analysis process entrenched in ecology, will a) present geospatial analysis methods that overcome data shortage, b) accurately represent the case study's cities in relationship with their transportation network, and c) lay the ground work for later, higher resolution analyses for urban planning research.

Keywords: land use, transportation planning, urban ecology, remote sensing, geospatial analysis, Lebanon, Middle East, Pan-Arab Highway.

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Key Words: Urban Ecology, Transportation Planning, Remote Sensing, Geospatial Analysis, Middle East

CEMETERY PRESERVATION: USING TECHNOLOGY TO PROMOTE SOCIAL INCLUSION

Abstract ID: 1231

Individual Paper Submission

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Cemeteries are not necessarily considered a tourist destination but increasingly they have become a place for education, discussions about community development and social inequality. Using new technologies such as ground penetrating radar (GPR), we can learn about the location and number of internments. This becomes increasingly important as the demarcation of grave boundaries could impact future development especially if a cemetery is located within a neighborhood and bounded by residential housing. In both Historic Preservation and Planning, information about cemeteries is being used to complement other data which evaluates social class, quality of life and ethnography of place.

In Louisiana, the City of Hammond holds two small African American cemeteries: a municipal city cemetery, and another small cemetery that contains Peter Hammond. Peter Hammond was one of the founders of Hammond, LA, Mr. Hammond, his family, and an enslaved person are located in a small neighborhood cemetery. The Greater St. James AME cemetery contains a notable founder of Hammond's African American community, Charles Daggs. The latter cemetery was a designated African American Cemetery founded in 1870. The history of these Hammond prominent figures needs to be preserved and shared in the future. However, the preservation of the cemeteries, and their history, remains incomplete. This study explores the physical placement of the sites, their current condition and questions the difference in maintenance and historical significance of these equally important sites. Along with understanding the technology that is needed to conduct the physical research and using sound methods for accurately evaluating cemetery history, GIS is used to provide accurate site information and ultimately add to local tour and educational material for Hammond residents and visitors alike.

Citations

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Key Words: GIS, Cemetery, Social Inclusion

A COMPARISON OF STATISTICAL AND MACHINE LEARNING ALGORITHMS FOR PREDICTING RENTS IN THE SAN FRANCISCO BAY AREA

Abstract ID: 1264

Individual Paper Submission

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Urban transportation and land use models have used theory and statistical modeling methods to develop model systems that are useful in planning applications. Machine learning methods have been considered too 'black box', lacking interpretability, and their use has been limited within the land use and transportation modeling literature. We present a use case in which predictive accuracy is of primary importance and compare the use of random forest regression to multiple regression using ordinary least squares, to predict rents per square foot in the San Francisco Bay Area using a large volume of rental listings scraped from the Craigslist website. We find that we are able to obtain useful predictions from both models using almost exclusively local accessibility variables, though the predictive accuracy of the random forest model is substantially higher.

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Key Words: Modeling, Machine Learning, Housing Price, Hedonic, Decision Trees

PREDICTING PEDESTRIAN FLOWS: AN EMPIRICAL ANALYSIS OF GPS WALKING TRACES IN SAN FRANCISCO.

Abstract ID: 1290

Individual Paper Submission

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A widely held belief among planners and transportation scholars commends that street attributes play an important role in influencing pedestrian route choice. Faced with alternative options, we typically expect a pedestrian to choose a faster, safer, more comfortable, more interesting or a more beautiful route. A robust literature on pedestrian route choice has provided methods for assessing the likelihood of such

options using discrete choice models. However, route choice estimation, which is data intensive and computationally challenging, is infrequently performed in planning practice. Furthermore, even when coefficients and odds ratios from previous studies tell us how different route attributes affect route choice, operationalizing them in footfall predictions in newly planned places is rare because detailed information about sidewalk quality, aesthetic attributes or experiential factors themselves are difficult to collect. In this paper we use a unique dataset of over a 100,000 anonymous GPS routes from pedestrians in San Francisco to test how important route characteristics really are to pedestrian route choice. We compare two route choice predictions: first using detailed route quality coefficients calibrated on half of our dataset and tested on the other half; second, a significantly simpler model that assigns equal probability to all routes that are up to 15% longer than the shortest route. Our findings show that while route attributes do have a significant impact on pedestrian route choice, using the much simpler assumption of random distribution with pre-specified detours offers a reasonably accurate prediction of actual walking behavior. This implies that instead of investing significant efforts to model route choice according to specific route qualities and parameters, considerably simplified assumptions can be used to predict pedestrian flow in practice with existing software, opening walkability analyses to a much wider range of planning projects.

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Key Words: pedestrians, route choice, modeling, data science, network analysis

TRACK 1 – POSTERS

WHO IS EMPATHETIC TO THE DISASTER YOU ARE GOING THROUGH? A STUDY ON TWITTER FEEDS OF GOVERNMENTS AND NONPROFIT RESPONDERS.

Abstract ID: 131

Poster

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As social media becomes increasingly popular in people's lives, governments and nonprofit organizations are realizing the importance of using it to enhance public relations and promote public engagement. In the context of natural hazards/disasters, social media use by organizations has been found to be crucial in many regards, such as the rescue process, resource navigation, and status reports (Murphy and Gross, 2016). After a disaster, victims' mental health is as vitally important along with their physical safety. Planning scholars have pioneered innovative ways to understand public opinions on social media for

public transportation (Schweitzer, 2014). Nevertheless, only a handful of studies have shown how governments and nonprofit organizations' online responses answer the public's emotional demands in the disaster context. An understanding of the rapid development of social media platforms and social media adoption by various government agencies and nonprofit organizations is needed. An exceptional opportunity is offered for planners to evaluate how governments and nonprofits react online to mitigate emotional trauma in the climate-change era.

My research will build off of previous research on considering compassion as a key element to promote public health and well-being in the planning profession (Lyles, 2017), by accessing a large amount of data from Twitter in order to measure empathetic expressions by organizational accounts. The use of social media in dealing with public affairs and emergency management has been adopted by a number of government agencies and practitioners to various extents (Eyrich et al., 2008; Waters et al., 2009; Mossberger et al., 2013; Kavanaugh et al., 2011; Picazo-Vela et al., 2013). Hurricane Florence, a category four hurricane, is chosen as the study target for its long duration and impactful damage characteristics. Regarding tweets related to Florence, the research focuses on three questions: 1) Which local planning agencies, organizations and government agencies play important roles in facilitating the communication environment on Twitter? 2) What themes can be used to categorize tweeted data? For instance, do tweets belong to disaster information, rescue guidance, or empathetic expressions? 3) How does one accurately catch empathetic tweets and find their patterns?

This study employs the open-source tweet collection method by using R software. The content analysis will be applied to several sets of tweets that are categorized by users (accounts), content (hashtags), and themes. Specifically, the study will identify a set of government agencies, including any planning departments/agencies, and nonprofit organizations that responded and worked through the recovery of Hurricane Florence. Then two local emergency management agencies and two charitable organizations will be chosen for further analysis to compare government and nonprofit responses.

Adoption of social media certainly brings enormous possibilities to promote public health, even mental health, and strengthen an equitable online environment. Social media is changing from simply a tool for information exchange to a dynamic networked community including individuals, governments, and nonprofits. From a scan of 14 Florence related tweets by the national office of the American Red Cross during and right after Florence, preliminary results demonstrate six tweets are resources information, one is appreciation notes to donors or supporters, four are disaster status reports, two are empathetic or emotional expressions, and one falls outside of the four preceding categories. One of the two emotion related tweet is: "I'm going to stay positive because that's the only thing I can do.' We are helping those impacted by #HurricaneFlorence and will be there to support them in the weeks and months to come. How you can help: <https://rdcrss.org/2QaWVeU>" – Red Cross, Sep. 26th, 2018. Next steps will be conducting the same analysis with local organizations and Florence related tweets.

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Key Words: compassion, social media, empathy, disaster recovery, communication

A WAY TO LIBERATE FROM POVERTY FOR SMALL SCATTERED VILLAGES IN CHINA: GIS-BASED MULTI-FACTOR SCREENING OF RECHARGING POINTS ALONG RURAL HIKING LINE

Abstract ID: 546

Poster

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Question

When urbanization encroaches on rural land, urban resources also flow into rural area, like tourists, capital and ideas. How to use them to realize the rural regeneration has become a heated issue in China, especially for the small and poor scattered hilly villages with certain historical cultural value. A planning methodology that connects scattered villages by a rural hiking line could address the question to some extent. Specifically, as recharging point, the villages along the line provide accommodation, rest spots and emergency rescue to make the most of the urban resources, develop the economy and escape poverty. However, what kind of village can bear the function of recharging point?

Methodology

In the theoretical stage, oriented by the question, a GIS-based screening method with spatial overlay analysis on multiple impact factors is proposed. Assisted by literature research, the essential impact factors are summarized by taking the characteristics of an existing rural hiking line in Zhejiang Province as a reference. Consequently, per capita income, population, historical cultural resources, river system, roads are summarized as the five key factors of potential villages. Then those factors are segmented and assigned values differently according to the local policy, actual situation and requirements of hiking line. After adding up factor values, the possible recharging points are displayed.

In the practical stage, two neighboring poor towns with 77 villages in Zhejiang Province are taken as research objects.

Firstly, screen the potential starting points. Two starting points are supposed to be the core attractive points with a range of high requirements: 1) village committees set up; 2) residential area larger than 5000 m²; 3) population larger than 600; 4) per capita annual income higher than 6000 yuan; 5) no more than 200 m away from 5-m roads. As a result, 10 villages are selected.

Secondly, screen the potential recharging points. Spatially via GIS, the values of internal factors, per capita income, population, historical cultural resources, are assigned respectively to the 500-m buffer of residential areas larger than 5000 m². The values of external factors, rivers and roads, are assigned to their 200-m buffers. Overlay each spatial buffer.

Thirdly, screen reasonable line and points. As centers, the 10 potential starting points are buffered with a radius of comfortable hiking line length 5000 m. Based on the analysis of its intersection with overlay result, appropriate lines become visible in the end.

Findings and Relevance

1) A larger-scale study across town is conducive to discovering more favorable starting point that can drive the development of poor villages. 2) Factor segmentation and assignment of villages from other districts should be adjusted according to actual conditions to ensure optimization. Sometimes it is possible to add 1-2 non-poor villages in the line for economic promotion. 3) Though still with 7 options after analysis, the optimal rural hiking line can be chosen by local policy, actual terrain condition and the function of enhancing towns connection. 4) The methodology research makes the rural hiking line more generalizable and implementable in rural planning. However, policy maker and urban planner also should consider the endowment of each village, and find other ways for those inappropriate villages.

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Key Words: GIS, Rural Planning, Poverty, Multi-factor Analysis, Scattered Historical Cultural Village

PRIORITIZING SUSTAINABLE DEVELOPMENT GOALS (SDGS) BY ANALYZING THEIR INTERLINKAGES

Abstract ID: 601

Poster

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In 2015, the United Nations adopted the Sustainable Development Goals (SDGs) urging comprehensive changes to move toward sustainable development at the global level. SDGs serve as a guideline for 193 UN member countries in introducing and implementing policies in their cities and countries. However, understanding interlinkages between the goals should be preceded prior to establishing sustainable development policies or a implementation plan, since they are interlinked each other. SDGs consist of various goals and targets; thus, implementation of one goal can facilitate to achieve another goal while pursuing one goal can conflict with another goal. Therefore, it is important to identify complex and close interlinkages between SDGs. Although recent studies have attempted to identify their interlinkages, most of the studies describe the linkages in a rather qualitative way on the basis of researchers' arbitrary decisions. Against this backdrop, the objective of our study is two-folds: to find interlinkages between the

targets of SDGs using a text mining and Word2vec machine learning technique and to prioritize targets given their importance based on their relative centrality using a network analysis. In this research, we extracted 676 academic papers on SDGs by web crawling in Google Scholar and conducted text preprocessing. Each SDG target was represented by their keywords and cosine similarity between the keywords using Word2vec were calculated, which were used as weight for the network analysis. The preliminary results show that 22.6% of the targets are linked with more than one target while the rest do not show any relationship with other targets. For example, SDG5.c “endeavor for gender equity” is highly related to SDG1.3 “implement social protection system”, SDG1.4 “access to basic service”, SDG4.3 “access equal education”, and SDG10.3, 10.4 “eliminating discriminatory laws and policies”. The results of this research are expected to contribute to prioritizing policies and developing synergic policy for sustainable development considering interlinkages between SDGs.

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Key Words: Sustainable Development Goals, Interlinkages, Policy Priority, Text Mining, Network Analysis

PARTICIPATORY SCENARIO PLANNING: TOWARD A COUNTER PROPOSAL TO LATIN AMERICA’S MASS HOUSING TURN

Abstract ID: 1134

Poster

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This poster uses participatory scenario planning to assess the environmental, physical, and social implications of recasting Brazil’s mass housing program Minha Casa Minha Vida (MCMV) as a densification strategy along São Paulo’s Tamanduateí industrial corridor. As is currently common across Latin America, the MCMV program is divesting public resources from the upgrading of existing informal settlements, and promoting peripheral sprawl and sociospatial segregation by constructing mass housing enclaves at the urban margins (Rolnik, 2015; Stiphany and Ward, 2019). Located 10 kilometers east of Centro, the Tamanduateí industrial corridor provides a key site for calibrating MCMV to centralized locations, because it is occupied by vacant industrial land tracts, informal settlements, and a series of

historical preservation sites. Although a plan Operação Urbana Consorciado Bairros do Tamanduateí (OUCBT) was approved to develop the Tamanduateí, first in 2008, and again in 2015, no proposals have been implemented and Brazil's economic downturn has impeded forward movement. The use of scenario planning is one way to use a local research infrastructure to guide broader development decision-making processes (Goodspeed, 2019).

Drawing on a large-scale study about housing and technology was undertaken between 2015 – 2017 within Heliópolis, an informal settlement located within the Tamanduatei Corridor, this poster unites methods that include a household survey (n = 1,032), the GIS-based webmapping tool ComuniDADOS (www.chapa.io/comunidados), and Envision Tomorrow to generate three scenarios that draw into discourse: (1) environmental management strategies based on the Tamanduateí's geography of flooding (Perez, 2013); (2) development types that include mixed income housing, recreation, and commercial programs; (3) housing typologies with meterage aligns with MCMV parameters, but whose form is guided by incremental housing typologies found in Heliópolis; (4) outcomes of a workshop that presents scenarios to residents of the Heliópolis favela, who have been engaged since 2015.

Our analysis reveals that there is room for densification within the Tamanduateí Corridor, and that benefits include locating MCMV units in areas that optimize existing social and infrastructural networks; build upon the real demands for housing, which recent research has found to be in rental (Stiphany, 2019); and co-manage the range of biophysical and technical infrastructures that currently concentrate along the corridor for enhanced urban livability. This scenario planning methodology can be adapted to peer-contexts.

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Key Words: Scenario Planning, Corridor Planning, Informality, Participatory Methods, Brazil

TRACK 2 - COMMUNITY DEVELOPMENT

TRACK 2 - PRE-ORGANIZED SESSION SUMMARY & ABSTRACTS FOR THE SESSION

HISTORIC PRESERVATION AND SOCIAL INCLUSION

ID: 3

Pre-Organized Session Summary

Includes abstracts: 32, 33, 34, 35, 36

This session explores the social dimensions of historic preservation. The papers analyze the synergies and tensions between historic preservation and underrepresented populations and communities. Within the field of preservation, there are increasing calls for a more inclusive practices. Yet, the concept of inclusion, as it pertains to preservation, is ill-defined and the field has been slow to address fundamental issues of power and barriers to inclusion. The papers in this session explore the ways in which preservationists are seeking out diverse narratives, opportunities for inclusive participation, and ways to generate equitable community benefits from preservation strategies. The authors also shine a critical light on the past and current practices within the field and offer ideas for a more equitable and inclusive preservation profession.

Objectives:

- Synergies and tensions between preservation and social inclusion
- Methods of increasing inclusion within historic preservation practice
- Strategies for engaging diverse communities with regards to historic preservation

THE PATH TOWARDS INCLUSIVE PRESERVATION: LESSONS FROM CLEVELAND, OHIO

Abstract ID: 32

Group Submission: Historic Preservation and Social Inclusion

RYBERG-WEBSTER, Stephanie [Cleveland State University] s.ryberg@csuohio.edu, presenting author

Preservation has long-struggled to mesh the ideals of diversity, equity and inclusion with barriers inherent in the field's methods, policies, and regulations. Using two case studies from Cleveland, Ohio, this paper explores preservation practice within African American neighborhoods. Both Buckeye and Lee-Harvard are located on the city's far east side. Both are predominantly African American neighborhoods, with vastly different development and preservation histories. Buckeye developed in the early 1900s as the nation's largest Hungarian enclave, experiencing rapid racial turnover in the 1970s. Preservationists in the 1970s struggled to navigate the disconnect between Buckeye's architectural heritage and its current residents. In recent years, a renewed interest in Buckeye as a historic neighborhood sheds light on

preservation's longstanding bias towards "origins" stories and architecture and the ways in which these narratives erase the significance of lived experience for African American residents. In contrast, Lee-Harvard developed in the post-WWII era, largely by and for middle-class African Americans seeking a suburban lifestyle outside of the urban core. The neighborhood retains many of its original, now aging, residents. Deeply flawed past efforts to survey, document, and preserve the city's African American heritage, eventually led to a more engaged approach in Lee-Harvard. In recent years, the Cleveland Restoration Society, a prominent non-profit preservation organization, embarked on a multi-year effort to document and preserve Lee-Harvard. In doing so, preservationists have slowly moved from architectural-based windshield surveys to deeper community engagement, oral histories, personal stories and archives (i.e. family photographs). Using archival research, interviews, and participant observation, the research compares these two case studies to draw lessons for preservation research and practice. The comparative analysis illustrates key factors in making progress towards an inclusive preservation practice, highlighting the particular importance of political will and funding. The paper also addresses ongoing constraints, including the value placed on architecture and material integrity, the prominence of professional expertise, and power structures within the profession.

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Key Words: Historic preservation, Community engagement, Cleveland, Ohio

PRESERVING COMMUNITY: COMMUNITY LAND TRUSTS AND HISTORIC PRESERVATION

Abstract ID: 33

Group Submission: Historic Preservation and Social Inclusion

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This presentation presents findings from an ongoing investigation focused on if and how historic preservation and affordable housing goals can be jointly met and combined through the use of community land trusts (CLTs). The purpose of the project is to expand and deepen our understanding of historic preservation's ability to address, or contribute to solutions, to contemporary problems of housing affordability and the creation of equitable, sustainable cities. Similarly, it is hoped that those researching and working in the affordable housing sector will consider historic structures as viable options for CLT or other affordable housing initiatives.

Research regarding the symbiosis between historic preservation and affordable housing is in its beginning stages, with the majority of publications coming from graduate students and professional organizations or think tanks – such as the National Housing Institute (Ceraso 1999) and The Advisory Council on Historic

Preservation (2005). This project contributes to the growing body of research on the relationship between these two fields. Its interdisciplinary approach contributes to a variety of fields in the humanities and allied fields, reaching scholars and practitioners in public history, historic preservation, and city planning.

Within the affordable housing sphere, community land trusts (CLTs) are particularly promising for their potential to preserve both housing affordability and historic structures. CLTs that utilize historic structures within their management portfolio represent unique opportunities to investigate how the twin goals of housing affordability and historic preservation can be achieved. A review of CLTs belonging to the National Community Land Trust Network demonstrated that organizations using historic buildings run along the spectrum of those that do so begrudgingly – perhaps as a means of necessity because their housing stock is aged – and those that do so explicitly and with historic preservation principles in mind at the outset.

This study investigates how shared equity models like CLTs can be applied to historically and culturally significant low-income neighborhoods, such that the existing residents maintain ownership, management and affordability for their homes while simultaneously preserving the history and culture entrenched within the structures and community. By providing avenues for homeownership and wealth building, these models not only preserve a neighborhood's physical assets but also the social and cultural resources embedded within its residents. This presentation presents findings from a literature review focused on historic preservation and community land trusts, a national scan of CLTs that combine both and a preliminary assessment of case studies that combine historic preservation and affordable housing, but differ in process and outcome. Case studies include the Champlain Housing Trust in Burlington, Vermont, Flagstaff Townsite Historic Properties Community Land Trust in Flagstaff, Arizona and others. All represent varying ideological and practical approaches to historic preservation. It is likely that, pending outcomes from the literature review and national scan, two to three case studies will be added.

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Key Words: Historic preservation, Community Land Trusts, Affordable Housing, Community and Economic Development

THE RIGHT TO WORK TOWARDS THE PRESERVATION OF PHILADELPHIA'S CIVIL RIGHTS HERITAGE

Abstract ID: 34

Group Submission: Historic Preservation and Social Inclusion

AIDOO, Fallon [University of New Orleans] faidoo@uno.edu, presenting author

The Civil Rights Acts of 1954, 1964 and 1968—landmarks in a century-long civil rights movement—granted racial minorities the right to work, live and travel throughout America. Yet, urban scholars increasingly find informal metrics of inclusion and insidious mechanisms of exclusion have regulated access to public spaces of the American metropolis in the post-civil rights era. Amongst many meters and managers of blackness in once white-only spaces, philanthropic “friends of” privately owned public spaces such as pocket parks and commercial plaza receive little scholarly attention outside case studies of neighborhood preservation (Ryberg 2014; Kinder 2016; Lawson 2005). This paper highlights how one friends group mobilized its peers, public partners and philanthropic sponsors to preserve historic places of black access to white privilege: commuter rail stations and surrounding parkland.

This paper follows Friends of Allen Lane Station (FALS, a committee of Philadelphia’s West Mount Airy Neighbors Association) in its quest to create a metropolis-wide consortium of communities and contractors capable of rehabilitating and maintaining rail stations facing disinvestment since their racial integration. Rising to the helm of the U.S. Department of Transportation and the halls of the U.S Public Utilities Commission, FALS founders and funders successfully brought their international acclaim in fair housing litigation, regulation and advocacy (Perkins 2014) to bear on the transportation sector. These resourceful “fixers” of deregulation, degradation and desegregation eschewed the black politics of budding community development corporations (Goldstein 2017; Hill and Rabig 2012), even though they engaged in color commentary to compete for local control of labor and land not desired by Conrail, a federal corporation formed from bankrupt railroad companies in 1976. Archival research of FALS’s communications and contracts in the 1970s and 1980s reveals Friends of Allen Lane Station instead waded into labor rights, aiding the unhoused, unemployable and uneducated to acquire a right to re-work underutilized historic stations into homes, workplaces and schools.

The so-called “post-racial” labor politics of FALS, and its parent organization and peers, undergo close examination in this paper. By linking workforce development, homesteading and historic preservation, I argue, the Friends of Allen Lane Station not only built a local network of community foundations and community development corporations of Greater Philadelphia that supported its consensus politics. Their right to work campaigns conscripted federal corporations and conservancies such as CONRAIL and the National Endowment for the Arts into the contentious politics of black power and white empowerment organizations that pledged to preserve FALS’s rail stations long after friends of them disbanded. Friends of the Rail Park in Philadelphia, now funded by these same corporations and foundations (Rigolon and Nemeth 2018), is indebted, I conclude, to preceding rail preservationists that fought for their right to work on America’s civil rights heritage.

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Key Words: civil rights, right to work, local control, rail-parks, friends groups

CURATING FREEDOM: MAKING TEXAS' HIDDEN BLACK PUBLICS VISIBLE IN PRESERVATION PLANNING AND RESEARCH

Abstract ID: 35

Group Submission: Historic Preservation and Social Inclusion

ROBERTS, Andrea [Texas A&M University] aroberts318@tamu.edu, presenting author

While support for safeguarding African American historic sites has increased in recent years, state and local “authorized heritage discourse” (Smith) inhibits interpretation and commemoration of Black agency (slavery resistance, sovereignty, self-governance, and intentional placemaking.) This essay exposes the deliberate forgetting (Connerton, 2008) and disremembering (Gillman 2010; 112) of Black agency (Nieves and Alexander 2008; Gutman 2008; A. R. Roberts 2017) in Texas public history. The article argues that this disremembering reinforces narratives supporting decisionmaking, which undermines socially inclusive preservation planning and interpretation in Texas. The ways in which various groups collude to obscure historic and current Black agency and instead privilege community origin stories centering settlerism and white benevolence are discussed.

This paper will provoke a reconsideration of seemingly innocuous encounters with disremembering Black agency during visits to a public park, public archives (state historical marker applications), and stays with Deep East Texas freedom colony descendants (historic Black communities founded 1865-1920). Reflections elucidate mainstream preservationists’ collusion with Anglo settler narratives, in which the voices of benevolent whites, conciliatory black leaders, and “bootstraps” ideologues are valorized, and those of black resistance and contestation are obscured or ignored. Cases include that of the contestation over the discovery of 95 bodies in Sugar Land, Texas, the interpretation of Black history in Jasper, Texas, and the lack of diversity of leadership in preservation organizations.

Conceptually, curation is introduced as a way to think of new ways to approach preservation and interpretation so that these processes are inclusive of a variety of constructions of place, identity, and state history including those centering Black agency. Curation then, of space, a landscape, or a moment, should then be a process of investigating the absences of the formerly enslaved (Jessica Marie Johnson). These absences are forms of fugitivity signifying what is missing from the archive especially regarding the positionality of those silenced, enslaved peoples.

I extend this to curating what is missing more broadly from our curation (stewardship, interpretation, advocacy, collecting) of African American landscapes or black geographies, which McKittrick refers to as often being rendered legally ungeographic. Public narratives, which proscribe white socio-legal constructions of place and negate Black epistemologies of planning and preservation obscure hidden black agency in the past and current descendant communities. Therefore, to curate freedom is to collect and interpret what Leonie Sandercock called foundational stories or origin stories of place, which center the storyteller’s periodization and meaning of spaces, actors, and events.

The article explores ways that practitioners can exercise allyship with fugitivity, defined as freedom-seeking from socio-spatial constraints of the past and of the present. The article then explores the ways scholars and practitioners can act as curators or keepers of place, custodians of black geographies of freedom. The article provides some avenues to inhibiting collusion with a persistent narrative of disremembering black agency or complicated statuses betwixt and between freedoms. Then, the paper concludes with suggestions for how to leverage Black counternarratives to foster socially inclusive

conservation practice. The author shares preliminary findings from recent workshops (R. Johnston and Marwood 2017, 816) in which counternarrative writing exercises were employed to foster “safe” confrontations with persistent white sociospatial imaginaries dominating Texas’ public history. Findings suggest that recording and publically sharing complicated counternarratives in interracial groups are constitutive of a social justice based approach to inclusive heritage conservation because these activities force communities to confront persistent interlocking spatial injustices privileging some voices and places while silencing others (Baird 2014, 142).

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Key Words: inclusion, Critical heritage, preservation, Storytelling, public history

CRITICAL HISTORIC PRESERVATION IN PRACTICE: CASE STUDY OF ASIAN AND PACIFIC ISLANDER AMERICANS IN HISTORIC PRESERVATION.

Abstract ID: 36

Group Submission: Historic Preservation and Social Inclusion

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The rich histories of the diverse and multifaceted Asian American and Pacific Islander (AAPI) communities can be found in the varied places where AAPI communities have made their homes across the nation. Few sites associated with AAPI history and cultures have been recognized as landmarks on municipal, state, and federal levels. As historic AAPI neighborhoods continue to deal with changing economic and sociocultural dynamics and threats of redevelopment and gentrification, many community residents, small businesses, and local nonprofits turn to planning and policy approaches, including historic preservation, for help. However, marginalized groups, like AAPIs, still perceive the preservation movement as not representing their interests, particularly as discussion moves into the politics of race and place in historic preservation. With these challenges in gaining recognition in the field of historic preservation has emerged grassroots efforts to elevate the importance of having more inclusive, diverse, and relevant approaches in historic preservation.

This paper explores critical race theory as it may be applied to underrepresented groups informing and potentially transforming the field of historic preservation. Despite evidence of growing ethnic/racial diversity of historic preservation efforts, the issue of racial equality in the field remains marginal to mainstream historic preservation activity. It is important to examine the margins, and from those underrepresented groups themselves, from a critical race theory perspective on how changes have been made in recent years in terms of preservation policy and practice. Utilizing a critical race theory approach

to history preservation, this paper explores how community-based participation challenges traditional approaches to issues of diversity and inclusion.

With the case study of Asian and Pacific Islander Americans in Historic Preservation, a national nonprofit organization, critical historic preservation theory is positioned to be informing (and transforming) the field from the ground up. Through this lens, historic preservation education, practice, and policy must include a focus on the centrality and persistence of racist ideologies and challenge dominant practices and understandings that have historically discriminated and silenced underrepresented communities. This paper utilizes in-depth interviews and participant-observation with Asian and Pacific Islander American historic preservationists that have been involved with local, state, and/or federal efforts focused on Asian and Pacific Islander American historic preservation, particularly through their work with Asian and Pacific Islander Americans in Historic Preservation (APIAHiP), a national non-profit organization. Data will explore how they provide culturally competent, ground-up alternative approaches to dominant historic preservation practices and understandings.

Findings explore the importance of structural change, organizational change, and individual empowerment that help shape alternative approaches to historic preservation that are centered on critical theories and approaches to participatory practices. In developing a framework that centers marginalized voices in underrepresented communities, this approach focuses on elevating the issues and needs in preserving historic sites and cultural resources associated with AAPIs while fostering more inclusive and relevant approaches in historic preservation.

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Key Words: Asian Americans, Pacific Islanders, historic preservation, critical race theory

REBUILDING RESILIENT COMMUNITIES AFTER A DISASTER STRIKES: ON HOUSING, COMMUNITY DEVELOPMENT, AND INTER-ORGANIZATIONAL NETWORKING

ID: 17

Pre-Organized Session Summary

Includes abstracts: 206, 207, 208, 209, 210

Natural disasters reveal the deficiencies of infrastructure and essential services. In particular, it highlights the lack of an institutional framework for effective community participation, development, and governance with clearly defined goals of how to provide respond, relocate, and reconstruct after a natural catastrophe. One of the priorities of communities is to generate disaster and climate resilience—that is, to strengthen the capacity to adapt and recover from the effects of natural disasters. Unfortunately, most governance models are characterized by bureaucratic structures that are fragmented into different sectors

and whose actors do not have much interaction between them. With technical assistance from organizations and networking, stakeholders are learning how to develop plans that encouraged the collaboration of multiple sectors (e.g., transportation, economic development, housing, etc.) and improves the working relationships between various institutions (e.g. local associations, NGOs, private and public organizations).

Objectives:

- Investigate and propose innovative policies and other government and community-led actions or initiatives that foster sustainable infrastructure and socio-economic development in communities affected by disasters in particular individuals that have been marginalized (e.g. low-income or disabled) and households in under resourced neighborhoods.
- Understand how guidance from community actors is important to assess vulnerabilities (e.g., landslides, flooding-based relocations, etc.)
- Present strategies for optimizing streams of funding for recovery efforts in rural and urban communities

HOUSING RECOVERY IN SENDAI, JAPAN AFTER 3.11

Abstract ID: 206

Group Submission: Rebuilding Resilient Communities After A Disaster Strikes: On Housing, Community Development, and Inter-organizational Networking

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Urban housing recovery in Kobe, the largest city in Hanshin, after the 1995 Great Hanshin earthquake widened socio-economic inequities and created spatial polarization (Hirayama 2000). Hirayama (2000, p.118) argued that the “two tiered system” in Japanese housing policy created the conditions for the polarization. The policy concentrates resources on moderate- to high-income groups to expand owner-occupied housing. For those who cannot obtain housing in the market, public housing units are rented to low-income households (Hirayama 2000). More than 20 years later, housing recovery after the 2011 Great East Japan Earthquake and Tsunami (also called the 3.11 disaster) has also created socio-economic polarization in urban areas, albeit amidst different conditions and context. Based on in-depth informant interviews conducted between 2012 and 2017, and review of planning documents and maps, recovery plans and policy briefs, this paper examines the reasons for such polarization in Sendai, the largest metropolitan in the disaster impacted Tohoku region. Tsunami waters during the 3.11 disaster inundated 8,110 coastal households in the City of Sendai, with 30,000 buildings completely collapsed and more than 250,000 buildings impacted (City of Sendai 2015). Eager to use nationally funded reconstruction programs, the city applied municipal planning power through a local ordinance to cast coastal lands as a high-risk zone, and to relocate households’ inland close to the city center. The ensuing movement of communities away from the coast to inland locations has created a more compact city, a long-term planning goal of the city with deep anxieties over an aging and shrinking population. It has also driven a largely elderly population, with financial limitations and the inability to afford a second mortgage, to high-rise public housing apartment complexes. Those with financial means have chosen to rebuild single-family homes at city designated relocation sites. The resulting socio-economic segregation has fragmented previously close-knit coastal communities and isolated low-income and/or elderly households in urban high-rise apartment complexes. While Japan’s housing policy has remained unchanged since Kobe, starting in 1999, Japan enacted a series of decentralization reforms that give greater powers to municipalities over local land use and decision-making (Wataru 2013). The outcomes in Sendai are examined within the context of Japan’s decentralization of planning powers. The study argues that in

large urban areas, the decentralization of planning power has not translated to decision-making based on local community needs, creating the conditions for the current wave of socio-economic segregation.

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Key Words: Housing Reconstruction, Disaster Recovery, 3.11 Disaster, Disaster Governance, Japan

GEORGIA TECH PUERTO RICO STUDIO: PLANNING FOR EL CAÑO MARTIN PENA

Abstract ID: 207

Group Submission: Rebuilding Resilient Communities After A Disaster Strikes: On Housing, Community Development, and Inter-organizational Networking

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Since Category 4 Hurricane Maria touched down on September 20th, 2017 with wind gusts of up to 147 mph (FEMA Hazus Report, 2017), Puerto Rico has struggled for stability amidst an ongoing humanitarian crisis affecting government functions and economic activity. In response, Georgia Tech students and allied faculty from the School of City and Regional Planning (SCaRP) interested in Global Development proposed a pilot joint studio with the University of Puerto Rico's Graduate School of Planning (EGP). With funding from the American Planning Association (APA), faculty in both institutions developed parallel courses, an exchange program for the Spring of 2019 and a planned multi-year collaboration, with the goal of contributing to long-term recovery and development.

The pilot studio focused on the eight communities – originally developed as informal settlements – adjacent to the Caño Martín Peña (CMP), a severely degraded 3.75 mile-long tidal channel connecting two important water bodies in San Juan (EPA, 2015). In these communities, the joint studio primarily engaged with two local organizations: the Land Trust which owns much of the community land; and ENLACE, an independent government organization, which advances efforts to alleviate poverty and improve the quality of life for local residents. ENLACE served as the joint studio's client.

In addressing ENLACE's needs, the pilot studio's most prominent objective was to develop a transferable model to channel planning assistance to other vulnerable communities – one which captured local and international institutional resources and talent. Consistent with Professor Cecilio Ortiz Garcia's (of UPR Mayaguez) emphasis on identifying gaps articulated by local communities as the greatest need (NCSE ,2018), this objective built on David Godschalk's concept of a "hazard mitigation corps," whereby state universities partner with local communities to provide hazard information and mitigation assistance (Texas A&M, 2019). Other studio objectives included educating next-generation planners and devising

transferable tools and analytics to strengthen the planning capability of communities and local organizations.

To achieve these objectives, the joint studio began with a 1-credit hour course in the Fall semester to better understand the Puerto Rican context. A 5-credit hour course in the Spring semester followed, in which UPR and GA Tech students – who communicated through bi-weekly calls – divided into small teams addressing project management, revenue streams, data, and parcel analysis. Over Spring Break, Georgia Tech students traveled to Puerto Rico for intensive workshops, fieldwork, and presentations. Site visits and in-depth interviews revealed the complexity of issues, and opportunities, facing ENLACE and the eight communities, including the need to secure funding and leverage the Land Trust's potential.

Studio deliverables included an in-depth evaluation of 15 project management tools, a review of over 60 government grants and alternative funding streams, a methodology for interactive data management in Tableau, and process recommendations for a tree inventory. Through interactive presentations in Spanish, students received feedback from clients and partners on the deliverables. As such, the joint pilot studio has proven relevant to planning scholarship, education, and practice, offering a broadly replicable model for disaster mitigation planning.

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Key Words: Hurricane, Natural disaster, Climate Change, Puerto Rico

HOUSING AND DISABILITY IN EMERGENCY RESPONSE

Abstract ID: 208

Group Submission: Rebuilding Resilient Communities After A Disaster Strikes: On Housing, Community Development, and Inter-organizational Networking

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Hurricanes Katrina and Rita revealed the inequitable social and political landscape marginalized populations (e.g., low income, Black, Hispanic and disabled) faced in the aftermath of recovery; since then, with each natural and manmade disaster, planners and governing bodies continue to learn how to effectively service devastated community residents with emergency essential services and post-recovery programs. Of the marginalized populations rarely cited in the literature are people with disabilities and

when cited, they are lumped into a singular category. By lumping them, the service needs of the visual, sensory, and hearing impaired are interjected with individuals who have mobile limitations thus not adequately acknowledging the unique challenges and circumstances of people with disabilities when providing a solution framework. This paper is part of a larger research agenda, using the mixed methods approach of grounded critical visualization, on marginalized populations and the responses governmentality has to emergencies where evacuation and relocation is necessary for the wellbeing of community members. Using the substantive theoretical framework on the social production of disability space(s) to guide the analysis, this paper traces the evolution of US policies addressing natural disasters and the mitigating solutions thru Hurricane Maria, for providing temporary and permanent accessible housing for people with disabilities (across the disability spectrum). Concentrating on the life experiences of Hurricane Maria stakeholders (specifically housing providers, government partners, and displaced residents) in the Chicagoland area, through in-depth interviews, we broach the continuing struggle of providing and accessing affordable housing and access to governmental community amenities. We identify and detail the extent of the barriers and facilitators people with disabilities and actors continue to face concluding with recommendations on ways policies and responses can be better framed for future disasters.

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Key Words: Housing, Disaste , Hurricane Recovery, Disability, ADA

NETWORKING AMONG NON-PROFITS IN PUERTO RICO TO BUILD DISASTER RECOVERY CAPACITY.

Abstract ID: 209

Group Submission: Rebuilding Resilient Communities After A Disaster Strikes: On Housing, Community Development, and Inter-organizational Networking

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Nonprofit organizations can play a critical role in disaster recovery owing to their ability to motivate volunteerism, assess local needs and distribute goods and aid [1]. But few such organizations have the capacity to successfully navigate the dynamism and uncertainty of disaster recovery. This is particularly true of locally-embedded, community-based organizations which typically have smaller staff, less resources, fewer extra-local connections, and much less experience in disaster recovery matters. But they are also the ones with the highest stake in long-term community recovery.

Research has indicated that networking and communication can provide nonprofit organizations with new avenues of information and action [2], boost their diminished capacities , provide better means of community representation [3], and improve “cognition” of “emerging risk to which a community is exposed and to act on that information”[4]. Social networking can also help these organizations by facilitating information exchange, collective action, and access to new resources for recovery [5]. Despite these preliminary insights, few studies have systematically examined how inter-organizational networking between community-based and nonprofit organizations improves their recovery actions. The knowledge of what makes some networks more effective than others can directly contribute to more targeted capacity building initiatives for this critical recovery stakeholder group.

In this study, we use a mixed methods approach to examine the ways and means in which inter-organizational networking improves post-disaster recovery efforts of community-based organizations. We focus particularly on the ‘Common Idea,’ a new emergent network of local community-based and nonprofit organizations in San Juan, Puerto Rico. Data is collected through online and face-to-face surveys of participating and non-participating organizations, and through semi-structured, key informant interviews of nonprofit representatives. We conclude on the impact of participation and non-participation on individual operations of these organizations, their knowledge seeking behavior, ability to resolve disputes, undertake negotiations, build trust, create new collaborations and access resources in the post-disaster context.

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Key Words: disaster, recovery, nonprofits, networking, capacity

THE LOCAL PARADOX - COMMUNITY RECOVERY AND MUNICIPAL ADAPTATION IN STATE POLITICS FOR STRATEGIC RETREAT

Abstract ID: 210

Group Submission: Rebuilding Resilient Communities After A Disaster Strikes: On Housing, Community Development, and Inter-organizational Networking

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Large-scale residential relocation will become increasingly necessary to adapt to the complex challenges of flooding and climate change (Adger et. al 2018). Evolving environmental philosophies are calling for policymakers to govern climate risks through climate adaptation approaches (Mazmanian et. al, 2013), but political acts of avoidance (Koslov, 2019) and preemption have prevented climate adaptation practices from receiving primacy in federal climate mitigation policies. In response, local governments must increasingly exercise greater autonomy to converge climate resilience and adaptation goals with other

policy agendas. Local innovations, however, greatly challenge communities with limited institutional resources. This paper evaluates multiple cases of buyout sites in the State of New York to examine how rural and limited-capacity governments can stimulate adaptation efforts and flood risk reduction without policy integration. Through its coordination-driven policy design and financial and technical support, the NY Rising Community Reconstruction (NYRCR) Program facilitated the multi-scalar recovery planning process for local governments facing capacity and resource constraints. Drawing from field work completed for my dissertation, including interviews with planners, spatial data, and a review of policy documents, I found that hazard mitigation and fiscal divestment continue to drive municipal decisions for retreat. Since federal eligibility criteria both incentivizes and discourages participation for households in neighborhoods undergoing processes of marginalization, both pre-event planning and inter-municipal networking were critical factors in local abilities to administer buyouts. I conclude with recommendations on ways that state policies can preserve local autonomy while formalizing more roles and structures for regional-scaled, intergovernmental coordination.

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Key Words: disaster recovery, climate adaptation, policy integration, local policy entrepreneurship, buyouts

FROM URBAN-RURAL DUALISM TO STRUCTURAL INTEGRATION: STRATEGIES FOR THE RESILIENT AND SUSTAINABLE DEVELOPMENT OF BOTH URBAN AND RURAL COMMUNITIES IN CHINA

ID: 16

Pre-Organized Session Summary

Includes abstracts: 230, 231, 232, 745

China's dualistic urban-rural structure results from policies focused on urban development whereby urbanization and industrialization are given precedence over traditional agriculture and rural culture. The results are abandoned villages, overcrowd cities, loss of prime farm land, and the degradation of air, land and water resources. While urbanization has increased incomes for some, the quality of life in both urban and rural areas has been degraded for many. This dualistic pattern is neither sustainable nor resilient for either type of community, and there is a need to identify approaches that balance urban rural development. This is especially needed as cities and rural villages prepare for climate change with its uncertainty and extreme weather. If cities are to become sustainable and resilient, they must be supported by sustainable and resilient rural areas, and visa-versa. This session will begin with a presentation that defines and documents the patterns and outcomes of dualistic development in China, followed by presentations of case studies of successful integrated urban-rural development, two in Beijing, one in Jilin Province and one in the US.

Objectives:

- Attendees will better understand the origins and impacts of China's dualistic urban-rural structure.
- Attendees will learn about case studies of successful integrated urban-rural development on the fringe of large urban areas.
- Attendees will learn about a case study of successful integrated urban-rural development in rural Jilin province.

REUSE THE ABANDONED RAILWAY LEAD COMMUNITY REGENERATION-CASE OF ZHANGJIAKOU THE WINTER OLYMPIC CITY

Abstract ID: 230

Group Submission: From urban-rural dualism to structural integration: Strategies for the resilient and sustainable development of both urban and rural communities in China

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Abandoned railway is another side of coin under the rapid development of high speed rail in middle and small cities in China. The changes are not only limited on transportation mode and speed, but also promote urban space transition and sustainable regeneration. Speed changes bring spatial responding, and also bring a serious of urban economic and social problems. By case study of Zhangjiakou, the winter Olympic city in 2022, this paper demonstrates how to reuse the abandoned railway to promote community regeneration. This paper focuses on reuse of the old railway as urban metro system, and its impact on spatial changes of the nearby urban space. It includes experiences and practices from both international countries and China. It tries to approach from the transportation changes to urban space and daily life of residents, especially how they revitalize the old factory community near the railway. It brings new opportunities and new driven forces on urban growth, by providing new ways of daily commuting and adopt suitable planning tools. This paper shed light on how to promote sustainable transition of old factory community near the abandoned railway.

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Key Words: Community Regeneration, Reuse of Railway, Urban Rail Transit

URBAN REGENERATION IN COLD REGION: LEARNING FROM THE ANCIENT ORIENTAL SOCIO-ECOLOGICAL WISDOM OF A TRADITIONAL VILLAGE IN NORTHEAST CHINA

Abstract ID: 231

Group Submission: From urban-rural dualism to structural integration: Strategies for the resilient and sustainable development of both urban and rural communities in China

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Many villages in China, which still function well after hundreds of years, are the living carrier of ancient oriental socio-ecological wisdom. Traditional villages in the cold region in northeast China face multiple threats such as drought, floods, snow and various other types of extreme weather disasters. While some ancient cities and towns with plenty slaves and workers could carry out large-scale engineering projects and challenge mother nature, the small ancient traditional villages have developed a unique water management knowledge system to deal with the multi-disasters by applying principles such as ‘fully respect nature’ and ‘let nature work’. Comparing the principles and solutions for water management between ancient traditional villages and the modern sponge cities, we can easily notice that, ancient traditional villages developed features such as low technology, low cost, low impact, low maintenance, adaptable, and multi-functional, which are precisely the goals of contemporary urban regeneration. This paper uses Jinjiang Muwu (chalet) village as an example to illustrate the lessons and experiences new urban regeneration can learn from ancient traditional villages. The settlement layout of Jinjiang Muwu (chalet) village fully combines the landscape resources to form a unique human settlement environment where the humanities and nature of the cold region blend together, a reflection of the unique ecological wisdom. We build the traditional village’s 3D morphology by drone photography with multispectral imaging technologies and analyze multi-attribute data to demonstrate the socio-ecological wisdom of ‘let nature work’ at the macro, meso and micro scales. We analyze the external settlement selection, internal space environment, unique woodcut shingle construction rules and the folk culture of Jinjiang Muwu (chalet) village to reveal the unique and ingenious ecological wisdom in coping with the cold climate. We find that maintaining convenient access to resources is the primary objective for village site selection, the principle of avoiding threats and making the best use of everything is the basic guarantee for the village’s continuous development, and the regional culture is the fundamental reason for the formation of its environmental characteristics. Those lessons can serve well as the inspiration for urban regeneration in the cold region.

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Key Words: socio-ecological wisdom, cold region, traditional village, urban regeneration, water management

URBAN VILLAGE: A NEW SOCIO-ECOLOGICAL HUMAN SETTLEMENT LIFESTYLE BUILT UPON TRADITIONAL WISDOM AND TECHNOLOGY

Abstract ID: 232

Group Submission: From urban-rural dualism to structural integration: Strategies for the resilient and sustainable development of both urban and rural communities in China

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Abstract: China is in an accelerated phase of urbanization. Cities attract a large number of rural laborers so that many farmers no longer rely on agriculture to obtain the basis for survival, life, and self-development. Differences in lifestyles and job opportunities are making more young people prefer to staying in cities. With this change, new social problems occur from hollow villages and villages with only left-behind children and elderlies, etc. The disappearance of rural areas seems to be an inevitable trend. To address this problem, the Chinese government has proposed to revitalize the countryside and to carry out new village construction for improving the quality of life and living standards of rural residents. The situations in rural areas vary widely and it is impossible to solve the problem through unified strategies. Then, in the context of urbanization and the promotion of new village construction policies, what should the future of the countryside be like? Should rural villages be developed similar to existing city communities?

This paper jumps out of the dualistic research model of urban and rural areas and returns to the perspective of human settlements. We propose a new concept of urban village which learns from the traditional villages' ecological wisdom of living with the nature and the attractive contemporary lifestyle in cities, and at the same time, addresses different issues and challenges faced by current rural and urban communities. A new urban village will develop infrastructure with advanced technology that supports a new lifestyle that fulfills human needs with minimizes human impacts on the environment. We will use an innovative sewer system as an example to illustrate the new urban village concept.

Citations

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Key Words: human settlement, urbanization, new village construction, traditional wisdom, urban village

SOCIO-ECOLOGICAL PRACTICE IN THE CONTEXT OF URBANIZATION

Abstract ID: 745

Group Submission: From urban-rural dualism to structural integration: Strategies for the resilient and sustainable development of both urban and rural communities in China

WANG, Xinhao [University of Cincinnati] xinhao.wang@uc.edu, presenting author

XIANG, Wei-Ning [University of North Carolina at Charlotte] wxiang@uncc.edu, co-author

The presentation starts with a description and explanation of the importance of socio-ecological practice. Socio-ecological practice is the human action and social process that take place in specific socio-ecological context to bring about a secure, harmonious, and sustainable socio-ecological condition serving human beings' need for survival, development, and flourishing. It is the most fundamental and arguably

primordial social practice Homo sapiens has been involuntarily engaging in over thousands of years of co-evolution with nature. Socio-ecological practice, which includes six distinct yet intertwining classes—planning, design, construction, restoration, conservation, and management (Xiang 2019). The process of urbanization brings urban and rural areas closer in one socio-ecological system. Activities happening in cities and villages will affect other parts of the system, which may in turn affect the cities and villages. The current urbanization is not sustainable because of the increased use of automobiles and energy, air and water pollutions, and loss of farm land (Daniels 2001). To build sustainable and resilient human settlements calls for innovations (Wong et al. 2018) and socio-ecological practices that follows the precautionary principle to pursue benefits and avoid problems (Wang 2019). This presentation sets the stage for other presentations in this session that demonstrate socio-ecological practice from cases in China and USA. Chen’s presentation uses an innovative sewer system as an example to develop a new type of urban communities that follows traditional wisdom and takes advantages of the latest technology. Zhao’s presentation calls for a socio-ecological practice to coordinate urban and rural development. Instead of demolishing rural villages or converting them to ones similar to existing urban communities, we should learn to retain the socio-ecological wisdom exhibited in rural villages when we plan, design, construct, restore, conserve, and manage rural and urban communities. Zhang’s presentation demonstrates how to reuse the abandoned railway to promote community regeneration. Auffrey’s presentation assesses two areas that initially developed as rural villages and were transformed into the American version of “urban villages”.

Citations

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Key Words: Socio-ecological Practice, Precautionary Principle, Systems Thinking, Wisdom, Human Settlement

PRE-ORGANIZED SESSION - ENGAGEMENT PRACTICES FOR REGENERATIVE DEVELOPMENT: BUILDING COLLECTIVE POWER FOR CLIMATE JUSTICE AND RESILIENCE

ID: 22

Pre-Organized Session Summary

Includes abstracts: 274, 275, 276, 277, 876

What methods and practices of community engagement help practitioners plan in an era of climate volatility for climate justice and resilience? How can the planning profession shift its paradigm to better disrupt inequitable systems and create structures to enable equitable, thriving communities? Much has been written about methods available to participatory planners and many authors have documented community engagement processes and measured outcomes. Yet, despite the importance of self-awareness and ecological awareness in supporting personal, social, and ecological resilience, such awareness-based practices are rarely discussed or documented. This session presents practitioner stories, case studies, and historical/theoretical perspectives on the intra-personal, interpersonal, and place-based practices of

engagement that are necessary to support regenerative community development that advances climate justice and resilience.

Objectives:

- Explore how the inner practices of community change agents under differing circumstances across the world have helped them attune to, flow with, and foster the emergent potential of communities in which they are engaged.
- Explore methods of community engagement that practitioners can critically and creatively employ to build the knowledge and power needed to advance climate justice and resilience.
- Explore place-based, ecologically-grounded, radically-rooted methods of participatory design and development that can unleash the power of individuals, communities, and ecosystems to heal and create the world anew.

THE HEART OF COMMUNITY ENGAGEMENT: REGENERATIVE PATTERNS FOR PRACTICE

Abstract ID: 274

Group Submission: Engagement practices for regenerative development: Building collective power for climate justice and resilience

WILSON, Patricia [University of Texas at Austin] patriciawilson@utexas.edu, presenting author

The author addresses a blind spot in community engagement practice that is identified in the principles of regenerative change: the practitioner's awareness of self and system.

To elucidate this awareness-based practice of regenerative change, the author draws upon reflective practitioner stories from across the globe. In each of the stories the community engagement practitioner is facing issues of economic, social, or environmental justice: rural communities in post-civil war El Salvador, an immigrant colonia on the Texas-Mexico border, embattled peasant farmers in Colombia's Cauca Valley, the Khayelitsha township of shack dwellers in post-apartheid South Africa, a cluster of poor farming villages in Uttar Pradesh, India, and informal settlements in an imperiled watershed on the outskirts of metropolitan Mexico City. The stories chronicle the path from self-awareness to "ensemble awareness"--a sense of the living social field and its emergent regenerative edge.

The 10 patterns of regenerative practice that the author identifies deepen the understanding of triple-loop learning for action research and contribute to the historic shift toward a quantum view of interconnectedness and dynamic complexity.

Citations

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Key Words: ensemble awareness, reflective practitioner, regenerative practice, action research, community engagement

LEARNING FROM ARNSTEIN, MEADOWS, LORDE AND BOGGS: BUILDING A SPECTRUM OF COLLECTIVE POWER FOR CLIMATE JUSTICE AND RESILIENCE

Abstract ID: 275

Group Submission: Engagement practices for regenerative development: Building collective power for climate justice and resilience

WALSH, Elizabeth [University of Colorado - Denver, College of Architecture and Planning]
elizabeth.walsh@ucdenver.edu, presenting author

In the 50 years since the publication of Sherry Arnstein's "Ladder of Participation," what have we learned about community engagement that can help us plan in an era of climate volatility for climate justice and resilience? How can the planning profession shift its paradigm to better disrupt inequitable systems and create structures to enable equitable, thriving communities? This paper reviews lessons for practice from four female scholars (Sherry Arnstein, Donella Meadows, Audre Lorde, and Grace Lee Boggs) whose work responded to the social and ecological crises of the late 1960s (and all published significant works in the five years between 1969 and 1974). Although these four thought leaders did not appear to have been in dialogue with one another at the time, their work (1) named different aspects of the complex, interrelated social and ecological crises that contribute to climate injustice today, and (2) called on planners and community members to disrupt the systemic structures that threatened life on earth and to create new structures that redress the harm of past inequities. Drawing on their combined legacies, we propose a "Spectrum of Collective Power" that can be used to complement Arnstein's "Ladder of Citizen Participation." We posit that the Ladder will continue to help planners name, expose, and oppose the noir side of citizen participation, including abuses of power and entrenchment of status quo. Used in tandem, we imagine the Spectrum of Collective Power will support planners in facilitating processes that build collective capacity to advance climate justice and resilience. In describing this proposed Spectrum, we identify eight forms of collective power categorized into three sub-spectrums: the spectrum of grounding (including the powers to heal and disrupt), the spectrum of learning (including the powers to sense, appreciate, and integrate), and the spectrum of action (including the powers to redistribute, co-create, and regenerate). For each sub-spectrum, we point to contemporary planning engagement methods/practices that have been used to cultivate corresponding collective powers to advance climate justice and resilience. In identifying these methods of engagement, we draw significantly from literature in environmental justice, regenerative design and development, public interest design, asset-based community development, appreciative inquiry, critical participatory action research, community-based participatory research, feminist epistemology, and black feminist theory. We also draw from lessons from thought leaders engaged in contemporary social movements including the Movement for Black Lives and climate justice movement. These methods support an approach to praxis that is radically rooted and regenerative. Using Arnstein's "Ladder" and the Spectrum of Collective Power, practitioners can critically and creatively engage communities to disrupt structures of oppression and co-create structures that support resilient communities for all in an era of climate volatility.

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Key Words: climate justice, resilience, community engagement, regenerative development, complex socio-ecological systems

BUILDING LOCAL LEADERSHIP CAPACITY FOR CLIMATE RESILIENCE IN BUFFALO-NIAGARA

Abstract ID: 276

Group Submission: Engagement practices for regenerative development: Building collective power for climate justice and resilience

WHITE, Julia [University at Buffalo - SUNY] jwhite25@buffalo.edu, presenting author

This paper documents leadership practices via the Citizen Planning School Champions for Change program curriculum as well as methods in action (Walsh et al, 2017). It offers insight on the following key points of inquiry: 1. Confronted by the challenges of climate volatility, how can planners support regional community leaders in expanding collective capacity to advance social and ecological well-being and climate justice?; 2. How can leadership efforts be both place-based and historically based, both honoring and learning from local heritage in ways that support regional regenerative development?; and 3. How can universities, as anchor institutions, best support civic infrastructure and facilitate the work of leaders who can implement regional action towards climate justice, both within the university and in the broader community?

The paper specifically explores the University at Buffalo's Champion for Change course, a program based off of other citizen planning academies in the country (Mandarano, 2015), that partners students with community leaders seeking to make change in their communities. Leadership practices employed by the program are analogous to practices of planning and design innovation in other places, yet this program grounds them in local heritage in ways that honor the diversity and depth of experience and wisdom of those in our region, specifically the Haudenosaunee or Six Nations of the Iroquois. The Haudenosaunee participatory practices and Great Law of Peace, which centers community and harmony, have in many ways laid the groundwork for our present-day democracy (Lyons & Mohawk, 1998).

At the heart of the curriculum are the four practices of regenerative development as practiced and learned from the Haudenosaunee: Thanksgiving Practice, Law of Regeneration, 7th Generation Principle, and Great Law of Peace. As these practices are built into many aspects of the coursework, the research will assess the effectiveness of centering these principles and practices within a group setting and developing a deeper analysis and dialogue around whether the curriculum can be replicated elsewhere.

The research will offer insight into how universities, as anchor institutions, can best support civic infrastructure and the development of leaders who can positively impact regional actions towards a more just and flourishing future, both within the university and the broader community. While it is expected that the results will highlight the importance of civic infrastructure, it is also expected that the process will provide insight into the real challenges that can make civic infrastructure so difficult to implement.

The research methods involve process-based assessment, participatory action research, and developmental evaluation. The program curriculum has a built-in assessment via an assortment of activities that examine student-community leaders' progress towards the completion of their project plans. Preliminary findings suggest the complexity of university/community partnerships, requiring trust as a core ingredient. Students and residents are half way through the program, and the most productive project plans are those student-resident partnerships that meet weekly to not only move their projects forward, but to develop their relationship with one another.

This work is relevant to the planning field, as it explores how planners can extend themselves beyond the confines of traditional planning techniques to be leaders in fostering authentic relationships and strong communities. Urban planning as a field tends to frame itself as a technocratic discipline in which neutral, objective planners apply techniques to help elected leaders achieve outcomes they believe to be in the public interest. Planning education rarely trains planners to be leaders, yet leadership by people trained to understand complex systems is essential in an age of climate change. This research explores the possibilities of actively supporting the collective power necessary ensure communities are resilient, just and equitable.

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Key Words: Civic Infrastructure, University/Community Partnerships, Climate Resilience, Leadership, Regenerative Development

CONSTRUCTION DOCUMENTS FOR EMERGENCY HEARTS: DEMOCRATIC DESIGN PROCESS AS A TOOL FOR CLIMATE RESILIENCE

Abstract ID: 277

Group Submission: Engagement practices for regenerative development: Building collective power for climate justice and resilience

SLABAUGH, Danielle [California State Polytechnic University - Pomona] yard2table@gmail.com, presenting author

In *A Paradise Built in Hell: The Extraordinary Communities That Arise in Disaster*, Rebecca Solnit describes the phenomenon she calls “Emergency Heart”, the almost universal inter-community support that individuals extend to each other in times of catastrophe (2010). Social science research confirms that strong social capital correlates highly with community scale and individual resilience. Indicators such as

strength of social networks, local ecological knowledge and degree of place attachment have been tied directly to adaptation capacity related to natural disasters such as avalanches (Hovelsrud, Karlsson, & Olsen, 2018) and wildfires (Prior & Eriksen, 2013).

While assertions have been made regarding the value of participatory processes and their capacity to improve social inequalities (Arnstein, 1969), and increase place attachment (Melcher, 2013). Little or no research has been done to quantify and qualify the impacts of democratic design of neighborhood places on indicators of social capital, and thus climate resilience. Through a case study of one such democratic design process in a low-income, Latinx community in South East Los Angeles led by a parks and open space non-profit, this study will investigate how and to what extent design processes at the top of Arnstein's Ladder may influence social networks, place attachment, and local knowledge in marginalized communities. Semi-structured interviews will provide insight into the impacts of deep community engagement in the design process from the perspectives of residents, landscape architects, and community organizers.

Planning and designing cities for climate resilience presents major challenges, the least of which is the simple fact that future patterns of extreme weather are unknown. The implications of this research for climate resilience and adaptation efforts underline the critical function of process, not just product. By engaging in bottom-up planning and design processes professionals may be able to support the critical social infrastructure of climate resilience, an infrastructure that is far more adaptable to what is still unknown about climate futures than physical form. Preliminary results will be presented at the 2019 ACSP conference.

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Key Words: Climate Resilience, Social Capital, Democratic Design, Place Attachment

RECIPROCITY, REFLECTION, REGENERATION: LESSONS ON LEADERSHIP FOR RESILIENCE FROM THE HIGH ANDEAN RUNA COMMUNITIES OF PARQUE DE LA PAPA.

Abstract ID: 876

Group Submission: Engagement practices for regenerative development: Building collective power for climate justice and resilience

BUSH, Alan [University of South Florida] resonance.resilience@gmail.com, presenting author

This research employs a new leadership framework in ethnographic analysis with the intention of drawing practical lessons about resilient leadership. In specific, field research used Complexity Leadership Theory

(CLT) to assess resilient leadership practices in Parque de la Papa, a set of Runa communities in high Andean Peru.

We have conceptualized, organized & practiced leadership in particular ways in the global North/West. Leadership comes from individuals: leaders. Authority is granted by structure, often hierarchy. Social patterns of selection into positions of authority introduces systematic bias. Individual-led hierarchical leadership is fragile in conditions of increased uncertainty & complexity (Boisot et al 2008).

This is relevant now, as the background conditions to civilization are changing. Research in socio-ecological systems anticipates the next 75 years will not be as stable as the past 75 (IPCC 2018). This is driven by the twin ecological & energy crises; if we address our ecological crisis, we drive a disruptive energy transition. If we fail to engage with the energy transition, it will drive a cataclysmic ecological crisis. Both will drive increased uncertainty for human communities generally, requiring greater adaptability. As a result the leadership that has been effective (or at least passable) in the past may encounter the edges of its operational effectiveness.

All of this has set up a quest for new ways to conceptualize leadership. Complexity leadership theory (CLT) is an approach to conceptualizing leadership as distributed phenomena that emerge from relationships rather than people (Hazy & Uhl-Bien 2015). Previous work has employed CLT to assess the degree to which leadership practices accounted for resilience in urban systems (Bush 2016). Cases that exhibit "positive deviance" can be rich places for learning and theorizing in complex systems (Anderson 2005). An ethnographic analysis of positively deviant cases in other cultures may be useful in identifying practices for resilient leadership.

The high Andean communities of the Runa people may hold lessons for us. The inheritors of the cultural legacy of the Inca, these communities have navigated successive waves of uncertainty, as brought by Spanish colonization, the Peruvian civil war, and globalization. Throughout these they have maintained a degree of autonomy and self-determination, as well as sustainable relationship with their supporting ecosystems.

Through thick description, we illustrate three of the cultural elements that lead to resilient leadership in Parque de la Papa. First is the principle of reciprocity. Second are the specific practices of multi-scalar reflection. Third is the approach or mindset of regeneration. Taken collectively, the three contribute to an emergent leadership consciousness they have developed an approach leadership that has led to resilient communities over long timescales. We close with some thoughts about how to adapt the practices and lessons from these communities into an American planning context.

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Key Words: Leadership, Regeneration, complexity leadership theory, reflection, resilience

FROM PRESENCE TO MAKING IT THEIR OWN: STRATEGIES OF YOUTH AND OLDER ADULT PLACE-MAKING IN LOS ANGELES AND BEIJING

ID: 30

Pre-Organized Session Summary

Includes abstracts: 377, 378, 379

In this session, practicing and academic planners from Los Angeles will present research on how youth and older people, groups that are sometimes considered “socially vulnerable” empower themselves with the resources available to them by reimagining spaces in cities and communities to fit their needs. Papers from this session will examine: how youth from disinvested communities, homeless youth, and older adults with limited social support devised ways to find belonging through their work, social circles, and beloved pastimes. The ability to persevere, survive and thrive is the overarching theme of this session. Identifying how youth and older adults reuse and reinvent public spaces that were not planned with them in mind can help planners to further support the active use of those spaces, and to design more inclusive and equitable policies in a city for all ages.

Objectives:

- To discuss how homeless youth find community in Los Angeles.
- To discuss how older adults maintain social ties and health through urban dance in Beijing.
- To discuss how youth from disinvested communities assert their ownership of place by working with researchers to conduct community needs assessments in Watts.

DESIGNING THE DANCEABLE CITY: HOW RESIDENTS IN BEIJING CULTIVATE HEALTH AND COMMUNITY TIES THROUGH URBAN DANCE

Abstract ID: 377

Group Submission: From Presence to Making It Their Own: Strategies of Youth and Older Adult Place-Making in Los Angeles and Beijing

CHEN, Caroline [Independent Researcher] carolinechen06@berkeley.edu, presenting author

Kevin Lynch envisions the city as a place that supports health, survival, social contact, and vitality. Urban dance is how many residents who live in Beijing, China achieve these goals. A popular activity for an estimated 100 million older residents who live in China, urban dance happens primarily in parks and leftover spaces in the city transportation infrastructure. Dance groups often face challenges finding appropriate places for dancing and are forced to move multiple times because of conflicting demands for open space.

In this study, I ask four research questions: (1) Why are people dancing in Beijing? (2) Where does urban dance happen? (3) Why does dance happen in some places but not in others? And (4) Why may urban dance be relevant to American planning? I used open-ended interviews and two surveys to evaluate these issues, finding that urban dancers are mostly older women who dance to keep healthy, to feel happy, and to cultivate a sense of community. Urban dance in Beijing happens primarily in parks and spaces in the transportation infrastructure, although dancers prefer parks because of the clean air and natural environment.

Dancing space is a coveted resource in a city of 21 million residents, however, and dance groups are often forced to move multiple times because of competition with other groups for the right to use limited space. They often move to spaces in transportation infrastructure such as freeway underpasses and parking lots, where it is noisy and polluted. Complaints from neighbors who are disturbed by dance music and conflicting demands for open space have led the central and municipal governments in China to attempt to ban or restrict urban dance. Urban dance continues to persist, however, bringing health, community, and vitality to Beijing's open spaces. This case study offers an attractive, alternative vision to American planners and urban designers who work in a context where space is relatively plentiful, but dancing in public is not the social norm: can we make it happen here?

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Key Words: healthy aging, parks, seniors, transportation, urban design

A PLACE TO BELONG: WHERE HOMELESS YOUTH FIND COMMUNITY IN LOS ANGELES

Abstract ID: 378

Group Submission: From Presence to Making It Their Own: Strategies of Youth and Older Adult Place-Making in Los Angeles and Beijing

ORNELAS JR, Norman [Independent Researcher] n.ornelasjr@gmail.com, presenting author

Homeless youth are vulnerable to social and legal regulations of the built environment in spaces such as parks, streets and sidewalks. Forms of surveillance, scrutiny and suspicion within public spaces impact their lives, due to lack of access to private space, making them a frequent target for policing. Understanding these impacts and identifying strategies employed by youth may lead to solutions for more effective policy and programs.

Much research has been conducted on homeless populations, mostly through survey and quantitative data methods, though more qualitative insight may lead to a more nuanced understanding of the lived homeless experience. This paper will examine the spatial distribution of homeless transition age youth (ages 18-24) living in urban environments in Los Angeles through mapping. Maps will be gathered from homeless youth to explore the niches in the city where they congregate and will describe their patterns of movement as they seek opportunities for survival, through formal and informal work and social networks. In the absence of sources of security and acceptance from the traditional family and home, they find a sense of belonging and community in alternative spaces. This research uses participatory mapping methods and in-depth interviews to reveal where the places of support and sources of sustenance are found from the perspective of homeless youth in Los Angeles.

By better understanding how homeless youth negotiate their needs in the spaces available to them, this research aims to contribute to more inclusive planning policy discussions and frameworks.

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Key Words: homelessness, youth, participatory, public space, inclusive planning

CENTERING YOUTH IN NEEDS ASSESSMENTS: WHEN PARTICIPANTS BECOME COMMUNITY RESEARCHERS

Abstract ID: 379

Group Submission: From Presence to Making It Their Own: Strategies of Youth and Older Adult Place-Making in Los Angeles and Beijing

ANDERSON, Heather [Independent Researcher] hna2106@caa.columbia.edu, presenting author

This paper presents a case study of a participatory community needs assessment (the first phase of a project titled Watts Community Studio, or WCS), in which youth residents of Watts were employed through the City of Los Angeles's Summer Youth Employment Program to administer surveys, enter data, and develop a policy recommendation with guidance from adult researchers. The youth researchers achieved 800 resident surveys and 50 business surveys. Most significantly, centering youth also provided a significant foundation of qualitative data for the needs assessment.

In disinvested communities, youth often have limited options in terms of education and employment opportunities, amenities, commercial base and resources. Efforts by residents to assert control, create predictability and stability, or establish community ownership sometimes takes the form of gang boundaries. These boundaries further constrict the movement of youth through the community. In Watts, this is compounded by a history of negative media portrayal that impacts youth perception of their own community.

After identifying the disconnect between youth and the physical/built environment of Watts, several of the WCS needs assessment recommendations involved supporting the grassroots and organizational efforts to create space for youth. Additionally, the adult researchers aimed to use the assessment as a tool to re-connect youth to their physical environment, and discovered that prioritizing youth in the assessment had potential outcomes beyond the policy document.

The paper grounds the case study in the history of youth engagement, and provides an update of youth engagement since the first phase of WCS in 2013, aiming to contribute to more inclusive planning in disinvested communities. Shifting youth from participants to community researchers is a critical first step.

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Key Words: Youth engagement, Disinvested communities, Low-income communities

EXPECTATION, LOSS AND CHANGE IN URBAN HISTORIC DISTRICTS

ID: 33

Pre-Organized Session Summary

Includes abstracts: 522, 523, 524, 525

Communities living in neighborhoods with older housing stock can use historic district designation to prevent demolition, attract new investment, and establish local oversight on new development. But who is making decisions about historic district designation in communities? What kinds of communities use historic preservation as a redevelopment tool? What are the expected neighborhood outcomes associated with district designation and how do these expected outcomes influence planning and decision-making with the community? This panel brings together four emerging scholars to examine the dynamics of neighborhood change in historic districts. Their papers examine: 1) the relationship between demolition and preservation as redevelopment strategies, 2) how communities use historic district designation as a way of preventing unwanted development and mitigating gentrification, 3) the politics of historic district designation and expectation of change in gentrified neighborhoods, and 4) the relationship of same-sex households with historic districts.

Objectives:

- Better understand the dynamics of neighborhood change, particularly gentrification, in historic districts
- Understand how communities use historic districts as a tool of local control
- Understand the relationship of demolition and preservation as redevelopment strategies

THE LONG VIEW ON NEIGHBORHOOD CHANGE IN LOWER INCOME HISTORIC DISTRICTS: A COMPARATIVE CASE STUDY OF OHIO CITY, CLEVELAND AND SHAW, WASHINGTON, DC - 1970-2010

Abstract ID: 522

Group Submission: Expectation, Loss and Change in Urban Historic Districts

STANEK, David [University of Pennsylvania] dstanek@upenn.edu, presenting author

Planners, preservationists, and community development organizations have a long history of using local historic district designation as one among many tools of neighborhood revitalization. However, when neighborhood revitalization in lower-income communities designated as historic districts succeeds, the optics of well-preserved historic homes inhabited by wealthier residents suggests that historic district designation causes gentrification. This article contributes to our understanding of preservation and

planning history by examining the local politics of historic district designation and dynamics of neighborhood change between 1970 and 2010 in two gentrified neighborhoods designated as local historic districts: Ohio City in Cleveland, OH (1983) and Shaw in Washington, DC (1998). This study allows for a comparison of historic district designation and neighborhood development that resulted in similar outcomes of neighborhood change in significantly different socio-economic contexts. It contends that historic district designation should be understood as a tool of urban planning and hypothesizes that the decision about designation is based on factors internal and external to the neighborhood and that considerations of neighborhood change are central to the decision-making process.

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Key Words: Historic preservation, Neighborhood change, Gentrification, Community development

SPATIAL PATTERNS OF DEMOLITION AND PRESERVATION IN SHRINKING AND GROWING CITIES

Abstract ID: 523

Group Submission: Expectation, Loss and Change in Urban Historic Districts

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Demolition is a common redevelopment strategy in both shrinking and growing cities, but for different reasons. In shrinking cities, it is a response to vacancy, abandonment, and population loss (Mallach, 2011). In growing cities, the pressures of development and housing demand can trigger teardowns to rebuild at a greater density or for designs that are more modern. Preservation tools can deter demolition through financial incentives that support adaptive reuse, local policy mechanisms that protect existing buildings, or through less direct methods that highlight the social and cultural values of the built environment. Local historic district ordinances commonly preclude demolition of buildings considered contributing elements of the district through the design review process (Hamer, 1998). A National Register historic district provides honorary status for residential buildings and is a necessary first step for non-residential buildings seeking to use federal historic tax credits (Ryberg-Webster, 2015). Yet, we know very little about the relationship between the spatial patterns of demolition and historic districts. In this research, we ask - what is the relationship between historic districts and demolitions? Using local, administrative data on demolitions from 2013-2018, this exploratory analysis compares recent trends in one shrinking city (Philadelphia) and growing city (Los Angeles) through descriptive statistics and hotspot analysis. First, we examine the spatial pattern of the overall scale of building loss and the characteristics of the demolition (e.g. residential or commercial, a result of a code violation or initiated by

owner/developer). Next, we analyze the socio-economic characteristics of the types neighborhoods in which demolitions are occurring, using a national typology of neighborhoods developed by Delmelle (2017). Finally, we consider the relationship between demolition, neighborhood-level socioeconomic characteristics, and existing local and National Register historic districts boundaries to understand whether these preservation tools effectively mitigate demolition. Preliminary findings show that in shrinking cities, substantial demolition is occurring within historic district boundaries, indicating that these preservation tools are not enough to overcome the weak market context. In growing cities, the presence of local and National Register historic districts result in fewer demolitions compared to non-designated areas. We also find significant spatial clusters of demolitions just beyond the boundaries of historic districts, indicating that buildings near but not within historic districts may face a higher risk of being demolished. This research contributes to the preservation planning scholarship through its analysis of demolition patterns in relation to historic districts, an existing gap in the literature.

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Key Words: historic districts, demolition

HISTORIC DISTRICTS AND SAME-SEX PARTNERED HOUSEHOLD

Abstract ID: 524

Group Submission: Expectation, Loss and Change in Urban Historic Districts

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The LGBT community, particularly gay men, have well-established connections to historic preservation in U.S. cities. Many celebrated queer spaces are part of designated historic districts, including Chelsea in New York City and Midtown Atlanta. The creation of queer space intersected with broader neighborhood change processes and early waves of gentrification in the 1960s and 1970s. Scholars argue that more recent waves of gentrification differ from the earlier processes in breadth and scale, including the involvement of global real estate forces and a public sector tuned to neoliberal priorities. This has triggered concerns over whether LGBT populations are now being displaced from neighborhoods that were previously tolerant queer spaces. Linkages between historic preservation initiatives and gentrification are often centered on how historic districts affect property values or socioeconomic characteristics, and the consequent displacement of existing populations. In this research, we connect these related threads by analyzing the relationship between historic district designation and change in same-sex partnered households. In particular, we evaluate whether neighborhoods with greater concentrations of same-sex households are more likely to create historic districts, and whether the presence of a historic district is associated with future growth in the number of same-sex partnered households. We use data from the 2000 Census and the 2017 American Community Survey to analyze local and National Register Historic Districts in 47 cities with a series of OLS and logistic regression models. We find significant relationships between historic district designation and same-sex populations.

An increase in the same-sex population over the study period is associated with a higher probability of a historic district being introduced during that period. Conversely, the introduction of a historic district during the study period is correlated with greater same-sex partnered population growth during that period.

Citations

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Key Words: gay, lesbian, historic preservation, neighborhood

NEIGHBORHOOD CHANGE AND DEFENSE OF COMMUNITY BY HISTORIC DISTRICTS

Abstract ID: 525

Group Submission: Expectation, Loss and Change in Urban Historic Districts

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Introduction: This paper will present the survey findings of my dissertation research, which examines how and why community-based organizations utilize historic district designations to influence neighborhood change in a sample of US cities.

Recent journalism shows evidence that federal, state, and local historic district designation is a tool being utilized by lower-income, communities of color as a preventive measure against displacement-inducing development in NYC, Durham, Seattle, San Francisco, and San Diego. For example, in Seattle's Chinatown International District (CID) residents argue that the city's incentive zoning plan will lead to displacement of existing residents. Since the purpose of the CID is to protect cultural, architectural, and historic features, the existing historic district within the CID is recognized as "exempt" from the new zoning allowances. The desired outcome is for preservation restrictions to make the area disqualified for increased density.

Community-based organizations are pushing for policies that prioritize existing lower-income communities, and are looking for successful approaches. But, the reasons and outcomes of applying district designation as an anti-displacement strategy are not known. Studies examine how historic districts affect economic and racial change with mixed results. Scholars who evaluate preservation in terms of equity demonstrate its contributions to inclusive public participation suggesting an alliance with communicative planning. But, the re-adaptation of historic district policy here suggests a stronger connection to post-structuralist social movement theory that demands reform and action.

Methodology: The purpose of the survey is to collect information from historic preservation professionals in a sample of large US cities to elicit their knowledge of organizations that have either successfully or unsuccessfully achieved historic district designation for insular motivations not directly related to special architectural features and historical significance. The survey data will be presented and I will examine the

socioeconomic, political and cultural conditions that influence groups' use of designation as an anti-displacement strategy. The survey will also allow me to select organizations for case study. Historic designation may act as one of the few publicly accessible regulatory tools and an approachable entry into city politics.

Findings: The reasons to apply historic district designation as an anti-displacement strategy aren't immediately apparent, but the phenomenon suggests that community-based organizations are taking on an activist role by participating in decision-making not only in the streets and existing public-input forums of policy makers and urban planners, but by engagement through application of regulatory tools to their particular spaces, built environment, and affective connections, like heritage.

Relevance: There is no existing study that examines the range of insular motivations and contexts that inspire groups to apply for district designation and the literature would benefit from empirical examples that demonstrate how historic preservation contributes to equity and inclusion, particularly when compared with neighborhoods without preservation activity. Additionally, while urban planning literature theorizes the decision-making of planners, there are fewer studies that theorize the work of community-based groups that act as planning actors and sit between protest and participation with bureaucratic and legislative bodies to reform municipal policy.

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Key Words: Urban Development, Historic Preservation, Equity, Community-based Organizations, Gentrification

LEARNING IN PLANNING: DESIGNING TOOLS FOR PLANNERS AS A WINDOW ON LEARNING

ID: 37

Pre-Organized Session Summary

Includes abstracts: 675, 676, 677

This session offers a close look at four programs of research at the nexus of planning and the Learning Sciences, examining the role of technological tools in planning processes in which community development, agency and empowerment are at stake. Learning scientists have a long history of using design-based research methods to create, test, and refine tools for use in real-world settings that promote learning, and to study the learning that results (e.g., Brown & Campione, 1994; Edelson, Gordin & Pea, 1999; Wilensky & Rand, 2015). The growing body of Learning Sciences work being conducted in urban and community planning contexts (e.g., Gutierrez & Jurow, 2016; Melendez & Parker, 2018) suggests a

valuable cross-pollination of concepts and methods that can expand our understanding of how people learn with tools, and the kinds of social learning processes that emerge in community development work.

Objectives:

- To learn about four programs of research at the nexus of planning and the Learning Sciences.
- To examine the role of technological tools in planning processes in which community development, agency and empowerment are at stake.
- To translate concepts, theories, and methods across disciplines.

COMPUTER SUPPORTED COLLABORATIVE PLANNING: USING VISUALIZATION TOOLS TO ENHANCE SOCIAL LEARNING AND DEMOCRATIC DELIBERATION

Abstract ID: 675

Group Submission: Learning in Planning: Designing tools for planners as a window on learning

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How do computer technologies support social learning and enhance democratic deliberations? Research on planning support systems has been tackling this question for decades (Goodspeed, Pelzer, and Pettit, 2017), and this paper brings together two active threads in this literature to demonstrate how tools support both learning and planning outcomes. The first focuses on how participatory planning workshops promote, but also depend upon, learning among stakeholders and participants (Meléndez and Parker, 2019). The second examines how tools support group judgments and deliberation in participatory contexts (Milz, 2019). Over the last decade, our research has made technological, methodological, theoretical, and practical contributions to these parallel conversations. In this paper, we draw on empirical cases to demonstrate these contributions and to chart a path forward for research on computer-supported collaborative planning (Zellner, et al. 2012; Radinsky, et al. 2017).

Working across disciplines, we have built a simple, game-like tool to support community-level planning for flood hazard mitigation. The tool combines (1) an analog planning map, which participants use to create a green infrastructure plan for their neighborhood, (2) a process-based model of flooding, which reads the analog map and uses it to simulate a storm event, and (3) individual tablet interfaces, which participants use to report their preferences and concerns. We have also designed an approach to participatory planning workshops that embraces, not just ecological complexity, but social and political complexity, as well. By providing stakeholders with an opportunity to report and rank their concerns, our tool and process help stakeholders interpret data within planning meetings, identify opportunities for creative compromise, and to collectively generate innovative, contextually relevant responses to flooding.

We use methods adapted from the learning sciences to track the interactions between participants and facilitators throughout planning meetings. Our methods allow us to identify and dissect group judgments about flooding and green infrastructure placement to show how the groups use the tool to make plans. Moreover, by linking our study of group learning to the plans groups produce for each new simulation trial, we can track how their judgments evolve within a single workshop and across an entire planning process. Findings demonstrate how our tool and process consistently lead to better, more durable compromises and plans that are more likely to improve local environmental conditions.

Citations

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Key Words: Planning Support Systems, Social Learning, Participatory Planning, Environmental Planning, Flooding

CREATING OPPORTUNITIES FOR SOCIAL LEARNING USING ONLINE GAMES

Abstract ID: 676

Group Submission: Learning in Planning: Designing tools for planners as a window on learning

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As planners we work in small, interdisciplinary groups, to complete the tasks most commonly associated with our field: preparation of plans, community meetings, negotiation, goal formation, and review of documents (Shalinsky & Norris, 1981). We also frequently ask citizens to engage with small groups through focus groups and advisory boards. The popular and regional scale goal setting approach espoused by the Urban Land Institute, Reality Check, brings hundreds of invited stakeholders together and asks them to play a board game in small groups of 5-7 ("Reality Check - Urban Land Institute," n.d.). This game has been developed to educate stakeholders on the tradeoffs inherent in regional development challenges, and although each table of participants has a facilitator to manage game play, there are no rules for how participants should interact. In other examples, we ask citizens to develop ideas in groups, review models in groups, and develop visioning maps in groups (Desouza & Bhagwatwar, 2014; Frewer & Rowe, 2005; Kleinhans et al., 2015a; Zellner et al., 2012).

While many of these face-to-face games and planning activities are still being conducted, many more planning agencies are creating games and activities for synchronous and asynchronous play, online. When these planning activities are evaluated, we frequently attempt to select the best planning outcomes (most creative proposals, implementable strategies, etc). We have used learning science in a very limited capacity to understand the ability of the exercise to inform participants and create opportunities for social learning. Previous work on social learning has evaluated the extent to which face-to-face planning support systems (PSS) can create opportunities for learning (Goodspeed, 2015). In this work, we tested the ability of the role-playing game, @Stake, to improve the deliberative nature (collective intelligence) of unfacilitated planning discussion amongst small groups of students and measure the dimensions of social learning that occurred during an online game playing session. This research reveals the extent to which games can create opportunities for social learning and how learning science can inform the development and validation of post- activity surveys in community planning. Using learning science to understand

social-learning within a community planning activity can also help suggest new strategies for enhancing social capital in a planning process.

Citations

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Key Words: learning, engagement, ICT

DATA VISUALIZATION TOOLS AND NARRATIVES: LEARNING AS A PROCESS OF ANIMATING DATA

Abstract ID: 677

Group Submission: Learning in Planning: Designing tools for planners as a window on learning

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Planners – whether professional urban planners or community groups organizing for change – are impacted by the constant churn of technological innovation in tools for data access, modeling and visualization. For example, geographic information system (GIS) tools are a mainstay of planning professionals, but there is often a technology gap between the GIS experts generating and interacting with these systems and other members of planning groups and communities (Zellner & Campbell, 2015). Some data access and visualization tools have the potential to democratize access to complex data archives like U.S. census data (National Research Council [NRC], 2006), enabling relatively unskilled users to find, download, and manipulate data in unprecedented ways – but even these supposedly easy-to-use tools can present challenging learning problems (Radinsky, Hospelhorn, Melendez, Riel & Washington, 2014) and a technical expertise gap.

The rapid evolution of these tools, and its impact on the work of planners, suggests many important research questions about learning (NRC, 2006; Radinsky, Milz, Zellner, Pudlock, Witek, Hoch & Lyons, 2017). Tools mediate our perception, communication, conceptual understandings and decision-making – all aspects of learning that are involved in planning processes. What kinds of learning occur as planners, students, or community members adjust to the changing affordances and requirements of these tools?

In this talk I will look at this issue through the lens of narrative analysis (Connelly & Clandinin, 2006; Wortham & Reyes, 2015) – specifically, the ways planning problems, situations, and solutions are narrated with the mediating use of data visualization tools. Narrative analysis enables us to go beyond thinking about the use of visualization tools in terms of learning discrete skills, and to look more holistically at the interactive nature of how professionals learn new tools (Tsatsou, 2018).

The analysis focuses on three cases of collective narration of planning problems with data visualization tools, in three different contexts:

1. Data-mediated narratives about planning problems and situations in a public health classroom, where students are being introduced to a census data mapping tool
2. Data-mediated narratives in a workshop of water resource planners and engineers using a variety of GIS mapping tools to discuss current socio-ecological problems in the region
3. Data-mediated narratives in a public policy dispute between a public school district and several advocacy organizations mobilizing against district changes, each using mapped data to support and refute claims.

In each case, the visual data and the visualization tools are deployed in narratives that construct purposes for using data, roles for the people who use them, and representations of real-world planning situations in which those people accomplish (specified or implicit) purposes with the data. Beyond illustrating particular skills, the learning implied in these narratives includes developing a particular sense of belonging in certain communities; emotional attachments to experiences; and developing relationships with tools and data – elements of a more complex conception of disciplinary learning with tools (Tsatsou, 2018). The results suggest ways we might frame learning objectives and design professional development workshops for planners, to better engage the ways people narrate planning problems, and to better facilitate discussions in which data-based claims are made and disputed.

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Key Words: Participatory planning, Narrative inquiry, Data visualization, Digital literacy

LEARNING IN PLANNING: COMMUNITY BASED PARTNERSHIPS AS SITES OF LEARNING

ID: 38

Pre-Organized Session Summary

Includes abstracts: 696, 697, 698

In this session, three programs of research at the nexus of urban/community planning and learning sciences will be presented. This is a response to the growing interest in building a bridge between planning research and work in the field of learning sciences, which has robust theoretical and methodological tools for studying learning (e. g. MelÃ©ndez & Parker 2018; Radinsky, et al., 2016). In particular, sociocultural learning theories from the learning sciences can help researchers align behavioral changes with cognitive learning, a challenge identified frequently in the social learning planning literature

(Muro & Jeffrey, 2008). The focus on social learning moves away from more traditional research methods, where planning scholars often assess learning with pre- and post-measures of conceptual understandings, positions, interests, or beliefs (Deyle & Schively Slotterback, 2009). Such methods are valuable for documenting individual, cognitive change, but overlook social processes (Radinsky, et al., 2016). This shift highlights the need for more conceptual tools that support planners' theorizing of how learning happens in community settings.

Objectives:

- To investigate the various ways that learning manifests in community planning contexts.
- To share conceptual tools that support planners' theorizing of how learning happens in community settings.
- To describe methodological tools for studying learning.

DIFFERENTIATING PARTICIPATION: DEFINING AND IDENTIFYING LATINO IMMIGRANT'S CIVIC CAPACITIES

Abstract ID: 696

Group Submission: Learning in Planning: Community based partnerships as sites of learning

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Understanding individual civic capacities as skills necessary for collective decision-making is important for advancing community-building strategies that support democratic participation, particularly in diverse neighborhoods (DeSipio, 2006; Ebert & Okamoto, 2013; Morenoff, Sampson, & Raudenbush, 2001). However, numerous studies have failed to differentiate between civic capacities at the individual level versus as a community resource for collective efficacy (Sampson, Morenoff, & Earls, 1999). This study sought to identify and define individual civic capacities activated by predominant Spanish-speaking Latino immigrant residents engaged in a participatory budgeting (PB) process. We sought to also determine the role of these capacities in moving participants' individual ideas into collective decision making through an ethnographic approach, using videotaped PB meetings that took place in a diverse neighborhood in Chicago, Illinois.

To identify the specific individual civic skills evident in committee meeting discussions, we conducted discourse analysis of multiple speech events over time (Wortham & Reyes, 2015). While discourse analysis is not new to the study of participatory processes, it has not been used systemically to examine talk over longer time scales that show change over time, which we characterize as learning (Meléndez, et. al., 2018). Examining three brief ethnographic accounts of interaction in a participatory planning process, Briggs (1998) demonstrated the types of insights a socio-linguistic analysis of a participatory planning enactment could provide. However, very few, if any, planning activities take place in one speech event. Thus, different time scales are needed to study how participants learn the norms and practices of participatory processes, or more specifically the "interactions that occur between citizens and government officials participating in the official work of the city" (Farkas, 2013, p. 24). This methodological gap (Forester, 2015) represents an opportunity to expand the analysis of discourse from one public speech event (e.g., a meeting) to analyses of multiple speech events over time. The aim of this study was to gain generative insights (Sannino, Engeström, & Lemos, 2016) into how individual capacities were activated over time, their dynamics, and their role in the collective decision-making of participatory planning processes. The participatory budgeting process in the Chicago's 49th ward provided a rich context for this research.

Our analysis of transcripts revealed 16 unique civic capacities that fit the definition of civic skills. These capacities aligned with or were closely related to those presented by political scientists and civic educators (e.g., Kirlin, 2005; Verba, Schlozman, & Brady, 1995) as complex skills for collective decision-making. To explore more deeply the role of these individual civic skills in fostering community action, we highlight five individual civic capacities, providing examples of their activation and interplay as Latino immigrant participants engaged others in collective decision-making.

We argue that the activation of these civic capacities is impacted by context, the engagement of participants with prior experience in the civic sphere, and that these capacities do not occur in isolation. Instead, these civic capacities are engaged in a complex interplay that has the potential to foster more expansive forms of community engagement in potentially transformative participatory partnerships, built on deep levels of trust, reciprocity, and local knowledge of practices and context (Gutiérrez & Jurow, 2016; Meléndez et. al. 2018). We seek to contribute to the literature on civic capacity by adding specificity to defining individual civic capacity, as the knowledge, skills, and dispositions necessary for collective decision-making. Our research was limited in its capacity to connect participatory design decisions with the emergence of civic capacities although our analysis suggests that creating safe spaces for residents from underserved communities to express their needs, “including their feelings of injustice and oppression” (Forester, 1998, 221) certainly impacts engagement.

Citations

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Key Words: Civic capacities, Latino immigrants, Discourse analysis, Collective decision-making, Participatory budgeting

LEARNING IN THE FOOD MOVEMENT

Abstract ID: 697

Group Submission: Learning in Planning: Community based partnerships as sites of learning

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Community-university partnerships are often advanced as a way to develop responsive solutions to real-world problems that affect the most marginalized populations (Bang, Medin, Washinawatok, & Chapman, 2010). This claim has strong merit; however, what is typically not discussed is how such partnerships are fraught with tensions around shared goals, forms of valued engagement, and what counts as consequential forms of learning and becoming. These tensions are not peripheral issues to the partnership, but are central to how relationships of trust and commitment emerge and shape action (Teeters & Jurow, 2018).

Perspectives from the interdisciplinary field of the Learning Sciences can be particularly valuable in discussions of designing with community members towards greater justice. In particular, research in the Learning Sciences draws critical attention to the organization of consequential learning – defined as people’s changing forms of participation that allow them to be recognized as competent and valued participants in dynamic and often contentious networks of practice (Jurow & Shea, 2015). What is defined as consequential learning thus needs to be understood in relation to particular temporal, social, and spatial scales of activity. Following from this, determining what is consequential for communities requires that we examine how the social world functions to make certain ideas, practices, and identities visible and potentially valuable.

In this paper, I report on my team’s longitudinal, participatory design research project on the food justice movement in the Western United States. In the project, we worked with a community-based non-profit, which we call Impact, and their team of promotoras who were seeking social justice for their historically marginalized, largely Mexican immigrant community. The model of using promotoras to organize justice-focused social action has a long history in Latin America as an approach to public health. Key to the success of the model is that it leverages the shared cultural practices among acknowledged community leaders (the promotoras) and residents to advance desired health and community goals. Impact used promotoras to develop a garden program to facilitate the establishment of backyard vegetable gardens in the neighborhood, which had been identified as a food desert by the U.S. Department of Agriculture. Since the garden program started nearly a decade ago, it has been enormously successful and has transformed the material, social, and relational organization of the neighborhood (Hall & Jurow, 2015).

The aim of our community-university partnership, which developed over 5 years, was to develop new tools (e.g., a software application, participant structures in the non-profit) and understandings that could make learning consequential for the promotoras. While their work was integral to the success of the garden program, the work they were doing – establishing and tending gardens, developing long-term relationships of trust with residents, and advocating for their community in multiple forums – was nearly “invisible” and not sufficiently valued (Jurow, Teeters, Shea, & Van Steenis, 2016). As we found through our sustained ethnographic work with the non-profit and the promotoras, without making the differential scales of influence and values of participants’ work visible, possibilities for the promotoras’, the non-profit’s, and the community’s learning that could extend across multiple positions and perspectives would be significantly limited. Participatory design research, with a particular focus on the organization of consequential learning for community members, allowed us to consider with our community partners what practices are significant for them, how we might create pathways together on which these practices could travel, and the implications of these changes for their and our futures.

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Key Words: learning, food justice, promotoras

RESUSCITATING (AND REFUSING) CARTESIAN REPRESENTATIONS OF DAILY LIFE: WHEN MOBILE AND GRID EPISTEMOLOGIES OF THE CITY MEET

Abstract ID: 698

Group Submission: Learning in Planning: Community based partnerships as sites of learning

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“Let me ask you: How do you overcome the psychological and physical barrier of an interstate highway that was carved intentionally through [our community] and isolated it from other areas of the community?”

A resident, Mr. Corey, asked this question of a planner at a participatory planning meeting. His query is representative of the issues at stake in this paper: How do you know what you know about your home, your neighborhood, your city? How is your knowledge of that place valued (or not) within different conversations and interactional structures? How would you use this knowledge to teach someone else about a place you care deeply about and would they understand? How do people from outside your home represent what they think they know about your home, and how can you refuse those representations, and at what cost? How will others interpret this refusal: as ignorance, as being uncooperative?

Drawing upon work by Jurow and Shea (2015) and Hall and Jurow (2015), my focus on consequential teaching and learning exchanges connotes the high stakes at play when people’s homes hang in the balance of a “successful” educative moment; the consequence or outcome of a failed or productive teaching and learning interaction could mean the preservation or destruction of someone’s community. According to prior work on consequential learning, that which gets deemed valuable in teaching and learning interactions is always historically contingent and shifts the nature of participation across time, space, and social relations. In Mr. Corey’s question, for example, teaching the planner about the futility of future planning without first addressing the historical and contemporary impact of the interstate highway could equate to revitalization in certain areas of the community. Planners learning from Mr. Corey could also catalyze revised professional practice whereupon similar contributions from residents are taken-up and considered in community development plans.

In analyzing video records of planning meetings, I hold two epistemic stances in tension. I use mobile epistemologies (Cresswell, 2006) to describe what people know about a geography based upon moving through it, interacting and changing the place through corporeal engagement. Mr. Corey draws upon memories of pastime mobility and his current experience of being immobilized. This epistemology produces a spatial imaginary (Lipsitz, 2007) around sociability and reparations. Grid epistemologies (Dixon & Jones, 1998) refer to how people come to understand a geography based on maps or other (usually two-dimensional) abstractions of that place. Planner maps, for instance, produce a spatial imaginary based on potential property value and land parcel homogeneity (each piece of land is used for a specific purpose). Mr. Corey refuses a grid epistemology, speaking over and beyond what is mapped of his community and visible on the tabletop; he imagines a future neighborhood that is repaired, resuscitated from urban “renewal.” Such instances of epistemic tension are especially important to the learning sciences because, unlike in classrooms (e.g., Lampert, 1990), who and what has rights to the

“most valuable” forms of knowledge are constantly under negotiation in everyday interactions. What, then, happens if we design with and for epistemic tension?

In conclusion, this paper troubles the idea of “consensus” in planning processes, providing ways of seeing and productively engaging with epistemic incommensurability to imagine more equitable, open places. Fundamentally, engaging with the tension can be a teaching and learning interaction in which residents and planners have expertise to give and gain.

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Key Words: teaching, learning, epistemology, spatial imaginary, participatory planning

TRACK 2 - ROUNDTABLES

ROUNDTABLE - IMMIGRANT URBANISM AND COMMUNITY ECONOMIC DEVELOPMENT

Abstract ID: 81

Roundtable

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This proposed roundtable pursues the following research questions: How should we conceptualize community economic development of immigrant communities? Is it an issue of immigrant labor market incorporation; an issue of citizenship, belonging, and multiculturalism; some combination of the two; or are other conceptual tools necessary to capture the issues accompanying both immigrants and the communities transformed by their arrival and integration? How might we encourage dialogue between different planning approaches to immigration, to take on the complex challenges at hand?

Immigration has arguably always been an important concern of planning scholarship and practice. Broadly, scholarship at the intersection of planning and immigration seemingly views the latter in two central ways. The first way sees immigration as constitutive of economic restructuring—and thus a

problem of unregulated and precarious work, and of increasingly disposable, exploitable labor (Theodore, Valenzuela, and Meléndez 2006; DeFilippis et al. 2009; Visser 2017). Such scholars often arrive at questions of immigration through considering how informality and place shape immigrant workplace conditions and labor market outcomes. Day laborers—predominantly immigrant and/or undocumented—are central figures in a vibrant, sizeable body of literature tracking the expansion of the informal economy and low-wage work (McGrath and DeFilippis 2009). To address their exploitative labor conditions, scholars have proposed migrant civil society organizations as sites of socioeconomic integration, and as both important and effective political actors for achieving economic justice (Visser et al. 2017; Martin 2011; Doussard and Gamal 2016).

The second way sees immigration as an integral component of increasingly multicultural, transnational communities—thus a problem of the politics of recognition in placemaking and planning processes, and of the redrawing of identity boundaries for both native-born (whites) and newly-arrived foreign-born populations (Burayidi 2000; Sarmiento and Beard 2013; Steil and Ridgley 2012). Scholars interested in these questions have also studied processes of multiculturalization in non-urban areas, centering how these places are contending with new immigrant influxes and difference, given contentious histories of white supremacy and renewed anti-immigrant fervor (Miraftab and McConnell 2008; Harwood 2005; Sandoval 2013). To address these problems, they emphasize the importance of micropolitical and ethical interventions in the planning process, such as the creation and leveraging of informal planning structures to engage multiple publics, and provide opportunities for robust community engagement and participation in municipal decision-making processes, and the legal and policy reforms to accommodate new forms of political claims-making (Hum 2010; Irazábal 2009; Allen and Slotterback 2017).

Planners working with/for immigrant communities face compounded challenges today: restrictionist federal immigration policies, widespread anti-immigrant sentiment, and renewed attention on public charge mean that municipalities have a greater role to play in ensuring positive immigrant incorporation outcomes. Yet, placing greater responsibility on municipalities has its dangers: scholars have documented how the devolution of immigration policy has resulted in municipalities adopting a range of protective and restrictionist local policies (Vitiello 2014; Walker and Leitner 2011). Protective immigration policies (e.g. sanctuary ordinances) improve immigrant incorporation outcomes, while restrictionist policies (e.g. active police-ICE collaborations) worsen them (Capps et al. 2015; Lyons, Vélez, and Santoro 2013; Rhodes et al. 2015). Through it all, institutions matter: they can play critical roles in both shaping the passage of immigration policies, and in shaping incorporation outcomes in restrictionist localities (Gleeson and Gonzales 2012; Steil and Vasi 2014). Through a discussion of how planners might leverage formal and informal place-based institutions to build long-term immigrant integration infrastructure, this roundtable seeks to promote cross-fertilization between scholars of the two aforementioned areas. In doing so, it raises and engages broader questions about how planning scholars might conceive and approach the new, compounded challenges faced by both immigrant communities, and the planners that work with/for them.

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Key Words: Immigration, Labor, Community development, Economic development, Multiculturalism

ROUNDTABLE - HOMELESSNESS AND URBAN PLANNING

Abstract ID: 513

Roundtable

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Homelessness continues to gain attention in media around the country, despite decreasing in the last decade. Part of this increased interest is that who, where, and how people are experiencing homelessness is changing. The West Coast is seeing growing numbers of houseless people, with CA nearing its highest numbers since 2007 and Portland having the second highest share of unsheltered people in the nation. Rising housing costs in these and other areas continue to drive people out of their homes and onto friends' couches, cars, shelters, and tents on the sides of highways.

As jurisdictions around the country look for solutions, new approaches arise and old fracture lines become apparent. Revenue is being raised by local government to address homelessness in previously unheard of amounts. Tiny home villages and small modular housing are championed by some advocates. Intensive resource expenditures for specific populations such as houseless veterans seek to demonstrate that the wicked "problem" of homelessness can be fought. Yet long term and entrenched racial disparities within homelessness continue to draw less attention, and few localities have demonstrated success in, or a commitment to, remedying those disparities. Meanwhile social service providers, used to a scarcity of funds, struggle to adjust and cooperate across competing ideologies.

Urban planning has been largely silent on homelessness in the past. Across the main US planning journals (JAPA, JPER, and JPL) fewer than 15 articles have been published with a focus on homelessness. Most planning scholars writing about homelessness publish within Housing Studies, and there the number is just 50 articles. Yet the creation of homelessness research centers at Portland State University and University of Southern California are led by or housed within urban planning faculty or units. Perhaps something is shifting? The participants of this roundtable will discuss how urban planning intersects with homelessness, and how the recent attention to homelessness is shifting the professions role in supporting these marginalized communities. We will discuss a selection of the following questions:

- How is the planning profession responding to homelessness? Is this response different than decades before? Which research topics are needed to more effectively address homelessness? How can planning scholars participate?
- Homelessness and housing have often been viewed as separate conversations. Why did that occur, and is that changing now? Where should homelessness discussions be placed in planning scholarly discussions?
- Which approaches have been effective in addressing homelessness in communities?
- How do we define who is experiencing homelessness?
- How do communities of color experience homelessness? Which governance arrangements have been effective in addressing homelessness?
- What drives members of the LGBTQIA population to experience homelessness? How do we tailor interventions for members of the LGBTQIA community, and youth in particular?
- What are some of the causes of homelessness among veteran populations and differently abled individuals? Which interventions would be effective for these groups?
- How do we address public health issues, including mental health and addiction problems, among the houseless population?
- What are some of the survival strategies adopted by the houseless population? How can local government and NGO's assist in enhancing those sources of support?
- How do contemporary approaches to alternative shelter (e.g., tiny home villages, sanctioned camping) shape homelessness discussions? Are these viable or effective ways of addressing homelessness?
- How do democratic institutions and practices respond to the vilification of people experiencing homelessness? What legal remedies do houseless people have for neighbors protesting against them?
- What policies need to be adopted, amended, or repealed at the local, state, and federal level to revert homelessness trends across the range of intersecting policy domains?

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Key Words: Homelessness, Houseless, Community development, land-use

ROUNDTABLE - TRANSLATING ACROSS DISCIPLINES: PLANNING & LEARNING SCIENCES

Abstract ID: 700

Roundtable

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In recent years, there has been a good deal of interest in building a bridge between planning research and work in the field of learning sciences, which has robust theoretical and methodological tools for studying learning (e. g. Meléndez & Parker 2018; Radinsky, et al., 2016; Taylor, 2017). This is since learning is at the core of many urban planning processes (Forester 2009). The list of topics that citizens have to learn about when engaging in community development or the local knowledge that those in charge learn about by engaging with communities is endless. Nevertheless, planning as a field is always wrestling with how to attend to social learning in a variety of contexts, especially in relation to issues of power, access, and social justice. In particular, sociocultural learning theories from the learning sciences can help researchers align behavioral changes with cognitive learning, a challenge identified frequently in the social learning planning literature (Muro & Jeffrey, 2008). Additionally, learning scientists have a long history of using design-based research methods to create, test, and refine tools for use in real-world settings that promote learning, and to study the learning that results (e.g., Brown & Campione, 1994; Edelson, Gordin & Pea, 1999; Wilensky & Rand, 2015). The growing body of Learning Sciences work being conducted in urban and community planning contexts (e.g., Gutierrez & Jurow, 2016; Melendez & Parker, 2018) suggests a valuable cross-pollination of concepts and methods that can expand our understanding of how people learn with tools, and the kinds of social learning processes that emerge in community development work.

Given the need for research to build on our current knowledge of learning in planning, we have submitted two pre-organized panel proposals to bring together scholars from both Planning and the Learning Sciences at the ACSP 2019 Conference. The goal is to provide a space for conversations about expanding the framing and conceptualizations of learning in both disciplines, with implications for both practice and research – following Friedmann’s (2008) advice to translate concepts, theories, and methods across disciplines. These sessions are in part supported by a small funding initiative from the International Society of the Learning Sciences (ISLS). The goal of this small grant is to outreach and engage with other professional communities whose work can mutually benefit from engaging with Learning Scientists.

Although we expect the pre-organized panels to be engaging, we are keenly aware that panels are not the most appropriate venue to engage in conversations about what possibilities for collaborations exist between researchers across disciplines. For this reason, we propose a roundtable discussion, hosted by Drs. Meléndez, Radinsky, and Headrick Taylor. The purpose of the roundtable will be to continue the conversation from the earlier sessions, inviting participants from both, in addition to other conference participants interested in advancing interdisciplinary research in learning. Specifically, the roundtable will be geared towards germinating possibilities for future collaboration and research that can advance both disciplines’ understanding of transformative learning, especially for under-represented communities.

It is our hope that in addition to laying the initial seeds for potential cross-disciplinary research, we will also discuss the opportunity of Planning researchers joining Learning Scientists at the International Society of the Learning Sciences conference (ICLS). The plan following ACSP 2019 is to implement a similar series of sessions at ICLS in 2020, using a similar design of pre-organized panels to further both societies’/associations’ common interests in learning in planning.

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Key Words: Learning in Planning, Social Learning, Translating across disciplines, Interdisciplinary research, Collaboration

ROUNDTABLE - GENTRIFICATION, DISPLACEMENT, AND ALTERNATIVE FUTURES

Abstract ID: 887

Roundtable

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First, come the artists, then the cranes. As the kamikaze pilots of urban renewal, wherever the creatives go, developers will follow, rents will rise, the artists will move on, and the pre-existing community will be kicked out with them.

Such is the accepted narrative of gentrification, a term first coined more than that 50 years ago by Ruth Glass, a British urbanist who observed changing demographic and socio-economic shifts in north London. In 2019, gentrification is one of the most controversial issues in American cities. However, it also remains one of the least understood. It is one of the most slippery and most contested concepts in social science today. Few agree on how to define it or whether it is boon or curse for cities. Gentrification has changed over time and has a history dating back to the early 20th century. Historically, gentrification has had a smaller demographic impact on American cities than suburbanization or immigration. However, since the late 1970s, gentrification has dramatically reshaped cities like Seattle, San Francisco, and Boston.

Furthermore, districts such as the French Quarter in New Orleans, New York City's Greenwich Village, and Georgetown in Washington DC have had an outsized influence on the political, cultural, and architectural history of cities. Gentrification thus must be examined alongside suburbanization as one of the major historical trends shaping the 20th-century American metropolis and global urbanism.

More-and-more contemporary discussions of gentrification include issues surrounding equity and justice with environmental justice, public health, economic development, and community development all being essential components of the conversation. Specifically, for academic planning scholars, it has become imperative to grapple with how to discuss these issues with students critically and with empathy for all life experiences. Additionally, exploration is needed on how to do research in the field without further alienating and exploiting communities suffering due to displacement caused by gentrification.

We will discuss a selection of the following questions:

- How is the planning profession reacting to gentrification?
- Have urban planners been part of the problem?
- Have urban planners used gentrification as a strategy for economic development?

- What are the different ways in which urban planning scholars have examined gentrification and how can that be improved?
- How can planning scholars participate in on the ground conversations about gentrification with communities?
- Is gentrification inevitable in the life of a neighborhood?
- Is gentrification an irreversible process?
- Are there different types of gentrification? Are some better than others? (e.g., gentefication)
- Can urban communities be improved without causing gentrification? Where should the line be drawn?
- What strategies are communities using to avoid gentrification? Can these be considered compromises? Are these ethical? (e.g., green enough movement)
- What are the health concerns that stem from gentrification?
- Do planners have a role in mitigating these health concerns?
- What other fields or professionals should planners/planning scholars be engaging with to foster more just development?
- What are the parameters of work for planners in communities confronting gentrification?
- How has gentrification exacerbated existing conditions for low-income and immigrant communities?
- How do we alter teaching in the classroom to reflect the realities of gentrification to students who may be more economically and racially privileged?
- Should gentrification be structured as its own field of study? (e.g., have its own curriculum?)
- What have planning scholars been able to learn through analytical exercises?
- What are important alternatives being discussed?

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Key Words: Gentrification, Displacement, Equity

TRACK 2 – INDIVIDUAL PAPERS

COLLECTIVE IMPACT AND COMMUNITY CHANGE: A SUCCESSFUL INTERVENTION FOR HOMELESS STUDENTS AND FAMILIES

Abstract ID: 46

Individual Paper Submission

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Complex or “wicked” social problems have long been a challenge in urban planning. These problems are especially difficult to address, because they are unstructured, involve multiple, cross-cutting policy problems, and persist despite even the most well-intentioned efforts to eliminate them (Weber and Khademian 2008). The collective impact model for community change is a specific form of action involving key actors across sectors for the purpose of solving complex social problems.

Since its introduction less than a decade ago, collective impact has gained attention among community organizations, governments, and philanthropic foundations around the world as a promising means for addressing complex social problems. It has been used to address issues such as crime, employment for public housing residents, clean water, and homelessness (Walzer and Weaver 2019). Collaboration based on the collective impact model requires a common agenda, shared measurement systems, mutually reinforcing activities, continuous communication, and a backbone support organization (Kania and Kramer 2011).

This paper examines the successful application of the collective impact model for community change to the issue of student homelessness. Student homelessness in U.S. public schools more than doubled between 2007 and 2014, with an estimated 1.3 million students in grades pre-K through 12 identified as homeless in the 2013-2014 school year (Ingram et al. 2016).

Research is based on an explanatory case study of the nationally recognized Impact KCK program, a successful community effort to address student homelessness in the poorest of 105 counties in Kansas. Launched in 2015, Impact KCK reduced student homelessness in the Kansas City Kansas Public Schools by more than 50 percent in less than three years. Collaborative service providers continue to innovate to eliminate student homelessness by 2020.

The case study provides an empirical analysis of how this group of more than 30 organizations from the public, private, and nonprofit sectors came together to address the needs of homeless students and their families in Kansas City, Kansas through the Impact KCK program. Together, members of this collaborative network provide an array of services that support not only stable housing in formerly homeless families, but also increased employment, financial literacy, healthcare access, and improved nutrition. Impact KCK's results include a 95 percent stable housing rate among families who receive a permanent housing solution.

Findings include the skillful application of collective impact principles by the backbone and partner organizations, as well as the introduction of several key social service innovations. These innovations include providing a single point of service, the application of intensive, navigator-style case management practices, and making a permanent housing solution available.

Backbone and partner organizations show a clear understanding of the multiple issues that lead to homelessness and its impact on student learning outcomes. The collective engages in continuous communication using both formal and informal methods. The program has visible support from community leaders, including the mayor and school superintendent. The program has benefitted from strong commitment by multi-sector partners, including a state agency, multiple nonprofits, and a private sector employment firm.

The backbone has shown itself to be particularly adept at fundraising and relies on multiple sources, including private philanthropy. Finally, the backbone organization and a core group of partner organizations have shown resilience and adaptability as challenges to program success arise.

This explanatory case study illustrates that a critically resource-challenged community has the capacity to come together to produce needed change. In doing so, it contributes to scholarly and practice-oriented knowledge about factors contributing to effective collaboration based on a strategic approach to community action.

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Key Words: collective impact, homelessness, community development, policy innovation

WHEN EMPOWERMENT MARGINALIZES: PLACE BRANDING AND THE POLITICS OF NEIGHBORHOOD GOVERNANCE

Abstract ID: 69

Individual Paper Submission

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In recent years, place branding has emerged as both an interdisciplinary academic field as well as an economic development strategy employed by local, regional, national, and even international organizations. Place branding is generally considered to be a variety of practices aimed at shaping the public's perception of a particular geography, such as cities, regions, or communities, by forging emotional and psychological bonds with a place. However, despite the fact that some public agencies spend millions of dollars on such strategies, there is a severe lack of conceptual clarity as to what activities constitute branding, what actors are engaging in branding, for whom the brand is created and to what ends. This study seeks to elucidate these issues by focusing on how municipal policies for neighborhood-level governance encourage or discourage residents from engaging in practices associated with place branding. Through interviews and archival research, this paper analyzes how and why 35 US municipal governments define and create neighborhood organizations. In doing so, I demonstrate how formal and informal government processes influence neighborhood change, and how the conflation of "neighborhood" and "neighborhood organization" exacerbates power dynamics between community stakeholders. I conclude with recommendations for how city governments can engage residents and local associations without inflaming neighborhood politics.

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Key Words: place branding, neighborhood governance, community development, public administration, gentrification

EDGE OF THE KNIFE: FILM AS CATALYST FOR INDIGENOUS COMMUNITY DEVELOPMENT

Abstract ID: 101

Individual Paper Submission

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Hypothesis

The making of a feature film in the Haida language could serve as a catalyst for Indigenous community development on Haida Gwaii.

Context

Haida Gwaii is a remote archipelago in northwest Canada. Pre-contact, between 20,000 and 30,000 Haida people lived on Haida Gwaii. By the late 19th century, European diseases had reduced that population to 600. Government policies of assimilation further undermined the vitality and viability of Haida culture. For the past fifty years, the Haida have been resurgent, but the struggle for economic and cultural revitalization is ongoing due to the intergenerational effects of Residential Schools, and decline of the economic base (logging and fishing). The relative isolation, and lack of opportunities for youth on Haida Gwaii compounds the sustainability challenge. Haida cultural identity is linked to language and storytelling, yet their community is inundated with foreign media.

The research challenge then, from an Indigenous community planning perspective, is how to use 'homegrown' storytelling in the context of community development.

Approach and methodology

In 2014 a three-way partnership was formed between the Council of the Haida Nation, the Inuit film production company, Kingulliit, and the Indigenous Community Planning (ICP) program at UBC.

The goal of this partnership has been to contribute to the ongoing cultural and economic revitalization of the Haida Nation by (1) preserving traditional language and storytelling through a community-based story gathering process bringing together youth and Elders, and culminating in the collaborative creation of a feature film script in the Haida language, drawing on Haida myth, legend and history. (2) providing training for 40-50 Haida community members as cast and crew of the film production: skills in acting, script writing, production and management skills, and (3) contributing to knowledge among and between First Nations, government, multimedia industry, planning practitioners and planning academics about the potential of multimedia as a catalyst for Indigenous community development in other northern and remote communities.

Relevance

The theoretical framework for this project draws on various streams within planning theory (communicative, empowerment, and decolonizing theories), as well as the practice based experience of the academic partner (Sandercock and Attili 2010a; 2010b) and the Indigenous film making partners.

A major stream of influential literature examines the role of planning as a colonial practice in settler societies, serving to render Indigenous populations invisible, to deny their rights, to exacerbate their

geographical and economic marginalization, and provide them with culturally inappropriate programs and services (Porter 2010; Walker, Jojola and Natcher 2013). We seek, through our film work, to practice a decolonizing planning, and to work in partnership with Indigenous communities, supporting them in achieving their own aspirations for self-determination, economic and cultural revitalization.

Results/Findings

After completion of the film script, the project received \$2m in production funding, \$1.3m of which went directly into the Haida community in employment and training. Elders translated the script into Haida dialects: community members were hired as cast and crew; the 15 remaining fluent speakers trained the cast in a 2-week language boot camp. An interactive website was developed to support language training. The 100 minute film, *Edge of the Knife*, premiered at Toronto International Film Festival in 2018.

Evaluation of the impact of the film on language revitalization and sustainable economic development is ongoing.

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Key Words: Indigenous, community, development, film, revitalization

QUADRUPLE BOTTOM LINE COMMUNITY DEVELOPMENT

Abstract ID: 140

Individual Paper Submission

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This paper provides a conceptual framework and empirically-based case study for clarifying and categorizing four inter-related outcomes of community development: economic development, social equity, environmental sustainability, and creative cultural vitality. This perspective extends the triple bottom line approach that focuses on developing projects that simultaneously yield economic, social, and environmental benefits. Several researchers argue that creative individuals and industries increasingly drive regional economic growth as part of global restructuring (Florida 2005; Scott 2004); cultural vitality is an under-emphasized yet measurable asset and process of community development (Jackson et al 2006); and that the impact of artistic clusters is often place-specific as well as under-estimated (Grodach et al 2014). However, few studies examine cultural creativity in the comparative context of economic, social, and environmental development. This paper contributes to existing literature by addressing the question of whether a creative cultural vitality outcome is conceptually and empirically distinct from economic, social, and environmental outcomes. The paper provides a case analysis of the quadruple bottom line framework by examining a community economic development project in Seattle. The case analyses highlights the emergence of a quadruple bottom line policy framework as well as will examine the trade-offs associated with quadruple bottom line community economic development. Case data—

collected annually between 2005 and 2018 by graduate researchers in a Community Economic Development course at the University of Washington—include field studies, key informant interviews, documents review, and photo and video documentaries. The paper discusses the implications of a quadruple bottom line approach for researchers and practitioners of community economic development.

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Key Words: triple bottom line, sustainability, culture, community economic development, social equity

BUILDING BEYOND THE FAÇADE: LAYERING DOWNTOWN SPILLOVER INVESTMENT

Abstract ID: 173

Individual Paper Submission

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In a time when funding for communities is limited, an analysis of investment strategy is critical. Façade improvement programs are thought to spur spillover of both direct and indirect investment in central business districts by leveraging built capital and harnessing a sense of placemaking. Our study asks, “do downtown façade improvement grants generate spillover effects on Main Street?” Our hypothesis is they do, and our findings support this sentiment. Furthermore, we explore the nuances of the spillover into the Community Capitals Framework (CCF) for asset-based community development (ABCD) planning initiatives.

Through case study in three designated Montana Main Street communities; Helena, Kalispell, and Anaconda, our paper empirically analyzes this phenomenon. Data was collected through face-to-face interviews with grantees and grantors in the fall of 2018 along with a qualitative observational analysis of all three communities. In addition, for Kalispell, historical property tax rolls (back to 2013, prior to the onset of the grant program) were used to determine property valuations overtime for grantees, their neighbors, and controls. A difference in difference approach was used to determine statistical trends.

Findings show that direct public-private investment through downtown façade grants, administered by downtown focused organizations, leverages positive direct and indirect spin-off via supplementary privately initiated renovations and building maintenance. This implies that strategic downtown planning and investment generates a multiplier effect; creating a larger return on investment from façade improvements on “Main Street.” Downtown façade improvement grants are hypothesized to have several tangible and intangible benefits in a community, yet they are still regularly questioned by officials and

taxpayers as to their value. While recognizing every decision has trade-offs, for discussion, we will recap and outline the major take-aways from the Montana study with recommendations for future policy and practice directed for potential adaptation by planners and community development professionals across varied US communities. This topic is relevant to community planning because it offers empirical evidence of local asset-based community development (ABCD); strengthening the local Community Capital Framework (particularly social, political, financial, and built capital).

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Key Words: Community Capitals Framework, Asset Based Community Development, Spiraling-up, Downtown, Grants

NEIGHBORHOOD EFFECTS OF SOCIAL CAPITAL ON CHILDREN AND ITS MEANING FOR ADULTHOOD SUCCESS

Abstract ID: 204

Individual Paper Submission

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Individuals' residential location strongly affects their access to opportunity, such as obtaining sufficient public goods and services, as well as their children's' outcomes when they reach adulthood. One explanation for these neighborhood effects on children is social capital. However, the definition and operationalization of social capital vary. Robert Putnam considered social capital as largely a positive factor for individuals. He saw social capital as connections or social networks among individuals that give them mutual benefits, overlooking its exclusiveness to outsiders. French sociologist Pierre Bourdieu posited instead that social capital is the accumulation of relation-based resources that function to distinguish individuals and allow them to get ahead of others. He expressed a critical perspective on social capital because it reproduces gaps in the amount of social capital across individuals and neighborhoods, and therefore can lead to inequality. This aspect of embeddedness in Bourdieu's social capital theory refutes existing neighborhood effect studies which rely on Putnam's view of social capital.

This study categorized social capital into two forms, using Bourdieu's embeddedness of social capital: how relationships within a neighborhood (relation-based neighborhood social capital) and the neighborhood location and its resources (descriptive neighborhood social capital) affect adult outcomes. This research studied the long-term effects of these two forms of social capital in conjunction with the resources parents offer children (parental relation-based/descriptive social capital) and the attachment children have to their particular neighborhood (neighborhood attachment). It contributed to the literature in two ways, showing how the embeddedness of social capital creates unequal access to neighborhood resources and how the embeddedness of neighborhood social capital impacts adult outcomes.

This study used Structural Equation Modeling (SEM) and data from the National Longitudinal Study of Adolescent to Adult Health (Add Health) to determine the role neighborhood social capital plays in unequal access to neighborhood resources. This approach showed not only the effects of each form of neighborhood social capital on adult outcomes such as educational attainment or personal earnings but also the ways in which personal neighborhood attachment acts as a mediator of that relationship. Neighborhood effects are generally considered by scholars to influence all residents who live in the neighborhood. However, this research sought to understand more nuanced dimensions of neighborhood effects, particularly how neighborhood social capital and attachment play a role in unequal access to neighborhood resources. Even if residents have access to neighborhood resources, the impact of neighborhood social capital can vary depending on whether they experience relationships within a neighborhood or not. It also explored how parental social capital influences children and their neighborhood social capital. Thus, neighborhoods can offer children a variety of experiences they will contend with for the rest of their lives.

Many studies explain why neighborhood social capital is important, but overlook the downside of the embeddedness of social capital. In addition, few empirical studies analyze the neighborhood effects of social capital due to the difficulty of measuring social capital. My research redefined social capital to include Bourdieu's notion of embeddedness, allowing me to examine more fully several interactions that were overlooked by Putnam and his followers. An outcome of this research is evidence of the need for urban policymakers to examine carefully who may be excluded from various neighborhood resources and to find ways to introduce these resources to this ignored population.

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Key Words: Neighborhood social capital, Social capital, Neighborhood effects

DO QUALIFIED ALLOCATION PLANS INFLUENCE DEVELOPERS' LIHTC SITING DECISIONS? THE CASE OF ACCESS TO HIGH-PERFORMING SCHOOLS

Abstract ID: 215

Individual Paper Submission

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This study analyzes variation among Low Income Housing Tax Credit (LIHTC) allocation policies as outlined in state qualified action plans (QAP) and their impacts on the siting patterns of LIHTC properties in proximity to high-performing schools. We focus on 37 states and control for factors relevant to the

development location decisions, using Census-based population characteristics and LIHTC property attributes. Our goal is to determine the effectiveness of LIHTC QAP allocation policies in motivating developers to site their developments near high-performing schools.

QAPs typically use points when awarding tax credits competitively. We focus on points awarded for (1) access to high quality schools, (2) access to any schools, and (3) location in areas with attributes expected to correlate strongly with high-quality schools. We use descriptive statistics and multi-level linear modeling. We find a significant and positive effect on location in catchment areas of high-performing schools. We also find that other allocation policy variables have no significant effects. We discuss the ability of current allocation policy to influence developer actions, provide policy recommendations, and the need for further research.

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Key Words: Community Development, Housing, LIHTC, QAP

BUILDING THE FOUNDATION FOR ARNSTEIN'S LADDER: COMMUNITY EMPOWERMENT THROUGH A PARTICIPATORY NEIGHBORHOOD NARRATIVE PROCESS

Abstract ID: 249

Individual Paper Submission

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Meaningful citizen participation involves a redistribution of power to those excluded from political and economic processes. The development of informational, social, political, and organizational capacities is necessary for marginalized groups to overcome the institutional and organizational barriers prohibiting equal participation in the public process. Building upon Arnstein's Ladder of Citizen Participation, Rocha (1997) synthesized interdisciplinary literature to propose a "ladder of empowerment", with empowerment planning as one method for community-level capacity building. Empowerment planning is the use of participatory action research, direct action organization, and education to develop both individual and community capacity to seek beneficial outcomes (Rocha 1997, Bratt and Reardon 2013). Methods involving participation, culture, and communication, such as narratives/storytelling, participatory video, community informatics, participatory mapping, and relational public art have been found to be effective forms of community-based participation and empowerment in planning (Sandercock and Attali 2014, Goldstein et al. 2015). Our work contributes to the literature on empowerment planning methods and practices designed to engage local knowledge to build the community capacity required to fully participate in the planning process.

We began our work with the Porters neighborhood, an historically African American neighborhood in Gainesville, Florida, with the question of how to build neighborhood capacity and communicate a neighborhood's importance to the city as a whole. Our response was to build a foundation for citizen participation in the planning process through a new practice for empowerment planning at the intersection of participation and communication – the Participatory Neighborhood Narrative (PNN). PNN empowers in multiple ways, including by taking a dialogical approach to creating a narrative, which builds consensus, and by supporting existing, neighborhood-preserving values to counter the replacing rhetoric of gentrification. PNN also provides a mechanism for documenting and celebrating the cultural, social, organizational, and human assets of a neighborhood. As a method separate from traditional planning processes, PNN gives residents the space to become engaged and informed on their own terms. It also allows the neighborhood to create a narrative that represents their cultural and social values in dialogue with the larger community. We found that the Porters neighborhood was empowered through the PNN process. Evidence of empowerment included the development of informational, social, and political capacity and the use of those capacities in collective action that benefited Porters.

The PNN is grounded in three guiding principles – participatory, neighborhood, narrative – that serve as a framework for a transferable model. The methods and activities that we used to support the guiding principles were coproduced with the Porters neighborhood to address their specific needs, however many are likely vital and transferable. Based on the Porters PNN experience, we make recommendations for fundamental elements, including processes, skills, and competencies, necessary to create a PNN model that can be customized as resources, interests, and opportunities permit. PNN is a bottom-up, inclusive, and culturally sensitive practice aimed at giving voice and building neighborhood capacity for advocating for their interests in city affairs, i.e., empowerment. The PNN process draws attention to the need for planners to plan with communities, rather than for communities, in a manner that respects cultures and differences.

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Key Words: Empowerment, Public Engagement, Neighborhoods, Narrative, Participatory Action Research

DISPLACEMENT RISK INDEX: A GIS-BASED ASSESSMENT OF RESIDENTIAL DISPLACEMENT RISK IN ATLANTA

Abstract ID: 322

Individual Paper Submission

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For the last 50 years, scholars have studied and debated the definitions and impacts of gentrification and displacement and its relation to individual, market, and government interventions (Freeman, 2005; Marcuse, 1985). New greening and sustainable consumption policies and/or development can increase desirability and stimulate gentrification, driving up property values and making these developments increasingly unaffordable for its low-income residents. Green gentrification is a process that is driven by green initiatives that create or restore environmental amenities that draw wealthier groups and push out lower-income residents (Gould & Lewis, 2017).

Amid discussions on the definition and outcomes of the gentrification process there is constant debate and controversy regarding the potential of gentrification to displace low-income households, communities of color, and other vulnerable populations. Residential displacement is often discussed solely as a product of the gentrification process, where there is an influx of a new demographic, along with exorbitant increases in housing costs. Researchers and practitioners often view the relationship between gentrification and displacement as linear and sequential, which is not true in all cases. Zuk and Chapple (2015) found for some of their case studies in the San Francisco Bay area where displacement preceded gentrification and the two processes have occurred simultaneously. Marcuse (1985) argues that when examining the relationship between gentrification and displacement, we must consider the disinvestment of urban neighborhoods and subsequent displacement, which creates vacant land ready for investment. Although displacement is a central concern of gentrification, it is not a phenomenon that is distinct to gentrification.

In this paper, we review the literature on how residential displacement is defined and measured. We ask the following research questions: 1) what factors impact the susceptibility of existing residents to residential displacement and 2) to what extent does green redevelopment contribute to residential displacement? We used the Atlanta BeltLine – a 25-year public-private green redevelopment project that will result in improvements to 700 acres of existing parks, addition of 1,300 acres of new and expanded green space, 33 miles of new multi-use trails, and a 22-mile loop of rail transit service – as our case study. When this project initiated in 2005 a major goal was to ensure housing equity by creating at least 5,600 affordable housing units, yet the BeltLine has only secured funding for 2,565 units. From 2011 to 2015, neighborhoods along the BeltLine saw median home sale prices increase from 40 - 68% compared to 17.7% for the City of Atlanta (Immergluck & Balan, 2017).

To answer our research questions, we present a displacement risk index that identifies neighborhoods that have a concentration of residents who are most susceptible to residential displacement, measures demographic and housing market changes over time, and classifies the neighborhood's risk from low to high risk of displacement by combining two indexes: 1) vulnerability index, which focuses on characteristics that make certain social groups more vulnerable to displacement and 2) housing market index that includes indicators that reflect affordable housing options, disinvestment, and reinvestment within the housing market. We also performed a hot spot analysis to examine the extent and variation in the spatial concentration of environmental amenities in neighborhoods classified as low to high risk of residential displacement. Combining these two approaches allows us to consider the cumulative risk of displacement – the demographic and housing market aspects as well as the concentration of “pull factors” – for socially vulnerable populations residing in neighborhoods classified as high risk of residential displacement. Planners can use this assessment to better understand the vulnerability of populations to displacement in an effort to provide policy and plan recommendations that may limit displacement for low-income households and communities of color.

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Key Words: residential displacement, Atlanta BeltLine, displacement risk index, hot spot analysis

A GRASSROOTS APPROACH TO INFLUENCING URBAN POLICY: A CASE STUDY ANALYSIS OF ONE DC

Abstract ID: 347

Individual Paper Submission

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A long-time host to racially-infused urban policies, Washington, D.C. has more recently been a victim to the second highest percentage of gentrifying neighborhoods in the country at 51.9% (Maciag, 2015). This has been caused by more affluent, national and international, dominantly young communities, moving into the more “prime”, inner parts of D.C., that neighbor major policy hubs. The reasons include an increase in job opportunities, stable economic development despite a recession, Federal oversight in local governance, and pro-growth objectives. Despite the unique contributions to gentrification in D.C., like most cities, it has faced the complete physical and cultural eradication of existing spaces with the redevelopments only serving incoming community needs. Mere odes to existing culture with insensitive and irrelevant references is what plagues most gentrified neighborhoods today. These circumstances have completely altered the urban and cultural landscape of the city, causing cyclic physical, psychological, socioeconomic and financial displacement of existing, low-income minority communities, as well as converting the once called chocolate city into “Cappuccino City” (Hyra, 2017).

With a lack of trust in the bureaucratic Federal and local system, D.C.’s long-time low-income residents have sought the assistance of grassroots nonprofits such as One DC that play an important role in preventing this displacement through advocacy for “the right to income, housing and wellness” (One DC, n.d.). Located at the heart of D.C., in the Shaw district, and principally focused on Ella Jo Baker’s ideologies, One DC aims to achieve the above through organizing, empowering and working with low-income, poor, and immigrant communities to “exercise political strength to create and preserve racial and economic equity.” (One DC, n.d.).

To fully understand One DC’s role in addressing the city’s rising gentrification-based displacement issues, this study has been conducted instrumentally with an in-depth analysis of the context of D.C. to interpret its application to other contexts and draw conclusions. This process has been facilitated by semi-structured interviews of One DC stakeholders including community organizers, low-income D.C. residents, and policy experts that have studied these issues previously. Ethnographic observations have

also been carried out during One DC's meetings and organizing efforts with local communities to detail their approaches and community reactions. Lastly, to visually and comprehensively assist in understanding the role of One DC in shaping equitable urban policies, document analysis of items such as newspaper articles, developer websites, before and after pictures of Washington D.C.'s neighborhoods, and spatial maps have also been conducted.

Based on the above methodologies, the key findings of this study include some of the major advocacy efforts and policy propositions by One DC such as:

1) Solutions within the current gentrification process:

- a) Providing tenants with a temporary place to stay during the revitalization process
- b) Inclusive redevelopment with involvement of both existing and incoming communities
- c) Affordable housing options in all neighborhoods
- d) Local business options such as co-ops and community working spaces

2) Alternatives to gentrification:

- a) Higher wages
- b) Creating platforms that allow for government accountability to the public such as a People's Congress
- c) Universal housing, healthcare, education and transportation
- d) Removing aristocracy within leadership positions at the local, state and national level

This study, therefore, helps to determine how grassroots political activism are crucial to shaping future policy-thinking and equitable urban development, concurrently overcoming insensitive hierarchical and bureaucratic oversight.

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Key Words: grassroots organizing, racial equity, displacement, gentrification

BRANCHING OUT INTO IMMIGRANT NEIGHBORHOODS: HOW PUBLIC LIBRARIES DISTRIBUTE COMMUNITY RESOURCES TO MEET IMMIGRANT NEEDS

Abstract ID: 355

Individual Paper Submission

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Local organizations play a critical role providing access to supports and opportunities for those who are low-income, socially isolated, or marginalized (Allard and Small 2013). This is especially true for immigrants in the United States, where support with social, economic, and political integration falls almost entirely on local organizations (Jiménez 2011). Yet, immigrants are accessing the social safety net less than in previous years for fear of discrimination and deportation, even though they are more likely to live in poverty than those who are native-born. Public libraries, which are viewed as safe and more trusted than other government institutions (Horrigan 2017), offer an alternative point of access for immigrant services (Koerber 2018). Furthermore, with a branch system that extends across neighborhoods, public libraries have an existing infrastructure that is designed to meet the distinct needs of diverse communities and can reach immigrants where they live.

Not all library branches, however, provide equal access to immigrant services and programs. Some branches in immigrant neighborhoods provide daily immigrant programs, whereas others provide none. If community needs alone cannot explain the uneven distribution of immigrant programs, what other factors help to explain the variation in immigrant services and programs across neighborhood branches? This research examines how the availability of community resources, such as volunteers and local organizations, shapes the distribution of immigrant services and programs. Moreover, this research addresses the socioeconomic implications of a public system that draws on community resources to meet the needs of local immigrant populations.

I approach this research through a mixed-method study of the Boston Public Library and its twenty-five neighborhood branches. I focus on Boston because it is a major-continuous gateway for immigrants (Singer 2015), and it also is home to the first large, municipal public library and neighborhood branch system in the United States. Through analysis of quantitative and archival data, I first examine how library services for immigrants vary across branches in relation to neighborhood needs and local demographics. For example, I find that branches in neighborhoods in which the foreign-born population increased by over twenty percent in the last five years were less likely to have English as a Second Language conversation groups than those in neighborhoods with slower growth in the local immigrant population. Second, I use interviews with branch librarians and participant observation to uncover the mechanisms responsible for variation in immigrant services across branches.

Through a focus on services and programs in public libraries, this research illustrates how one type of public institution designs and distributes programs to serve immigrants. As such, it contributes to scholarship on how local organizations provide access to resources for socioeconomically vulnerable populations. Finally, it sheds light on an informal, and often overlooked, component of the social safety net, the public library, and how it can supplement other more formal programs for immigrants at a time when immigrants are becoming more fearful of government services.

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Key Words: Immigrant organizations, public libraries, community resources

COASTAL COMMUNITY RECONSTRUCTION IN COMPRESSED TIME: FUNDING DISTRIBUTION IN PUERTO RICO'S SOCIALLY VULNERABLE COMMUNITIES AFTER HURRICANE MARIA

Abstract ID: 359

Individual Paper Submission

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Hurricane Maria was the most powerful hurricane to affect Puerto Rico in more than a century. As a result, there was widespread housing and infrastructure damage, including the distribution and quality of natural infrastructure, especially in already vulnerable coastal regions. Infrastructure damage is also associated with the high death count resulting from this extreme weather event. Kishore et al. (2018) have estimated the death toll at 4,645, with one-third of the deaths attributed to delayed or interrupted health care, associated in turn to power and transportation infrastructure failures (i.e., road damage, transportation issues). Both public sector and citizen-led plans have proposed interventions for physical and natural infrastructure improvement in vulnerable coastal regions (Government of Puerto Rico, 2018; Resilient Puerto Rico Advisory Commission, 2018).

There is a history of inequitable funding outcomes among affected populations (Adams, 2013), partly due to compressed time frames imposed by hurricane relief efforts and regulatory frameworks associated with relief funding (Johnson & Olshansky, 2017). One relevant case that exemplifies inequitable funding patterns is post-Katrina New Orleans (Fussell, 2015). Have the initial post-hurricane monetary outlays in Puerto Rico been distributed in a socially equitable manner, or according to alternative criteria such as future expected financial returns based on economic development potential?

We used georeferenced data to measure the spatial association between monetary outlays in physical and natural infrastructure projects and community social vulnerability indicators in coastal regions. The paper examines spatial patterns in the distribution of infrastructure funding in coastal regions (mainly power and road networks, and natural infrastructure), mapping the location of funded projects, and measuring the gap between the location's social vulnerability indicators and corresponding funding levels. An integration of Geographic Information Systems (GIS), remote sensing and published data analysis were used to measure the spatial association between monetary outlays in physical and natural infrastructure projects and community social vulnerability indicators in coastal regions. ArcMap software was used to develop the necessary coastal geodatabase. Spatial investment and social vulnerability data was

converted to standardized indices for comparison. Preliminary data indicates initial outlays favor less socially vulnerable locations with economic development potential. Our research aims to identify patterns of inequity in infrastructure funds distribution at initial post-hurricane stages, to point out unsustainable practices that could be rectified in the long term, and inform policy on post-hurricane infrastructure reconstruction efforts.

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Key Words: social vulnerability, coastal resilience, Puerto Rico

NEW YORK CITY COMMUNITY BOARDS AND SUBSTANTIVE REPRESENTATION

Abstract ID: 387

Individual Paper Submission

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Although planning theorists have emphasized the importance of public participation in local decision making process since the second half of the twentieth century, several limitations have been pointed out when the participation theory has been applied to practice. One of the arguments is that resident representative bodies are incapable of representing their residents (Fagence 1977; Beatley, Brower, and Lucy 1994). John Stuart Mill states that “no matter the predisposition and benevolence of a representative towards the interests of those he represents he is rarely capable of an accurate degree of representation because each man knows his own interests more completely” (Fagence 1977). Theoretically, resident representative groups are created to act based on ideological views and preferences of the represented, where the act is known as substantive representation. In order to better represent their residents, the groups must continuously communicate with their residents and local government and advocate on the behalf of their residents. However, Abram (2000) argued that it is difficult for local representatives to speak for the represented as they face the dilemma of representatives; if they speak for narrow interests they will be accused of self-interest, while if they act in general views, such as opposing to major developments to conserve neighborhood, the state will take the views as ‘subversive’.

This study observes the level of substantive representation of New York City Community Boards, representative bodies composed of local residents. One of their major roles is to assess and address the needs and concerns of their neighborhoods. The mandated annual task of a Community Board is to communicate with its district residents to develop the Community District Statement of Needs for the next two fiscal years. The statement presents three most pressing issues and one main issue per policy

area. The statements from all Community Boards are to be carefully reviewed by the City officials and integrated to develop the Citywide Statement of Needs.

To observe the level of substantive representation in this process, this research conducted a resident survey of over 600 residents through a crowdsourcing platform known as Amazon Mechanical Turks and completed interviews with Community Board members in the summer and fall of 2018. Based on the needs statements, the survey asked residents to reflect on whether their neighborhood need supports in several policy areas and to choose three pressing issues about their neighborhoods. During the interviews, Community Board members were asked about the process of finding and developing the Statement of Needs, including the hardship and their personal opinions about their representation.

The research focused on finding answers to the following research questions: 1) how well do Statements of Needs describe the needs of residents? 2) which policy area shows higher similarities or dissimilarities? 3) what are the associated neighborhood and resident characteristics that make the difference among neighborhoods? 4) and, what are the differences among Community Board members that resulted in a low or relatively high level of substantive representation?

The research contributes to planning scholarship in several ways. By comparing the needs stated by the local representatives and the residents, the study results provide a better understanding about the general degree of substantive representation of local representative bodies. Comparing the policy areas and neighborhood characteristics associated with the level of representation identifies room for improvement in the official participatory system. Lastly, by speaking with actual Board members, the research points out the practical problems that Board members are facing in order to deliver the theoretically expected outcome of public participation.

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Key Words: Substantive Representation, Community Participation, Neighborhood Governance, Neighborhood Difference

STUDY ON THE AGE-FRIENDLY RECONSTRUCTION OF EXISTING RESIDENTIAL ENVIRONMENT -- A CASE STUDY OF SHANGHAI

Abstract ID: 390

Individual Paper Submission

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Nowadays, China's overall aging situation is increasingly serious, the pension problem has aroused the concern of all sectors of society. There are three traditional pension modes in China: home-based pension, community pension and institutional pension. A long-term follow-up survey of the elderly in Shanghai (1998-2013) shows that "home-based care for the aged is always the intention of the majority of the elderly, and this trend remains unchanged even when the self-care ability declines. Over the past decade, more than 89% of the elderly have always chosen family as the "current place of care". And since 2012, the number of domestic residential development began to show a downward trend, entering a phase of slower growth. In this context, expanding the intrinsic value of existing residential areas and buildings is a potential development direction, and improving the living environment is a development trend that must be followed in the future. Therefore, it is of great significance to study how to adapt the existing residential environment to aging.

Since WHO launched the 《Global age-friendly Cities - A Guide》, many cities and countries have carried out various livability measures for the elderly, including the urban level and the community level. Many developed countries have issued relevant guidelines for local pension and formed a unified index system, such as America, Japan, Singapore and so on. China has also followed the international pace in this regard, and introduced various relevant standards. However, these standards and guidelines are only a guided-type policy document, and do not involve specific matters of age-friendly renovation to guide the subsequent community renovation. So, in this study, questionnaire survey, interview, empowerment and grounded theory were used, and self-care elderly people in a residential area of Changning District in Shanghai were selected as research samples. We tried to analyze the data of the survey results, and combined with the interview content, to understand the old people's views on the age-friendly existing residential reconstruction in Shanghai and find the elements they pay attention to. We will rank these elements, so as to form a list of age-friendly reconstruction, and finally form an evaluation system of age-friendly reconstruction of existing residential environment to guide the government and researchers to do it better in Shanghai and other cities in China in the future.

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Key Words: aging-in-place, reconstruction, evaluation system, age-friendly

COMMUNITY ENGAGEMENT AND EMPOWERMENT: REMEMBERING & ENVISIONING GERMANTOWN AVENUE

Abstract ID: 417

Individual Paper Submission

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Community capacity building can take many forms from ad-hoc workshops to more formal training programs (Mandarano 2015). Regardless of form, these efforts share common goals from enhancing one or more community capitals, essential elements of a community's capacity to take collective action (Emory and Flora 2006). This paper presents the results of research of a community-engaged service learning project focused on enhancing residents' human capital relevant to the redevelopment of the neighborhood's commercial corridor. The Eastern North area of Philadelphia has experienced decades of disinvestment that left the neighborhood and its commercial corridor – Germantown Avenue – in a state of blight. However, residents now are struggling to defend their neighborhood from an influx of market rate development that followed the construction of an award winning LEED certified, mixed-use development in 2013 by Asociacion Puertorriquenos en Marcha, the local community development corporation. Unfortunately, most residents attending the local development review meetings do not share a collective memory of the corridor during its heyday and have limited local examples to draw upon to encourage developers to include first floor retail or other uses in development along Germantown Avenue.

The community engagement project embraced a humanistic approach to planning (Good et al 2017) and used several forms of storytelling to facilitate building a collective memory of place and capacity for envisioning a future. The engagement project, designed by seniors in a capstone community development course, was comprised of a series of activities sequenced to build residents knowledge of the past development along the commercial corridor, awareness of how the built environment impacts their lives, and vision for the future. The event started with students sharing stories about the history of iconic places and smaller businesses on the avenue using archival photos and posters as well as residents' stories of experiences on the avenue collected by video-recorded interviews. Residents then shared their memories of place on a storyline clothesline. To aid residents' understanding of how the built environment impacts their daily lives and of market leakage they mapped 'Where we go' frequently to shop for goods and services. The last station prompted participants to create another storyline clothesline highlighting businesses and services they would like to see on "Our Germantown Avenue". The use of several storytelling methods enabled residents not only to learn about the community's former assets and how the state of the corridor impacts their daily lives but also to learn from and connect with each other about the corridor's history and potential.

This project demonstrates the value of providing residents with ad hoc community building programs in the form of experiential learning and community engaged storytelling. Direct outcomes from the engagement process were discerned through interviews with community stakeholders conducted by the author after the conclusion of the capstone course. Outcomes include, for example, increased knowledge of the community's history and assets, improved sense of place, greater sense of a shared vision, and stronger neighborhood commitment. All of which are foundational elements of a community's capacity to organize, to act, and to affect change (Chaskin 2001).

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Key Words: community engagement, community organizing, storytelling, community capacity, service-learning

CHANGES IN U.S. NEIGHBORHOOD-LEVEL INCOME SEGREGATION AND FACTORS ASSOCIATED WITH THESE SHIFTS, 1990-2010

Abstract ID: 432

Individual Paper Submission

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Many studies of income segregation in the U.S. have explored the phenomenon based on regional-level indices which mask the local variations of segregation levels among subunits. This article, therefore, expands the literature by exploring the local dimension of income segregation among neighborhoods within U.S. metropolitan areas and by applying a political economy perspective. Using the data of census tracts, I calculate the local-level delta score, a local measure of income segregation, to explore the unique attributes and trajectories of each neighborhood from 1990 to 2010. In a six neighborhood typology based on the local-level delta score change, this article explores the longitudinal transitions of neighborhoods. Moreover, using regression analyses, I found that the existence of middle-aged housing is associated with neighborhood ascent in affluent-concentrated neighborhoods, while in poor-concentrated neighborhoods this type of housing is associated with neighborhood decline. These results indicate that affluent-concentrated neighborhoods enter the redevelopment stage earlier than poor-concentrated neighborhoods, promoting unequal redevelopment patterns and consequent neighborhood polarization. In addition, among other findings, this research shows homeownership is positively related to neighborhood ascent regardless of the neighborhood segregation status.

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Key Words: Neighborhood change, Income segregation, Residential inequality, Neighborhood polarization, Neighborhood typology

ENGAGING ANCHOR INSTITUTIONS TO ADVANCE LOCAL EQUITY GOALS

Abstract ID: 453
Individual Paper Submission

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Investments in community development need to achieve a certain scale before they impact conditions at the neighborhood level (Pooley 2014). Unfortunately, federal funding for many community development programs has declined significantly. This has drawn policymakers to examine ways that other institutional partners can be engaged in community development, including “anchor institutions,” to make up for lost resources and to leverage their economic presence for community benefit. There is recent evidence that these partnerships can in fact be impactful at the neighborhood level (Ehlenz, 2018¹).

At the same time, anchor partnerships hold the potential for misaligned interests, including concerns that anchors will prioritize strategies that result in gentrification and displacement. Some authors have pointed to the need for on-the-ground community capacity, including political mobilization, to leverage community commitments from anchors and to implement community programs that advance equity-related priorities (Perry, Wiewel and Mendendez 2009).

Accordingly, this paper asks two related questions: 1) what factors facilitate productive engagement between community and anchor stakeholders to advance local equity objectives, 2) what are the impacts of intentionally-directed community revitalization strategies related to these partnerships.

To address these questions, the paper presents a mixed-methods case study of activity and community impacts in Minneapolis, Minnesota. Like many urban places in the 1990s, diverse neighborhoods in South Minneapolis experienced significant strains, including the highly publicized murder of a Honeywell employee in 1995. What followed was a sustained effort on the part of community organizations, the public and philanthropic sectors, and Twin Cities LISC to engage Allina, a health care organization, and other major corporations. Using an Adjusted Interrupted Time Series Analysis (see Galster, Temkin and Walker 2004), we examined home loan values in census tracts which received substantial community development investments, and interviewed long-time residents and community practitioners.

There is evidence that partnerships influenced investment activity at the broader community level: controlling for other factors, the levels and slopes of local home loan values in focal tracts reversed their decline to catch up with broader citywide trends. Qualitative findings emphasize that the active support of elected and appointed officials, general alignment and trust among high-capacity community development actors, and culturally-resonant organizing with diverse communities contributed to neighborhood outcomes.

This case adds to the literature on community mobilization for equitable neighborhood change, and in particular how to engage anchor institutions to advance local equity goals, so as to make partnerships productive over the longer term.

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Key Words: Anchor institutions, Community development, Community organizing

THE RISE AND FALL AND RISE OF CLEVELAND'S BARRIO

Abstract ID: 461

Individual Paper Submission

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This work discusses the causes and consequences of white return to urban areas, and the many facets of displacement. Most discussions of displacement focus on the physical sense – people are forced to move out of rental units due to rent hikes, or even sell their property due to property tax increases. However, a large part of the pushback against gentrification is the loss of a sense of community and belonging that occurs when neighborhoods change. This can be called “cultural displacement” – the feeling that one no longer belongs in their neighborhood and that the essential character of the place you call home has changed in a way that you don't fit into anymore.

Coupled with cultural displacement is economic displacement. As reinvestment and revitalization occur, many long-standing small business may be displaced due to rent increases – corner stores, barber shops, restaurants, and clothing stores that used to cater to the older residents in a neighborhood are replaced by high-end coffee shops, boutiques, salons, and cafes. Often, these new restaurants are not only too expensive for low-income residents, they are not particularly inviting to them, either.

Focusing on the last 20 years on the West side of Cleveland, this chapter chronicles the continued displacement of Cleveland's largest Hispanic (predominately Puerto Rican) neighborhood in terms of physical, economic, and cultural displacement. This chapter presents the story of the dismantling of one of Cleveland's most unique and diverse neighborhoods – Little Puerto Rico– from the Ohio City area and how the community is trying to reconstitute itself in nearby Clark-Fulton. Relying on historical and archival materials as well as in-depth interviews and focus groups with current and previous residents of Little Puerto Rico, I analyze how the community has dealt with all three facets of gentrification – physical, economic, and cultural.

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Key Words: gentrification, displacement, Latino, Hispanic

**WHERE DID HOMELESS FAMILIES LIVE BEFORE ENTERING THE SHELTER?
ANALYZING NEIGHBORHOOD CHARACTERISTICS AFFECTING THE RISK OF FAMILY
HOMELESSNESS IN SALT LAKE CITY, UTAH**

Abstract ID: 469

Individual Paper Submission

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Although homelessness is not a permanent condition for most people, understanding the causal path of being homeless has been one of the key issues in various academic fields including urban planning. Some homelessness studies have been dedicated to identifying two major factors—individual factors such as gender, age, race, and physical barriers and structural factors such as employment, prior residential experience, and education (Culhane et al. 2007; Gould and Williams 2010; Rodriguez and Eidelman 2017). Nevertheless, only a few studies have been done to examine the relationship between the characteristics of the built environment and the risk of homelessness (Smith et al. 2005). Particularly, considering that homeless families still make up about one-third of the national homeless population in the 2017 Point-in-Time count, identifying the neighborhoods where homeless families lived before entering the shelter helps both policymakers and planners develop strategies for inclusive urban growth and policies for family homelessness prevention through targeted neighborhood development.

This study aims at identifying the neighborhoods that produce homeless families and analyzing characteristics of neighborhoods affecting an increase in the number of homeless families. To achieve the research goal, this study collects homeless individual data from the Road Home Homeless Management Information System (HMIS) database. The HMIS data used in this study cover detailed historical records of homeless individuals who had entered the Road Home shelter located in the downtown Salt Lake City between January 1, 2015, and December 31, 2017, and include the zip code information of where each homeless individual stayed before entering the Road Home shelter. From the HMIS data of 5,780 homeless individuals during the study period, 1,651 unique homeless households are identified by using the homeless family identification criteria. By combining the 2013-2017 American Community Survey (ACS) 5-year estimate data, this study traces the geographical origins of these homeless families and conducts geographically weighted regression models to understand characteristics of neighborhoods that produce homeless families.

Based on the homeless family count at the zip code level from the HMIS data and the 2013-2017 ACS 5-year data, this study first conducts exploratory data analysis of identifying Zip Code Tabulation Areas (ZCTA). As we expect, exploratory data analysis confirms the geographical concentration of neighborhoods where homeless families lived before entering the shelter. Among the 41 Zip Code Tabulation Areas in Salt Lake County, all the homeless families identified in the 2015-2017 HMIS data came from 19 different zip code areas. Choropleth maps of spatial distribution of homeless families show little geographical variation in terms of family composition or demographic backgrounds, but reveal some variations depending on the crime, education, jobs, and economic levels. To see how census characteristics of neighborhoods affect the number of homeless families within a zip code area, geographically weighted regression models are conducted, and the analysis results show that neighborhoods producing homeless families are neighborhoods that have a higher number of families below poverty level, foreign-born population, female-headed households, and families with younger children. The results also found that neighborhoods with a higher unemployment rate and the higher number of vacant housing units also tend to have homeless families within an area. Race and ethnicity

(Hispanic vs. non-Hispanic) also play a significant role in determining neighborhoods with homeless families, but as with previous studies, some structural factors such as education and housing unit structure are not associated with the number of homeless families. From these results, this study contributes to expanding the further discussion on ending family homelessness through more targeted neighborhood development strategies and planning policies for inclusive urban growth.

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Key Words: Family homelessness, Neighborhood characteristics, Geographically weighted regression (GWR) model, Homeless Information Management System (HMIS), American Community Survey

COMMUNITY CAPACITY BUILDING THROUGH A SELF-HELP PLANNING: LESSONS FROM SEATTLE, WASHINGTON

Abstract ID: 508

Individual Paper Submission

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Participation in urban design and planning has been evolved from community involvement to citizen-initiated design and planning (Hou 2011). With efforts to move beyond conventional participation rooted in deliberations and its basis on Habermasian ideal communications, community empowerment has been discussed as one of the alternative forms of participations (Rios 2008; Purcell 2009; Hou 2011). The idea of empowerment engages the process by which community members shape their lives through making their own decisions as well as build their capacities to manage their everyday living environments. Based on this perspective of community empowerment, this research aims to examine Neighborhood Matching Fund (NMF) program, a representative community building program in Seattle. Launched in 1989, NMF has served as a key resource for communities to implement self-help plans in which they figure out neighborhood issues, initiate and complete projects by themselves (Diers 2004).

This study investigates how NMF program has contributed to community capacity building based on the concept of community capacity that refers to “the interaction of human capital, organizational resources, and social capital existing within a given community that can be leveraged to solve collective problems and improve of maintain the well-being of a given community (Chaskin, 2001).” Analyzing the accumulated data of NMF projects for the past 30 years, this empirical study aims to shed light on the de

facto roles and impacts of NMF program on communities' self-managements of affairs in their everyday lives. For this purpose, this research mainly conducts a content analysis on a data-set of implemented NMF projects provided by Seattle's NMF database. Public documents such as application forms, final reports, and other administrative records, available in the Seattle Municipal Archive, are also used for a better understanding of each project.

This case study evaluates the process and outcomes of NMF program that has funded over 5,000 neighborhood-level projects from 1989 to 2018, focusing on three aspects: the resources each project utilized, leading organizations, and the benefits produced by each project. First, this study provides descriptive statistics about the budgets plans of funded projects concentrating on the community match to explore which community resources were accessed the most and the least and how the specific usages were linked to the project outcomes. Particularly among the four types of community match -- labor, professional services, materials, and cash -- the share of volunteer time indicates not only inputs of neighbors' labors but also the level of participation that local populations experience. Second, this research examines the implementing organizations of NMF projects, which aims to demonstrate NMF's effects on organizational development and collaboration. The analysis on their activities and networks evinces NMF's contribution to encouraging residents to aggregate and existing groups to continue to take actions for community improvements. Third, we categorize awarded projects according to their outcomes to illustrate types of assets built through NMF. This categorization allows us to investigate how those projects nurtured human and social capital so that communities autonomously solved their problems and enhanced wellbeing.

NMF program, utilizing community's human capital the most, has supported local organizations to be sustained around abiding desires of community building among neighbors by fostering a variety of community activities. For new organizations, the program has assisted their formations based on everyday issues with purposes to address ongoing problems in their neighborhoods. Moreover, the city government has simplified the application process and strengthened its assistance in designing a project to broaden an opportunity for citizen-initiated design and planning. These findings provide insight into policy implications for community empowerment and self-help planning

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Key Words: Community Capacity Building, Participatory Planning, Self-help Planning, Neighborhood Matching Fund, Seattle

WHAT AFFECTS RESIDENTS' SATISFACTION IN NEIGHBORHOODS WITH DIFFERENT INCOME LEVELS? A STUDY USING THE IMPACT-ASYMMETRY ANALYSIS

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Residents living in different types of neighborhoods tend to have different needs and different levels of neighborhood satisfaction. Existing studies have examined the needs and satisfaction of residents in various types of neighborhoods. However, a limited number of studies has examined the determinants of neighborhood satisfaction in neighborhoods of differing income levels. This knowledge gap potentially reduces the effectiveness of neighborhood improvements, especially in lower-income neighborhoods, which tend to have lower social capital and higher degrees of fear of crime and racism. The social vulnerability of lower-income neighborhoods calls for the differentiation in neighborhood income levels when exploring the determinants of neighborhood satisfaction. This also helps address the equity issue in neighborhood planning.

In this paper, I aim to fill these this research gap and answer the following two research questions: What are the important neighborhood attributes to residents living in higher-income and lower-income neighborhoods? What are their patterns of influence? Based on the answers to these questions, I will provide implications for the planning and improvements in specific types of neighborhoods and discuss what these findings mean to equity planning for lower-income neighborhoods.

This study uses the data collected in the Neighborhood Environment, Daily Activities, and Well-Being Study. The survey data were collected in six neighborhoods in the Twin Cities metro area, containing both higher-income and lower-income neighborhoods. I will apply a machine learning algorithm, the gradient boosting decision tree, to answer the first research question and identify the attributes that are the most influential to residents in lower and higher-income level neighborhoods. Thereafter, I will employ the impact asymmetry analysis (IAA) to answer the second research question and illustrate the patterns of influence. Mikulić and Prebežac (2008) developed this method to better illustrate the asymmetric and non-linear relationships between service attributes and overall satisfaction. This method classifies service attributes into five categories based on their abilities to increase or decrease overall satisfaction. These five categories can be defined as follows:

- Dissatisfiers cause dissatisfaction when performing poorly, but do not lead to satisfaction when performing well.
- Frustrators are extreme cases of dissatisfiers.
- Satisfiers lead to satisfaction when performing well, but do not cause dissatisfaction when performing poorly.
- Delighters are extreme cases of satisfiers.
- Hybrids are attributes that can cause both satisfaction and dissatisfaction.

I plan to build an IAA plot where I identify improvement priorities for higher-income and lower-income neighborhoods. Every neighborhood attribute will be positioned in this plot based on its importance to neighborhood satisfaction and its classification in the five IAA categories. A typical IAA plot has two axes, where attributes are being positioned based on their overall impact on satisfaction (horizontal axis) and IAA factor classification (vertical axis). Based on the relative positions in the plot, I will be able to provide implications for planners regarding which attribute should be the focus for that specific type of neighborhood.

This paper will contribute to academic research and practice in several ways. First, it will introduce innovative methods to the field and adds to the toolkit of planning scholars. Furthermore, the result of

this paper will provide essential implications for planning practitioners regarding which attributes should be prioritized for a specific neighborhood with respect to their income level. More importantly, the findings of this paper will promote equity in neighborhood planning and benefit residents living in lower-income neighborhoods.

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Key Words: neighborhood, satisfaction, income , equity

EFFECTIVENESS OF DEVELOPMENT CONTROL IN REGULATING ACTIVITIES OF REAL ESTATE DEVELOPMENT IN LAGOS STATE, NIGERIA

Abstract ID: 538

Individual Paper Submission

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The state of the physical environment, particularly the urban areas, is a major source of global concern in developing nations like Nigeria. Currently, Lagos State is experiencing great influx of people and uncontrollable traffic congestion as a metropolitan area. As a result of this, many unauthorized residential, commercial and industrial developments are prominent within and at the periphery of most cities in the State. The existence of such land development is often not in conformity with the Physical Development Plans (If any). Majority of real estate developers and people in Lagos fail to take cognizance of the effectiveness of development control measures and regulations. Development control is one of the measures applied by physical planning agencies, particularly, local planning authorities to ensure that developers do not deviate from approved building plans that often restrict them to their earmarked plots. Despite the importance of development control measures in physical environmental balancing, series of factors still hinder its effectiveness.

The research question of this study was, “How effective are the development control mechanisms in regulating the activities of real estate development in Lagos State with a view to achieve orderliness, and healthy aesthetic environment”? The study area was zoned into three using stratified sampling techniques: namely, Lagos Island, Victoria Island and Ikeja where many real estate developments have taken place. The research used both primary (questionnaire) and secondary data. Two sets of questionnaires were used, one was directed to real estate developers and the other one to planning authorities in each local government area of each zone. Among the 373 registered estate surveyors, valuers and developers registered in Lagos State, 100 (26.8%) participants selected from the three zones were sampled, with a total of 100 questionnaires randomly distributed in the three zone and three questionnaires for the three planning authorities. Some questions on development, causes, challenges, failures, successes and

prospects from these institutions were obtained. Other data collection method engaged includes taking of photographs. Data were analyzed using descriptive statistics and chi-square at $p < 0.05$, which was used to test the relationship of the problems of development control in the three zones.

Findings revealed that some of the developers were aware of development control measures but simply decided not to comply with them. Many of them failed to acquire proper approvals before commencing developments. Other notable findings include ignorance of developers on the application of relevant laws, compliance as a major challenge, change of use of property without permit and competition for lands. Other identified problems also included inadequate personnel, unguided and ineffective enforcement of building regulations, lack of organized public education on development control mechanism, lack of coordination between the various stakeholders of development control and lack of implementation of planning policies and regulations.

The study concludes that development control is a potent tool for city managers to ensure the continual growth and management of a city for orderliness, beauty, health and aesthetics. The researchers recommended that the urban planners should ensure that construction developers obtain all necessary planning approvals prior to any physical development or re-development,. Additional recommended measures include efficient monitoring and site inspections, public sensitization, strict enforcement of land use planning and developments laws.

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Key Words: Development Control, Real Estate Developers, Planning Approval, Urban Planning

CORONA PLAZA AND THE FIGHT FOR AN IMMIGRANT COMMUNITY'S LIVING ROOM

Abstract ID: 541

Individual Paper Submission

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For years, Corona Plaza sat as one-small block which was under-utilized. Its uses were primarily as a parking lot for trucks servicing the retail along the densely packed corridor of Roosevelt Avenue in the heart of central Queens. Beginning in the middle of the last decade, community groups, working collaboratively with the Queens Museum began to pressure the city's Department of Transportation to de-map the streets and open the plaza up to the community. The community organizers finally won in these efforts and the square was de-mapped in 2012. While this was happening, the Queens Museum was also partnering with a Cuban artist to set up a residency in a nearby house on Roosevelt Avenue. The house was known as the "Immigrant Movement International" (IMI) and it would be responsible for connecting

artists with programming in the Plaza and for other community events, activities, and organizing efforts. The Museum and IMI were not able to control the site, however, and the City's Economic Development Corporation (EDC) as well as other local government entities retained controlling interests in the Plaza. This local government control led to a purposeful "beautification" of the Plaza, and the loss of the relatively fluid, unstructured, and "un-beautified" plaza that the community had created.

The location of Corona Plaza is not incidental to its story. Corona's history is one that includes a sizeable and thriving black community (Gregory, 1998), which co-existed for a long time with a "white," and often 2nd and 3rd generation, immigrant community of Italians and Germans. That began to change in the latter part of the 20th century as the neighborhood became a destination for a growing number of immigrants from different countries in Latin America (Sanjek, 1998). This working class immigrant community has extremely high rates of housing overcrowding (DeFilippis, 2018), as well as a very limited number of public spaces. The neighborhood also sits along the Roosevelt Avenue/7-train (subway line), which has seen very substantial real estate development along its eastern edge in downtown Flushing and western edge in Long Island City and Sunnyside. The corridor, in short, is being squeezed from both directions, and control over public spaces along the corridor is inevitably inter-twined with the realities of these real estate pressures.

In this paper, we use the story of Corona Plaza to analyze the outcome of public private partnership models to design public space in New York City's neighborhoods and the model's impacts on the ability of immigrant communities to respond and organize given the real estate and political contexts. We look at how community consultation planning phases leverage communities' abilities to mobilize, organize and respond to pressures for government crafted participation; only to then position communities in the roles of users, consumers, and providers of entertainment for a public space that is managed, and ultimately controlled by others. By reflecting on the outcome of this planning model in Corona Plaza, we discuss the ways the it poses difficulties for communities to articulate oppositional politics to beautification; and how the model hinders non-market driven uses of spaces for cultural identity, expression, and other collective and public community practices. Finally we discuss lessons for and about communities that grapple with the struggle for community control of space in their neighborhoods. We do so by asking the basic questions of: who is the public, who is the private and how is the input of communities utilized in the processes of making public spaces?

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Key Words: public space, immigrant communities

UNDERSTANDING PERCEIVED AND IDEALIZED NEIGHBORHOOD LIVABILITY IN THE CONTEXT OF TRADE-OFFS BETWEEN HOUSING CHOICES AND TRANSPORTATION OPTIONS

Abstract ID: 571

Individual Paper Submission

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In recent years, livability, a concept encompassing many domains of living environments across multiple spatial scales, has emerged as a frequently pursued regional vision and community goal that underpins various planning strategies aimed at expanding transportation options, promoting affordable housing, encouraging active land uses, and revitalizing urban centers (Herrman and Lewis, 2017; Harrell et al., 2014). Many scholars, practitioners, and policy-makers believe a place of greater livability supports a more active life style, a greater use of environmentally sustainable travel, and more social interactions, and thus see the convergence between urban livability and sustainability (Gough, 2015). Indeed, an interagency partnership among three Federal Agencies, US Environment Protection Agency, US Department of Transportation, and US Housing and Urban Development, labeled as “Partnership for Sustainable Communities” (PSC), actively engages with local communities to coordinate investments in and policies for equitable/affordable housing development and transportation-efficiency maximization, two major aspects defining a place’s livability (PSC).

While the consensus among many planners and designers appears strong about what should be the attributes or conditions for an ideal livable community or neighborhood, the specific factors that affect a place’s livability are shaped by the values/preference of its inhabitants, their perception of environmental qualities, and their unique, lived experiences in local environments. A growing body of empirical research has revealed that many livability-affecting factors are context-dependent and some of the factors are very much subjectively determined and culturally embedded (Okulicz-Kozaryn, 2013). Nevertheless, housing, transportation, and land use are the factors receiving the most and immediate attention in the planning field when it comes to create livable communities (US DOT).

This paper examines opinions about and perceptions of neighborhood livability from residents living in three communities in Oregon. Specifically, this paper aims to address how residents’ perceived neighborhood livability is affected by availability of transportation options and housing choices. Data were collected via a targeted survey within three MPOs in 2017 - Albany, Eugene-Springfield, and Medford – in Oregon. These MPOs represent a small, medium and large MPO within the state, exhibiting varying political and economic conditions. Information collected from the survey helps reveal respondents’ assessment of various neighborhood conditions, their attention paid to livability factors during their residential location decision-making process, and their visions for ideal neighborhood environments. GIS data are used to measure the physical characteristics of a neighborhood (e.g., land use mix, housing densities, transportation services, etc). Using logistic regression analysis, this paper reveals that limitation in housing choices due to the lack of housing-type diversity and unaffordability constrains residents’ neighborhood livability outcome and affects their visions of livable environments.

This paper makes contribution to the livability literature by understanding the perceived and envisioned neighborhood livability in the context of trade-offs between housing choices, transportation options, and service accessibility that housing consumers have to make during their location decision-making process. With the post-WWII (sub)urban environments in the US being the product of little coordination between housing and transportation planning, it is not unreasonable to speculate that residents, especially those residing in suburbs, have to face those trade-offs frequently. Such experiences could lead people to internalize certain residential environments, such as low-density, exclusive single-dwelling neighborhoods poorly connected with other land uses, as the only feasible livable options. Such internalization may have significant implications for implementing planning strategies aimed at retrofitting existing residential landscape via densification and public transportation investment.

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Key Words: Livability, Neighborhood accessibility, Transportation option, Housing location choice, Housing affordability

DISCOURSE, POWER, UNEVEN ACCESS AND CONTROL: REPRODUCTION OF URBAN INJUSTICE IN BAYVIEW-HUNTERS POINT

Abstract ID: 572

Individual Paper Submission

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In June 2018, San Francisco Board of Supervisors unanimously approved amendments to the Candlestick Point-Hunters Point Shipyard Development Plan, the 'biggest redevelopment project in San Francisco'. This project envisions a new, mixed-use community consisting of 12,000 new residential units and several thousand feet office, recreational, and commercial space. It is located at Bayview-Hunters Point, once a majority African-American neighborhood and one of the most disadvantaged areas in terms of economic and environmental injustice, unemployment, crime, and health disparity.

Hunters Point Shipyard was declared a 'Superfund Site' in 1989 due to high level of contamination resulted from toxic naval activities and radioactive experiments during the Second World War and afterwards. This site has been subject to massive remediation program supervised by the Navy and other regulatory agencies. Only seven months before approval of the revised plan, an EPA report revealed widespread deliberate data falsification and soil sampling manipulation conducted by Tetra Tech, the company in charge of decontamination. This turned the 'biggest redevelopment project in San Francisco' to the 'biggest case of eco-fraud in US history'.

In this paper I argue that the Shipyard project has been a site of 'discursive battle' between the Global (federal, state, and city regulatory agencies and authorities) and the Local (community members and activists). In order to exercise its 'persuasive power' (van Dijk, 1996) and speed-up the development project, the Global has operated a 'control apparatus' that advocates an uneven regime of 'access to discourse' to exclude community members from decision-making and clean-up procedure. The Local, in response, has used multiple methods of resistance and protest to dis-functionalize and distract the dominant control regime. Achievements have been promising: botched clean-up has gained national attention, remediation will be re-done and re-scheduled, and Tetra Tech faces federal and local legal challenges, to name but a few.

I utilize ‘critical discourse analysis’ method to study how social power, dominance, and inequality are enacted, resisted, and re-produced through argumentation and discourse (Fairclough et al., 2011). The paper concentrates on ‘control of, and access to, discourse’ as the main arena for the practice of power, domination, and injustice. Corpus of the analysis is multiple types of semiosis, including text, speech, reports, official documents, media coverage, and advertisements. I will examine a number of events in which the Global and the Local exercise and resist the ‘control apparatus’. This includes two ‘critical discursive moments’ in which the discursive battle intensified, namely the dismiss of community-based Restoration Advisory Board in 2009 and establishment of a closed ‘Tiger Team’ in 2017 to internally handle consequences of the botched clean-up. Then I will elaborate on two ‘critical discursive instruments’ by which the Local distracts the ‘control apparatus’ of the Global, including the role of ‘whistle-blowers’ in revealing the ‘culture of fraud’ exercised by Tetra Tech, and the utility of ‘Freedom of Information Act’ to access important unpublished documents and reports.

My research has following key findings. First, it empirically shows that power and dominance are essentially related to ‘control of discourse,’ and injustice is (re)produced by exercising an ‘uneven access to discourse’ (Reisigl and Wodak, 2016; van Dijk, 2008). Second, community members employ different instruments to distract the ‘control apparatus’ and get access to critical resources that challenges dominant regimes of truth. Third, the ‘control apparatus’ may be distracted, but quickly recovers itself to perpetuate delimiting decision-making circle in favour of the powerful and the capital.

This paper highlights significance of discourse and argumentation in planning (Marston, 2004) and their linkage to injustice, power, and truth, through providing first-hand evidence of an ongoing case of community resistance and the struggle for social justice.

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Key Words: Discourse, Control of Access, Urban Justice, Community Redevelopment, Community Resistance

PLANNING FOR DEMOLITION IN SHRINKING CITIES - EVALUATING NEIGHBORHOOD PLANNING IN YOUNGSTOWN, OHIO

Abstract ID: 612

Individual Paper Submission

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In most cases, demolition is the widespread way to solve the problem of vacant, abandoned or foreclosed properties in shrinking cities. In the US, the public sector has two major ways it can conduct demolition: counties can use tax foreclosure to gain the title of a tax delinquent property and may subsequently execute demolition, while municipalities can use code enforcement to demolish properties with code violations without needing the title. However, either process of demolition lacks transparency and democracy. It begets local conflict in shrinking cities because the number of demolitions is limited due to the scarcity of public resources. Therefore, understanding the spatial distribution of demolition is crucial. It's necessary to have a demolition-oriented plans to serve as a guide for public action as well as to protect the process from for private interests. However, such plans didn't emerge until 2015 when Youngstown, Ohio, a small city but one widely known for its "smart-decline" comprehensive plan, released multiple Neighborhood Action Plans (NAPs), which gave specific suggestions for demolitions to be carried out by the city government and the county's land bank. But what were the outcomes of these plans' implementation? By adopting a parcel-based GIS method, this study examines seven NAP's suggested demolitions and compares them to the actual demolitions by employing two perspectives: conformance and performance. Additionally, semi-structured interviews were conducted to obtain the opinions of local informants on the implementation of the plans. Quantitative research findings reveal that the NAPs were much better implemented from a performance perspective than a conformance perspective, and that the land bank outperformed the local government from both perspectives, varying much less among neighborhoods when compared to the local government. Qualitative analysis uncovered four major potential explanations for the quantitative research findings: the fundamental difference between the local government's management of properties under code violation and the land bank only managing tax delinquent properties; the overlap between the local government and the land bank; political interference in plan implementation, especially by local government agents; and the changing targets of NAPs rooted in quarterly neighborhood meetings. Our findings indicate that the idea of planning for demolition is still viable and feasible to carry out; however, we offer several major suggestions for improving these plans in other shrinking cities in the future, including shortening the plan's effective duration or regularly updating plans, technically assisting civic engagement and randomizing representatives, guiding neighborhood-level plans with a city-wide plan, and establishing an independent entity to partially takeover code enforcement.

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Key Words: shrinking cities, demolition, plan evaluation, code enforcement, neighborhood planning

MAKING A PLEASANT STREET: THE EVALUATION ON THE OPEN STREETS EVENT OF PEACHTREE STREET, ATLANTA USING TWITTER DATA

Abstract ID: 632

Individual Paper Submission

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Open Streets are programs that temporarily open city streets to people by closing them to automobiles, which is regarded as an important approach of Tactical Urbanism (Open Streets Project, 2019). ‘Atlanta Streets Alive’ is one of the influential Open Streets events in Atlanta, GA for years. Peachtree Street, a major street of the city, has been involved in the event many times. Using Peachtree Street as an example, we explore Open Streets programs through mass Twitter data to understand: (1) whether the Open Streets strategy has improved the quality of the streets; (2) what the determinants of the improvements are if any. Overall, we question what key factors are making the street a pleasant place for people.

This study is based on a theoretical framework of New Urbanism, which has discussed various factors of making a good street (Robert & Langdon, 2003). Although the characteristics and factors of a good street have been explored by previous research, little is done to link the planning efforts for city streets with the unstructured mass data of social media. Studies of detecting people’s emotion for project evaluation through qualitative research and crowdsourced data have offered an approach to address our research questions (Helen et al., 2018; Sagl et al., 2015). In this study, we take a closer look at a specific Open Streets program and examine the mechanism of its effect in the time and space dimension.

We define ‘pleasant’ through sentiment analysis of people’s tweets. We collected 98,843 pieces of twitter data about Peachtree Street over the past seven years, during which the Open Streets event has been held for many times. To evaluate the performance of Open Streets on Peachtree Street over time, we conduct a semantic analysis to examine the changing attitudes of people who tweeted about Peachtree Street; by extracting keywords in people’s tweets, we investigate what the key factors people care. Furthermore, we dive into the detailed history of the Open Streets event in Atlanta, especially on Peachtree Street, about both the event itself and the neighborhoods and streets involved and interacted with the event. Based on the analysis in time and space dimensions, we map diverse activities organized during the event over the years. We track the changes in the numbers, sizes, and locations of those activities, the funding sources of the events, and the planning of the activities (e.g., the length of streets, the duration, and the number of people involved). In addition, we track the transformation of neighborhood and streets including the greening area, public facility, number of commercials, crime rate, the density of buildings and population, and so forth. By combining the document analysis on the event history and the text analysis on the Twitter data, we illustrate the mechanism of people’s attitudes and identify the key factors of making a pleasant street.

The results of this study reveal a fluctuation and polarization of the attitudes towards the Open Streets event and Peachtree Street in the first three years. After a few years of excitement and criticism, people became indifferent and neutral towards the event, as the sentimental curve tended to be plain. Further, negative attitudes become stable in the following years. The attitudinal trend provides insights into how to organize good Open Streets events and how to benefit the local through the events. We also discuss the policy implications regarding the infrastructure, land use, walkability, and other factors interacted with the event, which may be of use to make a pleasant street in a city.

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Key Words: Open Streets, tactical urbanism, Twitter, Peachtree Street, Atlanta

REMAKING INDUSTRIAL SPACE INTO FINANCIAL ASSETS AND ITS IMPLICATIONS FOR PLANNING AND URBAN FABRIC IN THE CITY OF CHICAGO IN THE POST-2008 PERIOD

Abstract ID: 664

Individual Paper Submission

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The recent global financial crisis (GFC) in 2007-08 has gained scholarly attention to the intensification of the entanglement between financial markets and the urban built environment. Despite the potential impacts on planning and urban fabric under the growing importance of the finance capital over property markets, less attention has been paid to how the logics of finance capital shape urban redevelopment projects through influencing planning practice and instruments as standardizing development projects and circulating the standards which conform to financial investor's expectation.

In this study, the role of financial investors and property developers are analyzed through a case study of redevelopment projects on the formerly industrial space in the city of Chicago (West Loop and Kinzie industrial corridor). The analysis of planning practices including negotiations over physical planning (including urban design, historic preservation and land use regulation), and economic development issues between planners and developers – throughout property development and spatial transformation of the industrial areas – identifies the titled power relations between investor's expectations and a government's ability to implement an agenda that potentially departs from the expectations of financial investors; and the implication as reshaping goals and strategies of planning practices over manufacturing economy and space towards creating new norms and standards that accommodate such development projects which met standards and expectations of financial investors. Thus, given the growing interests of institutional investors in the formerly industrial used property and space as a new asset class in the post-GFC era, the study reflects not only conventional downtown redevelopment but also industrial redevelopment as the outcome of power relations that initiate in the circulation of investors' standards and expectations.

In this paper, I provide a preliminary exploration and analysis of the recent industrial property redevelopment and the process of rescaling its template from property level to district level by employing (1) archives of local news letters, planning documents, and documents and marketing materials including project profiles produced by property capitalists (i.e., investor, developer, and asset manager) and (2) in-depth, semi-structured interviews with key actor groups (i.e., investor, developer, fund manager, loan officer, planner, architect) involved with negotiating and implementing both urban redevelopment projects and the planning instruments in the recent transformation of the West Loop area. The analysis will include identifying development templates for a formerly industrial-used property over time and how the templates are created and reshaped by the negotiations and interactions between planners and developers; and how these templates and standards affect not only planning practice but also development practice and industry itself.

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Key Words: Industrial Redevelopment, Financialization, Planning practice, Property Market, Land use regulation

CALLING NIKKEI TO EMPIRE

Abstract ID: 703

Individual Paper Submission

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Prior to the massive injection of Japanese capital into Los Angeles' real estate economy in the 1980s, early Japanese investors sought to involve themselves in comprehensive neighborhood redevelopment in Little Tokyo. A retrospective literature sought a deeper understanding of this pivotal moment in the planning history of Downtown Los Angeles (Soja, Morales, & Wolff, 1983; Davis, 1996; Kurashige, 2002; Suga, 2004; Davis, 2005). While this cogent body of work documents the contestation of Nikkei communities to early instances of outside investment in neighborhood redevelopment, few studies have examined the facilitative role that Japanese Americans also played.

In the present paper, we make three related arguments: (1) that Little Tokyo Nikkei and Japanese investors indeed 'called' to each other in various ways during the 1960s and 70s, leveraging shared interests in comprehensive community development, and thereby complicating commonplace narratives, which, as others have pointed out, tend to pit Japanese Americans against Japanese corporations (Suga, 2004); (2) that kinship and cultural ties were meaningful drivers of Kajima Corporation's early extraterritorial endeavours in Little Tokyo, specifically the Kajima Building in 1964 and the New Otani Hotel in 1977; and (3) that redevelopment policy facilitated the movement of transnational capital by 'scaling up' development.

We utilize Japanese and English primary sources from community and corporate organizations, in order to tell a fulsome story of global community development. In doing so, this research advances an understanding of community action and diasporic relations in state-led neighborhood planning, as well as the spatial consequences of these dynamics.

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Key Words: Community development, Planning history, Diaspora, Social movement, Space

MEOWING AT A RINO? HOW SANTA FE’S SUBURBAN, IMMERSIVE ARTS ORGANIZATION -- MEOW WOLF -- IS EXPANDING INTO THE URBAN ARENA

Abstract ID: 704

Individual Paper Submission

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Meow Wolf, an immersive arts start-up in Santa Fe’s suburban outskirts, represents a striking departure from the city’s established identity as a traditional, Southwestern arts and crafts hub (NPR, 2018; Owens, 2019). An innovative response to cultural preference changes of Millennial and Gen-Z cohorts, Meow Wolf has ostensibly built a successful arts business model with plans to expand into Denver’s RiNo arts district (Abraham & Harrington, 2015; Fenich et al, 2014; Nechvatal, 2009; Solomon, 2018).

Meow Wolf’s financial success has extended its marketplace reach into more competitive creative urban contexts. Meow Wolf has accepted Denver’s challenge to support the city’s local creatives within its development plans. In response, Meow Wolf produced the, “Denver Social Responsibility Visioning Plan” for its organizational expansion (Garcia, 2018). However, creative city planning requires a balanced integration between two conflicting scales, that of protecting an area’s authentic, local culture and promoting global standing (Scott, 2006). This research is interested in how an arts organization can expand into a different operational context while accurately aligning its development vision to the localized, planning needs of an established creative district. We conducted a document analysis of Meow Wolf’s Denver expansion plan to evaluate how its vision’s scale aligns with nine identified creative city policy rationales and their respective global/local implementation practices (Evans, 2009; Simatei, 2002). Plans were scored one point for having an identified policy rationale practice, and two points for having a policy rationale practice and an associated implementation strategy -- in keeping with established planning evaluative methods (Conroy & Jun, 2018). Here we compared the plan’s localized mission with its score along these policy rationale practices. While we found significant alignment between the vision’s stated mission and the plan itself, we also discovered many missed opportunities for a more holistic, locally-scaled creative development initiative. As privatization continues within urban creative city placemaking, understanding the alignment of for-profit development activities to a city’s localized, creative economic needs is critical to guiding future decision-making and managing sector growth.

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Key Words: Public-private Partnerships , Generation-Z, Immersive Art, Creative City

NEIGHBORHOOD SATISFACTION AMONG MOBILE HOME DWELLERS: A COMPARISON WITH OTHER HOUSING AND COMMUNITY TYPES

Abstract ID: 743

Individual Paper Submission

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As a viable option of affordable housing, mobile homes and mobile home parks play important roles in the U.S. housing markets and communities. Based on the U.S. Census Bureau, about 6.2% of the housing units were mobile homes, housing 5.6% of the population in 2016. However, studies on mobile homes, especially among planning scholars, are scanty. A few studies, notably led by Gregory Pierce, have explored water access deficiency of mobile home parks (Pierce & Jimenez, 2015) and how mobile homes in Los Angeles have been “improperly zoned, spatially-marginalized, and poorly-served” (Pierce, Gabbe, & Gonzales, 2018). Mobile home living in the U.S. is also associated with the stigma of “trailer” living (Kusenbach, 2009), even though mobile homes are viewed by some immigrants in Florida as a “symbolic marker of upward social mobility and personal success” (Kusenbach, 2017). All the negative images and realities associated with mobile homes and mobile home parks may affect the residents’ perception of and satisfaction with their housing and neighborhoods. An analysis of neighborhood satisfaction by housing types among 305 residents in North Carolina in the 1980s found that there are different factors, which were mostly not captured by the study, determining neighborhood satisfaction among mobile home owners, compared to conventional homeowners and apartment dwellers (Gruber & Shelton, 1987).

To further understand housing and neighborhood attributes and satisfaction of mobile home dwellers, this study uses the 2013 American Housing Survey (AHS) data to compare factors determining neighborhood satisfaction of residents by housing and neighborhood types. Standalone mobile home dwellers, residents in mobile home parks, single-family dwellers, and multi-family dwellers will be the primary types of residents and communities. Household characteristics, housing attributes, and neighborhood attributes will be the control variables when exploring the impact of housing and neighborhood types on residential satisfaction. Descriptive statistics and an Analysis of Variance (ANOVA) will be used to explore and compare satisfaction, household, housing, and neighborhood attributes among these housing and neighborhood types. Sets of Ordinal Logistic Regression models for all valid observations by housing and neighborhood types, and for observations within the income range of mobile home dwellers, will conclude the multivariate analysis of the study.

Preliminary results indicate that about 3.8% of the housing units in the AHS dataset were identified as mobile homes, and mobile home dwellers were statistically less satisfied with their neighborhoods, when compared with other types of housing and neighborhoods. The ANOVA analysis indicates significant between group differences in satisfaction. When exploring specific satisfaction items, they were less satisfied with police protection. When only looking at the mobile home dwellers using a stepwise Ordinal Logistic Regression model the study found that older residents, and/or rural residents tend to be more satisfied with their neighborhoods. Residents with a college degree and/or white residents tend to be less satisfied with their mobile home neighborhoods. For other types of housing and neighborhoods, positive neighborhood amenities, such as waterbodies, open space, etc., and income are also significantly related to neighborhood satisfaction. Among all housing and neighborhood types, when there are problems in the neighborhood, such as trash pileups, roads needing repairs, and/or abandoned housing nearby, residents tend to be less satisfied. When residents are more satisfied with police protection they tend to be more satisfied with their neighborhoods.

This research will help planners understand more about mobile homes and their occupants, and propose the best strategies to preserve these homes and to promote the quality of life of mobile home dwellers. Although planning strategies will not be able to directly intervene with cognitive perceptions, improving the physical environment of neighborhoods will likely benefit all residents in a neighborhood.

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Key Words: Residential satisfaction, Neighborhood, Mobile homes, Housing attributes, Household characteristics

THE NEIGHBORHOOD DYNAMICS OF IMMIGRANT INTEGRATION

Abstract ID: 764

Individual Paper Submission

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In this study, we investigate the role urban planners can play in building pathways for immigrant integration. We define immigrant integration as the dynamic, two-way process in which immigrants and their receiving society work together to create secure, vibrant, and cohesive communities. Current research in this area suffers from two major gaps. First, integration in a receiving society is typically

measured using variables such as economic incorporation, language acquisition, or educational attainment (Portes and Rumbaut, 2014). Second, the field has not seriously considered the role of the built environment in creating a sense of belonging for immigrants. We address these gaps by asking if and how the spatial qualities of neighborhoods can contribute to a greater sense of inclusion for first-generation immigrants. We move beyond traditional measures of immigrant integration to specifically examine “sense of belonging,” or an immigrant’s perception of inclusion.

We conduct more than 300 surveys in neighborhoods around the Denver metro area, which we chose for three reasons. First, it includes a well-defined central city and suburban edges, both of which have attracted immigrants in recent years. Second, Denver is a re-emergent immigrant gateway that has experienced rapid immigrant growth in the last 30 years (Singer, 2015). Third, the Denver area is considered a moderately-supportive political climate for immigrants, one with a welcoming central city and more politically conservative suburbs (Burciaga & Martinez, 2017; Mollenkopf & Pastor, 2016). Within the Denver metro area, we selected neighborhoods purposively to allow for significant variations in built environments.

To examine associations between immigrants’ integration and the built environment, we analyze the physical qualities of the neighborhoods in which survey participants live, such as residential density, walkability, transit access, small businesses, and public spaces. We use spatially-adjusted multivariate regressions to assess associations between respondents’ experiences of belonging and integration (dependent variables) and the built environment qualities of their neighborhoods described above (independent variables). We are particularly interested in whether residential density and distance from downtown (e.g., urban core, urban edge, suburban) impact experiences of integration for immigrants. We control for potentially confounding variables such as education levels, duration of stay in the U.S., and legal citizenship status in order to focus specifically on the impact of the built environment on perceptions of belonging.

Our initial findings indicate that, for one, first-generation immigrants who live in low-density suburban neighborhoods with high property values and lower shares of co-ethnic residents in fact feel more welcome, integrated, and less-discriminated against than residents of high-density, immigrant-heavy neighborhoods in the urban core. Specifically, living in neighborhoods with high shares of single-family homes is strongly associated with sense of belonging in the U.S. ($B = 0.644$, $p < 0.01$). This might suggest that immigrants tend to feel more “at home” when they live in the suburban neighborhoods that represent a vision of the American Dream for so many, rather the traditional urban ethnic enclave.

This study contributes to an emerging body of literature and policy in a number of ways. First, it introduces a key spatial-analytical construct for immigration scholars that can help tease out the relationship between the built environment and immigrant integration (Németh, forthcoming). Second, it recognizes the important role that planners and designers can play in building more inclusive and integrative spaces for underserved populations. Third, it helps nonprofits, policymakers, and other state actors advocate for built environment improvements in existing and potential arrival neighborhoods. And finally, it can benefit the daily lives of immigrants in the Denver metro area and beyond by showing the powerful ways that “place matters” for immigrant integration.

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Key Words: Immigration, Inclusion, Neighborhood effects, Built environment, Belonging

COMPARING FORMAL AND INFORMAL APPROACHES TO COMMUNITY WEALTH BUILDING: A COMPARATIVE ANALYSIS OF RICHMOND, VA, AND NORRISTOWN, PA

Abstract ID: 825

Individual Paper Submission

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Community wealth building (CWB) has become a popular strategy to combat poverty and ever-widening wealth gaps, which have made poor communities vulnerable to violence, homelessness, joblessness, sickness, and generally diminished prospects for well-being. Increased engagement in CWB has resulted in tremendous variation in specific strategies and tools used to achieve its goals ranging from housing cooperatives and worker-owned businesses to land trusts, community gardens and many things in between. Some cities created formal CWB initiatives and institutions, others developed organic and grassroots approaches. For example, Richmond was the first city in the nation to create an Office of Community Wealth Building (OCWB), as an official part of city government. Other cities have since followed. Additionally, NGOs and grassroots groups have supported informal CWB projects including worker cooperatives, and strategies such as community gardens for food production, savings clubs, and healing programs. Formal and informal approaches each have advantages and disadvantages. In this paper, we explore two cases: one in Richmond, VA and one in Norristown PA where a group of mostly undocumented immigrants developed a multi-pronged CWB approach.

Four research questions drive this study: 1)What is the nature and structure of both formal and informal CWB initiatives? 2)What are the benefits and challenges of each? 3)What are the outcomes of each? 4) What are the ways planners can support and engage with both formal and informal CWB projects? Our mixed-methods used to address the research questions included stakeholder interviews, participant observations, and archival research. The 44 interviews (19 Norristown, 25 Richmond) conducted were transcribed and coded for key themes in each site and across cases. In each case, one of the authors was a participant observer in a key organization central to the CWB effort. In Richmond, one author serves on an advisory board for the OCWB. In Norristown, one author serves as a collaborator with the Coalición Fortaleza Latina. Each attended relevant meetings and events permitting them to observe the evolution of each project. In addition, archival research was used in each case to understand the CWB initiative in its unique local political and economic context. Both researchers reviewed codes for each case to identify similarities and differences allowing for both individual analysis and cross-case analysis.

Results suggest there are advantages and disadvantages to each approach. While the codification of CWB as part of local government provided funding stability, visibility and vast opportunities for collaboration

with both governmental agencies (such as workforce development and economic development) and non-governmental agencies, being situated in government mired the Richmond OCWB in politics and bound it to inflexible bureaucratic processes. In the case of Norristown, the organic nature of the initiative allowed for a wide variety of traditional and nontraditional activities including urban farming, alternative healthcare, a housing cooperative, skills development workshops, and political advocacy. At the same time, the patchwork of funding and volunteer supports produced uneven and unreliable results.

In their quest to create livable, sustainable places, planners are confronted daily with the poverty and uneven distribution of wealth which results in housing insecurity, food insecurity, joblessness, violence, and health crisis. The CWB approach aims to address these complex issues by weaving together strategies to build an economic and social foundation upon which individual and community wealth can grow. This work helps planners and policymakers evaluate various models of CWB so that they can help evaluate the best choice for communities.

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Key Words: Community Wealth Building, Poverty, Community Development, Economic Development, Immigrants

CREATING ECONOMICALLY DIVERSE AND INCLUSIVE LIVABLE CITIES: A PRAGMATIST PLANNING PERSPECTIVE

Abstract ID: 867

Individual Paper Submission

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Some key elements of livable cities that are closely related to their economic diverse citizens are: housing or shelter, transportation, a sustainable and aesthetically embracing urban environment, and adequate incomes to support stable, dignified, diverse, creative, and socially engaged lives. Creating such cities requires democratic citizen participation in visioning, comprehensive planning, development of regulations, planning processes of approving plans for housing and commercial development, and the design of economic plans for job creation, and small business development. However, these citizen participation processes must be guided by a widely shared value of democratic social equity, including some version of “a right to the city,” as well as a awareness of undressed inequities in the cities and its nations earlier history. Moreover, it must incorporate a realistic understanding of the laws and practical limits that must be reflected in any phase of a feasible and desirable planning process. In contemporary

American cities, this pragmatist model of planning faces two major kinds of challenges: both from neo-liberal models of planning that often lead to gentrification and exclusion of those who can not afford market rate housing, and from features of the current built environment, the transportation grid, and the livable income situation. Because of the convergance of these challenges, many American citizens and aspiring immigrants face a cascade of losses: first their housing, then their neighborhood network, then their jobs, and then their self esteem as people who have a rightful place in the city. This paper will show that these obstacles are real, why they must be overcome, and how planning strategies in some American cities are rising to these challenges.

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Key Words: Livable Cities, Affordable housing, community building, just cities, pragmatic planning

USING RAPID ETHNOGRAPHY TO UNPACK PERFORMANCES OF AUTHENTIC COMMUNITY: AN ART FESTIVAL CASE FROM VICTORIA, BRITISH COLUMBIA

Abstract ID: 888

Individual Paper Submission

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This article builds on recent literature which asks our discipline to better discuss and share qualitative methodologies in a more consistent manner (Du Toit et al, 2017). It focuses on exploratory research to unpack the performance of authentic community as a construct, through a an arts event case study in Victoria, British Columbia, Canada. In particular, it makes use of techniques associated with rapid ethnography, as a means of circumventing obstacles which might otherwise preclude the research. Rapid ethnography is used in other disciplines, and may hold promise for planning research—particularly in those instances where resource and time constraints pose barriers. Given the event's institutional affiliation, and in order to ensure a non-hierarchical and collaborative approach, the research had to unfold over a relatively short window of time. It also required distinct strategies to respect the needs of different stakeholders.

Authenticity is a broad and often contested construct with a range of potential meanings and applications. It can be moral (Bendix, 1997:7), driving people forward to take appropriate action. It can be a means of conveying individual and cultural identity (Brown-Saracino, 2009; Zukin, 2010:3). It can most certainly be normative, or prescriptive, both individually and in the context of making choices that may reshape material places and communities. The quest for the authentic has, in part, been fuelled by people seeking something other than uniformity of products, buildings, and spaces which can result when elite groups with global lifestyles use technology to quickly and easily replicate features associated with their own lifestyles (Augé, 1995; and Castells, 1996; see also Author.).

The arts event, known as the TD-Art Gallery Paint In, involves the display, creation, and sale of pieces made by local artists. It unfolds over roughly eight city blocks, all closed for the day. The 2018 version of this event involved 190 artists, and is roughly estimated to have accommodated somewhere between 30,000 and 35,000 members of the general public. The Paint In's locale, Victoria, is both a government town and a tourist town, benefitting from historic buildings, beautiful gardens, and its status as the capital city of British Columbia. Victoria is also a stop for Alaska-bound cruise ships, whose volume has been ever increasing (Duffy, 2018). It is a city that obtains a significant portion of its revenues from tourism. In this context, the Paint In is a locally exceptional summer event of its scale, due to its focus on residents of the city and broader region. Rather than being held in the city's downtown core, as with most other events that welcome a large proportion of tourists, the Paint In is held on Moss Street, in an inner suburban neighbourhood, and on a street which is predominantly residential.

The study's rapid ethnography surmounted some research obstacles, including the potential for qualitative research to be costly, labour- and time-intensive. The study illustrated three broad ways in which community authenticity was performed through this particular event, time and place. The event did so: by fostering inclusivity; by helping people build desired connections; and through boundary-blurring rituals (of the non-religious sort) which reduced the divide between artist and spectator. While study conclusions are not generalizable, by calling attention to certain practices, they can likely help to reinforce and adjust them in ways that could strengthen the event's ability to enhance perceptions and performances of authentic community. Through its focus on relationships between people, materials, and processes, the research also took an important step in helping to unpack the notion of authentic community.

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Key Words: authenticity, authentic community, performing, rapid ethnography

GENTRIFICATION AND THE HOUSING STOCK CHANGE IN HARRIS COUNTY, TEXAS

Abstract ID: 892

Individual Paper Submission

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The research explores how gentrification has affected residential housing stock in neighborhoods in Harris County, Texas. It shows how neighborhoods' residential stock has changed in response to

gentrification trends by exploring both new construction and demolition trends. The housing stock change is analyzed in several types of neighborhoods classified by both historic gentrification trends and the mix of new construction or demolition that occurred there. In addition to examining the housing stock, this research explores how gentrification has altered socio-demographic profiles of Harris County communities.

This research aims to connect an analysis of gentrification patterns with a change in the residential stock in the county. How has the status of the residential building stock changed in neighborhoods in high-turnover construction and demolition areas? What are the unique residential stock characteristics of the areas that have been experiencing or are vulnerable to gentrification? How are these changes associated with socio-demographic characteristics in such neighborhoods?

Gentrification is a signature issue in the county, and documenting residential changes in neighborhoods experiencing significant shifts can situate its impact. Within high-turnover neighborhoods, it analyzes specific housing structure changes (e.g., from a single family dominant residential area to a neighborhood with a number of multi-family complexes; from a regular multi-family residential area to an upscale multi-family neighborhood).

The work relies on Harris County Appraisal District annual public datasets from 2005 to 2017 and demographic, socioeconomic, and other information from the American Community Survey (ACS). This research aims to help city planners understand how neighborhood change is alerting the housing stock. The results provide profound insights regarding Houston's residential development patterns based on the finest parcel-level data over 13 years to comprehend how the gentrification has occurred in neighborhoods of the Houston area. The results also offer a detailed idea of what kinds of characteristics of neighborhoods are highly associated with active gentrification. As Houston has continuously gained population, this research will help city planners and residents have a better understanding of what demographic groups have been clustered and what types of residential units have been constructed and demolished in gentrified areas.

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Key Words: gentrification, housing stock, construction, demolition

PIVOTAL MOMENTS IN COMMUNITY ENGAGEMENT STUDIOS: MÍSTICA, ENSEMBLE AWARENESS AND GROUP PROCESSES IN INFORMAL MONTERREY

Abstract ID: 895

Individual Paper Submission

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In the informal community of La Campana in Monterrey, Mexico, a community's installation of a mere drainage pipe was a critical pivot. A pivot, commonly used in basketball, is a turn or rotation while maintaining one foot grounded. When applied to community engagement work, a pivot implies a key moment or turning point for students and/or community actors when there is remarkable movement towards a new path, perhaps generated by a surge in energy or revelatory experience. The drainage pipe installation, one of many other equally significant pivots from the Monterrey case, is an example of the type of productive processes emerging from a new wave of community-based participatory planning studios.

Planning studios have long provided opportunities for direct community engagement, presaging the current popularity of user-based design. Now planning studios are contributing to the next emerging frontier in community engagement: process design for awareness-based systems change (Scharmer, 2018). Awareness-based systems change is based on the premise that a system cannot change unless the awareness of the people in the system changes. In the case of the community-based planning studio, the participants in the system include not only the community actors and NGO but the students (and instructors) themselves.

Through a fine-grained analysis of a master's-level participatory planning studio in an informal settlement in Monterrey, Mexico, we aim to address the following issue: how to define and identify the subjective and experiential elements of process design for awareness-based systems change. Focusing directly on the relationship between the students, partner NGO, and the community actors, the systems change involves a shift in awareness of both the students, the NGO, and the community, and the overlapping relationships between all three. The implications for planning studios are paramount. No longer are we just the observers, researchers, trainers, service-providers, or even change agents: We are changed ourselves.

The paper identifies the key pivots or process inflections in each of the stages of the Monterrey studio: the pre-trip class preparations, the time working with the community and NGO on-site, and finally the self and group reflection and follow-up processes afterward. Special attention is given to the turning points or "pivots" throughout the process. Basing our in-depth case study in the new concepts of 'ensemble awareness' and 'mística' (Wilson 2019) our research will provide a framework that outlines the factors, patterns, and moments that, taken together, provide a productive and transformative process for awareness-based process design and enactment. This conceptual analysis based on self and group observation and reflection will illuminate what the system and individuals need in order to shift from being "service providers" to being catalysts and provokers of change. Participant interviews and written reflections illustrate the significance of the experience for the students' and community's own awareness of process, of self, and of the social field.

The findings are compared to the efforts of the World Health Organization (WHO) to provide awareness-based training in community engagement for health workers. The similarities and differences between the WHO framework (2018) and the Wilson framework (2019) are compared. The findings are related also to the emerging literature on generative social fields (Scharmer, Mette, et al, 2018). Additionally, of note is that our approaches and conclusions conflict with most mainstream literature regarding informality planning approaches in the Global South. Finally, the implications for planning practicum design and studio pedagogy are set forth, including but going well beyond relationship-building and group process skills.

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Key Words: Community engagement, Awareness-based systems change, Informality, Studio pedagogy, Global South

CITIES, CHOICES, AND OUTCOMES: THE PROCESS AND RESULTS OF COMMUNITY DEVELOPMENT BLOCK GRANT PLANS AND INVESTMENTS

Abstract ID: 900

Individual Paper Submission

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This paper will assess local community development planning and decision-making processes within the United States, including how community problems are determined and addressed under the Community Development Block Grant Program (CDBG). Each local CDBG grantee develops a three to five-year Consolidated Plan and an Annual Action Plan that describe how resources will be used. Within general program regulations, CDBG grantees have significant flexibility to select and fund activities that meet local needs and priorities. However, only a limited body of recent research has assessed local CDBG planning and investment decision-making processes and resulting outcomes across grantees nationwide. The research questions for this paper explore the connection between local governments, community needs, the CDBG investment planning process, and the results of this funding, and include:

- What types of processes are used to develop CDBG plans and investment approaches? What is the level of community and organizational engagement in defining needs and determining investments?
- What is the relationship of the planning and investment process to the reported level and type of CDBG outcomes?

For these research questions, the paper will assess cross-grantee planning and outcome differences/similarities based on: city population; geographic location/region; level of urbanization; CDBG funding level; sociodemographic characteristics; and economic status. This study will sample approximately 150 of the 1,200 CDBG city and county CDBG entitlement grantees, ensuring regional, grant size, population, and socioeconomic diversity within the sample. For the sampled grantees, the research will review the Consolidated and Annual Action Plans and develop a planning and decision-making typology based on the nature of local process tasks, actors/public engagement, and categories of planned CDBG activities. For each of these 150 jurisdictions, this planning information will be married with U.S. Census American Community Survey data on each city's economic and social demography. The research will then review the Consolidated Annual Performance and Evaluation Reports (CAPER) submitted by each grantee and accomplishment reports published by HUD. These outcome data will be compared to the planning information, assessing correlations and relationships between planning approaches, jurisdiction demographics, and reported program results. This analysis is intended to demonstrate whether and how the CDBG planning process and/or city socioeconomic

characteristics shape types and levels of reported program outcomes. The initial hypotheses include:

- The types of CDBG planning and investment processes are correlated to city socioeconomic characteristics, as well as region.
- Cities with more inclusive, thorough and transparent needs assessment and planning processes have relatively higher levels of CDBG outcomes.
- Cities with a clear connection between local needs, goals and investment decisions have relatively higher levels of CDBG outcomes.

Per the HUD National Accomplishment Reports, CDBG touches the lives of millions of Americans in cities nationwide every year, particularly including persons who are low to moderate income. Thus, it is vital to understand how grantees can make effective planning and investment decisions with this limited resource. This paper will expand our understanding of how cities approach CDBG decisions and the social and economic context of this planning. In addition, the paper makes the connection between these planning and investment choices and CDBG outcomes, a nexus that has rarely been studied to date. These results have relevance not only to community development scholars but also to federal, state and local practitioners.

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Key Words: community development, CDBG, investment, outcome, planning process

GOING SLOW TO BUILD RESILIENCE: LEARNING FROM CHEONGSANDO AND OTHER CITTASLOW COMMUNITIES IN KOREA

Abstract ID: 910

Individual Paper Submission

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CENTRAL THEME: Planning for Community Resilience. Much of Korea's rapid economic and social development has focused on urbanization, industrialization, and globalization. With growing prosperity and increased democratization, there have also been demands to better balance environmental quality, public health, cultural heritage, social welfare and development. These challenges are particularly apparent in rural areas where chronic stressors such as depopulation, lack of investment, and limited political capital have contributed to decline, exacerbating social inequities.

APPROACH: Using a combination of quantitative and qualitative data, interviews, and field investigations, we investigate a small, remote island community in South Jeolla province, part of Wando County, known as Cheongsando (Green Mountain Island). A focus on small islands provides unique opportunities to examine natural, physical, and social processes across time and space (Pelling and Uitto, J., 2011). Cheongsando was the first community in Asia in 2007 to be designated as a “slow city” by the international Cittaslow organization (<http://www.cittaslow.org/>). Initiated by mayors in Italy protesting globalization, with linkages to the slow food movement, Cittaslow emphasizes quality of life, heritage tourism, and healthy lifestyles (Pink and Lewis, 2014). There are now several hundred Cittaslow communities across the world. We study the Cittaslow designation process and trace its indicator-based implementation in Korea by first examining Cheongsando and then comparing it to other communities in Korea and elsewhere. We integrate analysis of quantitative and qualitative data from interviews and site visits.

FINDINGS: Of particular interest is the investment in planning, transportation infrastructure (Kim, Francis and Yamashita, 2018), sustainable economic activities, and the connections between food security, agriculture, and community resilience. This small community with a resident population has approximately 400,000 visitors annually, with many coming for special events such as the “Slow Walk Festival.”

RELEVANCE: Our analysis highlights the value of planning, the necessity of strategic investments, communications, and demonstrating the benefits and returns to the community. There are on-going challenges with managing growth (and success), sustaining progress and adapting to change. Our analysis centers on both the measurement and appropriate use of data and indicators of success and also the construction and meaning of resilience. Our research provides insights not just in terms of the Korean experience, but to other communities grappling with rapid change, economic development and going slow in the face of the “resilience imperative” (NRC, 2012).

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Key Words: Community Resilience, Sustainable Development, Food Security, Slow Cities, Korea

REGENERATING AS A CREATIVE JUST CITY: JUST CITY AGENDAS AND ARTIST ENGAGEMENT IN SEOUL

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Under a national government that emphasizes “ending deeply-rooted evils (chŏkp'ye ch'ŏngsan)” to become a “just country (chŏngŭiroun nara)”, and a city government that aims to shift from demolition-based, large-scaled urban redevelopment to a more humane, participatory, and incremental “urban regeneration (tosijaesaeng)”, how are socially engaged artists (Helguera 2011) in Seoul, South Korea self-reflecting and engaging themselves critically to imagine and actualize such change? Despite the visible role they play in calling out what values should lie behind urban development (Shin 2018), such artists are an under-recognized/researched group in the urban planning discipline. Seoul serves as intriguing case where what I call “just city agendas” for an equitable urban living are being actively sought at both grassroots and governmental levels, both with a significant artist presence. Hence, this research is guided by the overarching question on how Seoul could be an exemplar of a “creative just city” that combines ‘critically renewed’ creative city (Holub et al 2014) and just city values (Fainstein 2010), and in doing so, I seek why artists’ sensibilities, perspectives, and work matter for urban planning.

To conceptualize the cultural, social, and political production of urban Seoul’s just city agendas, I will be drawing from various disciplines to expand existing knowledge around ‘formalized’ participatory planning, cultural planning, etc. and thereby seek the social process of (re)constructing them. The study combines firsthand data (participant-observation and in-depth interviews), secondary data sources, and visual-spatial analysis of research sites in Seoul. The three categories of Seoul’s just city agenda will guide my research sites and interviewees. The sites will be selected from city urban regeneration projects with notable artist involvement, artist-led community organizations that engage or partner with city policies, and grassroots “solidarity activism” at neighborhoods with at-risk, non-artist evictees (in which I dub as “solidarity sites”). By delving into the artists’ individual experiences, socially engaged work, and interpretation of urban issues at these sites, I seek to answer the following research questions:

1. How do the artists define and view the role of justice and creativity in their work and in (equitable) urban development? How do they define and view themselves in their respective communities?
2. What drives an artist to be socially engaged in urban issues, and how do they develop their engagement methods?

I anticipate the research – considering both topic and site specificity – will contribute significantly to the discussion around the role of art and the artist in the city, especially how socially engaged artists can inform and enrich urban planning/community development practices. Furthermore, it will produce humanistic knowledge (Umemoto 2017) on the tensions and ‘growth pains’ behind the drive for a structural and culture change in a developed city.

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Key Words: Community Development, Urban Regeneration, Socially Engaged Art, Sociospatial Justice

MIGRATION AND MOBILITY IN THE NEIGHBORHOOD POVERTY TRAJECTORIES OF U.S. RESIDENTS

Abstract ID: 942

Individual Paper Submission

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Neighborhood poverty is associated with adverse health and socioeconomic outcomes (Chetty et al. 2016). Research from 1970-1990 suggests that residential moves are a key mechanism through which households reduce their neighborhood poverty exposures (Quillian 1999, 2003), but declining internal mobility rates (Molloy et al. 2011) and the increasing prevalence of concentrated poverty (Jargowsky 2013) may have impeded migration across neighborhoods of different poverty rates in the 2000s. The aim of this study is thus to characterize individuals’ trajectories across policy-relevant neighborhood poverty levels from 2003 to 2013 and to evaluate the durability of exits from high-poverty neighborhoods.

We link data from the decennial census and the American Community Survey with a novel, large-scale consumer credit database to estimate the neighborhood poverty rates experienced by U.S. residents. Our methodology is threefold. First, we apply sequence analysis to visualize individual neighborhood poverty trajectories annually from 2003 to 2013. Second, we construct transition probability matrices to calculate individuals’ probabilities of crossing policy-relevant poverty thresholds. We further disaggregate changes in poverty rates attributable to migration, moves across housing and labor market boundaries; mobility, moves within the same housing and labor market; and staying in place. Finally, we use survival analysis to estimate the probability that individuals who exit high-poverty neighborhoods will re-enter concentrated poverty within 5 years.

While the dominant experience for individuals in our data was one of gradual increases in neighborhood poverty rates, moving enabled individuals to reduce poverty exposures. People who left high-poverty neighborhoods through mobility were most likely (39.53%) to move to a mid-high poverty neighborhood (20-40% poverty rate); people who left through migration were most likely (39.51%) to move to a low-poverty neighborhood (<10% poverty rate). Moves out of concentrated poverty were long-lasting, with just an 18.9% probability that an individual who left concentrated poverty would return to another high-poverty neighborhood within five years. We conclude that moving may help individuals offset gradual contextual increases in neighborhood poverty.

Our use of a novel, large-scale administrative data set allows us unprecedented precision in our characterization of U.S. mobility, migration, and concentrated poverty over time. Our results contribute to growing evidence of a re-concentration of neighborhood poverty (Jargowsky 2013), while the continued importance of inter-regional moves for neighborhood attainment underscores a need to better understand the causes of declining internal migration in the U.S. (Molloy et al. 2011). Given the adverse effects of

exposures to concentrated neighborhood poverty, these trends may contribute to widening social and health inequalities.

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Key Words: Concentrated Poverty, Residential Mobility, Administrative Data, Downward Mobility, Neighborhood Attainment

BUILDING COMMUNITY KNOWLEDGE AND POWER IN GENTRIFYING NEIGHBORHOODS

Abstract ID: 959

Individual Paper Submission

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Skyrocketing housing costs in the U.S. have fueled a new generation of research focused on gentrification, displacement, and neighborhood change, particularly how these urban processes impact low-income and working class individuals and households at the neighborhood level. While much of the literature focuses on use of secondary data, a growing body of community-engaged research on neighborhood change and displacement elevates the perspectives and strategies of impacted residents and community organizers (Themba-Nixon, Makani, Minkler, Meredith, and Freudenberg, Nicholas 2008; Slater 2006; McLean, Rankin, and Kamizaki 2015; Loukaitou-Sideris, Gonzalez, and Ong 2017; Annunziata and Rivas-Alonso 2018) .

This paper builds on this research and presents the method and findings of a community-based research project focused on neighborhood changes in northeast Los Angeles. The research involves a partnership between Occidental College and members of the Northeast LA Alliance, an organization committed to witnessing and documenting the changing socio-economic landscape of their community. Using a community-based research approach with mixed methods, the research examines parcel data from the Los Angeles County Assessor's office to analyze neighborhood level changes and identify parcels vulnerable to redevelopment. Driven by community-informed questions, methodology, and analysis, the research analyzed parcel level zoning, land use, ownership, and sales, and conducted visual analysis of building characteristics and use in order to assess current and potential changes at the neighborhood level. The research highlights the role of community knowledge and analysis in understanding changing neighborhood conditions and how such knowledge informs place-based community development and

leadership strategies that challenge traditional forms of knowledge production, influence local policies, and forge alternative planning and neighborhood development.

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Key Words: Gentrification and displacement, Community knowledge, community-based research

THE BROKEN LINK BETWEEN NEIGHBORHOOD AND LOCAL SCHOOL DIVERSITY: EVIDENCE FROM LOS ANGELES COUNTY

Abstract ID: 1032

Individual Paper Submission

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Los Angeles schools are among the most segregated in the nation. Large parts of the region are socially and economically isolated. Inequality only seems to be going up. This is costing the region in economic terms and causing losses of opportunities for its inhabitants (Ong & González, 2019). To identify strategies to reverse these trends, I study neighborhoods and cities that are highly diverse.

This paper focuses on the neighborhood to school diversity link. The increasing number of ethno-racially diverse neighborhoods in regions like Los Angeles should translate to more diverse schools, which can have great dividends for the educational environment (Page, 2007). However, access to private, magnet, and charter schools undermine the link between home location and school. This has lessened the importance of the quality of local public schools as a factor in parents' choice about where to live and exacerbated the deteriorating quality of public schools in some districts (Bischoff & Tach, 2018).

Can policy and urban spatial structure mitigate this type of inequality? Los Angeles provides an ideal context in which to study this question. The region combines high levels of segregation, both residential and in schools (Orfield, Ee, Frankenberg, & Siegel-Hawley, 2016), and the largest number of highly diverse neighborhoods. It also makes large quantities of relevant data available to examine the influence of different types of neighborhood diversity on school diversity and performance.

The analysis uses elementary school attendance zones for Los Angeles County in 2002 and 2016. The countywide data-set includes both urban core and suburban cities and school districts (88 cities and 80 school districts). I use a panel-data statistical framework to relate changes in school composition and

performance against a set of diversity classifications. I conceptualize diversity to foreground racial inequality in access to the social and economic capital required to expand families' school choice. This means looking at the composition of the school-aged population, how neighborhoods are embedded within jurisdiction with wide resource disparities, and the socioeconomic trajectory of neighborhoods over time.

In Los Angeles, diverse school districts tend to reproduce inequalities through a process of residualization. High performing schools are more diverse in diverse districts, but because students with greater needs for institutional and classroom support outnumber those that can bolster educational quality, the number of diverse schools is automatically limited and only a small number of children have access. At the same time, the best performing school districts remain overwhelmingly segregated and exclusive thanks to the autonomy granted to school districts.

This study contributes to the study of segregation within a nested framework (i.e. neighborhoods within cities) that has become a key driver of spatial inequality (Trounstin, 2018). It also provides evidence for how different neighborhood trajectories, such as gentrification, affect local school. While diversification can lead to improvements, in financial resources for example, it is not enough to reverse the inequalities that persist in education. Supporting educational equity will require policies that can harness the benefits of residential diversity. The current trend seems to be doing the opposite, affording families choices that only deepen inequalities.

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Key Words: Segregation, School diversity, Neighborhood diversity, Inequality, Los Angeles

LOCAL ACTIVISM ONLINE AND IN THE BUILT ENVIRONMENT: ACTIVIST NETWORKS IN THE GENTRIFICATION DEBATE IN BOYLE HEIGHTS AND BEYOND

Abstract ID: 1054

Individual Paper Submission

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Boyle Heights is a historically working-class Latino neighborhood in Los Angeles where strong resistance to gentrification and a lack of affordable housing is present. The local landscape of social and political relationships continues to intensify due to growing housing insecurity and rising costs of living throughout the neighborhood. Long standing Boyle Heights residents and advocacy organizations fiercely engage in public debate with each other, local businesses, outsiders, and political elites. Collectively, residents and community-based organizations (CBOs) struggle to influence development plans in the

neighborhood, ensure an equitable distribution of resources, and expand affordable housing. One growing strategy involves insurgent planning (Miraftab 2009). This consists of a coalition of resource-poor activists and grassroots CBOs engaging the debate with direct, contentious tactics online and offline. They hold an anti-gentrification/anti-displacement perspective that directly targets gentrifiers and local capitalists, who are defined as local actors who are directly and indirectly implicated in processes of gentrification. Such local actors include certain businesses, political elites, professionalized non-profits, and local investors. Their underlying goals lie outside of traditional channels of local politics and the dominant frame of market driven urban development as they aggressively demand direct democracy in urban planning and community development. The political activities and networks of radical CBOs require a closer analysis to understand a growing perspective of this political landscape that challenges traditional channels of urban politics, notions of incorporation, conceptions of community, and visions of an urban future.

Resource-poor organizations are often interpreted as internally fragmented, unsustainable, and less influential compared to more professionalized organizations (Fitzgerald and Rodgers 2000). Yet, the anti-gentrification campaign created by grassroots activists and CBO networks in Boyle Heights has been successful in developing and sustaining a concrete understanding of who belongs to the community and whose rights to the city merit greater protection than others. Using a robust social media data set collected from Facebook and interviews from local activists from a coalition of organizations directly involved in the anti-gentrification and anti-displacement campaigns in Boyle Heights, this research will focus on the discursive processes involved in developing a collective identity (Wimmer 2013), sense of place (Martin 2003), and strategy to combat neighborhood change (Snow and Soule 2010). I hypothesize that such processes aid activists in interpreting the imminent threat of gentrification, constructing meaning around the threat through activist networks, and maintaining a sharply defined collective identity and sense of place in the city. My preliminary findings show that framing, narratives, and identity formation among groups in Boyle Heights and in other neighborhoods throughout the United States occur through activist interactions both online and through direct contact fostering inter-neighborhood activist networks. These networks appear to strengthen solidarities around structural conditions of gentrification while maintaining their unique place-based identities. Examining the tensions among CBOs and neighborhood institutions can provide important lessons on how urban phenomenon are interpreted, how political strategies are developed to combat neighborhood change, and how urban networks are fostered. These lessons have larger implications on the integration of marginalized voices in planning processes and civil society at large.

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Key Words: Community Development , Gentrification , Advocacy , Affordable Housing, Insurgent Planning

WEAVING IT TOGETHER: BRINGING COMMERCIAL AND RETAIL IN THE GENTRIFICATION AND DISPLACEMENT ANALYSIS FOR MARGINALIZED ASIAN IMMIGRANT COMMUNITIES

Abstract ID: 1056

Individual Paper Submission

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Marginalized immigrant communities of color tend to become more perilous when their neighborhood gentrifies, because of their distinctive dynamics that are intertwined with economic, cultural, and social ties in the communities. Increased housing instability and job insecurity due to residential and commercial gentrification impose significant burdens on the very vulnerable in the communities. Often, “model minority” stereotyping for Asians in the United States leads the marginalized Asian immigrant communities to be less interested in the study of gentrification and displacement compared to other communities of color. The primary purpose of this study is to demonstrate disproportionate vulnerability to gentrification and displacement in marginalized Asian immigrant communities in transit-oriented neighborhoods in Los Angeles. Further, the research aims to suggest the new framework to examine gentrification and displacement risks comprehensively by incorporating commercial gentrification dimension into the existing indicators to capture neighborhood change.

The research questions are three-fold: how do the existing indicators of gentrification and displacement discern the risks and vulnerabilities in Asian immigrant communities in transit-oriented neighborhoods in Los Angeles? What particular vulnerability to residential and commercial gentrification exists in the communities? How does the new framework demonstrate gentrification and displacement risks in the communities?

First, the research examines whether the existing gentrification indicators by Urban Displacement Project (2015) work to capture the risks of gentrification and displacement in Asian immigrant communities in Los Angeles. Next, the research investigates the demographic, socio-economic, and housing changes in the communities for the last five years. Last, the research examines the trajectory of neighborhoods’ commercial activity in the communities with particular focuses on commercial rents, vacancies, and shifts in businesses from the last five years by utilizing CoStar, USPS Vacancy data, and NAICS code data. The data analysis will be represented as multiple sets of cross tabulations. In addition, the results will be mapped out in order to compare the results to the existing gentrification maps.

The findings of the research will enlighten a discussion of how to develop the existing gentrification indicators for a comprehensive understanding of neighborhood change dynamics by taking account commercial gentrification. Moreover, this study will contribute to better understand marginalized Asian immigrant communities and to bring more attention to those in the study of equity planning and gentrification study.

Citations

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Key Words: Commercial gentrification, Displacement, Asian immigrant communities, Model minority

TRASH, TRASH, TRASH: COMMUNITY-DRIVEN SOLUTIONS TO A WEST BALTIMORE NEIGHBORHOOD'S TRASH ISSUE

Abstract ID: 1063

Individual Paper Submission

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Franklin Square is a lower-income neighborhood in West Baltimore that is 94% African American. Take a walk through Franklin Square and one will find trash on the sidewalks, on the curbs, in the streets, in the alleyways, and on vacant lots. Franklin Square's trash problem is not from a singular source, which makes a solution to the problem and its ancillary affects more complicated. Trash in the alleyways may stem from evictions, illegal dumping, or debris from derelict buildings, but this is not the only source. Residents may improperly dispose of household trash, and passersby may litter food wrappers and remains. No matter how it arrives, the open-air trash in Franklin Square attracts rats and angers residents, creating negative health impacts.

This community-based participatory research (CBPR) project was an exploratory project based on community input that trash was a key priority for the neighborhood. The objectives were two-fold: (1) utilize the research process as a community engagement tool to bring awareness to the community about the impact of neighborhood trash on health, and (2) to develop with the community a tool that can be used to address the trash issue at the neighborhood level. It is believed that by motivating the community to address the issue, a corresponding improvement in health outcomes and general neighborhood aesthetics can be achieved.

The research utilized a mixed methodology. The first phase used local community members to recruit 3 focus groups (2 in-person and 1 telephone) to assess residents' perception of the trash problem and how it should be addressed. Utilizing Atlas Ti qualitative software, themes were extracted. The second phase made use of the responses from the focus groups to develop a survey questionnaire that was mailed to a stratified random sample of 500 homes in the neighborhood. The community tool was developed from the results of the questionnaire and further refined with the community through presentations and discussions.

The significance and implications of this research to the field are dynamic. The American Planning Association has joined forces with the American Public Health Association supported by the Centers for Disease Control and Prevention on a project called Plan4Health with the goal of increasing health equity. The CDC specifically has a goal of reducing health disparities in communities of color through Racial and Ethnic Approaches to Community Health (REACH). This CBPR project aligns with the movement of the fields (Planning and Public Health) to address health disparities in a more organic and racially and

ethnically sensitive manner. In addition, this project brings to light the visually dramatic differences between neighborhood experiences in Baltimore City, and explores the possibility of inequity in city services for sanitation. Experiences and results of this project are shared with the fields to better improve health equity and health outcomes for racial minorities.

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Key Words: Waste management, CBPR-Community-based Participatory Research, health equity, mixed-methodology, environmental justice

DOES WALKABILITY COMPROMISE OR IMPROVE LIVABILITY? EVIDENCE FROM RELOCATION TO A WALKABLE COMMUNITY

Abstract ID: 1077

Individual Paper Submission

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Background and purpose: Walkable communities have been increasingly recognized for their potential in promoting physical activity and reducing environmental footprint.^{1,2} However, the availability of such communities seems to be lagging behind the demand.^{3,4} Meanwhile, important concerns still remain about the possible compromise of livability, such as increased traffic, worsened air quality, and social conflicts that may emerge from high-density and mixed-use features of walkable developments.⁵

Objectives: To better understand the nature of walkability-livability relationship, we studied residents relocated to an award-winning walkable community in Texas from diverse socio-demographic backgrounds. Research questions are: (1) whether the relocation to a more walkable community improved residents' physical activity, walking, and perceived livability; (2) how different domains of livability affect overall livability—the neighborhood being “a good place to live” and “a good place to raise children”; and (3) what environmental factors promote positive changes in perceived livability and whether socio-demographic factors play a role.

Methods: A retrospective survey (2016-2017) of residents (N=392) captured changes in physical activity, walking, perceived livability, and relevant personal, social, and physical environmental factors. SPSS was used for analysis. Descriptive statistics were reviewed and necessary transformations were made to some variables. Question 1 was assessed by paired t tests comparing pre- and post-move scenarios. For Question 2, factor analysis was used first to identify domains of livability, followed by binary logistic regressions predicting overall livability using socio-demographic and household characteristics and different domains of livability. For Question 3, multiple linear regressions were used to predict changes in perceived livability using socio-demographic and household variables and changes in neighborhood environments.

Results:

Question 1: T tests confirmed significant increases in weekly minutes of moderate physical activity by 81 minutes, walking for transportation by 39 minutes, and walking for recreation/exercise by 84 minutes ($P<0.01$). In addition, all items of perceived livability showed significant improvement, with an average increase of 0.75 on a 5-point scale ($P<0.01$). Overall perceptions of livability—"a good place to live" and "raise children"—increased by 0.99 and 0.82 on a 5-point scale ($P<0.001$), respectively. Standard deviations for 19 out of 23 livability items reduced after the relocation, implying reductions in related disparities.

Question 2: Four domains of livability were identified, including social cohesion, access to services, environmental quality, and convenient transportation. All domains have significant associations with overall livability—"a good place to live" and "raise children" ($P<0.01$). All socio-demographic variables (except age) are insignificant in predicting overall livability, implying the consistency across populations in how they assess livability. Number of children is associated with perceiving the neighborhood as "a good place to raise children."

Question 3: Increases in air quality ($\beta=0.20$), crime safety ($\beta=0.31$), street intersection density ($\beta=0.19$), attractive natural sights ($\beta=0.39$) and places to go within walking distance ($\beta=0.17$) are associated with increases in overall livability ($P<0.01$). Hispanic or Latino origin is a negative correlate for change in the neighborhood being "a good place to live" ($\beta=-0.60$, $P<0.01$) and "a good place to raise children" ($\beta=-1.01$, $P<0.01$). Number of children is a positive correlate for increase in perceiving the neighborhood as a good place to raise children.

Conclusions and Discussions: This study is limited to potential recall bias and one particular community. Findings from this study demonstrated the positive impacts of a walkable community on not only physical activity and walking, but also multiple domains of livability. It implies improved equities in livability after relocation to the walkable community. Both physical activity and livability benefits of walkable communities should be considered in future policies and practice. More studies in diverse settings using longitudinal design will help further advance this field of research.

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Key Words: Walkability, livability, community, relocation, housing

ALTERNATE PERSPECTIVES ON PLACE-BASED POVERTY REDUCTION: RETHINKING IMPLEMENTATION AND EVALUATION FRAMEWORKS

Abstract ID: 1084

Individual Paper Submission

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The design and implementation of third-sector managed place-based poverty reduction programs has emerged in response to the state's absence in effectively mitigating the negative impacts of neighbourhood effects. This research examines the central research question of how to evaluate a place-based poverty reduction program across different geographic sites and scales through a case study of a specific third-sector designed and implemented place-based poverty reduction program in Canada. Specifically, this research explores this question through the lens(es) of urban youth participants in the poverty reduction program, Pathways to Education. Connected to this broad research question, I explore other inter-connected questions including:

-What are effective place-based poverty reduction implementation and evaluation frameworks, especially those that target youth?

-Do neighbourhoods matter to children and youth and if so, in what ways?

-How might ethical and methodological tensions be resolved to hear youth perspectives on neighbourhoods, youth, evaluation and poverty more clearly?

To answer this question, I craft a theoretical framework linking the concept of the right to the city as presented by Lefebvre (1996) to Uri Bronfenbrenner's (1977, 1979, 1995) understanding of the micro, macro, and meso systems in which children and youth operate. I then present a literature review that unpacks and analyzes the current dominant literature on neighbourhood effects, children and youth and evaluation. This research proposes alternate narratives on the themes of neighbourhood, evaluation, poverty and, ultimately, success, by challenging dominant urban planning constructs as to what it means to be both youth and poor. Utilizing a community-based participatory research approach, this research presents an evaluation framework that might be considered in examining place-based approaches to poverty reduction. It presents a counter-narrative to the dominant frame that all neighbourhoods that are poor require interventions and, ultimately, saving. It examines some of the associated ethical dilemmas of how best to mitigate neighbourhood effects, especially in some of Canada's poorest neighbourhoods where educational and health outcomes remain lower than middle-class or more affluent neighbourhoods. I present findings from data collected through interviews with national experts in the areas of evaluation, children and youth and neighbourhoods as well as data collected through focus

groups and surveys with program staff, and through traditional focus groups and arts-based methods with youth. This research presents a critical analysis to place-based poverty-reduction programs and proposes a framework to incorporate diverse stakeholder's perspectives, specifically marginalized youth voice(s), into place-based program planning and evaluation. It lastly provides concrete recommendations for planning, implementing and evaluating place-based policies and programs, especially those that target lower-income neighbourhoods.

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Key Words: neighbourhoods, youth, poverty

ARTS, CULTURE AND THE ATLANTA BELTLINE: A STRATEGIC PLAN FOR INCLUSIVENESS AND SUSTAINABILITY

Abstract ID: 1097

Individual Paper Submission

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In urban planning research and practice, arts and culture planning and programming is seen as a broad strategy for economic and community development. While there are many strategies and methods for neighborhood revitalization there is a generally accepted idea that it is critical, “to recognize the role of those who ‘translate’ between community and external organizational spaces, and to integrate community knowledge and community institutions into participatory development processes” (Eversole, 2012). However, there is limited knowledge regarding specific place-based strategies to nurture arts and culture, particularly due to inadequate public participation (Markusen and Gadwa, 2010). The Atlanta BeltLine is a planned 22-mile loop of multi-use trails, modern streetcar, and park, situated along historic railroad corridors that encircle the city. It represents one of the most comprehensive transportation and economic development effort ever undertaken in the City of Atlanta and among the largest, most wide-ranging urban redevelopment programs currently underway in the United States. The Atlanta BeltLine is the ultimate urban connector and outdoor art gallery, linking 45 diverse neighborhoods via transit, trails, and additional infrastructure. Arts and culture play a critical role along the BeltLine in connecting neighborhoods to the BeltLine and connecting residents to cultural opportunities in their communities. The Art on the Atlanta BeltLine (AoAB) is now an eight-year-old program, run by Atlanta BeltLine Inc. (ABI), where artists are selected through a Request for Proposal (RFP) and jury process to showcase their work through a variety of mediums: sculpture, murals, dance, music, theater, photography, and more. Over time, AoAB has grown into the largest free, temporary outdoor art exhibition in the South with more than 1.87 million visitors to the Eastside Trail in 2017.

How can the AoAB be expanded to create a more inclusive and comprehensive arts and culture program along the Beltline? How can the plan help sustain local community traditions and cultural identity? The Arts & Culture Strategic Implementation Plan (ACSIP) was created in 2018 to provide a framework to expand ABI from a mostly-single program effort in arts and culture to a robust program that ranges from international works to everyday art in the communities that line the corridor, creating a unique place that celebrates the local and supports quality of life for all. The framework's purpose is to encourage arts and culture along the Beltline by synthesizing existing plans and programs and providing implementation guidelines and strategies towards expanding the current vision for arts and cultural initiatives along the corridor.

The presentation describes the planning process undertaken for the ACSIP, with a focus on the community engagement strategy that was used to develop the recommendations. Highlights of the strategy include the role and involvement of local artists as community organizers and expert stakeholders as well as the eliciting of local knowledge in developing the strategy. Outcomes of the planning process will also be discussed including the formulation of recommendations for programming, organizational capacity, spatial design and community collaboration to promote equitable access to arts and culture opportunities as well as sustainability of the artist community's continued presence around the Beltline.

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Key Words: Atlanta Beltline, Revitalization, Arts and Culture, Community Development, Public Participation

WHO LEARNS WHERE: UNDERSTANDING THE CONNECTION BETWEEN CHARTER SCHOOLS AND NEIGHBORHOOD GENTRIFICATION IN THE DISTRICT OF COLUMBIA

Abstract ID: 1141

Individual Paper Submission

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For several decades, various academic fields have examined the connections between neighborhoods and their public schools. Often oriented around issues of equitable access, such research has typically identified significant relationships between neighborhoods' sociodemographic compositions (e.g., race), financial characteristics (e.g., home values), and measures of school quality (e.g., standardized assessment scores). Furthermore, due to the historical organization of schooling in residence-defined districts, these examinations have often drawn comparisons across districts or their attendance areas.

Charter school reform, however, has complicated and made more granular the potential relationship between neighborhoods and schools by allowing diverse public schooling options within districts, typically urban. And because urban charter schools have proliferated at the same time as substantial gentrification of cities, an emergent thread of literature now attempts to connect the two phenomena.

While this thread remains quite thin, it suggests charter schools may both result from and result in the gentrification of certain neighborhoods within a given city.

Nevertheless, more work is necessary to refine this potential connection. As a result, I seek to expand the field in several ways. First, I develop and utilize a 21-year longitudinal dataset that accounts for the location of each charter school campus in each school year within the District of Columbia, offering a more comprehensive and systemic view than many existing papers. Second, I consider multiple and multi-faceted definitions of gentrification that account for the different “life cycles” of the phenomenon. Third, I consider both overall charter school presence as well as presence of different “types” of charter schools. Fourth, I explicitly control for the presence of rail transit, which is known to influence neighborhood characteristics and may also influence where charter schools choose to operate, the latter for both neighborhood zoning and enrollment reasons. In accordance with the literature, I hypothesize that: (1) the presence of charter schools is significantly associated with neighborhood gentrification within the District; and (2) the charter school-gentrification relationship significantly varies by type of charter school(s) present.

Using these data, I develop a variety of descriptive analyses showing that: (1) the District has gentrified in a spatially uneven way, i.e., in certain neighborhoods; (2) the expansion of charter school campuses has occurred in a similar, spatially uneven way; (3) within the physical distribution of charter school campuses across the District, significant variation exists in spatial proliferation by type of school; and (4) sociodemographic enrollment within District charter schools has been uneven across multiple dimensions as well, including: the time at which a particular charter school organization began operating in the District, type of school, and neighborhood in which a school operates.

I then develop several regression analyses that empirically estimate the relationship between charter school presence and neighborhood gentrification within the District, again considering multiple measures of gentrification. In doing so, I identify a significant link between the overall presence of charter schools and neighborhood gentrification, as well as significant links between certain types of charter schools and neighborhood gentrification. Accordingly, I generate supporting evidence for each of my hypotheses.

These findings have important implications for both policymakers and scholars. First, they highlight charter school reform’s potential to accelerate urban gentrification at the neighborhood level. Second, they suggest an important variation in the charter school-neighborhood relationship that depends upon type of charter school – a complexity that only distinct threads of education literature have considered. Third, and more generally, they underscore a new way in which inequitable access to urban schools may occur: the gentrification of neighborhoods surrounding charter schools, and the subsequent “crowding out” of long-residing or displaced households from those charter schools due to limited enrollment space and/or physical inaccessibility.

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Key Words: Charter schools, Gentrification, Urban education planning and policy, School access, Neighborhood change

REVITALIZATION OR ECONOCIDE? TWO TALES OF AN INNER-CITY NEIGHBORHOOD IN CINCINNATI

Abstract ID: 1176

Individual Paper Submission

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Central Theme. On April 7, 2001, a 19-year-old Black man, Timothy Thomas, was pursued and shot by a Cincinnati police officer who claimed he did know that the multiple charges against Thomas were non-violent charges. Thomas soon died of his wounds and from April 9 to 13 unrest dominated in Over-the-Rhine and other poor neighborhoods in Cincinnati until a curfew and state of emergency were declared on April 13.

These events brought national attention to the city and to the neighborhood. Among these was the establishment of the Center City Development Corporation (3CDC) in July 2003, funded by large corporate sponsors, which were concerned with having “overall system to increase the effectiveness and efficiency of development activities in the City of Cincinnati” (3CDC.org, About).

Fast-forward to November 2012, when the annual ACSP conference was held in Cincinnati. Two events at that conference highlight the different ways in which scholars of urban areas examine the process of change taking place in the now-almost-20-years since Mr. Thomas died. One was a mobile workshop “Urban Renew [sic] on Vine Street,” led by the president and CEO of 3CDC, Stephen Leeper. The other was a pre-organized session entitled “Gentrification Policy in Over-the-Rhine,” which included papers on topics such as the public good, econocide, and colonialism.

Objectives. This paper will examine the two primary ways in which intervention and changes in Over-the-Rhine are portrayed. The 3CDC narrative follows a privatization and revitalization theme while the opposing viewpoint, espoused at the ACSP conference by three academic authors, takes a progressive stance.

Approach and Methodology. The paper will begin with a brief summary of key events that occurred in Over-the-Rhine, to provide context for the ensuing discussion. A brief discussion of analytical perspectives, namely conservative (neoliberal), liberal, and progressive, will ensue. It will be followed by an introduction of actors and their perspectives and interventions in the neighborhood. Key topics will include housing, including housing for homeless persons, the renovation of Washington Park, and business attraction and support. The discussion of these topics will focus not only on the “traceable” changes over time, but also on the political-economic dimensions of rationales, strategic choices, coalitions, and so forth. The purpose will be to provide a contrast in the often-implicit adoption of public interventions rather than to argue that, for example, gentrification is or is not occurring. This paper is seen as a “first cut” at exploring how rationales for intervention reveal or hide deeper intentions in the case of Over-the-Rhine.

Main results. The main result will be that Cincinnati's corporate leaders and 3CDC use a "free market" or neoliberal justification for their actions. In contrast, community organizations use a social justice narrative. While these two views dominate, in-depth research may reveal a liberal viewpoint, although I do not believe there is an organized coalition. As the two "sides" actually collaborate in some activities, e.g., housing, I do not expect to find sharp lines that divide them.

Relevance. Ultimately, this examination will contribute to our knowledge of a significant example of urban unrest in the U.S. and ensuing policy action to address it. For students, the explicit examination of the two narratives may enable them to more critically understand urban planning and policy "on the ground."

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Key Words: urban revitalization, gentrification, mixed-use development, mixed-income development, social justice

SCHOOL-CENTERED NEIGHBORHOOD REVITALIZATION IN BALTIMORE

Abstract ID: 1178

Individual Paper Submission

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Schools are more than just spaces for learning; they are also social, political, and physical infrastructure in neighborhoods and cities. Despite the ways that schools are deeply tied to local conditions, we know less about how processes of school change interact with dynamics of neighborhood and urban change. School districts make facilities management decisions about closing, consolidating, rehabilitating, and building schools that shift the geography of educational resources and materially affect lived experiences in neighborhoods (Filardo, 2016).

We extend two main areas of research on impacts of neighborhood and school change. First, evaluation of comprehensive community development initiatives track progress toward economic development (e.g., the number of jobs, the number of firms, and the volume of annual sales), improved housing markets (e.g., home sale price, mortgage applications and originations), and changes in household well-being and stability (e.g., income and unemployment, demographics, and housing vacancy rates). Other efforts track program investments, organizational capacity, and mobilization of community members. (See e.g., (Baum, 2001)) Second, research and evaluation of school facilities programs examine the impacts of

physical improvements on student, staff, and teacher outcomes and on neighborhoods' home values and resident stability (see e.g., (Neilson & Zimmerman, 2014)).

Using a case study approach, this paper presents initial findings from a (currently in-process) study of the policy apparatuses and impacts of Baltimore's school closures, rehabilitation, and construction vis-à-vis patterns of uneven urban development and change in three Baltimore neighborhoods. Each neighborhood has seen new school construction as part of the 21st Century Schools Buildings Plan (21CSBP). 21CSBP is a cross-agency collaboration and investment of nearly \$1.1 billion to build or renovate 28 public schools in some of Baltimore's most neglected neighborhoods. State and city leaders have called for these schools to be high quality learning environments, community recreation spaces, and catalysts for neighborhood economic development. In each neighborhood, we have collected and analyzed data through archival research; Census and mapping; and interviews with 40 city and school district leaders, school site personnel, community-based organization staff, philanthropic partners, developers, neighborhood residents, and parents.

Our analytical framework draws on those from human and community development. An ecological theory of human development suggests that children learn and grow in the context of multiple, overlapping environments (Leonard, 2011). Community development practice and theory offers a place-based lens in which the neighborhood is the catchment area for intervention and where attention is distributed across a full breadth of residents' daily lives (i.e., issues of housing, transportation, health, education, etc.) (DeFilippis & Saegert, 2012). We argue for a community-based ecosystem framework that attends to relationships among individuals, collaborative organizational structures, and structuring policies – all of which may enable, constrain, or otherwise shape the dynamics and conditions of a particular school and neighborhood. It is attuned to micro-level issues at the neighborhood level (e.g., daily lives of children and families), meso-level issues at the neighborhood and city level (e.g., organizational collaboration, politics, and policies), and macro-level systems (higher level policies, politics, and/or economic structures) that influence and shape local level dynamics.

This research is the first to systematically collect data and analyze the extent to which the Baltimore 21CSBP is linked to and influences other neighborhood improvement efforts. It considers both physical and social conditions of schools and neighborhoods and operates across scales of intervention – from the individual student to neighborhood and school organizations to broader systems of housing markets and political processes. It builds on a growing body of multidisciplinary research on the relationship between neighborhoods and their schools, and explores the dynamics of neighborhood investment, racial inequality, and urban and educational change.

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Key Words: community development, public education

BUILDING YOUTH ADVOCACY THROUGH SUPPORTIVE LEADERSHIP

Abstract ID: 1190

Individual Paper Submission

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Community engagement is central to a democratic planning process as it creates dialogue between residents, government officials, local agencies, and developers. A well-designed engagement strategy generates a richer final product after putting effort towards a participatory process that includes a diverse coalition of constituents. By training youth to take an active role in their community, schools and youth-serving organizations (YSOs) can support youth advocacy as a vital component of the design process while building youth capacity and self-efficacy. One key to a successful program is supportive, multifaceted adult leaders that act as both guide and champion. The Youth Engagement and Action for Health (YEAH!) program is a 12-week curriculum that empowers youth to act as advocates for change in their community by completing neighborhood assessments, brainstorming solutions, and ultimately presenting their findings and suggestions to appropriate decision makers. Using surveys and interviews with adult leaders, community decision makers, and local champions, this paper assesses the YEAH! adult leaders' characteristics, group structure and dynamics, barriers to success, and technical assistance needs as well as assess decision maker's perceptions of interactions with youth advocates. The aim of this paper is to understand the role of adult leaders and decision-makers in supporting successful youth advocacy program.

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Key Words: Community engagement, youth, advocacy

ASSESSMENT OF AFFORDABILITY AND DESIRABILITY OF HOUSING OPTIONS IN THE CONTEXT OF THE CITIES WITHOUT SLUMS PROGRAM IN MOROCCO

Abstract ID: 1241

Individual Paper Submission

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By 2030, the urban population in Morocco will reach approximately 38.4 million, thus increasing the housing market demand. As housing supply will likely fail to accommodate this demand, slums urban crisis can only be exacerbated in the future. Therefore, in its will to achieve the UN millennial goals, and improve the life of urban dwellers, the Moroccan government implemented the Cities without Slums Program (CWSP), that aligns with development goals established by UN habitat (i.e. Habitat III), and specifically Goal 11 to “make cities and human settlements inclusive, safe, resilient and sustainable” and “by 2030, ensure access for all to adequate, safe and affordable housing and basic services” (UN-Habitat, 2018).

Since 2004, the CWSP achieved a relocation rate of 66%, equivalent to 277,583 households. However, beyond the optimistic perspective offered by the statistical data in government reports regarding slum clearance operations in Morocco, the reality of it on the field is more complex. Indeed, the clearance of slums in the last few years was marked by forced mass evictions of slum dwellers, especially in the two biggest cities of the country – Casablanca and Rabat.

The forced evictions taking place in the country speak to the limitations of the CWSP and its inefficiency in presenting adapted solutions to slum dwellers. In this research, the focus is put on the financial tools in correlation with other constraints (i.e., increase in the number of slum dwellers, the low supply of housing units, as well as architectural and technical standards) to demonstrate to which extent these financial tools are adapted to the three first deciles of the population, and to assess the desirability of affordable housing supplied in the context of CWSP.

Therefore, how to define desirability, and specifically affordability of housing options destined to a household from the first three deciles of the urban population in the Moroccan context? Also, what are the financial tools currently available for households, and are these tools adapted to acquire a housing unit supplied in the context of CWSP?

- CWSP success is assessed on an incorrect basis, as the sole use of quantitative data to describe the achievements of the program does not speak to the situation of the relocated/evicted communities;
- Loan guarantees are unsuccessful in the context of CWSP, not only because of the low solvency of households, but because of the disinterest of households in the banking system. Hence, community-based solutions such as community funds are more likely to be successful;
- The government is subsidizing two types of capped-price apartment units, one category destined at middle-income groups, and another one destined at low-income groups including slum dwellers. The latter category, even if it is catered to slum dwellers, remains unaffordable and undesirable;
- The relocation projects initiated by the government contribute to the recreation of slums' social and spatial patterns by shifting urban poverty towards the city fringes and enhancing urban exclusion.

An analysis of the affordability of the housing supplied in the context of CWSP is completed. The calculations to examine the adaptability of the financial tools will be computed using the mortgage payment formula $P = M * \{ [((1+r)^n) - 1] / [(r * (1+r)^n)] \}$, and will concern the three first deciles of the urban population.

Ultimately, the research goal is a step-by-step investigation of aspects of the desirability of affordable housing, by implementing a desirability index (D) expressed as follows:

$$D = (\sum S*W)/5$$

Since the CWSP is still in progress, this research proposes a desirability index, to assess the adaptability of housing units already supplied in the context of CWSP in addition to future projects.

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Key Words: Informal settlements, Global South, Community development, Economic development

HISTORIC PRESERVATION AND PLANNING IN POST-INDUSTRIAL LANDSCAPES: GRASSROOTS ORGANIZING, CITIZENSHIP AND IDENTITY IN LOTA, CHILE.

Abstract ID: 1251

Individual Paper Submission

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Urban heritage in Chile is exclusionary. The spaces and places that are preserved and the histories that are validated through historic preservation and planning are largely decided by governmental institutions, policymakers, and heritage experts, while ignoring the social processes and the people related to historic sites if they are not associated with a positive version of colonial history or the capital, or if they represent dissonant cultural relations (Carrion 2013). This official mode of operation tends to privilege certain narratives about the past while obscuring the experiences of underrepresented communities. From the leading position of those in power- with the privilege right of urban heritage definition – that values are inscribed to the rest of society which in turn receives and accepts it. One example is the many mining cities around the world whose urban landscapes have been preserved and regulated as heritage sites after changes wrought by globalization and the neoliberalization of capitalist economies. These heritage representations are often controlled by company owners or government agencies reproducing historically inscribed relations of power or a sanitized corporate version of the past, rather than focusing on the social relations and labor struggles that shape the urban sphere.

However, while there are many examples of top-down processes in historic preservation and planning in Chile, there are also cases that challenge this dominant way of defining the urban landscape, evidencing it as a process related to social empowerment and an instrument of cultural control. The Chilean grassroots organization Mesa Ciudadana de Patrimonio, Cultura y Turismo de Lota from the ex-coal mining town of Lota is one such example. Since the closure of the coal mine in 1997 due to changes in the capitalist economy, Lota has faced increasing decay, abandonment and “ruination” (Stoler 2007) and today remain as one of the poorest municipalities in the country. This ruined landscape is more than aesthetics and the

celebration of the industrial capital. It is about job loss, health disparities, environmental changes and the contestation of gender roles, race and class inequalities. This paper offers an examination of the ways in which people living there are actively and critically engaging with processes of memory-work and meaning-making in the urban space to challenge a history marked by structural inequalities that continue impacting the community in the present.

Building on radical and insurgent planning theories, that problematizes everyday practices of the marginalized groups outside the margins of formal planning (Sletto 2013), I argue that moving across 'invited' and 'invented' spaces of participation (Miraftab 2009), Lotinos/as are capable of disrupting established structures of exclusion and inequality by appropriating historic preservation as a political tool. Resistance, therefore, occurs through tactics both formal and informal, legal and extra-legal, political and performative, traditional and innovative. While neoliberal capitalism promotes collective social amnesia, these insurgent groups promote collective memories and historicize the problems arising from the actions and inactions of authorities. The memory of their historical social struggles is located at the center of their actions (Sandercock 1999). Drawing on interviews, participant observation, archival research, and analysis of the built environment conducted in Lota between 2016 and 2019, I illustrate how people use historic preservation and planning in conscious and critical ways for: (1) negotiating and defining social and political values that shape the cultural identity of this working-class community, (2) improving their living material conditions in the city, and (3) creating new spaces of participation and citizenship in urban decision-making process.

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Key Words: Historic preservation, Lota, Insurgent Planning, Grassroots organizing, Identity

JUMPING OFF THE LADDER: PARTICIPATION AND INSURGENCY IN DETROIT'S URBAN PLANNING

Abstract ID: 1256

Individual Paper Submission

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Participation has become a central norm of urban planning. In the 1950s and 60s, with politically radicalized mass movements demanding redress for inequality and racism, influential urbanists like Sherry Arnstein, Jane Jacobs, and Paul Davidoff argued that authentic participation would ensure more

equitable outcomes, empower have-nots, and produce better cities. These scholars aimed to help planners redistribute power to citizens, but a key institution to include residents in decision making, the Community Development Corporation (CDC) has proven limited, and more institutional participation has not resulted in a substantially greater voice for low-income, minority residents (Arena, 2012; McQuarrie and Krumholz, 2011; McQuarrie, 2013)..

Based on a case study of participation and insurgency in Detroit's urban planning, we argue that CDCs structurally align with the planning establishment, serving as relays for governments and developers and controlling information. In Detroit, as in other cities, CDCs have aligned with government and developers to facilitate the redevelopment and gentrification of targeted areas (McQuarrie, 2013; Arena, 2012; Heil, 2018; Silverman, 2005). CDCs become dependent, deriving their resources and legitimacy from the planning establishment, while planners view partnering with community development corporations (CDCs) as necessary for participation.

These limitations have inspired insurgents to arise from the resident association Charlevoix Village Association (CVA) and to intervene in the planning process. CVA's insurgent activities and knowledge production have galvanized residents to engage beyond the participatory planning paradigm, developing independent, insurgent methods to assert their voices in different areas of urban planning (Friedmann, 1987; Beard, 2003; Meth 2010). CVA has demonstrated that insurgency can enable engaged residents to build power in ways that the participatory planning paradigm failed to account for. Networks are crucial for allowing insurgents to overcome planning's institutional limitations. Information and knowledge permit insurgents to pursue action in the public domain (Forester 1982; Friedmann 1987; Beard 2003).

This paper makes two contributions to the planning literature: it shows how institutional participation constrains resident empowerment, and it maintains that marginalized residents elevate their voice by "jumping off the ladder" of institutional participation through insurgency.

We suggest that CDCs have not been an effective means for redistributing power to marginalized residents. The tendency of professional planners to uplift CDCs as legitimate community voices while repressing insurgent tendencies is a way to reify planning's status quo and quash the fledgling space wherein residents may pursue their own interests on their own terms. We argue that planners interested in redistributing power to have-nots would be more effective if they jumped off the ladder of participation by accepting the legitimacy of community power, built through insurgent planning.

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Key Words: Insurgent planning, community development corporation (CDC), community engagement, participation, Detroit

SELF-ORGANISED INITIATIVES: A PLANNERS' SUBVERSIVE TOOL FOR FRAGMENTED URBAN SPACES

Abstract ID: 1270

Individual Paper Submission

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Brazilian metropolises are highly fragmented. Opportunity-led development created a disconnected urban patchwork where walls and inequality reign. However, the barriers in fragmented cities go beyond the physical ones. Breaking down invisible walls and connecting spatially disconnected areas does not necessarily erode the social inequality behind them or promote social connection. The walls in Brazilian metropolises are also social (Cortes, 2008). In that sense, traditional urban policies often fail to confront the spatial fragmentation in Brazil. At the same time, it is also common to observe bottom-up, informal and self-organised initiatives in such fragmented contexts. From housing construction to upgrading public spaces, self-organised initiatives are abundant.

Self-organising initiatives are not only being often recognized as important actors shaping the city, but they are frequently being led or supported by planners. It is interesting to observe that planners are taking part on these movements and pushing forward their agendas. To understand the participation of planners in self-organised initiatives was not the initial aim of this research; however, it became clear during the fieldwork that planners were taking a significant role on these initiatives. Nevertheless, the article will not delve into the reasons why planners are joining these initiatives. There are already research pointing out why young planners are trying non-traditional practice paths. According to Tasan-kok and Oranje (2017), young planners have a necessity to fulfill their ideological position and go beyond a technocratic function. This happens mainly due to a mismatch between the expectation created during their education and their professional practice after graduation. Top-down planning seems to be failing to fulfill the aspirations of young planners in Brazil.

In this context, it is not clear how these informal, bottom-up and self-organised initiatives supported by urban planners are shaping the built environment. Aspects like spatial fragmentation are being affected by these initiatives in terms of building new social connections and increasing the level of integration. This investigates if these self-organised initiatives are able to undermine the underlying dynamics of spatial fragmentation in Brazilian metropolises by promoting social connection in extremely unequal groups. Since self-organised initiatives promote not only spatial connection but also social connection between different groups, the primary premise of this study is that they have a positive impact on reducing the spatial fragmentation present in Brazilian metropolises. In that regard, the central question here is: to what extent can self-organised initiatives promote social connection in public spaces of highly fragmented and unequal urban contexts?

To answer this question the research used qualitative methods to understand the social dynamics in these self-organised initiatives. The analysis was based on data collected from 12 in-depth interviews with members of self-organised initiatives and field observations during some actions of the initiatives. Additionally, 10 in-depth interviews with public servants and experts were conducted to give a complimentary perspective on these initiatives. The interviews were conducted in Brasília, Rio de Janeiro and São Paulo, during a two months fieldwork. The three cities were chosen because they are the three main metropolises from Brazil according to the Brazilian Institute of Geography and Statistics and have abundant self-organised initiatives. The results show that self-organised initiatives can create new social ties even on public spaces with patent social inequalities.

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Key Words: self-organisation, spatial fragmentation, inequality, diversity

PRIVATE MONIES AND THE GOVERNANCE OF URBAN PARKS: NARRATIVES OF EQUITY AND “FAIRNESS”

Abstract ID: 1283

Individual Paper Submission

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“Parks equity” is increasingly on the policy agenda in cities across the U.S. The way equity is conceptualized is often not clear as narratives of equity among policy makers and parks stakeholders diverge. In urban parks policy discussions, equity narratives might focus on metrics such as acreage per capita, distance and access to open spaces, and appropriate programming to accrue health and cognitive benefits and racial and environmental justice (Kibel 2010; Sister, Wolch & Wilson 2010, Levitz 2014). But not all equity narratives become solidified in policies.

We look at the infusion of private dollars as part of public-private, or in this case public philanthropic partnerships and highlight the intersection of equity narratives with PPP governance arrangements. Our analysis of equity frameworks looks at two cities, New York City and Seattle. New York represents the epicenter of public-private governance of parks and launched new initiatives for the improvement of parks in which equity is a theme and ever more entrepreneurial partners play significant roles. Seattle is a city where public-private partnerships in park governance has until recently taken a distinct approach, but new development indicates that Seattle is more fully embracing PPP park regimes, specifically in the form of business improvement districts. We the following questions to guide our narrative analysis:

1. What narratives emerge that point to perspectives different stakeholders, including public officials and private or nonprofit-sector actors, hold about equity as they talk about funding arrangements related to parks in their cities and about the role PPPs play in parks management?
2. How are policy actors pushing back against or questioning PPPs to seek to limit their role or alter the way private funds are used, and how do these efforts correspond to identifiable equity frames advanced in their narratives?

We have conducted 15 interviews talking with public sector stakeholders, representatives of private nonprofits that support and/or manage parks and parks advocates. In addition we examined news articles, public hearings, public policies, press releases and planning frameworks. We draw on Modan’s (2008)

discussion of discourse communities, which advance ideologies of placemaking and governance, looking at the big D- discourse (e.g. austerity) and the small d-discourse, namely the ways in which groups of people talk about specific issues (i.e. PPP parks regimes and equity). We compare narrative frameworks or discursive “justificatory regimes” (Lake 2016, 14; Roe 1994) across cities as they relate to public-private partnerships being fostered in these cities. This comparison allows us to assess how equity is mobilized and to discern equity criteria underlying policy approaches rooted also in certain PPP governance arrangements. To explore how different interests groups anchor their parks governance and equity discourse, we home in on four different constituent groups: including elected public officials, city agencies and powerful private leadership organizations as well as smaller non-profit or volunteer-based organizations.

A policy narrative analysis has to be cognizant of the dominant ideological context in which these narratives emerge and operate. Consequently, we focus on bringing to the surface the values different stakeholders embedded in their policy narratives to reveal their commensurability or incongruity with a neoliberal metanarrative that hails public-private partnerships as a tried and effective strategy not just to inject private resources but also to infuse public values into entrepreneurially focused urban improvement initiatives while simultaneously countering demands for redistribution. We identified three divergent narratives frames related to private monies and organizations in parks governance: PPPs as saviors, as capacity-builders across the system, and as eroding public support for a "unitary parks system."

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Key Words: public-private partnerships, equity, parks, governance, narratives

TRACK 2 - POSTERS

THE GENERATIVE SPACE OF COMMUNITY-BASED THEATER IN THE MIDST OF COMPLEX APPALACHIAN POVERTY IN SOUTHEASTERN KENTUCKY

Abstract ID: 528

Poster

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Appalachian poverty diverges from normative discussions and interpretations of poverty, which usually focus on inner city ghettos, segregated communities, and urban landscapes. Poverty in Appalachia is overwhelmingly white, and rural, and does not fall into the usual categorization of white privilege (though

there are noticeable racial disparities in the region). The “culture-of-poverty” explanation of Appalachian poverty was a depiction of the Appalachian peoples during the late 19th to early 20th centuries that has, to this day, had a persistent resilience to overshadow the diverse and complex reality of Appalachian poverty as well as the resilient and industrial character of its people. In its essence, the “culture-of-poverty” explanation is a distillation of a belief that Appalachians are barbarous, ignorant, lazy, incompetent and incapable of self-development and growth.

The critical pedagogical nature of the theater studied is enacted through an engaged socio-cultural space, whereby by a performance co-created with the community engages the actors (which are community members), the audience, and the wider community. The community-based theater investigated enacts many complex processes such as those of acknowledging identity, creating sites of resistance and struggle, providing places of meaning-making, mourning, or social learning, and the building of relationships that foster an engaged and active community. As a form of intervention and as a method for communal relations, the investigated community theater works to draw out stories from the “background,” as well as stories of people’s lives as they relate to systemic challenges and issues. Such stories tell of pain and adversity stemming from oppression, inequality, poverty, patriarchy, exclusion, and disenfranchisement. As an empowering act, storytelling and community-based theater can be a catalyst for social change.

Research Questions

1. How does community-based theater function as a method for asset-based community development in environments of constraint?
2. How, and to what extent, does community-based theater create a generative space for adaptive capacity?

Methods

A qualitative grounded theory case study was applied for a two-week participant observation period wherein close work was performed with a small Appalachian theater located in an impoverished county in Southeastern Kentucky. Further, 16 interviews averaging 35 minutes in duration were performed to examine individuals’ experiences and the meanings they derived from the theater, as well as to investigate the relationships that the theater has with other community organizations. Lastly, documents were collected that pertain to the theater’s operations and its communications with community members.

Findings

Community-based theater in Southeastern Kentucky is acting as a generative space for adaptive capacity in the face of complex poverty. Community-based theater, which is the result of informal socio-cultural relationships, is further acting as a space of recognition for cultural identity to provide positive social experiences capable of alleviating the vicious effects of poverty through acknowledgment and the creation of positive intergenerational community development.

Relevance

The theater being studied works in a non-formal but public setting that is capable of flexible adaptation through loosely defined relationships outside of a bureaucratic environment. Further, the theater works to engage community members in participatory socio-cultural environments to help generate community relationships that can produce action for further community development efforts. The shared

responsibility of community development between the theater and the public is an expression of trust that was created through the co-creation of community performances.

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Key Words: Community-Based Theater, Community Development, Public Participation, Appalachia, Poverty

A COMPARISON OF NEIGHBORHOOD SATISFACTION AND HOUSING VALUES IN GROWING AND SHRINKING CITIES

Abstract ID: 762

Poster

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The neighborhood-scaled environment has a significant impact on both neighborhood satisfaction and housing values. Many studies have identified that the socioeconomic environment (which can promote safety) and the physical environment's appearance are key elements enhancing quality of life. Housing abandonment, which has been a chronic issue for most U.S. shrinking cities, has been shown to be a causal factor in decreasing housing values, sense of safety, and can eventually bring a threat of neighborhood decline (for instance, Han 2013)). However, people living in severely depopulating cities are not necessarily less happy than those living in growing cities (Hollander 2010); even the most rapidly depopulating areas still have persistent residents for which planning must still occur (Ryan 2012). Still, there is currently a limited understanding of how neighborhood abandonment influences residential perception and how it differs by city context. This research seeks to determine if the residents in shrinking cities are more tolerant or sensitive to observable abandonment in their neighborhood due to chronic depopulation. To answer this, we examine if the impact of abandonment on residential perception and housing value varies by city context, especially in shrinking cities. We first identify shrinking and growing cities for the 20 largest U.S. Metropolitan areas based on city size and population change in the past 10 years. We then analyze the different trends of abandonment, residential perception, and housing values in each shrinking and growing city at the neighborhood scale using American Housing Survey (AHS) data. Finally, we examine the effect of observable abandonment using environmental factors associated with residential perception and housing values through regression modeling. The results indicate that the satisfaction scores and housing values drop more in shrinking cities when multiple

abandoned structures are observed than in growing cities. However, when a single abandoned structure is observed, the rate of change is not significantly different. This study supports that planners and policymakers need different approaches to abandonment depending on city context. Results imply that demolishing abandoned structures -- a typical approach for efficient citywide management -- might be more effective when multiple abandoned structures are observed in shrinking cities.

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Key Words: Abandonment, Neighborhood Satisfaction, Housing Value, Shrinking City

WETABLE: USING PARTICIPATORY GIS IN A WORKSHOP SETTING

Abstract ID: 835

Poster

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This project employed Participatory GIS (PGIS) to engage stakeholders in mapping local assets and values, facilitating the integration of local values and knowledge into a long-term planning project. PGIS allows for a more inclusive, transparent process in which citizen stakeholders can share in the creation of project materials and outcomes.

Background and context

The City of Westport, a relatively isolated coastal community of 2,000 year-round residents located in Grays Harbor County, WA, has an economy that is supported largely by local natural resources and tourism. Westport's marina is home to the largest commercial fishing fleet and seafood processing plant on the outer coast of the Pacific Northwest, a collection of recreational charter boats and a U.S. Coast Guard station. Located on a low-lying peninsula along the Pacific coast, Westport is among the areas most susceptible to the impacts of a Cascadia Subduction Zone magnitude 9.0 earthquake and resultant tsunami. To help mitigate against this potential hazard, the Ocosta School District, which serves Westport and several small communities nearby, built the first tsunami vertical evacuation shelter in North America.

Using weTable in a PGIS stakeholder workshop

A key component of a broader public engagement protocol focused on coastal resilience was the development of a workshop activity to involve government and community partners in the mapping of community values and assets. The workshop format was based on principles of appreciative inquiry, which provides a means of engaging stakeholders in conversations about hazards while focusing first on local strengths and assets rather than on vulnerability and weaknesses.

By sharing the creation and mapping of vulnerabilities and capacities, communities can communicate local priorities for disaster risk reduction to policymakers (Krishnamurthy et al. 2011). Using PGIS enabled us to gather place-based knowledge from community stakeholders while drawing upon technical data from tsunami and sea level rise hazard models developed by the research team.

The project team gathered input from workshop participants using the weTable, an interactive public participation tool that combines Wii technology with other common devices to create an interactive computer interface on a tabletop surface (Mikulencak & Jacob 2011). It can be challenging to engage communities using PGIS due to the investments of time and money that are often needed to use PGIS systems (Elwood 2010). However, weTable's affordability, interactivity and relative ease of use makes it suited for a variety of purposes, including direct involvement of the public in planning projects.

PGIS as a tool for community empowerment

Participatory Geographic Information Systems (PGIS) techniques like the weTable can be powerful tools for planning. They allow communities to use the language and tools of their decision-makers and to be directly involved in the planning process. PGIS can empower communities by providing individuals with an opportunity to think more spatially about the places with which they interact, enabling them to “literally put their community on the map” (Pánek 2015). PGIS combines scientific GIS data with local knowledge from communities that would otherwise not be integrated into GIS analysis (Singh 2014). Additionally, unlike more traditional paper mapping methods, PGIS applications allow data to be created directly in GIS for later use and analysis.

Workshop participant survey results

As a follow-up to the workshop, our team sent a brief survey to all participants asking them questions about their experience with weTable. The participants found the weTable easy to use, and they appreciated the efficiency of being able to call up multiple layers of data as needed. Most participants felt the weTable workshop format provided equal opportunity for all group members to participate in the discussion.

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Key Words: community engagement, participatory GIS, WeTable, hazard mitigation, resilience

FRAMEWORKS OF RECOVERY: EXPLORING THE INTERSECTION OF PLANNING, POLICY, & DECISION-MAKING AFTER HURRICANE KATRINA

Abstract ID: 1023

Poster

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The 2005 hurricane season showed the world the danger racial inequality coupled with failing infrastructure and climate change poses for coastal African American communities, especially for those citizens that are poor, elderly, and/or female. Nearly fourteen years later, New Orleans recovery exemplifies the persistence of racial inequality within American society as many displaced and returned African American residents continue to struggle as a direct result of the federal levee failure that flooded 80% of the city. As floodwaters and federal disaster assistance dispersed New Orleans residents across the country, Houston, Texas, received the largest concentration of displaced African Americans (Weber & Peek, 2012).

Following the levee failure, the city of New Orleans embarked on multiple planning processes to guide long-term recovery and future development. The multitude of plans that emerged from the various recovery planning processes incorporated different degrees of citizen participation (Nelson, Ehrenfeucht, & Laska, 2007). The adopted plans employed neoliberal urban revitalization and poverty removal strategies adapted to disaster recovery that changed housing, employment, education, and healthcare opportunities in the city (Gotham, 2014). Prior research found disparities in recovery among different neighborhoods (Bullard & Wright, 2012; Gotham, 2014) but failed to examine the role of planning processes in shaping how displaced residents perceived the potential to return. Furthermore, researchers often study changes in housing, employment, education, and healthcare opportunities individually rather than exploring how these policy changes intersect in residents' experiences of return (Cho, Crenshaw, & McCall, 2013).

Utilizing a critical race and intersectionality theoretical approach, this study seeks to understand how local and national newspaper articles and African American residents frame obstacles to returning to post-Katrina New Orleans. Through a content analysis of news articles and qualitative interviews with displaced and returned residents, the project explores how recovery planning processes and policy changes influenced the decision-making processes of African Americans displaced to Houston. The study relies on a conceptual content analysis of Times-Picayune and New York Times news articles and two rounds of open-ended, qualitative interviews with seventeen participants representing three different cases: 1) those that returned to New Orleans, 2) those still displaced in Houston, and 3) those that relocated to Houston after returning to New Orleans for over a year. The researcher conducted initial interviews in 2011 and fourteen follow-up interviews in 2016 to identify how obstacles changed over time. Initiated after the 2011 interviews indicated the importance of the media in participant decision-making processes, the content analysis examines how local and national media sources portrayed policy changes and recovery efforts in Orleans Parish.

The findings show participants and the media framed disaster recovery policies as creating opportunities and gaps in assistance that varied by location. This created a push-pull dynamic between New Orleans

and Houston. Participants described how policy decisions that created gaps in assistance compounded the difficulty of returning for working- and middle-class African Americans. Overall, the study shows how disaster recovery planning and policies can operate as barriers and negatively affect the ability of low to moderate income African Americans to return from long-term displacement. In an era of where climate change is increasing storm intensity and frequency, the findings suggest planners and policy makers need to consider how post-disaster policy changes may intersect to create compounding difficulties that impede the ability of residents to return and rebuild their communities following catastrophic disasters.

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Key Words: Disaster Recovery, Planning Practice, Compounding Vulnerability, African Americans, Hurricane Katrina

SAILING THE TIDE: UNEVEN FOOTFALL IN COLLEGE TOWN COMMUNITIES

Abstract ID: 1136

Poster

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Local businesses have been considered propellers of small-town economic engines for decades. They play a vital role as basic economic building blocks by helping build a sense of community in such towns (Robertson, K.A., 1999). The economic resiliency of local businesses in the face of changing economic patterns (largely due to online shopping) is a testament to the operational hardship faced by business owners and stakeholders. However, in the context of ‘college towns’, another layer adds to those hurdles –the uneven footfall of the customer base. As most universities and colleges operate on semester patterns there is a constant shift in population for such towns which is described as ‘floating population’. This floating population results into uneven footfall of customers that jeopardizes the sustainability of locally owned business entities in college towns due to the constant influx and outflux of the student population throughout the year (RKG Associates Inc., 2015). Therefore, it is important to understand the niche under which such local businesses can function successfully to help strategize and strengthen the local economic model of small towns. (Lessem, R. et al, 1978) (Isserman, A. M., et al, 2009) This pilot study presents how local businesses adapt to the varying customer base (seasonal footfall) in college towns. It concludes with ways in which local business districts can incorporate policies that support more vibrant and resilient college-towns year-round.

The study looks at the business model of downtown Amherst, a city in Massachusetts that hosts both the University of Massachusetts and Amherst College. The methodology combines ethnographic and phenomenological qualitative research inquiry. As a researcher in order to gain an insider's perspective, I worked part-time for a year at a business entity in downtown Amherst. The gaps between policies and practicality were identified by comparing the needs and demands of successful functioning of a business in downtown. The research goal is achieved with a series of in-depth one-on-one interviews with local business owners and stakeholders from Business Improvement District (BID) of downtown Amherst collected over three months. Business owners shared how over the years academic institutions have encroached into various industry sectors in a quest to create an all-inclusive micro community for their patrons which in turn has treaded into a loss of customer base for these downtown businesses. The result is a furious competition, lack of harmony between academic institutions and local businesses that are forced to depend upon the loyalty of community members. The statements point to the need for policies that support different business models aimed at both students and the local community. Findings of the analysis include restructuring BID's scope as a liaison between institutions, local government and business entities to stimulate an economically resilient environment focused on partnership. Inferences delineate strategies that BID and business entities could benefit from, which includes: use of locational occupancy constraints, an adaptive coping mechanism with uneven liabilities in a business model and encouraging economic diversification within downtown Amherst.

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Key Words: Community and Economic Development, Small-Towns Businesses, Public-Private Partnership, Economic Resiliency, Business Improvement District

INDICATORS OF SUSTAINABILITY FOR SPATIAL ANALYSIS: A VISUALIZATION TOOL

Abstract ID: 1186

Poster

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Since the concept of sustainability emerged in the 1960s in response to concerns about environmental protection and economic development, sustainability has become an important term for evaluating the built environment development. There has been a conscious effort by urban planners, designers, and

researchers to understand the urban sustainability indicators that help evaluate environmental, economic, and social aspects of sustainability. The main challenge is to identify appropriate indicators of urban sustainability that determine the success and the failure of policies and strategies enforced to achieve sustainable urbanization.

This research addresses two major objectives. First, we examined multiple dimensions and contributory indicators of environmental, economic, and social sustainability. Second, appropriate assessment criteria were developed for evaluating the various aspects of three pillars of sustainability in planning practice. This research analyzed a case study of 38 neighborhood centers in Kansas City. Kansas City has pursued sustainable community redevelopment through various planning strategies.

This study employs a descriptive analysis to understand the relationship between spatial configuration and urban planning strategies in sustainable developments. This study illustrates challenges and opportunities of current sustainable development policies and strategies. Based on the findings, urban design guidelines and physical planning strategies for sustainable development are discussed.

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Key Words: Sustainability, Spatial analysis, Indicators

TRACK 3 – ECONOMIC DEVELOPMENT

TRACK 3 - PRE-ORGANIZED SESSION SUMMARY & ABSTRACTS FOR THE SESSION

PRE-ORGANIZED SESSION - EMPLOYING THE CONCEPT OF PUBLIC VALUE CAPTURE FOR PLANNING AND ECONOMIC DEVELOPMENT: AN EXPLORATION OF THE VARIEGATED FORMS, CONTEXTS, AND BENEFICIARIES OF PVC TOOLS

ID: 5

Pre-Organized Session Summary

Includes abstracts: 90, 91, 92, 93, 94

Public Value Capture (PVC), the idea that local governments can recoup increases in property values resulting from public investments and zoning changes, has long been an important planning and economic development tool (Hagman and Misczynski, 1978). PVC can take on many forms. Special taxation for infrastructure, for instance, is one of the oldest public financing tools embodying the concept. Tax increment-backed debt financing, TIF, is also underpinned by the PVC concept. Similarly, upzoning in exchange for public benefits is another variant of a PVC tool. Despite its widespread application, nevertheless, empirical studies on PVC have reported mixed results at best. This session grapples with the concept of PVC, its applications, and impacts. We will critically examine the places that have been transformed by PVC tools, discuss the types and magnitudes of public benefits that had been recaptured, who benefited from the recaptured values, and how existing communities have been impacted. We examine the successes and shortcomings of PVC-backed economic development experiences to tease out the conditions under which PVC can become an equity tool.

Objectives:

- understand how PVC tools impact local communities
- understand the causes of the successes and failures of PVC-backed economic development
- identify the conditions under which PVC can be used to further social equity

VALUE CAPTURE BY ZONING: HOW U.S. LOCAL GOVERNMENTS ARE USING LAND USE REGULATIONS TO GENERATE PUBLIC BENEFIT FROM REAL ESTATE DEVELOPMENT PROJECTS

Abstract ID: 90

Group Submission: Employing the Concept of Public Value Capture for Planning and Economic Development: An exploration of the variegated forms, contexts, and beneficiaries of PVC tools

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Local governments can utilize their power to zone to increase the value of real estate development opportunities and capture some of the value increment for public purposes. I investigate the entitlement processes of large-scale developments in five major U.S. cities to explore their varied attitudes towards value-capture-by-zoning and initiate a systematic status report of the practice. I find that 90 out of 100

developments studied secured substantial density and/or height increases by taking advantage of existing incentive zoning programs and/or by amending the zoning code. Over half of these projects, in fact, entailed project specific negotiations to determine the optimal intensity of the development and the accompanying public benefit packages. While all five cities used zoning as a value capture measure, some leaned more towards the negotiated approach than others. I further find that the negotiation practice varied greatly by city and sometimes even within cities. The appointed officials of some cities were more hands-on, directly overseeing the negotiations, whereas others stayed at arms length, allowing developers to directly negotiate with other elected officials and citizens. I conclude by offering suggestive remarks on how the differing negotiation styles affect the scope, breadth, magnitude, and beneficiaries of developer concessions.

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Key Words: Value Capture

PUBLIC PRIVATE PARTNERSHIPS AS A LAND VALUE CAPTURE TOOL TO FUND SOCIAL HOUSING

Abstract ID: 91

Group Submission: Employing the Concept of Public Value Capture for Planning and Economic Development: An exploration of the variegated forms, contexts, and beneficiaries of PVC tools

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The objective of this paper is to analyze the policy tool of using Public Private Partnerships as an approach for land value capture. This is a somewhat forgotten and underutilized tool when it comes to applying land value capture policy. Like all land value capture tools there are certain conditions that must exist in the land market and policy landscape for the tool to be applied effectively. Typically, this includes a land market that has experienced significant increases in land values, as well as a desire and capacity of the government agency to utilize public private partnerships.

This paper will analyze how public private partnerships have been applied in several jurisdictions to lever, the capture of land value to rebuild or provide affordable or social housing. There are three jurisdictions that will be included in the analysis: Toronto, Boston and Cape Town. In Toronto where the application is most advanced, this approach is being used by the Toronto Community Housing Corporation (TCHC). TCHC has recently applied this application. Its best-known case is Regent Park, an urban renewal public housing project built in the 1950's. As property values have increased significantly in Toronto, this provided the opportunity to capture the increased value to rebuild the old obsolete social housing. TCHC entered into an agreement with a private developer whereby the developer obtained several sites to build private sector condo's in exchange for rebuilding all of the social housing units and some public realm amenities. It has also extended the application to a number of other sites/projects that are under its control.

In addition to the TCHC example in Toronto, similar approaches are being used in Boston and Cape Town, South Africa. In Boston, the Boston Housing Authority is undertaking projects in Charlestown and South Boston, the McCormack project, The Cape Town attempt to apply this approach to using and value capture to build affordable housing is in the Woodstock and Salt River precinct. The specific applications and approaches of land value capture used in these jurisdictions and the potential outcomes will be compared and analyzed. Based on the analysis, recommendations will be made on how the use of this land value capture tool can be used most effectively to assist in the redevelopment/provision of affordable housing.

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Key Words: Land Value Capture, Public Private Partnerships, Social Housing Re/development

WHAT VALUE IS CAPTURED? PUBLIC-PRIVATE DYNAMICS IN LAND READJUSTMENT

Abstract ID: 92

Group Submission: Employing the Concept of Public Value Capture for Planning and Economic Development: An exploration of the variegated forms, contexts, and beneficiaries of PVC tools

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This article aims to examine the complex public-private dynamics in the process of value production and value capture in land readjustment in Taiwan. Particularly, the paper pays close analytical attention to the question of what value is captured in the planning process. Land adjustment is a government-led practice and process. It refers to the government's use of planning as a police power to consolidate small and irregular private land plots into urban development zones. At the end of readjustment, private landowners receive a portion (about 40%) of their previous land holdings while the government uses some of the remaining land area to build public infrastructure and sells the rest to raise funds to cover costs and to jump-start new readjustment projects in the city. The existing literature has discussed the important role that land readjustment plays in urban development, especially in Asia (Sorensen, 2000). In the USA, land readjustment has also been touted as a potential instrument of public-private partnership that helps reduce

private landowners' opposition to urban redevelopment (Sagalyn, 2007). What has not been sufficiently examined, however, is what kinds of value are captured and for whom (see Wolf-Powers, 2010).

In this article, we examine eleven land readjustment projects between 1980 and 2015 in New Taipei City, the most populous city in Taiwan. Our analysis focuses on three areas: changes in private vs. public landownership, the creation of a class of private homeowners, and land finance mechanisms. The eleven projects involved 523 hectares of land, most of which was farmland and 95% of which was privately owned. After readjustment, 73% of the land (383 hectares) was zoned for urban development and the remaining 27% (140 hectares) was used for public facilities and infrastructure, such as roads, parks, and public schools. Among the 383 hectares of developable land, 54% was returned to original private landowners and the remaining 46% was obtained by the municipal government under public ownership. The municipal government, however, mostly auctioned this newly acquired public land to real estate developers, who, in turn, built high-rise, high-priced residential apartment buildings. Our analysis also shows that land readjustment has been an important provider of serviced land for the real estate sector, and that the profit generated by land sale has been an important source of finance for the municipal government's urban development projects. We argue that the value capture mechanism of land readjustment is predicated on the real estate market. To ensure that the value-capture mechanism in land adjustment works, the municipal government needs to employ public policies to make sure land and housing prices continue to rise (Hua, 2000). Our analysis shows a much more complex picture of the public-private relationship in land value capture. Our study also aims to fill the gap in the literature on the developmental state in East Asia that has largely missed the role of land and real estate markets (see Smart and Lee, 2003).

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Key Words: land readjustment, value capture, public-private dynamics, urbanization, Taiwan

MAKING VALUES CALCULABLE AND CAPTURABLE: THE POLITICS OF APPRAISING PROPERTY FOR LAND VALUE CAPTURE

Abstract ID: 93

Group Submission: Employing the Concept of Public Value Capture for Planning and Economic Development: An exploration of the variegated forms, contexts, and beneficiaries of PVC tools

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In order for value to be captured, it must first exist. In other words, value is not something intrinsic to property that exists a priori to the calculations and transactions that define, extract, and exchange it. Values depend on “how valuation is done, when, by whom, and for what purpose... The value of an asset is, so to say, entirely in [the practitioner’s] hands” (Muniesa 2011, 28). In other words, values are defined by the methods used to estimate them.

This paper examines the ontological status of value through an examination of the tools and techniques that render value capturable. It draws from an ethnography of Tax Increment Financing (TIF) use in Chicago to analyze the appraisal and assessment methods that underpin value capture tools more generally.

Municipalities and developers have an interest in property values increasing within areas designated for land value capture because taxes on the incremental change in values are the repayment source for debt floated to fund infrastructure and developer subsidies. In the case of TIF, developers use TIF proceeds from the expected increase in property taxes to acquire, construct, or improve property, and the city uses the actual collected increase in property taxes to service the debt on the subsidies. Both public and private interests use models to show how the property values of the proposed project will be greater than whatever is there now, how the project will appreciate rapidly over the future, and how the project will pull up the values of neighboring parcels (McAllister 2017). They use different assumptions, data, and appraisal methods to make these claims on the future.

How does this abiding interest in appreciation influence the valuation methods used to estimate property values? I found that government agencies and property owners exploit the malleability of value to estimate them upwards when determining collateral and payback schemes for publicly funded projects. They do so by selecting methods -- such as those that use capitalization rates -- that incorporate the inflationary affect that the availability of cheap credit (from quantitative easing) has on sales prices. In other words, the calculative techniques adopted in these cases reflect the speculative nature of property markets in an era of financialization (Weber 2010).

The transaction that transfers the estimated increment to the developer does not signal the resolution of the problem of valuation. The private recipient of the state’s largesse – in some cases the original developer, in others the purchaser of the project -- often takes advantage of the flexibility of valuation to subsequently appeal their property values downward. Owners systematically devalue their holdings in to obtain appeals, and the value estimates they use in such cases bear no resemblance to the ones they have shown the city to obtain TIF subsidies. Property owners within areas designated for value capture can also apply for property tax abatements. Appealing and abating property taxes downwards can undermine the municipality’s ability to pay for its expenditures and repay debt.

Planners need to anticipate the fact that the multiplicity of potentially contradictory values may undermine well-intentioned value capture schemes. While they need to take measures that can protect future values, they should do so without compromising other public goals.

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Key Words: Tax Increment Financing, Taxation, Administrative process, Finance, Appraisal

THE COST OF NEW YORK CITY'S HUDSON YARDS REDEVELOPMENT PROJECT

Abstract ID: 94

Group Submission: Employing the Concept of Public Value Capture for Planning and Economic Development: An exploration of the variegated forms, contexts, and beneficiaries of PVC tools

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Tax increment financing (TIF) has exploded in popularity on the municipal finance landscape as cities compete for scarce public resources to fund economic development. Previous studies evaluate TIF's efficacy and ability to spark economic growth. This research expands the evaluation of TIF by questioning the widespread understanding of TIF as a "self-financing" tool through an analysis of its risks and costs to taxpayers. We present a case study of the Hudson Yards redevelopment project in New York City, the country's largest TIF-type project. Our analysis reveals a project that, rather than being "self-financing," cost the city \$2.2 billion, largely due to tax breaks to incentivize development and standard development risks and costs. We conclude that positioning TIF and its variants as "self-financing" is incomplete and that analyzing costs and risks associated with TIF and TIF-variant projects is necessary to provide a robust cost-benefit analysis to those municipalities considering its implementation.

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Key Words: tax increment financing, Hudson Yards, municipal finance, Risks and Costs, urban economic development

THE APPLICATION OF DATA SCIENCE IN ECONOMIC DEVELOPMENT

ID: 7

Pre-Organized Session Summary

Includes abstracts: 144, 145, 146, 148

Urban data science in recent years has attracted much interest in the field of urban planning, due to its wide applicability to solve urban issues with large-scale data in a timely fashion. Economic development scholars cannot shy away from this general trend, but instead need to start thinking about integrating these emerging methods into their research. In this session, we are interested in learning how economic development scholars can effectively apply a variety of data science methods, such as natural language processing, image recognition and other machine learning techniques, to address a wide range of

economic development issues. What novel findings can be revealed with these new methods? And how can economic development researchers communicate these complicated methods and findings in an easily-digestible and policy-oriented manner? We see the marriage between data science and economic development as a promising front for making new discoveries through data-intensive, computational-efficient, and real-time-responsive methods. We are excited to get together with colleagues to share experiences, address challenges, and identify a way forward.

Objectives:

- Effectively apply data science methods to analyze economic development issues
- Contrast findings of traditional versus data science methods
- Communicate complicated methods and findings in an easily-digestible and policy/practical-oriented manner

BREWING INNOVATION: ARE COFFEE HOUSES BREWING NOT ONLY YOUR MORNING LATTE, BUT ALSO NEW IDEAS?

Abstract ID: 144

Group Submission: The Application of Data Science in Economic Development

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Research Question: Do coffee houses encourage social interactions? If yes, will these interactions subsequently encourage innovation?

Background: Inspiring smart people to mingle and collaborate is found critical for encouraging innovation (Jacob, 1961; Storper & Venables, 2004). Researchers have long discovered that urban agglomerations, i.e., concentrations of firms and workers, boost innovation and startups, simply because cities have a large volume and a variety of people interacting with each other (Acs & Varga, 2005). Researchers such as Jaffe, Trajtenberg, & Henderson (1993) directly quantified the magnitude of knowledge spillover across space with the trails of patent citations. Similarly, Glaeser & Resseger (2010) found evidence that human capital accumulates more quickly in urban areas because proximity spreads knowledge. But few studies have examined ongoing social interactions at the street level, and practical efforts to bring people together and create mingling spaces have been limited. One barrier for practitioners is the lack of knowledge of how much social mingling at the street level encourages innovation and how to create interactive social spaces to accommodate such interactions.

Methodology: This paper uses all the coffee houses in the state of Maryland that have Google Review entries from 2004 to 2017 to study the economic benefits of social interactions. We collected and matched three datasets: establishment data from the restricted version of Quarterly Census of Employment and Wages, patent application data from the United States Patent and Trademark Office, and the location and Google Reviews of coffee houses from Google. We adopted data crawling, text-mining and spatial cross-correlation analysis to identify the co-location of patent filing and coffee houses, and linked the number of patent filings to the appearance of “conversation”- and “network”-related words and phrases in Google Reviews of nearby coffee houses.

Findings: While the data analysis is still ongoing, a pilot study on the city of Rockville shows the spatial proximity between coffee houses and patent applications. 64% of patent locations are within five-minute

walking distance (500 meters) of coffee houses, and 100% are within ten-minute walking distance (1000 meters). In comparison, a random spatial distribution of coffee houses would have only covered 30% and 60% of patent locations within a range of 500 and 1000 meters, respectively. Our mining of Google reviews also identified customer comments related to social interaction and productive conversation.

Relevance: This paper is both academically and practically relevant. Academically, it is among the first to quantify the economic benefits of social interactions at the micro level; it explores one underlying mechanism that makes cities hotbeds for fresh ideas. Practically, it informs city managers, planners and designers the importance of cultivating better built environment and improving service quality, which can help with the establishment of local meetup locations, ignite social interactions, and subsequently boost innovation.

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Key Words: coffee house, social interaction, innovation

SQUARING THE CIRCLE (LINE): ASSESSING THE USE OF MACHINE-LEARNING TO PREDICT NEW BUSINESS CREATION AROUND TRANSIT LINE EXTENSIONS IN CHICAGO

Abstract ID: 145

Group Submission: The Application of Data Science in Economic Development

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As North American cities have engaged in a rail transit construction “boom” over the past 25 years, assessing the economic development impact of these systems has become an important research topic in regional science and urban planning. While this literature has grown substantially in recent years, and generally finds that rail transit systems foster adjacent increases in property values and new business creation (Mohammed et al., 2013; Chatman et al., 2016), the advent of new, large datasets – such as the National Establishment Time Series (NETS) – and new methodologies – including machine-learning techniques that employ random forest and other algorithms – provide an important opportunity to improve the predictive capabilities of existing models. Indeed, a recent analysis (Credit, 2018) of new business creation around transit found that traditional non-spatial modeling techniques (of the type commonly used in the literature) produce as many as 52% Type I errors when compared with more advanced spatial econometric methods.

Given both 1) the scientific need to improve the methodological rigor of these analyses, as well as 2) the applied need for city planners and local government stakeholders to obtain realistic predictions of new economic activity around planned transit line expansions, the goal of this paper is to test the comparative performance of traditional non-spatial models, spatial econometric techniques, and a variety of machine-learning algorithms in predicting new business creation around transit stations. The paper will then apply the best-performing technique to predict new business creation around stations for several planned extensions of the Chicago Transit Authority's (CTA) rail network, including the Circle Line. Given existing disparities in neighborhood economic outcomes and transit service, Chicago provides an ideal case in which to analyze the predictive capabilities of these various methodologies. The results of this analysis can then be used to inform policy decision-making around transit line extensions in the city.

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Key Words: Machine-learning, Big data, Transit, Entrepreneurship

CREAMING OPPORTUNITY: WHAT ATTRIBUTES GO INTO OPPORTUNITY ZONE SELECTION?

Abstract ID: 146

Group Submission: The Application of Data Science in Economic Development

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This paper seeks to identify what factors have gone into Opportunity Zone selections across the country. Opportunity Zones are a new economic development policy tool, managed by the Treasury Department, designed to steer capital gains benefits into disadvantaged census tracts in order to spur redevelopment. But recent articles highlight that many opportunity zone tracts are not actually suffering from true disinvestment, calling into question the features that dictated zone selection by the states. This paper will answer whether the selected tracts are, in fact, those most in need of investment or simply those are most attractive to investment. Using opportunity zone data from the US Treasury and varied Census datasets this paper will use both logistic regression and hierarchical clustering, this paper will identify the attributes that predict for opportunity zone tract designation. This study hopes to highlight the strategies of state and local governments as they seek to take advantage of novel tax and development instrument in the service of community redevelopment.

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Key Words: economic development

SHRINKING CITIES IN URBANIZED CHINA: DYNAMIC TIME-SERIES CLUSTERING

Abstract ID: 148

Group Submission: The Application of Data Science in Economic Development

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Shrinking cities are considered as one of the most critical challenges in urban planning. However, the issue of urban shrinkage has not been explored much in the developing world, especially in rapidly urbanizing China. The “developing” character tends to divert the research focus to the growing and megacities, masking the paralleled uneven development and the problem of shrinkage in other cities. In fact, the massive state-led urbanization in China has created different development trajectories for cities.

To fill the gap of shrinking cities in developing contexts, this paper contributes to the study of urban shrinkage in China both methodologically and theoretically. Instead of choosing two time points and calculate urban changes, this paper utilizes an innovative technique, Dynamic Time Warping (DTW) algorithms from data science, to conduct time-series clustering analysis on urban growth and shrinkage. It groups all 290 prefecture cities in China into different urban trajectories from 2006 to 2015, such as continuous growth, recent growth, stabilized shrinking, recent decline etc. The typologies are further created based on the trend of time-series clustering results of the urban population and economy dimensions.

Then, the paper further explores the factors that may affect urban shrinkage in China using a multinomial logistic regression. The impacts of state spatial selectivity, local responses to state rescaling, core-periphery neighboring effects and economic restructuring are examined across different urban trajectory typologies. In general, cities in northern China, especially in the Middle Yellow River region and the Northeast suffer from population loss and economic decline due to not being privileged by the state for development, higher local economic share in resource-based sectors, lower natural growth rate, less competitiveness and attractiveness to the market and developers. In contrast, shrinking cities in south-central China, especially in the southeastern coast and Middle Yangtze River, can be attributed to their proximity to state-selected high-level large cities that have a gravitational pull of people and economic activities. Since these middle and smaller cities are not favored by the state policies, they are likely to rely on debts to sustain local economic growth.

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Key Words: Shrinking Cities, Time-Series Clustering, Dynamic Time Warping, State Rescaling

STREETLIFE - THE PAST, PRESENT AND FUTURE OF NEIGHBORHOOD-SERVING URBAN RETAIL

ID: 8

Pre-Organized Session Summary

Includes abstracts: 296, 297, 298

This session focuses on the current status and future prospects of small-scaled, walkable, and neighborhood-serving urban retail, a cornerstone of urban life and the urban experience. While walkable neighborhood-serving retail has demonstrated social, economic and other benefits, it has become increasingly difficult to maintain in times of ongoing retail consolidation and virtualization. From a range of methodological and disciplinary perspectives, the session papers assess the history and current status of walkable neighborhood-serving retail, definitions of urban retail districts, and spatial and organizational influences on retail viability.

Objectives:

- Visitors will learn about the historical patterns and current status of neighborhood-serving retail
- Visitors will learn about definitions of urban retail and urban retail districts
- Visitors will learn about trends that influence the viability of neighborhood-serving retail

HISTORY REPEATS? LONG-TERM TRENDS IN AMERICAN URBAN RETAIL

Abstract ID: 296

Group Submission: Streetlife - the past, present and future of neighborhood-serving urban retail

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Walkable ground floor retailers are the cornerstone of the American urban experience and its notion of urban vibrancy. The proximity of shops, coffee houses, bars and restaurants make for healthy, resilient and sociable urban environments, as they provide cities with destinations to walk to, places to socialize, and a heightened sense of community (Forsyth, 2015; Mehta & Bosson, 2010; Oldenburg, 1999; Stroope, Franzen, Tolbert, & Mencken, 2014). As a result, urban plans and designs frequently call for fine-grained retail, but often fall short on their promises. The mismatch between the desire for the corner store or tavern of yesteryear and the reality of ever-consolidating and virtualizing retail is often fueled by a lack of knowledge on retail dynamics and trends. Firstly, this paper surveys patterns of American urban retail transformation since 1929, comparing standardized economic census records of a selected group of large, medium-sized and smaller cities with national retail trends. It finds that even in relatively stable urban environments, the number of retail establishments has decreased by over 75%, with food stores dwindling even further, but bars and restaurants often demonstrating more stability. Secondly, the paper surveys contemporary trends in retail, dissecting how e-commerce growth and retail consolidation not only posits threats for urban retail districts, but also opportunities, depending on merchandise categories,

demographics and the experiential quality of urban settings. Also, it finds remarkable similarities and continuities between current and historical trends. Finally, the paper discusses which types of further research are needed to substantiate successful urban retail revitalization, especially focusing on spatial dynamics and social benefits.

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Key Words: Retail, Historiography, E-commerce, Walkability

WHERE IS MAIN STREET? COMPARING THEORETICAL AND DATA-DRIVEN OPERATIONALIZATIONS OF MAIN STREET BOUNDARIES IN CHICAGO AND STOCKHOLM

Abstract ID: 297

Group Submission: Streetlife - the past, present and future of neighborhood-serving urban retail

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Given the changing landscape of physical retailing over the past 30 years and the decline of small, local, independent retailers that imposes negative effects on neighborhood stability and active street life. Urban planners are increasingly interested in better understanding the characteristics of urban form and the built environment that foster resilience for small, local, independent retailers. This has become particularly important recently as researchers seek to better understand the influence of e-commerce shopping behavior on physical retail.

However, in order to analyze the relationship between urban form and independent retail resilience, we first need to obtain spatially-defined boundaries for concentrations of independent retail neighborhoods (or “Main Streets”). While a variety of theoretical characteristics have been proposed for defining Main Streets, such as density, mixed-use, fine grain design and permeability, it remains to be seen whether these characteristics can be generalized and readily used to define Main Street boundaries across a variety of urban contexts. In addition, new large business establishment datasets (such as the National Establishment Time Series in the US) provide the potential for creating entirely data-driven definitions of Main Streets, but it is unknown how these approaches would compare to the theoretically-driven Main Street boundaries.

Thus, in order to obtain readily-operationalizable Main Street boundaries, this paper compares definitions driven by the theoretical literature to definitions created using entirely data-driven approaches. Each of these approaches will be tested by comparing the results to “known” Main Street locations in Stockholm and Chicago. The results of this analysis can then be used in a variety of future research contexts, from analyzing the relationship between urban form and retail closures and openings (failures and opportunities) to comparing the online shopping behavior of “Main Street” and chain retail customers, and others.

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Key Words: Retail, Main Street, Entrepreneurship, E-Commerce, Neighborhood

FIRM DEMOGRAPHICS OF THE RETAIL SECTOR, A SPATIAL PERSPECTIVE

Abstract ID: 298

Group Submission: Streetlife - the past, present and future of neighborhood-serving urban retail

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Firm demographics study the life and death of corporations and industries using the formal methods of mathematical demography. While this approach has seen application in regional science and planning, e.g., in studies of the dynamics of manufacturing, high technology startups and the like, very little is known about the demographic characteristics of the retail sector.

In this paper we study the pattern of births and deaths in the retail sector, using detailed business establishment information on their location obtained from the National Establishment Time Series (NETS) data base. This allows us to track the locations over time and across space of new establishments (births), the disappearance of establishments (deaths) and their progression throughout the life cycle. It also allows us to compute a life table for retail establishments, culled from the transition between age groups from year to year. This gives information about several types of duration effects, such as the expected life span at birth.

We consider the differences and similarities of patterns between several U.S. metropolitan areas in terms of birth and death rates and life expectancies and relate those to characteristics of the metro areas. We also carry out a within-metro spatial analysis, focused on Chicago, by treating the birth and death locations as point patterns, and analyze them by means of a range of spatial statistical measures. Finally, we turn to a within-metro areal analysis at the neighborhood level (zip-code zones) and consider the spatial distribution of births and deaths relative to the overall spatial pattern of retail. We relate the characteristics of this spatial distribution to variables that capture the socio-economic profile urban morphological properties of the neighborhoods.

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Key Words: retail, firm demography, life tables, spatial patterns, NETS

INCLUSIVE INNOVATION THROUGH POLICY AND PRACTICE

ID: 28

Pre-Organized Session Summary

Includes abstracts: 333, 334, 713

The papers in this session examine policies or practices that support or hinder inclusive innovation. These papers will help inform a special issue topic for Local Economy journal.

Objectives:

- define and debate inclusive innovation

GENESIS AT WORK: ADVANCING INCLUSIVE INNOVATION THROUGH MANUFACTURING EXTENSION

Abstract ID: 333

Group Submission: Inclusive Innovation through Policy and Practice

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Inclusive innovation is a generative concept that offers a hopeful portrait of our economic future—not one in which technological advances displace up to half the current workforce, with little mercy for those already struggling to make ends meet—but one that instead repositions potentially vulnerable segments of the working population as critical actors in an on-going drive to support new product development and process improvements. This concept of inclusive innovation is particularly inspiring for U.S. manufacturing, helping challenge a dystopian narrative in which frontline production workers will be displaced by advances in automation and robotics and thus at risk of further economic marginalization.

But this inclusive turn within innovation studies also has its limits, most notably the tendency to narrowly focus at the individual worker level, pushing investments in higher education as a panacea for extending economic opportunity. What this educational-fix obscures are a deeper set of organizational challenges that keep many businesses from fully engaging their frontline workforce and with it, tapping their

creativity and ingenuity, regardless of formal educational attainment. While workforce training can play a critical role in that effort, such investments—in isolation—do little to transform established business practice in order to ensure there is organizational capacity and wherewithal to “pull in” and inspire a skilled workforce.

This paper draws on a three-year, mixed-method evaluation of a novel business-facing initiative called the Genesis Movement, to understand its role in reshaping the workforce experience within SME manufacturing businesses in Chicago, Illinois. Genesis was launched in 2014 by the Illinois Manufacturing Excellence Center (IMEC), with seed funding from local and national foundations. Housed at Bradley University in northern Illinois, IMEC is part of the Manufacturing Extension Partnership—a nation-wide network that was established by the U.S. Department of Commerce in the early 1990s to improve the competitiveness of small- and medium-sized manufacturing enterprises.

Genesis represents a major departure to more conventional approaches to manufacturing extension, which often focus on short-term projects to promote efficiency and productivity improvement through “lean” manufacturing principles. By contrast, Genesis-enrolled firms commit to a 24 month strategic planning process with the ultimate goal of integrating concurrent improvements to job quality with advances in business performance. While non-profit workforce service providers have long attempted to secure a similar job quality commitment from smaller firms, the Genesis experiment is the first to involve a federally-funded manufacturing extension program—one with a successful history of promoting innovative business strategies and technological modernization.

To study Genesis, we conducted a series of interviews with a range of stakeholders, including frontline workers, over the course of multiple site visits from 2014-2018. In addition we analyzed survey data and individual wage records collected from all participating firms. To contextualize firm level impacts, we also interviewed IMEC staff at yearly intervals. We find that Genesis firms adopt an inclusive organizational culture, using frontline worker engagement, skills training and job quality improvements to drive firm performance. As such, Genesis offers a scalable model with the potential to expand across a national MEP network already serving thousands of manufacturing businesses that collectively employ hundreds of thousands of workers.

This paper supports Genesis diffusion by offering insights for how other North American regions can leverage government and university commitments to manufacturing extension to inform technological progress and in ways that are inclusive of the frontline workforce. It also suggests opportunities for manufacturing extension providers to partner with workforce-service and advocacy organizations in order to magnify their combined impact on inclusion and innovation.

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Key Words: inclusive innovation, manufacturing extension, manufacturing, frontline workers, job quality

IDENTIFYING AND ADDRESSING DISPARITIES IN ROBOT ADOPTION AMONG US MANUFACTURERS

Abstract ID: 334

Group Submission: Inclusive Innovation through Policy and Practice

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This presentation/paper draws on insights gained during multiple years of research on industrial robotics adoption in US manufacturing, with an emphasis on results from the Georgia Tech Survey of Advanced Technology and Robotics in US Manufacturing.

While robotics and other advanced manufacturing technologies are often seen as job displacers—a characterization that may be true in specific times, places, and industries—our research suggests that since the Great Recession, industrial robotics adoption in the US has broadly been associated with increases in manufacturing employment and wages at national and regional levels. However, only a small percentage of manufacturers has actually adopted robots in the first place, and these adopters are disproportionately large establishments in the automotive industry.

We discuss how long-running barriers to technology adoption exacerbate competitiveness problems for small and medium-sized manufacturers, especially in times of labor scarcity, and propose inclusive policies that may both reduce the technology divide between large and small firms and provide safer and more highly compensated jobs for workers.

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Key Words: robot adoption, manufacturers, employment, wages, workforce policy

EXPANDING DIGITAL OPPORTUNITY? INCLUSIVE INNOVATION AND THE 'ORDINARY' CITY

Abstract ID: 713

Group Submission: Inclusive Innovation through Policy and Practice

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Post-industrial economic advantage depends on the capacity to develop and apply digital technologies. Digital platforms, robotics and artificial intelligence, additive manufacturing, and the Internet of Things, along with big data, new algorithms, and cloud computing are altering the very nature of employment and the entire structure of the economy (Kenney & Zysman, 2016). The implications are profoundly socio-spatial and socio-technical, begging important questions about where and for whom digital opportunity is created. Privileging ‘technology hotspots’ with the ‘right mix’ of skills, knowledge, and technology, we know much less about the prospects for smaller and mid-sized cities where most people actually live. We also know much about the secure employment prospects for workers and entrepreneurs educated to develop digital applications and content, but much less about the increasingly ambiguous future for those less well-positioned to benefit from rapid technological change.

As digital innovation accelerates it represents one of the fault lines that threaten most to exacerbate growing inequality - with important political consequences (Rodriguez-Pose, 2017). Simply creating digital opportunity is insufficient. Rather, it requires meaningful expansion to more people and places on the ‘wrong side of the digital divide’. As Kenney and Zysman (2016, 61) remind us, the broader impact of digital technologies “will be determined by the social, political, and business choices that we make”. The need for more intentional and inclusive forms of intervention implies essential strategic roles for both public policies and local institutions. Experimentation is increasingly evident with digital inclusion practices such as sector-based workforce development systems and career pathways into digital and digitally-supported industries and occupations (Lowe & Wolfe-Powers, 2016), supports for women and minority technology-based entrepreneurs (ICIC, 2015), and open access makerspaces. However, we as yet know little about how these programs are developed and implemented, or their actual impact.

This project compares ‘digital inclusion’ efforts in Saint Etienne, France, London, Ontario, Canada, and Greensboro, North Carolina, in the United States, three mid-sized cities in the midst of restructuring. Asking urban policymakers whether and how they seek to expand opportunity to groups typically under-represented in digital economy activities, we compare the multilevel interplay of public policies and local institutions in the three program areas identified. The results are decidedly mixed and these are ‘not success stories’. Digital inclusion is evident in two of the three cases. These include a career pathways program into software engineering for low income immigrant youth and a program to expand business supports to women and minority entrepreneurs in Saint Etienne and Greensboro respectively.[1] However, it is one thing for local programs to form and entirely another for them to perform; even with supportive public policies, durable cross-sector coalitions to support high impact programs are difficult to sustain (Bramwell, 2012). Jurisdictional ambiguity, weak local government or private sector participation, and inter-agency conflict underscore the political fragmentation that compromises local institutional capacity. Due partly to structural forces beyond their control and partly to local actor configurations and the policy choices that ensue, the implications of these sobering insights for planning scholarship and practice suggest that strategic efforts to support inclusive innovation in less advantaged regions will fail without attention to the political dimension of local institutional capacity.

[1] Inclusive innovation is least evident in the London case, which despite having the most robust local digital sector, demonstrates no digital inclusion efforts.

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Key Words: inclusive innovation, digital economy, institutions, innovation policy

INCLUSIVE INNOVATION THROUGH BUSINESS AND ENTREPRENEURIAL STRATEGY

ID: 29

Pre-Organized Session Summary

Includes abstracts: 330, 331, 332

The papers in this session examine business or technology trends that support or hinder inclusive innovation. These papers will help inform a special issue topic for *Local Economy* journal.

Objectives:

- define and debate inclusive innovation

EXAMINING A DIVIDE WITHIN ENTREPRENEURIAL ECOSYSTEM

Abstract ID: 330

Group Submission: Inclusive Innovation through Business and Entrepreneurial Strategy

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There has been an increasing number of scholars examining so-called 'entrepreneurship ecosystems' in the past decade, while much of the focus has been identifying elements of ecosystem, such as incubators, support services, venture capital, universities, and government (Breznita and Taylor 2014; Motoyama and Knowlton 2017). Some studies noted the importance of social capital in the ecosystem (Feldman 2001; Neck et al. 2004). However, they suffer from conceptual weakness because they do not differentiate elements and interaction between elements. A few studies have pointed out the importance of peer-based learning among entrepreneurs (Bahrami and Evans 1995; Feld 2012). However, virtually, almost no study has investigated the communal aspects of the system and assumed that every entrepreneur within a region has access to local resources.

In this study, we demonstrate that the ecosystem, its elements, or even connectivity does not reach to certain segments of entrepreneurs, most notably women entrepreneurs. We conducted 83 interviews of both male and female entrepreneurs, as well as leaders of support organizations in St. Louis.

We identified two structural reasons that women entrepreneurs did not get connected to the local entrepreneurship community. First, the networks of women entrepreneurs tend to be smaller than male

counterparts, and the network of female entrepreneurs had little interaction with those of male entrepreneurs. A further complicating factor here is that entrepreneurs often seek local resources and support groups based on word-of-mouth from other peer entrepreneurs. Thus, even when support organizations tried to recruit women entrepreneurs, spreading words through existing clientele, i.e. male entrepreneurs, had little effect to reach new and different segments of entrepreneurs.

Second and more importantly, even when female entrepreneurs were aware of such networks, they explicitly decided not to engage because the style of entrepreneurship was culturally different. We perceived this cultural dimension broadly and disaggregated at several levels: a) the use of vocabularies particularly related to startups and entrepreneurs vs. small businesses and owners, b) the types of business models, such as the growth patterns and exit settings, and the use of venture capitals, and c) a series of microaggressions that made women entrepreneurs felt uncomfortable to engage with the mainstream entrepreneurship stakeholders.

These two findings point out that an ecosystem is far from complete with the presence of elements, and much deeper analysis about connectivity and communal aspects between people is needed. We further provide a practical implication that open-door policy by support organizations is necessary, but far short of connecting non-mainstream entrepreneurs and achieving diversity within a local system.

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Key Words: Entrepreneurship, Local system, Community

LOCATING “LOW-TECH” INNOVATION IN INSTITUTIONAL AND GEOGRAPHICAL SPACE: THE CASE OF ROBOTICS SYSTEMS INTEGRATORS

Abstract ID: 331

Group Submission: Inclusive Innovation through Business and Entrepreneurial Strategy

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Robotics systems integrators are knowledge-intensive business service firms that design and implement industrial robotic automation systems. They work at the boundary of high-tech artificial intelligence technology applications—such as machine vision—and low-tech manufacturing applications—such as welding and painting. Industrial systems integration is a growing field that has thrived in a knowledge-based economy while carrying with it embedded legacies and practices of “low-tech” industrial cultures and approaches to innovation. These practices include emphasizing user-producer interactions, learning-by-doing, and incremental innovation. This presentation proposes that although these industrial

inheritances are often assumed to be at odds with contemporary innovation systems theory and practice, acknowledging and incorporating them can promote more inclusive innovation, especially in deindustrializing regions. It uses data from surveys of and interviews with robotics systems integrators to explore how they incorporate these industrial legacies into their innovation practices, and further discuss how these low-tech practices can more broadly be acknowledged in inclusive innovation strategies.

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Key Words: Manufacturing, Knowledge bases, Low to medium tech innovation, Industrial legacy

MAKING SPACES? PLANNING FOR NEW FORMS OF URBAN PRODUCTION

Abstract ID: 332

Group Submission: Inclusive Innovation through Business and Entrepreneurial Strategy

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Are we in the midst of an urban manufacturing renaissance? New, more accessible and more affordable technologies, like 3D printers, laser cutters, and hobbyist CNC machines, coupled with social innovations, like the Internet, open source licencing, and social networking, are transforming high-tech and high-value urban manufacturing. Taken together, these innovations offer a counter narrative to the proclamations of the death of North American urban manufacturing. Buoyed by growing public interest in do-it-yourself culture, localism, and sustainability, these technological and social innovations collide in emerging maker culture and makerspaces. Akin to technology-centric manufacturing cooperatives, makerspaces are an understudied urban phenomenon. Optimistic accounts suggest that makerspaces provide foundational ideation and prototyping infrastructure for artisanal manufacturers, micro-manufacturers, and entrepreneurs (Anderson, 2012). Others suggest that urban makers, like their creative and knowledge industry counterparts, benefit greatly from the ecology of dense urban communities and proximity to customers, labour pools, and other manufacturers (Wolf-Powers et al., 2017). As such, makerspaces may be a primary mechanism for creating design-intensive, high-tech and high value production, representing a potent means of promoting high quality job growth and inclusive urban economic development.

There are two competing hypotheses related to the emerging geography of maker culture and makerspaces. On the one hand, technological and social innovations may encourage the further decentralization of urban manufacturing (Anderson, 2012). On the other hand, the networks and technologies necessary for successful makerspaces may be embedded in older industrial regions and urban neighbourhoods where there have been strong traditions of manufacturing (Clarke, 2013). To date,

there have been few systematic attempts to examine the underlying local geography of maker spaces. In an effort to address this gap, this paper asks the following questions: 1) what models, policies, and institutions exist that support, or hinder, these emerging forms of manufacturing in urban and regional economies?; 2) what are the neighbourhood characteristics associated with makerspaces; and 3) to what extent do these reflect more equitable forms of local economic and urban development.

To answer these questions, this paper uses census data to analyze the socio-economic neighbourhood characteristics of the locations of makerspaces located in twenty-one cities in the Canadian province of Ontario, as well as their associated urban planning and economic development strategies. These twenty-one cities are mandated to pursue population and employment densification, governed by the Province of Ontario's Places to Grow Act and the Growth Plan for the Greater Golden Horseshoe. The paper reveals how policymakers conceptualize artisanal manufacturing and making, and the extent to which equity and inclusion goals are considered. The paper goes further to analyze the neighbourhood characteristics associated with local makerspaces to understand the extent to which these spaces are embedded within neighbourhoods reflective of broader equity and inclusion goals. While this research is still exploratory, it represents an area of growing interest to local governments and professional planners wishing to support (or revive) new forms of innovative manufacturing in cities. However, the paper also raises questions about the potential of micro-manufacturing and maker spaces for creating higher quality jobs and inclusive development in North American cities.

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Key Words: manufacturing, neighbourhood characteristics, equity, economic development, maker spaces

TRACK 3 - ROUNDTABLES

ROUNDTABLE - REAL ESTATE DEVELOPMENT AND ECONOMIC DEVELOPMENT PLANNING EDUCATION: PRAGMATIC TURN OR TROJAN HORSE?

Abstract ID: 266

Roundtable

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The economic development planning sub-field has long wrestled with competing emphases on industry, jobs and innovation on one hand, and land, real estate and finance on the other. Yet in practice, economic development planners routinely straddle these worlds, as efforts to spur new job creation or retain existing industries are deeply impacted by private-sector real estate developers seeking public approvals or funding support - or whose investment is said to be important for achieving local and regional economic development goals. On a pragmatic level, economic development planners need to understand how real estate development works; this is driving a growing student interest in courses related to real estate finance and development. At the same time, it is important to balance this pragmatism with a recognition that, if not taught effectively, real estate could become a “trojan horse” that weakens our orientation toward good jobs, addressing income and wealth disparities, and fostering community stability and well-being.

In this roundtable, faculty assess the unique challenges and opportunities inherent in teaching real estate to planners and think about how we use our time in the development finance classroom to shape students' understanding of the world they will face as professionals. Some questions we may explore are: How is economic development finance distinct from housing/real estate finance, practically and pedagogically? What is it important for students to know about the current status and political economy of development finance? What kinds of tools and curriculum content encourage students to think critically and integrate community-supporting values and conditions as they learn the basics of real estate financial analysis? And who should be teaching these courses - what are the appropriate roles of adjunct-practitioner and academic faculty?

More broadly for economic development planning educators, what does this “real estate turn” mean for how we frame the meaning and goals of the economic development sub-field to students, and to one another as scholars? What are the implications for the curriculum -- is the pro forma becoming more important than shift-share analysis? Ultimately, what role should real estate finance and development courses play in the training of economic development planners?

This roundtable will feature faculty who have been teaching at the intersection of real estate, planning and economic development - some as pioneers, others as relative newcomers. Setting the tone for the conversation will be Emil Malizia, Professor at UNC Chapel Hill, who was an early adopter of the idea that real estate finance should be integrated into the economic development curriculum. Designated by the Economic Development track chairs as the “chairs’ session,” this session is intended to spur dialogue about important issues facing the economic development sub-field. As a result, we encourage all economic development planning faculty to attend.

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Key Words: real estate development, economic development, planning education, development finance

TRACK 3 INDIVIDUAL ABSTRACTS

REVITALIZING NEW YORK'S URBAN ALLURE THROUGH CREATIVE CITY STRATEGIES

Abstract ID: 26

Individual Paper Submission

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What are creative city strategies and how can they gain a place on a municipal agenda? Using the lens of Multiple Streams' agenda setting theory, I identify evidence of creative citybuilding and cultural policy on New York's municipal agenda in the decade following 9/11. New York underwent a creative resurgence, wherein the creative sector was a factor in a municipal strategy for revitalization after an exogenous shock. A policy opening revealed itself, and the challenge was finding ways to bring businesses and tourists back to New York City by providing a sense of safety and security.

I analyze data from 21 semi-structured interviews with policymakers, nonprofit leaders, developers, and philanthropists, together with archival and historical materials to uncover ways that creative city interventions were employed in New York. Anchoring the analysis are discussions of field building, agenda setting, the return to the city center, and facets of what I term, "urban allure." Urban allure consists of hard factors including the cultural built environment, arts and design amenities, live/work options and opportunities for the creative class to flourish as well as soft factors, such as the 'coolness' of a city, its attractiveness both as a tourist destination and a draw to residents, and the numerous cultural opportunities that make an urban center vital.

Findings include the recognition of the top-down and bottom up aspects of cultural policy and strategic planning for the creative city. Mayor Michael Bloomberg's agenda included keeping residents, business development, and tourism in the city. The vernacular creative sector played a less formal, but still important role in regenerating urban allure, often agglomerating in the boroughs outside of Manhattan. Arts and culture were on the economic development agenda for New York during the decade through the strategy of this dominant leader. Creative city tools leveraged include the use of city-owned land for cultural facilities, such as Whitney Museum's new home in Manhattan's Meatpacking district; branding research including a McKinsey study; and the enhancement of tourist and resident experiences, exemplified by two notable public art installations.

Creative city policy interventions such as cultural plans, widely used by Toronto, Vancouver, Chicago, and Austin were not a part of this strategy. The creation of a cultural plan, wherein a municipality convenes all three sectors to envision and strategize on the effective use of creative economy interventions, can be advantageous for cities facing exogenous or endogenous shocks and ensuing challenges. I offer ways to understand urban allure and discuss ways municipalities can leverage creative city tools. These findings are significant for academics and practitioners who wish to explore the use of arts and culture interventions in the fields of urban planning, cultural policy, and economic development.

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Key Words: agenda setting theory, cultural policy, municipal economic development, urban allure, creative resurgence

LEVERAGING MAIN STREET AS A REAL ESTATE AMENITY: THE IMPACT OF RETAIL CORRIDOR REVITALIZATION ON RESIDENTIAL PROPERTY VALUES

Abstract ID: 71

Individual Paper Submission

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Downtown revitalization has become a necessary planning approach for communities attempting to reverse the pervasive momentum of suburban sprawl. One such endeavor, the Main Street Program, equips smaller towns and cities with the resources and know-how to leverage their dense, walkable retail corridor(s) as an economic development asset. This paper will assess the viability of the Main Street Program as a means of scalable, sustainable urban regeneration by empirically demonstrating the program's impact on local economic vitality, operationalized in terms of property value appreciation.

First, I estimate the causal link between a community's adoption of the Main Street Program and the health of its local housing market in the years that follow. I do this by implementing a difference-in-differences design which compares changes in residential property values between communities that implemented the Main Street Program and those that did not.

Second, I test the mechanism of this causal relationship. I hypothesize that improvements to (and revitalization of) the downtown retail corridor will increase the value of Main Street as a "walkable" retail amenity. Thus, the value of properties closer to downtown should reflect access to said amenity. To test this, I employ a hedonic price model which—aside from controlling for all the relevant property characteristics—will allow me to identify the association between a given house's distance from Main Street and its market price.

This study is motivated by the overall need to understand the viability and efficacy of smaller-scale urban regeneration efforts in non-metropolitan towns and cities. Walkable centers of smaller, older communities are one of few factors holding back an almost ubiquitous landscape of sprawl and a geography without identity. Main Streets serve as an anchor around which downtowns can be preserved as vibrant "third places." In order to preserve "Main Street" as the epicenter of an integrated civic and commercial fabric, communities need to identify programs and policies that work, and the Main Street Program shows promise as an economic development program that can help revitalize downtown. This paper starts the discussion toward determining just how well the MSP can deliver on that promise.

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Key Words: downtown revitalization, place making, housing market, economic development

COMPARING ECONOMIC DEVELOPMENT AS A PRIVATE OR PUBLIC GOOD: THE EMPIRICAL EVIDENCE

Abstract ID: 76

Individual Paper Submission

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The key theoretical choice in a local economic development strategy is whether the incentives for jobs and income derive from supply-side or demand-side economics. If supply-side, the overwhelming norm in such practices, then local and state governments subsidize the factors of production for the subject corporation as an inducement to relocate or expand. If the demand-side, then the attraction is to place creating a key set of public utilities of entrepreneurial opportunities, place-making amenities and quality of life, and affordability and niche markets to serve diversity and equity conditions.

We utilize six [6] national databases providing:

1. a comprehensive array of supply-side corporate incentives instated by all states and their minor civil divisions,
2. a 24-variable set of economic conditions by state,
3. two surveys of localities that promote demand-side economic development via place-making and public entrepreneurial opportunities,
4. surveys of affordability by place over the period 2000-2016, and
5. the economic performance of those localities over the same period

The statistical results, utilizing trend lines and regression analysis, demonstrates a slightly negative relationship between dollar volume per capita of supply-side incentives and economic condition. The results also demonstrates a 128% net job growth and 680% per capita GDP growth in identified demand-side places relative to all places in that state over the period 2010-2016.

We conclude that the worse the economy the more places spend on “corporate welfare” and that demand-side strategy affects local economic development meteorically. We examined the challenges of affordability, diversity and equity, but those findings are reserved for another manuscript, and due to the breadth of the empirical scope.

Citations

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Key Words: economic development, supply-side economics, demand-side economics, public-private partnerships, footloose companies

CHANGE VERSUS DECLINE: THE SUBURBANIZATION OF JOBS IN U.S. SHRINKING CITIES

Abstract ID: 77

Individual Paper Submission

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Spatial mismatch theory hypothesizes that as jobs suburbanize, minorities and low income households will disproportionately lose access to economic opportunity. This paper hypothesizes that the context of urban decline also challenges job accessibility. In shrinking cities, growth at the urban fringe not only expands the footprint of the region’s urbanized area, but unlike in most strong market settings, it simultaneously hollows out the core, challenging job accessibility for residents. This paper tests this hypothesis by presenting a block-group level model of job accessibility in the Principal Cities of 349 Metropolitan Statistical Areas (MSAs). The model finds that the context of urban decline reduces job accessibility for residents by 6.9%, other things equal. Descriptive statistics are then employed to analyze spatial changes in job location over time. The results suggest that as development pushes outward in strong market settings, the core shares in the growth, while in shrinking cities, spatial deconcentration disproportionately weakens the core. This process is hypothesized to lead to the decreased job accessibility found in shrinking cities.

Testing the hypothesis that urban decline exacerbates job accessibility through deconcentration bears important implications. First, metropolitan regions situated around shrinking central cities are aware of the threat of deconcentration on regional economic health. Regional planning organizations in such settings may benefit from knowledge that can assist in establishing effective incentives for core-based and node-based urban development. Second, and relatedly, companies considering moving to suburban locations may be influenced by information campaigns regarding the social costs of such decisions (although economics texts emphasize that information campaigns tend to be less effective than prescriptive or market-based interventions). Third, improved knowledge regarding the effects of deconcentration on job accessibility for shrinking city residents may guide strategic planning efforts around land use, zoning, and transportation, or provide support for transit riders’ unions to lobby for additional funding. Finally, the results of this research will apply to a not insignificant group of cities. Research on what constitutes a shrinking city is nascent, but one recent effort to reach a consensus (Ganning and Tighe, 2018) identifies 80 such cities in the United States alone; the phenomenon of urban decline is well-documented in Europe and elsewhere as well.

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Key Words: Shrinking cities, Job accessibility, Inequality, Suburbanization

OPPORTUNITIES AND RISKS OF LOCALIZED INDUSTRIAL POLICY: THE CASE OF “MAKER-ENTREPRENEURIAL ECOSYSTEMS” IN THE UNITED STATES

Abstract ID: 83

Individual Paper Submission

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In the past decade, the emergence of a “maker economy” in the United States has opened opportunities for small-scale, design-linked production enterprises. Tapping the availability of low-cost technology like 3-D printing and personal CNC machine tools, the proliferation of digital marketing platforms, and a growing supply of workers and consumers eager to associate themselves with materiality and craft, small-batch manufacturers have regained viability in industries like food and beverage, apparel, furniture, and even electronics. Concomitantly, “making” has become the object of place-based industrial policies, pursued predominantly at the local/urban scale. Makerspaces, incubators, meet-ups, and manufacturing skills training programs, if not initiated by the public sector, routinely receive government and philanthropic funding. Resources dedicated to making are urged in the name of reinvigorating moribund urban industrial economies through a “manufacturing renaissance” (Muro and Hirschberg, 2017).

The growth of the maker movement has the potential to take urban-level industrial policy in a new direction. Although local economic development policy in the U.S. has frequently revolved around beggar-thy-neighbour business recruitment efforts, there have also been progressive efforts to promote innovation, entrepreneurship, manufacturing retention, and job creation (Fitzgerald and Leigh 2002; Lowe and Feldman 2018). In this context, policymakers’ embrace of “maker”-specific industrial policies – both gestures of support extended to existing small-scale producers and efforts to incubate new such producers – are continuous with efforts to preserve industrial land, promote local and regional industry clusters, and build the capacity of small and medium-sized enterprises (SMEs). Maker-oriented industrial policies focus on the potential of local entrepreneurs to incubate and grow businesses rooted in place, generating jobs in core urban regions, both directly and through multiplier effects (Wolf-Powers et al., 2017). Local government has significant advantages as an industrial policy actor in this area, due to its potential to bridge diverse actors and institutions in a localized context.

But another defining feature of local economic development practice in the United States is the primacy of real estate interests. Under a “property-led” model, policy-makers favour opportunistic deal-making that privilege short-term increases in land value over longer-term economic development goals (Wolf-Powers, 2005). In this article, we use the case of “maker industrial policy” to examine the tension between efforts to build local-scale institutions to achieve industrial policy goals on the one hand, and ongoing pressures to facilitate the extraction of real estate profit on the other. Drawing on a study of maker enterprises and established manufacturers in six U.S. cities (Urban Manufacturing Alliance, no

date) and on case data from New York City and Portland, Oregon, the paper assesses the governance of maker-oriented industrial policy at the urban scale. Our conclusions are twofold. First, despite a tacit transfer of knowledge, skills, and routines from incumbent manufacturing complexes to local maker ecosystems, the urban political and institutional worlds in which traditional manufacturers and maker firms circulate are quite distinct. This matters because institutional bifurcation limits the spillover of knowledge and material assets from established firms to newer adjacent sectors; it also leaves makers politically isolated from local industrial policy constituencies who advocate for policies that are critically important for makers' ability to grow and scale. Second, the dominance of real estate-led economic development practice at the local level in the U.S. threatens to place opportunistic actors' pursuit of returns ahead of employment creation and other economic development goals. This creates barriers for maker-entrepreneurs who might wish to grow their firms in place and leaves potentially productive connections among designers, fabricators, small-batch producers, and mature manufacturers unrealized.

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Key Words: industrial policy, maker movement, property-led economic development, urban manufacturing

IS LOCAL GOVERNMENT TAX COMPETITION STRATEGIC? THE SPATIAL DISTRIBUTION OF BUSINESS PROPERTY TAX ABATEMENTS IN CHICAGO'S SUBURBS.

Abstract ID: 132

Individual Paper Submission

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We analyze the locations of property tax abatements awarded to businesses in Cook County, Illinois, from 2012 to 2014, in order to explore their spatial distribution and to infer local government motivations in awarding these business incentives.

Classic interjurisdictional competition models of local government behavior imply that tax abatements are awarded in responsive fashion and will follow the general pattern of business location. This dominant perspective is exemplified by the "shoot anything that flies" characterization of local economic development (Rubin 1988). Leviathan models of public sector behavior contend that locational

heterogeneity enables local governments to award incentives selectively, to maximize revenue or reward political patronage (Brennan and Buchanan 1980). We hypothesize that municipalities instead may take a spatially strategic approach to property tax abatements, harnessing them as a means for accomplishing policy goals such as influencing business location choices, promoting particular land uses or industrial sectors, or achieving fiscal zoning objectives (Fischel 2015, Merriman et al. 2017). A spatial pattern of abatements that diverges from the overall configuration of business locations would be consistent with strategic local government behavior, as well as with varying economic development and fiscal policy “regimes” (Craft, Drucker, and Weber 2017).

Through comparing property tax abatements to the existing distribution of businesses, our analysis reveals clustering of abatements at intra-municipal geographic scales. We also uncover amplified probabilities that businesses receiving abatements are located near tax increment financing districts or enterprise zones. We characterize the degree to which different municipalities exhibit clustering of abatement awards. Overall, our findings are consistent with the notion of local governments awarding business property tax incentives strategically to advance policy goals.

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Key Words: tax abatements, economic development incentives, business location, interjurisdictional competition, spatial clustering

DEVOLUTION, DISINVESTMENT AND UNEVEN DEVELOPMENT: US INDUSTRIAL POLICY AND EVOLUTION OF THE NATIONAL NETWORK FOR MANUFACTURING INNOVATION

Abstract ID: 194

Individual Paper Submission

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In the absence of a formal industrial policy, the US supports manufacturing industries indirectly, and with minimal coordination. The resulting system constitutes a de facto industrial policy, whose contours and mechanisms are infrequently scrutinized. In this paper we analyze a rare, recent federal effort to consciously design and implement the National Network for Manufacturing Innovation (NNMI). We analyze to what extent regional Manufacturing Innovation Institutes (MIIs), seeded through the NNMI program, build new industrial specializations in the communities where they operate, and, alternately, to

what extent MIIs enhance and extend existing specializations by providing access to emerging and enabling technologies.

We examine in detail seven regional manufacturing institutes developed under the National Network of Manufacturing Institutes, a federal program that (1) invests in basic technology, (2) sites those investments within newly formed regional technology institutes (MIIs), and (3) attempts to link technological development to industrial capacity and, ultimately, job growth. We ask to what extent the Manufacturing Innovation Institutes seed new industrial specializations, as opposed to supporting old ones. Focusing on seven technologies and institutes founded from 2012 to 2015, we find that this federal program in fact devolves power, funding and development strategies to the newly founded technology institutes. This results in three de facto relationships between Manufacturing Innovation Institutes and existing industrial capacity. Three technology-sustaining institutes (in Detroit, San Jose and Rochester) tie new technology investments to mature industries in which innovation effectively props up older industrial concentrations. By contrast, two technology-seeding institutes in the greenfield sites of Raleigh-Durham and Knoxville invest in technologies with little past or present production capacity in their regions. Finally, agglomeration-seeding institutes in Chicago and Akron fund product design activities in regions with related manufacturing agglomerations. Despite these differences each MII's membership consists principally of large, incumbent firms, at the expense of start-ups and small businesses.

This creates a national industrial policy that links technology to production unevenly. The individual autonomy granted to the regional manufacturing institutes allows for program flexibility that often leads innovation policy to adapt usefully to existing specializations. Yet individual manufacturing institutes do not engage the third-sector organizations (educational institutions, unions, labor market intermediaries) crucial to upgrading manufacturing sectors in the US (Clark, 2014). This results in a system that amplifies, rather than diminishes existing regional disparities. Thus, formal industrial policy in the US in fact resembles the nation's longstanding, covert system of unintentional industrial policy. These outcomes follow from the design mechanism of political Federalism, whose devolution of funding and programming authority to regional entities appears to shape policy content more than do the program's formal goals and cross-Atlantic policy antecedents.

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Key Words: Economic Development, Industrial Policy, Manufacturing, Innovation Systems, Regional Development

ECONOMIC DEVELOPERS' RISK PERCEPTIONS AND PLANNING ACTIONS IN FREIGHT-RELATED DEVELOPMENT STRATEGIES

Abstract ID: 197

Individual Paper Submission

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Warehouses, fulfillment centers, and other freight-related land uses are sprawling in urban areas to support new distribution patterns driven by e-commerce and global value chains (Kang, 2018). Freight-related land uses exhibit both the nuisance characteristics of locally unwanted land uses (LULUs) and the job gains sought after by economic development officials (Yuan, 2018). Planners and economic development officials use a variety of urban planning efforts to balance future employment gains with concerns about job quality, transportation emissions, and other risks unevenly distributed by growing logistics-related land uses. Campbell (2016) presents the relationships between social, environmental, and economic risks of development as a set of tensions for participants in the economic development strategy to manage. There is evidence that process design, power dynamics, and personal attributes influence officials' initial perception and subsequent management of the tensions between social, economic, and environmental outcomes (Feldmann, 2016).

In this study, I used semi-structured interviews to describe the influence institutional settings, and personal values have on economic development officials' perceptions of economic, social, and environmental risks related to freight-related land uses. I propose that the scope risks that an economic development official chooses to measure are a function of the individual official's ability to observe and act on their perception of a given risk. Renn and Rohrmann (2000), propose that individuals perceive risk based on individual heuristics, emotions and values, institutional membership, and the prevailing modern culture.

Through a study of 25 economic development officials, I use a grounded theory approach to describing the influence institutional membership and emotions and values have on economic development officials' perception of benefits and risks while pursuing logistics-related economic development strategies. Study participants included a sample of local and regional economic development officials in the United States whose jurisdictions vary from international port gateways to rural distribution hubs. Participants completed a brief questionnaire, followed by an hour-long semi-structured in-person or telephone-based interview. I conducted content analysis using existing risk management and sustainability theory to develop an initial coding scheme related to the management of tradeoffs in economic, social, and environmental risk. Additional coding elements reflected participants' thoughts on institutional arrangements, personal values, available reference knowledge, and other correlates of risk perception outcomes stated during interviews.

I find evidence that both institutional structures and personal values and experiences affect the scope and focus of economic development officials' risk assessments. In particular, participants frequently referenced institutional barriers and conflicting responsibilities as an impediment to a more holistic consideration of social and environmental impacts of proposed freight-related economic development strategies. The spatial concentration of industry and officials' prior reference knowledge of working with freight-related industries in their jurisdiction also influence how economic development officials receive, develop, and act on risk information when negotiating economic development strategies. For planners, these findings demonstrate the continued importance of understanding how the potential for an official's emotions, experiences, and organizational barriers limit perceive and take action on social, environmental, and economic risks during economic development planning. As planners, we need to partner with economic development officials to generate strategies, recognize the limitations of individual participants'

perceptions and capabilities to create a more robust accounting of potential social, economic, and environmental benefits by other actors in the development process.

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Key Words: Economic Development, Risk, Freight, E-commerce, Sustainability

ARE LOCAL RETAIL SERVICES AN AMENITY OR A NUISANCE?

Abstract ID: 258

Individual Paper Submission

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Much of the public finance and planning literature on neighborhood disparities and service provision focuses on the availability and quality of public goods and amenities. However, there is little research on how private services affect the quality and desirability of particular neighborhoods. Are they considered a nuisance or an amenity, and is this value capitalized into residential property values? Using a rich, micro-dataset on property sales transactions and business activity in New York City, we estimate the impact of neighborhood retail services on property values. Preliminary results show that the significance and magnitude of price capitalization depends on the type of residential property and the distance to the retail activity. Buyers of one-to-four family homes will pay more for nearby restaurants, but not any other types of services. Buyers of condos and coop units will pay more for nearby restaurants and frequently consumed services more generally. Prices for large multi-family buildings, typically occupied by renters, are negatively associated with nearby services that are more frequently consumed and classified as food and beverage. Overall, the magnitude of effects is quite small (in either direction). First attempts at instrumenting for retail activity show positive price capitalization from nearby retail establishments that is strongest at very close proximity and declines with distance from the property.

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Key Words: Retail, Housing prices

INCLUSIVE CLUSTER-BASED DEVELOPMENT STRATEGIES: CASE STUDIES OF THREE DISTRICTS IN NEW YORK AND MICHIGAN

Abstract ID: 260

Individual Paper Submission

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Industrial cluster-based economic development strategies have gained popularity in the past couple of decades and investment in cluster-based economic districts has helped revitalize many urban neighborhoods throughout the country. Benefits of investing in place-based strategies focusing on particular industry sectors and their supporting infrastructure (job growth, attracting further investment) have been documented (Delgado-Garcia & Zeuli 2016; Hartley et al. 2016). What remains less clear is the direct benefits of the cluster-based approach to inner-city residents, often communities of color and without the skills and networks to access newly generated jobs (Bates 2006).

Investments in industrial districts in particular have been increasingly touted as a solution to inner city poverty, as manufacturing is still a vital component of the American economy and an industry of opportunity providing decent jobs with lower barriers of entry to less skilled workers. Despite increasing efforts to promote manufacturing and industrial districts, economic initiatives designed to attract and support businesses in industrial districts remain largely disconnected from workforce development programs. How can investments in industrial districts be linked to programs designed to train low-income residents of surrounding communities, so as to ensure they have access to local jobs?

Greater calls for integrating cluster-based economic development with workforce development have been made among scholars and practitioners but few studies have examined how effective linkages between the two are established and maintained (Harper-Anderson 2008, Wolf-Powers 2006). Through a series of interviews with industrial district and economic development practitioners as well as workforce development practitioners and advocacy organizations throughout the country, this paper seeks to fill that gap by conducting an in-depth qualitative examination of linkage strategies implemented in three districts in New York and Michigan.

Research findings suggest that effective linkages to connect inner-city residents to newly generated jobs in cluster-based industrial districts share a few similarities. Effective linkages capitalize on relationships developed around economic development to benefit workforce development and placement. Workforce placement is relationship driven and requires a high degree of trust that can originate with other services such as help finding loans, or dealing with parking problems and ticketing. For planners working to establish those connections, this highlights the importance of sequencing business support services before or in parallel to workforce efforts in order to build trust and use those relationships to advocate for job quality and worker advancement.

Furthermore, to benefit inner-city residents, effective linkages also require identifying structural and institutional, or historical obstacles that affect inner-city residents and devising mechanisms to address that. Thus, in addition to skills training and employment and career services, which are typical of workforce development programs, inner-city residents have the best outcomes when those services are bundled with a range of support services meant to help address these obstacles. These include providing income supports, financial coaching and education and low-cost financial products that build credit, savings and assets. Funding for workforce and economic development should reflect the full range of work needed to engage employers and connect low-skill residents to manufacturing jobs, an intensiveness of services that is not always met by funding limited to job-placement numbers.

Finally, effective linkages require real estate property stability. Industrial space needs to be affordable and stable with long term leases so manufacturers feel secure they can invest in their facilities, production, and workers, and so that they build relationships with local organizations and become vested in the community. This indicates the need for planners to adopt a targeted approach to zoning to help to protect industrial land-uses in hot property markets and allow its integration in a wider variety of neighborhoods in cities with further growth potential.

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Key Words: inner city, industry cluster, workforce development, economic development, equity

TARGETED HIRE POLICIES IN US CITIES: WHO IS ADOPTING THEM, HOW AND WHY?

Abstract ID: 264

Individual Paper Submission

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In recent years there has been a re-engagement of local governments in the United States with policies designed to promote equitable and inclusive development. One of these areas is "Targeted Hire" policies, which obligate private-sector employers receiving public contracts or development incentives to take affirmative steps intended to increase employment opportunities for disadvantaged populations, particularly workers of color. These take a variety of forms, including "first source" or "local hire" requirements, and apply across a range of job-creating activities from construction to retail. These progressive policies have waxed and waned over the years (Schrock 2015) as elected officials have

negotiated political and legal opposition from business and suburban interests on one side, and pressure from activists and community organizations on the other.

Although there is a small but growing literature documenting this latest wave of policies (Douthat and Leigh 2017), there is no comprehensive inventory of which U.S. cities are adopting Targeted Hire policies, and how and why they are doing so. This paper presents results from a scan of the central cities of the 100 largest U.S. metropolitan areas, which shows a patchwork of different policy approaches. A small but increasing number of cities have TH policies relating to publicly-supported construction projects, while comparatively fewer cities have policies that cover non-construction public contractors, and other economic development incentive recipients. In general, cities with TH policies tend to be larger, face more local income disparities, but also experience more reinvestment activities, which creates opportunities for advocates and officials to attach hiring goals.

But why have construction-focused TH policies waxed while other areas have waned? I use the examples of San Francisco, Denver and Portland to illustrate the differential organizing and implementation dynamics underlying TH policies. Efforts in many cities to deepen community-labor partnerships have bridged historical divides between construction trade unions and communities of color, resulting in advocacy partnerships that effectively link construction-driven growth with robust, outcomes-oriented mechanisms for achieving distributional equity. By contrast, TH policies outside of construction have been hampered by their process orientation, which make them difficult and resource-intensive for public agencies and advocacy coalitions to enforce. But more vexing is the changing occupational character of urban economic development projects. TH policies have historically focused on “entry level” jobs requiring less than a college degree, and have mostly avoided asking employers for credible targeted hiring commitments around jobs requiring higher levels of education, despite persistent disparities in access and representation in those jobs, and evidence of the downstream impact of new in-migrants on local housing market outcomes. While this reflects a failure of planners and public institutions, I argue that it also reflects an inattention on the part of community-based actors to their potential leverage in extracting hiring commitments from businesses seeking urban locations.

These findings reinforce the idea that credible commitments to more just and equitable planning and development are unlikely to occur without a push from outside actors (Clavel 2010; Schrock, Bassett, and Green 2015; Doussard 2015). But especially with programs like Targeted Hire that require robust implementation in order to succeed, supportive planners and agency officials are necessary to the process as well.

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Key Words: equity planning, equitable development, labor markets, workforce development

TO PLAN OR NOT TO PLAN? CULTURAL AND CREATIVE CLUSTERS IN GUANGZHOU

Abstract ID: 376

Individual Paper Submission

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The notion of cultural and creative clusters, in particular artist clusters, has triggered discussions about the role of cultural and creative industries for urban regeneration. Since many cities entered the knowledge-based stage in the 1990s, policymakers and urban planners have promoted the idea of integrating Porter's industrial cluster and Florida's creative class theories by relying on cultural and creative industries for revitalizing deteriorating industrial spaces or old neighborhoods. Empirical evidence has demonstrated a relationship between a concentration of artists and economic growth (Zukin, 1982; Lloyd, 2002; Mould and Comunian, 2015).

Similarly, across cities in China, cultural and creative clusters have emerged in the policy rhetoric of the last decade as tools for neighborhood revitalization. Especially since 2005, we have noticed a rising number of artist clusters frequently touted in local news and government publications as promoting tourism, improving cities' images, and enriching urban lives. However, current realities present a more complicated scenario. These clusters initially have emerged organically from obsolete industrial areas, old downtown neighborhoods, or urban village settlements with low rent and loose controls, with some listed as the officially-recognized cultural and creative clusters whose development is to be integrated into the city's strategic plans. Yet the impact of this development is double-edged. On the positive side, the local government is likely to allocate public resources for brick-and-mortar investment and industrial preferential policies to attract creative people and businesses. However, as original artist settlers are gradually driven out due to rising rents and living cost or rigid entry control, such formal interventions may simply lead to the demise of a genuine creative cluster.

Academic discussions over the past decade in China have mainly focused on the formation and evolution of arts districts. What is clearly missing from the literature is a discussion of how formal planning and land policies inter-play with informal urban settlement development against the backdrop of arts districts. Additionally, throughout the development of arts clusters, the needs of ordinary artists, especially emerging and early-career individuals, and the neighborhoods they inhabit have been forgotten. To fill this gap, we position China's cultural and creative policy in the context of creative placemaking, a process emphasizing "arts-centered initiatives with place-based physical, economic, and social outcomes" (Gadwa Nicodemus, 2013: 213). As Markusen and Schrock (2006: 1661) point out, artists choose a locale in which to work and live "in response to a nurturing artistic and patron community, amenities and affordable cost of living." A question worth exploring in the Chinese context is, to what degree can artist clusters remain appealing to grassroots artists and still sustain their intrinsic creative nature?

Based on a field study of two cases in Guangzhou, we argue that one pitfall of the application and operationalization of cultural and creative cluster is that policymakers often prioritize capitalizing the economic value of cultural industry – but are frequently unable to provide a nurturing living and working environment that are essential for young artists to thrive. We maintain that village-based arts clusters are more successful in retaining their creative nature than top-down, arts-led neighborhood revitalization because they offer an environment characterized by its openness, inclusiveness, flexibility, diversity, and tolerance, all essential for creative people. Therefore, given these village-based arts clusters' capacity to

create an affordable, tolerant, and diverse socioeconomic environment, we suggest that urban villages function as an incubator for creative people and cultural-product industries. We find that organically grown, village-based artist clusters can better nurture creative people than planned arts districts, for the former cluster features a flexible and autonomous land development arrangement, frequent interactions between artists and village residents, and a broad spectrum of entrepreneurial opportunities.

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Key Words: Creative placemaking, Arts district, Cultural and creative industry/cluster

SPATIAL AGGLOMERATION OF MANUFACTURING ACTIVITY IN URBAN VERTICAL FACTORY AND ITS IMPACT ON EMPLOYMENT

Abstract ID: 396

Individual Paper Submission

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Most researches on agglomeration of industrial activity measured it at the regional level, without paying much attention to buildings because there are only one or several firms are usually located in a single traditional factory building. However, the emergence of so-called "vertical factory" has been receiving attention as new industrial spaces. The vertical factory is a three-dimensional, multi-story building located in high-density urban areas (Rappaport, 2016, 2017). Some buildings only have one establishment each, but in most cases many small establishments are located in the same building. Thus, a vertical factory can provide space for the agglomeration of small establishments especially in high-tech industries (Bae, 2015; Park, 2019).

This study aims to empirically examine how manufacturing activities are spatially clustered in urban buildings and how this spatial agglomeration influences employment, with a focus on vertical factories in the Seoul Metropolitan Area, South Korea. Using the Factory Establishment and Management Information System (FEMIS) database, an establishment-level database of manufacturing industries, it measures two different forms of agglomeration: specialization and diversity (or variety). This study uses the multi-level model approach to analyze how these two forms of agglomeration have impacts on employment levels in manufacturing sector. Based on the key findings, this study addresses an importance role of vertical factories in creation of urban manufacturing jobs and discusses some policy implications for urban industrial spaces.

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Key Words: agglomeration, urban manufacturing, vertical factory, urban industrial space, diversity

RECENT INTRA-METROPOLITAN PATTERNS OF JOBS AND WORKERS: IMPLICATIONS FOR THE SPATIAL MISMATCH HYPOTHESIS

Abstract ID: 406

Individual Paper Submission

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Since the seminal work of John Kain in the 1960s, scholars have explored the impacts of the spatial mismatch between suburban job opportunities and the residential locations of low-income African American workers on racial disparities in employment outcomes (Holzer, 1991; Ihlanfeldt & Sjoquist, 1998). Empirical studies point to housing discrimination, exclusionary suburban zoning, employer discrimination, social networks, and the difficulty of reverse commuting as important factors shaping the spatial mismatch between jobs and workers (Raphael & Stoll, 2002; Brueckner and Zenou, 2003; Martin, 2004; Stoll & Covington, 2012). Much of this literature takes as given a particular spatial pattern of jobs and housing that has dramatically changed since the early 2000s. The suburbanization of poverty, gentrification of urban neighborhoods, and proliferation of policies designed to promote transit-oriented development and integration of jobs and housing has reshaped U.S. metropolitan areas in ways that may have important implications for the spatial mismatch hypothesis. This study reexamines recent patterns of jobs and workers to determine whether the traditional spatial pattern assumed by the spatial mismatch hypothesis – centralized low-income African American workers and suburban job opportunities – still holds true in major U.S. metropolitan areas. In particular, we examine indices of job – worker imbalances to determine which metropolitan areas still exhibit patterns consistent with the predictions of the spatial mismatch hypothesis and which have been shaped by the relocation of jobs and housing. The findings of this study suggest that for African American workers, jobs-housing imbalance continued to persist in major metropolitan areas despite spatial changes in the location of jobs and housing since the early 2000s. This research provides useful information to planners seeking to promote spatial and racial equality in American cities.

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Key Words: Spatial Mismatch, Job-Housing Imbalance, Suburbanization, Spatial Equality

EXPLORING THE GEOGRAPHY AND THE TYPOLOGY OF CREATIVE CLUSTERS IN THE UNITED STATES

Abstract ID: 502

Individual Paper Submission

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Creative industries are finding their positions as strong catalysts for economic development, and neighborhood revitalization in communities, even though our knowledge of the location preference of the creative clusters needs further expansion. To demonstrate the formidable presence of arts and culture in the country, suffice it to say that nationally, 673,656 businesses with 3.48 million employees are involved in the creation or distribution of the arts, representing %4.01 %2.04 of all U.S. businesses and employees, respectively (Americans for the Arts 2017).

Existing literature demonstrates that creative industries tend to cluster. However, the contributors to the geography of these clusters are still in question. There are very few studies within the United States that try to identify the location patterns of creative clusters. Moreover, the extant empirical research mostly focuses on case studies and specific industries, such as fashion, cinema, or music (Scott 2002). This emanates, for the most part, from the fact that creative and cultural industries include an eclectic range of industries with diverse characteristics, and therefore, require specific attention.

This study seeks to address these gaps by investigating the geography of creative clusters of different specializations as well as the relationship between them, drawing upon hotspot analysis and a typology of creative clusters based on a comprehensive list of the North American Industry Classification System codes (Markusen et al. 2008). This is one of the first national studies that uses disaggregated address-level employment size and sales volume for all firms within the United States to quantify the geography of creative clusters. The authors categorize the creative industries into seven groups of 1) performing arts, 2) visual arts and photography, 3) film, radio, and television, 4) design and publishing, 5) educational services, 6) software publishing and gaming, and 7) museums and collections. Derived from 2016 ESRI Business Data Source, advanced statistical methods were utilized to create a mesh of identical hexagons created by ArcGIS, which helps ensure that all regions within the country are represented by the sampling results within similar geographies. In addition, this study uses cluster analysis to find specialization among creative clusters, demonstrating where in different cities and regions the different creative clusters locate.

The findings show that creative clusters tend to locate at the inner cities of large- and medium-size metropolitan areas. The hotspot analysis also demonstrates that some parts of the cities are more likely to embrace creative clusters of more than one category. For example, clusters of film, television and cinema tend to locate close to clusters of performing arts, while gaming and software programming clusters have a slightly different patterns. Our approach creates a systematic methodology that enables a comparative analysis across the country, by ranking the creative clusters in terms of size and the number of creative clusters. We also offer some more in-depth analysis to these clusters by investigating some of the largest and most diverse creative clusters in the Los Angeles and New York metropolitan areas.

Several policy implications for local communities are derived from this study. Planners and policy makers can benefit from the findings of this study as it offers a quantified measurement of where exactly the creative clusters locate in the country. Instead of anticatalysts epitomizing inequality and gentrification, a thorough understanding of where creative clusters locate and how they interact with other clusters and the built environment enables policymakers to utilize the benefits of these clusters as effective catalysts for urban and rural revitalization.

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Key Words: Creative Industries, Creative Clusters, Spatial Statistics, Cluster Analysis

PLACE BRANDING, CITY PLANNING, AND THE URBAN IMAGINARY: UNTANGLING THE STIGMA OF THE PAST AND UNCOVERING DALLAS EMERGING NEW URBAN IMAGINARY

Abstract ID: 517

Individual Paper Submission

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Place marketing and place branding have been the hallmark of the entrepreneurial turn to urban governance, with a growing emphasis on proactive, project-driven planning over traditional planning approaches that were deemed passive and reactive by new municipal administrations (OECD 2007). Instead, "measures called "imagineering" and "re-branding" [are being] extensively employed to redefine and re-image cities endowed with negative images inherited from the industrial era. Flagship developments have been employed as "hard-branding" to produce a significant impact on city image with their large scale, high profile, and innovative design by internationally-famed architects" (OECD, 2007, p. 2).

City planning processes have become central to these place branding approaches as both the material, hard-branding and symbolic soft-branding aspects of signature placemaking projects invariably involve the construction of new "urban imaginaries"(Greenberg, 2000; Zukin et al., 1998). Although place branding through placemaking has been the essence of physical planning since the 19th century's world

expositions that gave birth to the City Beautiful movement, not until the end of the 20th century, did place branding ideas begin to coalesce with city planning processes through participatory approaches and visioning exercises often led by planning consultants and municipal planners.

This research examines place branding strategies adopted by the City of Dallas over a century-long tradition of place promotion. It develops the notion of “urban imaginary” as an analytical framework drawing on Charles Taylor's concept of the “social imaginary.” Taylor (2004) suggests that the socially constructed imaginary constitutes the ways people imagine their social environment, through symbols, ideas, and stories. Changing Dallas' “urban imaginary” bedeviled with the stigma of its past (such as the “city of hate” after the JFK tragedy), has become a major endeavor of Dallas city leaders. Focusing on key moments of the city's history, this research looks at Dallas' urban imaginaries manifested in the redevelopment and planning approaches that aimed to forge a united identity for the city and to bridge its critical North-South social and economic divides.

Internet data, including social media, are the primary source of observations associated with Dallas. These include image and text related to promotional material by marketers, and redevelopment and master plans by architects, urban designers, and planners. The secondary data includes historical documents as well as 32 urban development plans prepared for Dallas since 1900. Based on relevance, scope, scale, and significance, 14 documents have been selected for analysis. These documents exemplify non-academic, concerted efforts led by the city leaders to change the urban imaginary, illustrating a progressive trajectory of development for the city.

Drawing on the content analysis and triangulation of the primary and secondary data, the authors' preliminary findings suggest that place branding and city planning processes in Dallas have gained a critical role. Being instrumental in visioning and redevelopment planning, these activities find expression most recently in the Trinity River Corridor Project. This placemaking project aims to craft a new identity and image for the city through striking river bridges designed by the famed architect, Santiago Calatrava, and to redress the multiyear legacy of social and economic divide between South and North Dallas through the material and symbolic construction of a “public space” uniting the two sides. The implications being that, in the current turn to urban entrepreneurialism, what urban planners communicate as goals and objectives in participatory plan-making is increasingly being appropriated and linked to the city's brand. And that, inadvertently or not, city planners are progressively playing a larger role in the place promotion, place marketing and place branding processes reshaping a new urban imaginary of the city.

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Key Words: Place branding, City planning process, Urban stigma, Urban imaginary

LABOR VS. LABOR: WORKING CLASS INSTITUTIONAL POLITICS IN RESPONSE TO AMAZON AND GENTRIFICATION IN WESTERN QUEENS

Abstract ID: 617

Individual Paper Submission

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In November 2018, after a very public process that witnessed cities showering them with offers of various forms of subsidies, Amazon announced that they had selected Long Island City, Queens (LIC) as one of two locations for their second headquarters. The deal would be for a large complex/campus along the East River in one of the few remaining sections of LIC that had not already been redeveloped in the last ten years — years that had seen an astonishing amount of construction in the area. And while there had certainly been criticism and community organizing against the proposed deal, given that it had the vocal support of both Mayor de Blasio and Governor Cuomo, most New Yorkers had assumed that the deal would be implemented. Then, rather surprisingly, on February 14th, 2019, Amazon announced its withdrawal from the deal and its decision not to build the planned campus in LIC.

In the wake of this historic and quite-uncommon outcome in urban development politics, this paper asks two related but very different questions. The first question is: why were working class institutions so split over this issue? What were the fault lines that caused some unions — including the Teamsters and the Retail, Wholesale and Department Store Union — to vociferously oppose the Amazon deal, while others — including at first the Service Employees International Union's property service division and the Building Trades Council, but later also the Hotel Trades Council, United Federation of Teachers, and the Service Employees International Union's healthcare workers division — to vociferously support it? If all of these groups represented large numbers of people who are Queens-based workers, tenants and immigrants, what drove some of them to understand their class position as reason to side with the corporation and its political supporters, and others to understand their class position as reason to oppose them? Most importantly, what does this fragmenting of working class institutions tell us about the nature of labor in contemporary urban development politics, particularly in real estate-driven localities like New York City?

This leads us directly to the second question we are asking in this paper:

What does the future look for Western Queens? This section of Queens has long been a destination for new immigrants and has provided both housing and working class employment opportunities for them. That future is very much in doubt. LIC, as we have already indicated, has already experienced what can only be described as hyper-development in this decade, and the retreat of Amazon does not look likely to change that trajectory. Immediately north of LIC, the neighborhood of Astoria has undergone significant gentrification and its long history as a neighborhood of settlement for immigrants looks increasingly unlikely to be its future. Finally, immediately east of LIC, the Sunnyside neighborhood faces the prospects of a mega-development all its own, as planning is well underway for the covering of the Sunnyside railyards and the building of an enormous new complex. Regardless of the retreat of Amazon, the future of Western Queens is being shaped by the real estate industry and its supporters/enablers within the local state. How might the landscape of labor and working class politics play out in future conflicts over development and demographics?

Based on our political engagement in these areas and with these groups, as well as interviews with others involved in the Amazon and other land use fights in Queens, we will answer both of these questions and do so with our eyes on the much larger questions of: who is the city for and what kind of city will it be?

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Key Words: labor, gentrification, economic development, Amazon, Technology

TECHTALK AND STARTUP STORIES: ASSESSING ENTREPRENEURIAL ECOSYSTEMS THROUGH TECH-PODCASTS

Abstract ID: 640

Individual Paper Submission

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A major challenge in developing local initiatives to support entrepreneurs is the confusion over understanding their explicit needs. Consider the entrepreneurial ecosystems approach, which has gained considerable attention in recent years as a viable framework for guiding policy investments that are broadly supportive of small and new innovation-based businesses. It emphasizes the various networks of associations that exist among entrepreneurs and the institutions that aim to support them. It also emphasizes attributes of place that are most valued by entrepreneurs, including aspects of the built environment such as livability and accessibility, as well as cultural aspects such as a shared entrepreneurial identity, willingness to support other local entrepreneurs, and prevailing attitudes toward risk and tolerance of failure. The various elements make prioritizing needs confusing for practitioners interested in supporting entrepreneurs.

One viable way to understand what makes for a successful regional entrepreneurial ecosystem is to speak to entrepreneurs themselves and ask them about which institutions and place-based factors matter most to their success. Yet, entrepreneurs are notoriously difficult to interview, making practical barriers such as non-response and selection a widespread source of inferential bias. As such, much of what we do understand about entrepreneurial ecosystems comes largely from institutional actors and public officials, who may have a more self-serving perspective on the relative importance of the institutions they represent. This is further complicated by the speed at which mobile technologies, forms of production, flexible boundaries of the firm, the rise of a contractual workforce, and apps that unlock potentials for managing strategies that allow people to work remotely and check-in from afar have altered our understanding of place.

Considering these changes and challenges, this research seeks to better understand the needs of today's innovative entrepreneur: How are they dependent on the region in which they are located, the stage of the ecosystem they exist in, or more nuanced factors like community culture and perceived resource needs? To circumvent the practical barriers of primary data collection, we use a previously un-tapped data source -- the tech podcast. Tech podcasts offer a rich and detailed source of information that provide tremendous insight into the many layers, subtleties, and perspectives of complicated and holistic innovation ecosystems. Although reluctant to make time for researchers, entrepreneurs are willing to share their stories and insights to an audience of peers. Though cognizant that the researcher has no control over the content of the interview apart from that afforded by selection of sources, podcasts offer high-level shop talk difficult to obtain from an interview with an academic.

We dig into the inner workings of entrepreneurial ecosystems through a content analysis 80 tech-industry podcasts transcribed from eight U.S. cities. Cities were selected to represent various stages along an “entrepreneurial ecosystem life-cycle” ranging from small and emerging ecosystems such as Des Moines, IA, to large and well-established ones like Boston, MA. Given the novelty of the data source and the lack of strong theory from which to derive hypotheses, our methods are largely exploratory and inductive. These podcasts point to the variations between how previous studies perceived the needs of entrepreneurs versus the actual needs of contemporary entrepreneurs. Assessed from the direct perspective of on-the-ground entrepreneurs, this paper provides further insights on the interchangeability of cities, regional advantage in relation to competition and access to resources, and the specific infrastructural needs necessary for tech-entrepreneurs to scale their ventures.

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Key Words: Entrepreneurship, Entrepreneurial ecosystem, Regional innovation systems, Content analysis, Podcast

RETAIL AND WALKABILITY: THE ROLE OF URBAN DESIGN FEATURES ON RETAIL PRODUCTIVITY IN NEW YORK STREETS

Abstract ID: 649

Individual Paper Submission

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Since the past decade, there has been a major shift towards online shopping making many physical retail shops obsolete. At the same time, retail theory literature shows that consumers tradeoff for places that

provide a unique shopping experience against time and distance (Brown, 1993). Existing literature shows that clustering of competing and complementary commodities (Teller, Alexander, & Floh, 2016), improving experiential facilities for pedestrians (Leinberger & Alfonzo, 2012), improving accessibility and drawing from the character of the surrounding, makes retail destinations more attractive to customers (Sutton, 2014). Retail clusters which are able to provide such environments can possibly thrive and survive even while online shopping is gaining popularity. This indicates that street level urban design features that support walkability and create a memorable image and are key to improve retail productivity. While the literature has theoretically emphasized on the role of street level urban design features (Jacobs, 1993), there are very few attempts that have empirically examined their impact on retail productivity.

Drawing on structural equation modeling (SEM), this article uses an empirical lens to ask two questions: Is there a direct relationship between urban design qualities that improve walkability with retail productivity and agglomeration? Secondly, does some types of retail establishment more likely to locate in walkable streets than others? To study livability and walkability, we use Ewing and colleagues' method to operationalize urban design qualities into five categories of imagability, enclosure, human scale, transparency and complexity, to then measure against retail performance at street level (Clemente, Ewing, Handy, & Brownson, 2005). We use SEM to control for both direct and indirect associations between retail productivity and its key determinants including retail agglomeration, crime, urban design features, accessibility and neighborhood characteristics. Our measure of retail productivity is retail sales volume per employment obtained from ESRI Business Analyst 2015. Our study covers urban design qualities data for 588 streets randomly distributed across five New York City boroughs and we extract corresponding crime and other civic characteristics data from the city website.

We find that street level urban design attributes that improve livability and walkability also influence retail performance and clustering in that street. Also, retail category types that promote clustering and competition are more likely to locate in walkable areas.

While retail stores are concerned with surviving against the online shopping trends, retail agglomerations have been seen as important contributors to economic growth of cities and empowering businesses to improve their retail performance. Also, there is a large amount of literature demonstrating the role of walkability in creating a sense of community at micro level. As major retail discussion so far focuses on the role of planning in economic development at the macro level, this study represents a step towards focusing on street level qualitative attributes as important micro-level contributors to this larger discussion.

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Key Words: retail performance, walkability, clustering, urban design features, small businesses

THE HIDDEN ECONOMIC DEVELOPMENT RATIONALE OF HOUSING POLICY, FROM LEVITTOWN TO HOUSING FIRST

Abstract ID: 666

Individual Paper Submission

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Housing costs, quality and stability play important roles in developing and supporting the human skills and capabilities vital to contemporary economic development. Yet the practice and theory of economic development typically separate the core concerns of work and diversification from housing and household development. This de facto separation of work and housing continues despite the fact that housing policy itself has always contained explicit economic development criteria. Our paper reviews the history and evolution of housing policy's economic development rationales as a first step toward integrated housing and the sphere of social reproduction into economic development.

Drawing on policy documents and secondary research, we chart the economic development rationale for four key periods of federal housing policy intervention. First, we identify the economic stimulus concerns and arguments central to New Deal-era housing interventions. Second, we chart the competing rationales of post-war housing programs, which sought to quell the anxieties of downtown business interests facing central city decline via urban renewal while also fostering the distinctive consumption patterns of suburbanization. Third, we trace the nascent human development rationale embedded within support for housing vouchers and housing mobility programs in the 1970s, 1980s, and 1990s. We follow these analyses of key Federal housing interventions with the more recent emergence of Housing First strategies, which fund direct housing provision on the explicit grounds that housing promotes the development of household skills and capabilities (Sen, 1999).

The explicit and implicit economic development rationales of each of these housing policies closely maps onto concurrent "waves" of economic development theory and practice (Glasmeier, 2000; Leigh and Blakely, 2017). Furthermore, the institutional organization of each period of housing policy (beginning with the federal government and ending with a mix of public sector and not-for-profit organizations) matches the evolving institutional organization of economic development activities (Bauer, 1951). We show that the principal rationales from each period of housing policy continue to provide tangible pathways for integrated housing into economic development practice and research. More important, the current housing focus on human development provides a clear point of engagement for economic development practice that continues to focus on narrow issues related to the creation and maintenance of highly skilled workforces.

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Key Words: Housing Policy, Human Development, Social Reproduction

DEMAND-DRIVEN WORKFORCE DEVELOPMENT IN THE AGE OF NONPROFIT MARKETIZATION: THE CASE OF LOS ANGELES

Abstract ID: 679

Individual Paper Submission

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The practice of creaming—or, the purposive selection of desirable clients to artificially meet organizational performance standards—is well-documented, especially among federally-funded workforce development nonprofits (WDNPs). Creaming is disappointing news, of course. But it is particularly devastating, given how WDNPs often receive Title I of the Workforce Innovation and Opportunity Act (WIOA), and are central actors in a “residual” system designed precisely to serve low-income populations facing barriers to employment. Here, the old story is this: federal performance metrics incentivize organization-level practices of creaming; organizations select and serve desirable clients, producing inequities in terms of who has access to workforce development. To address these inequities, LA has launched efforts to address systemic inequities through the establishment of local programs and performance metrics to serve and track “special populations” (including homeless populations, formerly incarcerated populations, transgender populations and veterans).

However, this old story of creaming fails to contend with the growing emphasis on labor market coordination within the workforce development system. Drawing on inspiration from the “dual customer” approach of organizations like the Center for Employment Training in San Jose—which envisions its central function as connecting and serving both program participants and employers—both scholars and practitioners increasingly see workforce development as workforce intermediaries offering a range of services to connect the right clients with the right jobs. Through mandating labor market analyses to understand employer needs as part of workforce development planning, and mandating heightened coordination between WDNPs within local service delivery areas, WIOA has further cemented the central role of labor market coordination within local workforce development systems. In the face of these changes, our understanding of creaming seems outmoded, in its rigid emphasis on organization-level practices.

Drawing upon qualitative interviews with executive directors, managers and street-level staff from both federally-funded and non-federally-funded WDNPs in the City of Los Angeles, this article takes on the old question of “Who is creamed from the workforce development system?” However, it aligns itself with the growing emphasis on labor market coordination and inter-organizational relationships in workforce development scholarship and practice. In this paper, I argue that the structural features and institutional arrangements of the federally-funded workforce development system causes local labor market coordination failures, resulting in the systematic exclusion of the “unemployable” from both federally-

funded and non-federally-funded WDNPs. Here, the “unemployable” refers to populations who face multiple, compounded barriers to employment, including: (1) authorized immigrants with limited English proficiency; (2) undocumented immigrants without work authorization and ineligible for Title I services; (3) special populations struggling with multiple welfare needs—such as formerly incarcerated individuals struggling with homelessness, or homeless transwomen struggling with substance abuse; and (4) unrecognized special populations who lack both robust supportive services and pipelines to employment.

To ensure that the most unemployable populations are not left behind, workforce development planners must be attentive to the structural and institutional dimensions of their local workforce development systems. In the case of LA, this much is clear: without prior structural and institutional reform, additional investments in federally-funded WDNPs will not address challenges of the unemployable, at the very bottom of the workforce development services hierarchy. Instead, urban workforce development planners could benefit from leveraging and investing in non-federally-funded WDNPs with limited workforce development services infrastructure—especially worker centers and small human service nonprofits with robust peer support and self-empowerment programs, and larger nonprofits with robust supportive services infrastructure—who may be more structurally equipped and amenable to serving the unemployable.

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Key Words: Workforce development, Economic development, Labor markets, Equity planning, Creaming

POLITICS AT ARM’S LENGTH: HOW PUBLIC AUTHORITIES’ RELATIONSHIPS IMPACT ECONOMIC DEVELOPMENT PLANNING

Abstract ID: 742

Individual Paper Submission

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The Empire State Development Corporation (ESDC), New York State’s chief economic development agency, is a powerful public authority that can condemn property, issue tax-exempt bonds, and override local zoning ordinances. The ESDC plays a critical role in shaping local planning outcomes through its use of loans, grants, tax credits, marketing, and other forms of assistance primarily brokered “behind the scenes” and sometimes at the expense of local public planning. Despite its contemporary role facilitating private commercial and industrial development, the authority was initially created to develop housing for people with low and moderate incomes and eliminate urban blight. In the late 1970s, declining tax revenues and other financial challenges throughout the state shifted the authority’s focus to job creation

and retention and business development. For fiscal year 2018-2019 the authority boasted a budget of over \$70 million, and as of 2017 it controlled over 200 subsidiary corporations and other entities. The ESDC's new, broader scope and vast legal powers means that it has more opportunities to overlap—or interfere—with local planning efforts.

This paper provides a descriptive analysis of the ESDC's origin story to better understand the authority's contemporary policy behavior. I use qualitative data gathered from surveying historical documents including legislation, bill jackets, and executive memos at the New York State Archives; evaluating media reports; and interviewing retired and current staff members of the agency as well as former elected officials. The collected data yields a descriptive analysis of the political and economic factors driving the creation of the ESDC, as well as a relationship map that explains how the authority's political arrangements impact planning outcomes. Toward this end, this paper pays particular attention to the ESDC's engagements with other economic development planning efforts and local governments to highlight its intergovernmental politics and internal operation.

Using existing literature on the politics of planning (Forester 1989) and the role of public authorities (Doig 1983, Radford 2013), the paper then contextualizes the ESDC experience nationally and underscores the role of public authorities in the economic development planning process. Existing case-based research empirically documents the inherently political nature of planning (Altshuler 1965, Flyvbjerg 1998). But, fewer cases focus on the specific institutions like public authorities that are involved in planning, their intergovernmental politics, and their internal operation. The case of the Empire State Development Corporation in New York State is a first step toward filling this gap in the literature. This case further highlights the role of public authorities in economic development planning while adding a more nuanced view of the political relationships and negotiations that are endemic to the planning process.

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Key Words: economic development, public authorities, politics, Empire State Development Corporation, New York State

THE INFLUENCE OF DISASTER LOANS ON LONG-TERM BUSINESS SURVIVAL IN GALVESTON, TX AFTER HURRICANE IKE

Abstract ID: 752

Individual Paper Submission

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The U.S. Federal Government has taken an increasingly active role in disaster relief efforts, yet program analyses of the efficacy of Federal recovery programs—particularly for businesses—is limited. This dissertation fills the gap by exploring the effects of Federal disaster loans on long-term business post-disaster recovery outcomes. Using the case of the U.S. Small Business Administration (SBA) Disaster Loan Program in Galveston County Texas after 2008 Hurricane Ike, this research examines which businesses benefit from Federal assistance and whether loans improved odds of survival for businesses nine years after Hurricane Ike.

This dissertation contributes to the body of work on disaster assistance programs and business recovery through new methodological and theoretical approaches to these questions. This research is grounded in institutional theory, namely institutional logics and resource dependence, and uses quasi-experimental design to tease out the effect of the loan program from potential confounding factors that affect business survival. This research uses a combination of primary data collected directly from the field and secondary data, such as business information reported by ReferenceUSA, sales tax and franchise tax permit information from the Texas State Comptroller, and data provided by the SBA through Freedom of Information Act requests. Coarsened Exact Matching is used to match businesses that received a loan (treatment sample) to businesses without a loan but otherwise similar in damage and firm characteristics (matched sample). For the matched sample, conditional logistic regression is used to analyze the effect of disaster loans on survival. For the treatment-only sample, linear regression and logistic regression are used to examine determinants of loan amount and which businesses are more likely to utilize the loans.

This research found that businesses that received a loan had higher odds of survival compared to their control, however businesses differed in the amount of money they received and likelihood of accepting the loan based on their damage, their characteristics, and the characteristics of the loan, itself. This research concludes with suggestions of how disaster policy aimed at businesses might be improved, as well as how planners might fill potential gaps in recovery left by the SBA loan program.

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Key Words: Disaster Recovery, Economic Development, Small Businesses, Community Resilience

SOLAR FIRMS IN FLUX: EVOLVING SOLAR ENERGY BUSINESS MODELS AND LOCAL SUSTAINABLE ECONOMIC DEVELOPMENT

Abstract ID: 757

Individual Paper Submission

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Responding to the threat of climate change and the long-articulated promise of “green jobs,” municipal and state governments in the U.S. are making increasingly ambitious renewable energy commitments. Yet in the U.S. and elsewhere, renewable energy systems are primarily built, operated and maintained by private firms. Cities’ ability to achieve both decarbonization and economic development goals accordingly depends upon questions of market structure and business strategies that are the regular object of economic development studies. Through a comparative study of lead residential solar energy firms and solar installation subcontractors in metropolitan San Francisco and Denver, this paper demonstrates how lead firms have adapted to technological, policy and market disruptions in distinctive ways that follow directly from their organizational capabilities and the constraints imposed by the end markets in which they operate. While one firm’s repositioning as an end-to-end, vertically integrated energy firm allows it to pool revenues, costs and customers across several product lines, another set of firms are specializing as matchmakers between smaller installers and residential customers. The emergence of these “closed competitor” vs “open collaborator” models results in distinct consequences for local workforce needs, entrepreneurial ecosystems, and the shape of future renewable energy grids. In addition to informing municipal renewable energy policies, this paper also makes a significant contribution to theories of economic development by demonstrating the effect of heterogeneous organizational capabilities on industry outcomes.

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Key Words: economic development, energy transition, solar energy

NEIGHBORHOOD ECONOMIC CHANGE IN AN ERA OF METROPOLITAN DIVERGENCE

Abstract ID: 760

Individual Paper Submission

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Patterns of, and explanations for, neighborhood socio-demographic change have dominated urban research since the Chicago school. In recent years, growing academic consensus on the existence of neighborhood effects and amplified public scrutiny of one particularly visible form of neighborhood change – gentrification – have revived this line of inquiry. Despite widespread perceptions of fluidity, most analyses suggest change is the exception, not the rule; American neighborhoods’ economic positions are remarkably persistent when evaluated within particular metropolitan areas and on a national scale. Several scholars have inferred that even macro-level shifts – including social change, demographic transitions, economic transformations, and federal policy reforms – are insufficient to disrupt the reproduction of neighborhood inequality (Sampson 2012; Sharkey 2013).

However, urban scholars’ dominant focus on neighborhood- and macro-level patterns and predictors of change obscures metropolitan-level processes’ role. While a growing body of work has applied a metro-

level lens to communities' race-ethnic transitions (Crowder, Pais, and South 2012; Lichter, Parisi, and Taquino 2015), few studies have rigorously applied it to neighborhood economic stratification and change. As a result, clarity on whether neighborhoods remain “stuck in place” (Sharkey 2013) at similar rates across local contexts and on what metro-level processes shape neighborhood income inequality remains elusive. These concerns are particularly salient today, given the “Great Divergence” in U.S. metros' economic and social conditions (Moretti 2012).

Applying a metro-level lens not only clarifies the patterns of and multilevel processes driving neighborhood-level economic conditions; it sharpens our conceptualization of neighborhood inequality and change by highlighting a distinction central to income mobility research but peripheral to spatial inequality literature: relative versus absolute change. In the neighborhood context, local fluidity refers to change in a community's relative income position within an ecological unit such as a metropolitan area, whereas national mobility refers to absolute shifts relative to the entire distribution of U.S. neighborhoods.

In this paper, I articulate the theoretical differences between the two phenomena and empirically demonstrate that unlike their income mobility analogues, metro-level estimates of neighborhood local fluidity and national mobility are weakly correlated, suggesting the causes and consequences of each variant of change are distinct. I then construct multilevel models that estimate the variation in each outcome between (versus within) metros and that decompose each axis of variation based on distinct, theoretically salient neighborhood- and metro-level factors. Once I establish the distinctive theoretical features and empirical patterns of each type of neighborhood change, I use administrative data on all California neighborhoods' K-12 school quality, environmental toxicity, and crime rates to examine whether neighborhood local fluidity or national mobility is more closely associated with changes in neighborhood social conditions theorized to shape children's social mobility prospects.

Multilevel models employing Census 2000, American Community Survey (ACS) 2011 – 2015, and Equality of Opportunity Project data reveal that 7% of the variation in local fluidity and 14% of the variation in national mobility resides between, rather than within, metros. The place stratification and ecological context accounts of spatial inequality provide considerable leverage in accounting for each respective axis of variation. Specifically, metro-level income segregation is strongly and negatively associated with neighborhood local fluidity, while metro-level income growth predicts neighborhood national mobility.

From a theoretical perspective, these findings lay the groundwork for finer-grained, multilevel neighborhood change models that clarify the causes and consequences of various types of economic shifts. From a policy perspective, the paper reveals what place-based urban policies, operating at what spatial scale, might be most effective in disrupting the reproduction of neighborhood inequality, improving communities' lived conditions, and increasing the social mobility prospects of children who are raised within them.

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Key Words: Neighborhood change, Inequality, Metropolitan areas, Residential segregation, Multilevel models

UNDERSTANDING THE SPATIAL DISTRIBUTION OF NONSTANDARD WORKERS IN U.S. METROPOLITAN AREAS

Abstract ID: 813

Individual Paper Submission

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In the past twenty years, the share of workers in nonstandard work arrangements in the United States remained relatively stable at around 10 percent, according to the newly released Contingent Work Supplement Survey data (CWS). Such stability hides important variations at the subnational levels. In 2017, the share of alternative workers ranged from 3 to roughly 20 percent in large metropolitan areas. Nonstandard or alternative work arrangements comprise jobs arranged through intermediaries, such as temporary help agencies, or involving potentially unpredictable place, time and quantity of work (Polivka 1996). CWS definition of this group comprises four types: i) independent contractors, consultants, and freelancers; ii) on-call workers; iii) temporary help agency workers; and iv) contracted out. Despite considerable differences in terms of demographic composition, sectoral concentration, and job quality across these types, alternative arrangements have been empirically associated with higher insecurity and precarity (Kalleberg 2000). Consequently, understanding the spatial distribution of these workers across metropolitan areas and underlying mechanisms is important for economic development and workforce development policy and planning.

This paper addresses this question by examining what contextual factors help explain the level and growth of the share of alternative workers in total and by type in metropolitan areas in the United States between 2005 and 2017. We will mainly use CWS surveys from 2005 and 2017. We restrict our analysis to core-based statistical areas (CBSA) with population larger than 500k, leading to a sample size of about 100. Based on the literature, we hypothesize that three sets of MSA level variables would play a role in the concentration of nonstandard workers, namely urban economic structure, institutional/policy environments, and demographic composition. We will use descriptive statistics, spatial mapping, and statistical analyses to conduct our inquiry.

In terms of the urban economic structure, the literature suggests that the concentration of alternative workers varies across industries and occupations (Liu and Kolenda 2012). Unemployment has also been empirically associated with a higher incidence of alternative employment in subsequent periods (Katz and Krueger 2019). We also include average firm size (measured by employees), collected from the Businesses Employment Dynamics. Institutional environments with fewer protections to workers tend to have higher incidences of alternative employment (McLaughlin and Coleman-Jensen 2008; Katz and Krueger 2019). Likewise, some firms have been using alternative employment (and even misclassifying workers) to reduce labor costs. To account for these factors, we gather relevant state level policies from the National Conference of States Legislatures (NSCL) on right-to-work laws, and legislation to avoid misclassification of workers. Finally, we use CPS data to generate demographic characteristic variables

such as race/ethnicity, average age, immigrant share, gender, and educational attainment of the MSA population. Our results will indicate the relative weight of these explanations in understanding spatial distribution of nonstandard workers across MSAs and shed light on targeted planning efforts towards the rise of nonstandard workers at the local level.

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Key Words: nonstandard work, alternative work, metropolitan areas

PRAGMATIC MUNICIPALISM: US LOCAL GOVERNMENTS' RESPONSE TO FISCAL STRESS

Abstract ID: 848

Individual Paper Submission

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The 2007-08 Global Financial Crisis raised questions about the sustainability of government budgets. In a multi-level governance system, the impact of the financial crisis and responses to it can differ across the various levels of government. Scholars have warned that local governments are particularly vulnerable to fiscal stress given their position in the government hierarchy. Local governments must manage political pressures from higher-level state governments and citizens, while operating within several structural constraints, such as demography, economy, and state policy (on local taxation and labor union rules). In the highly decentralized US, some local governments responded with austerity reforms (e.g. cutting or privatizing services, shrinking employee benefits), but most local governments have explored alternative revenue sources and alternative service delivery.

Using local government finance and survey data nearly a decade after the financial crisis, we examine how political pressures (from state governments and citizens) and structural pressures drive local responses. Our 2017 survey includes over 2000 responding municipalities from across the United States. Regression models show how structural shifts in the economy, demography and state policy contribute to local government fiscal stress. These structural constraints shape local government responses. We measure shifts in form of service delivery (eg privatization) and search for new revenue sources (taxes, fees, etc). We find that city managers make pragmatic choices, balancing community need, with

pressures from economic restructuring in a rescaling state-local government system. Our results challenge the dire view presented by austerity urbanism scholars, and offer instead a more pragmatic municipalism response. This gives planners room to maneuver in an increasingly challenged local government sector.

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Key Words: local government, fiscal stress, austerity, pragmatic municipalism, privatization

THE IMPACT OF RAIL TRANSIT SYSTEM EXPANSION ON SPATIAL DISTRIBUTION OF LAND USE AND EMPLOYMENT: EVIDENCE FROM SHANGHAI, CHINA

Abstract ID: 852

Individual Paper Submission

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In the past few decades, Shanghai's rail transit has experienced tremendous development and brought great changes to the urban spatial structure. The objective of this paper is to examine the impact of rail transit system expansion on the urban spatial structure using land use and employment distribution as two indicators through a Shanghai case study. We focus on the expansion of rail transit system between 2008 and 2013, and try to figure out the changes of land use and employment distribution based on the data from the Economic Census Data. The spatial autocorrelation of events was investigated using the Moran's I to identify significant hot and cold spatial clusters. With a spatial regression model, it was also found the number of employments every 1 kilometer closer to a metro station is related to land diversity, which is defined by land use entropy, but not related to population density. The significance level was set at $P \leq 0.05$. The results identify the improvement of the rail transit system plays an important role in changes in urban spatial structure and promotes the mixed use of land along the rail transit. For example, higher development intensity of land and more diversity land uses occur in more accessible areas near the metro stations. Meanwhile, the improvement of rail transit system significantly promotes the development of Shanghai's centers as well as sub-centers and the accumulation of employment in this area. Additionally, the interrelationship between land use, employment and rail transit system generates redistributive effects

that are substantially associated with urban growth and reshape Shanghai spatial structure, which will lead to efficient use of the limited urban land resources.

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Key Words: rail transit system, land use, employment space, spatial regression model, urban spatial structure

UNDERSTANDING THE REVIVAL OF GREATER DOWNTOWN DETROIT: AN ASSESSMENT OF THE EFFECT OF REVITALIZATION INITIATIVES

Abstract ID: 879

Individual Paper Submission

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The near-collapse of Detroit in the wake of the financial crisis and the Great Recession led to widespread efforts to stave off the worst effects of the disaster and to foster renewal. Many neighborhoods will take decades to recover, but the housing market in Greater Downtown shows strong signs of revival, construction of new office space has begun, and selected other neighborhoods appear on the upswing.

Greater Downtown has been the target of numerous corporate, philanthropic, and public investments since 2010. These include financial incentives to stimulate housing demand there by employees of large firms and anchor institutions; an array of philanthropic and CDFI-type financing initiatives to stimulate housing development in a lending environment that continues to be risk-averse; and steady planning and investment efforts to improve quality of life, including safety. Housing and neighborhood conditions have clearly improved. Rental housing occupancy rates are now high, rents are sharply up, and the pipeline of new projects is vigorous.

This paper will report the final results of a multi-year analysis of the effects of demand and supply side initiatives intended to stimulate the housing market in Greater Downtown, placing them in the context of other factors affecting observed outcomes. Its goal is to inform the design and implementation of intervention strategies in other weak market cities, and to offer guidance on the conditions under which supply and demand stimuli are most likely to be effective. Findings to date suggest that (1) the demand-side stimulus served mainly as an initial stimulus and signaling device; (2) supply-side strategies are critical in very weak markets; (3) public sector incentives, while extremely important, need to be supplemented by other types of incentives in the weakest markets; and (4) these formal efforts are unlikely to yield sustained growth in the absence of employment expansion.

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Key Words: Revitalization, Weak Market Cities, Detroit, Development Incentives

THE MATURING GEOGRAPHY OF BIOTECHNOLOGY: NETWORK FORMATION AND EVOLUTION IN LEADING AND LAGGING US REGIONS

Abstract ID: 881

Individual Paper Submission

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Knowledge intensive industries such as biotechnology are characterized by spatial concentration and networks of organizations and inventors. Previous research generally acknowledges and has empirically shown that knowledge networks play a crucial role in sustaining the vibrancy of regional clusters and, by extension, the economic development of regions (Huggins and Prokop, 2016). However, we still have limited understanding of how networks emerge and evolve over time. Although there is a large body of research in regional studies, economic geography, and related fields that examines the association between regional/network-level factors and cluster outcomes, the research on factors that give rise to network structures is relatively scarce. Part of the problem in this area of research has been the paucity of methodological techniques that are capable of dealing with dependencies and simultaneity inherent in relational data (Glückler, 2007; Broekel et al, 2014). Additionally, this research rarely compares successful and less successful clusters in systematic ways and thus tends toward retrospective explanation, predetermining the importance of historical contingencies and geographical proximities in the emergence and transformation of regional networks (Powell, Packalen, and Whittington, 2012).

Our study takes a broader view by incorporating a broader range of regions and leveraging recent advances in the modeling of network data. Using patent statistics from 1976 to 2010, our analysis relies on a longitudinal co-invention data set with geographic and organizational indicators. First, we identify actor and dyadic-level factors in the formation of network ties using Multiple Regression Quadratic Assignment Procedure (MRQAP) to test whether the observed network relationship is extreme compared to what we would expect to find if assignment to network positions were random. The results from this procedure enable us to assess the relevance of factors such as institutional type, size, and geographical proximity in explaining properties of the knowledge network connecting biotechnology organizations.

Second, combining insights from organizational and economic sociology with the more spatial perspective of economic geography and regional studies, we examine the evolving regional geography of

the biotechnology industry in the US. For this purpose, we use conventional regression and dynamic social network modeling approaches to examine network evolution over time. This approach offers the opportunity to understand whether actors collocate because they already have knowledge ties or if they start to build relationships because they are already spatially close. The findings illustrate how organizational diversity within a regional network and a high share of intra-regional ties relative to extra-regional ties explain the diverging paths of leading and lagging clusters.

We envision this research as addressing sources of bias in attempts to extrapolate policy relevance from observational studies of the development of innovative clusters. Our findings differentiate the extent to which network properties, including the degree to which they are regionalized, are purely path-dependent or a product of regional and/or firm characteristics that might be manipulated through the levers of economic development policy. In addition, this framework could be extended to examine the link between network properties and a variety of outcomes of more general relevance to the region, such as functional specialization, tie-ins with anchor institutions, and employment outcomes.

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Key Words: Biotechnology, Clusters, Innovation, social network analysis

GEOGRAPHY AS STRATEGY: THE CHANGING GEOGRAPHY OF CORPORATE HEADQUARTERS IN POST-INDUSTRIAL CAPITALISM

Abstract ID: 952

Individual Paper Submission

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This paper develops a theory of large corporate headquarters location in the modern age. We posit that human capital has become the primary factor in explaining where large firms are headquartered. We argue that such operations will locate in skilled cities that are also larger and globally connected. We test these hypotheses using data from the Fortune 500 from between 1955 and 2017. We estimate count models to test the relative importance of human capital, population size, and airport connectivity, alongside taxation and other measures that are said to be important. Our findings are consistent with our hypotheses. We also consider the local impacts of Fortune 500 and Fortune 1000 firms, net of local changes in labor demand and tax rates. There, we find evidence that large firms are public goods.

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Key Words: Headquarters, Human Capital, Clusters

CODING BIDS FOR AMAZON'S HEADQUARTERS TO UNDERSTAND LOCAL ECONOMIC DEVELOPMENT "POLICY MIXES"

Abstract ID: 958

Individual Paper Submission

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The recent spectacle of and continuing political fallout from Amazon.com Inc's headquarters bidding process have brought local economic development policies to the fore of public debate. Concurrently, scholars are more forcefully making the case that "place-based" economic development policies provide answers to widespread dissatisfaction with corporate welfare and increasing intra-regional inequality, which tend to be associated with older, business-focused policies (see e.g. Porter 1998). In terms of providing an alternative, place-based policies involve a shift from aggregate regional economic catch-up to reducing intra-regional disparities through such efforts as support for locally-owned businesses, coordinated workforce development, and other strategies designed to maximize the positive externalities for local workers across a wide range of socio-economic backgrounds (Barca et al. 2012, Hendrickson et al. 2018, Miller-Adams et al. 2019).

This paper inquires into the extent to which cities and metropolitan areas that placed bids for Amazon's second headquarters already practice place-based economic development policies. It does so by developing a typology of "mixes" of economic development policies that local governments already employ. These local policy mixes are expected to include different components that may be place-based, along with other more traditional forms of business support and incentives. By cataloguing what forms of investment in economic development metro areas employ, as well as the resources and organizational actors involved, we aim to reach a better understanding of who implements place-based policies and how they implement them, as well as how these localities differ from those that employ such policies less or not at all.

We assess cities' and metro areas' mix of local economic development policies through textual analysis and coding of all publicly available bids for Amazon's "HQ2." These bids are detailed documents that respond to criteria stipulating the inclusion of information on public investments and inter-organizational collaborations related to infrastructure, workforce development, business development, and business incentives. The coding of these documents will allow for the detection of patterns in local "policy mixes," while also taking into account the organizational actors and resources involved.

Over 75 bids are analyzed, covering a wide range of metro area size, region, and median household income. The results will be of interest to scholars and practitioners interested in regional economic development policies, local governance, and intra-regional inequality. The typology of policy mixes will help us to better understand where policies diffuse as well as the organizational resources most commonly associated with a "place-based" approach. Moreover, this paper is intended to enable two further lines of

inquiry: first, cross-sectional quantitative analyses of the relationship between local demographic and structural features, type of economic development policy mix employed, and economic development results; and second, the processual analysis of how different policy mixes are designed and implemented over time.

Citations

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Key Words: local economic development, place-based, economic development policy, business

GROWTH BEGETS GROWTH? THE DECENTRALIZATION OF THE BUSINESS PROCESS OUTSOURCING INDUSTRY IN THE PHILIPPINES

Abstract ID: 985

Individual Paper Submission

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The Philippines is a major global hub for the business process outsourcing (BPO) industry, through which operations such as customer service work, back-office accounting, digital animation, and human resources management are subcontracted to third parties. As the country's second-largest source of dollar income, BPO directly employed about 1.3 million people across the Philippines in 2018. Scholarly questions are increasingly surfacing in an interdisciplinary context about the impact of the BPO sector, and "offshoring" more generally, on economic growth and urban development in metropolitan regions across the Global South.

This paper focuses on the decentralization of the BPO industry in the Philippines. In the Philippines, the vast majority of BPO offices are concentrated in Metro Manila. Over the previous decade, national and regional government agencies and private trade and industry associations alike have worked to propel the BPO industry into a handful of midsized cities. This paper documents these strategies and, in doing so, asks the following questions: What are the unique challenges faced by midsized cities in the Philippines as they attempt to capture inward investment from the BPO industry? How do midsized cities market themselves as BPO hubs? Is the expansion of the BPO industry in midsized cities, including the urban development projects it has triggered, distinct from those in Metro Manila? And, finally, what are the "urban futures" of the BPO industry in midsized cities, given rapid economic and technological change?

To answer these questions, the paper draws on three months of field research conducted in the Philippines. I focus in particular on the experience of two mid-sized cities, Bacolod and Iloilo, which are located in the Visayas region of the country. I adopt a mixed methods approach, which includes spatial

analysis, observational analysis, industry analysis and semi-structured interviews with business leaders, politicians, urban planners and BPO office workers.

Through this analysis, I draw attention to the different strategies that are being taken in the Philippines to decentralize what is currently the country's fastest-growing industry. I argue that the decentralization of the BPO industry is placing significant pressure on mid-sized cities to invest in electricity and telecommunications infrastructure, office space, technical training schools, and other initiatives so as to attract multinational corporations in the outsourcing sector. Such investments represent a significant reallocation of resources for metropolitan and provincial governments, and, in some cases, have resulted in the construction of excessive office space, unnecessary infrastructure, or a combination of the two. The paper concludes with a more generalizable discussion of how automation in the BPO sector undermines much of the economic development policy currently being implemented in the country.

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Key Words: Economic Development, Small and Medium Sized Cities, Technology, Infrastructure and Development, Workplace Automation, International and Comparative Planning

CREATING TECHNOLOGY TOGETHER: THE IMPACT OF NORTH CAROLINA'S TRIANGLE UNIVERSITY LICENSING CONSORTIUM

Abstract ID: 1028

Individual Paper Submission

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The degree to which local institutions forge partnerships and work collaboratively on technology development contributes to regional vibrancy and long-term economic prospects. A region's research universities are key among these institutions, and together their diverse missions and capacities contribute to an informal regional system. Yet universities may also choose to pursue more formalized partnerships; inter-university collaborations such as science parks, innovation hubs, incubators, and joint campuses continue to increase (Addie 2018). In addition to reigniting debates about the role universities play in urban land development, these spaces—including Roosevelt Island's Cornell-Technion and London's Nanotechnology Centre—raise questions about how universities contribute to long-term regional innovation. That is: do collaborative efforts provide additive benefits to regional innovation? Or do they instead dilute university ecosystems, thus unintentionally dampening innovation?

In this paper we draw insights from an older university collaboration, North Carolina's Triangle University Licensing Consortium (TULCO), to deepen understanding of how institutional partnerships can best shape regional economic development and innovation (Goble 2013). In 1988, to help jumpstart lagging campus commercialization efforts, Duke University, North Carolina State University, and the University of North Carolina at Chapel Hill formed TULCO. The organization promised an efficient means for each university's commercialization efforts catch up to their research-intensive peers. Yet TULCO operated with full support for just five years (1988-1992) and dissolved in 1995, leading histories of the region's development to either overlook TULCO or frame it as a doomed experiment.

We demonstrate that TULCO was instrumental to the region's long-term development and can offer lessons for contemporary inter-university scientific collaborations. Our theoretical lens relies on institutional interpretation—or the process through which individual actors actively “interpret and reinterpret their institutional settings” to turn policy mandates and abstractions into institutional realities (Lowe and Feldman 2017, 3). Institutional interpretation is particularly useful for conceptualizing institutional change in periods of uncertainty, when actors within organizations face considerable gaps in understanding between formal and informal institutions. In this case, the Bayh-Dole Act of 1980 created the formal, legal institution of technology transfer (Eisenberg and Cook-Deegan 2018)—one quite apart from the disparate, often informal practices that existed on each campus (Donegan 2019). Despite the state-backed regional collaboration, officials from each of the three campuses separately and continually interpreted the collaborative's value against their own institution's long-standing missions and dissimilar attitudes towards industry engagement. Over time, each university came to embrace a different understanding of TULCO's usefulness—leading each to drift away from one another and, over a short period of time, leave TULCO.

Through semi-structured interviews with current and former staff at the three universities and a review of archival documents, we argue that in the rush to open TULCO officials overlooked the heterogeneous nature of the missions, motivations, resource needs, and deeply-ingrained cultures of the three participating universities. In doing so, the collaboration's architects missed a key window to shape officials' divergent institutional interpretations. Still, we argue that TULCO was critical for jumpstarting what would eventually become a recognized leader in university-led regional development. We draw four broad policy lessons. First, universities must go beyond recognizing shared goals to interrogate fundamental differences in motivations, power relationships and informal institutions. Second, collaborations must allocate access to distinct resource streams in mutually beneficial manner. Third, collaborations need established performance metrics, equitable and transparent procedures, and opportunities for functional exits for when universities need to withdraw and re-center around unique institutional needs. Fourth, even in failure, high-profile collaborations can play an instrumental role in scaling up campus support mechanisms and bringing universities into sync with supportive state economic development planning and policymaking efforts.

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Key Words: economic development, universities, organizational change, innovation, technology transfer

LOCATIONAL PATTERNS AND PRODUCTIVITY OF THE FASHION INDUSTRY IN THE U.S.

Abstract ID: 1033

Individual Paper Submission

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The fashion industry allows us to view the changes in the country's urban economic system. The fashion industry has evolved from a labor-intensive into a more design-oriented sector and a central part of the 'cognitive-cultural economy' (William & Currid-Halkett, 2011). The fashion industry cluster has brought the attention of researchers and policymakers, demonstrating the city's comparative advantage (Rantisi, N. M., 2002). Nevertheless, studies on differences in productivity among subsectors of fashion clusters have been limited. The fashion industry can be divided into subgroups, such as supply, manufacture, wholesale and design, according to production procedure. Although each group has different productivity, these subsectors have a close relationship in the production of clothing, so that they benefit from the proximity to the fashion cluster. Therefore, the study identifies how much fashion-related businesses with different productivity can have benefited from geographical proximity.

For this research, I define historical trends in the concentration of fashion industries for the United States from 1996 to 2016. Using ZIP Codes Business Patterns (ZBPs) from the U.S. Census Bureau, I study the spatial structure of the fashion industry by subsectors such as Supply, Manufacturing, Wholesale, and Design. Using Geographical Information Systems (GIS), I define and represent the spatial patterns of each subsector showing reconfiguration of its economic geography. The result shows that the fashion industry is inclined to produce regional network agglomerations. The results are consistent with the larger theoretical and empirical observations on the post-industrial landscape. After defining the spatial patterns of fashion clusters, this study confirms and quantifies productivity benefits from fashion clusters. Using panel data, I study the association between the agglomeration of the fashion industry and its productivity by subsectors. The econometric analysis provides empirical evidence of the economic benefits associated with the clusters. Also, the results explain the different productivity depending on the clusters such as the New York Garment district and the Los Angeles fashion district.

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Key Words: Economic Development, Fashion Industry, Cluster, Productivity

(RE)CREATING THE RURAL WEST: EFFECTS OF CREATIVE DISTRICT POLICY ON RURAL COLORADO PLACES

Abstract ID: 1035

Individual Paper Submission

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Creative districts have historically been used to spur revitalization, infuse character into a underutilized space, and stimulate economic development (Currid 2009; Ashley 2015). The implementation of a creative district appeals to local economic development entities as it requires low investment with the potential for high impact to the local economy. While it is assumed this is a purely urban phenomenon, evidence suggests rural places may also become creative centers, drawing creative producers with low cost of living and natural amenities (Markusen 2007; Polese 2011). Few scholars have acknowledged the existence of creative districts or similar interventions in rural places. This research aims to fill this gap by examining creative districts in rural Colorado to answer the question: does a creative district accomplish economic development and revitalization goals in rural towns as in urban areas?

To answer such question, this study examines the dynamic outcomes thought to be connected to creative district implementation such as changes in local place perception, physical spaces within the districts, and economic measures in rural places with attention to how these might differ from urban places. In Colorado, a unique state-led approach to creative district development aims to enhance and develop creative economies in individual places across rural and urban scales, promising enhancement of local identity, economic development, increased tourism, revitalization, and improved quality of life. Each place has a unique planning environment, varied amenities, a distinct arts ecosystem, and local governance practices. For this study, I focus on four rural creative districts across Colorado to highlight ways the creative district has or has not: 1) impacted local planning processes through the integration of arts and creative initiatives, 2) affected economic development in relation to creative industries, and 3) encouraged revitalization and placemaking in downtown spaces. Site visits to creative districts and interviews with stakeholders were conducted in 2017 and 2018 to the study communities in Colorado. In addition, assessment of economic data, planning documents, and local press have provided additional insights about the impacts of district implementation at the local level.

Findings indicate there may be certain attributes that support positive outcomes for rural places, such as a core of “supercreatives” (Goldberg-Miller, 2017), public-private partnerships, and specific kinds of local amenities. Creative districts supported by the local government, integrated into the local planning processes, and possessing strong social network ties seem to impact the community in the strongest and most positive ways. Districts lacking such connection to local institutions seem to struggle to achieve sustainable change in the local place and economy. While many of these findings resemble the attributes of successful urban districts, rural planning approaches require much more communication and collaboration with residents and local governments. This paper provides planners with insights about the nuanced approach of creative district development in rural places.

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Key Words: creative districts, economic development, rural planning, revitalization

OPPORTUNITIES FOR WHOM? THE BENEFICIARIES OF OPPORTUNITY ZONES

Abstract ID: 1068

Individual Paper Submission

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Tucked into the 2017 Tax Cuts and Jobs Act was the largest Federal program for place-based investment in more than half a century. Opportunity Zones ("OZ") are expected to cost the US government over \$15 billion in forgone tax revenue through 2026. This means they "Trump" not only the Clinton Era Empowerment Zones but even the Great Society programs considered inconceivably vast.

The bi-partisan sales pitch for the passage of OZ legislation was that the primary beneficiaries would be existing residents in distressed communities – particularly those that have not rebounded from the recession. Yet 57 percent of all census tracts in America qualify for OZ designation based on their poverty and income demographics. The program guidelines also leave benefits to distressed communities far from guaranteed. There is no indication that regulations prevent individuals and corporations from receiving subsidy for investing in projects that would have gone forward without it. There is nothing in the legislation that guarantees clear benefits e.g. affordable housing, jobs or job training, public infrastructure development etc. for distressed communities and their residents.

This paper argues that 1) The OZ program was not designed to benefit distressed communities; and 2) failed program design is the result of a handful of private interests manipulating neoliberal ideas to co-opt public policy.

The analysis begins with a critical assessment of the OZ program design. This evaluation includes a statistical overview of the distress and gentrification levels of designated OZs; content analysis of the Joint Economic Committee congressional hearings and the final IRS rules and regulations governing the program; and semi structured interviews with the OZ program engineers and legislatures regarding the programs influences, and if and how the program was set up to ensure that benefits accrue to distressed community residents.

A historical and ideational account of the OZ Program follows. Using primary and secondary sources this paper explores how Peter Hall's original idea of "Freeports" was co-opted into a proposal by the Economic Innovation Group to offer capital gains tax incentives for wealthy investors. The paper concludes with a discussion of how the OZ program design can help diagnose federal economic development policy broadly. It also advances a proposal for an evaluation of the early outcomes of the OZ program.

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Key Words: Opportunity Zones, Place-based policy, Tax Incentives , Neoliberal Policy, Enterprise Zones

MICRO-MANUFACTURERS: CAN THEY BE A SOURCE OF INCLUSIVE GROWTH?

Abstract ID: 1108

Individual Paper Submission

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Regarded as uncompetitive entities, incumbent micro-firms (older than 10 years with fewer than 10 employees) are frequently categorized as subjects of redistributive policies rather than important sources of innovation or job growth. However, this might be misleading stemming from a lack of quality data, which hampers a proper performance evaluation or a close investigation of economic contribution to local and regional economies—many studies on firm-level innovation and performance improvement are conducted at national or multi-national scales, and micro-firms are mostly excluded from analyses.

This paper, however, argues that this group of firms cannot be lightly neglected. Given the sheer number of incumbent micro-firms, they can be a significant source of innovation and job growth, particularly for local or regional economies that are largely comprised of constellations of small firms. Building on this recognition, this paper demonstrates the case of Incheon, where a group of micro-manufacturers are an important source of innovation and job growth. In Incheon micro-manufacturers comprise up 80% of the manufacturing sector. Combining a city-wide employer-employee matched panel data set and interview data with manufacturers, this paper reveals three important aspects: 1) micro-manufacturers account for 55% of employment in high growth firm (HGFs) in Incheon and are responsible for 25% of new net job creation, in average, from 2007 to 2016. More importantly, their job share has increased from 18.56% to 34.8%. Although each micro-manufacturer’s contribution is slim, as a group they appear to have sustained and consistent job creation effects; 2) the 50% of HGFs (innovative firms by definition) achieve their remarkable growth without actively investing in research and development (non-R&D). Interviews with manufacturers provide explanation: small firms hesitate to invest in R&D due to the high sunk cost and uncertainty associated with getting successful R&D outputs. 3) to understand important elements of high growth of non-R&D micro-manufacturers, this paper estimated the effects of firms internal activities from expenditure to human resource hiring practices by using logistic regressions. The results shows that these non-R&D micro-HGFs tend to forge their high growth by training their employees and adopting new technologies or equipment. They also tend to hire people who are in more vulnerable positions in the labor market and are, thus expected to be dedicated to the firm once they are hired, compared to then their non-high growth counterparts. However, a higher proportion of wages in total expenditures is negatively

correlated with high employment growth because the added cost weighs down the firm's growth potential.

All in all, non-R&D micro-HGFs' high reliance on local labor markets and day-to-day practice-based innovation rather than R&D together suggest that micro-manufacturers in Incheon are locally embedded. Thus their growth will carry direct and enduring local impacts. In conclusion, micro-firms as a group can be a potential source of inclusive local and regional growth. This, it is recommended that policy makers pay greater attention to this formerly untapped group of firms.

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Key Words: inclusive growth, micro-manufacturers, high growth firms, non-R&D innovation

SEEKING FEMINIST ACCOUNTABILITY IN ECONOMIC DEVELOPMENT: THE CASE OF LINCOLN YARDS IN CHICAGO, IL

Abstract ID: 1122

Individual Paper Submission

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Transparency of public expenditures is the most fundamental reform needed for accountability - the responsibility for public officials to account for how they use tax revenues - in economic development (Mattera et al. 2010). Yet, effective transparency remains elusive due to technical and political challenges (Heald 2012), so research on governmental transparency tends to focus on improving methods of disclosure with the assumption that improving transparency will lead to greater accountability. We have little understanding, though, of whether transparency necessarily leads to accountability, which calls for an investigation of the presumed linkages between the two (Mabillard and Zumofen 2017). This research examines a case of contested economic development that has not led to perceptions of transparency and accountability, despite efforts to do so by elected officials and developers. I use qualitative methods to understand how transparency affects governing practices and why transparency mechanisms that meet formal requirements for such often do not lead to more public participation or better decision-making.

This research is a case study of the Lincoln Yards project in Chicago, a massive mixed-use redevelopment of a former industrial site in the Lakeview neighborhood, for which the city has committed nearly \$1 billion in tax increment financing (TIF). Local leaders held a succession of large community

meetings to vet the plan, all of which involved hours of public comment and heated debate over the validity and benefits of the project. Residents have expressed a range of concerns over the impact of the development on quality of life and equity, with opponents united in their claim that the planning process has lacked transparency and failed to build accountability, despite the long timeline of public engagement. In response, the plan has seen significant revisions, including cancelling plans for a stadium and large music venue, and breaking ties with its primary commercial sponsor. Despite the procedural transparency that took place, as well as Chicago's noted progress in TIF transparency via sunshine laws and open data, the project is still the subject of severe and widespread criticism that it lacks transparency, and the project's feasibility remains uncertain.

My research seeks to explain this discrepancy between transparency procedures and perceptions of transparency and accountability. Transparency's institutional complexity derives from interactions of multiple stakeholders, competing meanings, and diverging effects (Meijer 2013). Noting this, the literature has called for more in-depth qualitative studies of how transparency is constructed through these complex interactions.

I collected data through participant observation of over eight months of community meetings and public hearings related to the Lincoln Yards planning and approval process, as well as in-depth interviews with public officials and residents who participated in it. I analyze the impact of transparency on relations of accountability using Mabillard and Zumofen's framework of active enforcement versus discursive answerability, and I add to this framework Russo's concept of feminist accountability. Rooted in theories of transformative justice, feminist accountability is an ongoing practice of inclusion based on the willingness to understand others and to acknowledge that all are capable of harm (Russo 2018).

From this study, I conclude that transparency policies have not yet altered some historically problematic components of publicly-financed economic development, such as the privileges of non-disclosure afforded to private partners. Furthermore, existing frameworks do not reflect all aspects of accountability demanded by the public. A primary source of dissatisfaction with the outcomes of Lincoln Yards is the unwillingness for public institutions and private partners to acknowledge historical and potential harm resulting from economic development. Feminist accountability should be incorporated into planning models that aim for equitable development based on principles of transparency and accountability.

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Key Words: transparency, accountability, TIF, economic development, feminist planning

HOW TO RETAIN MANUFACTURING FIRMS IN A TRADITIONAL INDUSTRIAL CITY - A CASE STUDY OF CHANGWON IN KOREA -

Abstract ID: 1128

Individual Paper Submission

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This research aims to find out determinant factors of firm relocation in manufacturing industry and suggest local government to prepare right strategies for retaining firms which are likely to be relocated. We surveyed 236 firms in Changwon national industrial complex in Korea and analyzed data using logistic regression model. A case study of Changwon, which is located in middle of the largest industrial belt in Korea, indicates that among twelve most important location variables in our study, accessibility to recreation and park services for laborers is the most influential and statistically significant factor for firm's decision of relocation. This result emphasizes growing significance of quality of life and cultural amenity of a community for retaining manufacturing firms. In addition, such factors as 'easy access to business information and services,' 'local residential environment,' 'logistics and delivery cost,' 'local labor costs' and 'feasibility of site expansion' are also found influential, but not significant in statistics. This research outcome suggests that traditional strategies, such as lowering land cost and providing tax subsidy for firms are not so much effective for retaining manufacturing firms as increasing amenity of cities and building business-friendly environment. This concludes that current debate of industrial location in knowledge economy can apply to cities in Northeast Asian countries as well as US and Europe.

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Key Words: Firm Retention, Industrial Location, Knowledge Economy, Quality of Life

FIRM INNOVATION AND JOB QUALITY IN SUSTAINABLE FOOD SYSTEMS

Abstract ID: 1153

Individual Paper Submission

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Natural resources provide the foundation of sustenance and economic activity in many communities. Economic development and sustainable natural resource management practices are traditionally positioned as being in tension with each other; however, increasing attention is being paid to sustainability, and the two have been positioned as generating innovation and evolution within both spheres. Much effort has been devoted to developing new technologies, information, and management practices in order to bring a "sustainable", in all senses of the word, environment and economy about.

How this change is brought about is unclear. Focusing on food systems – a sector that contributes massive amounts of greenhouse gasses -- this paper asks: how is the pressure to become more sustainable

influencing production in food systems? How are industries either innovating and/or upgrading, remaining unchanged, or going extinct in reaction to sustainability pressures? What will this impetus mean for the number and quality of jobs in those industries? Where are these shifts happening and is this shifting the geography of sustainable industries?

While some industries may not be able to evolve fast enough – for example many fisheries are disappearing due to over-fishing or because schools of fish are migrating to different habitats in response to ocean acidification or ocean warming – and new industries such as aquaculture may arise to take their place, other industries will be able to upgrade or develop new production methods to adapt. I hypothesize that in industries with significantly high enough demand for well-produced, sustainable goods, learning is more likely to be shared across the industry, hastening improvements.

To explore these questions, a novel dataset is compiled for local food systems jobs in the United States, and paired with case studies of sustainable food systems jobs and innovations across the country. The geography of jobs and job quality will be presented alongside case studies of innovation and upgrading success and failure.

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Key Words: job quality, innovation, sustainable food systems

RESILIENCY IN THE FACE OF RESTRUCTURING: A CASE FOR ECONOMIC REVIVAL IN ST LOUIS, MISSOURI

Abstract ID: 1168

Individual Paper Submission

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The global forces of industrial restructuring in the 1970s and 1980s led to massive deindustrialization in most of the significant manufacturing regions around the world. In countries like the United States, United Kingdom, France, and Germany, industrial cities faced dramatic disinvestment as manufacturing firms adjusted to technology innovations (though such adjustments weren't limited to manufacturing) that altered how manufacturing was done. In the US, these shifts also changed firm location criteria and decisions, upsetting over a century of locational traditions in core industrial sectors. In what became known as the 'rust belt' across the northern Midwest, metropolitan areas like Detroit, Pittsburgh, Cleveland, and St. Louis witnessed dramatic shifts in population and economic activity within urban core areas, losing over half their populations and jobs in a matter of decades.

The Brookings Institution characterized these as ‘weak market’ cities with stagnant economies where demographic and industry groups that drive strong economies were lacking (Vey 2007). Weak market cities did not substantially benefit from the 1990s’ robust global economic cycle. Instead, they faced vast and increasing levels of real estate vacancy (plants, homes, stores, offices, and land) driven by brownfield challenges and continued public sector disinvestment. Economic development responses in these post-industrial cities has been, until recently, criticized as weak and especially focused on refilling the economic and employment base with service sector, low-wage jobs. This paper also demonstrates that the same cities required above average periods of recovery following the Great Recession.

Using the city of St. Louis, Missouri as a case study, this paper examines the state of the urban economic development landscape of a mid-sized post-industrial city. Building on prevailing economic development trajectories, St. Louis has, since the early 1990s, engaged in a diversity of approaches that include leveraging brownfield and vacant land assets alongside a variety of innovation clusters (incubators, research centers, co-working facilities) which now extend to “maker spaces” that reuse older, vertical industrial buildings for manufacturing start-ups. These efforts have not only helped to measurably diversify the city’s economy but have also re-attracted a much-needed population of educated, skilled, and urban-savvy workers and their families. Moreover, St. Louis is, at long last, aggressively pursuing strategies to redevelop and reuse a wide range of vacant real estate—land and buildings—with emerging partnerships of non-profits, private business, and city agencies.

In this paper, we address two key questions: (1) To what extent will smart diversification strategies shape future prosperity in St Louis; and (2) Can St Louis become a model resilient city? Answers are based on a case study examining opportunities for re-engaging with the manufacturing sector in St. Louis. Components of the case study include an analysis of economic sector and occupational data showing crucial changes and improvements since 1990, and a multi-dimensional approach to reutilizing vacant industrial, commercial, and residential real estate now strongly underway. Ultimately, we intend to profile how postindustrial cities remain centers for innovation.

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Key Words: Economic Development, Industrial Restructuring, Vacancy, Manufacturing, Brownfields

THE IMPORTANCE OF SUB-CENTERS TO U.S. CITIES.

Abstract ID: 1172

Individual Paper Submission

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While there have been signs of reversal in some cities, on the whole, the decentralization of jobs and people within US cities has been relatively constant since the Second World War. In relation to patterns of employment activity, decentralization is commonly measured in a binary way. Researchers often compare the share of employment in central business districts (CBD) to the share of employment in the rest of regional economies. Oftentimes these studies shed little light on the nature and form of employment decentralization, such as whether employment decentralization is diffuse and random in nature or concentrated into numerous centers of relatively dense activity. A notable exception in this regard is work on sub-centers, where a parametric approach is employed to identify multiple agglomerations of activity within cities. To this point, the presence of sub-centers has been measured in individual cities in a limited number of cases, but no study has attempted to measure the extent and importance of sub-centers across a large number of cities.

While, in U.S. cities, employment has decentralized from CBDs, limited evidence shows that a small number of sub-centers throughout a region can account for as much as 48% of metro region employment (Cervero and Wu 1997). This study seeks to measure the presence of sub-centers within the largest 100 metropolitan regions in the U.S. The research is motivated by three primary research questions. First, what percentage of employment is found within sub-centers across cities, and does this vary by city size and region? Second, what is the nature of employment activity within sub-centers, which industries tend to locate in sub-centers? Third, has employment within sub-centers become more or less pronounced over time?

The Census Bureau's Longitudinal Employer-Household Dynamic (LEHD) program will be the primary dataset employed in this analysis. LEHD provides employment counts by 2-digit NAICS category for census tracts over the period 2002-2015. For the largest 100 combined statistical areas (CSAs), sub-centers will be identified using the approach of Giuliano and Small (1991). Giuliano and Small define a sub-center as a cluster of contiguous census tracts, each having a minimum employment density of D , which together contain total employment of at least E . If the values of D and E are set too high, they will undercount sub-centers in small CSAs, and if the values are too low, they will inflate sub-sectors in larger cities. Therefore, the values of D and E will be adjusted for city size in an iterative process. GIS mapping software will be used to identify sub-centers of activity.

This research is guided by the idea that employment decentralization in U.S. cities is more nuanced than may be widely perceived. The primary hypothesis of this research is that significant economic activity, while not found in a single CBD, is found in multiple sub-centers of dense activity throughout cities, which approximate many of the benefits of central business districts.

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Key Words: Sub-centers, Polycentric, Decentralization

THE RELATIONSHIP BETWEEN STARTUP BUSINESSES LOCATION & TRANSIT-ORIENTED DEVELOPMENT IN AUSTIN, TX

Abstract ID: 1220

Individual Paper Submission

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Cities are usually adopting development plans seeking to improve economic opportunities. Therefore, many cities have developed transit stations to Transit-Oriented Development stations (TOD's) to attract businesses to locate in these cities. Many industries have been relocating near these transit stations.

Transit stations especially TOD's embrace a higher population density, diverse income, and business clusters which are attractive for businesses to relocate in these areas creating an economic agglomeration. Moreover, TOD's are known as competitive areas for businesses. According to Nelson et al., (2015) TOD areas have shown an increase in office, education, healthcare, and entertainment jobs.

A research investigated the relationship between the birth of new firms and the proximity of the light rail of two metropolitan areas Dallas, TX and Portland, OR and found a positive statistically significant relationships in both metropolitan areas. Also, the research found the rail proximity increases firm birth in most industrial sectors. The research concluded that transit users increase firm birth near transit stations (Chatman et. al., 2016). Another study examines the impact of the light rail in Phoenix, AZ on new businesses in specific industries. The study found that new businesses in knowledge industry increased by 88%, the service sector increased by 40%, and retail increased by 28% (Credit, 2017).

In the past few years, Austin, TX was successfully attracting new businesses to relocate in the city. In 2016, Austin had \$626 million of venture capital investment (Florida, & Mellander, 2016). Also, Capital Metro in Austin has been developing their metro stations to TOD's in a different areas, seeking to improve more economic opportunities in the region, which seems to be successful.

However, most research focused on new businesses near transit stations, but there are few that investigate new businesses, or startups near TOD stations. Therefore, this research aims to investigate the relationship between TOD's and startup businesses in Austin, TX. It will compare startup businesses within a half-mile of TOD's to other new businesses that are not located near transit stations to find which are more successful in terms of location, and type of business or industry.

To investigate the relationship between TOD's and startup businesses a linear regression will be used as a method to fulfill the outcomes of this research. The selection of TOD stations will be based on the selection of Capital Metro stations as TOD's. Also, we will use a half-mile buffer of the transit stations based on the recommendation of previous research (Guerra, & Cervero, 2012). The research will use Geographic Information System (GIS) to locate new businesses based on the data. Our data is collected from different resources such as TOD database, Bureau of Economic Analysis County Business Patterns, U.S. patent and trademark office, Small Business Data Resources, AllTransit, and ReferenceUSA.

The result of this research is expected to find that startup businesses especially high-tech, healthcare, and entrainment are more likely to be located near TOD stations. The finding of this research will provide a better source of information for new business owners to choose the location of their business. Therefore, this research should help cities to know which industries are better to locate in their cities to boost their economic status.

Startup businesses is a path to increase economic opportunities in cities. TOD's have shown successful results in attracting businesses, population, and development in many cities in the past years. TOD's may be the reason for businesses to shift back to urban centers rather than locating in suburban areas.

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Key Words: Transit-Oriented Development (TOD), economic development

THE ROLE OF AGGLOMERATION EXTERNALITIES ON THE SURVIVAL OF IOT STARTUPS: THE IMPLICATION OF THE SMART CITY POLICIES

Abstract ID: 1229

Individual Paper Submission

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Internet of Thing devices (IoTs) devices representing up-and-coming industries are growing rapidly in recent years. Every year the novel and relevant top IoT trends are reviewed and introduced, and market research institutes expect also the IoT market size and share to extend rapidly. According to Gartner, about 8.4 billion IoTs are applied as of 2017 and they will arrive about 20.4 billion until 2020, and Forbes predicts that the IoT market will double by 2021 reaching \$520B as well. The IoT platform market is an arena for competition among other major international companies, so they do not seriously depend on their locations. However, there are many innovative but vulnerable small-sized local startups developing IoT devices with applying general purpose technologies (GPTs). The local IoT device industries can be the driving force for regional growth, but they are quite fragile and flimsy with high failure rate despite the efforts of the local governments and other stakeholders to boost their performance.

The key aim of the study is to find the spatial determinants of the survival of the small-sized startups within the local IoT devices, empirically. This study focuses on comparing the effects of localized economics and urbanized economics in IoT device industry. Since Marshall (1890), Weber (1929), Arrow (1962), and Paul Romer (1986) introduce the benefits of co-location of economic activities enjoying positive knowledge spillovers among firms within the same industries. These key studies together are called as the Marshall-Arrow-Romer (MAR) or Marshallian externality. Substantial studies such as Lucas (1988), Krugman (1991), and Henderson, Kuncoro, and Turner (1995) support the localized positive cluster effects. Different from Marshallian externality, Jane Jacobs (1969) asserts that the local diversity leads to urban growth by allowing the cross-fertilization of ideas, and this idea is also supported by Glaeser et al. (1992), which is called by Jacobian externality. Current the concept of the 4th Industrial Revolution also support the positive Jacobian externality based on interdisciplinary project ideas.

Although many studies try to find the empirical evidences for both perspectives, still mixed findings are reported by different industries.

For an empirical analysis, this study applies time-varying survival analysis with 352,111 establishments of the new IoT device sector started in 2013 with a comprehensive firm level data (Korean Enterprise Data). Their performance is tracked for the subsequent five years within the context of hazard model in each month. To test the marginal effects of Marshallian and Jacobian externality, the risks of exist confronting each firms are controlled from the ownership and size, patents, neighborhood characteristics such as population density and employment density. To control the time-varying risk factors such as stock market fluctuation, and gross regional domestic product, advanced Cox model is used. The study shows that both Jacobian and Marshallian externalities significantly decreased the failure rate, but the influence of the Jacobian externalities is relatively smaller than Marshallian externalities under the standardized coefficient comparison.

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Key Words: Internet of Thing devices, startups, smart city policies, Marshallian externalities, Jacobian externalities

REMOTE WORKER MIGRATION IN THE UNITED STATES: THE ROLE OF PLACE-BASED AND HOUSEHOLD CHARACTERISTICS

Abstract ID: 1247

Individual Paper Submission

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Rapidly evolving digital, mobile, and information and communication technologies have contributed to the decoupling of geography and labor and made it possible for many jobs to be completed from anywhere, particularly work that emphasizes the development and flow of information and knowledge (Carnoy, Castells, & Benner, 1997). One manifestation of this has been the emergence of the remote worker as someone untied to an employment location and may instead base location and migration decisions on other factors that accentuate access to amenities and other place based factors. There has been growing interest by researchers, policymakers, and economic development professionals on the implications of remote work, and the changing nature of the workplace more broadly, for local and regional economies, particularly in rural and small city regions (Gallardo & Whitacre, 2018). Remote work is viewed as a potential means to attract transient residents based on high quality of life factors, such as those recently implemented in the states of Vermont and Maine among other regions of the country (Gallardo, 2016; Vermont General Assembly, 2018).

This paper examines the distribution and differences of remote work migration in the United States. Building off of recent research on the geography of remote workers, I construct variables that measure the migratory flows of remote workers for two time periods drawing on individual and household level public use microdata from the IPUMS USA dataset. I construct several sets of variables that measure place-based factors (socio-economic, access to amenities, and infrastructure) and individual level characteristics (household composition, economic, wage differentials, and place attachment) to estimate regression models of remote worker migration in the US. I estimate negative binomial regression models to take advantage of an equivalence relation that exists with the conditional logit model (CLM) often employed for problems with large complex choice sets. The equivalent relation between the CLM and Poisson regression likelihood models were demonstrated by Guimaraes, et al. (2004) and used to model firm location decisions to overcome the several problems known to challenge estimation of CLM models.

The findings of this research shed light on spatial patterns associated with the latest industrial restructuring in the digital age and will help inform planners and policy makers on the strengths and weaknesses of respective policies designed to target such populations.

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Key Words: economic development, remote work, migration, digitalization

THE INDUSTRY SPACE: MODELLING STRUCTURAL CHANGE AND ECONOMIC GROWTH USING NETWORK ANALYSIS

Abstract ID: 1257

Individual Paper Submission

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This paper focuses on a key characteristic of economic ecosystems, namely the interrelatedness of its different elements, where each component influences one another to bring about emergent outcomes. Concentrating on industrial structure as one aspect of the ecosystem of cities, I attempt to depict a picture of the “industry space” of cities where industries are connected to each other within a network of relatedness (Hidalgo et al. 2007). At the local level, cities diversify into and specialize in different industries as a result of regional competition and local comparative advantages. Accordingly, the evolution of a region’s industry space – and thus structural change – can be measured by analyzing shifts in the underlying industrial composition of the region.

A network by definition consists of two components; namely the 1) nodes, and 2) links. Utilizing data on new firm formation and industrial composition for MSAs taken from the Statistics of U.S. Businesses (SUSB) and unsuppressed County Business Patterns (CBP) data at the 4-digit level for the years 2005 to 2013, the underlying industry network is constructed such that the nodes are defined as individual NAICS 4-digit industries. The network links are defined using the Ellison-Glaeser index of coagglomeration (Ellison et al. 2010), to take into account the relatedness between any two industries. Then, any MSA's industrial structure is depicted within the network by assigning values corresponding to the location quotient for employment for each industry to the nodes.

The novel step is where I simulate shifts in any particular city's industrial structure over time by modeling industrial composition change as a shift in the location quotients for each industry node. I first utilize the Method of Reflections (Hidalgo and Hausmann 2009) to evaluate the economic capacities of a region based solely on location quotients. In essence, The Method of Reflections provides a synthetic way to measure regions' progress towards optimal economic development, defined as shifts in industry composition during different stages of development such that The Method of Reflections metric is maximized. By comparing the potential increases in economic capacity (i.e. The Method of Reflections metric) of a region brought about by potential shifts in location quotients across industries, it is straightforward to evaluate which industry composition brings about the largest increase in economic capacity. Multiple changes in industry composition can be represented by stepwise maximization of economic capacity, in which a region shifts its composition by a small increment in each step.

I restrict the industries that are able to experience change based on the "industry space" described above. Specifically, an industry is targeted for possible change only if it is highly coagglomerated with the current industry mix in a region. For example, a region focused on electronics manufacturing will have an easier time shifting to biomedical devices manufacturing, compared to for example, the arts industry. The underlying assumption of the simulation is that industry composition change is a gradual process that builds upon the economic foundations of the present.

Ultimately, this study attempts to answer two questions:

- 1) Do more successful regions show different patterns of structural change compared to those that are less successful?
- 2) How should regions faced with different circumstances promote structural change such that their economic development capacities are maximized?

Preliminary results suggest that the change in industrial structure over the years for which data is available are significantly correlated with the economic development outcomes of regions, and that in some cases these dynamics are more important than the actual industries in which these regions specialize in. In addition, more successful regions show distinct patterns of evolution that distinguish themselves with their less successful counterparts.

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Key Words: Economic development, Structural change, Entrepreneurship, Network analysis, Simulation modeling

THE FUTURE OF THE SHOPPING MALL: AN INDEX FOR DETERMINING WHO LIVES, WHO DIES, AND WHY?

Abstract ID: 1273

Individual Paper Submission

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In the twenty-first century, the shopping mall is doing to suburbs what it did to Main Street in the mid-twentieth century. As hundreds of malls close or are under-utilized, vacant buildings will proliferate the suburbs, large expanses of barren parking lots will litter the landscape, municipalities will lose tax revenues from lower assessed values of buildings in and near shopping malls, and the commercial nucleus of suburban neighborhoods will hollow out. This is becoming the reality of the suburban landscape as shopping malls are losing the appeal that they once did, toppled by reurbanization of the middle class, the change in shopping preferences of consumers towards experience rather than stuff acquisition, and by the convenience of online shopping. It is estimated that one in four of the remaining 1,100 malls in the U.S. will close between now and 2022 (Calfas 2017).

In 2017 there were nearly 7,000 retail closings, up more than 200 percent from 2016 (Thomas 2017). Most of them were the anchor department stores that provided the main draw for mall shoppers including Sears, Macy's, Kmart, JCPenney, and Target, to mention but a few. According to the Wall Street Journal vacancy rates at regional and super-regional malls hit 9% in the fourth quarter of 2018 and retail traffic declined by 7% from January 2017 through August 2018 (Fung 2018). In 2018, CoStar, a commercial real estate research firm noted that a record 145 million square feet of retail space was emptied from the closing of retail stores, the equivalent of shutting down the Pentagon 22 times over (Whiteman 2019).

This paper will present findings from research of shopping malls in the Midwest, a region that has seen significant disinvestment following the deindustrialization of the national economy and where cities have also been hardest hit by mall closings. The paper is based on research conducted through a survey of managers of shopping malls, an in-depth interview of managers of select malls, a survey of shoppers at malls, and a GIS analysis to determine the socio-economic factors characteristics of the market area of malls in the region. Data obtained from these studies is used to develop an "Index of Mall Health" which can be used to gauge the state of a shopping mall and to predict whether a mall will survive or die. The index is useful to developers and investors in helping them make decisions about investment priorities and the possible location of shopping malls.

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Key Words: Shopping malls, Retail apocalypse, The health of suburban malls

THE ECONOMIC AND DEMOGRAPHIC IMPACTS OF WIND DEVELOPMENT ON RURAL COUNTIES IN THE UNITED STATES.

Abstract ID: 1286

Individual Paper Submission

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Wind power development has rapidly expanded in rural areas in the United States. Numerous studies addressed the impacts of wind development on rural communities focusing on economic, and environmental effects. This research uses two different secondary data analytical techniques to measure the net economic and demographic impacts of wind development on rural counties: Propensity score matching and longitudinal data analysis. The propensity score analysis is based on a quasi-experimental research design, where I match counties with wind development over 100 MW to similar counties lacking wind developments. I also use a longitudinal (mixed-effects) model to examine the impact of the accumulated wind power capacity in counties in the United States in the period of 1990 to 2015. I find a small, but significant, effect of wind development on rural economies. Increasing the accumulated wind power capacity leads to higher per capita and median household income. I likewise find that the introduction of large wind developments is associated with a slightly lower poverty rate.

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Key Words: propensity score matching, mixed model, wind power, rural counties, economic and demographic

TRACK 3 POSTERS

A STUDY ON THE IMPACT OF AGGLOMERATION OF THE FOURTH INDUSTRIAL REVOLUTION-BASED INDUSTRIES ON URBAN GROWTH USING SPATIAL ECONOMETRICS MODEL

Abstract ID: 212

Poster

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Cities have been transformed and developed with its industrial changes, which are the driving force for growth in terms of population and employment. Starting the first industrial revolution in the late 18th century, there have been four phases in industrial revolutions, and the fourth industrial revolution was first introduced at the World Economic Forum.

The fourth industrial revolution is a technological revolution characterized by a hyper connectivity in which all things are linked to existing industries, such as Internet, Artificial Intelligence, and Big Data. The World Economic Forum presented the 10 global risks and the Fourth Industrial Revolution was proposed as an alternative to overcome these risk factors. With the advent of the Fourth Industrial revolution, many countries and cities have started to respond to it.

An industry is a type of urban component which inevitably requires physical space and has served as a driving force for population and employment growth in urban areas. In particular, knowledge-based industries and manufacturing industries are thought to have a positive impact on cities through the concept of agglomeration economy.

However, little is known about the agglomeration effects of the fourth industry on urban growth. This is because the fourth industrial revolution is underway and there are limited ways to analyze its effects on cities. Nevertheless, efforts have been made in many countries to respond to the fourth industrial revolution, and research has been underway on the ICT and knowledge-based industries which are related to the characteristics of technologies for the fourth industrial revolution.

The purpose of this study is to analyze the spatial autocorrelation of the fourth industrial revolution-based industries in South Korea and to identify whether there is an impact of their agglomeration on urban space using the spatial econometrics model. First, this study classifies the fourth industrial revolution-based industries through the review of existing research. Second, the study analyzes the spatial autocorrelation of the fourth industrial revolution-based industries. Third, it compares the spatial agglomeration benefits of the industries through the spatial econometrics model.

The result indicates that the agglomeration of the fourth industrial revolution-based industries have lower spatial autocorrelation than those of the secondary and tertiary industries. However, the result of the spatial econometrics model shows that its impacts on urban population, employment, and income are higher than other industries. This result may provide policy implications for creating innovative clusters that are currently under the goal of balanced national development and self-sufficiency of local jurisdictions.

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Key Words: The Forth industries, Agglomeration, Spatial Econometrics Model

THE EFFECT OF ACTIVE TRANSPORTATION INFRASTRUCTURE PROJECT ON VULNERABILITY OF BUSINESSES: USING A SURVIVAL ANALYSIS APPROACH

Abstract ID: 313

Poster

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Many cities across the country have engaged in street improvement projects, characterized as introduction of active transportation infrastructure, sometime with a reduction of on-street parking or traffic lanes. Many scholars are built upon controversial debates about the effects of street improvements on economic health in the surrounding areas. Some researchers argued that street improvements could contribute to the economic vitality of neighborhoods and bring about positive impacts on locally-based retail business (Drennen, 2003; NYCDOT, 2013). However, studies asserted that economic benefits resulting from street improvements might vary depending on the type of businesses, and sometimes it can cause the displacement of establishments. Poirier (2018) found that the bike lane intervention did not increase the sales of all businesses, rather it made sales per local-serving establishment increase. In addition, Grube-Cavers and Patterson (2015) concluded that the proximity to transportation infrastructure, in their case is urban rapid transit stations, could result in an increase in probability of gentrification in most of cases they analyzed.

The purpose of this study is to investigate the impact of street improvement projects on businesses vitality and potential business displacement in surrounding areas. Despite the equivocal results of previous studies, there are few studies focusing on the difference in the impact of projects by type of industry, such as retail versus restaurant, etc. However, even if street improvements contribute to overall economic growth in surrounding areas, it is difficult to justify the project if it has a negative impact on a particular industry. In this regard, this paper tests the vulnerability of businesses to the street improvements by industry types. In particular, this study selects two bike lane upgrade projects in the city of Portland, Oregon, SW Stark & Oak Street (buffered bike lane) and SW Broadway (protected bike lane), as study case, which upgraded before 2010. In order to identify the effect of street improvements, this study analyzes the business opening duration time of the establishments along the two street improvement streets, comparing with other neighboring streets. We apply a survival analysis approach, which can analyze the expected duration of time a particular event occurs, in our analysis, the duration of establishment. This method is useful to find out the probability of survival depending on particular circumstances. The primary data source we used is National Establishment Time Series (NETS) database,

which includes annually business address, industry classification (NAICS code), employment and sales by establishment traced back to 1990.

The findings shed light on the impact of active transportation infrastructure on survival duration of different types of industry. It reflects the potential displacement effect on certain businesses differentiated before and after the street improvement. It can allow urban planners and policy makers to rethink about street improvement projects, especially the potential displacement/relocation effect for certain business types. This study emphasizes efforts to mitigate the displacement problem of business establishments are needed as well as to promote local economic growth through street improvements.

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Key Words: Active transportation, Economic development, Business displacement, Survival analysis, Portland

THE STORIES CITIES TELL: POLICIES AND STRATEGIES FOR POST-INDUSTRIAL CITY REGENERATION AND TRANSFORMATION

Abstract ID: 498

Poster

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Much of the efforts of the last four decades regarding local economic development in the context of post-industrial cities have focused on efforts to regenerate, diversify, and grow local and regional economies using single or multiple strategies together or separately or as part of the implementation of a variety of programs, policies, and processes. Some of the strategies have focuses on traditional models (industrial/smoke stuck chasing, attraction and retention efforts, endogenous business development incubation and development, emulation of success stories, etc.) while others have followed newer models (human development strategies, endogenous sectoral strategies, and/or the development of the consumer or bohemian city). However, the results of many of these efforts either as individual strategies, or as part of a multi prong policy(s) have in general produced only marginal results which though encouraging, have left many economic development practitioners, policy makers, and stakeholders wondering as to the reasons that their efforts have not been as successful, especially since much emphasis has been put in

supporting efforts, creating policies, and developing infrastructure appropriate to propel regeneration. In this context attention has been shifting to some recent efforts that indicate that regeneration and growth in the context of cities appear to focus on new multiprong models that suggest the importance and propulsive ability of new physical, economic, governance, and cooperation forms as the engines to bring cities out of depressive stages caused by structural economic problems and/or to move cities to areas of new opportunities.

This poster presentation will report on the results of secondary and survey research and data from personal interviews conducted between 2016-2018 that surveyed and asked about the challenges and the efforts for regeneration in the context of many post-industrial cities highlighting the road the city of Pittsburgh took towards its successful regeneration and newfound role in the new Economy. The data was empirically and via content analysis qualitatively analyzed. The results indicate the need for the application of new models of economic development that draw from within the local context and capacity and which involve and engage all local economic, civic, and political actors. So, in this context this presentation will address:

1. The trajectory, challenges, diverging paths and unique important assets and opportunities of post-industrial cities
2. The various strategies and approaches Pittsburgh took to overcome its economic downfall
3. Strategies and recommendations for change

Results of the analysis indicate the multiplicity of efforts and initiatives other focused on development, support of specific industries via an elaborate web of public, private, and non-for-profit partnerships, while others involve policies for a more focused or complete overhaul of the local environment to increase the marketability, attractiveness, and outside perceptions of the local environment. The characteristics of these efforts are instructive and speak to specific strategic initiatives prescribed in the context of post-industrial cities. Such an understanding can provide for more focused economic development planning, more effective administrative, organizational, and coordinating mechanisms, and wiser utilization of public resources and effort all of which can possibly guide a more successful, timely, and sustainable development.

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Key Words: Post-Industrial Cities, Regeneration, Local Economic Development Planning, Local Economic Development Policy

EXPLORING THE FACTORS FORMING INNOVATION DISTRICTS: EVIDENCE FROM 15 CITIES IN THE UNITED STATES

Abstract ID: 515

Poster

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Innovation district is a place-based development strategy aiming to attract and relocate the innovative institutions, resources, businesses and talented human capital in the targeted districts (Baily & Montalbano, 2018). This development model has been used in a number of places across the world such as 22@Barcelona Innovation District, Paris' Silicon Sentier in France, High Tech Campus Eindhoven in the Netherlands, Medellín Innovation District in Columbia, as well as the U.S. cases such as Boston's Innovation District.

Innovation districts typically emerge in proximity to educational and economic anchors, which could also shape the specialization of such districts. The anchor entities are most often specialized in high-tech industries such as information technology, life-science, bio-tech, etc. The majority of workforce and human capital of the districts are also highly specialized in such fields (Katz & Krueger, 2016). Therefore, these anchors might define the typology of innovation district; for instance, those specialized in life-science and biotech are called "Medical Innovation Districts".

While there is a consensus on the economic benefits of innovation districts, there exist different approaches towards the implementation. For instance, while Boston's Innovation District or San Francisco's Mission District target specific specializations (focus on medical, attracting the health and life science sectors), multiple cases such as San Diego I.D.E.A. welcome a variety of tech industries (Barnett, Benedetti, Fahey, Leza, & Linare, 2014). The existing literature on innovation districts is mostly theoretical or based on few observations.

This study offers a comprehensive framework for Innovation Districts based on reviewing the existing theoretical and empirical evidence and best practices using content analysis of the plans, websites, and published academic and professional articles, site visits of the districts, and interviews with the leaders, business owners and other contributive professionals. We present and analyze 15 medical, non-medical, and multi-purpose cases that are planned and/or implemented to be an innovation district. Our framework is inspired by the Brookings' innovation districts framework with the same three major assets including the economic assets, physical assets and networking assets, while our framework also accounts for the interactions among these assets as the foundation for an innovation ecosystem, the governing structures and the targeted industries (Katz & Wagner, 2014; Baily & Montalbano, 2018). Our analysis also offers a critical evaluation of challenges and lessons for the future attempts.

In most of the cases, universities play an important economic role, which can both thrive and cultivate innovation. Proximity to universities provides convenient access to both intellectual and physical properties for innovation, as well as the elements and amenities to attract both students and investors. Furthermore, some design strategies such as increased density, gathering open spaces, transparent facades and first level urban amenities increase both district's attractiveness and networking opportunities. On the other hand, one of the most challenging issues is to support existing businesses while attracting new ones. However, the way to achieve the optimum collaboration is physical proximity of different assets,

specially the economic assets; coping with providing buildings and places for co-working and communication for the newly added firms and startups. Finally, planning for innovation districts needs specific attention for the growth and continuing evolution at the planning stages and after implementation.

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Key Words: Innovation Districts, Economic Development, Case Study, Community Revitalization

THE HIGH-TECH LANDSCAPE OF THE U.S. LARGE REGIONS: MICRO-SCALE ANALYSIS OF LOCATION AND SECTORAL TYPOLOGY OF THE U.S. HIGH-TECH ZONES

Abstract ID: 548

Poster

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High tech industries have a growing share from national employment, Gross Domestic Product (GDP), and global economy, they are widely targeted by the policy makers and academics. Despite the key role that high-tech clusters play in forming the innovation systems, there is little quantitative evidence on where they locate and how they cluster in certain built environments. Furthermore, there has yet to be micro-scale quantitative research to identify the location of high-tech industry clusters or in the other words high-tech zones (Muro & Liu, 2017). Existing research mostly focuses on the neighboring counties or regions with the strong high tech economy using the measures of sectoral concentration (Feser, Sweeney, & Renski, 2005; Koo, 2005; M. Porter, 2004). Additionally, these studies have been inconsistent in their definition of high-tech industries and yet to control for the Research & Development (R&D) intensity of the output and input (Feser et al., 2005).

This study seeks to address these shortcomings by defining the geography of high-tech zones at the most disaggregated scale for 52 largest metropolitan areas in the U.S in two steps. First, we identify the U.S. geography of high tech zones as the local spatial peaks of high tech economic activity by employing tessellation grid, Principal Component Analysis (PCA), spatial statistics techniques, and the micro-level firm dataset from the ESRI Business Analyst Dataset (EBAD). Second, we develop a sectoral typology for these high tech zones using Herfindahl-Hirschman Index, Location Quotients and cluster analysis.

The findings from this study provides better understanding of the high-tech landscape of the U.S. large regions. Our findings show that these regions are widely diverse in terms of the number and the spatial distribution of their high tech zones. For instance, Los Angeles metro area, has the highest number of zones while in New York, San Francisco, and San Jose metro areas, the high tech economy is concentrated in fewer, but stronger, zones.

Furthermore, we found that the high tech economy in the U.S. highly depends on professional services (i.e. the firms primarily designed to support other businesses such as consulting, legal services, facilities support services, computer services, engineering and architectural services, and placement services) and most of the high-tech zones have diverse firms from multiple specializations. However, the large manufacturing high tech industries like aerospace have fewer zones mostly in the regions where the aerospace industry has had a strong presence such as Dallas-Fort Worth metro area in Texas. Lastly, our findings show that the major regional airports are anchoring the high-tech zones with diverse specializations. Such results call for more research on the role of major airports within large metropolitan areas in supporting multiple high tech employment hubs.

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Key Words: High-tech clusters, agglomeration, Economic Geography, Spatial Analysis

SHARED INNOVATION: RESEARCH ON THE SPATIAL DISTRIBUTION LAW OF CHENGDU MAKER SPACE IN CHINA

Abstract ID: 800

Poster

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During the transforming period of economic growth mode, the Chinese government has placed particular emphasis on innovation and entrepreneurship. With the dual promotion of the government policy and market guidance, Maker Space, as an important part of the sharing economy has developed rapidly but disorderly. Maker Space is a new type of incubator to foster youth entrepreneurship. Different from the spontaneous Hackspace and TechShop in America and Europe, the developing Maker Spaces in China are dominated by government in location selection and operation pattern in many cases. In the context, it is worthwhile to figure out the spatial distribution law of these Maker Space and its relationship with their operating entities.

The research takes the 31 official Maker Spaces in Chengdu as the research objects. Through the literature analysis, interview survey and Analytic Hierarchy Process(AHP), Maker Spaces are sorted by the social performance. According to their leading industry, research objects are divided into four types: Art Creation, Software Development, E-commerce and High-tech Manufacturing. The top 4 Maker Spaces in each category (16 in total), operated by the government and private operator for half, are selected as samples for the following research. The research of spatial distribution law is conducted by figuring out whether the 16 samples are located within the service area of the five essential location impact factors: Historical Cultural Site (tourist attraction, cultural heritage), Elite Resource (university, scientific research institute), Infrastructure (business center, utility facility), Production Service (industry park, high-tech park) and Transportation (road and railway). The service radius is determined by the regional service level of each factor.

The spatial distribution law shows that:

(1) Software Development gives priority to Production Service and Rail Transportation conditions, followed by Infrastructure, Historical Cultural Site and Elite Resource; E-commerce gives priority to Infrastructure and Transportation conditions, followed by Production Service, Historical Cultural Site and Elite Resource; High-tech Manufacturing gives priority to Elite Resource and Road Transportation conditions, followed by Production Service and Infrastructure, then Historical Cultural Site; Art Creation gives priority to Historical Cultural Site and Transportation conditions, followed by Infrastructure and Elite Resource, regardless of Production Service.

(2) There are four special cases in Chengdu's 31 creative spaces that do not conform to the law. It could be explained from the perspectives of operating entities. On the one hand, the Maker Space operated by the government plays an important role in the promotion of regional development, sometimes ignoring its own necessary factors. On the other hand, some unwise private operators make location decision without considering its leading industry.

Based on the above law, the paper puts forward some location suggestions. For the government, it should operate Maker Space with more consideration of the position selection law, and also cautiously plan the special Maker Space for the long-term interests. Meanwhile, the government is responsible for the improvement of each factor in the city, thus creating a better innovative entrepreneurial environment. For private operators, it matters to combine their leading industry with location. Furthermore, these individual Maker Spaces can make new attempt on transforming their profit mode with multiple industries.

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Key Words: maker space, sharing economy, spatial distribution, operating entities, impact factor

TRACK 4 – ENVIRONMENTAL PLANNING & RESOURCE MANAGEMENT

TRACK 4 - PRE-ORGANIZED SESSION SUMMARY & ABSTRACTS FOR THE SESSION

PRE-ORGANIZED SESSION - NEW STATE-SOCIETY PACTS FOR TRANSFORMATIVE URBAN CLIMATE FUTURES 1: WHAT ROLE FOR "COMMUNITY" IN URBAN CLIMATE ADAPTATION?

ID: 11

Pre-Organized Session Summary

Includes abstracts: 182, 184, 185

Organized movements and legislators are increasingly rallying around progressive social and environmental agendas, epitomized by the Green New Deal. This movement rejects two central tenets of urban planning theory and practice since the 1970s: acquiescence to neoliberal governance and adherence to communicative planning. More important than the GND itself is the fact that lawmakers and social movements are calling for national government action focused on environmental and social change. In renegotiating fundamental relationships between society and state under climate change, this emerging movement forces us to evaluate whether our known and accepted planning theories and methods are adequate for envisioning and moving towards possible and necessary urban futures. The panel's papers advocate for, interrogate, and challenge community planning processes in advancing transformative urban climate responses. Cases include local adaptation in Massachusetts, state-wide planning in Texas, fiscal stress from sea level rise, and a USDA forest stewardship program. A second panel in this sequence further probes emerging state-society relations.

Objectives:

- Identify examples of how community engagement can strengthen local adaptation to climate change
- Understanding the limits of community based adaptation given conflicting community, municipal, and state interests

RISING SEAS AND FISCAL DECLINE – THE ROLE OF STATE POLICIES IN SHAPING LOCAL VULNERABILITY AND ADAPTATION TO SEA LEVEL RISE

Abstract ID: 182

Group Submission: New State-Society Pacts for Transformative Urban Climate Futures 1: What Role for "Community" in Urban Climate Adaptation?

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Coastal adaptation entails a paradox, well understood by electeds but less recognized by advocates of retreat or sensitive coastal development (Hino, Field, & Mach, 2017; Miao, Hou, & Abrigo, 2018). Common sense land use planning dictates municipalities avoid developing in low-lying areas or retreat out of harm's way (Burby, 1998). Yet, local reliance on property taxes precludes limiting development, particularly for small, built out, or otherwise geographically constrained coastal communities. Furthermore, financing adaptation through tax increment financing, resilience bonds and fees, and increasing property taxes require continued development in vulnerable places. Like a Ponzi scheme, the United States' land-based fiscal policy framework and fragmented local jurisdictional structure (as in many countries) dictate that cities need to sustain – even expand – coastal development to fund current needs and future adaptation. Operational in the short-run under low levels of sea level rise, this approach becomes increasingly fraught with long-term, accelerating rates of rise. Although this dynamic is clearest where climate change directly affects property values, the conflict between fiscal imperatives for development and need to move people from climate-exposed geographies is similarly relevant for hazards like wildfires, drought, and heat waves.

Few studies, however, have examined how climate change will affect fiscal health and local policy responses to climate-driven fiscal gaps (Shi & Varuzzo, under review). This paper presents research on the extent to which municipal property tax rolls are impacted by sea level rise, in 1- to 6-foot increments, for 14 East Coast U.S. states. Our analysis is based on a newly compiled database of property tax rolls, sea level rise, and 2012 census of government finance data. The data allow us to provide a first glimpse of fiscal vulnerability across states and over time, an assessment of the land use, built environment, and socio-economic conditions in the most fiscally impacted communities, and an exploration of the spatial distribution and disparities across state coastlines. For states with the most fiscally impacted municipalities, we examine how current state policies shape municipal capacity to respond to fiscal gaps brought on by climate change. We do so by first considering state restrictions on local government revenue generation and responsibilities for service provision, and then by qualitatively evaluating how municipalities in these states have responded to recent economic and fiscal stress.

With this analysis, we hope to open a dialogue on the interplay between fiscal policy, land use planning, and state-versus-local control over land use. While the paper could be presented in a land use planning session, its contribution to a panel on state-society relations and planning theory is to ask whether and how community-based engagement connects to their local governments' fiscal realities. Residents typically advocate for more resources from higher levels of government, reject significant tax increases, and object to major land use changes locally. While community-based adaptation can better tailor or more equitably distribute resources, community engagement does not necessarily change local fiscal envelopes or intervene in what will undoubtedly become stronger pressures from state governments to manage climate-driven fiscal stress. We ask how community engagement processes – and at what scale, with what coalitions – can enable the kinds of difficult conversations to address land use and fiscal policies. Attention towards fiscal policy, land use planning, and governance reforms with respect to climate adaptation has the potential to help cities make the “right” choices and redress long-standing drivers of vulnerability more broadly.

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Key Words: climate change, adaptation, fiscal policy, land use, governance

CLIMATE FUTURES AND PLANET TEXAS 2050: NEW KNOWLEDGE AND COMMUNITY-LED STRATEGIES FOR RESILIENCE IN TEXAS

Abstract ID: 183

Group Submission: New State-Society Pacts for Transformative Urban Climate Futures 1: What Role for "Community" in Urban Climate Adaptation?

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Like many places around the world, Texas has entered uncharted territory as changes in climate, population, and urbanization unfold. New climate futures have already arrived, accompanied by increased wildfires, extreme heat events, floods, and hurricanes; examples range from Hurricane Harvey dumping up to 60 inches of rain, killing 103 people, and causing over \$125 billion in damages, to the City of Austin losing municipal water service for a week because of unprecedented flooding (Blake and Zelinsky, 2018; Lieberknecht, 2018a; Wuebbles et al. 2017). At the same time, over the next several decades, Texas's population could grow from 28 million to almost 50 million; 95 percent of the population growth is projected to occur in metropolitan areas (White et al. 2017).

Although some Texas municipalities have been proactive about climate planning, with representation in the Rockefeller Foundation 100 Resilient Cities (Dallas, Houston) and the Bloomberg American Cities Climate Challenge (Austin), the state remains vulnerable to climate change. In response, an interdisciplinary group of researchers at The University of Texas at Austin (UT Austin) has launched Planet Texas 2050 (PT2050), a decade-long grand challenge, or “moonshot,” research program focused on developing the knowledge and strategies needed to plan for resilience in the face of climate and population change (Lieberknecht, 2018b).

Planning theory and practice is embedded within the PT2050 initiative: planning scholars are members of their advisory council, a planner serves as chair of the faculty leadership team, a planning-focused research project is among the inaugural research projects, and planning theory informs their logic model and theory of change. Because of this planning lens, the program prioritized early integration of local knowledge, including surveying over 1,000 Texans to develop a baseline understanding of beliefs and knowledge about climate and community change, as well as preferences for desired futures. This article explores these survey findings to answer two interconnected research questions: what are Texans' views of resilience, and how can this local knowledge inform a long-term, statewide, big data driven research program focused on building knowledge about and developing strategies for resilience in the state?

In the fall of 2018, PT2050 undertook an online survey of 1,053 Texas residents representing each Metropolitan Statistical Area of the state as well as a grouping of rural areas. The survey asked respondents to report on beliefs about resilience and planning related issues, as well as potential behavior changes. Initial findings include strong support for water conservation policies, for policies to reduce air and water pollution, for policies to better prepare communities for extreme weather events, and for flood-resilient land use planning. In addition, respondents overwhelmingly agreed that the natural environment was important to them, that climate change will negatively impact their future interactions with the natural environment, that extreme weather events had become more frequent, and that climate change is due to human activity. However, despite these beliefs, direct climate change/extreme weather events did not make it into the top three greatest concerns respondents identified about the future (which were housing affordability, air pollution, and human health/healthcare). This article seeks to match these survey findings to PT2050's planning for the next five years of their "moonshot" research program, seeking to inform their approach to prioritizing new knowledge and designing a community-led approach to resilience strategy development.

Although focused on one state, findings will be relevant to planning practice in other areas experiencing an increase in extreme weather events, increasing urbanization, and rapid population growth; Texas's diversity, rate of population growth, and vulnerability to climate change make it a useful test case to examine approaches for planning new climate futures.

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Key Words: climate change planning, resilience planning, community-led climate strategies, community-led strategy development

TOWARDS A COLLABORATIVE URBAN CLIMATE FUTURE: WHAT PLANNERS CAN LEARN FROM GRASSROOTS STEWARDSHIP GROUPS

Abstract ID: 184

Group Submission: New State-Society Pacts for Transformative Urban Climate Futures 1: What Role for "Community" in Urban Climate Adaptation?

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Cities face unique social and ecological challenges compounded by climate change, including recovery after extreme weather events, access to fresh food and clean water, and sustainable energy generation. Not unlike local governments, civic stewardship groups sustain and enhance socio-ecological systems. We define “stewards” as people who “conserve, manage, monitor, and advocate for the local environment” (Svendsen et al., 2016). Data from the USDA Forest Service’s 2017 Stewardship Mapping and Assessment Project (STEW-MAP) illustrates the role that community-based civic stewardship groups play in urban systems transformation, including advocating for and initiating responses to climate change. This paper will use planning theory, more than ten years of aggregated data from STEW-MAP New York City, and case studies to demonstrate the connections between grassroots stewardship and local planning and the potential for additional collaboration.

In the face of climate change, planners have taken new approaches to traditional practice by working collectively with diverse groups of civic actors (Rauws, 2016; Shandas & Messer, 2008; (Rauws, 2016; Shandas & Messer, 2008; Sirianni, 2007). The STEW-MAP project builds on this work by supporting civic engagement and coalition-building among these groups (Landau et al., 2019). Cloutier, Papin, & Bizier (2018) argue that “civil society stakeholders create a momentum that drives the city’s adaptation to climate change” (285). As local civic stewardship groups engage in acts of caretaking and claims-making on the environment (Andersson et al., 2014), planners have an opportunity to engage with these groups in collaborative processes. Cloutier et al. and other scholars support similar claims citing Lefebvre’s (1968) idea of “right to the city”, acknowledging that cities are created, improved, and transformed by their citizens.

The STEW-MAP project originated in 2007 to answer the question: Who takes care of New York City? The project has since been implemented in many other cities to understand and strengthen civic capacity (Svendsen et al., 2016). STEW-MAP 2017 survey data includes more than 800 stewardship groups that work throughout New York City and the surrounding region. Grassroots groups have collectively worked with hundreds of thousands of volunteers, and while tackling various challenges with a wide range of budgets and levels of professionalization “share the same belief that the environment can be a catalyst for social change” (Landau et al., 2019). The shared efforts of stewardship combat a broad scope of urban climate impacts, as responses show that groups tackle issues from ecosystem degradation to human health and social policy.

Relationships between planners and civic stewards should be empowering to both groups: as planners influence decision-making processes and control financial resources, they can provide support, funding, and expertise while enabling civic stewardship groups to take lead roles in community-level change. This requires acknowledging where power assembles in urban politics, just as Foglesong (1986) positions the planner between capitalism and democracy and Forester (1989) claims that planners can empower community action once they recognize this position of power.

STEW-MAP responses indicate that stewardship groups have an enormous capacity for knowledge production about the environments they work within. Their experiences can be a resource for planners with goals of transformative climate futures: they will be better equipped to pinpoint gaps and intersections in existing environmental management efforts. In turn, planners may better acknowledge the

power, agency, and claims of civic stewards. Information sharing should also benefit civic stewards in the spirit of “data democratization”, as Frantzeskaki & Kabisch (2015) argue that “professional planners and policy makers know how to turn data into information, information into knowledge, and knowledge into policy” (513). Planners and civic stewardship groups are well positioned to combat climate change together by identifying existing stewardship efforts, bolstering civic engagement, and sharing knowledge.

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Key Words: civic stewardship, climate change, environmental planning

STRENGTHENING PLANNING FOR RESILIENCE IN BOSTON THROUGH LOCAL KNOWLEDGE

Abstract ID: 185

Group Submission: New State-Society Pacts for Transformative Urban Climate Futures 1: What Role for "Community" in Urban Climate Adaptation?

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The City of Boston has received widespread praise for its efforts to analyze the risks residents, businesses, and institutions face related to climate change-related natural disasters. During the past decade, The City has mobilized a large network of university-based researchers and private consultants to evaluate the threats that climate-related natural events pose to local populations and organizations with funds provided by various philanthropic and public entities. These funds supported the production of the City’s Climate Ready Boston Report which is a comprehensive assessment of the natural disasters expected to impact Boston during the next thirty, fifty, and seventy years assuming the continuation of current economic, land use, and transportation patterns (Spector and Bamberger 2013). Using data from this report, the City engaged a cross-section of public officials, business leaders and civic leaders in a planning process designed to achieve a 20 percent reduction in greenhouse gases by 2020 and a 50 percent reduction in greenhouse gases by 2050. This process has been complemented by a more recent effort that extends beyond prediction of natural disasters by taking into account local communities’ capacity to cope with

climate change (Boston 2017). However, these documents did not fully address who is benefitting and who is paying the price of the City's current resiliency planning efforts (Vale 2014).

Based upon extensive archival research and interviews, the authors argue that, similarly to New Orleans before Hurricane Katrina, Boston has developed significant capacity to analyze future threats posed by climate change based upon sophisticated modeling of economic, population, land use and climatic change patterns by climate scientists, civic engineers, architects and urban planners. However, like New Orleans prior to Hurricane Katrina, it has developed limited capacity to mobilize its local residents and institutional leaders to undertake essential disaster preparedness, management, and recovery activities in the event the "unexpected" occurs. This lack of capacity is due, in large part, to the City's failure to involve residents and leaders from its many environmental justice communities who are most likely to experience the most serious negative impacts of climate change related disasters in their planning.

This paper argues for the creation of new forms of "third spaces" (Oldenburg 1989) – such as local associations, neighborhood organizations, and faith-based institutions – enabling future researchers to tap the "local knowledge" poor and working class residents and leaders possess of existing environmental conditions, likely climate change related threats, and taken for granted community resources, facilities, and competencies that can be activated to help residents respond to life threatening natural disasters. These places rather than local, state, and federal agencies and mega relief organizations are most frequently identified as the "first responders" (Olshansky 2006). From this perspective the paper suggests how academic research can support and expand the capacity of these spaces to cope with the "unexpected".

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Key Words: Resilience, Community-Based Planning, Third Spaces, Climate Change

NEW STATE-SOCIETY PACTS FOR TRANSFORMATIVE URBAN CLIMATE FUTURES 2: BEYOND THE "LOCAL"

ID: 21

Pre-Organized Session Summary

Includes abstracts: 281, 282, 283, 388

Organized movements and legislators are increasingly rallying around progressive social and environmental agendas, epitomized by the proposal for a Green New Deal. This movement rejects two central tenets of urban planning theory and practice since the 1970s: acquiescence to neoliberal governance and adherence to communicative planning. More important than the GND itself is the fact that lawmakers and social movements are calling for national government action focused on

environmental and social change. In renegotiating fundamental relationships between society and state under climate change, this emerging movement forces us to evaluate whether our known and accepted planning theories and methods are adequate to the task of envisioning and moving towards possible and necessary urban futures. These papers call for new scales of engagement and conceptualize alternative publics towards transformative urban climate futures. They explore urban resilience and climate imaginaries in New York, London, and Los Angeles, and more concrete political interventions for planning. A second panel in this sequence further probes emerging state-society relations.

Objectives:

- The audience will learn about the challenges and opportunities for planning for climate change motivated by changing state-society relationships implied by a program like the Green New Deal.

THINKING THE UNTHINKABLE: A GREEN NEW DEAL AND JUST URBAN FUTURES

Abstract ID: 281

Group Submission: New State-Society Pacts for Transformative Urban Climate Futures 2: Beyond the “Local”

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The urgency of climate change and the rise of a grassroots political-environmental movement in the US should change the way we think about and plan our cities. In 2019, Congress announced the Green New Deal (GND), a resolution to drive renewable energy investments and low-carbon economy job growth as well as protect against the impacts of climate change. The GND is distinctly political. Propelled by legislators such as Alexandria Ocasio-Cortez and progressive organizing groups such as the Sunrise Movement, it responds to climate threats and demands social change. The original FDR-era New Deal reorganized society and space in the US. It led to large-scale energy and water infrastructure, new typologies of public housing, and innovative public art. But it had uneven outcomes, its benefits eluding many communities, its impacts even harming them. The potential of a Green New Deal to remake cities in sustainable and equitable ways needs examination and specificity.

The urban implications of the GND include plans to reduce or eliminate GHG emissions in urban and infrastructural development, and to protect areas threatened by climate change impacts such as sea level rise, storms, heat, and wildfires – to make them resilient and adaptive. It would do this at the scope and scale necessary to help keep within 1.5°C of global warming and avoid catastrophic impacts (IPCC 2018), in ways that uplift and empower vulnerable communities. Urban planning research has not effectively addressed the intertwined considerations raised by this proposition: existential environmental crises, large-scale federal mobilization, and an explicitly progressive political imperative. How does a large-scale, government-led mobilization to address climate change, such as the Green New Deal, envision and implement transformative urban change while ensuring social and economic justice for marginalized urban residents?

This question challenges conventional research approaches because it spans modes of knowledge and worldviews. Climate change dissociates global scientific knowledge from local lived experience (Jasanoff 2010). It requires thinking the unthinkable, juxtaposing planning for yet imagined futures against empirical research of the past and present (cf. Quay 2010). Climate exigencies demand fast, large-scale action. But planning research attuned to the injustices borne by marginalized communities has supported participation in decision-making and smaller-scale, community-led, incremental change. These appear incompatible. I propose that just urban environmental futures can be envisioned through a coproductive analytical engagement between scientific knowledge and ideas about revolutionary social change. Here, I

delineate a theoretical and methodological approach to triangulate among: utopian urban visions, technocratic urban infrastructural and climate science, and grassroots movements for social justice.

This paper proceeds in two parts. The first is a theoretical synthesis of utopian urban plans. Speculative visions of the future are not often based on recognizable theoretical frameworks. I provide such a framework, analyzing utopian plans in relation to extant theories in urban planning, geography, and political ecology. The second is a methodological approach to problems of large-scale change and social justice. In a previous paper on the politics of flooding in Jakarta (Goh 2019), I used methods of mapping and observing places derived from landscape architecture and environmental ethnography to explain how different worldviews of urban ecologies define ways of thinking and acting on environmental problems in cities. For this paper, I elaborate on how such a reflexive, cross-knowledge-mode methodology is critical to understanding and expanding the bounds of possibilities of the GND and just urban futures, to situate positivist, often-quantitative urban climate resilience science in relation to theories of change in grassroots social movements. I illustrate how such a theory and method can reframe urban climate change research using case examples from my previous fieldwork in Northeast US, Southeast Asia, and Western Europe.

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Key Words: climate change, spatial politics, social justice, Green New Deal, utopian planning

CONCEPTUALIZING EMERGING PLANNING PRACTICES AND THE CLIMATE IMAGINARIES OF CITIES: THE CASES OF NEW YORK CITY AND LONDON

Abstract ID: 282

Group Submission: New State-Society Pacts for Transformative Urban Climate Futures 2: Beyond the "Local"

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The rise of the mounting levels of evolving risk and vulnerability stemming from climate change is challenging the nexus between already existing planning theories and the new emerging countering climate change practices. Furthermore, the planning profession has been responding to climate change

issues through spatial practices and policies. However, planning theories have been failing to propose new planning theories, which address climate change, and which situated within the spatial context. This paper argues that the emerging risk stemming from climate change and its uncertainties present new challenges to the existing concepts, procedures, and approaches to the planning and design of cities. Strikingly, there is a lack of theorization in the planning field that helps characterize, and conceptualize the emerging risk-oriented practices, and which orchestrated the efforts of countering climate change through its spatial power as a discipline. What kind of future visions and imaginary these existing planning practices provide for our cities and societies, and what are the planning theories that existing climate-change practices apply in cities today?

Thus, this paper aims to build a conceptual framework for understanding the risk-oriented practices in the planning field. In other words, this paper seeks to produce a practice-induced theory. Empirically, this paper takes advantages of recent ambitious climate-change oriented planning efforts in two major cities, New York City and London. The empirical work analysis planning practices of major recent plans and policies in these cities.

Based on the empirical work, this paper proposes a new conceptual framework for comprehending climate-change-oriented planning practices, which is a construct of two interrelated logics: (1) The logic of risk, which directs and shapes public opinion regarding the principal risk(s) that a city faces. (2) The imaginary logic, which captures the motives behind the desire to change the current insecure conditions and having a better peaceful and resilient future for the city and its residents. These logics induce social and spatial practices aiming at coping with anticipated threats and risk. This paper concludes that planning practices are not mere objects, but responsive, logical, functional, and imaginary. The risk-oriented practices are responsive to the urban-targeted risk and have an imaginary function for reducing risk and filling security gaps aiming at achieving a more resilient and sustainable city.

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Key Words: Justice, climate change, practices

MOVING FROM RANDOM ACTS OF GREENNESS TO A CLIMATE JUST CITIES AGENDA.

Abstract ID: 283

Group Submission: New State-Society Pacts for Transformative Urban Climate Futures 2: Beyond the "Local"

FITZGERALD, Joan [Northeastern University] jo.fitzgerald@neu.edu, presenting author

The recent IPCC report reveals that the planet is close to a point of no return. In view of this alarming mandate, we must support the most aggressive climate actions possible. Yet most cities pride themselves on simply plucking the low-hanging fruit—the easy, inexpensive fixes that require little systemic change.

The list is long: bike-rental systems, solar waste containers, weak green building requirements, and some recycling efforts. Going after the low-hanging fruit yields benefits, but unless such measures are part of a larger, coherent strategy for altering broad patterns of energy consumption and transportation emissions, these efforts are simply random acts of greenness.

But climate action cannot be undertaken in isolation from the interconnected issues of poverty, racial division, and gentrification ongoing in many cities. While many mayors say they are committed to reducing poverty and income inequality and to climate action, few city leaders are connecting the two issues (Demissie 2006, Saha and Paterson 2008, Fitzgerald, 2010; Bulkeley and Broto, 2013, Portney, 2013). An analysis of climate and sustainability plans of 28 U.S. cities found that equity was a relatively low priority (Schrock, Bassett and Green, 2015). An international survey of more than 100 cities implementing at least 600 climate change experiments found that only about one-fourth included environmental justice concerns (Broto and Bulkeley 2013). When social justice concerns are mentioned, they are more often isolated references rather than being integrated into climate action. (Waud, 2017).

The recent proposals for a “green new deal” could offer national support in four key areas in which climate action and social equity can be connected: building energy efficiency; transportation infrastructure; renewable energy adoption; and investment in resilient infrastructure to protect against sea-level rise and to better manage stormwater. Some cities are already implementing initiatives that link these climate actions to well-paying jobs and green revitalization of disinvested neighborhoods. Los Angeles has linked greening the port, which has improved pollution levels in surrounding neighborhoods, to investment in electric vehicles and linked purchasing of electric buses to well-paying union jobs in bus production Philadelphia has linked building energy efficiency to creating well-paying jobs for low-income residents (Fitzgerald, forthcoming). Boston has mapped where microgrids are needed to prevent grid outages during storms, emphasizing low-income neighborhoods.

The question is whether these will become a set of best practices academic planners write about over the next decade or whether the practitioner and academic planning community can unite around a Climate Just Cities Agenda. Several progressive mayors are already part of the conversation about what form a “green new deal” takes—a conversation that will be occurring during the presidential election cycle. It is ultimately a political agenda. This paper offers ideas for planners to step into the political fray and offer a concrete agenda for how a green new deal plays out in the nation’s cities.

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Key Words: Climate justice, Sustainability, Urban climate action

SOWING ‘EMERGENT STRATEGY’ IN PLANNING EDUCATION: EXPERIMENTAL PEDAGOGIES FOR BEING DIFFERENTLY IN A CLIMATE-CHANGED WORLD

Abstract ID: 388

Group Submission: New State-Society Pacts for Transformative Urban Climate Futures 2: Beyond the “Local”

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Planning education trains students to “do” planning. Guidelines for program accreditation focus on practical knowledge in relevant subject areas like plan-making, research, and participation (PAB, 2017). To operationalize these learning outcomes, planning programs emphasize skill development through experiential learning and training in marketable hard skills.

This educational approach yields professionals able to execute key tasks in an admirable variety of settings. But it does not necessarily equip future planners to manage the urgent realities of climate change in a context of extreme inequality, depleted state capacities, and political division (Frick, 2018; Jabareen, 2015). If planners are committed to confronting our socio-ecological reality, we need to challenge the political and social institutions that have produced our current world; doing so may mean reaching beyond our standard tools.

Radical social movements offer some guidance. One particularly relevant concept is adrienne maree brown’s Emergent Strategy. Brown, a community organizer mentored by Grace Lee Boggs (among many others), argues that transformation at the smallest scales seeds radical change. This is not a recapitulation of “think global, act local.” Rather, drawing on a range of epistemological traditions from natural science, to civil rights, to religion, brown argues that being differently in our lives and work is the necessary first step to producing new systems.

Building on brown’s theory, I ask how planning education can propagate a shift from a task-oriented enterprise of doing to an embodied practice of being? One way to understand this shift is to recognize planners as people who act in the world in a variety of capacities, rather than one-dimensional professionals with interchangeable skill sets. To support this view, I developed two pedagogical experiments that ask planning students to actively and intentionally insert their value systems and everyday lives into their planning practice.

The first experiment, in a masters-level environmental justice class, targets how we ask questions, conduct research, and develop recommendations for action. Students were asked to articulate their personal political agenda for their research—what I called “the ‘project’ of the project.” This slight shift in methodological practice violates traditions of rationality and positivism in planning research. Because they have been trained towards “objectivity,” students were uncomfortable owning and articulating their points of view as part of a research project. But the process promises to yield a deep, rigorous, and radical set of research outcomes that challenge everything from bureaucratized decision-making within New York City public agencies to the practice of leasing public land in the American West.

The second experiment, still in the planning stages, pushes harder at the boundaries of planning. It will take place in a masters-level urban sustainability course, and puts the radical economic theories of plenitude (Schor, 2010) and degrowth (D’Alisa, Demaria, & Kallis, 2015)—which advocate for replacing some commodified productivity with more meaningful self-provisioning—in conversation with emergent strategy. Students will identify a good or service that they normally pay for, and to try to replace that good or service through other means. This might mean learning a new skill, bartering or trading, joining a

cooperative, or asking for a favor. The purpose of the project is to experience the impacts of radically shifting consumption practice. Building on this exercise, students will then be asked to examine, analyze, and reconstruct some more conventional approaches to urban resilience and sustainability planning.

This paper will describe the process and outcomes of the first experiment and present a detailed plan for the second. It will then offer reflections on the opportunities these experiments offer in terms of the practices of teaching and learning how to be a planner.

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Key Words: emergent strategy, planning pedagogy, climate change, social movements

TRACK 4 - ROUNDTABLES

ROUNDTABLE - HOW PLANNING LEADERSHIP CONTRIBUTES TO SUSTAINABILITY THROUGH UNIVERSITY-BASED GRAND CHALLENGES

Abstract ID: 350

Roundtable

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In the last decade, research universities have created interdisciplinary, institutionally-supported, and long-term research initiatives to address large, complex problems that remain unresolved through discipline-based research approaches. Several institutions are pursuing such research through Grand Challenges (GCs), projects bringing together researchers from across their respective university units and disciplines (Popowitz & Dorgelo 2018). Sustainability and resilience are a common theme among GCs. The University of Texas at Austin launched Planet Texas 2050, a GC focused on discovering the knowledge and developing the strategies needed to ensure a resilient Texas by 2050; The Sustainability Institute at Ohio State University integrates faculty across university departments to pursue a coordinate and inclusive approach to sustainability scholarship and teaching through interdisciplinary collaboration, campus stewardship and the development of applied solutions; McGill Sustainability Systems Initiative brings together experts from across McGill's faculties to build a robust and vibrant community of committed sustainability researchers. Given the broad skillset and collaborative nature of the field, few disciplines

are as well equipped to participate in such projects as are planners. Moreover, planners must, given the strategic opportunities to address environmental sustainability at the city-scale (Sassen 2010) and the acute need to make urban systems more resilient (Meerow et al 2016), be part of the solution. This panel brings together planning researchers from several sustainability or resilience focused GCs to answer the question, “What role has planning played in large, interdisciplinary projects and how can planners become leaders, not just participants?”. After brief introduction to each project, discussion will focus on the successes and obstacles faced by each group with an emphasis on the role planning has played in the GC.

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Key Words: Sustainability, Grand Challenges, Leadership, Interdisciplinary Projects, Resilience

ROUNDTABLE - PLANNING FOR WATER EQUITY

Abstract ID: 651

Roundtable

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Access to water supply and sanitation, recurring flood events, increasing water scarcity, and aging, absent, or inadequate water, sanitation, and wastewater infrastructure are just some of the water related challenges we are faced with today. Planning for water and wastewater systems are inherently interdisciplinary endeavors, ones in which planners have played a surprisingly peripheral role over the past two to three decades. Yet, planning for healthy, inclusive cities warrants a closer look at how planning intersects with water equity (broadly defined as ensuring universal access to adequate and safe water and sanitation services, and participation in its management). Planning has important contributions to make to global discourses on water and sanitation that both extend and enhance the engineering, public health, and economic perspectives that dominate the sector today. Participants will explore how planning research can contribute to a deeper understanding of the different dimensions of water and wastewater systems that foreground water equity. How does the concept of an integrated approach such as One Water shape our understanding of this resource and its distribution? How can such an approach promote water equity? How can a shared vocabulary between planners and water professionals be developed to facilitate collaboration that transcends sectors and scales? How can insights from planning advance local and global dialogue about informality and access to water and sanitation services? Are there alternative approaches to conventional water and wastewater systems that creatively integrate the natural and social dimensions for water equity?

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Key Words: Water, Sanitation, Equity, Infrastructure, International development

ROUNDTABLE - DIFFICULTIES IN DISASTER RECOVERY PLANNING FOR SMALL AND RURAL COMMUNITIES: IMPACTS FROM HURRICANE MICHAEL.

Abstract ID: 1001

Roundtable

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Hurricane Michael landed on the coast of Florida with winds of 155 mph and proceeded to rip through small coastal communities and a mostly rural area of Florida and southern Georgia. The Florida Department of Agriculture and Consumer Services estimates that agricultural crop damage alone accounted for \$1.5 Billion, most of this due to timber loss. In an industry that takes 20-25 years of investment to show a profit, this means that job loss and economic impact will continue for another 10-15 years. The economic impacts are huge, and yet, there are other impacts that will also be seen, as yet unaccounted for in the future. The timber loss has many considering alternative arrangements. Hemp and hop have been discussed in the media as resilient alternatives. The ecosystem effects of these decisions will be seen in the karst system hydrology, the endangered Apalachicola River, and in the biodiversity that exists within the timber forests, such as gopher tortoise habitats. The excess tree debris also increases wildfire risk and may clog or pollute the waterways, and on private lands, the farmers often do not have the resources to remove the debris.

Despite the extreme environmental risks, the highest concern for the area is economic. People without homes must make basic survival choices first. The financially constrained governments, whose meager

tax rolls will be further reduced by condemned properties, can do little to help on their own. Their hazard planning has been constrained by lack of funding and holds few mitigation projects ready to be implemented to deal with these hazards. The regional planning council has been hampered in recent years by lack of funding. In a rural area, likely to see a reduction of population following this disaster, the need for hazard and recovery planning is increasing.

Resilience is said to be a process, rather than a goal, but it is said to begin with the people of the community (Lerch, 2017). When that community is severely crippled, is the meaning of resilience to recover and maintain its identity the same (Appler & Rumbach, 2016; Holling & Gunderson, 2002)? Low density, low capacity of local government planning, and lack of economic resources will have immense repercussions for the capacities that help confer resilience: place attachment, leadership, community cohesion, community networks, and knowledge and learning (Faulkner, Brown, & Quinn, 2018).

This panel will explore the impacts from Hurricane Michael and recent extreme storms across the country to explore questions related to special considerations of disaster recovery planning in lower resource contexts in the US. How can planners shape recovery pathways that promote resilience and equity in the Panhandle? What are the cost implications of reconstruction for overburdened and impacted local governments? How are communities engaged to understand their risk?

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Key Words: Hurricane Michael, Disaster recovery, Rural communities

TRACK 4 – INDIVIDUAL ABSTRACTS

STEERING URBAN WATER MANAGEMENT IN STRAINED ENVIRONMENTS CASE OF THE YAMUNA RIVER IN NEW DELHI, INDIA

Abstract ID: 7

Individual Paper Submission

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Polluted urban rivers in rapidly growing cities of the developing regions are a barometer of the fundamental breakdown of prevailing urban and environmental planning systems. In India, the city of

New Delhi is the most significant polluter of the ailing Yamuna River – 2% of the river traverses through the city accruing 70% of the total pollution load through a network of 22 urban drains discharging into the Yamuna River. Over the past 26 years, multiple plans and investments to restore the river have consistently failed, revealing an evident implementation gap in the infrastructure vision and outcome. In the case of New Delhi, local governance systems are responsible for infrastructure delivery, yet the political processes for creating such infrastructure are often unidirectional. Decentralized efforts to mediate the urban-planning process and cultivate collective agency thus often fizzle. Informing the fundamental premise of this research that urban visions to revive the river consistently fail because there is a lack of integrated effort towards transforming socio-cultural and professional behaviors that strain the urban ecosystem. The study asks two, related questions: (1) can behavior shifts in decision-making processes at the local level bridge the implementation gap between visions and outcomes for urban infrastructures? (2) What interventions drive collective action at the individual, community, and stakeholder levels?

The study intends to integrate a socio-environmental approach with urban infrastructure planning, focusing on the issue of urban water management in rapidly developing cities. Situated within the framework of Pro-environmental Behavior (PEB) approach in the context of New Delhi and the Yamuna River pollution, this research is a scoping analysis of Behavior Change Techniques (BCTs) and interventions (Michie et al., 2011). Gifford and Nilsson (2014) outline eighteen personal and social factors that influence pro-environmental behavior or lack of concern, helping identify responsible factors in the study context. A scoping analysis outlines interventions and policies, at the level of individuals/household and groups/stakeholder level, recommending potential change agents like governance bodies, local institutions, NGOs and subsequently proposing an assessment of techniques deployed as well as overlooked. Data sources for this assessment is a preliminary field study (October 2018), and secondary sources like Yamuna Action Plans (YAP) launched in 1993 (currently in phase III), 2021 Master Plan of Delhi, Drainage and Sewerage Master Plans for Delhi 2031. Broad categories for BCTs are classified as restructuring the physical environment; regulation; service provision; disincentive; shaping knowledge & training; reward; social support/ relations; comparisons; identity & self-belief; goals, planning, and monitoring.

The scoping analysis demonstrates a lopsided emphasis on restructuring the physical environment through centralized capital engineered solutions. This analysis identifies the potential to integrate incremental and decentralized infrastructure solutions; also, there is a dearth of efforts to build social capital that create incentives, reward positive outcomes, nurtures social agency within communities and stakeholders. While changes in the physical environment are central to resolving this urgent environmental crisis, there is a significant opportunity in interventions that transform behavior through social support, rewarding incremental efforts, reinforcing identity and self-belief to drive collective responsible behavior. A strong implication of this study is on steering planning practice in complex urban environments by underscoring socio-cultural behavior and decision-making processes within local communities. The behavioral framework is a working model for further engaging local and expert stakeholders.

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Key Words: urban ecosystem, pro-environmental behavior, decision-making, collective action, socio-environmental approach

AFFORDABLE HOUSING AND VULNERABILITY TO EXTREME HEAT IN CALIFORNIA

Abstract ID: 41

Individual Paper Submission

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About 600 people in the U.S. die annually from heat-related illness, and California experiences 10% of these deaths on average (CDC, 2017; CEHTP, 2016). These figures rise during extreme heat waves -- up to 655 California deaths were attributable to a 2006 heat wave -- and are expected to trend upward from climate change (Hoshiko et al., 2010; Wilson and Chakraborty, 2018). Indirect mortality, morbidity, and household welfare impacts are also caused by extreme heat events. Our research answers two planning-relevant questions. First, where are households most vulnerable to extreme heat in California? Second, are residents of certain subsidized housing types more vulnerable to extreme heat than residents of unsubsidized housing?

Vulnerability to extreme heat is not experienced equally. Children, the elderly, and those with pre-existing health conditions are particularly sensitive. Reduced adaptive capacity has been associated with low incomes; living alone; lack of a car; living in a mobile home; and lack of air conditioning and/or difficulty affording utility bills. Neighborhoods with little tree canopy and large areas of pavement are hotter from the urban heat island effect.

Residents of subsidized housing may embody several of these factors, yet there has been little research on how subsidized households are affected by climate change, including extreme heat. Additionally, since we are incorporating extreme heat projections (exposure), affordable housing may serve as a durable indicator of where vulnerable populations will be located in the future. Sensitive populations may move or shift geographies, but given the dearth of affordable housing stock in California, existing stock is likely to persist spatially.

Our analysis has three components: (1) tract level analysis of affordable housing, extreme heat projections, and sensitivity and adaptive capacity; (2) statewide analysis of affordable housing in terms of air conditioning prevalence, housing quality, and energy costs; and (3) tract level analysis of affordable housing, energy utilities, and water utilities.

With the first component we connect affordable housing data with downscaled climate data from 4 climate models and for 2 climate scenarios between 2005 and 2040. We also calculate a tract-level sensitive and adaptive capacity index based on Reid et al. (2009) and Wilson & Chakraborty (2018). Our spatial analysis identifies individual tracts and clusters of tracts with vulnerable housing and projected increases in extreme heat.

The second component entails a statewide comparison of subsidized and unsubsidized units in terms of air conditioning prevalence, insulation, and energy costs, using a combination of American Housing Survey (AHS), the California Residential Appliance Saturation Study (RASS), and the national Residential Energy Consumption Survey (RECS) data.

The third component overlays utility service data on affordable housing to identify disparities in terms of publicly-regulated energy utility and water utility service reliability, failures in which can exacerbate exposure to heat. We pay particular attention to service reliability in disadvantaged unincorporated communities and mobile home parks, for which counties in California are obligated to perform special service planning.

Preliminary results suggest that some types of affordable housing are disproportionately located in tracts with the largest projected increase in 90+ degree days (2005-2040, RCP 8.5 scenario). The top quartile of these tracts includes 31.8% of LIHTC units, 24.9% of public housing units, 23.9% of housing choice voucher units, and 20.7% of other HUD-subsidized units. These tracts include 31.3% of manufactured housing units, the most affordable type of unsubsidized housing. By comparison, these tracts include 22.7% of rental units in California. Additional results are forthcoming.

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Key Words: Affordable housing, Climate change, Climate adaptation, Heat

MEETING WATERSHED-LEVEL STORMWATER MANAGEMENT GOALS WITH A STORMWATER TRADING SYSTEM OF PARCEL-LEVEL GREEN INFRASTRUCTURE INSTALLATION

Abstract ID: 66

Individual Paper Submission

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Urban development and sprawl often lead to loss of natural habitat (e.g., vegetation and soil) and replace it with impervious surfaces that disrupt the hydrologic cycle of a watershed (e.g., stormwater interception, filtration, evapotranspiration, and retention) (Dhakal and Chevalier, 2016; Dolowitz, 2015). The result is increased runoff volume and flooding risk, and decreased stormwater infiltration and stream base flow (Roy et al., 2014). Green infrastructure (GI) has been recommended and adopted widely to reduce runoff from the built environment. Reliance on public land for GI implementation causes a heavy financial burden on local government. Economic incentives and market-based mechanisms may encourage public participation in a decentralized approach to managing stormwater by installing GI on private parcels. Cap and trade markets have been gaining acceptance in a wide variety of applications, such as the market of carbon and sulfur dioxide emissions in U.S. (Tietenberg, 2006). However, stormwater trading market has not fully developed in practice. To establish a market requires, in part, an authority to plan, organize, and manage the watershed-based stormwater trading market, the linkage of trading to the goal of the watershed management, and fully informed parcel owners for tradable allowances, costs, and benefits.

To address the aforementioned elements in stormwater trading, we propose a scenario-based Stormwater Management Planning Support System for Trading Runoff Abatement Credits (SMPSS-TRAC) to facilitate the calculation and allocation of runoff abatement credits, to assist the decision-making of investment in GI, to manage and update the credit pool, and to test alternative scenarios. We apply the SMPSS-TRAC to a sub-watershed, located in Hamilton County, Ohio, USA and develop five scenarios representing increased use of GI (rain barrels, rain gardens, shared detention basin, and porous pavements). We test the scenarios under a 5-year rainfall intensity and set the cap at non-development level (e.g., all grass land). Runoff is simulated using USDA TR55---Urban Hydrology for Small Watersheds (NRCS, 1986). Tradable credits calculator is designed for runoff abatement credits calculation and allocation. Using the tradable credits calculator, users can set different cap for the watershed, including actual runoff abatement, annual cost of GI, runoff allowance balance, and trading status.

SMPSS-TRAC indicates that a watershed authority must be established to guide all parcel owners either to install suitable GI, or to purchase allowances. In addition, the watershed authority would need to build detention basins on vacant lots and share costs and detention capacity with all parcels within the same sub-catchment to meet stated goals. All four types of GI on private properties and detention basins are needed to reach the market equilibrium and achieve the watershed level runoff reduction goal.

The SWPSS-TRAC can further be applied to test more scenarios for other watershed, such as scenarios for extreme rainfall event related with climate change, future land cover change, and new types of GI. In addition, the SWPSS-TRAC is an open system that allows users to customize objectives, models, indicators, and parameters for stormwater trading decision-making needs.

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Key Words: stormwater management, stormwater trading, stormwater trading, planning support system

PLANNING FOR EXTREME HAZARDS: LEARNING FROM THE MIDWESTERN U.S. CITIES' HAZARD MITIGATION PLANS, COMPREHENSIVE PLANS, AND EMERGENCY OPERATIONS PLANS

Abstract ID: 72

Individual Paper Submission

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The increasing occurrence of extreme weather and climate events raised concerns in regards to hazard mitigation and climate adaptation. Local municipal planning mechanisms play a fundamental role in increasing a community's capacity towards long-term resiliency. This study employs the content analysis method to evaluate the 95 selected cities located in the U.S. Federal Emergency Management Agency (FEMA) region VII and examine how these local plans, including local comprehensive plans, hazard mitigation plans, and local emergency operations plans, prepare communities for climate change and possible extreme events. Results indicate that local plans delineated multiple resources and diverse strategies to reduce community climatic risks, where hazard mitigation plans have medium level preparation, and comprehensive plans and emergency operations plans have limited level preparation. Local hazard mitigation plans lead in mitigating for impacts from potential extreme events, but both local comprehensive plans and emergency plans are proactively adapted for climatic risks. Common strengths and weaknesses exist between different planning mechanisms. Large variations exist among plans due to varying jurisdictions among cities. However, the plans score similarly overall – higher on strategies and factual base but are short of clear and detailed goals, objectives, and agendas. Finally, despite the diverse vertical and horizontal outreach, there is inadequate integration among local planning mechanisms to share climate-hazard information. These findings can serve as a valuable reference for emergency managers, planners, and policy-makers to direct or conduct research and actions in coping with extreme hazardous events. This research can improve our understanding about local planning systems from the inland states in the United States.

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Key Words: Extreme hazards, Local comprehensive plan, Hazard mitigation plan, Emergency operations plan, Midwestern states

LOCAL LAND USE POLICIES FOR ENVIRONMENTAL JUSTICE

Abstract ID: 87

Individual Paper Submission

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Historically, zoning codes and land use practices have had the effect of hardening disparities and expressing forms of structural racism evident in the built environment. These processes continue to jeopardize the health and safety of communities of color and low-income communities throughout the country, also known as environmental justice communities. Zoning and land use policies can also be harnessed affirmatively to redress these impacts. Indeed, looking to zoning and land use policies to remedy local environmental injustices is critical, as state and federal environmental laws and regulations are limited in their ability to address the siting decisions that concentrate cumulative pollution burdens. Nor do these environmental laws directly speak to the socio-demographic characteristics of communities impacted by multiple pollution sources or the development process that can drive siting decisions locally.

A variety of planning and zoning tools are available to municipalities for the purpose of addressing environmental justice, including: comprehensive planning, eliminating nonconforming uses, using environmental reviews or impact analysis, and making change through local boards and commissions. Cities can also strengthen public health and building codes, augment public review and notification processes, impose development fees, implement overlay zones or special zone designations, or simply tighten existing zoning codes to make them more protective in communities of color and low-income communities. The right balance of approaches for any given place will depend on local conditions and priorities, along with state law regarding the powers of local governments vis-à-vis land use and environmental regulation.

This study explores how environmental justice advocates advanced policies that affirmatively use land use planning and zoning tools to address environmental injustices at the local scale.

A nationwide review of existing municipal, county and local government initiatives was conducted to identify policies that explicitly address environmental justice through local land use planning, zoning, or policy tools. It also includes an in depth analysis of the community led processes that resulted in the adoption of environmental justice legislation in the cities of Newark, New Jersey and Los Angeles, California. The methodology utilized for this study includes multiple case studies (Newark and Los Angeles) using semi-structured interviews, document analysis and a qualitative summary review of online sources employing key word searches.

The national review of policies identified 40 local policies focused on addressing environmental injustices across 23 cities, three counties and two public utilities. The policies were categorized according to six typologies: (1) Bans, (2) Broad EJ policies, (3) Environmental Reviews, (4) Proactive Planning, (5) Targeted Land Use Measures, and (6) Public Health Codes. The case studies of Newark, NJ and Los Angeles, CA further detail the community led processes by which the respective policies in each city were adopted. In both communities, a clear articulation and understanding of cumulative impacts,

leadership of community based environmental justice groups, strong local planning and zoning tools and a receptive political environment, led to the successful adoption of policies. The distinct approaches of each city, environmental review in Newark and proactive planning in LA, also reveal key catalysts for policy formulation and the challenges that can be anticipated in the development and implementation of these policies.

This study provides practical models for the many U.S. cities facing similar legacies of environmental injustice rooted in zoning and land use planning. It also sheds light on the diversity of approaches already in use in cities across the country and the potential for future affirmative local action led by impacted communities.

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Key Words: Environmental Justice, Cumulative Impacts, Zoning , Land Use Policies

DEVELOPING NATURAL LANGUAGE PROCESSING (NLP) AND ARTIFICIAL INTELLIGENCE (AI) TOOLS ON OPEN DATA PLATFORMS TO TRACK ENVIRONMENTAL JUSTICE GOALS

Abstract ID: 89

Individual Paper Submission

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Local governments are increasingly building Open Data Platforms (ODPs) to host local geospatial and administrative data. The goals of ODPs range from a desire to increase transparency to citizens and efficiency of government, to hopes of economic development opportunities that could make use of released data sets. Environmental justice (EJ)--the assurance of equitable access to environmental amenity and exposure to environmental hazard to all citizens--could benefit from the locally-relevant and potentially higher resolution geospatial data available in cities. However, there are challenges to assessing the extent to which local ODPs are currently hosting data sets useful to meeting EJ goals, including: locally specific goals for ODPs, different ODP catalog architectures, variation in data set organization and landing page navigability, and the diverse environmental and social conditions present in different cities. In this paper I present an open-source Python software package that I have developed to improve comparability between data sets hosted on ODPs in US cities. I demonstrate how the package improves data discoverability through the use of natural language processing (NLP) and artificial intelligence (AI) tools to identity EJ-relevant data sets, even given missing or erroneous categories and tags associated with

the data sets across local ODPs. The improvements in data discoverability and the construction of a common semantic network for EJ-relevant data allow for the creation of a web-based dashboard that can track the availability of environmental data available on OPDs and the improvement of data quality and resolution and variety over time. Lastly, I describe how the web-based dashboard could help both researchers and community activists identify locally unique environmental issues, community needs and goals, and inter-community collaboration toward reaching EJ goals.

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Key Words: Environmental Justice, Open Data, Natural Language Processing

SEEKING CLIMATE JUSTICE: INCORPORATING SOCIAL EQUITY INTO LOCAL CLIMATE CHANGE PLANNING

Abstract ID: 98

Individual Paper Submission

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Cities face unique environmental, social and economic challenges in the face of climate change. The impacts of climate change, such as the urban heat island effect and increased likelihood of extreme weather events, put additional stress on aging urban infrastructure systems. Racial, ethnic and gender disparities regarding vulnerability to climate change have been well documented and reveal the potential for climate change to act as a threat multiplier, reinforcing and exacerbating existing social and economic inequities within and across various geographic scales. In cities, and around the world, those who are most impacted by climate change are often the least responsible for causing climate change, generating debates about how to balance sustainable development with climate justice.

Due in part to their direct experience with climate change impacts, cities are increasingly seen as a promising space for taking meaningful action to both mitigate and adapt to climate change. Environmental planners are now frequently tasked with developing long-term sustainability plans that aim not only to improve local environmental conditions, but also to help mitigate global climate change. In the United States, hundreds of cities have committed to addressing climate change and many have developed Climate Action Plans (CAPs), which provide roadmaps for reducing emissions and preparing for and responding to the direct impacts of climate change that are already being felt by many. In practice, local climate change planning typically consists of some combination of mitigation strategies, which seek to reduce greenhouse gas emissions and prevent the worst case climate change scenarios, and adaptation tactics, which aim to minimize the negative impacts of climate change on communities. As CAPs are developed and implemented, concerns have been raised about the uneven impacts of these plans. Not only are the direct impacts of climate change unevenly felt, but efforts to address climate change, including

through planning, have had uneven, and sometimes negative impacts on certain individuals and communities, due in part to the plans' disregard for existing disparities. While ample research has documented the uneven impacts of climate change, less is known about the role of local climate change planning in challenging, maintaining or possibly exacerbating existing inequities.

This research explores the extent to which equity concerns are incorporated into local CAPs in California. In 2006, the State of California adopted AB32 the Global Warming Solutions Act, which created a comprehensive plan for reducing the State's greenhouse gas emissions. In the Scoping Plan for AB32, the State urged local governments to commit to reducing emissions by 15 percent (from 2008 levels) by 2020 to coincide with the State's goals. In response to this, dozens of cities around California have developed and begun to implement CAPs. The specific strategies and tactics proposed in these plans vary greatly based on the cities' size, location, vulnerability to climate hazards, political environment, and demographics. Similarly some plans explicitly seek to simultaneously address environmental and social equity concerns, while others focus more exclusively on the technical approaches to climate change mitigation and adaptation. Little research has been done to understand the various ways in which equity is included or left out of local climate action planning. This project seeks to expand our understanding of how equity shows up in climate change planning and offers insights into how planning can simultaneously address environmental challenges and underlying social injustices. Content and text analysis are used to evaluate direct and indirect references to equity in a subset of local CAPs adopted in California in the last 15 years. Broadly, this research contributes to a growing body of literature around balancing social equity and environmental needs in cities through thoughtful planning.

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Key Words: climate action plans, environmental planning, social equity, climate justice

HOUSING PLAN AND LOCATIONAL OUTCOMES: THE RESILIENT APPROACH FOR COASTAL COMMUNITIES IN THE UNITED STATES.

Abstract ID: 102

Individual Paper Submission

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Housing plays a central role in connecting individual, family, and society in human life. Provide decent housing at an affordable price, in a suitable living environment is the ultimate goal of housing policy in the United States, as well as many other countries. The U.S. Department of Housing and Urban Development (HUD) creates a financial mechanism that requires the submission of a Consolidated Housing Plan to support affordable housing development and other housing-related activity in a city, as a condition of receiving funding through the formula block grants. These funds are used to support the proposed affordable housing development agenda of the local jurisdiction. The plan plays a crucial role in increasing affordable housing choice and providing quality community development activities for local people, especially for low-income households. Yet little research undertakes an evaluation of plan quality for Consolidated Housing Plans. Only two studies that tackled the housing issue in plan evaluation literature were found in a thorough literature search, and the most recent one was published a decade ago. More importantly, the quality of housing plan of coastal communities has never been addressed. This gap raises the concern toward how local government distributes federal resources in the areas that facing the increasing risk of natural disasters like a hurricane, flooding, and sea-level rise.

This research adopts the plan evaluation protocol in which the author developed in his previous research then apply to the coastal communities in the Gulf Coast and Florida. 60 coastal communities (30 cities and 30 counties) were chosen. Using four major criteria including Decent Housing, Suitable Living Environment, Economic Opportunity, and Fair Housing. The paper assesses the quality of the Consolidated Housing Plan by using the content analysis methodology. Each plan will be evaluated based on five components: Factual basis, Goals, Policies, Implementation, and Participation. The total score represents the overall quality of the plan.

The study compares the performance between coastal cities and coastal community in planning preparation to reveal the differences between two governmental levels. After that, two to four communities will be randomly chosen to reflect the outcomes of housing plan on coastal communities. By overlay the spatial distribution of housing and community development activities with the water-related risk map, the study indicates how the housing plan can impact local communities by the matching of geographic locations with vulnerable areas. Using Local Indicator of Spatial Association (LISA) and cluster analysis, this research will highlight the hot spot of low-income population and the concentration of public funded activities. More importantly, the geographic relation between these hot spots and the disaster risk will raise the concern toward how the public fund has been spent to address the resilient development of the needed population.

Finally, the findings are expected to create guidelines not only for policymakers but also for local authorities and researchers in supporting the affordable housing and community development nationwide.

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Key Words: plan evaluation, Consolidated Plan, coastal communities, resilient development

A MODEL OF NETWORKED PLANNING? EVALUATING THE PLANS AND PEOPLE OF TULSA'S AWARD-WINNING RISK REDUCTION EFFORTS

Abstract ID: 110

Individual Paper Submission

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Planning scholars frequently use network approaches to understand numerous aspects of our field, from infrastructure planning to logistics planning to organizational management (Albrechts and Mandlebaum 2007, Innes and Booher 2010, Dempwolf and Lyles 2013). At a basic level, network approaches conceive of nodes (e.g. individual people) being connected through a relationship referred to as an edge or link (e.g. sharing information). Network approaches offer myriad analytical benefits, including understanding the agency of an individual node within a broader web of interconnected nodes that can enhance or constrain action. This paper draws on network concepts and network analytical techniques in two domains: networks of stakeholders involved in planning processes (Lyles 2015) and the network of plan documents generated by planning processes (Berke et al. 2015). To date, research linking networks of stakeholders in planning processes with networks of plans is quite limited.

To begin to fill this gap, we turn to the domain of long-term risk reduction planning, an area of planning frequently used for analysis of social science questions because of the ubiquity of natural hazard risks. This context of analysis allows us to draw on and contribute to an extensive body of knowledge about local long-term risk reduction planning, while also providing insights for planning more generally. More specifically, we pursue an in-depth case analysis of Tulsa (OK), a community recognized for 40-plus years as a national leader in long-term reduction planning and implementation, now often framed as planning for resilience. In this context we seek to answer three main questions: 1) What are the structures of the dynamic networks of stakeholders and plans in Tulsa, with particular focus on connections between planners and emergency managers? 2) How have the network structures fostered Tulsa's successes in long-term risk reduction? 3) What, if any, gaps or shortcomings in Tulsa's efforts are exposed by understanding the networks of stakeholders and plans?

To answer our questions, we draw on and extend well-developed research methods and analytical techniques including content analysis and network analysis. We collected and content analyzed a wide array of local plans related to risk reduction, including plans focused on hazard mitigation, comprehensive land use plan, sustainability, and resilience. We replicated and refined content analysis tools used to measure planning process characteristics, organizational involvement, plan integration, and policies and actions. We also conducted interviews and web-based surveys with key stakeholders, focusing specifically on the structure of the networks and the roles of emotional and social intelligence to weave and maintain the stakeholder network over time. We contextualized our findings from these primary data sets with insights from review of documents written about Tulsa's efforts over the last 40 years. Altogether, we apply network concepts and analytical techniques and triangulate within the case study to better understand how a community can develop a resilient network of plans and people to develop and implement those plans.

Our findings provide insights into the structure of networks of plans and networks of planning stakeholders engaged in planning processes. In particular, they shed light on variations in how traditional ‘silos’ of planning and implementation can be broken down (or not). The findings also provide insights into the interplay between individual-level characteristics of the ‘champions’ who have led risk-reduction efforts in Tulsa since the 1970s and the changing positions of those champions in a constantly evolving stakeholder network over time. We conclude by offering recommendations for a) planning practitioners interested in more effectively weaving networks of stakeholders and plans and b) researchers interested in applying network approaches to illuminate answers to key questions about planning processes and implementation.

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Key Words: networks, plan use, implementation, hazards, risk reduction

WATERSHED PLANNING AS THE THIRD PILLAR IN MARKET-LIKE WATER QUALITY CONTROL

Abstract ID: 118

Individual Paper Submission

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Nutrients from regulated point sources (PSs) and unregulated nonpoint sources (NPSs) are among the most persistent contributors to poor water quality across much of the US, despite decades of efforts to reduce their contributions, especially from agricultural sources. In recent years, Wisconsin has established an innovative and promising approach for market-like transactions between farmers and regulated dischargers, focused on phosphorus. Enabled by statewide numeric phosphorus standards, this approach centers around compliance options to reduce nutrients entering water bodies without imposing heavy financial burdens on certain regulated dischargers such as wastewater treatment plants in small rural municipalities. The approach follows established trading principles that enable polluters with different phosphorus abatement costs to work together for watershed-level compliance, but also includes additional dimensions and flexibility. The trading option provides PS polluters the option of purchasing discharge permits from other PS and NPS polluters; a related adaptive management compliance option allows all the polluters in the same watershed to coordinate efforts to meet the ambient standard; and a third multi-discharger variance option allows qualifying dischargers (e.g., small rural municipalities) to pay a fixed price into a fund for agricultural NPS pollution control within the watershed. Compared to previous

efforts, Wisconsin's approach has catalyzed a relatively large volume of transactions between PS and NPS polluters.

The PS polluters' participation might be motivated by economic factors (e.g., cost saving), physical factors (e.g., co-existence of NPSs in the same watershed), institutional factors (e.g., flexible permitting system, brokerage service), craft factors (information made available by education and outreach activities), social factors (e.g., trust and long-term collaboration in the watershed), and cultural factors (e.g., the culture of civic engagement among dischargers). Similarly, other PSs who chose not to participate despite the high potential cost savings and social benefits may be hindered by lack of these key factors.

This research involves a series of case studies focusing on the trading projects, as well as matched PSs who chose facility upgrading over the market-like approaches. It looks at the precedent hypothesized factors and addresses questions of what factors can lead to successful implementations of market-like water quality control projects.

Findings are based upon a review of water quality permits and trading plans in Wisconsin since the trading policy began (2011). Case studies are drawn from a stratified random sample of projects using each of three trading options and matched with similar PSs in the same watersheds that are not using trading. Interviews with wastewater treatment facility managers, farmers, and permit writers in these cases provide insights on critical factors in participation and policy implementation decisions. A PS decision-making model further explains the behaviors of PSs by their three parallel roles: a rational firm in a competitive market, a node of the social network, and a group consisting of local community members. By examining the competition and combination of these three perspectives, the model identifies the key factors influencing PSs' compliance decisions and demonstrates the mechanism behind the decision-making.

This work's significance for watershed planning scholarship resides in its focus on an emerging phenomenon and its attention to non-economic factors' influence on environmental market outcomes. It also discusses the role of important planning elements, such as trust building, collaboration, and education and outreach activities, as the third pillar in market-like water quality control approach besides scientific modeling and market mechanism. It will also inform planning practice by recognizing the key factors for success. For regulators, local practitioners, and watershed groups in and out of Wisconsin, the lessons learned from this research will provide not only a roadmap for working with the PSs but also guidance on coordination of valuable resources.

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Key Words: case study, nonpoint source pollution, watershed quality trading, watershed management

DOES RESILIENCE PLANNING IMPROVE PLAN COORDINATION AND REDUCE VULNERABILITY? COMPARING NETWORK OF PLANS OVER TIME IN BOSTON AND FORT LAUDERDALE

Abstract ID: 130

Individual Paper Submission

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Sea level rise is increasing flood risks in coastal communities, yet hazard mitigation planning often remains isolated from land use and other planning processes. This leads to inconsistent policies that put people and property in harm's way. Resilience planning has emerged as a new framework to coordinate flood mitigation and planning more generally, and is theorized to increase collaboration and avoid counterproductive outcomes that arise from treating interrelated problems in isolation. Many cities are now ostensibly engaged in resilience planning, however the extent to which resilience is actually transforming planning processes and long-term flood risks is unclear. We address this question by comparing the effects of 'networks of plans' on physical vulnerability to flooding in Boston, MA and Fort Lauderdale, FL before and after they engaged in resilience planning.

We apply the Plan Integration for Resilience Scorecard (PIRS) methodology to spatially evaluate the impact of city plans on physical vulnerability in Boston, MA and Fort Lauderdale, FL. We include all plans that were adopted by city agencies that contain policies intended to guide the use, location, density, and design of urban development in flood hazard zones. Our sample of plans includes comprehensive, resilience, climate adaptation, and hazard mitigation plans (among others). The PIRS analysis was conducted in 2015 and again in 2019. In these four years, both Boston and Fort Lauderdale have emerged as leaders in resilience planning. Boston joined the Rockefeller Foundation's 100 Resilient Cities program in 2014, and released its resilience strategy in 2017. Concurrent with the development of its resilience strategy, Boston prepared its first comprehensive plan in 50 years. Similarly, resilience is at the center of Fort Lauderdale's most recent long-term vision and 5-year strategic plan. Repeating the PIRS analysis as these cities pursue resilience planning allows us to examine whether resilience planning improves coordination across plans and reduces vulnerability in current and future flood hazard zones.

Preliminary results suggest that coordination across plans in both cities has increased and plans generally support a common policy framework on flooding. All the plans analyzed recognize flooding and sea level rise as critical issues, though some plan policies continue to guide additional development toward risky locations. While the plans in this study employ a wide variety of strategies to reduce vulnerability, both cities predominately rely on structural measures to protect existing and new development in areas at risk of flooding.

This is the first study to analyze how a city's network of plans impact on physical vulnerability evolves over time. As such, it has important implications for planning scholarship and practice. Our results demonstrate the potential for resilience planning to encourage coordination across a city, but it remains

unclear if greater integration leads to mitigating long-term flood risks. Though evidence was found showing increased awareness of flood risk, study cities are continuing to pursue development in risky locations, relying on structural protection measures.

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Key Words: Resilience, Network of Plans, Sea level rise, Vulnerability, Plan evaluation

RESILIENCE THROUGH REGENERATION: THE ECONOMICS OF RE-PURPOSING VACANT LAND WITH GREEN INFRASTRUCTURE

Abstract ID: 135

Individual Paper Submission

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Nearly 17% of each large U.S. cities' land area is considered vacant, with an average of 4% of city structures unoccupied (Newman et al., 2016). The ratio of vacant land to city size has increased by 1.3% since 1998, indicating a growing problem. A small number of vacant parcels can be an indicator of economic growth (typically characteristic of populating cities), while larger proportions of vacant area typically can indicate symptoms of urban decline (typically characteristic of depopulating cities) (Hollander, 2010). Disaster events can exacerbate the vacancy condition, resulting in massive increases in vacant parcels and abandoned structures. When a disaster strikes, vacancies can catapult, forcing communities to rebuild in ways that improve their capacities for the next event. Further, the pace of recovery is not uniform; it varies both across and within communities (Quarantelli 1999).

Many urban areas affected by flood disasters are becoming increasingly ecologically and socially fragmented due to the accumulation of vacant properties. While redevelopment is often viewed as the primary objective in regenerating vacant properties, they can also potentially provide land for ecological and hydrological land uses. Populations in many coastal cities are increasing, despite the increased flood risk. However, despite overall population in-migrations in flood prone regions, some neighborhoods within these areas are still characterized by excessive amounts of vacancies. Rather than chasing development based incentives for regenerating vacant lots in high flood-risk communities, a balance should be sought between new developmental land uses and green infrastructure to help counteract stormwater runoff and flood effects.

This research examines the economic costs and benefits of retrofitting green infrastructure into community resilience plans as a strategy for vacant land regeneration. We seek to determine if the long term impacts of using green infrastructure to help mitigate flood issues outweigh their upfront costs. Using three flood-prone, underserved, and high vacancy-rate neighborhoods in Houston, TX (South Park, Manchester, and Sunnyside), we use performance models within the EPA's Green Vaues national Stormwater Calculator to evaluate the economic and hydrologic impacts of green infrastructure-based urban regeneration plans.

The Texas coast is one of the most frequently impacted areas by coastal storms globally. Houston, one of the fastest growing U.S. cities, has one of the highest numbers of flood-related fatalities in the past 50 years (Highfield et al., 2013) but reports nearly 11% of its land as vacant (Newman et al., 2017). Many vacant properties in Houston are peripheral greenfields which have been annexed for future development. Many of the non-greenfield vacant properties are, however, concentrated in marginalized communities, which are also typically characterized as highly vulnerable to flooding (Berke et al., 2015).

Results suggest that, when using green infrastructure to regenerate vacant properties, 1) flood risk continually decreases, 2) upfront economic costs increase in the short term (when compared to conventional development), and 3) the long-term economic return on investment is much higher. The analysis shows that the plans capture 7–40 million gallons of stormwater per year across the three communities, representing an increased capacity of 22.2 million gallons annually. Other benefits include more tree coverage, walkable space, and green space, including improvements to nearly all of the vacant lands. For the three sites, construction costs ranged from \$8 million to \$30 million. Sunnyside had the highest total annual green benefits of \$5 million, and the site would take 20 years to produce a return on investment. On average, the sites would about take 40 years to produce a return on investments.

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Key Words: urban regeneration, resilience, green infrastructure, urban design, flood mitigation

UNDERSTANDING THE ROLE OF PLACE-BASED SOCIAL NETWORKS IN COMMUNITY ADAPTIVE CAPACITY

Abstract ID: 178

Individual Paper Submission

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This paper reports an empirical pilot study of the role of social connections in disaster preparedness for place-based communities. Our community-engaged action research uses social network analysis to better understand how place-based relationships could be leveraged to enable community adaptive capacity (Folke et al. 2010) in the event of a disaster, operationalized here as access to critical skills and resources. The project takes place in the Pacific Northwest, where recent advances in seismic hazards science has heightened regional interest in disaster preparedness, especially for a potential magnitude 9.0 Cascadia Subduction Zone (CSZ) event. Were a CSZ event to occur, communities would likely need to be self-reliant for a number of weeks, highlighting the critical role that local resources and social infrastructure play in community resilience (Aldrich & Meyer 2015).

Working in this same broad context, Freitag et al. (2014) developed a stakeholder workshop protocol for pre-disaster community resilience planning that foregrounds place-based values and assets – built, natural and social capital – and leverages them to deal creatively with both everyday challenges and potential disasters. Adopting that approach, this project further focuses on characterizing the social capital that community stakeholders identify. The community setting for this pilot project is Laurelhurst, a Seattle neighborhood of approximately 4,000 residents.

Together with Laurelhurst Earthquake Action Preparedness (LEAP), a neighborhood-based earthquake preparedness group, we co-organized a values- and asset-mapping workshop to better understand local priorities and resources. The information gathered in the workshop helped to inform the development of a survey instrument for learning about place-based social networks and disaster preparedness within the community. Our agency and health care partners also reviewed and contributed to the content of the survey, which included modules on community access to health care, disaster preparedness and social connectivity. The survey also addresses the role of place attachment and social trust in disaster preparedness (Bonaiuto et al. 2016), as well as community members' willingness to share different kinds of preparedness resources as contingent on the strength of social ties. Further analysis evaluates the implications of the community's social network structure for horizontal and vertical integration as relevant to adaptive capacity (Berke, Kartez and Wenger 1993).

The data gathered through the workshops and survey was integrated to determine whether resources available through local social networks could potentially fill gaps that might arise in the event of a major seismic event. Although this particular neighborhood is rich in resources, findings from the survey reveal variation in willingness to share certain preparedness items depending on the strength of social ties. While Laurelhurst experiences few if any barriers to obtaining access to health care and wellness resources on an everyday basis, results indicate it will face unique context-specific challenges in the event of a disaster, including the delivery of emergency health care to an aging population and dealing with an urban form that presents a likely impediment to emergency access. The findings from this pilot project, while not broadly generalizable due to our focus on a specific community, will help to inform a subsequent stage of inquiry engaging additional communities along spectra of urban-ness and socioeconomic status to better capture regional variation in adaptive capacity.

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Key Words: adaptive capacity, social networks, disaster preparedness, place-based communities, action research

A NOVEL APPROACH TO THE MEASUREMENT OF SUSTAINABILITY THROUGH SUSTAINABILITY INDICATORS: A CASE STUDY OF COLUMBUS, OH

Abstract ID: 211

Individual Paper Submission

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Measurement of sustainability through a set of indicators is discussed for the very first time at the United Nations Conference on Environment and Development (United Nations, 1992). Although there is a significant body of research on sustainability indicators, there is a lack of consensus on which indicators would be the best to measure the three pillars of sustainability, namely economic, environmental, and social sustainability (e.g., Wilson et al., 2007). This is not surprising as the literature on sustainability underlines the variety of urban amenities (such as transportation, housing, and infrastructure), and how their impacts on sustainability require the consideration of geographic context (e.g., Miller et al., 2013). Consequently, it is important to develop a novel approach that is valid globally and acknowledges contextuality.

This study develops a sustainability indicator framework that assesses the commonalities and differences among different indices across the world. For that purpose, through a systematic review of the grey and academic literature on sustainability indicators/indices, we identified 20 national and international sustainability indices, including the UN-Habitat Agenda Indicators, Austin Area Sustainability Indicators, and Reference Framework for European Sustainable Cities. These 20 indices were selected using three main criteria: 1) the index addresses all three pillars of sustainability; 2) the index provides information on specific indicators; 3) the index provides a comprehensive indicator list that addresses a variety of urban amenities (natural environment, economy, social equity etc.) Overall, we looked at 430 different indicators. As expected while some of these indicators existed in multiple indices, some were only included in a few. We grouped the indicators under 12 different categories, such as energy related, water-waste management, transport and infrastructure, etc. Then we identified the common indicators among all indices, and within each category. Our analysis provides a set of widely used indicators that enable the comparison of different cities with a consistent indicator set. The results of the analysis show that when it comes to environmental sustainability the indicators are quite consistent across indices, but it is not the case in social and economic sustainability.

In the second phase, we introduce Columbus, OH as an excellent case study area for innovative research on sustainability indicators. Columbus is the winner of the U.S. Department of Transportation's Smart City Challenge in 2017 and the 8th fastest growing large city in the U.S. (among cities with populations of 50,000 or more in 2016) (U.S. Census Bureau, 2018). It is expected that the projects implemented as part of the Smart City Challenge coupled with the projected population increase will result in significant

changes in the city. This will require continuous assessment of sustainability outcomes. This assessment can be done with a comprehensive set of indicators that consider the local needs and allow a comparison with similar-sized cities. For that purpose, we examine the sustainability indicators introduced in Mid-Ohio Regional Planning Commission's (MORPC) Regional Sustainability Agenda 2017-2020 (MORPC, 2017). We find that although most of the indicators put forward by MORPC are consistent with our set of indicators, there are some differences. We discuss these differences and possible context-specific measurements that can grasp the local perspective for sustainable development.

This research presents a set of widely used indicators through detailed assessment of 20 national and international sustainability indices, and provides a final set of indicators for Columbus, OH that addresses local needs and has global validity. There is no one-size-fits-all approach for sustainability indicators; however, findings suggest an accurate methodology for the construction of indicator sets for specific localities. The contribution of this research to the literature is the development of an approach, which is possible to calibrate to other contexts.

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Key Words: Sustainability indicators, Urban Sustainability, Sustainability Measurement

UNEVEN WATERS: UTILITY, CHINESE CONTRACTORS AND MIDDLE CLASS HOUSEHOLDS IN THE CITY OF KHULNA

Abstract ID: 247

Individual Paper Submission

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As many cities appear to be endorsing universal piped infrastructure and in some cases shifting into distinctive 'post-neoliberal projects', diverse configurations of public, private and community providers are fast developing to meet the water and sanitation needs of these places. These new configurations have become increasingly complex and interconnected with respect to the level (between local and global) at which they take place and the range of actors engaged in them. Yet we know little about the effects of these governance configurations in practice.

Through my ethnographic research with a water utility that is using a Chinese contractor to provide “free” and “formal” networked water services within the city of Khulna, Bangladesh, I argue that how and in what scale these actors are used can further exacerbate socio-spatial water inequalities within a city. My main finding was that the Utility use the Chinese contractor to differentiate between households as they connect, allowing for the elite and middle class to expand further their claims on the city, while the poor are further disenfranchised from the formal water. This article is based on my dissertation field research conducted in Khulna, Bangladesh from January through December 2018. The research consisted of participant observation and action-research. Additionally, extensive and recurrent semi-structured interviews were held with utility staff, state officials, policy makers and contractor staff who were involved in providing piped water connection in Khulna. The field data collected were triangulated to obtain consistency and representation.

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Key Words: water, urban governance, environment, equity

FROM FORESTRY MANAGEMENT ACTIONS TO A PLANNING FRAMEWORK TO MITIGATE EMERALD ASH BORER: A CASE STUDY OF BOULDER, COLORADO

Abstract ID: 263

Individual Paper Submission

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Emerald Ash Borer (EAB) infestation has become a prominent urban forestry and planning issue, killing hundreds of millions of ash trees in the US and threatening an estimated 7.5 billion ash trees across the country (Gulick, 2014). Boulder, Colorado is now struggling with this issue and will lose 25% of its tree canopy to EAB in the next five years (City of Boulder, 2018). Literature on urban resilience has mainly focused on devastating natural hazards and terrorist events. Very little of the literature addresses the unique needs and characteristics of cities under stresses like tree diseases and insect infestation (Godschalk, 2003). Municipalities have different approaches to responding to tree infestation and its consequences. Some cities solely take responsibility for trees on public lands (Sadof, Hughes, Witte, Peterson, & Ginzler, 2017). Other cities use forestry management techniques, such as diversifying planted species (Carrus et al., 2015). Mitigation efforts, however, necessitates a more holistic approach to the issue that garners support from all public, and private stakeholders (Tidball & Krasny, 2007). This study investigated how a population’s baseline knowledge about trees, their home ownership status, as well as their level of civic engagement affected EAB mitigation efforts across neighborhoods in Boulder. Accordingly, we developed a planning framework that links education and collaborative efforts to

effective management of threats to the urban tree canopy. The results of this research can inform the City of Boulder and other municipalities about factors that influence the effectiveness of urban forestry practices.

This project was conducted in partnership with the City of Boulder. We applied a mixed methods approach. First, we conducted a population-based survey to gauge Boulder residents' baseline knowledge about urban trees, and their awareness of the EAB. The survey included sections on home-ownership and tree management efforts. Next, we interviewed 15 homeowners and key-informants to obtain in-depth knowledge about public-private partnership and planning efforts to address tree threats in Boulder. We also utilized GIS data about the spread of EAB, impervious areas, and socio-economic status across Boulder. We applied both quantitative and qualitative methods to interpret these data and make conclusions about adaptive capacities and responses post-disturbance.

Preliminary results suggest that income at the neighborhood level and people's knowledge about trees are positively associated with EAB mitigation practices across Boulder. We did not find a significant association between homeownership and awareness of the EAB. Our model suggests that a successful campaign engages citizens, homeowner associations, educational institutions, and other non-governmental organizations. In order to optimize urban forestry practices, cities should integrate social marketing and environmental education efforts to motivate private actors to maintain and restore the urban tree canopy.

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Key Words: Emerald Ash Borer, Planning framework, Urban forestry, civic ecology

URBAN RESILIENCE GOVERNANCE: FROM THEORY TO PRACTICE

Abstract ID: 315

Individual Paper Submission

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Urban scholars have been debating the concept of resilience for some time, but it is only in the last few years that resilience has become a major focus for city governments. Whether driven by international funding opportunities like the Rockefeller Foundation's 100 Resilient Cities program, the federal

government's National Disaster Resilience Competition, or concerns about climate change impacts, many cities are now attempting to integrate the fuzzy notion of resilience into their organizational structures, plans, and policies (Davoudi et al., 2012). Theoretical literature on resilience is extensive and growing, but few empirical studies to date compare emerging urban resilience practice across different cities (Keenan, 2018; Woodruff, Meerow, Stults, & Wilkins, 2018). This paper helps to address that gap, providing more generalizable insights on how North American cities are operationalizing and planning for resilience.

This study is based on interviews with high-level officials (e.g. Chief Resilience Officers, Sustainability Directors) from twenty North American cities actively engaged in resilience work, who were asked a set of questions related to their definitions of resilience, the organizational structure of their resilience efforts, coordination and communication around resilience, and lessons learned. The study has both practical and theoretical motivations and applications. The research design— including the cities interviewed and the interview questions – was co-produced with the City of Portland's Bureau of Planning and Sustainability. Portland was grappling with how to structure their own nascent resilience efforts and eager to learn what research and other cities recommended. We initially developed a report for Portland city staff summarizing the practical insights from the interviews, which was also shared online and with the other city officials we interviewed. For this academic paper, we add a systematic review of the literature on urban resilience definitions and governance to identify common theoretical principles (e.g. Beilin & Wilkinson, 2015; Meerow, Newell, & Stults, 2016), which we then use to code the interview transcripts. This allows us to assess the extent to which resilience practice matches with theory.

Consistent with the academic literature, we find that cities' definitions of resilience vary, but are generally evolving to incorporate a broader array of shocks and stresses, to focus more on equity, and to be more transformational. We also find that cities are organizing their resilience efforts in many different ways. Not all of the cities have a Chief Resilience Officer position, and even those that do house them in different departments. Most cities centralize resilience work in a single department, although a few classified their efforts as more dispersed. Cities reported collaborating most frequently with planning, public works, sewage and water, emergency management, parks and recreation, and public health departments. Offices that multiple cities mentioned wanting to engage more included community development, education, engineering, equity, police, public works, and transportation. The resilience governance literature stresses the importance of involving diverse stakeholders and inter-departmental collaboration, which was also identified by the city officials as a critical factor for success. Tradeoffs between more centralized and distributed organizational structures, and housing resilience efforts within specific departments, such as sustainability or emergency management, also emerged as key themes from the interviews. As more cities start to integrate resilience into their organizational structures, plans, and policies, this information about how other cities are operationalizing resilience and their lessons learned could be useful. This empirical data can also help us to refine theoretical frameworks for urban resilience.

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Key Words: resilience, governance, planning, sustainability

ASSESSING MUNICIPAL PLANNING FOR GREEN INFRASTRUCTURE TO MANAGE STORMWATER

Abstract ID: 326

Individual Paper Submission

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Each year municipal wastewater treatment facilities with combined sewer systems (CSSs) discharge nearly 850 billion gallons of combined sewer overflows (CSOs) into U.S. water ways (EPA 2015). Municipalities with CSSs have attempted to alleviate this problem through installing and incentivizing green infrastructure to reduce, capture, and infiltrate urban stormwater runoff. As of 2018, more than 40 municipalities were under CSO consent decrees with the Environmental Protection Agency (EPA), and total compliance with Clean Water Act (CWA) requirements is estimated at over \$32 billion. Of these municipalities, 18 included green infrastructure provisions in their CSO consent decrees and committed to significant spending and investment in green infrastructure projects.

Unlike traditional stormwater management measures (e.g., a treatment plant at a designated location) which may stem from a top-down and centralized approach, green infrastructure (e.g., green roofs on individual properties) requires a cooperative and decentralized approach involving the environmental, economic or social interests of various public and private actors (Heckert and Rosan 2015). While the primary goal of such environmental initiatives is to satisfy legal requirements (i.e., reducing volume and/or frequency of CSO events within agreed time), such projects also have other potential environmental outcomes (e.g., improving air quality), economic benefits (e.g., increasing property values), and social impacts (promoting community cohesion). The literature suggests these benefits are unevenly distributed across a city's population based on racial and socioeconomic status (e.g., Wolch et al. 2014; Schwarz et al. 2015). Some studies argue for developing environmental justice indices to provide a better understanding of the status quo and to facilitate the action of green infrastructure projects (e.g., Harner et al. 2002; Heckert and Rosan 2016). However, the application of these indices has received less attention.

To understand how municipalities make green infrastructure planning decisions to manage CSOs and comply with the CWA requirements, this study asks two questions: 1) What environmental, economic and equity considerations do municipalities make when deciding to fund public and private green infrastructure projects? 2) When there are competing values, such as economic or social benefits, how do municipalities prioritize them?

The results of this study are based on a qualitative approach with structured interviews to analyze the decision-making processes of 18 municipalities currently under CSO consent decrees with green infrastructure provisions. By exploring how municipalities select locations and types of green infrastructure projects to manage CSOs, this study holds significant implications for how to facilitate desired outcomes in environmental planning.

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Key Words: Green Infrastructure, Stormwater Management, Decision-Making, Prioritization, Municipal Planning

EARTHQUAKE READINESS IN VOLATILE REGIONS: THE CASE OF ISRAEL

Abstract ID: 327

Individual Paper Submission

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The Middle East is highly volatile, with war and terrorism seen as the major threats. A less salient threat, though of no lesser magnitude, is a destructive earthquake in the eastern Mediterranean, particularly along the Jordan Rift Valley. Due to the low frequency of earthquakes in the region, with the last major earthquake occurring in 1927, the issue has low salience on the public, political, and planning agendas. However, their low frequency probably makes earthquakes in the region deadlier due to poor readiness at all governance levels.

This research examines the implications of the immediate risks for earthquake readiness. Due to data availability we focus on Israel's readiness for earthquakes and compare our findings with a cursory review of readiness in the proximate countries. Readiness refers to planning for three timeframes: Before - mitigation (actions to reduce long-term risk to person and property from a disaster incident) and preparedness (programs and preparations to save lives and property during the response stage); During - response (actions during and immediately after the occurrence of a disaster to provide assistance in an emergency); and After - recovery (actions promoting a return to normal or enhanced functioning post-disaster).

Regulatory Impact Assessments were not applicable to a regulatory system evaluation (Weiner, 2007). To examine earthquake readiness, we developed a regulatory system scan and assessment (RSSA)

methodology and applied it to the Israeli case. The methodology includes structured mapping and evaluation of the relevant regulatory system as well as actual policy outputs. The process includes inputs from policy makers, planners, experts and stakeholders. Findings show that the country's earthquake readiness regime is heavily biased towards immediate response which is continually advancing and improving, managed by security-related bodies. In contrast, mitigation efforts such as retrofitting of buildings and infrastructure, are deficient and little is being done to improve the situation. A survey of readiness efforts of other countries along the Jordan rift points to a similar situation.

To date, strategies developed for disaster risk reduction have largely overlooked the interplay between security conflicts and natural disasters. Yet, multiple examples have shown higher devastation in areas where conflict and natural disasters intersect (IBRD 2014, 19). One substantial aspect of this interplay is that in geopolitically unstable regions, such as the Middle East, governmental capacities develop to a great extent in response to security threats. Within this context we explore the implications of geopolitical instability for earthquake readiness efforts – that is, does the emphasis on national security affect the pattern of readiness?

This study suggests that in volatile areas, security concerns lead to the prioritization of response and preparedness as there is an institutional affinity between the bodies involved in these facets of earthquake readiness (mainly the military and other security agencies) and national security concerns. Mitigation is a key factor for saving lives and for effectively preparing for earthquakes. Retrofitting residential apartments, schools, hospitals other public buildings and seismic upgrading of infrastructure is what enables well prepared states and countries such as California, Chile, New Zealand and Japan to experience powerful earthquakes with limited casualties. But, in volatile regions where national security concerns are imminent while earthquakes are infrequent, mitigation efforts do not receive adequate attention. This leads to ineffective earthquake readiness, whereby resources are directed to the elements whose marginal contribution to the protection of lives and property is low, while the actions that are most effective are overlooked.

The research results point to specific readiness gaps and the methodology and results contribute to the fields of disaster planning and regulatory system assessment.

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Key Words: Earthquake readiness, disaster planning, regulatory systems assessment, risk management

UNDERSTANDING THE RELATIONSHIP BETWEEN URBAN FORM AND ENERGY CONSUMPTION PATTERNS

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Energy is a significant element in many visions of future urban development, including carbon-neutral cities, self-sufficiency, and resilience. It is also true in more wide-ranging emerging concepts such as a smart city, which requires continuous and uninterrupted power supply. In these cases, the benefits proposed by technologies can potentially be weakened by the inefficiency of aging energy infrastructure.

Fossil-fuel energy sources are depletable and limited at the global level (Meadows, 2009). Also, the dependence of cities on fossil-fuel consumption is now tremendously high, due to the high-energy-consuming processes in everyday life and in the urban development of science, discovery, communications, and health, among others. Therefore, cities will have a substantial advantage if they start adapting to and preparing for more efficient energy demand and supply.

In this paper, we analyze the impact of the urban form on building energy consumption profiles for a number of neighborhoods with different predominant urban form within the City of Chicago. Like many large cities, Chicago relies on an aging infrastructure for many of its critical services (City of Chicago, 2019, p. 74). By exploring the Chicago Energy Benchmarking data and applying the geospatial analysis with geographical information system as a main tool to measure the effect of the urban form on energy use intensity (EUI), we project different scenarios about future energy use patterns.

One of the main notions studied in this research is the causality of the different components of the supply-demand profile. Understanding this complex relationship and interdependence between design variables, components, and systems is one of the major challenges and essential part of this study (Yang et al., 2018). A number of factors affect energy consumption patterns, such as urban context, building design, efficiency of building systems and occupant behavior (Ratti et al., 2005; Amaral et al., 2018). We propose spatial arrangements based on the analysis of the relations between these components and energy flows. Investigating the energy consumption of buildings, this research is focusing on two groups of building components: passive design strategies that could help buildings to reduce its EUI, and active technologies that could help to save or even produce energy.

Further work is aimed at exploring what urban forms may be more energy efficient than others, taking into account the given need for the new critical infrastructure in Chicago. The study also contributes to identifying the regulatory and planning approach in the urban development and energy consumption decision-making processes that might make urban areas more resilient.

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Key Words: urban form, urban energy flows, energy use intensity, spatial analysis

TVA'S VISION 2020 IN RETROSPECT

Abstract ID: 341

Individual Paper Submission

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Twenty-five years ago, the Tennessee Valley Authority (TVA) prepared a long-term plan, the TVA Vision 2020, that looked forward to today and considered what its electric power infrastructure investment portfolio should include. It is timely to revisit this plan in order to accomplish three things. First, and most fundamentally, this paper re-asks for the current era the question posed in Selznick's (1949) classic organizational study of TVA: What is the fate of ideals in the course of social practice? Second, and more instrumentally, it characterizes how the world of energy planning has evolved over the quarter century since publication of the 2020 Vision, due to market-oriented structural reforms, cheaper natural gas and renewable energy sources, and transformed environmental concerns. Third, and tying back to the first question, it investigates how TVA has responded to these external changes and the ongoing pendulum swings in national politics that have echoes in TVA's politically-appointed senior leadership. The approach this paper takes to address these questions includes reviewing the 1995 TVA Vision 2020 plan (to which the author contributed) and subsequent plans published in 2011, 2015, and 2019; examining the extensive records of public comments associated with each (they doubled as environmental impact statements and hence collected voluminous public input); interviews with key agency personnel and stakeholders; and analysis of production, technological, and financial data from the U.S. Energy Information Administration and TVA. The key finding is that changing external conditions have forced the agency to adapt in significant ways that do not align with concurrent political forces. Actual peak electricity demand (30,000 MW in 2018) is much less than the 41,000 MW that had been predicted in 1995. The agency spent much of the Obama era trying to finish the last new nuclear power plant in the nation, even as the rest of the federal government was jump-starting renewables. During the first two years of the Trump administration it closed two coal-fired power plants because they were no longer needed given slumping power demand, even as Appalachian politicians derided climate change worries. Planning for flexibility is the theme of the agency's newest plan, although, ironically, its planning methods haven't changed much (or needed to change) since 1995. Throughout, the agency has held true to very instrumental ideals: provide low-cost electricity, encourage regional economic development, and provide reasonable levels of environmental protection. TVA's practices have never matched its founders' loftier New Deal aspirations and they still don't. Its objectives better reflect those of the power industry than those of federal policymakers. Implications for planning are to expect a disconnect between organizational ideals and actual practices, acknowledge the power of changing circumstances to redirect organizational practices, and recognize that the forecast is always wrong, albeit for different reasons each time.

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Key Words: energy, regional planning, TVA, infrastructure, organizational behavior

URBAN FORM AND TRANSPORTATION ENERGY CONSUMPTION

Abstract ID: 344

Individual Paper Submission

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Since the early work of Newman and Kenworthy (1989), we have posited the role for urban planning and physical design of the cities in promoting more efficient transportation energy use. While the link between transportation behavior and land use patterns is unassailable, the effectiveness of using urban form to promote sustainable transportation patterns and therefore energy consumption is subject to considerable debate (e.g. Boarnet and Crane 2001; Echenique et al. 2012; Handy 2005; Stevens 2017). Much of the above debate relies on the measurement of total distance travelled assuming a direct link between amount of travel and energy consumption (see e.g. Glaeser and Kahn 2010; Lee and Lee 2014). However, the consumption is also affected by other important factors such as, but not limited to, mode choice (e.g. Dieleman, Dijst, and Burghouwt 2002), elasticity of travel (e.g. Ding et al. 2017), fuel efficiency of the fleet (e.g. Lutsey and Sperling 2005) and alternative fuel availability (e.g. Qiu and Kaza 2017; Stephan and Sullivan 2008). Thus, relating transportation energy consumption to urban form directly, rather than through travel volume, is important. In particular, we want to explain if compact urban form has implications for total energy consumption independent of the size and distribution of the population. This study provides evidence that it does.

In many of the above instances urban form is coarsely measured through population density and other demographic variables (see also Bento et al. 2005; Lopez 2014). However, there is a substantial literature that relates different dimensions of urban form (such as density, diversity, design, destination accessibility) to travel patterns (Cervero and Kockelman 1997; Krizek 2003) and therefore should be properly accounted for. In studies that do account for these different dimensions, the geographic structure of the economy of the place is largely unaccounted for. While it is true that residential sprawl is a significant dimension of urban form in the US, job sprawl and polycentricity are becoming increasingly important (Glaeser, Kahn, and Chu 2001; Kneebone 2009). In this study, we account for these dimensions of urban form.

In addition to these measures of urban form relying on census and administrative data, previous research has shown that satellite based imagery provides a complementary picture of urban form (Bereitschaft and Debbage 2013; Herold, Scepan, and Clarke 2002; Burchfield et al. 2006). Because population and jobs are mobile, while urban development is durable and largely irreversible, changes to urban landscapes are largely orthogonal to changes in demographic and economic variables. Satellite based measurements can show that urban areas are fragmentary or contiguous irrespective of population density. These measurements have already shown to have correlations with air quality through non-point source pollution such as arising from transportation (Yuan et al. 2018).

In this paper, I use a rich dataset compiled from different sources to test the effectiveness of urban form on energy consumption in the transportation sector. I proxy the consumption with retail sales from gas

stations for most of the conterminous United States at a county level. In this paper, borrowing from the methodology developed by McCarty and Kaza (2015) we build urban form indices for many of the counties in the conterminous United States. Using both demographic, economic and landscape characteristics of urban form I tease out the effect of different dimensions on energy consumption. I find that compact and contiguous urban form is modestly associated with lower energy consumption and is more important than demographic concentration in explaining the variance.

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Key Words: energy consumption, urban form

RESEARCH ON COMPREHENSIVE EVALUATION OF LOW IMPACT DEVELOPMENT MEASURES BASED ON OLD RESIDENTIAL AREA RENEWAL

Abstract ID: 345

Individual Paper Submission

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At present, there are a large number of old settlements to be renewed in many Chinese cities. With the deterioration of the global climate and the rapid development of the city, urban water-logging in such settlements has become more and more serious in recent years. To solve the problem of urban rain water-logging, a number of low-impact development measures introduced in the "Sponge City Construction Technical Guide" proposed in 2014. Many cities have begun to explore and practice since then, however, they are mostly concentrated in new towns or park green spaces, and are less used in the renewal of old settlements. Low-impact development technologies have been developed in developed countries such as the United States for many years, and have formed perfect laws and technical systems. In China, various studies are still in their infancy. In the screening of low-impact development measures, some scholars (2014) have carried out research on the comparison and selection of low-impact development measures, but the research on old settlements needs further exploration.

Generally speaking, the current low-impact development measures can be divided into structural measures and non-structural measures. The research object of this paper is structural measures which refer to permeable ground, green roof, sunken green space, grass ditch, initial rainwater abandonment facility, water storage facility, constructed wetland, wet pond, infiltration pond, delay regulating ponds,

artificial soil percolation, infiltration trenches, etc. Based on the analysis of existing research and engineering experience at home and abroad as well as take the actual situation of old residential settlements in China into account, the study will use analytic hierarchy process to build a multi-objective comprehensive evaluation index system and determine the weight of impact factors. Through data review and experience summarization, taking into account the principles of science, comparability and operability, the evaluation index system is established in three levels. The target layer is multi-objective comprehensive evaluation of low-impact development measures, and the constraint layer is made up of rain control effect, comprehensive cost, environmental benefit and social benefit, and then select the impact factor of each influencing factor according to the characteristics of each factor. The rainwater control effect is caused by three factors: total runoff, flood peak reduction and flood peak delay time. The impact factors of comprehensive cost are construction cost, management cost, maintenance cost and operation cost. The environmental benefits include three factors: landscape benefit, heat island mitigation benefit and pollution mitigation benefit. The social benefit impact factor has construction interference degree, service period and public acceptance. This paper will provide a quantitative analysis approach for the selection of low-impact development measures in the process of updating old residential areas as well as improve the scientific nature.

Taking Chuanfu New Village, a typical old residential area in Tianjin, as an example, using the established evaluation system to screen the applicable measures, the SWMM software is used to simulate the drainage before and after the measures are taken, to verify the feasibility and implementation of selected low-impact development measures in old settlements. According to the simulation results, the selected low-impact development measures were used without changing the original municipal drainage facilities and residential layout . Under the condition of low cost and low interference, the comprehensive runoff coefficient, rainwater discharge and peak of rainwater in the settlement are effectively reduced, the water accumulation in the site under heavy rain conditions is alleviated, and the time of draining rainwater is shortened. Furthermore, it is able to collect excess rainwater for recycling, improve the management efficiency of rainwater, make up for the shortage of drainage facilities in residential areas, and verify the scientific nature of the evaluation system.

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Key Words: old residential area renewal, low impact development measures, comprehensive evaluation research

ASSESSING THE HEAT VULNERABILITY IN THE CITY OF AUSTIN: FOCUSED ON COMPARISON OF DIFFERENT PROXIES OF HEAT EXPOSURE

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Heat waves are one of the most dangerous natural risks that global cities are facing. They increase the heat-related mortality rate with the damage to social life and the environment. To address this problem, heat vulnerability assessment becomes essential as a way to provide scientific evidence for urban strategies and policies related to heat hazard (Yin.C et al. 2018). However, there is a significant limitation in that Land Surface Temperature (LST) is widely selected as a key proxy for heat exposure, which is limited to represent heat stress on human beings. Thus, by using the thermal index considering the physiological thermal comfort of a person, we hypothesize that the assessment accuracy and validity of thermal index will be improved.

This study aims to evaluate heat vulnerability and to examine vulnerable areas in the city of Austin. Heat Vulnerability Index (HVI) was adopted for the assessment, which is composed of spatially explicit indexes of exposure, sensitivity, and adaptive capacity (Inostroza.L et al. 2016; Bao.J et al. 2015). Accordingly, natural, built and socioeconomic factors that determine the level of heat vulnerability were investigated (Buyantuyev.A et al. 2010). Moreover, the evaluation outcomes produced by different proxies of heat exposure - LST, Air temperature and Thermal stress - were compared to test the relative performance of heat-related factors. The unit of analysis was the census tract of 191 in the boundary of the Austin. This cross-sectional study used the datasets of satellite images collected from USGS (Landsat8, Resolution 30m, 2016), and 2016 socio-economic data from American Community Survey (ACS). The analytical tools used in this study were ENVI, ArcGIS, STATA, and COMFA model.

For the evaluation, this study follows four steps; 1) Processing & Modeling 2) PCA analysis, 3) Estimation of HVI and 4) Statistical Analysis with OLS regression model. Firstly, for the image processing and thermal stress modeling, ENVI, ArcGIS, and COMFA tools were used. ENVI and ArcGIS were adopted to estimate LST. And COMFA model, a physiological thermal index, was employed to estimate the level of outdoor thermal stress. The value of each variable, which were LST, Thermal stress and land cover, were averaged and mapped at the census tract level by ArcGIS. Secondly, PCA analysis with the SOVI algorithm (Schmidtlein MC et al., 2008) was performed for the variable selection and equal weighting. Thirdly, the selected variables were normalized and summed up to produce the final score of heat vulnerability by census tract. Lastly, the relationship between the heat vulnerability and variables were identified with the coefficients indicating the most influential ones that determine the vulnerability.

The outcome of study indicated that there is a considerable difference in the results of vulnerability assessment depending on what kinds of heat proxies adopted for exposure factor. While central and northern areas in Austin were identified as vulnerable spots using LST proxies, those vulnerable spots were clustered in the central and southern area using air temperature and thermal comfort proxies. Moreover, key influential variables that determine the level of vulnerability were identified as forest, urban and grassland cover in built and natural factors. However, socioeconomic variables were all significant but have minor impacts on heat vulnerability.

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Key Words: Heat Vulnerability Assessment, Heat Exposure, Thermal Comfort, COMFA, City of Austin

USING A COMMUNITY-BASED LOW-COST SENSOR NETWORK TO VALIDATE AND IMPROVE AIR QUALITY MODELS

Abstract ID: 371

Individual Paper Submission

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Improving urban air quality is an essential component of planning for healthy cities (Northridge et al., 2003). A widely used modeling approach – Land Use Regression (LUR) – has the capability to estimate pollution levels at the neighborhood level, but few studies have performed independent evaluation of LUR models at national scale (Johnson et al., 2010). Community-based low-cost sensor networks (e.g., PurpleAir) offer the opportunity to assess national LUR performance using data that is separate from the EPA’s regulatory monitor network typically used in model development (Kelly et al., 2017). Integrating these community led monitoring efforts into model building and validation has the potential to capture pollutant sources not well characterized by regulatory (e.g., EPA) monitoring alone.

The PurpleAir sensor network is a community led air quality monitoring initiative that offers publicly available real-time and historic air quality data (e.g., PM_{2.5}) worldwide. This network is maintained by individuals, researchers, non-governmental, and governmental organizations. A few studies have used independent validation data from multiple sources to supplement existing modeling effort (Knibbs et al., 2016), but no study has tested the use of the PurpleAir data. Previously, empirical national-scale LUR models for air pollution have been developed to provide publicly available model predictions at a high spatial resolution (Kim et al., in review). In this study, we use the PurpleAir sensor network to conduct external validation of LUR model predictions at census block level for PM_{2.5} in US with the goal of assessing how community-led monitoring efforts could improve model performance.

We first retrieved and assembled PM_{2.5} data by hour (2015 - 2018) from the PurpleAir website for 8 urban areas where there were at least 7 EPA regulatory monitors and PurpleAir sensors each. Then, we conducted quality assurance (e.g., measurement anomaly) and corrected the valid measurements using real-time temperature and relative humidity which are important when using low-cost sensors. Finally, we computed the PM_{2.5} annual average concentrations (at sites with measurements of at least 18 hours/day and 244 days/year) to validate the national LUR model predictions at the census block level. We evaluate the comparison between the model predictions and the sensor-derived measurements.

Our results showed that annual average PM_{2.5} concentrations (10.0 - 18.0 µg/m³) for the 8 urban areas (296 total PurpleAir sensors) were consistently higher than the nearest US Census block centroid LUR predictions. Generally, the national LUR models captured 20% of the spatial variability at all external validation sites (35% when excluding Riverside, CA). LUR performance for individual urban areas varied; for example, the external PurpleAir validation in Pittsburgh, PA performed better (R^2 : 0.56; Mean Absolute Error: 3.40 µg/m³) as compared to the random (0.08; 0.86) and spatially-clustered (0.10; 1.27) 10-fold internal validation. Conversely, in some urban areas (Los Angeles and Riverside, CA) where many PurpleAir sensors were available, the external validation (~0.23; 7.81) was worse than the internal validation (~0.80; 1.09).

We found varying levels of LUR performance by city and that low-cost sensors (e.g., PurpleAir) could potentially serve as useful external data for model validation and accurately characterize air quality in communities. Additional work is needed to assess how low-cost sensor siting using crowd-sourced data impacts validation results. For example, whether the external validation of LUR models differ by location type (e.g., near-traffic vs. urban background locations), user (e.g., individuals vs. governmental organizations) and proximity to the EPA regulatory monitors.

To our knowledge, our work is the first study using a community-based low-cost sensor network to validate air quality model performance at national scale. As such, our approach could be used to improve characterization of air quality in communities towards influencing policies and the planning of health-promoting communities.

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Key Words: Urban air quality, public health, exposure assessment, environmental planning

MODELING STAKEHOLDER KNOWLEDGE INTEGRATION USING FUZZY COGNITIVE MAPPING: A COLLABORATIVE PLANNING APPROACH IN WATER QUALITY DECISION-MAKING FOR UTAH LAKE

Abstract ID: 409

Individual Paper Submission

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Collaborative planning involves integrating lay and scientific knowledge, to gain a richer understanding of relationships, conditions, information, and options. In part, this is necessary, given that knowledge is recognized as being diverse, with multiple claims and numerous ways of knowing present for any given situation (Sandercock, 1998). Agents interact dynamically exchanging local heuristics while creating a diverse knowledge pool that can be distributed throughout the entire social system (Innes and Booher, 2010).

To address adaptive management issues and effective, resilient outcomes of a complex social-ecological system, integration of diverse knowledge types is necessary to lead to a more adaptive and less rigid structure of knowledge. The specific research questions pertain to **firstly**, how stakeholders' knowledge about the system can be integrated with the help of fuzzy logic cognitive mapping and **secondly**, how do cognitive maps help to communicate stakeholders' views to decision-makers.

Our case study area is focused on Utah Lake, which is the largest freshwater lake in the Great Basin. It exemplifies a multi-stakeholder complex system that provides vital ecosystem services through fishery, micro-climate moderation, and waste assimilation. But with increased development and population pressure, this water body is facing a myriad of pollution issues. The Utah Division of Water Quality has initiated a diverse stakeholder-driven process to set nutrient standards for the lake that will guide future management and decision-making. But there is little consensus about fundamental issues like sources of lake pollution, utilization of the lake in future, policies that affect the lake, and current action levers to bring change.

Face-to-face interviews with 15 key stakeholders (from diverse groups associated with regulatory, fisheries, agriculture, recreation, stormwater, wastewater treatment, academia, etc.,) provided the data to construct fuzzy logic cognitive maps, with the help of a web-based open source software, 'mentalmodeler' (Gray, 2012). Fuzzy logic cognitive maps are simple mathematical models used to represent the structure and function of a knowledge system at both individual and stakeholder group levels (Axelrod, 1976; Ozesmi and Ozesmi, 2004). They are used to model systems comprised of components and causal links and are based on graph theory. Participants were shown a generic example of fuzzy logic cognitive maps and then asked to list major components and relations within the Utah Lake social-ecological system. They drew relational arrows among those components, such as drivers of environmental degradation, and provided values (-1 to +1) on causal links between components. While individual map helps to visualize stakeholders' mental understandings about the system components, an aggregate stakeholder map serves as the basis to construct knowledge integration.

In our findings, the individual cognitive maps highlight current knowledge regarding drivers of changes in the system and potential action levers for change. It notes overlapping, divergent, and erroneous knowledge regarding the existing system. While the maps indicate a consensus regarding pollution sources as non-point agricultural runoff, silviculture, urbanization, and industry, there was a distinct difference in the degree of influence assigned to each of these. Consequently, this shaped the community level maps and highlighted divergent paths of solution from direct scientific intervention to more data needs to policy level changes. Such information assists in establishing shared knowledge while identifying knowledge gaps, to create effective decision-making and stakeholder-driven process.

The primary significance of this study is demonstrating that diverse knowledge can be clearly mapped out in a way that enriches the collaborative planning, rather than serving as a barrier, so long as initial work is done to recognize, appreciate, and integrate this knowledge pool. The cognitive maps can easily be used for 'what-if' scenario analysis, modeling complex relations, and succinctly representing diverse interests while recognizing mutual interdependence.

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Key Words: fuzzy logic cognitive maps, collaborative planning, knowledge integration, stakeholder engagement, Socio-ecological system

THE ORIGINS OF COMMUNITY CHOICE AGGREGATION

Abstract ID: 416

Individual Paper Submission

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Aggregation — also known as community choice aggregation, community choice energy, or municipal or government aggregation — is a policy in which local governments can procure energy on behalf of their residents in restructured markets. Aggregation policies are designed to allow consumers to counteract the market power of groups of utilities, to enable local governance of energy systems, and to increase local energy expertise and decision-making.

This paper is motivated by the fact that after a slow period of initial implementation, aggregation has become a remarkably influential and fast-growing policy concept throughout the U.S. over the past few years. Policies allowing aggregation of residential energy demand were first implemented in Massachusetts in 1997 and have since been adopted in six U.S. states, with a rapidly growing share of California's population joining such efforts. Some analysts, regulators, and utility companies, however, are now concerned that aggregation efforts will disrupt existing utilities, markets, and efforts towards renewables.

This paper examines how aggregation was designed as a new way for local governments to act within the existing energy system. Like many new ideas, aggregation was designed in response to contemporaneous debates, but was often adopted during restructuring efforts as an afterthought. The history of the concept shows how relatively small groups used opportunities in direct democracy and social organizing techniques to influence much larger political debates and outcomes during restructuring efforts. Early challenges to implementing aggregation included unfamiliarity with the concept, bureaucratic

unwillingness to implement new legislation, and renewed price competition from private utilities. Aggregation therefore provides an excellent example of theories about direct democracy; policy networks, policy windows, and policy entrepreneurship; and implementation of legislation within bureaucracies.

This paper is chronologically structured, based on interviews with key figures and findings from archival materials and public regulatory proceedings. This paper largely focuses on four states that have been most active in aggregation activity in the past and present: Massachusetts, Ohio, Illinois, and California. A future paper will assess the prospects and challenges for aggregation going forward. largely focuses on four states that have been most active in aggregation activity in the past and present: Massachusetts, Ohio, Illinois, and California. A future paper will assess the prospects and challenges for aggregation going forward..

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Key Words: Electricity, Local governance

EXTENDING DISTRICT ENERGY SYSTEMS BEYOND CAMPUS TO REDUCE GHGS: NEW POTENTIALS FOR TOWN-GOWN RELATIONSHIPS OR ANOTHER PIE IN THE SKY?

Abstract ID: 435

Individual Paper Submission

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District Energy (DE) Systems are networks of hot water, chilled water or steam pipes that distribute energy for heating and/or cooling from a single plant to multiple buildings. They are common in Asia, Scandinavia, Western and Eastern Europe, and have a proven track record of operational cost reductions, energy efficiency and greenhouse gas (GHG) emissions reductions (Werner, 2017).

The International District Energy Association (IDEA), reports about 660 DE facilities in operation in the US. Most are on university campuses, (others include airports and hospital complexes). DE systems have reduced GHG emissions on many campuses. For instance, the University of Massachusetts Amherst

reduced campus GHG emission by nearly 27% in 2013, Iowa State University reduced GHG emissions by 25% since 2010 and Stanford University's new Central Energy Facility reduced campus greenhouse gas emissions by 68% (Stagner 2016). Despite these successes, DE systems are often under-represented as viable policy options in the U.S.

This paper evaluates the impact of DE systems on building energy consumption on US campuses, and assesses the potential for extending university district energy to local buildings located beyond campus boundaries. From a physical works perspective, extending campus DE systems requires some system excess capacity and the extension of pipes, ideally prior to building construction. However, there are many more barriers to such extensions, including energy sales agreements, statewide utilities regulations, university, municipal and private sector missions and motivations, as well as legal and insurance constraints. This paper seeks to identify whether and how some of these barriers may be addressed from both the town and gown perspectives.

The paper presents findings from a four-pronged study. First, we present findings from a survey of campus energy managers that identifies the motivations and barriers for extension from their perspectives, and to tease out system capabilities and campus leadership support for potential system extensions. Second, we present preliminary results from interviews with municipal energy and sustainability managers (as well as municipal utility managers where relevant) in the cities abutting the campuses in the survey sample. These interviews seek to assess whether or not municipalities see a potential for DE extension beyond campus boundaries, and the expected costs and benefits of extensions from a municipal standpoint. Combined, these survey and interviews shed light on barriers to DE extensions, on potential strategies to address these barriers, and on the motivations and concerns of campus and municipal energy managers.

The remainder of the study focuses on the locations where campus extensions seem feasible. We verify that DE systems actually reduced campus building energy consumption using the Environmental Protection Agency's Portfolio Manager dataset and campus-level energy consumption data. We also examine the potential for extending district energy to individual properties abutting campus boundaries (e.g., examining recent growth and further potential for large scale buildings, such as student apartments, hospitals or municipal buildings) using the CoStar private real estate dataset.

The paper concludes with a discussion of the local factors that support and/or hinder energy district extensions from the town and gown perspectives, and the specific areas in which more research is needed to identify and resolve the practical, regulatory and policy barriers to extending district energy use for local sustainable energy planning.

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Key Words: Energy, Efficiency, District systems, Campus planning, Town and Gown relations

A STORY OF TWO LEVELS: HOW DO SUB-NATIONAL GOVERNMENTS INFLUENCE LOCAL CLIMATE CHANGE ACTIONS?

Abstract ID: 450

Individual Paper Submission

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In the U.S., in the absence of federal responsibility, states and local governments have stepped forward to take leadership in climate change. However, although scholars have called attention to the importance of multi-level governance in climate change, we knew little about the vertical interactions between the sub-national states and cities nested within the states. How do sub-national states influence local governments' climate change actions in the U.S.? To answer this question, I take four state governments' actions and characteristics - the adoption of a state-level climate action plan, the formation of a specific governmental agency targeting at climate change, goal setting on reducing greenhouse gas, and partisan control – as major independent variables. And empirically examine how these state level factors influence local governments' actions on climate change in three aspects, namely plan making, policy adoption, and regional collaboration on climate change.

The data of this research come from a national survey we conducted with the International City/County Management Association of 1,899 municipalities and counties in the United States in 2015. The survey measures local governments' climate mitigation plan-making, as well as the adoption of 29 climate mitigation policies in different fields such as energy conservation programs in transportation, exterior lighting, and buildings etc. I also compile my dataset by collecting data from exterior sources such as Center for Climate Change and Energy Solutions, Georgetown Climate Center and American Community Survey.

I run multilevel models to empirically test my assumptions. The preliminary results show that 1) The state-level climate action plan does not influence local governments' actions on climate change in any of the models. 2) The formation of a specific agency on climate change turns out to be more effective in enhancing local plan-making and policy adoption on climate change, but not on regional collaboration. 3) Setting a state-level targets on reducing greenhouse gas emission only influence local governments' policy adoption, but not on plan-making or regional collaboration. 4) Local governments' regional collaboration on climate mitigation is more of a political process influenced by state politics such as partisan control. Although state-level governments controlled by the Republicans are less likely to incentivize local actions on climate mitigation, but are more likely to enhance regional collaboration on climate mitigation. 5) The multi-level analysis at the local level further shows that dedicated sustainability staffing is the most important factor that leads to local climate mitigation plan-making. But local governments' policy adoption is a more complex process influenced by other local factors such as fiscal and civic capacity. Finally, local governments that have a major governing body of republican are more likely to form regional collaboration on climate mitigation.

The planning scholarship has acknowledged the important roles of cities in climate change. However, cities and communities cannot operate in isolation and usually work collaboratively under the legal and institutional frameworks of a higher level government. In this research, I develop a multilevel analysis and explore empirically how local governments respond to various types of state actions on climate change. My contribution to the literature lies in situating theoretically and empirically the role of sub-national states in the framework of multilevel governance in climate change.

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Key Words: multilevel governance, climate mitigation, sub-national state, climate action plan, greenhouse gas emission reduction

CITY, ENERGY, AND SOCIETY NEXUS: A CANADIAN CASE STUDY

Abstract ID: 455

Individual Paper Submission

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Cities and towns account for between 37 and 49 percent of global greenhouse gas (GHG) emissions. Much of this results from burning natural gas to heat residential and commercial buildings, burning gasoline and diesel fuel in the cars and trucks moving throughout the cities everyday, and, of course, consumption of electricity in case of Alberta that comes from coal-fired or natural gas power plants. As a result, how energy is generated, supplied, and distributed is becoming an increasing concern at the municipal level in Canada.

Community energy planning is defined as planning for the community energy systems, facility design and energy-related issues at a neighborhood level (i.e., community energy planning) such as: setting energy consumption targets, selecting energy resources, energy conversion technology evaluations (Huang, Yu, Peng, & Zhao, 2015), and setting a common vision around energy (Gilmour, Laszlo, Marchionda, Drapeau, & Lee, 2016). Urban Energy Planning (UEP), on the other hand includes the combined processes of resources extraction, refining, transportation, storage, conversion to the end services (Keirstead, Jennings, & Sivakumar, 2012). It also represents a balance between supply and demand and includes the socio-technical systems like markets, institutions, consumer behaviors and other factors affect the way technical infrastructures are constructed and operated (Keirstead et al., 2012). The ultimate goal in both cases are to engage stakeholders, create a vision, and establish targets as such, GHG emission reduction strategies; assess opportunities to create future energy scenarios based on the alternatives (Goodsite & Juhola, 2016); and determining the optimal mix of energy sources to satisfy a given energy demand (Maréchal et al., 2017). However, the question remains whether we can plan a city or neighborhood based on energy and emission production scenarios described in the Paris Accord.

In order to address this complex energy and GHG emission nexus at neighborhood and city scales, we have selected three neighborhoods in the city of Edmonton. They are: Oliver; Terwillegar Town, and

Summerside. These neighborhoods are chosen based on key assumptions such as; (i) population density, (ii) building types (e.g., old fashioned or newly built, residential or commercial, etc.), and (iii) trip distribution patterns (e.g., transit, personal vehicles, non-motorized transports). Based on collected information and analysis, we calculated the total GHG emission in three identified areas. The findings will help us understand why these selected neighborhoods may have differences in emitting GHG per capita and what lessons we can be derived in order to build new neighborhoods in the future. Our findings will also help cities to design new and retrofitting existing neighborhoods with appropriate proportion of built form, transportation systems, and population density to minimize GHG emission and thereby enhancing sustainability and quality of life at the neighborhood level.

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Key Words: energy, planning, GHG emission, neighborhood, Edmonton

THE EFFECT OF TRAVEL AND THE BUILT ENVIRONMENT ON THE URBAN HEAT ISLAND (UHI) USING GEOGRAPHICALLY WEIGHTED REGRESSION (GWR)

Abstract ID: 470

Individual Paper Submission

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The Urban Heat Island (UHI) is an important climate change issue for urban areas. In many previous studies, the correlation between land use and UHI has been studied. Many climate change scholars have studied the correlations among temperature, industrial area, residential area, commercial area, open space, green infrastructure, water, and building ratio. Generally, industrial land use and a higher building ratio are presumed to exacerbate the UHI effect, while the green area and water area decrease temperature. At night, thermal turbulence and surface heat flux increase, while the cooling effect decreases with a low Sky View Factor (SVF) value. For the building ratio, the density-built environment increases temperature due to a trap effect, especially at night. The outgoing longwave radiation is decreased by obstacles. This thermal pattern increases the net radiation and counter-radiation, which are absorbed by the ground surface or the surfaces of buildings, further increasing the UHI effect (He et al., 2015; Voogt, 2007; Yang X and Li Y, 2015).

However, in the urban development field, the smart growth movement has steadily progressed. This movement is a development approach aimed at transit-oriented, walkable, bicycle-friendly, and mixed-use development to prevent urban sprawl (Verma G et al., 2016). Also called “compact city” in the U.K., it is a way to promote mixed-use development through compact cities, reduction of car use, and promotion of public transportation (Stevenson, 2016). Smart growth is considered an effective urban planning method due to its advantage of reducing impervious surface areas, improving accessibility and transport diversity, reducing crash and transportation cost savings, creating a more walkable and livable community, conserving energy, reducing pollution emissions per capita, and preserving open space. Particularly by restraining sprawl, it maximizes the use of public transportation and reduces personal vehicle use, which can dramatically decrease CO2 emissions. Considering the entire city, it can reduce the UHI effect.

However, in previous papers, the smart growth effect on UHI was not sufficiently studied. Especially, transportation and the built environment were not fully considered. To account for this less researched area, this study not only implements traditional variables, including land use, green area, and building ratio, but also calculates 5D variables (Density (population density), Diversity (land use ratio), Design (four-way intersections ratio), Destination accessibility (job density), and Distance to transit (distance to nearest transit stop)). These are the representative variables in assessing smart growth, and they also illustrate travel and the built environment to calculate the quantitative effect on urban character UHI, which can lead to an understanding of planning strategies.

The study uses Landsat 8 satellite images analyzing Salt Lake County, selected by Neil Debbage and J. Marshall Shepherd (2015) as one of the most vulnerable areas, with the highest average annual UHI intensity. For a more precise analysis, the study analyzes block group units through Geographically Weighted Regression (GWR) analysis, looking at the neighborhood effect. The neighborhood effect should be considered as the size and distance of block groups greatly differs, and it also accounts for the characteristics that temperature effected by each other neighborhood unit directly.

The analysis results show that the industrial ratio and building ratio still have a large impact. Especially, job density and four-way intersections ratio had a bigger impact than population density and distance to transit, showing that the UHI effect was higher in areas with higher traffic volume and job concentration. This suggests that ensuring personal vehicles can have a more negative influence on UHI than public transportation. The study shows that ensuring public transportation may be preferred, which means it can play a role in decreasing the UHI effect.

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Key Words: Travel and the Built Environment, Urban Heat Island, Smart Growth, Geographically Weighted Regression , Salt Lake County

MULTILEVEL GOVERNANCE OR STRATEGIC ALLIANCES? THE DRIVERS OF LOW-CARBON URBANISM IN CHINA

Abstract ID: 479

Individual Paper Submission

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The mainstreaming of climate change issues in urban policymaking means a fundamental change not only for the objectives of planning but also its subjects. In particular, as the level of local carbon emissions becomes an important indicator of a city's overall sustainability, new actors speaking a 'carbon' language enter the landscape of urban governance as well as climate governance. This "low-carbon urbanism" composes an emerging dimension of the political and institutional environment where planning happens (Bulkeley, Broto, & Edwards, 2012).

Planners need a good knowledge about these actors and their language to understand with and for whom they are working under the new regime. In particular, this knowledge should include a global perspective considering the strategic role of international organizations and transnational municipal networks in local climate action. This is a challenging task in the face of longstanding north-south divide in the study of urban climate responses. Existing theoretical frameworks have been based on societies with advanced democracies and post-industrial economies. While the "endogenous factors" prove to be the primary driving forces of climate strategies in cities of the global south, they are neglected or approached only as contingent factors (Carmin, Anguelovski, & Roberts, 2012).

This paper highlights this theoretical insufficiency through the case of China. As a country where nearly half of its cities have set a goal to become a low-carbon city, China provides a prime opportunity to investigate low-carbon urbanism in developing countries. Focusing on the ongoing International Low-Carbon City (ILCC) Program in Shenzhen, this paper address the question of the agents driving/shaping the Program and how are they mobilized? The results come from three fieldtrips to the program site between 2015-2017, 39 key informant interviews, and review of related documents and records. I argue that the Program is organized around explicit hierarchies among and within state and non-state actors and an essential role of the national government in resource mobilizing.

The findings pose serious challenges to two popular theoretical frameworks in the study of Chinese low-carbon cities and other climate-oriented urban development. On one side, the global theory of multilevel governance, which highlights the "networked" form of urban climate governance, fails to appreciate the persistence and practical values of formal as well as informal hierarchies among different actors in China's urban landscape (Bulkeley & Betsill, 2005, 2013). On the other, the internally derived growth coalition theory for understanding developmental politics in urban China, accepts the status quo and understates the increasingly complex relationship between environmental and economic development in an era of climate change. Moreover, this type of theoretical fragmentation is not an exclusive problem to Chinese low-carbon urbanism, but is widely found in planning research in the global south.

With that in mind, this paper offers a conceptual lens of "strategic alliances" to capture the innovative and flexible cooperative relationships observed in urban climate action globally. The paper further suggests that these alliances are configured through the massive interpretive flexibility of the decarbonization discourse. In particular, ambiguities of indicators and measurement used in carbon governance contribute

to the mobilization of actors and resources from non-public sectors and, ironically, reinforce the government's role in predicting particular development genres.

The "strategic alliance" framework provides a basis for understanding the strategic and opportunistic activities under the decarbonization discourse which transcend the conventional political and economic calculations in urban development. In this respect, the framework may be useful for analyses of the interrelations between urban entrepreneurialism and the climate change agenda beyond China.

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Key Words: low-carbon urbanism, strategic alliances

EXAMINING FACTORS INFLUENCING PLAN INTEGRATION FOR COMMUNITY RESILIENCE AT THE DISTRICT SCALE IN SIX US COASTAL CITIES USING HIERARCHICAL LINEAR MODELING

Abstract ID: 480

Individual Paper Submission

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Flooding remains the most dangerous natural hazard, and that which poses the greatest threat to property and the safety of human communities. Vulnerability is growing as a result of continued development in flood-prone areas and a lack of coordinated hazard mitigation planning. The resilience of the built and natural environments is strongly influenced by the development and growth management guidance provided by a community's 'network of plans', which often includes land use, hazard mitigation, and transportation plans, among others. These plans guide development, including in hazard areas. The ways these multiple and independent plans interact can significantly impact community vulnerability (Berke et al., 2015; Berke et al., 2018). A well-integrated network of plans can aid in building resilient communities and reducing losses from flood events. To date, little is known about the factors that influence coordination in a community's network of plans, though planning capacity and local community context have been identified as key factors that influence both plan quality and the intent to protect the natural environment.

This study investigates the influence of a series of factors on community plan integration for resilience at the district scale in six US coastal cities using Hierarchical Linear Modeling. We create and compare a set of hierarchical liner models – random intercept model, means-as-outcomes model, and random-coefficients regression model – to answer the following research questions:

- (1) What is the level of plan integration?

(2) What factors influence plan integration for resilience in six US coastal cities?

Findings show that communities with a larger “temporary” population and a lower socio-economic status are less likely to incorporate hazard mitigation in local plans, controlling for community planning capacity. The relationship between the planning capacity and plan integration performance is stronger in some cities (e.g. those with planning mandates, much hazard experience, or low physical vulnerability) than in others (e.g. those without planning mandates, little hazard experience, or high physical vulnerability).

This research explores theoretical and practical problems at the nexus of climate change and urbanization, and seeks to contribute to their resolution by testing and extending the scope of the novel Plan Integration for Resilience Scorecard method. Investigating the host of factors influencing plan integration may suggest a way forward, both for research and for communities struggling with issues of ‘siloeing’, conflicting plan guidance, and disaster preparedness. Deeper knowledge about the key drivers of plan integration for resilience can inform more effective approaches as practitioners reevaluate their plans and work to foster a more coordinated strategy.

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Key Words: Plan integration, Flood resilience, Land use planning, Hazard vulnerability, Hierarchical linear modeling

A LEVEL PLAYING FIELD? MECHANISMS OF UPWARD GOVERNANCE CONFRONT ENTRENCHED WATER MANAGEMENT HIERARCHIES IN CALIFORNIA’S SAN JOAQUIN VALLEY

Abstract ID: 495

Individual Paper Submission

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California’s San Joaquin Valley is rife with water management practices that neglect the needs of primarily Latinx residents of Disadvantaged Unincorporated Communities (DUCs). Hundreds of DUCs are scattered across the Valley and confront disproportionate environmental burdens such as contaminated groundwater, dry wells, and insufficient water infrastructure. Municipal and state disinvestment, industrial agriculture, dairy farming, and geological circumstances lead to continuous water quality and quantity challenges for these communities. The Sustainable Groundwater Management Act of 2014 aims

to address the Valley's water vulnerabilities and requires proactive engagement with DUCs. Basin-wide Groundwater Sustainability Agencies (GSAs) are tasked with soliciting and incorporating community members' perspectives into a Sustainable Groundwater Management Plan (SGMP) by 2020. Through participant observation and semi-structured interviewing, this qualitative research analyzes the ways in which governmentalizing mechanisms and divergent forms of embodied and techno-scientific knowledge surrounding groundwater are framed, mobilized, and codified for the production of the SGMP, at public gatherings and behind the scenes. Due to the historical and material specificities of DUCs, residents are seldom able to break entrenched, systemic race and gender barriers that inhibit meaningful and ongoing participation in GSAs. The techno-scientific expertise, political savvy, time commitment, and documentation status required to effectively demonstrate embodied experiences of water vulnerability to GSA board members are unattainable for resource-strapped DUC residents. Consequently, marginalized residents risk falling through the cracks of one-size-fits all water management strategies that fail to capture diverse and nuanced experiences accompanying chronic water stress. That said, nonprofits that serve as intermediaries for these communities employ multipronged strategies to influence groundwater policy domains. Thus, this research provides an analytical framework of intra-institutional upward governance mechanisms through which water management and politics in the San Joaquin Valley can be understood.

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Key Words: environmental justice, governance, political ecology, water resource management

RESILIENCE FOR WHOM? EXPLORING EQUITY CONTENT WITHIN 100 RESILIENT CITIES' LATIN AMERICAN RESILIENCE STRATEGIES

Abstract ID: 496

Individual Paper Submission

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Since 2015, the Rockefeller Foundation's 100 Resilient Cities(100 RC) initiative has established partnerships with 100 global cities, to formulate urban resilience strategies addressing the impending impacts of climate change. Resilience typically refers to a system's ability to maintain key functions amidst a disruption and adapt to a new set of conditions thereafter. Resilience planning centers on the belief that interdependencies exist between chronic stressors and urban issues like poverty, aging, and climate change (Woodruff, Meerow, Stults, & Wilkins, 2018, p. 2). Aligning with environmental justice

literature, 100 RC's mission statement recognizes historically low-income and racial minority communities possess fewer economic resources to prepare for the effects of climate change. 100 RC advises cities to prioritize citizen involvement and reparation of institutional injustices in resilience strategy formulation (Schrock, Bassett, & Green, 2015, p. 284). In Latin America, 100 RC's mission presents a transformative opportunity to simultaneously tackle high levels of economic disparity and geographic vulnerabilities to climate change. However, research has yet to explore whether 100 RC's resilience strategies include significant equity content, matching the organization's equitable mission statement. The global sample of 100 RC strategy publications presents the opportunity to test whether the content of 100 RC's Latin American resilience strategies possess significant equity content and the likelihood of effective climate change mitigation for the region.

This study employed plan evaluation methods to compare inclusion and depth of equity content within the 100 RC resilience strategies of nine Latin American cities. Utilizing a framework of Environmental Justice Theory (EJT) we developed seven groups of equity vocabulary to determine the breadth and depth (frequency and significance) of equity content within each strategy from the sample. After separately identifying each occurrence of equity content and which passages exhibited significant equity examples, we reviewed our findings to agree on a total count of equity occurrences and significant passages to qualitatively analyze for each strategy. Next, using Bullard's three categories of environmental justice, we thematically coded each significant equity passage as representative of the pursuit of either procedural, geographical, or social equity (Bullard, 1994). This combination of quantitative and qualitative coding allowed for analysis of equity patterns across 100 RC's sample of Latin American strategies and verification of 100 RC's alignment on strategy content with the organization's mission statement.

This study adds to previous findings on the importance of centralizing equity concerns within major urban planning proposals (Allen, Johnson, Khalil, & Griffin, 2017; Caniglia, Vallée, & Frank, 2017). Previous studies explored the importance and inclusion of equity content within climate adaptation and hazard mitigation plans, but no studies have assessed resilience strategy samples from Latin America. By ensuring the inclusion of significant equity content across resilience strategies the study suggests the likelihood 100 RC strategies will improve climate change preparedness and environmental decision-making power for millions of urban citizens from the Global South. Our analysis reveals that while affiliation with 100 RC guarantees a city's resilience strategy will include equity content, overall the number of occurrences and focus of each city's equity content is highly varied across the sample. These findings highlight the unique equity priorities of 100 RC's partner cities alongside a common commitment to the resilience through equitable considerations.

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Key Words: resilience, equity, environmental justice, Latin America, RC 100

URBAN HEAT ISLAND VARIATION AND MIGRATION IN THE CITIES: THE CASE OF SAN FRANCISCO AND TORONTO

Abstract ID: 520

Individual Paper Submission

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As cities develop, urbanization reduces trees and vegetated areas, paves over natural surfaces, and buildings are put in their places. Since the changes in the urban environments reduce the cooling effects provided by vegetation and moist soils, it is essential to better understand the complex processes found at the intersection of urbanization, climate, and human health. For the past few years, the level of urban heat island (UHI) in major cities has increased rapidly, leading to severe health problems for city dwellers, particularly children and senior citizens. Heat is primarily considered one of the big issues in cities where climate change causes extreme heat events aggravated by the UHI effect. Although a variety of scientific and technical solutions have been proposed to address the UHI problem, there is a lack of in-depth studies to explain how the urban fabric causes the UHI to vary and migrate through the day.

This research addresses the following primary research question: What is the relative contribution of urban geometries to hourly urban heat island migration and variation in a city? To answer the question, this study focused on how to analyze the temperature patterns while considering urban form elements in the cities of San Francisco and Toronto on an hourly basis during an extreme heat event. To this end, the primary data on the UHI problem in these two cities in which the UHI level is unusually high (e.g., urban geometry, land use plan, and detailed historical weather data) were collected and three-dimensional modeling was used to analyze existing urban form conditions. Secondly, it evaluates the physical conditions and heat capacity of existing urban forms of the cities and suggests a way to calculate three-dimensional UHI variation and migration trends during a day based on the primary data with fieldwork and data collection through the automatic weather station, as well as through spatial statistical analyses.

The results showed: (1) urban heat island volume in the central business districts of these two cities experienced greater temperature differences than that in residential areas, which was the main reason why the urban heat islands showed a remarked tendency to change in the city over time; and (2) the percentage of UHI volume showed differences based on land-use type and urban green canopy cover ratio. The results contribute to providing meaningful feedback to cities that have implemented planning codes on confronting extreme heat events and may encourage refinement of the codes and/or decisions to apply them to the city with the specific guidelines related to a useful measure to estimate urban heat island volume.

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Key Words: urban heat island (UHI), variation, migration, urban geometry, climate change

FROM GENERATION TO IMPLEMENTATION: HOW LARGE SCALE COLLABORATIVES USE KNOWLEDGE TO MANAGE NATURAL RESOURCE ISSUES ACROSS BOUNDARIES

Abstract ID: 527

Individual Paper Submission

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Knowledge has the potential to reduce uncertainty and build capacity. Planning has used scientific knowledge to improve the plans and decisions not only surrounding economic and political issues, but also to manage natural resources (Freidman, 1987). While scientific knowledge has advanced significantly over time, a great deal of uncertainty remains. The increasing temporal and scalar dimensions of natural resource issues that cross multiple jurisdictions, like climate change and water quality, pose challenges for public managers. In response to these cross-boundary challenges, new arrangements using collaboration are emerging. While collaborative governance has been applied to natural resources management for several decades (Margerum, 2011; Innes & Booher, 2018), the scale of the problems has led to new larger-scale approaches to collaboration (Goldstein & Butler, 2009; Keen & Mahanty, 2006). Large scale-collaboratives are producing knowledge to address the ecological challenges that occur across multiple jurisdictional boundaries. These collaborative arrangements are attempting to connect resource managers with the applied science and tools for improved decision making and planning at regional scales. For management, the knowledge-based outputs developed these collaborative groups have to be generated, transmitted, and used through implementation (Koontz & Newig, 2014). Despite the substantial literature on the collaborative process, less is known about the influences on and mechanisms used to implement the outputs produced in collaborative arrangements, particularly those occurring at larger geographical scales. This study asks how knowledge-based outputs developed within large scale collaborative groups influences the implementation of natural resource management. To address the research question the study explores three collaborative cases involved in landscape conservation at regional scales. In depth semi structured interviews and archival data from the case studies are used to identify the similarities as well as the differences between the participating actors' perceptions and behaviors toward the process of using scientific projects and tools. This work increases our understanding of the extent to which and how large-scale collaborative arrangements navigate using scientific knowledge through implementation to manage natural resources.

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Key Words: natural resources, scientific knowledge, collaboration , implementation, management

IMPROVING COLLECTION AND TRANSPORTATION EFFICIENCY FOR SUSTAINABLE FOOD WASTE MANAGEMENT: A NEIGHBORHOOD-LEVEL CASE STUDY IN CHICAGO

Abstract ID: 551

Individual Paper Submission

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Food waste management (FWM) is a growing challenge in urban regions. Currently, only 5% of discarded food is composted; 1% is reused for human consumption in the U.S. (EPA, 2016). Energy, nutrients, and water embedded in the food discards mostly end up in final disposal facilities (Pothukuchi, 2009). Although sustainable practices of FWM (e.g., food donation and community composting) prevent long-distance waste hauling, the high cost of separate collection and delivery presents one of the most significant challenges (ReFED, 2016). Notably, collection accounts for most waste management costs (Offenhuber et al., 2012; World Bank, 2018). Collection costs can be a particularly important barrier to food donation and recovery, given that small batches (and low market or residual values) are often scattered around a large number of locations. Improvements to efficiency of food discards/surplus pickups and deliveries to local food banks and composting sites could significantly address the inefficiencies of FWM through its value chain.

Emerging strategies and technologies can potentially help reduce food wastage and facilitate food waste logistics targeted at recovery and reuse. For example, alternative fuels, ubiquitous computing, sensing, crowd-sourcing, robotics, artificial intelligence, and social networking technology have all been promoting green logistics and transforming urban transportation systems recently (Ala-Harja & Helo, 2015; Rifkin, 2014). These technologies, however, have not been widely applied to waste management. Neither have the neighborhood-level transportation and environmental impacts been examined, were these emerging strategies and technologies to be adapted for urban FWM.

This study develops a generic model to quantify transportation impacts (e.g., travel distance) and greenhouse emissions that are associated with trips that (1) collect food donations and deliver them to local food banks; and (2) collect food discards and transport them to composting sites. Rather than modeling optimal routes, this research examines various logistics strategies that are potentially applicable for urban FWM, with a focus on these three: (1) crowdsourcing drivers; (2) chaining food discards/surplus pick-ups; and (3) designating food discards/surplus pickup locations (instead of door-to-door services). Then transportation and environmental impacts are assessed under various scenarios that involve one or more of these strategies. Under data constraints, this research employs the continuous approximation method. Heterogeneous neighborhood characteristics, such as food waste generation volume, land use pattern, and residential and building density, are categorized and integrated in model development and policy discussions.

Empirical analysis is implemented in the City of Chicago. While the scope of this study covers Chicago's 77 community areas, the focus is on the strategies and trips that potentially address the spatial mismatch of food surplus and shortage identified in a previous study (Ai & Zheng, 2019).

The findings suggest that local FWM can be more efficient and sustainable, compared to the current practice of long-hauling to remote landfill sites. Specifically, the preferable FWM solutions and logistics strategies are contingent upon the local characteristics. Strategic policy intervention may help promote efficient urban FWM for societal benefits.

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Key Words: waste management, food waste, environmental impacts, transportation impacts, sustainability

DOES CARSHARING REDUCE GREENHOUSE GAS EMISSIONS? EVIDENCE OF EMPIRICAL STUDY IN INCHEON, KOREA

Abstract ID: 588

Individual Paper Submission

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This study examines the impacts of carsharing on the reduction of greenhouse gas emissions and discuss policy implications for environmental sustainability. In previous studies, it has been investigated that carsharing services reduce the number of vehicles on the road and exerts an environmentally positive influence. However, carsharing reduces the travel time for people who have not used the car at relatively low prices and increases the convenience of travel, which ultimately makes the car more attractive (Yin et al, 2018). Therefore, it is necessary to evaluate whether carsharing is an environmentally sustainable mode of transport, considering that mode switching occurs in public transportation, taxis, and private cars.

Using the unique questionnaire survey of 3,080 carsharing users in Incheon, South Korea, this study constructed a comprehensive model related to mode switching by carsharing and analyzed the impacts of carsharing on the greenhouse gas emissions. Modes considered in the model are private cars, taxis, public transportation, and bicycles. In addition, we calculated the amount of greenhouse gas emissions per person·km by dividing the number of passengers and the average distance traveled per person. Then, the calculation results are applied to the mode conversion model based on the carsharing, and the scenarios for changing the greenhouse gas emissions by using carsharing is suggested.

Finally, the analysis results reveal the current carsharing is less effective in terms of environmental sustainability. Increasing greenhouse gas emissions from public transport and bicycles to carsharing is

larger than the amount that can be reduced from private cars or taxis to carsharing. Therefore, we should consider planning and public policies to induce the mode conversion from private cars to carsharing by increasing the service for people who dispose of private cars. As an alternative, we should consider strategies to reduce greenhouse gas emissions by converting cars used for carsharing into hydrogen and electric cars.

It is meaningful that this study has examined the environmental sustainability of carsharing, a typical sharing economic model in the urban and transportation sectors. The results of the study show that the claim to advocate sharing economy does not necessarily lead to positive results. In order for catching to be a sharing economic model we expect, we will need to constantly analyze and feedback on usage patterns in terms of social, economic, and environmental sustainability.

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Key Words: Carsharing, Sustainable transportation, Environmental sustainability, Greenhouse gas emissions, Sharing economy

URBAN RENEWAL STRATEGIES AND AIR QUALITY IMPROVEMENT—THE CASE OF HANZHENG DISTRICT IN WUHAN CITY

Abstract ID: 621

Individual Paper Submission

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Frequent smog in Chinese cities has attracted worldwide attention since 2012. Today, air quality is a key issue affecting people health, social harmony and national image. Smog in the air directly affects and causes respiration discomfort of urban living. Smog's concentration and frequency are high in the Yangtze River valley where the winter is cold and the summer is hot. Smog in the valley's urbanized areas, particularly in denser urban cores, where there are many historic buildings with poor ventilation and narrow streets. Demolition and reconstruction of these historical buildings and streets are considered as urban renewal strategies to the improve the air quality.

For this purpose, the key parameters such as ambient crosswind and natural convection were incorporated into simulation models with the CDF (Computational Fluid Dynamics) software and user-defined-functions (UDF) to analyze the fluid flow and CO propagation characteristics of the study area -Hanzheng Neighborhood, Wuhan City. The simulation results are validated by data obtained from wind speed sensors and infrared CO analyzers to ensure the study's reliability.

Furthermore, two steps were taken to ensure air quality optimization. Step 1- some multi-story and high-rise buildings are hypothetically taken out for wind passages, then compare the simulation results with

that from the original urban layout. It is found that construction of air passages within the old city district can improve the local air quality; Step 2 – open spaces are set-up for villages inside the district according to four equal-area demolition schemes, namely, Corridor Shape Demolition (CSD) Plan, Wedge Shape Demolition (WSD) Plan, Central Demolition (CD) Plan, Scatter Point Demolition (SPD) Plan, which were designed to improve the ventilation of the polluted urban environment. the comparison shows that the four strategies all yielded better optimization results. We inferred that preserving some open spaces is conducive to the diffusion of pollutants and the improvement of air condition. Specifically, the results show that the optimization effects varies as follows: $CSD \approx WSD > CD > SPD$, which means more concentrated open spaces is more effective for improving the air quality. The air intake into the neighborhood also determines the concentration distribution level of pollutants to some levels.

Finally, based on the above simulation results, this research infers that neighborhood air quality improvement can be carried out through partial renovation in addition to large-scale reconstruction, and proposes four block-scale spatial renewal strategies, namely, reducing density, connecting passages, centralized advantages and reserved lines, in order to provide practical advices for the planning and design of old city renewal and create a healthier habitat.

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Key Words: Urban renewal, Air quality improvement, Numerical simulation, CFD

CHANGES IN THE WATER: THE IMPACT OF NATURAL HAZARDS VULNERABILITY AND EXPOSURE ON POPULATION CHANGE

Abstract ID: 625

Individual Paper Submission

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The effects of sea level rise and an increased propensity for major precipitation events due to climate change are expected to drive a dramatic reduction in the availability of habitable coastal land and induce population migrations away from particularly vulnerable areas (Allen et al. 2018; McLeman 2011). However, there is little understanding of how changing risk vulnerability and hazard exposure influences individual decisions to relocate or the thresholds at which these decisions are made (Black, Adger, and Arnell 2013; Bardsley and Hugo 2010). In this paper, we seek to understand how different aspects of environmental risk impact relocation decisions. More specifically, we ask, how does physical vulnerability to flooding and exposure to major storm events interact to influence population change over time.

We address this question by examining physical vulnerability at the building-level and exposure to major storm events via federal disaster declarations. Our study area includes North Carolina and Florida over the period from 1990 to 2010. Using the Flood Risk Information System (FRIS) dataset, which identifies whether a building is located in a FEMA flood zone as well as its first-floor elevation, we are able to quantify the proportion of buildings within a census tract that are located in a floodplain. County-level disaster declarations due to hurricanes are used to quantify exposure to major storm events. We control for a number of mediating variables at the census-tract level, including demographics, economic indicators, geography, and population trajectories. Our analysis employs multilevel regression modelling, allowing us to assess the effect of our key explanatory variables at different geographic scales.

Our findings suggest that populations have differential responses to environmental risks based on geographic location, which are compounded when physical vulnerability is accompanied by hazard exposure. More specifically, while coastal communities have experienced significant population growth despite high levels of flood vulnerability, those subareas that are exposed to multiple disasters possess a negative relationship with population growth, suggesting that major disasters can act as focusing events that trigger population shifts. Comparatively, areas subjected to riverine-based flood vulnerability are inclined to population loss in reaction to moderate risk, but less reactive to major events.

Our initial analysis suggests that major storm events play a focusing role in raising awareness of geographic vulnerability and flood risk, which may induce out-migration from vulnerable areas following repeat storm events. We expect that these risk-responses will become more pronounced in an era of climate change as environmental risks increase and out-migration becomes self-supporting. Further, as population loss leads to reduced community resilience, the potential for the rise of nonlinear migration exoduses will increase (McLeman and Smit 2006). As a result, municipalities subjected to disaster-related impacts may also need to contend with a decreased ability to support its remaining residents' livelihoods. The policy-relevant findings from this study can be used to help identify areas at risk of nonlinear out-migration while also presenting a methodology that can continue to be used for similar analyses with future Census data.

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Key Words: Flood vulnerability, Natural disasters, Migration, Population change, Climate change

BLACK OUT VULNERABILITY: INVESTIGATING THE SOCIAL AND PHYSICAL FACTORS THAT INFLUENCE RESTORATION TIME OF THE ELECTRICAL GRID IN ATLANTA, DETROIT, AND PHOENIX

Abstract ID: 635

Individual Paper Submission

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In developed countries, residents have come to expect uninterrupted electrical power supplies to support their daily activities and condition their interior environments. However, increasingly electrical power grids are failing in the United States. Blackouts in the electricity grid can be caused by factors such as unusually high demand, equipment malfunctioning, cyber-attack, or weather events. As climate change increases the frequency and intensity of extreme heat events in urban areas and thus the demand for electrical cooling, possible blackout conditions may have extensive life-threatening consequences. Anecdotal evidence raises concerns that lower income, minority neighborhoods may experience lengthier blackout periods. In this research, we investigate what social and physical factors explain the time to restoration for different neighborhoods in three U.S cities, Atlanta, Detroit, and Phoenix.

We developed a model that mimics the conditions of a significant weather event to investigate the spatial distribution of restoration times across the electrical grids of these three cities. The location of the customers with respect to available generation sources and the topology of the grid play key roles in determining the restoration requiring modeling both the transmission and distribution network. High voltage transmission lines convey electricity from the power source to substations where the power is stepped down through medium (23-7 kilovolts) and low voltage circuits (480, 220, 110 volts) substations before it arrives at the household. Due to the radial topology, restoration always takes place from the substation to the customer. Hence, customers that are located towards the end of the distribution circuit usually experience longer restoration times. The restoration of the grid after a blackout requires a combination of remote-control actions from a control center and crews working in the field. For the three study cities, our synthetic distribution circuit models assume only overhead lines. Our model tries to minimize restoration times by re-connecting as many customers as quickly as possible, while prioritizing the reconnection of critical loads such as hospitals.

This research examines what independent variables influence the restoration time after a power outage in three U.S. cities, Atlanta, Detroit, and Phoenix. Using multiple regression, we will determine the explanatory power of the independent variables on the time until restoration (minutes) by census tract. These independent variables can be divided into three categories; 1) characteristics of the grid system (age of grid, main transmission network (1 of 3), size of the distribution network), percentage of distributed renewable energy sources, 2) characteristics of the local environment (percentage of overhead versus underground transmission lines, distance from a sub-station, tree canopy, investment in new automated protection measures), and 3) characteristics of the local consumers (neighborhood age, average cost of housing unit, SES). This research is an effort to understand urban electrical vulnerability and investigate issues of energy justice.

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Key Words: climate change, extreme heat, infrastructure, electricity, social justice

SPONTANEOUS DISASTER RESPONDERS: UNPACKING THE CHOREOGRAPHIES OF ORGANIZATIONAL CHALLENGE

Abstract ID: 645

Individual Paper Submission

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The intentions of spontaneous, unaffiliated disaster volunteers are often seen at odds with those of large organized nonprofits and agents of government. This dynamic largely exists because of the wide-variety of goals, degrees of professional expertise, and organizational memory involving the challenges that arise following disaster events. In the US, newcomers, in the form of spontaneous volunteers, learn the choreography of organizational disaster recovery challenge very quickly when their efforts are not aligned with those of the state. The goal of this study is to understand to what extent do volunteers perceive they have formal institutional access in this state-managed disaster recovery process. Participant observation, semi-structured interview, and targeted written survey response across two sites in the Florida Panhandle immediately following Hurricane Michael generated useful perspectives for meaningful analysis of how different varieties of actors working in seemingly the same context perceive themselves, their local organizational ecosystem, and develop or perpetuate institutional incongruences and barriers to communication and coordination. Findings suggest a lack of cognizance of the full positive impacts of volunteer engagement on the part of spontaneously unaffiliated volunteers. This lack of cognizance is perpetuated by perceived burden associated with navigating and reporting to state agencies. State agents are also found to perpetuate this disconnect through their lack of inclusive, comprehensive communication strategy. Attempts at mediation and coordination have been made, though common uncoordinated points have been identified. These findings have practical implications for emergency managers, volunteer coordinators, and nonprofit organizations wishing to maximize the impact of their response and recovery efforts through identification of 'low hanging fruit,' or simple, inexpensive intervention. Scholarly contributions include one of the first instances of linking the goals and perceptions of individual actors with larger organizational dynamics, or neoinstitutionalism, in US disaster volunteer contexts.

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Key Words: Hurricane , disaster recovery, volunteer, organizations, disaster response

ASSESSING CLIMATE-CHANGE-INDUCED SEA-LEVEL RISING AND WILDFIRE FOR THE NORTHERN CALIFORNIA NATURAL GAS SYSTEM

Abstract ID: 652

Individual Paper Submission

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Climate-change-induced hazards, such as sea-level rising and wildfire, are likely to increase the risk of functioning failure to the natural gas system in California. As a result, economic consequences could be significant as many industries rely on natural gas as their primary energy source. To help adapt to such climate-change impacts, various resilience options have been increasingly investigated in planning studies for mitigation. Without the information of risk assessments, neither the government nor the affected industries would be able to implement cost-effective resilience options to avoid potentially catastrophic events. Natural hazards and facility vulnerabilities are the two primary components in the risk assessment of the natural gas system under the threat of climate change. The objective of the study is to assess the potential risk of natural gas system failure resulted from climate-change-induced sea-level rising and wildfire with a focus on the northern California natural gas system during 2020 to 2100. The results will identify the locations of those natural gas facilities that are exposed to climate-change induced hazards and their risks in different time periods.

The concept of resilience has been used to cope with potential natural disasters resulting from climate change (Ainuddin and Routray 2012; Rose 2007). In this study, resilience is defined as the ability of a natural gas system to resist, absorb, accommodate, and recover from the impact of climate change in a timely manner, including mitigation of the impact and restoration of its essential functions (UNISDR 2009). A risk assessment typically aims at finding the 100-year events based on historical data of a certain type of natural disasters. Therefore, the existing infrastructure and facilities are mainly designed to sustain 100-year events, such as floods and earthquakes. For example, a recent study indicated that the Sacramento River Delta levees are sufficient to protect against overtopping during a 100-year storm (Radke et al, 2015). However, the effect of climate change might skew the underlying distributions, leading to a more frequent occurrence of those events in the near future. That is, the so-called 100-year events might occur more frequently than every 100 years when considering climate change. In addition, climate change might augment the magnitude of a 100-year event into a much intensive one that has never occurred in history. Therefore, it is extremely important to develop a new approach to assess risks that would better address the uncertainty in recurrence of and magnitude of catastrophic events resulting from climate change.

To fill this gap, this study assesses climate-induced risk by leveraging the California's fourth climate-change assessment's statistically downscaled climate change scenarios from the GCM (Global Circulation Model). Two climate-change-induced natural hazards are considered in the study: (1) sea-level rising and (2) wildfire. For the sea-level rising, its maximum value is extracted from the most severe climate change scenario RCP 8.5 (Representative Concentration Pathway) to identify those natural gas facilities (e.g., compressors, storages, and metering stations) that are subject to this extreme case. The probability is then computed for each facility in time periods of 2020-2040, 2040-2060, 2060-2080, and 2080-2100, indicating the percentage of time that the facility is inundated. Similarly, the simulated data of wildfire are used to compute the frequency by which a grid cell where a facility is located will be exposed to the wildfire risk, measured by the proportion of burnt area, i.e., 25%, 50%, 75%, and 100%, during four time periods, i.e., 2020-2040, 2040-2060, 2060-2080, and 2080-2100. The results would provide the energy sector valuable information concerning future climate-change-induced risk so that they can devise resilience options accordingly.

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Key Words: climate change, sea-level rising, wildfire, energy, resilience

SUMMERTIME OUTDOOR ACTIVITIES OF SENIORS LIVING IN PUBLIC HOUSING

Abstract ID: 673

Individual Paper Submission

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As elevated summer temperatures increase in frequency and duration, they pose threats to health and welfare of urban residents and increase the risk of morbidity and mortality among the most vulnerable population groups, such as the elderly (Bélangier et al., 2015; Kovats & Hajat, 2008). The percentage of the senior population living in cities is projected to increase in the US and a high proportion are likely to live in poor housing conditions (Arnberger et al., 2017; Harvard, 2016), which makes them more susceptible to environmental challenges. During Hurricane Irma, several heat-related deaths in Florida were attributed to power outages that exacerbated an existing medical condition by depriving residents of cooling (Issa, 2018). Such cases highlight the need to extend beyond indoor environments and provide

alternative spaces including adjacent outdoor amenities, which can have dual benefits for improved quality of life and long-term climate adaptation for the elderly.

Our work presents findings from a summer-long case study of seniors' outdoor activities and related behavioral patterns in three public housing sites, located in Elizabeth, NJ, USA. Each site belongs to a different neighborhood and can be separated from the rest in terms of outdoor amenities, building characteristics, and the residents' profiles. Our sample consists of 24 apartments and their senior residents, located within those sites. Our data come from interviews with the residents (demographics, health, household conditions, thermal comfort, heat-related behaviors) and from sensors installed in the seniors' apartments and outdoors (temperature, humidity, indoor occupancy). Additional information includes neighborhood maps and apartment, building and site plans (windows, floor, area, height, orientation, A/C, outdoor amenities). All data were gathered during summer 2017.

In this paper, we map the outdoor preferences and destinations of seniors within and outside the site boundaries, observe the temporal patterns of those activities, and document how and why residents interact with their immediate outdoor environments. Through Pearson correlations and a series of logistic regressions, we also illustrate the relative effect of indoor and outdoor heat indexes and the site where they reside on indoor occupancy, while accounting for a number of key personal variables.

The results of our analysis show that the most popular destinations among seniors are cooling centers, shaded yards, shopping stores and religious places, considering they are within walking distance, while having pets significantly increases outdoor activity. Therefore, variations are observed across participants located in different sites; residents in buildings with poor envelopes but rich outdoor amenities appear more active, and therefore more adaptive to heat, both in terms of time spent outside and in terms of the variety of outdoor destinations. Related to that is the effect of indoor heat index and overall thermal comfort, which strongly influences the decision to leave the apartment. On the other hand, the outdoor heat index, although a statistically significant explanatory variable, has only a small effect on indoor occupancy, which, as explained in the residents' stories, does not necessarily influence the seniors' outdoor routine. Lastly, the residents' recommendations for improving outdoor amenities highlight the need for safer, greener and more accessible destinations, with more sitting options.

The above findings confirm the value of providing alternative spaces and outdoor amenities, especially in sites where indoor environments are inadequate in providing shelter. They further indicate that there is a range of cost-effective and easily-implemented heat adaptation possibilities for the elderly and that sustainable design interventions can highly benefit from the users' perspectives.

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Key Words: Heat Waves, Seniors, Public Housing, Outdoor Activities, Heat Adaptation

CLIMATE JUSTICE AND ADAPTIVE MIGRATION PLANNING IN SOUTH LOUISIANA

Abstract ID: 685

Individual Paper Submission

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Increasingly, migration is recognized as a necessary adaption tool in response to long-term climate and landscape change. Since the 1980s, storms, droughts and floods have increased threefold, displacing unprecedented numbers of people (Laczko & Aghazarm, 2009). In 2008, 20 million between were forced to migrate or evacuate because of extreme weather, over four times the number dislocated by conflict and violence (ibid). In some cases, people are forced to evacuate after severe weather and depending upon damage and other factors, may not return, or settle elsewhere for years or decades.

In the U.S., the most common relocation strategy for increasing climate-related hazards is property acquisition targeted at individual households. Since the 1990s, FEMA has incorporated relocation into its national mitigation strategy through floodplain buyouts, home acquisition, and homeowner relocation programs (Fraser & Elmore, 2003; Schwab & Topping, 1998). Individual buyouts allow the household maximum flexibility in deciding where to relocate, and are the least complicated relocation schemes for government agencies to manage (Nelson and Ehrenfeucht, 2016). However, low- and moderate-income residents participating in buyouts, who have fewer resources and whose monetary compensation is often significantly less, are often priced-out of their communities (Fraser & Elmore, 2003). If buyouts are targeted at a particular community or neighborhood without providing designated relocation sites, residents may be dispersed to neighborhoods throughout and beyond the region, disrupting the social networks residents depend on and value (Nelson & Ehrenfeucht, 2016). This is of particular concern in Southeast Louisiana where attachment to place is strong and relocation can cause residents to feel alienated.

An additional challenge with buyout programs and, more broadly, of voluntary initiatives is that without full participation, some households remain in vulnerable situations and local governments must continue to provide services to those who remain (Fraser & Elmore, 2003). While the situation for residents who take buyouts and move outside of the area may improve, by leaving they can contribute to decline in their original communities, and those who decide to stay or rebuild in place may grow worse off over time. As a result, low- and moderate-income residents are dually vulnerable. They are more likely to stay put and are therefore increasingly vulnerable to the local impacts of climate shifts or, when they relocate, and are more vulnerable to negative economic implications and to the loss of community and cultural ties.

This paper draws from research funded by The Water Institute of the Gulf in support of the Louisiana's 2017 Comprehensive Master Plan for a Sustainable Coast. The plan lays out a 50-year strategy for reducing the state's climate-induced coastal flood risk through ecological restoration, structural protection, and hazard mitigation. In particular, this work investigates the state's plan for buyouts in at-

risk communities, and considers land use decision-making with regard to climate justice, equitable risk reduction and socio-cultural preservation. The researchers question how policy and planning initiatives can assist migration in ways that lead to better outcomes for both those who leave and who stay. Drawing on semi-structured interviews with 30 public officials, land managers, and planning and zoning staff from Louisiana, and a review of prior relocation and resettlement efforts across the U.S., this paper contributes to planning practice and scholarship by examining opportunities and challenges with designing effective and equitable relocation strategies that help retain traditional communities and place attachment while reducing risk.

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Key Words: adaptive migration, climate justice, relocation

MULTILEVEL CLIMATE GOVERNANCE IN THE UNITED STATES AND CHINA: A COMPARATIVE ANALYSIS OF LOCAL GOVERNMENTS' POWER AND PRIORITIES

Abstract ID: 708

Individual Paper Submission

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China and the United States are often presented as opposites in the realm of climate policy. The simplified narrative of the difference between the two goes as follows: China, with its top-down system of government, can quickly implement climate-related policy if it chooses to do so at the central level, whereas the United States has been paralyzed at the federal level on the subject of climate policy, but has seen a great deal of bottom-up progress on climate initiatives from state-level and local governments. This paper asks how national and local climate and energy initiatives interact in the two countries in practice, and finds more similarities than might have initially been expected.

Drawing on the multilevel climate governance theory, we examined the dynamics between different levels of the government in delivering local climate initiatives. In China, case analysis of cities that were enlisted in a national low-carbon city pilot program demonstrates that local policy makers are often able to subvert national priorities in the local implementation of national climate policies, effectively substituting local priorities for national ones even when the freedom to do so is, in theory, highly constrained. In the United States, local experience with federal grants shows that the role of the federal government in shaping local priorities is essential, and that many municipalities relied on the federal government to justify and prove the need for local climate-related initiatives.

These findings indicate an urgency to rethink the meaning of “local climate action” and the context of planning toward such ends. Among different factors influencing effectiveness of multilevel climate governance, power relations between national and local governments is a decisive one but mostly overlooked by studies of subnational climate initiatives. The interdependency between these two levels, which is revealed by this paper, also questions the simplified dichotomy between “top-down” and “bottom-up” approaches to climate planning.

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Key Words: multilevel climate governance, comparative analysis, local climate initiatives, United States, China

WATER AND SANITATION FOR ALL: THE ECONOMIC BENEFITS OF PROVIDING UNIVERSAL ACCESS TO WATER AND SANITATION SERVICES IN NATIVE ALASKAN COMMUNITIES.

Abstract ID: 710

Individual Paper Submission

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With adoption of the Sustainable Development Goals (SDGs) the international community has committed to the ambitious goal of achieving universal and equitable access to safe and affordable drinking water for all by 2030. Unlike previous global initiatives to improve human well-being, the SDGs’ focus on universal access brings the experience of marginalized populations in high-income countries into global focus. Though often not included in national or global discourse on water and sanitation, many Arctic and sub-Arctic indigenous communities lack access to in-home water and sanitation services. Recent research in Native Alaskan communities suggests that households with inadequate access to water and sanitation services face higher rates of diarrhea, pneumonia, RSV, MRSA, and infant hospitalization than households with in-home water and sanitation services (Hennessy et al. 2008). In addition to these health-related effects, households without in-home water and sanitation services also must invest time hauling water, disposing of their waste, and must also cope with the mental stress of persistent water insecurity (Eichelberger 2014; Eichelberger 2010).

Globally, it is often difficult to make a compelling economic case for providing rural, low-income communities access to high quality water and sanitation services. These communities are often dispersed, expensive to serve, and have limited financial resources to pay for water and sanitation services. These conditions are not dissimilar to the conditions in Native Alaskan communities. Indeed, Native Alaskan communities are particularly expensive to serve given their remote locations and extreme climate conditions. Given the unique nature of healthcare service delivery for Native Alaskans, however, there

may be an economic case for expanding access to in-home water and sanitation services in Alaska. Combining the most recent estimates of water, sanitation, and hygiene (WaSH)-related disease in Native Alaskan communities, the effectiveness of various WaSH interventions, and health billing records, this paper presents the first estimates of the potential economic benefits of providing universal access to Native Alaskan communities. Extending beyond the case of Alaska, this work has implications for how planners can more effectively advocate for providing high quality water and sanitation services to indigenous communities in high-income countries.

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Key Words: Water, Sanitation, Equity, Indigenous, Economics

ENVIRONMENTAL INEQUALITY AND EXPOSURE TO HEAT IN U.S. CITIES: A COMPARATIVE ANALYSIS

Abstract ID: 712

Individual Paper Submission

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Climate change and the urban heat island effect are contributing to rising temperatures in cities around the world. Exposure to extreme heat can lead to negative health outcomes or even death for members of vulnerable populations. This paper frames the threat posed by extreme heat in U.S. cities as an environmental justice issue and uses Pellow's environmental inequality formation (EIF) perspective to explore heat exposure in Baltimore, Dallas, Kansas City, and St Louis. Land surface temperature (LST) and the normalized difference vegetation index (NDVI) are derived from Landsat 8 imagery and mapped at the Census tract level and HOLC Residential Security Maps are used as proxies for historical disinvestment. The relationship between exposure to heat and measures from the environmental justice and public health literatures are explored with statistical tests and robust spatial regression. Consistent with prior research, this study finds that exposure to heat in U.S. cities is not uniformly distributed and that poor and minority populations are more likely to be negatively impacted. Mean LST is higher in areas that were rated as higher risk in HOLC Residential Security Maps, but that this relationship is mediated by other factors like the density, racial, and ethnic composition of the resident population. This implies that efforts to mitigate the negative impacts of rising temperatures in U.S. cities must be tailored to the local climate, built-environment, and socio-demographic history.

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Key Words: extreme heat, environmental justice, urban planning, redlining

GOING BEYOND SURVEYS: THE NEED FOR COMMUNITY ENGAGEMENT ON TOPICS OF WATER RESOURCES AND REUSE

Abstract ID: 733

Individual Paper Submission

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Freshwater shortages are a concern around the globe, and experts believe that many communities will need to consider water from alternative sources to meet future potable water demands (Van Rensburg 2016). Planned potable water reuse, which involves augmentation of drinking water supplies with highly purified wastewater, may improve the sustainability and reliability of water supplies. The technologies exist to do potable reuse safely, with potable water reuse facilities around the world providing water to customers for decades with no known negative health consequences (Tchobanoglous et al. 2011). However, communities have rejected a number of reuse projects in recent years (Hurlimann and Dolnicar 2010; Po et al. 2003), leading numerous researchers to conduct surveys on public perceptions of potable reuse with the goal of aiding water planners in understanding the feasibility of potable reuse for their communities. Our own experiences with a large community survey suggest that surveys alone are not adequate to accomplish this goal. In this paper, we discuss the shortcomings of surveys and ask: what is the best way to understand public attitudes toward potable water reuse to make informed decisions about water resource and reuse options?

We surveyed 1,831 water utility customers in Albuquerque, New Mexico, on acceptance of potable reuse, trust in institutions, water scarcity-related topics, and demographic information. Using regression models, we demonstrated that demographic data can be used to predict with reasonable accuracy the probability of respondents' willingness to accept potable reuse. We then used chi-square tests of independence to further examine relationships between less-accepting demographic groups and their levels of trust in institutions, prior awareness of potable reuse, and knowledge of water scarcity in the region. However, the survey process contained many shortcomings that prevented a true understanding of public perceptions of and attitudes toward potable water reuse. For example, the survey format required us to ask people to form an opinion about a complicated topic with which they were not familiar, did not allow for adequate

education about the topics being asked about, and our population felt overwhelmed by inclusion of diagrams that attempted to simplify complex technical information.

We propose a broader, more holistic approach to understanding a community's knowledge and perceptions of local water resources and water reuse to engage in informed public dialog about options to improve the sustainability and reliability of the local water supply. We performed geospatial analysis of the water-related knowledge and opinion data collected through our survey, with Census tracts and the local Water Distribution Zones as the units of analysis. We identified "hotspots" of distrust in the local water utility, public willingness (or lack thereof) to accept potable water reuse, and lack of knowledge or misconceptions about water issues and climate change. Combining the public survey data, GIS software, and spatial statistics for hotspot analyses allows for a more tailored and effective approach to public education and outreach. Water planners can use this approach to determine which Census blocks or distribution zones should be targeted for distribution (e.g., through billing inserts) of educational information related to water resource misperceptions. It also provides an opportunity for the local water utility to build trust in pockets of the city where trust is low and begin collaborations with trusted community organizations to help with education and outreach. Finally, since an inclusive public dialog is needed to understand a community's values and enable discussion about future water resource options (Stenekes et al. 2006), we recommend that a Community Conversations format, which combines the best of focus groups and information sessions, can then be used across the city to provide needed education about specific water resource and reuse topics and collaboratively develop options.

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Key Words: water reuse, public perception, trust, public education and outreach, survey research

PLANNING FOR DRINKING WATER PROTECTION: AN ANALYSIS OF GOVERNANCE AND MANAGEMENT IN OHIO

Abstract ID: 739

Individual Paper Submission

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In the U.S., amendments to the Safe Drinking Water Act in 1996 established requirements for states to administer Source Water Protection (SWP) Programs. Under direction from state-level agencies and water industry organizations, public water systems create protection plans for groundwater and surface water drinking sources. Local protection and management efforts to reduce the risk of drinking water

contamination largely rely on land use-based interventions and policies (US EPA, 2002). Yet drinking water protection programs have received less attention in planning.

Previous SWP studies for systems in the U.S. detail procedural approaches to planning through guidance documents and water industry-specific standards, provide best practices for suppliers, and call for broad stakeholder participation (see among others: Sklenar et al., 2012). However, additional analyses are needed to examine the social dimensions related to planning for SWP in the U.S., including governance issues and collaborative efforts. As SWP programs approach the twenty-year mark, more research is needed to examine local and regional planning and implementation efforts to support drinking water quality.

Additionally, updates to the APA Policy Guide on Water call for an integrated approach to land use planning and water management, through “collaborative relationships that lead to holistic planning and integrated water resources management” (APA, 2016). This reframing to acknowledge a land-water nexus faces challenges in both research and practice. For example, barriers exist in collaboration and decision-making across jurisdictions for shared resources and in creating institutions that support the integration of historically separate planning and management institutions and activities (Mitchell, 2005). Literature suggests that “effective governance” is key to overcoming barriers to integrated management (Grigg, 2016). As such, I argue that established SWP programs present an opportunity to examine integration in practice, with a focus on governance and local and regional resource management. This paper uses a multiple-case study design to examine five SWP programs in Ohio that operate at different management scales – three groundwater and two surface water. The study asks two main questions:

1. How does the integration of land and water governance arrangements impact planning, decision-making, and management for the provision of safe and sustainable drinking water sources in Ohio?
2. From a governance perspective, how do practitioners measure SWP program success, and what are the barriers to successful SWP?

Drawing from the collaborative planning, governance, and adaptive management literature, as well as survey results from my larger study of SWP planning across the Midwest, I present a framework to assess the integration of land and water management through the lens of local and regional SWP programs in Ohio. First, I review the most recent SWP assessments and plans, comprehensive plans, land use ordinances, and related water management plans and policies associated with each case study. This content analysis informs question development for the interviews. Next, semi-structured interviews are conducted with public water supply managers, local and regional planners, state-level EPA representatives, and other relevant stakeholders involved in the SWP programs for the five cases, to address the second question. Through characterizing and evaluating the interactions between governance, planning process, and management, the results inform a land-water nexus approach to planning practice and water resources management.

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Key Words: source water protection, water management, governance, collaboration

DOES COASTAL REAL ESTATE MARKET PRICE THE RISK OF SEA-LEVEL RISE: EVIDENCE FROM PINELLAS AND MIAMI-DADE COUNTY, FL

Abstract ID: 741

Individual Paper Submission

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Sea level rise (SLR) has increasingly become one of the greatest concerns facing low-lying coastal areas (Butler et al. 2016). Frequent tidal flooding and severe hurricane storm surges are all the reflections of the increasing risk posed by SLR to coastal communities and its economy. The coastal real estate market, a central component to coastal economy, has been booming because of the preferable amenities like being proximate to the coast, while it is simultaneously considered to be increasingly vulnerable in the face of SLR. This is a particular imminent concern to the coastal communities that rely heavily on their real estate economy, causing challenging policy and planning problems for coastal resilience and sustainability. Recently, a growing number of studies have investigated the potential impacts of SLR on the coastal real estate market (e.g. Bernstein et al. 2019 and Walsh et al. 2019). Notably, Keenan et al. (2018) have found that climate gentrification is already taking place in Miami, FL with properties in higher elevations appreciating at higher rates.

These recent studies all indicate that properties in the potential SLR zones would be sold at a discounted price because of their increased risk and vulnerability to potential coastal hazards. However, few explicitly study the levels of risk that the coastal real estate market has incorporated and its spatial heterogeneity. Thus, this research tests the price effects of different sea-level scenarios and investigates where these depreciated sales are taking place. Miami-Dade and Pinellas County, FL are chosen as two case study areas for their knowingly high exposure to SLR. Using the sales transactions of single-family properties for the period Jan 2004 – Feb 2019 from both counties (i.e. 201729 sales transactions for Miami-Dade, 156442 for Pinellas), a coupled hedonic and linear mixed effect model is applied to disentangle the potential price effects of future SLR scenarios (i.e., 1 to 6 feet). The results highlight that the real estate market in both counties are incorporating the threat of future SLR while the price effects vary between and within each county. For the whole Miami-Dade County, properties exclusively in the 3- and 4-foot SLR zones are appearing to be sold at discounted rates, whereas, surprisingly, the most vulnerable zones (1 to 2ft of SLR) appears to be not affected. For Pinellas County, property sales located exclusively in the 1, 2 and 4-foot SLR zones are at discounted rates. When investigating the price effects in individual cities or town in both counties, many barrier islands are where these discounted sales take place that can be explained by their high risk and vulnerability to future SLR. However, there exist many other highly vulnerable areas that are insensitive to the risk of future SLR, requiring further research.

Our findings highlight that purchasers in both counties have already priced future sea-level rise, yet at different levels. Such preferences are expected to be amplified as sea levels continue rising into the future, stressing the future challenges of finding resilient and sustainable planning pathways facing coastal

planners and decision-makers. Finally, this study concludes by offering perspectives on key issues related to the future public uptake, market responses, and the needed adaptive planning transformations.

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Key Words: Sea-level Rise, Real Estate, Coastal Adaptation, Hedonic Model

A COMPARATIVE ASSESSMENT OF SYSTEMATIC & COORDINATED CONSERVATION PLANNING IN EXURBAN ECOREGIONS

Abstract ID: 749

Individual Paper Submission

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Although gradually increasing, the scientific understanding and longitudinal knowledge about the social and physical impacts of a dominant land conservation method in the United States, the conservation easement (CE), is far surpassed by their ubiquity. In addition to a federal tax deduction that has been increased and extended over time, CEs are now supported through enabling acts in all 50 states (Levin, 2014). But there is little to no institutionalized coordination between these private, contractual but arguably perpetually permanent decisions and local comprehensive planning—except in limited circumstances such as conservation subdivisions (Reed et al., 2013; Gocmen, 2009; Arendt, 1996), local government ordinances requiring CE placement with open space set asides, or local government as a qualified CE holder under federal tax law. Local governments conduct land use planning through regulatory mechanisms such as comprehensive plans and zoning ordinances. Land trusts (LTs) are more regional in nature, and depending on their size, mission, resources, incorporation, and affiliation (with national umbrella land trust nonprofits such as the Trust for Public Lands, the Land Trust Alliance (LTA), etc.), the LTs will use different strategies—both opportunistic and sometimes systematic—when deciding to accept or to actively pursue a CE. Gerber (2012) and Gerber and Rissman (2012), using three total case study sites in two regions, found that there is sporadic and informal coordination between the governmental entities and smaller LTs, and that “an international land trust like The Nature Conservancy maintains an uneasy relationship with the tools of local land-use planning” (Gerber and Rissman 2012, 1852). CE acquisition may contrast with the local government's rational planning approach for land uses within its jurisdiction, but this area is rife for broader examination. In response to this need, we examine

the role and processes of LTs' systematic and coordinated conservation planning in ecoregionally-differentiated but rapidly growing exurban areas of the country.

To do so, we used a semi-structured interview method with the staff of the LTs that we identified through CE instrument coding for CEs placed between 1997 and 2008/2009, where possible, in twelve counties in six ecoregionally-representative states (CA, CO, MN, SC, PA, and VA). With the help of the LTA, we sought to interview the entire population of the LTs holding the CEs placed over this time period. The interviews focused on the LTs' criteria for prioritization (depending on land trust mission and size); whether there is a relationship between the conservation decisions and other conserved lands, and that effect on the other criteria; the role of climate change in their criteria and the relationship with other conserved lands (if at all); the formal and informal coordination mechanisms through which land trusts engage with governmental entities to leverage their conservation priorities and processes; and barriers to coordination with the same. Using two coders for intercoder-reliability, we coded these interviews with first and second cycle coding.

Our findings reveal considerable variation depending on the LT purpose, mission, and their sources of funding for CE acquisition. There is no consistent trend in relationship with the local and county governments, except that public oversight in the CE determination process corresponds to fiscal support. The amount of coordination with local governments or public oversight depends on the CE funding (state, federal, local), which also relates to the LT mission, and the CE holder type. A systematic conservation process is associated with LTA accreditation, and to the CE funding. Climate change considerations are beginning to be incorporated, particularly in areas with immediate physical impacts. The planning community could benefit from greater engagement—whether formal or informal—with their LT counterparts in these rapidly growing exurban areas.

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Key Words: conservation easements, land trusts, systematic conservation planning, coordination with local governments

MUNICIPAL TREE PLANTING: A STRATEGY FOR CARBON SEQUESTRATION AND FOR CREATING A RESILIENT REGION

Abstract ID: 754

Individual Paper Submission

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Climate change is the defining challenge of our time (UNDP 2010). While it has been a natural phenomenon throughout the history of our planet, anthropogenic factors have contributed to unstable and rapid changes in climatic conditions that no longer fall within the normal range of variability. Human related greenhouse emissions, specifically carbon dioxide (CO₂), have been identified as the primary driver of recent and projected climate change (Masson-Delmotte et al. 2018; EPA 2016). Recognition of the issue and driver allows individuals, communities and/or political units to identify potential solutions and integrate resiliency measures into future planning.

One example of a community committed to reduce its contributions to anthropogenic caused climate change is Park City, Utah. This mountain town plans to achieve carbon neutrality in most municipal operations by 2022, and city-wide by 2032 through their net-zero initiative. While considerable effort has been dedicated to transitioning municipal operations to renewable energy and implementing energy and water efficiency measures, attention has now shifted to improving or establishing carbon sinks. One of the more ambitious carbon sequestration projects includes the planting of 100,000 new trees on city-owned property and private land. This project was the basis of our research, which aimed to determine if the planting of 10,000 trees is a feasible option for reducing atmospheric carbon for a western mountain town.

Municipal tree planting initiatives are not novel strategies. They have been implemented in rural and urban (Pincetl, 2010) communities, with varying degrees of success. However, this project is unique because it is the first instance where planting is only one component of a municipality's strategy to become carbon neutral and because other carbon sequestration alternatives are analyzed in conjunction to select a scenario that establishes the greatest level of resiliency within the community and surrounding region. Our study is separated into three primary phases and is influenced by the Steinitz method (Steinitz, 1995). First, we completed a land suitability analysis that considered various native tree species, geomorphic features and resource requirements. Second, we identified potential limitations or risks associated with the project. Due to Park City's geographic location and projected population growth, water availability and quality as well as wildfires could limit the project or be adversely impacted by the influx of new vegetation. Finally, we considered other carbon sequestration alternatives, such as wetland restoration, to identify the best scenario that should be adopted for Park City's initiative. Geospatial analyses resulted in maps and visualizations that were uploaded into a web hosted storymap to ensure that the findings could be easily disseminated to all interested parties.

Our preliminary findings have ascertained that while the planting of 100,000 is physically possible, the constraints of space availability, irrigation, open public property, and risks make it inadvisable to pursue such an endeavor without reducing or substituting the number of trees planted with other sequestration alternatives. These key contextual, biophysical, social and economic considerations directly influence the feasibility of the initiative. While the findings of this study are specific to Park City, they could benefit similar municipalities or communities throughout the West that are implementing their own carbon neutral or reduction initiatives. If the recommended scenario is adopted by Park City, further research should be pursued on the project's implementation success as well as the long-term impacts the initiative will have on climate change mitigation and community resiliency.

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Key Words: Park City, Utah, Carbon Sequestration, Carbon Neutrality, Resiliency, Tree Planting

ROBUST ADAPTIVE PLANS, USING BOTH GRADUAL AND SUDDEN CHANGE SCENARIOS

Abstract ID: 768

Individual Paper Submission

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Hazard mitigation planning generally takes place at the municipal or county level and is rarely incorporated into comprehensive planning (FEMA, 2013). This paper reports on the initial stages of a community workshop-based action research project to consider multi-hazard mitigation as a step in updating a local comprehensive plan, and in the process: (1) identify opportunities for more robust mitigation strategies than is typical in “worst-case” hazards planning processes -- i.e. strategies that are appropriate for more than one type and severity level of hazard, as well as for the achievement of on-going community development goals --, and to (2) articulate more clearly the nature of conflicts between mitigation and those goals. In order to capture a meaningful extreme of robustness in the strategies they generate, community stakeholders considered scenarios of both gradual change (sea level rise) and sudden, more existentially threatening change (near-source megaquake tsunamis). Moreover, both types of hazards were presented according to varying levels of likelihood.

The context for the project is the Washington coast, where there is a 10-15% chance of a magnitude 9 earthquake occurring along the Cascadia Subduction Zone (CSZ) within the next 50 years. Although rare -- with recurrence intervals of 250-500 years or approximately 2,500 years, depending on the magnitude -- coastal areas are preparing for shaking intensities, tsunamis, subsidence and other hazards resembling the 2011 east Japan event. A CSZ megaquake could kill more than 10,000 people and injure over 30,000; economic loss could exceed \$70 billion (CREW, 2013). Recognizing the serious natural hazard threats it faces, the Westport/South Beach community, located on a low-lying peninsula at the mouth of Grays Harbor, self-funded and constructed the first tsunami vertical evacuation site in North America. To build on this achievement, the City of Westport seeks to incorporate broader hazard mitigation into its Comprehensive Plan update, to apply for FEMA Tsunami Hazard Mitigation assistance for additional vertical evacuation structures, and to develop more comprehensive land use strategies and infrastructural investments for mitigation that are synergistic with long-term planning goals.

The University of Washington team and community partners began by reviewing the Grays Harbor County Multi-Jurisdictional Hazard Mitigation Plan and City of Westport Comprehensive Plan to identify opportunities and challenges for integration using FEMA’s Safe Growth Integration Tool (FEMA, 2013).

We then used probabilistic sea level rise projections, two tsunami inundation models and maps of post-coseismic-subsidence coastline change to inform a series of community workshop activities focused on the development of strategies for both immediate response (safety, in the case of tsunami inundation) and long-term adaptation. In the workshops, prior to working with the hazard information, participants first identified and mapped community values and assets they would like to preserve or enhance through hazard mitigation and comprehensive planning.

We found that a significant number of mitigation strategies developed in the workshops were focused on community survivability and transformation because the tsunami scenarios were existentially severe, while the sea level rise scenario left greater room for mitigating strategies that would preserve recognizable community identity. Given time, however, even strategies to mitigate a devastating tsunami (e.g. safe evacuation and resettlement on higher ground inland) could accommodate community identity if prepared for gradually and incrementally.

In this project, we found that values-driven, asset-based participatory community workshops in which stakeholders can consider both chronic/gradual and episodic/sudden hazards can aid in producing long-term, localized resiliency plans. Considering multiple, low-to high-severity hazard scenarios is helpful for developing robust land use strategies for inclusion in comprehensive plans, while focusing only on severe (but low-probability) existential threats produces a more limited set of strategies.

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Key Words: action-research, community engagement, hazard mitigation, resilience

CLIMATE CHANGE AND URBAN PLANNING IN KOREA

Abstract ID: 772

Individual Paper Submission

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Climate change agenda has become a serious threat to the globe and Korea, in particular, has experienced a much higher temperature increase than the global average, 1.7 degree Celsius, over the last century. The country has introduced various measures to combat climate change, leading the green growth advocate on both global and domestic level, the concept of which emphasizes an opportunity of countries to achieve economic growth in a sustainable way. However, not much research has been conducted to assess whether the country has well addressed the climate agenda in its urban planning, which plays an important role in both climate change mitigation and adaptation. Against this backdrop, the study aims to first review ROK's policies for climate change and evaluate the magnitude of attention given for climate

change mitigation and adaptation in spatial plans prepared for major Korean cities by conducting a content analysis. The measuring criteria and framework for the content-wise evaluation of the spatial plans in response to climate change mitigation and adaptation were developed based on a thorough review of international and local researches. The general framework for the evaluation focuses on major components of spatial planning that are closely related to climate change agenda, including land use, transportation, energy, waste, construction, water, and biodiversity. Horizontal evaluation has been done on spatial plans prepared for six metropolitan cities in South Korea, namely; Seoul, Busan, Daegu, Daejeon, Incheon, and Ulsan for a selected spatial plan year, 2030. This revealed a strong and nationwide attention to climate change mitigation and adaptation agenda during the preparation of spatial plans as almost all of the important aspects have been well addressed. On the other hand, a vertical evaluation, which was conducted for the evaluation of spatial plans prepared for Seoul metropolitan area for planning years, 2011, 2020 and 2030, discloses the positive change in the integration of climate change mitigation and adaptation agenda in spatial planning through time. The results suggest that the efforts to incorporate climate change agenda in urban planning at the government level has played a major role towards achieving climate resilient cities in the country.

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Key Words: Climate change, adaptation and mitigation, spatial plan evaluation

RECOVERY IN COASTAL NEW JERSEY AFTER SUPERSTORM SANDY: A LONGITUDINAL EVALUATION OF THE FEDERAL DISASTER RECOVERY PROGRAMS

Abstract ID: 776

Individual Paper Submission

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Decisions to rebuild or relocate after disasters have the potential to cause dramatic changes in the composition of a community, either redressing or exacerbating pre-existing socio-economic conditions. The quality and speed of recovery after disasters is most clearly manifested through housing recovery within the impact area. The trajectories and distribution of housing recovery over time and space reflect both the speed and quality of disaster recovery and are therefore major indicators of the success or failure of the overall disaster recovery policies.

Superstorm Sandy, which caused extensive damage in New York and New Jersey coastal areas in 2012, was one of the most economically and physically damaging disasters. To assist disaster-impacted states' recovery efforts, the federal government enacted the Disaster Relief Appropriations Act of 2013, which

appropriated one of the biggest disaster relief and recovery assistance package in U.S. history. Among the monies appropriated, \$16,000,000,000 were allocated in HUD's Community Development Block Grant Disaster Recovery (CDBG-DR) Funds.

This paper presents a longitudinal evaluation of the CDBG-DR program. Our research questions are twofold. First, did the CDBG-DR program facilitate a speedy recovery after Superstorm Sandy? Second, did the CDBG-DR program take the opportunity of the disaster recovery to build back better (i.e. incorporating disaster mitigation strategies to reduce future risk)?.

Data on CDBG-DR recovery grant allocation was collected from the State of New Jersey Office of the State Comptroller. This office publishes quarterly reports on funds distribution within the State of New Jersey. Other data for this analysis came from three different sources. Pre-disaster socio-demographic information of the impact area was collected from the US Census Bureau American Community Survey 2011 5-year estimates. The damage variables were collected from the State of New Jersey Department of Community Affairs. Damage assessment was based on FEMA Individual Assistance Records.

Our analysis showed that disasters can magnify and accelerate housing processes already occurring in communities. During the recovery process, pre-existing housing inequities related to household characteristics and housing tenure are at risk of being exacerbated. Differences in hazards exposure, the structural quality of homes, financial capabilities, and uneven performance of federal housing recovery programs widen housing gaps between population groups during disaster recovery in the impact areas. Three approaches to overcome these problems in the United States are discussed.

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Key Words: Disaster resilience, CDBG-DR, Disaster recovery, Superstorm Sandy

A STUDY OF RISK PERCEPTION IN COMMUNITIES RESIDING NEAR NUCLEAR POWER PLANTS

Abstract ID: 781

Individual Paper Submission

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The nuclear power industry has experienced a considerable amount of controversy since its early development in the 1950s. The efficiency of nuclear energy is quite apparent, but concerns have remained throughout the industry's history regarding the potential consequences if a facility malfunctions. In spite of the incidents at Three Mile Island, Chernobyl, and Fukushima, growing concerns regarding greenhouse gas emissions and climate change along with an increased demand for energy have cast nuclear power in a positive light as nuclear power plants do not burn fuel (Duke Energy Progress, 2018). However, public

opposition has often hindered the growth of the nuclear power industry in the United States. Numerous studies have been conducted through the years to understand public perception of nuclear power plants, but the results of such studies tend to be heavily influenced by the events at the times they were conducted. A study published in 1983 found that the public perceived nuclear power plants as high-risk facilities while natural gas burning power plants, coal burning power plants, and oil burning power plants were perceived as low-risk facilities (Lindell and Earle, 1983). Bickerstaff et al. (2008) conducted a study on public perceptions of nuclear power in the United Kingdom with growing concerns regarding climate change. They found that only 2 of 32 individuals consistently viewed expansion in the nuclear power sector as an acceptable route to mitigating climate change (Bickerstaff et al., 2008). Influxes of studies regarding public perceptions of nuclear power risk were published following the Fukushima incident of 2011. Siegrist and Visschers (2012) conducted a longitudinal study on public perceptions of nuclear power before the incident at Fukushima, immediately after, and half a year later. They found that the incident at Fukushima had a negative impact on the acceptance of nuclear power (Siegrist and Visschers, 2012). Furthermore, Ramana (2011) found that public support for nuclear power has declined since the Fukushima incident in Japan as well as many other countries.

There appears to be a lack of recent literature on public perceptions of nuclear power. Such studies are extremely important, as the United States has attempted to expand its nuclear power industry with growing concerns over climate change and the demand for energy. However, the literature is also lacking studies that examine vulnerability in relation to residents residing near nuclear power plants. The purpose of this research project is therefore to observe risk perceptions of residents residing near nuclear power plants in order to examine if the expansion of the nuclear power industry in the United States is worth the risk. This question was addressed through door-to-door surveys of residents residing within 10 and 20-mile radii of two nuclear power plants in Illinois. Questions pertained to perceived benefits of the nuclear power plants, perceived levels of safety, resident awareness of preparedness strategies, and resident understanding of how nuclear energy works. Results were analyzed with a variety of statistical tests in SPSS. The overall findings suggest that most respondents found the nuclear power plant in their communities to be beneficial, and provided high overall levels of safety. Most of the respondents reported receiving preparedness strategy packets, but very few had Potassium Iodine pills at home. Finally, about half of the respondents were able to provide an accurate description of how nuclear energy works. This research poses important implications for the scholarship and practice of planning by giving a voice to the residents who face the highest risk in the event of an incident at a nuclear power plant, and addressing some of the strengths and shortcomings of the current preparedness procedures in the two case study communities.

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Key Words: nuclear power , risk perception , vulnerability , energy , preparedness

REGIONALLY- AND GLOBALLY-MINDED CITIES FOR BIODIVERSITY

Abstract ID: 794

Individual Paper Submission

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The concept that the environmental impact of a particular area may occur at a distance and even at a larger scale than is immediately apparent is called telecoupling (Liu et al. 2013). Folke et al. quantified the impact of cities to be 500-1000 times larger than their legal boundaries (1997). Global-level initiatives such as the Aichi Targets and measurement tools such as the ecological framework (Rees and Wackernagel, 1996; Rees, 2008) are intended to aid cities in making connections with larger scale impacts. But, are cities using them in their actual ecological planning?

This research project investigates how North American cities make the connection between local biodiversity plans and biodiversity outcomes beyond their borders. The primary research question is: How are cities considering the implications of their biodiversity planning at scales beyond their borders? Subquestions considered here include:

1. How do cities communicate global implications and connect them to local concerns and decisions?
2. What indicators do they use to track their impact on global biodiversity?
3. Which programs do they rely on to standardize their approach?

Cities and metro regions in Mexico (2 plans), Canada (20 plans) and the USA (18 plans) have produced plans that discuss biodiversity. These plan documents will be the primary data source for this research. Using lexical analysis software (NVivo), we have analyzed these plans for references to biodiversity impacts outside of their borders. We located references in the plans to global biodiversity measures (carrying capacity, planetary boundaries, ecological footprint, ecological integrity, Aichi Targets, and the sustainable development goals (SDGs)) and regional measures (watershed, rural, region). Occurrences of these terms were then manually reviewed and analyzed for their communications strategies and connections. We also conducted a corresponding analysis of urban biodiversity programs used by cities in the region, such as the ecological footprint, the Biophilic Cities Network and the BiodiverCities approach.

The outcomes of this research include an analysis of the scales that cities consider when it comes to biodiversity planning, a typology of approaches taken by cities and the identification of those approaches that have promise in terms of taking a more comprehensive approach to larger scale impacts and connecting to global indicators.

We found that while it was relatively common for cities to discuss regional-level concerns and connect their activities to concerns at the watershed (65%), rural (63%) or regional scale (80%), it was far less common to consider global concerns. Eight plans, all in Canada, discussed the concept of an ecological footprint. Only Saskatoon included the results of city-level ecological footprint calculations. None mentioned the BiodiverCities approach nor their membership in the Biophilic cities network. Only Rancho Palos Verdes references the SDG framework to guide its biodiversity planning. Only Mexico City discussed Aichi targets. Only Calgary referred to their National Biodiversity Strategy. Thus, programs for

biodiversity planning seem to have not yet had a standardizing impact on these cities. No cities stood out in particular as having comprehensively considered scales above the regional level.

These findings reinforce the theory of a gap between biodiversity actions at the local level and outcomes and actions at national and global scales. Based on these findings, we would encourage more cities to consider their impact on a global scale, and to link their activities to global targets and national strategies. In regards to urban biodiversity programs, our findings suggest an increased responsibility for these programs to link national and global scale initiatives to local planning. Our findings also suggest that global and national initiatives may not consider local concerns and context, and thus may be difficult for cities to integrate into local planning.

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Key Words: telecoupling, biodiversity, ecology, SDGs

INFORMAL SETTLEMENTS AND LAND SURFACE TEMPERATURES IN MUMBAI, INDIA: A FRAMEWORK FOR ADDRESSING VULNERABILITY TO EXTREME HEAT

Abstract ID: 804

Individual Paper Submission

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Heat waves are getting longer and more intense. While responding to this growing threat is a priority in cities around the world, megacities in developing countries face a particularly difficult challenge. Many of these cities have a history of heavy casualties attributable to extreme heat, a large share of extremely vulnerable populations, and depleting natural resources.

Numerous frameworks have emerged to map and respond to these challenges, but their impact remains limited. Within the umbrella of climate planning, Heat Action Planning is the predominant approach to organizing and coordinating response activities (Stone 2012). In India, efforts such as the Ahmedabad Heat Action Plan (NRDC 2017) and Heat Action Plan for Odisha (OSDMA 2016) are the most visible municipal and state efforts, respectively. These efforts, however, are likely to have limited efficacy due to little attention such efforts pay to the environmental and social factors that create urban vulnerabilities.

In this paper, we attempt to address this gap using the case of Greater Mumbai region in India and by better understanding the relationship between informal settlements – areas with concentrated vulnerable populations – and land surface temperature, and by examining additional environmental and physical factors that mediate this relationship. First, we develop and apply a spatial data framework that captures key urban typologies such as informal settlements more appropriately. These datasets employ municipal data for 2015 (latest data available) along with Land Surface Temperature data from Landsat 8 for May 2015, the hottest time in Mumbai for which such data is available. On the selected day land surface temperature in Mumbai varied from 25 degree Celsius to 45 degree Celsius. The different data layers are initially consolidated into five – residential (formal), informal, forest, roads, and others). Notably, our analysis involves adding a dataset that captures degree of development intensity, separately from land use type. For this, we use Defense Meteorological Satellite Program's nightlight data.

Second, we use a novel statistical approach called geographically development weighted regression model that capture the relationships more appropriately and accurately than other approaches. To measure the localized land use's contribution to LST, the evaluated land surface temperature is chosen as dependent variable and the six classified land uses are chosen as independent variables. The research area is divided into 1922 cells whose size is 500m*500m which is commonly walking distance. The development level which is derived from nightlight data is assigned to each cell as the third dimension of the model. The model measures the different kinds of land uses' contribution to LST considering the spatial and development heterogeneity.

Comparing the results of our model shows that proportion of informal settlements are the strongest drivers of land surface temperature, and variables such as forest cover and tree canopy provide expected cooling effects. Formal settlements are also positively correlated with higher LST but much less so than informal settlements. Our ongoing work is exploring how the model results vary seasonally, for night time temperatures, and when additional factors such as air quality variations are taken into effect.

We hope to use the findings from the models in the future to explore implications of different land development scenarios, especially for the vulnerable populations in informal settlements, and the role of urban greening practices currently popular in Mumbai and around many Indian cities.

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Key Words: extreme heat, vulnerability, nightlight

A THREE-DIMENSIONAL DIGITAL CITY APPROACH TO ASSESS THE ROLE OF URBAN SHADES IN MICROCLIMATIC MODERATION

Abstract ID: 828

Individual Paper Submission

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This study examines the role of urban trees in regulating the local microclimate, with special attention to the heat mitigation capacity of urban shades created by tree canopies and buildings. Devising a natural and design-based solution to combat local warming is a very important urban planning issue. Increasing temperatures are expected to strike urban communities more harshly due to the Urban Heat Island (UHI) effect, threatening public health and safety. Extreme heat waves are already responsible for more deaths in the U.S. than any other climate-related hazard such as hurricanes, tornadoes, and flooding, with more than 65,000 Americans suffering acute heat illness every year (USGCRP, 2016). To advance our understanding of a more climate-resilient urban structure and design, this study examines the feature of urban land-use structure that could better counteract rising temperatures, with a particular focus on the effective use of shades.

Recent advances in geospatial analytics and the proliferation of public geospatial big data have opened the door to a more sophisticated digital representation of complex urban geometry in three-dimensional (3D) space (Park & Guldman, 2019). Large-scale parameterization of 3D building structure and street viewshed have shown that building configuration affects localized temperatures by regulating solar irradiation absorption, air ventilation, and shadow area (Alavipanah et al., 2018). One underexamined but critical aspect, however, is the role of shades projected by trees. There is only limited research on tree shadow effects, mostly experimental and focusing on a few sites and individual trees (Zheng et al., 2018). Tree canopies are omnipresent, especially in residential settings, and particularly relevant for controlling summertime temperature, when trees reach their full potential in evapotranspiration and shading. Also widely missing in the literature is the joint consideration of the area and location of the produced shades and the type of ground covered by them. There is only limited research that interfaces a 3D vegetation model with surface temperature analysis at city-scale, and no study has analyzed the effects of shade amount and sub-shadow land-use heterogeneity.

The three major component of the research are: (a) developing a system of multiple map layers representing 2D/3D land uses, including shade layers geometrically derived from a 3D digital city model consisting of buildings and trees, as well as 2D land covers and features; (b) computing 2D and 3D land-use variables; and (c) estimating statistical and machine learning models that predict observed thermal variations. Urban thermal conditions are represented by land surface temperatures (LST) as derived from thermal infrared remote-sensing imagery. The summertime surface temperatures in 2015 are obtained from Landsat 8 Thermal Infrared Sensors (TIRS) Analysis Ready Data (ARD), with a thermal band of 100m resolution (USGS Earth Explorer platform). The City of Columbus, Ohio, is the study area, covering both urban and suburban areas. It is a particularly relevant case for urban heat risk studies, as Columbus is ranked as top 8th among sixty largest U.S. cities for UHI severity (Kenward et al., 2014).

The key aim of this research, the quantitative modeling of the relationship between land-use structure and local temperature, is critical for the development of metropolitan greening strategies and judicious decision-making on land development. The research outcomes could also be used to formulate detailed guidelines about community greening and tree planting efforts in terms of effective spatial configuration of local trees (tree crown size and location) by providing empirical evidence on local heat mitigation.

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Key Words: Microclimatic moderation, Urban shades, 3D city model, Community greening

ADAPTING THE SOCIAL-ECOLOGICAL SYSTEMS FRAMEWORK (SESF) TO ENVIRONMENTAL PLANNING & INFRASTRUCTURE PROVISION IN SLUMS

Abstract ID: 862

Individual Paper Submission

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I adapt the Socio-Ecological Systems Framework, developed for natural resource management, into a new context: waste management infrastructure provision in urban ‘slums’ precariously located along stormwater drains flowing into one of the world’s most polluted rivers.

Drain-adjacent slums as Social-Ecological Systems (SES)

An SES perspective reveals that environmental planning for Delhi stretch of river Yamuna is interwoven with lack of sanitation and waste disposal infrastructure in drain-adjacent slums. Residential sewage contributes high organic load and fecal matter into open-access stormwater drains emptying into river Yamuna; within this subset, ~250 drain-adjacent slums appear as “blank spaces” in plans for river remediation and infrastructure (Syal 2019a). Continued lack of access to infrastructure means continued waste disposal into drains. As a drain flows along a slum, water quality worsens with respect to some parameters, but pollution predominantly occurs upstream of the settlements, likely from waste discharged by ‘formal’ facilities like dairies, industrial areas, residential areas (Syal 2019b). While per capita contributions are smaller, excluding ~1.54 million people in plans means that sewage treatment plants and drains are unprepared to deal with their fecal matter (ecological_{site-scale} ↔ ecological_{regional-scale}). Not only does waste disposal result from inadequate, inaccessible, infrequent and incomplete infrastructure and service provision, but the same waste cycles from one space to another within the SES due to regulatory overlap (ecological_{site-scale} ↔ social_{site-scale}) and becoming an excuse for unjustified evictions (Syal 2019c). An institutional analysis helped decipher that several formal and informal rules provided by State and National legislations incentivize different stakeholders to act in ways that result in problematic outcomes: deficient infrastructure/service provision, improper waste disposal, flooding (social_{site-scale} ↔ social_{institution-scale}) (Syal 2019d). These multi-scalar, nonlinear, reciprocal dynamics between drainage flow dynamics, waste-related infrastructure, land development, and the institutions managing them must be studied in an integrated way, using the SES Framework.

SESF analysis

In an SESF, first-tier variables (Resource System, Resource Units, Governance System, Actor Groups) interact to produce outcomes at the SES level, second-tier variables are characteristics that describe the first-tier variables, and third-tier variables are sub-categories of second-tier variables. For instance, rules are a second-tier variable describing one aspect of the governance system, a first-tier variable, and rules can be sub-categorized as constitutional, operational, or collective-choice, making those three third-tier variables. To describe the second and third-tier variables in my framework, I used data on drain water quality, land use, policy and legislation on infrastructure and service provision as well as regulations on environmental quality and 'slum development', and data from in-depth semi-structured interviews with settlement dwellers, regulatory agencies, and nongovernmental and community-based organizations involved in sanitation and/or environmental remediation in Delhi. I systematized interactions between Resource System (drain), Resource Units (clean drain water), Governance System for infrastructure/service provision, and Actors (residents, regulatory agencies, NGOs). Then, I analyzed how these interactions produce the outcome of improper waste disposal into drains. The goal of analysis is not (yet) to determine causality, but thoroughly document the variables describing the system (hence the term 'framework' not 'model'), and qualitatively assess the myriad interactions between social and ecological components.

Significance

Already engaged in developing the framework in case studies on different resources—irrigation, fisheries, forests, lakes—across the world—Nepal, India, US, Chile, Mexico (Hinkel et al 2015), SESF theorists have called to adapt the framework to contexts beyond resource management. SESF is a critical tool to study metropolises as socio-natural systems, not just socio-politico-economic entities adjacent to (or dependent on) natural systems.

SESF analysis involved using primary and secondary data on ecological impact, infrastructure access, stakeholder behavior, and wastewater governance, so it is a first step in demonstrating the use of a complex analysis framework in a notoriously data deficient context: urban informality.

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Key Words: social-ecological system, urban informality, environmental planning, infrastructure, waste management

ENVIRONMENTAL GENTRIFICATION OR ENVIRONMENTAL JUSTICE? THE FRAMING OF URBAN GREEN SPACE

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Public urban green space has been touted to provide a variety of social and environmental benefits, such as filtering air, attenuating noise, cooling temperatures, receiving stormwater, and replenishing groundwater.[1] Green space amenities, however, are not equitably distributed and are “highly stratified based on income, ethno-racial characteristics, age, gender, disability, and other axes of difference.”[2] The disparity in access to green space has been recognized as an environmental justice issue that advocacy organizations have dedicated themselves to addressing. As green space has expanded in traditionally underserved neighborhoods, however, those same organizations have begun to frame the arrival of green space as environmental gentrification.[3] While scholars have studied how organizations have engaged in environmental justice or environmental gentrification processes, tracking the evolution of an issue from “justice to gentrification” has not yet been addressed. How has the framing of publicly owned urban green space by community organizations changed over time, specifically in relationship to changes in demographics and property values?

This question is addressed in this paper through a comparative case study of two neighborhoods and organizations that have been at the center of environmental justice and environmental gentrification conversations: Alternatives for Community and Environment (ACE) in the Roxbury neighborhood of Boston, MA and WE ACT in the Harlem neighborhood of New York, NY. An “attention indicator” was created for each organization by coding their publications, social media presence, op-eds, as well as news coverage of the organizations from 2000 – 2019 to categorize their work on green space as either an environmental justice or environmental gentrification issue. This attention indicator was tracked alongside U.S. census data of demographic changes and changes in property values in the respective neighborhoods to understand the corresponding context of the change in framing of urban green space.

Preliminary findings suggest that the framing of urban green space by advocacy organizations as an environmental justice or environmental gentrification issue is correlated with a change in the demographic composition of a neighborhood but not a change in property values. An environmental justice framing is more common when a neighborhood is a majority-minority population and an environmental gentrification framing is more common as white residents begin to outnumber minority residents of a neighborhood. The change in framing is not correlated with a change in property values.

This research makes an important contribution to bridging the environmental justice and environmental gentrification literatures by studying how the same issue can be framed differently by the same organization over an extended period of time. This analysis of shifts in framing may also have important implications for our understanding of belongingness in a gentrifying neighborhood, a key research agenda for those studying neighborhood change.[4]

[1] Sudipto Roy, Jason Byrne, and Catherine Pickering, “A Systematic Quantitative Review of Urban Tree Benefits, Costs, and Assessment Methods across Cities in Different Climatic Zones,” *Urban Forestry and Urban Greening* 11, no. 4 (2012): 351–63.

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Key Words: framing, urban green space, environmental justice, environmental gentrification

(UN)EQUAL TERRITORY OF ACCESSING URBAN GREEN SPACES: A COMPARATIVE STUDY OF 341 PREFECTURE-LEVEL CHINESE CITIES.

Abstract ID: 883

Individual Paper Submission

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Urban green spaces (UGS) provide multiple ecosystem services to residents, including recreation, air cooling and cleaning, storm runoff mitigation, soil preservation and carbon sequestration, and more. In Chinese cities, typically in dense urban built-up areas, green spaces are often limited due to ongoing processes of rapid urbanization which deprioritizes UGS development. This often leads to the unequal provision of UGS among a city’s residents, which results in a number of negative consequences for both social integrity and sustainable development at a boarder scale. Though a limited number of studies investigate spatial mismatches of UGS in individual cities, it is difficult to compare the results across many distinct cities due to the varying definitions, scales, and evaluation methods employed within each. Fueled by contemporary development of big-data, this study develops two useful urban green space equality indexes based on the Gini-coefficient to compare the green space-related inequality among multiple cities. One is an urban green space equality index (UGSE) measuring the equitable distribution of overall urban vegetation within a city; and the other is an urban public green space equality index (PGSE) focusing on public’s access to vegetated spaces.

The UGSE and PGSE at the national scale are 0.459 and 0.631, respectively (higher means more unequal). Strong disparities have been found in urban green space provision within the 341 case study cities. The UGSE ranges from 0.087 (Alashan) to 0.884 (Jiuquan), and the PGSE ranges from 0.059 (Naqu) to 0.884 (Lasa). Statistical analysis confirmed a significant association between urban green space equality and socio-economic statuses of a given city. Cities with a greater percentage of highly educated residents tend to have a higher level of inequality of accessibility to urban green spaces and parks. The

average housing area per capita of a city is negatively associated with urban green space inequality. A city with a higher share of urban hukou residents (often considered to be advantaged residents of a city) provides more equal distribution of both urban green spaces and public green spaces. These findings can help decision makers evaluate regional disparities in urban green space inequality thereby providing important information for urban green space provisioning, policy, and planning.

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Key Words: Urban vegetation, Urban public green space, Spatial disparity , Gini index, Comparative Study

EXPLAINING SPATIAL VARIATIONS IN RESIDENTIAL ENERGY USAGE INTENSITY IN CHICAGO: THE ROLE OF URBAN FORM AND GEOMORPHOMETRY

Abstract ID: 885

Individual Paper Submission

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Understanding the spatial pattern of energy consumption within buildings is essential to urban energy planning and management. In this study, we explore the spatial complexity of residential energy usage intensity, with a focus on urban form and geomorphometry attributes of urban ventilation, solar insolation, and vegetation. We use building energy use data in Chicago at a Census tract level and merge information from various datasets including parcel attributes, three-dimensional geometry, aerial imagery, and Census. Using spatial regression models, we find that while vegetation and isolation have more local impact on energy intensity, urban porosity and roughness length have consistent spillover effects on building electricity usage intensity in Chicago. Additionally, these relationships are seasonally varied.

This study can aid planners to think critically about low-carbon urban form and formulate spatially explicit policies to improve residential energy efficiency through land use patterns. Our findings indicate that local planning efforts to mitigate climate change should include urban ventilation strategies. In

addition, the spatial spillover effects must be carefully considered when developing these strategies in summer to reduce building electricity EUI. For instance, the urban porosity level in adjacent neighborhoods must be kept high to promote the intrusion of the cool air, especially in summer. Meanwhile, the surface roughness must be kept low to potentially formulate the ventilation path in urban environments (Barlag and Kuttler, 1990; Gál and Unger, 2009). Finally, neighborhood-based urban form strategies should become part of the policy mix to control EUI, as well as to mitigate and adapt to climate change, regardless of the effectiveness of the current local planning efforts to increase building energy efficiency at the building or household levels.

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Key Words: energy consumption, urban form, geomorphometry, microclimate, urban sustainability

INTEGRATED CLIMATE ACTION: HARMONIZING CLIMATE CHANGE MITIGATION AND ADAPTATION IN TRANSPORTATION AND LAND-USE PLANNING IN CALIFORNIA CITIES

Abstract ID: 902

Individual Paper Submission

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Recent extreme weather events in California—wildfires, drought, and flooding—make abundantly clear the need to plan effective responses to climate change. At the municipal level, comprehensive planning for climate change involves a two-pronged approach, identify and implement strategies to both reduce greenhouse gas emissions (“mitigation”) and adapt communities so that they will be less affected by the adverse impacts of climate change (“adaptation”). The goal of this paper is to identify municipal transportation and land-use (TLU) policies and programs that support both climate mitigation and climate adaptation goals—so called “integrated actions”—as well as to identify state actions that can support cities planning integrated actions to address climate change. The value of integrated actions has recently become widely acknowledged; current research emphasizes the importance of integrating mitigation and adaptation in order to develop cost-effective strategies to combat climate change and protect vulnerable communities. The overarching question that we aim at answering is: how can California maximize the opportunities for local governments to adopt TLU programs and policies that reduce transportation GHG emissions while simultaneously enhancing community resilience to climate change impacts? This research involves three major phases: a comprehensive review of the literature; a content analysis of 23

municipal climate action plans (CAPs) and their related documents, such as any progress monitoring documents, general plans and zoning codes; and interviews with municipal and state administrators involved in the CAP processes. We found a wide diversity of planning processes and documents to address climate change and a range of efforts to integrate mitigation and adaptation in TLU planning in California cities. Despite the theoretical benefits of integrated actions, planners might find them hard to develop in practice for a variety of reasons. One problem is that both local and state governments have often addressed mitigation and adaptation in separate plans, and also sometimes prioritized one over another. The result can be major conflicts between mitigation and adaptation strategies. For example, encouraging high densities in urban areas can reduce vehicle miles traveled, and thus mitigate transportation emissions. However, densely-built environments risk making communities less resilient: communities with less open space may face higher flooding risks and be more likely to suffer from an urban heat island effect. As a conclusion, without a clear, coordinated effort to combine adaptation and mitigation goals into a holistic vision, mitigation strategies can potentially undermine adaptation goals and vice versa. Findings of this research can help planners identify steps that local and state government can take to create positive interrelationships between mitigation and adaptation in the TLU sector through innovative planning, policymaking and implementation.

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Key Words: Climate Action Planning, Transportation and Land-Use, Greenhouse Gas Emissions Mitigation, Climate Adaptation, Climate Resilience

A TEDIOUSLY MAPPED FANTASY: EXPLORING MCHARG'S APPROACH TO ECOLOGICAL PLANNING IN THE TWIN CITIES METROPOLITAN REGION

Abstract ID: 931

Individual Paper Submission

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In 1969, Ian McHarg published his seminal book *Design with Nature*. In it, he articulated an ecologically informed theory and method for planning. In the same year, McHarg and his colleagues, Wallace, Roberts, & Todd, prepared a report on the ecological conditions of the Twin Cities for the Metropolitan Council of the Twin Cities, which applied McHarg's approach, at scale, for the first time (Wallace, et al. 1969). This paper uses WMRT's work in the Twin Cities to evaluate the practical impact of McHarg's

approach to designing with nature. Here, we report on a two-pronged, mixed-methods evaluation of “An Ecological Analysis of the Twin Cities Metropolitan Region” completed to commemorate the fiftieth anniversary of the publication of “Design with Nature.”

First, we conducted a qualitative analysis of policy changes made by the Twin Cities Metropolitan Council in reaction to the WMRT report. We analyzed historic documents and conducted key informant interviews to identify McHarg’s recommendations to the Metropolitan Council and assess how those recommendations influenced regional policy development. Findings from this analysis were inconclusive. On one hand, the documents we reviewed pointed to a connection between McHarg’s report and policies adopted by the Met Council. However, key informant interviews suggested that, behind-the-scenes, McHarg’s influence on regional policy was negligible.

Second, we conducted a quantitative spatial analysis of the product of McHarg’s method: the Intrinsic Suitability Map. The purpose of this analysis was to compare McHarg’s map to contemporary land cover in order to assess the predictive accuracy of McHarg’s method. McHarg’s original paper map, which was approximately 45,000 square centimeters and contained more than 13,000 unique, hand-painted spatial features, was scanned, geo-referenced, and digitized. ArcScan, an add-in to Esri ArcGIS Desktop 10.6.1, was used to convert the image to a line vector layer defining the ecological areas. While the scanning process identified the majority of the lines, about 130 hours of manual editing was required to close polygons and remove leftover artifacts. Finally, the lines were converted to polygons, allowing the ecological area attribute to be added. The resulting spatial dataset was then rasterized and compared to 2016 land cover using tabulate intersection, which creates a matrix of values comparing both input layers. Preliminary results show that McHarg’s vision for land use has consistently tracked land use change in the Twin Cities Metropolitan region over the last fifty years.

Taken together, results from this study provide an intimate portrait of regional planning in the United States. While McHarg’s method was billed as the rational integration of ecological science into environmental planning (McHarg 1981), like other rational planning models, it struggled to account for the political dynamics of local land use planning (Fishman 2000). While our evidence suggests that McHarg may not have anticipated or appreciated the nuanced political dynamics of planning - and may have in fact attempted to plow through them, decision-makers and planners in the region were more attuned to these forces. By working with McHarg’s systematic analysis, regional planners were able to establish a protocol for shaping policy and impacting land use change. Thus, much of the long-standing success of the Met Council might be attributed to the practical lessons planners and policy-makers learned by working with Ian McHarg.

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Key Words: Environmental Planning, Regional Planning, Design with Nature, Geographic Information Systems, Plan Evaluation

ADAPTING TO HEAT IN CITIES: OVER WHAT DISTANCE DO TREES PROVIDE A COOLING EFFECT?

Abstract ID: 939

Individual Paper Submission

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Green infrastructure (GI) is an important tool that can be used to reduce temperatures in an Urban Heat Island (UHI) as well as having many other meteorological, climatological, and ecological co-benefits. Additionally, GI plays an important role in climate adaptation and action plans. The Urban Climate Lab at Georgia Tech developed a high quality and dense urban GI network of sensors that aims to capture the temperature and relative humidity impacts of trees. The network of sensors was set up in urban Atlanta, GA in a greenspace that was primarily grass and bordered with trees that provided a boundary between the greenspace and major roads. Temperature and relative humidity sensors were set up at 2 m high and, starting at the trunk of the tree, were placed every 2 m moving away from the tree. As a control variable, sensors were placed in the middle of the greenspace far removed from any trees. The sensors captured distinct temperature reduction patterns. By understanding how street trees reduce temperature in urban areas, planners and policy makers are better equipped to develop effective environmental plans and design outdoor greenspaces that are not only important public spaces, but are also an essential part of a city's climate adaptation policies.

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Key Words: Urban Heat Island, Green Infrastructure, Climate Adaptation, Climate Planning, Environmental Planning

NEIGHBORHOOD EFFECTS ON PARCEL-LEVEL WATER USE

Abstract ID: 950
Individual Paper Submission

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Planning for urban water conservation requires an understanding of how and where water is used in cities. There is significant evidence that urban water use is related to the characteristics of the residents, housing types, and landscaping patterns (Wentz and Gober 2007; Morales et al. 2011; Randolph and Troy 2008). At the same time, a growing body of research has shown geographic clustering of high or low water use at the neighborhood scale (Chang et al. 2010). This paper explores how the characteristics of neighborhoods influence water use at the parcel scale. We hypothesized that neighborhood characteristics influence water use through social dynamics as well as the physical structure of the neighborhood. Using a dataset for almost 75,000 parcels across 248 neighborhoods in Salt Lake City, Utah, we used multilevel modeling to determine how nine characteristics of neighborhoods influenced parcel-level water use. Almost a quarter (24%) of the variation in parcel-scale water use was explained by neighborhood characteristics. Controlling for key parcel-level drivers of water use, we determined that several neighborhood factors were significantly associated with parcel-level water use. For residential properties, parcels in more homogeneous suburban neighborhoods dominated by detached single family-owned homes and family households used more water than comparable parcels in neighborhoods with mixed housing and household types. Neighborhood effects were more pronounced for residential parcels than commercial, and more for outdoor than indoor water use. We suggest that planning and design strategies at the neighborhood level can contribute to urban water conservation.

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Key Words: Water, multi-level modelling, neighborhood effects, water demand

‘MANAGED RETREAT’ AS AN ADAPTIVE PLANNING RESPONSE TO CLIMATE CHANGE DISPLACEMENT

Abstract ID: 956
Individual Paper Submission

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In the coming decades, climate change displacement of residents of coastal communities in the United States and other countries is likely to affect large portions of national populations. Estimates of sea-level

rise are constantly being revised upwards and it is not clear that strategies proposed to make coastal areas more resilient to coastal flooding—including sea walls of various design—will be effective (Goodell, 2017). Flooding and the spread of deadly wildfires are also displacing residents of inland communities as the incidence of extreme weather events (both torrential rains and droughts) increases. Not only physical attributes of communities but also social, political, and economic institutions of communities must be relocated to higher or safer ground. A major concern is that in making current assets more robust to the effects of climate change and in relocating communities—whether partially or totally—a form of ‘climate gentrification’ may be effected and existing inequalities of access to public amenities and safety from extreme weather events may be reproduced or exacerbated (Keenan et al., 2018). Given the failure of climate change mitigation strategies (for a large number of reasons, many of which are political), city and regional planning academicians and practitioners are faced with a number of challenges to effective climate adaptation planning. These challenges include 1) developing reliable projections of sea-level rise, coastal and inland flooding, wild fires and other extreme-weather event incidence; 2) working out social, economic, and environmental impacts of climate-change-related effects, 3) exploring response strategies that are effective in the short run in promoting greater resilience, sustainability, and social equity, but which put communities on the ‘right paths’ in the long run. Response strategies now under consideration include so-called ‘managed retreat.’ Although much legal groundwork has been laid to help communities think through whether and when to initiate managed retreat, or begin planning for the same (see Siders, 2013 and resources from the Georgetown Climate Center), the science informing retreat remains ill-defined and policy discussions complex and contentious. In a previous paper I sketched and demonstrated the workings of a spatial-dynamic model of the effects of sea-level rise, storm-related damage, and climate-change-related displacement and gentrification (Donaghy, 2018). In the present paper I elaborate and implement an integrated assessment model for supporting adaptive response planning over the short- to long-run planning horizons. The model is calibrated with data from New York State communities and introduces to a climate adaptation planning environment applied stochastic optimization appropriate for historical distributions of extreme weather events (Hanson, 2007). I demonstrate how the model may be used to support the practice of retreat management from areas under threat from climate change displacement—to bring about resilient, sustainable, and equitable outcomes—with proof-of-concept stochastic simulations. I also assess the model’s performance properties.

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Key Words: Managed Retreat, Climate Change Displacement, Integrated Assessment Model

MODELLING THE IMPACTS OF CITY-SCALE “VENTILATION CORRIDOR” PLANS ON INTRA-URBAN PM_{2.5} POLLUTION EXPOSURES

Abstract ID: 976

Individual Paper Submission

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Chinese cities have proposed varieties of urban plans, strategies and managements in response to severe intra-urban fine particulate (PM_{2.5}) pollution in past years. Among them, city-scale ventilation corridor (VC) is one aggressive but popular proposal. The assumption behind the VC plans is that VCs can alleviate pollution levels by increasing wind velocity and pollution dispersions. However, the influence of VC is ambiguous and has not been well studied. So this study quantifies the impact of VC solutions using City of Shanghai as an example. To develop the study, three VC scenarios were created to investigate the effects of VCs based on Shanghai's existing land use and ecological plan and prevailing wind directions. VC plans differed from the status quo on the city morphology and land uses. Meteorological change before (Base scenario) and after (VC scenarios) urban VC plans was modeled by the Weather Research and Forecasting (WRF 3.9) model incorporating with Single-Layer Urban Canopy Model UCM in this study. Then a hindcast simulation was performed using the Community Multiscale Air Quality (CMAQ) model version 5.0.1. to create hourly PM_{2.5} pollution maps incorporating the meteorology generated with WRF-UCM. Modeling period included the summer time from July 1st to July 15th, 2014 and winter time from December 1st to December 15th, 2014. The results of PM_{2.5} pollution from CMAQ were also evaluated against the same monitors' pollution records. Then each VC scenario was assessed implemented in WRF-UCM and CMAQ to create alternative PM_{2.5} values. Finally, comparison among PM_{2.5} pollution in Shanghai base scenario and VC planning scenarios, the performance of VCs was summarized and analyzed. Modeling results indicated that WRF-UCM showed good fitness with localized parameters. The summer modeled ground-level PM_{2.5} of Shanghai is in the range of 2 $\mu\text{g}/\text{m}^3$ to 45 $\mu\text{g}/\text{m}^3$. The most heavily polluted areas were west suburbs and west city center; the coastal areas were less polluted than the inlands. Results also showed that VC-scenario's summer PM_{2.5} concentrations are higher than the baseline in the downwind areas. The winter modeling PM_{2.5} of Shanghai is in the range of 1 $\mu\text{g}/\text{m}^3$ to 64 $\mu\text{g}/\text{m}^3$. The most heavily polluted areas are the west suburbs and western city center; the coastal areas were less polluted. In general, VCs influencing areas are the VCs and adjacent areas; the affected buffer is roughly double of VCs width. PM_{2.5} concentrations increased within the VCs in both summer and winter in general, yet the upwind concentration decreased in winter. This counter-intuitive result could be explained by changes in surface heat fluxes and roughness heights that decreased planetary boundary layer (PBL) heights, deposition rates, and wind speeds induced by land use and urban height modifications. PM_{2.5} deposition flux decreased by 17% in the VCs, which was attributed to the roughness height decrease for it weakens aerodynamic resistance (Ra) and quasi-laminar (Rb) by caused by roughness height modification. PBL heights within the VCs decreased 15-100 meters, and the whole Shanghai's PBL heights also decreased in general. The modeling results suggest VCs may not be as functional as certain urban planners presumed.

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Key Words: wind corridor, pollution exposure, WRF-UCM, CMAQ, PM2.5

MEDIATING THE IMPACTS OF LOCAL FLOODING IN THE MISSISSIPPI-ALABAMA COASTAL REGION THROUGH GREEN INFRASTRUCTURE PLAN EVALUATION

Abstract ID: 980

Individual Paper Submission

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Research focus: Urban ecosystems are increasingly at risk of being devastated by an ever-expanding city. The rapid expansion of urban areas in coastal communities, in particular, will likely lead to the conversion of undeveloped land into impervious surfaces, which degrades ecosystems, exacerbates flooding, and increases the amount and velocity of stormwater runoff. In order to minimize these negative impacts, some local governments have adopted “green infrastructure” plans and strategies in order to conserve and protect their natural resources, such as greenways, wetlands, and open spaces. This research: 1.) identifies communities that have engaged in green infrastructure planning in the Mississippi-Alabama coastal region; 2) identifies best practices among those communities; and 3) identifies landscape patterns that should be protected with the goal of transferring this knowledge to other coastal communities. This research specifically focuses on the cities of Mobile, Gulf Shores, Orange Beach, and Dauphin Island in Alabama; and Biloxi, Gulfport, Oceans Springs, D’Iberville, and Pascagoula in Mississippi.

Methodology: This research uses both quantitative and qualitative methods in order to examine current green infrastructure planning practices and their outcomes in the Mississippi-Alabama coastal region. Specifically, the comprehensive plans of the 9 cities are analyzed in order to assess if and the degree to which they have incorporated green infrastructure planning strategies. This assessment is based a plan quality scorecard of key indicators related to green infrastructure planning. An online survey and interviews with planners in these 9 cities were conducted in order to understand planners’ experiences and identify which specific factors encourage municipalities to integrate green infrastructure concepts in their comprehensive plans, specifically examining the planning organizations in which these planners work and their capacity in terms of leadership and collaboration, comprehensive planning authority and oversight, and availability of resources. Finally, actual stormwater runoff attenuation is examined, looking at the spatial configuration (e.g., size, shape, isolation, and connectivity) of open and green spaces.

Findings: The majority of municipalities in the Mississippi-Alabama coastal region have not integrated, or have integrated on a limited basis, green infrastructure planning strategies into their comprehensive plans. However, higher levels of planning capacity is associated with higher levels of green infrastructure incorporation. Municipalities that protect the integrity of green infrastructure between developed areas

have a greater capacity to mitigate local flooding and provide quality of life recreational resources to local inhabitants.

Relevance: This research seeks to improve the quality of coastal communities' plans, and the communities' quality of life, by incorporating key concepts of green infrastructure planning in to their planning process and reducing flooding events. It also promotes awareness of and provisions for green infrastructure plans in rapidly growing jurisdictions as to avoid excessive stormwater damage. This research additionally provides practical tools for governmental leaders and planners to assess their current green infrastructure, determine future needs, and develop strategies for closing this gap. This research is funded by the Mississippi-Alabama Sea Grant Consortium.

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Key Words: Green infrastructure planning, plan evaluation, flood mitigation, Mississippi-Alabama coastal region

ABOVE AND BEYOND THE PERIL OF FLOOD ACT: LOCAL MOTIVATORS TO SEA LEVEL RISE ADAPTATION IN TAMPA BAY REGION

Abstract ID: 1000

Individual Paper Submission

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There are numerous barriers to climate change adaptation planning and action at the local level (Moser et al. 2010; Bierbaum et al. 2010; Hamin et al. 2014; Shi et al. 2015). The literature on these barriers has been developed over the last decade with a focus on discovering what impedes progress on climate change adaptation at the local level. By and large, this literature implies that the presence of inverse conditions will create a context in which local governments are more likely to act. So, with leadership, political will, resources, technical capacity, good quality information, and public buy-in to climate change, climate change adaptation will be more easily accomplished. While this is perhaps obvious, it is also possible to imagine scenarios where there are few barriers, but the motivation to act remains limited and adaptation planning is not undertaken, particularly given the long-time horizons of many climate change impacts such as sea level rise. In this paper, we pose the question, not of how to remove barriers, but rather, how to motivate action.

There has been much less written about motivating climate adaptation action. Risk perceptions and hazard salience have been found to influence whether or not communities are more willing to adopt adaptation

measures. When events happen that lead to physical damage and those hazard events might be attributable to or enhanced by climate change, public perception or political will can shift and adaptation policies are more likely to be adopted (Butler et al. 2016). Moreover, having access to quality and credible planning intelligence such as sea level rise projections and scenarios can facilitate action; however, it is not clear that such information is sufficient to motivate action (Butler et al. 2016). Beyond these structural and contextual variables to motivate action, there remains a major gap in the literature. We seek to respond to this gap by answer the following research question: What are the factors and attributes that motivate local planners to address climate change adaptation?

In this paper, we draw on a study of coastal communities in the Tampa Bay region in Florida to determine what factors and attributes motivate local planners to address sea level rise. This context is relevant for study for two major reasons. First, the Tampa Bay region is on the OECD list of top ten most vulnerable cities in the world to climate change impacts—the issue is salient and relevant to coastal communities in this region. Second, the state of Florida enacted the Peril of Flood Act in 2015 which mandates that communities required to have a coastal management element in their comprehensive plan address a range of sources of flood risk including risks associated with sea level rise. We examined every comprehensive plan from the thirty-six coastal municipalities and counties in the region to determine what actions they were taking and then we interviewed planners where actions went beyond the requirements of the act to determine what motivated more progressive action in these communities.

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Key Words: Sea level rise adaptation, Tampa Bay Region, Motivating factors

PREDICTING THE EXISTENCE AND PERFORMANCE OF U.S. WATER QUALITY TRADING PROGRAMS

Abstract ID: 1010

Individual Paper Submission

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Recent years have seen a ground-swell of bi-partisan support for market-based environmental policies, such as water quality trading (WQT). WQT programs include a number of arrangements for redistributing pollution that can increase the efficiency with which polluters can reduce effluent. However, the performance of WQT programs is uneven; while several WQT programs have found frequent use, many experience operational barriers and exhibit low trading activity.

Evaluations of WQT programs have tended to focus solely on a few successful programs, producing little evidence about what sort of program trading structures exist, or even if trades regularly occur. Few studies have sought to understand the abundance of WQT programs (including small-scale programs), where they tend to be established, and where trading actually occurs (as opposed to pilot studies or programs that exist only on paper). Currently, there is little research that attempts to look across geographies and market designs to comparatively study different types of trading programs. Comprehensive analysis is needed to better understand the factors promoting, or detracting from, the viability of WQT as a resource protection strategy and to synthesize policy lessons for improving program design, implementation, and performance.

What are the common inhibitors to implementation WQT programs? Where and why have these programs overcome barriers to become functional and productive and when do these programs frequently become stalled in their implementation?

In this presentation, we present the most complete database to date on WQT programs in the United States. We have compiled program information from numerous data sources over the last two years, creating a geo-database of trading programs. Each program includes separately mapped markets that are specific to separately traded pollutants, distinctive geographic service areas, market designs, and distinct trading mechanisms. Drawing on demographic, political, urban, and environmental co-variables, we use logistic regression modeling to better understand factors associated with the existence and relative operating state of WQT programs. We use this analysis to generate lessons that can inform program design and implementation, as well as improve our understanding of why WQT programs often have limited implementation and performance.

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Key Words: Pollution, water quality trading, urban environmental impacts, environmental policy

EXAMINING THE ASSOCIATION BETWEEN PHYSICAL CHARACTERISTICS OF URBAN GREEN SPACE AND SUMMERTIME LAND SURFACE TEMPERATURE: A CASE STUDY OF INDIANAPOLIS, INDIANA.

Abstract ID: 1020

Individual Paper Submission

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The warming trend of US cities became significant since the late 1970s and the rate and magnitude of this trend have become more severe since the late 1990s. According to the National Climatic Data Center, 2012 was the warmest year on record (NOAA, 2013). More frequent occurrences of extreme heat events like those in 2012 have the potential to exacerbate negative public health outcomes and the air and water quality in cities. Heatwave is frequently not considered to be severe or adverse weather condition in Midwest, however, it is a leading cause of weather-related fatalities and also directly linked to poor air quality which is one of the most severe environmental and health concern of the Midwest region (USGCRP, 2016). City of Indianapolis, Indiana, which is the main subject of this study, is one of those U.S. cities where the Urban Heat Islands (UHIs) have grown in largest numbers in recent years (Stone et al., 2012).

The rapid increase of impervious surface and the density of development that accompanies urban growths has reduced the number of green spaces in the urban landscape and increased the land surface temperatures of urban areas. Even though many empirical research identified urban greening as one of the most effective approach to mitigate the Urban Heat Islands (UHIs) effects, there are limited research investigated the most effective and practical green space design for reducing the land surface temperatures (LSTs). This study tries to fill this gap.

This study will explore the most practical urban green space design that can contribute the reduction of the summertime LSTs focusing on following two aspects of urban green space: first, its physical characteristics and second, its functional characteristics. Based on the principles of landscape ecology, the physical characteristics of urban green spaces are defined as shape, size, isolation and diversity (McGarigal, 2002). Using FRAGSTATS software, physical characteristics of urban green spaces will be quantified. The functional characteristics of urban green spaces were measured using land use type of their surroundings, Normalized Difference Vegetation Index (NDVI), and Park Cooling Index (PCI). This study will use Landsat ETM+ images to examine the summertime LSTs and physical and functional characteristics of urban green spaces in Indianapolis, Indiana. The result of this study will provide a practical design guideline for urban green spaces to mitigate UHIs.

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Key Words: Urban Heat Island (UHI), land surface temperature (LST), urban green space, landscape ecology

DO SQUEAKY WHEELS COMPOUND URBAN TREE CANOPY DISPARITIES?: SPATIAL ANALYSIS OF RESIDENT REQUESTS AND MUNICIPAL FORESTER EVALUATIONS

Abstract ID: 1029

Individual Paper Submission

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The benefits that trees provide urban areas range from improved air quality and increased energy efficiency to recreational opportunities and positive emotional effects (Dwyer et al., 1992; Kuo, 2003). Despite the many benefits provided by a healthy urban tree canopy, there are millions of municipally-owned trees that pose hazards or create a nuisance for residents. Unfortunately, many cities have insufficient resources to maintain these trees and often rely on multiple sources of information to prioritize tree maintenance, such as professional arborist inventories and resident requests for maintenance. However, potential mismatch between what residents perceive as a tree care need and priorities as assessed by professional arborists may create or contribute to tensions between residents and their municipality.

The role of municipal forestry operations has yet to be fully examined within this context. In many American cities, urban forestry maintenance priorities are established via citizen requests for tree work (e.g., phone calls, on-line tickets). If citizen requests do not accurately represent the work needed across the population of municipal trees, or requests are received in an unbalanced manner, prioritization of maintenance may not be ecologically sound or may over-represent neighborhoods.

While previous research has shown that there are often disparities in existing urban tree cover and quality by race, income, and owner-status, this is the first study to investigate disparities in resident requests for maintenance and city inventory priorities. Landry et al. (2009) found that low income, predominantly African American neighborhoods may have less tree cover or trees of poor quality. There is also evidence that tree planting initiatives are not equitable, but rather favor neighborhoods with a lower concentration of poor and non-white residents (Watkins et al., 2016). A better understanding of how tree maintenance priorities, resident requests, and socioeconomic factors relate to one another is needed to ensure that urban canopy disparities are not compounded at the stage of prioritizing tree maintenance.

We test three hypotheses using data from professional inventory of tree maintenance needs, resident tree maintenance requests, and socioeconomic variables in Grand Rapids, Michigan. First, we expect that resident requests for tree maintenance do not correlate with the condition of trees based on the city inventory evaluation of maintenance needs as assessed by a professional arborist. Second, we hypothesize that census blocks with residents of higher socioeconomic status are more likely to request tree work. Finally, we expect that census blocks with residents with lower socioeconomic status are more likely to have trees in poor condition.

We will conduct spatial analysis to test these hypotheses. Specifically we will analyze the spatial point patterns of inventory and requests using Pairwise Correlation Function. We also analyze the relationship between spatial position and non-spatial value of each data point (e.g., tree quality) using Geographically Weighted Regression. Results will demonstrate whether two points are related: a tree with a designation of 'needs maintenance' and a tree that has received a 311 request for maintenance.

Municipal foresters stand to benefit from tools that improve prioritization of limited resources, and that increase trust between residents and arborists. This research contributes to the ability of municipal officials to visualize and quantify their tree maintenance needs and to compare the maintenance needs with resident perceptions of maintenance needs. This research also demonstrates a research method and products (e.g., maps) that help prioritize city resources and build trust within possibly disenfranchised neighborhoods. This research aims to build a process that increases transparency and provides opportunities for officials and residents to work together on municipal tree care, supported by objective data and multiple perspectives.

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Key Words: urban tree canopy, environmental justice, spatial analysis, resident perceptions, expert evaluations

WHERE ARE THE KEY BARRIERS TO CLIMATE CHANGE ADAPTATION? ASSESSING BARRIERS TO SEA LEVEL RISE PLANNING IN FLORIDA

Abstract ID: 1039

Individual Paper Submission

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It has been well documented that global warming mitigation is falling short of the necessary pace to arrest many of the significant impacts associated with climate change. Given this reality, climate change adaptation is imperative. Many of the impacts associated with climate change will manifest at local and regional scales through droughts, storms, floods, heat waves, and sea level rise which places much of the adaptation action responsibility in the hands of local and regional planners. Despite this reality, local adaptation planning and action lags the need due to a range of barriers.

The literature on barriers to climate change adaptation is relatively extensive and well developed. Through both qualitative case studies and large-scale surveys, scholars have demonstrated that numerous barriers that can impede climate change adaptation planning and action at the local government level. These include high uncertainty and limited information, insufficient resources and technical capacity, a lack of leadership or political will to invest and act, conflicting priorities and tradeoffs in the face of more pressing concerns, pervasive denial of the salience of the issue, and a lack of mandates from higher levels

of government (Moser et al. 2010; Bierbaum et al. 2010; Hamin et al. 2014; Shi et al. 2015). This literature is less clear on which barriers are the most prevalent, most important, most limiting in impeding climate change adaptation.

This paper seeks to add nuance to this analysis of barriers through a statewide survey of coastal planners in the State of Florida. Florida is on the frontlines of climate change impacts, particularly accelerating sea level rise and tropical cyclone intensification. Sea level rise risk was added as a required consideration in coastal jurisdictions in the 2015 Peril of Flood Act. Thus, sea level rise is generally on the mind of coastal planners in Florida. We have developed and opened a survey that promises to shed light on the question of barriers by asking local planners to assess the types of barriers they experience, the extent to which they experience barriers, and to rank order the barriers they face. Through the survey analysis, we expect to be able to determine whether or not community population, geographical setting, dominant economic industry, tax revenues and other community factors correlate with different types or rankings of barriers. We also expect to be able to assess the relationships between barriers to determine those that are mutually reinforcing or unrelated. These findings will contribute to knowledge on climate change adaptation barriers at the local level, their relative importance based on key community characteristics, and ways that planners can begin to address them in more strategic ways.

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Key Words: climate change, sea level rise, adaptation

REVISITING AFFORDABILITY: INSIGHTS FROM WATER RATE INCREASES IN THE US

Abstract ID: 1043

Individual Paper Submission

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Since 2010, the average residential water bill has increased by nearly 50%. The rise in water costs is attributed to several factors, including utilities' efforts to generate revenue to pay for infrastructure rebuilding projects. This paper asks, how are notions of water affordability conceptualized? How are increasing water costs linked to the multiple structural and state-sponsored practices that contribute to racialized gentrification and displacement? This paper employs Critical Race Theory's critique of abstract

liberalism (Bonilla-Silva 2015)—including claims of neutrality, objectivity, and equal opportunity—as an analytical framework to answer these questions. It aims to build on the work of Mele (2013) and others who assert the role of race as an ordering mechanism of social and spatial change.

In the United States, water affordability is administratively defined as 2-2.5% of the Median Household Income. This figure, however, was developed in the 1980s and 1990s for the purposes of gauging how a utility might negotiate regulatory compliance, based on its community's financial capability (Teodoro 2018). And when used as a measure of household affordability, the figure lacks theoretical basis. Through a survey of the literature, this paper provides a typology of the consequences of rising water costs, which includes spurring residential displacement. The paper then examines the extent to which affordability is linked to gentrification trends in the country's 25 largest cities. Findings show that high-cost cities tend to also have high water costs, but so do those cities which have experienced economic decline. These different urban contexts provide insights into the limitations of how notions of water affordability are used, as well as the consequences of these uses for the ability of people of color to pay for water services. This paper uses water affordability in Detroit and San Francisco as examples to further explore how notions of abstract liberalism sustain racialized patterns of urban exclusion.

Measures of affordability are a central way by which planners understand, assess, and respond to urban inequality. The concept is particularly prevalent in the area of housing development and preservation (Padley and Marshall 2018; Moos et al. 2018). This paper suggests that measures of water affordability are a site for critical engagement due to their potential to reproduce racialized patterns of urban exclusion. It calls for a better understanding of a growing number of programs that help residents with rising water costs, as well as how planners conceive of affordability more generally.

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Key Words: Water, Affordability, Race, Low-income, Utilities

THE EFFECTS OF LAND USE PLAN QUALITY ON FOREST FRAGMENTATION

Abstract ID: 1053

Individual Paper Submission

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The spatial composition and configuration of forestland have been continuously altered, resulting in significant fragmentation of forestland throughout the United States (Riitters et al. 2002). The fragmentation in forestland has caused loss of wildlife habitat and biodiversity, altered ecosystem

functions, and has negatively impacted timber industry and forestry. Consequently, forest fragmentation has been considered as one of the most serious threats to ecosystems, and thus has become a central concern to policy makers and environmental and conservation planners (Girvetz et al. 2008). By identifying future locations and characteristics of development, land use planning can play an important role in shaping our landscapes and preserving our forest resources (or even accelerating forest fragmentation). Despite such important roles land use planning may play, previous studies on forest fragmentation have frequently neglected to integrate the role of land use planning in their research design. In addition, forest fragmentation studies are rarely conducted at socioeconomically or politically meaningful levels, making it difficult to connect between human related processes and ecosystem functions. These prior studies provide limited information to planners to adopt prompt and suitable strategies to mitigate forest fragmentation in their own local settings.

This study attempts to fill these research gaps by investigating the effectiveness of municipal level land use planning on forest fragmentation dynamics from 2001-2011 in the state of Wisconsin. We argue that the commonly used planning capacity variables in assessing the role of planning practice in sustainability studies (e.g., presence of a comprehensive plan) may not sufficiently explain success in forest fragmentation mitigation. Instead, the quality of a municipal comprehensive plan with regards to forest preservation may play a more important role in mitigating forest fragmentation because it directly reflects the community's attitudes, resources, and policies on forest preservation.

In order to test this hypothesis, we reviewed 28 Wisconsin municipal comprehensive plans. We selected these plans based on a prior statewide analysis that investigated the impacts of a set of socioeconomic, geophysical, and policy factors (see, for instance, Croissant and Munroe, 2002; Radeloff et al., 2005) on forest fragmentation change between 2001 and 2011. These plans represented communities with unexpected forest fragmentation change rate in that period, that is, the community-based socioeconomic, geophysical, and policy factors did not fully explain forest fragmentation in these municipalities. In assessing land use plan quality and conceptualizing its impacts on forest fragmentation, we used a framework developed by Berke and Godschalk (2009).

Findings from our study suggest that municipalities with lower-than-expected forest fragmentation have high quality land use plans that help mitigate forest fragmentation, while those with higher-than-expected forest fragmentation have low quality land use plans that may facilitate forest fragmentation. In other words, this study demonstrates the importance of plan quality on forest protection rather than the mere presence of a local plan prepared as a requirement of the Wisconsin's Comprehensive Planning Law. Study results will help provide forest fragmentation mitigation guidelines to communities that are preparing comprehensive and other land use plans.

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Key Words: forest fragmentation, land use plan quality, plan evaluation, comprehensive planning

THE LANDSCAPE OF SEA LEVEL RISE RESOURCES IN CALIFORNIA: LESSONS FROM ACTION TYPOLOGIES AND BARRIERS

Abstract ID: 1059

Individual Paper Submission

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Theoretical Context and Questions

As climate impacts are directly experienced and a broader community of organizations and agencies are engaging in climate adaptation, there is a growing urgency to use empirical evidence to guide our theoretical understanding of climate change adaptation (Biagini et al. 2014). Additionally, with limited local capacity there has been an increase in boundary organizations, which work to mediate between scientists and non-scientists (Nordgren, Stults, and Meerow 2016). In sea level rise in particular this is a need to consider the different typologies of actions and how these categorizations can induce or inhibit progress (Hill 2016). In this context our research explores two broad questions. First, what is the connection between theory and practice? We use empirical data to derive critical lessons for theories on climate adaptation broadly and sea level rise theory in particular. Second, we explore the question, are current guidance resources meeting the critical needs of local practitioners? Specifically we check to see that available resources match with the barriers practitioners identify.

Approach & Methods

In this project we address this knowledge gap with special attention to empirical data. Specifically, in our project, we develop a mixed methods approach. In 2017 a research team conducted an analysis of current resources available in California through two interlinked approaches: 1) interviewing local government practitioners to understand their work and the challenges they face; and 2) mapping sea level rise resources in the state of California.

Preliminary Findings and Contributions

By cross comparing empirical data with existing theoretical frameworks and action typologies, a more solid understanding of what sea level rise planning is from a practice perspective has emerged. The insights researchers gleaned from this analysis will enrich both academic discussion and boundary organizations ability to assist local practitioners. Additionally, in this study we demonstrate that significant weight should still be placed on developing resources and on evaluating different action options. This critical step can significantly reduce actions that would lead to maladaptation and can better integrate across competing needs.

Citations

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Key Words: climate change, adaptation, sea level rise, barriers, strategies

SEPTIC SYSTEM DENSITY AND WATER RESOURCE CONTAMINATION: A SPATIAL RISK AND POLICY GAP ANALYSIS IN THE GREAT LAKES REGION

Abstract ID: 1086

Individual Paper Submission

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Septic systems collect and slowly release wastewater back into the natural environment. According to the U.S. EPA, failing septic systems are the second greatest threat to groundwater quality in the United States. If septic systems are not properly installed or maintained, or are clustered at high densities, they can introduce nitrates, bacteria, viruses, and other contaminants into local groundwater and surface water. In Wisconsin, more than 760,000 septic systems have been installed using county-based policies guided by state law. Around 35% of these systems were installed before 1971 when the state began enacting more restrictive septic system policies. Today, little information is available regarding the performance of many older septic systems, but many are still in operation and may be near the end of their functional lives. Permissive land uses policies and recent advances in septic system technology coupled with a transition to a performance-based septic system code in 2000 continues to enable development of non-sewered housing clusters served by private wells and on-site septic systems in southeastern Wisconsin on sites that were once considered unsuitable. And, it is estimated that nearly 33% of Wisconsin's landscapes may be unsuitable for non-sewered development due to natural constraints. These unsewered housing clusters can create "hot spots" of groundwater and surface water contamination that can jeopardize human and environmental health. Studies have indicated that up to 50% of private wells may be contaminated across Wisconsin, but the origins of this contamination are widely disputed. This groundwater contamination may go unnoticed by homeowners, since less than 10 percent of Wisconsin's private well owners test their wells annually.

We conducted a spatial statistical water vulnerability analysis of private well monitoring results collected over the past three decades using a hierarchical regression model to better understand social and environmental characteristics of contaminated well distributions across the region. Our spatial analysis in southeastern Wisconsin identifies septic system clusters that may have elevated risks of groundwater contamination that could be targeted for additional groundwater quality monitoring studies or local policy changes to help protect local water resources. We also conduct a policy gap analysis comparing Wisconsin's state and local septic system policies to the US EPA's septic system policy recommendations and best management practices. We find that Wisconsin policies fall short of many recommendations. Changes in local policies that require larger minimum lot sizes for non-sewered development and foster citizen education initiatives to promote periodic well monitoring and septic system maintenance can help exurban households protect their drinking water. For local governments, mapping installed septic systems and analyzing land use suitability should be integrated into local community planning efforts. This spatial

risk and policy gap analyses can help decision-makers know where and how they may be able to implement stricter land use and septic system policies to protect more vulnerable water resources.

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Key Words: Geographic information systems, policy gap analysis, water quality, environmental planning, land use planning

GETTING TO ZERO? PROGRESS ON THE ACUPCC PRESIDENTS' CLIMATE COMMITMENT

Abstract ID: 1096

Individual Paper Submission

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Starting in 2006, colleges and universities in the U.S. embarked on momentous efforts to address climate change through a program called the American College and University Presidents' Climate Commitment (ACUPCC). Signatories to this commitment pledged not just to inventory and lower their institutions' greenhouse gas emissions, but to achieve climate neutrality. Perhaps even more dramatic than the extent of this pledge was the sheer number of signatories. Three hundred and seventy-nine institutions signed on in the initial charter period, with hundreds of other schools making later pledges.

An earlier study of the early ACUPCC participants (White, 2009) found that there were no defining characteristics of the 379 charter signatories. Schools from forty-six states, public and private and small and large all committed themselves to these efforts. Now, ten years later, it is appropriate to follow up with an analysis of how these institutions have performed with regard to their pledges. To that end, this paper poses three questions: first, what specific implementation steps did each institution set in order to reach its emissions reduction goals? Second, what is the status of those efforts? Third, what factors appear most influential in the success (or lack of success) in the implementation of these climate commitments?

Policy implementation scholarship examines both compliance with particular policy requirements as well as the quality of that compliance. In other words, both outcomes and outputs are important (Lester & Goggin, 1998; Goggin et al., 1990). In addition, scholars have explained implementation behavior with respect to three characteristics: (1) the environment in which implementation decisions and actions take place; (2) the attributes of the policy; and (3) the implementers and their organizations (Goggin et al., 1990, p. 20). Implementation of the ACUPCC commitment can be examined using a similar framework.

This paper uses a mixed methods approach to address the research questions. Publicly available information from college and university websites will be gathered to describe and assess the progress each early signatory has made. (Part of the ACUPCC pledge is a requirement to publicize the institution's efforts and results.) Data gleaned through this search will inform the development of an electronic survey to send to the person or persons from each institution who the websites indicate are responsible for implementing the pledge. The survey will explore aspects of ACUPCC implementation such as perceived progress and challenges.

Since colleges and universities have taken a leading role in climate action planning, the results of this paper should inform similar efforts at other levels, such as municipal and regional climate plans.

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Key Words: climate action plans, climate commitment, campus sustainability, higher education

RICE AND CITIES: REFLECTIONS ON WATER SCARCITY IN EGYPT

Abstract ID: 1101

Individual Paper Submission

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Water scarcity is a critical problem facing many regions of our world today. In recent years, a growing body of scholarship has emerged, examining notions of 'scarcity' and how it is traditionally defined within academic and nonacademic circles. These studies challenge the established understanding of water scarcity as a physical characteristic of a region that is attributed to resource abundance relative to population, and call for a better understanding of the social, political and economic constructions of scarcity. This study furthers the investigation on the origins, making and perceptions of scarcity by examining the case of Egypt's current water scarcity dilemma. Since its inception, Egypt has been a primarily agrarian nation that depends almost entirely on the Nile's fresh water supply. In late 2018, a declaration was made by the country's minister of irrigation that Egypt has officially reached water poverty with an annual deficit of around seven billion cubic meters. Changes to water withdrawal policies ensued, targeting agriculture as the highest consuming sector, with dramatic reductions to rice cultivation due to its extensive use of water. These measures coincide with an ongoing expansion in government owned as well as private urban development with unprecedented investment in new city projects featuring large-scale urban greening. The study uses qualitative methods to analyze a host of policy documents as well as online content to understand the current framing of the water crisis. The analysis is supplemented by semi-structured interviews with local actors as well as observations from visits to rice fields and new city projects. While there's no official evaluation of the water withdrawals for 'urban development' as a distinct sector, the findings of this paper aim to question the general logic of resource allocation under

conditions of water stress, as well as the impacts of unbalanced water management, drawing attention to the need for a better understanding of both urban and rural water loss patterns.

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Key Words: Water Scarcity, Rice Cultivation, Urban Development

ACCESSIBLE HEAT MORTALITY MODELING AS A FRAMEWORK FOR CLIMATE ADAPTATION PLANNING IN ATLANTA, DETROIT, AND PHOENIX

Abstract ID: 1105

Individual Paper Submission

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Extreme temperatures pose a significant risk to human health, and are projected to worsen in a warming climate with increased intensity, duration and frequency of heat waves in the coming decades. Urban residents are at higher risk of heat exposure due to the urban heat island, a phenomenon in which built materials absorb and retain heat from the sun and elevate urban temperatures. To mitigate heat exposure and protect sensitive populations, urban planners are increasingly using decision support tools like heat vulnerability indices (HVIs) to identify high priority areas for intervention and investment. However, HVIs often capture only proxy heat exposure indicators at the land surface level, not air temperatures that humans experience. Furthermore, HVIs do not allow for numerical estimates of heat mortality, thereby limiting the planner's ability to rationally choose between intervention strategies that show the greatest benefit in lives saved. This gap can be filled using regional climate models like the Weather Research & Forecasting (WRF) model to simulate air temperatures comprehensively over a city, coupled with a heat exposure-response function to estimate heat-related mortality. However, this method is often beyond the capabilities of local planning departments due to limitations in funding or technical expertise to run the model. Fortunately, publicly available air temperature datasets have been developed that may be able to replace the WRF-modeled air temperatures used in the model. This study seeks to answer: to what extent can WRF-driven heat mortality models be replicated using publicly available data sources?

Data & Methods:

This study compares heat mortality results during historic heat wave periods in Atlanta, Detroit, and Phoenix. WRF-derived air temperatures, together with exposure-response functions applied to age and sex cohorts unique to each city are used to quantify spatial distributions in mortality. Then the WRF model is replaced using an airport weather station and Daymet, a spatially comprehensive air temperature model. Total heat mortality and spatial distributions are compared to analyze the accuracy of using the more accessible temperature datasets. Each publicly accessible model is compared to the WRF-derived

mortality within each city using a paired t-test at the census tract scale to test for spatial distribution accuracy.

Results:

Publicly available temperature datasets were moderately successful in replicating the WRF-driven models. While the total mortality counts were similar between all three models, the spatial distribution differed depending on the ability of each dataset to model the urban heat island. Heat mortality was strongly influenced by population, tracking closely with high population centers in each city.

Significance:

In a warming climate, it is increasingly important for cities to adopt strategic plans to protect our most vulnerable populations from heat-related morbidity and mortality. Extreme urban temperatures are a significant problem we are already facing today. Cities must begin to monitor local temperatures now as a first step toward creating a resilient urban environment and population. This information can help urban planners and public health officials improve their emergency response plans and communication strategies for heat mitigation in urban areas by specifically targeting short and long-term responses where there is greatest need. The heat mortality models described in this paper equip planners with a useful and accessible tool to protect vulnerable populations in urban areas effectively and efficiently with minimal public funds. A neighborhood-specific, targeted approach can guide both greening policies for passive cooling as well as emergency heat response planning among sensitive populations. This research utilizes the latest scientific methods to meet contemporary climate change planning needs, and could significantly advance the policies we use to adapt to a changing climate.

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Key Words: Heat vulnerability, urban heat island, climate change, urban climatology, health modeling

SOCIAL VULNERABILITY IN THE MULTI-HAZARD ENVIRONMENTS OF RAPIDLY GROWING METRO AREAS: EXPLORING THE ROLE OF LOW-INCOME HOUSING PROVISIONS

Abstract ID: 1106

Individual Paper Submission

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Studies on urban social vulnerability have widely documented how vulnerability to natural hazards vary by socioeconomic characteristics like age, race, income, etc. (Fothergill, 2004; Peacock et al., 1997) and how the patterns of vulnerability changes over time within urban areas (Kashem et al., 2016). But there is yet to have enough study that focuses on the generative process of vulnerability and identify the policy levers which influence that process. This paper adopts the political economic framing of vulnerability production and explores how the current provisions of low-income housing in our cities may influence the process of vulnerability production. Access to affordable housing is one of the key determinants of a household's ability to withstand socio-economic stresses. Prior studies have evaluated the efficacy of low-income housing programs in the US and their effects on households and communities (Goetz 2005; Freeman 2003; Van Zandt and Mhatre 2009). However, very few studies have explored the extent to which these housing programs have affected the hazard exposure of vulnerable populations (e.g., Cutter et al. 2001; Houston et al. 2013). This paper hypothesizes that by ignoring the multi-hazard context of urban areas, subsidized low-income housing programs have failed to reduce the overall hazard exposure of socially vulnerable populations and this pattern is consistent irrespective of the planning and political context of the cities. It evaluates this hypothesis on two rapidly growing coastal metro regions of the US (Boston and Houston). By examining two of the most popular housing subsidy programs, Housing Choice Vouchers (HCV) and the Low Income Housing Tax Credit (LIHTC), this paper explores how these housing subsidies influenced neighborhood social vulnerability between 2000 and 2010. Both natural and technological hazard exposures are measured at the census tract level using publicly available data. It was found that while these programs consider neighborhood socio-economic conditions in some cases, neither of them explicitly requires the housing units to be located away from natural or technological hazards. Both housing programs were found to have contributed to a disproportionately high (relative to the overall population) presence of subsidized low-income housing units in both natural and technological hazard areas. However, the results of the spatial econometric analysis indicate that the supply-oriented subsidy provision of the LIHTC program significantly increases neighborhood social vulnerability when located in technological hazard areas. These findings warrant more critical scrutiny by planners when placing subsidized housing, particularly to evaluate how planning decisions like these may influence the hazard exposure of vulnerable populations and exacerbate environmental injustice. The limitations of market-dependent housing programs that lack adequate safeguards for avoiding hazardous areas are highlighted and potential remedies are suggested.

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Key Words: Social Vulnerability, Subsidized Housing, Hazard Exposure, Environmental Justice

POST-DISASTER HOUSING RECONSTRUCTION AFTER THE MEXICO CITY EARTHQUAKE: LEARNING FROM THE LANGUAGE AND COMMUNICATION SURROUNDING THE PARTICIPATORY WORK OF NGOS

Abstract ID: 1109

Individual Paper Submission

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Participatory approaches are increasingly emphasized by NGOs engaging in post-disaster housing reconstruction and recovery projects. Latin American cities present one area where questions surrounding participatory efforts of NGOs in housing recovery are particularly relevant. Latin American cities are frequently impacted by seismic activities, which often result in high numbers of earthquake-related housing collapses. In the wake of a major event, these areas may experience a substantial amount of human fatalities and injuries from structural failures, which are often brought on by inadequate construction methods and weak enforcement of building regulations (Kenny, 2012). These large-scale housing losses frequently bring about a multitude of demands and opportunities for local community involvement, leading to increased interest by NGOs of including participatory elements in their recovery activities.

Although there is a growing awareness of the value of incorporating participation, there continue to be questions surrounding the application of this work. This can often be attributed to the frequently wide variations in how external entities may engage local communities in their post-disaster recovery projects, with scholars observing that, at one extreme, community members may be involved in projects only as the labor force whereas, at the other, they may play an active role in decision-making and project management (Davidson, Johnson, Lizarralde, Dikmen, & Sliwinski, 2007).

Evidence of differences in approaches towards participation is observable in the language used by NGOs to portray their efforts towards engaging local communities in their housing reconstruction projects. In referencing their work, NGOs may use jargon, such as being community-based, owner-driven, or focusing on assisted self-help (Lizarralde and Massyn, 2008; Lyons, 2009; Bredenoord and Van Lindert, 2010). However, this terminology may be used to describe varying or similar types of activities, with differing levels of understanding, and towards contradictory goals. Thus, specific details of how NGOs utilize language, techniques, and communication strategies in discussions of their participatory activities remains unclear.

This paper aims to explore these questions surrounding participatory activities through an assessment of NGOs engaging in post-disaster housing reconstruction projects in the wake of the 2017 Mexico City earthquake. This qualitative analysis utilizes available published materials (including websites, organizational reports, and published documents) and interviews with key informants involved in housing reconstruction activities. Findings from this work aim to highlight the important role language and communication surrounding participation play in the work of NGOs and the post-disaster planning process.

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Key Words: NGOs, housing recovery and reconstruction, participation, earthquake, Mexico

EXAMINING THE UNINTENDED EFFECTS OF CLIMATE CHANGE MITIGATION: A NEW TOOL TO PREDICT INVESTMENT-RELATED DISPLACEMENT

Abstract ID: 1132

Individual Paper Submission

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California leads the nation in legislation, programming, investments and research to reduce greenhouse gas emissions and mitigate the negative effects of climate change. From coordinated land use and transportation planning, to climate investments made possible by various programs including the Affordable Housing and Sustainable Communities (AHSC), California is investing in a wide range of housing, active transportation, complete streets, and transit in low-income and vulnerable communities. While climate investments have the potential to transform these neighborhoods towards more sustainable land use and transportation patterns, there remains considerable uncertainty over their potential impacts on displacement. If vulnerable residents are displaced due to climate investments, mitigation strategies may not just further disadvantage already disadvantaged populations, but also endanger climate goals if displacement shifts residents to lower resourced neighborhoods with relatively poor accessibility. Furthermore, the potential impacts of different types of investments remain unclear. To the extent that they provide new amenities, climate investments may raise local land values, which could then impact local rent levels and destabilize communities.

Previous studies have attempted to examine investment-related displacement, but with limitations, and thus inconclusive results. Zuk et al. (2018) summarizes the displacement discussion that lacks evidence-based research to draw definitive conclusions about the relationship between gentrification, displacement, and the role of public investment. Two studies of the relationship between transit station proximity and change in low-income households found mixed effects depending on station location within the region (Boarnet et al. 2017, Chapple et al. 2017); these studies were both limited to rail transit and did not examine other types of investments, whether market-rate or public sector. Although the Boarnet et al. study (2017) improved methodologies by looking at individual mobility, it drew upon a Franchise Tax Board dataset that may undercount low-income households. Chapple et al. (2017) did analyze the impacts on affordable housing and market-rate construction, but it lacked individual level mobility data. Thus,

studies to date have not been able to examine the impact of investments on housing stability in many of the disadvantaged communities, raising questions that may contribute to political conflict and impede the passage of legislation.

This study estimates the relationship between climate investments and displacement pressures. Three research questions will be addressed. First, what features of climate mitigation investments are associated with declines in housing affordability in surrounding neighborhoods? Second, what features of climate mitigation investments are associated with displacement of low credit-score households? Third, how can our understanding of the impact of mitigation investments be incorporated into a predictive model? Focusing on the Bay area, we characterize representative investment projects, and generate a typology of climate investments related to infill housing and sustainable community investments. Relying on Zillow data and subsidized housing data from the California Housing Partnership Corporation (CHPC), we develop block-level data of housing developments to explore the unintended affordability impacts of investments. These data sets are then merged with the Federal Reserve Bank of New York Consumer Credit Panel/Equifax (CCP) data, which allows us to examine residential mobility patterns associated with climate investments. Exploring the role of a variety of investments, across diverse geographies with use of fine-grained data on investments, housing, and households, we expect to offer important implications for a better understanding of how to effectively predict and mitigate the displacement impacts of future investments.

Citations

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Key Words: Climate change, climate investments, housing affordability, displacement

OPPORTUNITIES AND CONSTRAINTS FOR SUSTAINABLE DEVELOPMENT IN THE INTERMOUNTAIN WEST: A STAKEHOLDER INFORMED ASSESSMENT MODEL

Abstract ID: 1145

Individual Paper Submission

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This study applies a comparative assessment model to evaluate the sustainable development possibilities for 247 counties in the Intermountain West. It provides planners with new operational tools for applying locally relevant sustainability criteria at the county level, with particular emphasis on rural contexts.

Most current sustainability research privileges urban environments. While urban areas support the majority of the population and built infrastructure, a regional approach to sustainability requires consideration of rural contexts as well (Audirac, 1997). Given that sustainability is affected by context, regional sustainability requires a holistic consideration of a continuum of settlement typologies, from dense urban centers to rural hinterlands that supply food and fiber for burgeoning urban populations. However, most sustainability evaluation metrics favor urban environments due to their higher densities and resulting efficiencies, leaving rural areas labeled as “unsustainable” because of their decentralized growth patterns. Characterized as “not urban,” they fall short of urban sustainability benchmarks (Isserman, 2005). A mixed methods approach of surveys and comparative performance assessment were employed to evaluate dimensions of rural sustainability, illuminating their contribution toward regional scale sustainability.

A selection of 247 counties in the Intermountain West were initially profiled for their demographic, economic, and biophysical characteristics. Next, an electronic survey was sent to 1,200 county-level planning staff, administrators and elected officials in each county. Respondents were provided with 50 social, economic, and biophysical indicators and asked to select which indicators most impact county-level sustainability (Licon & Sleipness, 2018). Selected indicators were used within the assessment model to evaluate different combinations of indicators to produce sustainability scores tailored for each county. County-level sustainability scenarios—visualized through a series of graphs and maps—quantify the interaction of different combinations of indicators, allowing planners and citizens to see the relative impact of various planning prioritization decisions.

Key findings from the model’s scenarios include environmental conditions’ influence on rural sustainable development. In contrast, urban areas, show stronger dominance and variance based on social conditions and built forms. As extraction-based economies have shifted to service and natural amenity-based economies (Winkler, Field, Luloff, Krannich, and Williams, 2007), the model highlights this shifting role of natural resources in rural economies. The model also highlights water’s prominence in driving rural sustainability in the Intermountain West. While many of these findings corroborate previous research, this study provides a deeper examination of which specific indicators drive rural sustainability, and their relative importance in the context of the Intermountain West (Bosshard, 2000). The output of the model defines a benchmark to outline and monitor county planning efforts. The operationalization of sustainability grounds a conceptual definition of sustainable development in measurable features. Additionally, the model’s visual outputs

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Key Words: sustainability assessment, rural planning, Intermountain West, sustainable development

THIS LAND IS OUR LAND! LAND TENURE AND MIGRANTS' AGENCY UNDER CLIMATE CHANGE

Abstract ID: 1147

Individual Paper Submission

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Studies on climate change have been reported as impacting human migration, considering mostly extreme cases of small island states. Prior research on tenure and decision-making process observe a positive relationship (See seminal work of Hughes and McCormick, 1981; and Krumm, 1983; and Boehm et.al, 1991. And more recent work of Giles and Mu, 2017; and Ma, et al. 2014). Nevertheless, those studies seldom focus on the interaction while facing climate change and the few that consider the effects in migration, consider mostly variations in climate, agricultural yields with migration, and the effects of environmental factors on permanent moves (Feng, Krueger, and Oppenheimer, 2010; Bohra-Mishra, Oppenheimer, and Hsiang, 2014). This research is filling the gap in research by focusing on the relationship between land tenure and migration after a slow onset disaster, considering land property and the decision-making process to migrate in continental areas. I examine whether land tenure affects migration decisions in households after a slow-onset disaster associated with climate change? More specifically, if individuals with insecure land tenure have a higher tendency to push at least one family member to migrate internationally after experiencing a slow-onset disaster in their town.

I use a logistic regression model to understand this relationship, using data from the National Multi-topic Household Survey of El Salvador pooled over the years of 2003-2017 and the DesInventar Database, which provides a detailed disaster loss data for the country. During this period, there was an increase of precipitations and repetitive losses registered nationally. This study allows us to understand the effects of climate change in a longitudinal analysis by using only the types of slow-onset disasters related to flooding.

Furthermore, over the last decades, policies that promote tenure in developing countries have been commonly applied, this reveals the importance of employing the survey ownership data to understand its relationship with the decision of agents to migrate after a slow-onset disaster in El Salvador. The statistical analysis informs about this relationship and the relevance of the predictors related to ownership and land tenure. Salvadoran national multi-topic household survey (EHPM – for its acronym in Spanish) is a household survey that has been carried out nationally in the 14 states of the country.

The empirical findings suggest that variables often affect either positively or negatively ($p < 0.05$) the migration of at least one family member varying by tenure type - owner versus renters –, although the results vary per year. Each year is analyzed individually and observed changes and effects of slow-onset disasters are not revealing a distinctive pattern during this period. Future research should consider two major concerns that arise from this method, first it is necessary to develop a better measurement tool to analyze this relationship; and second, it is necessary to include other types of slow-onset disasters that may significantly play a role in the decision-making process to migrate internationally. Researching the relationship between land tenure, decision-making process, and migration while facing climate change is essential because land tenure – the most positive right in the land – has been considered as a key factor that explains individual and community resilience (Shi, et al. 2018) which has further impact into planning for climate change adaptation.

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Key Words: Climate Induced Migration, Land Tenure, Property rights, Migrant's agency

URBAN HEAT WAVES: A CLIMATE CHANGE INDICATOR AND THE IMPORTANCE OF MINIMUM TEMPERATURES.

Abstract ID: 1150

Individual Paper Submission

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Extreme heat events are responsible for more annual fatalities in the United States than any other form of extreme weather [1]. Urban centers are particularly vulnerable to the threats of excessive heat as most cities are home to large populations of lower income individuals who often lack access to air conditioning or adequate healthcare facilities. Urban populations are also more likely to be exposed to extreme heat due to the urban heat island (UHI) phenomenon. Cities are becoming more vulnerable to extreme heat events as a result of global climate change. NASA and NOAA announced that the years 2015-2018 rank among the four hottest years on record.

In this paper, we examine whether heat waves are intensifying in large US cities. This paper is a continuation from an earlier study where we initially examined heat wave trends in the largest 50 cities from 1961-2010 [2]. We extend our previous analysis to the year 2017 and expand our definition of heat waves to include both minimum and maximum temperatures. Specifically, we are examining whether heat waves defined with minimum temperatures are increasing in cities at a faster rate than heat waves defined only using maximum temperatures. At the national level, we find that heat wave season and frequency are increasing across large US cities at faster rate when defined using minimum temperatures as compared to maximum.

Our research highlights the importance of using minimum temperatures as a heat wave metric when analyzing extreme heat events in urban areas. Minimum temperatures have been shown to be a more relevant metric for heat related health effects, are elevated in cities due to the urban heat island effect, and are expected to increase in cities at a faster rate than maximum temperatures due to climate change [3]. As such we identify cities that have the largest min/max differential between heat wave trends and assess whether this differential can be attributed to the development patterns and urban growth patterns of a city.

This work aims to help cities become more resilient to our changing climate by better understanding the changing characteristics of extreme heat in urban environments and the importance that cities play in increasing heat exposures to urban residents. The initial results of this work have been used at the federal level to create a climate change indicator which was released by the US Global Change Research Program, included in the most recent National Climate Assessment Report [4], and will contribute to future discussions on the importance of heat wave measurements specifically in US cities.

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Key Words: heat waves, urban heat island, extreme heat

COMMUNITY DESIGN IN AN ERA OF CLIMATE CHANGE AND FIRE VULNERABILITY

Abstract ID: 1161

Individual Paper Submission

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More than 50 people lost their lives in California fires. This was the news headline for several weeks. The “Camp Fire“, “Woolsey Fire” and “Hill Fire” were only three of which were responsible for 230,000 acres burned and more than 7000 destroyed homes. If we dig more deeply into the past years we would find a growing number of major wildfires in California and other states and a growing cost of wildfire-related damage. All of the Western United States is in danger, including Arizona, Utah, Washington, Oregon, etc. due to the popularity of development in the wildland urban interface (WUI) and also the climate change phenomenon.

We coin the term “fire prevention through environmental design” (FPTED) – an analogue to the long-established idea of crime prevention through environmental design (CPTED) – to describe the approach planners can take when building fire resilience (Schwab, 2005; Ewing, 2016). Fire occurs when there is the right fuel, right weather and a source of ignition for it. Weather and ignition may be beyond the control of planners, but designing communities so there is less fuel at the WUI is something we can affect. The literature from other fields (forestry) focuses on increasing fire resilience at the extremes of spatial scale – either macro-scale improvements to forest management or micro-scale changes to

individual properties. But FPTED focuses on the missing middle of the community scale. We have found two pioneering articles on this subject (Smith et al., 2016; 2018).

Smart growth can be considered a climate adaptation measure. Sprawl is widely defined as low-density, scattered development with poorly connected streets and commercial strips versus centers (Ewing and Hamidi, 2018). Sprawl increases the WUI as compared to compact development. We will use the Ewing-Hamidi metropolitan and county sprawl indices and satellite imagery to estimate how much the interface increases in fire-prone states as development transitions from compact.

Smart growth can be a climate mitigation measure. As California's Sustainable Communities and Climate Protection Act (SB 375) emphasizes, even weather (climate) is affected in the long-run by urban development patterns. The book *Growing Cooler: The Evidence on Urban Development and Climate Change* estimates that compact development will reduce VMT and associated CO2 emissions by 12 to 18 percent by 2050 as compared to urban sprawl.

At the more meso and micro scales, smart growth reduces fire risks. Actions planners have been advocating for decades to make communities more livable will also make communities more fire resilient. Here two examples from APA's Best Development Practices:

Land Use Practice 4: Develop in clusters and keep the clusters small. Cluster developments are built at gross densities comparable to conventional developments, but leave more open space by reducing lot sizes; by leaving open spaces around housing, clusters will tend to protect them from the fire as a defensible fuel break.

Transportation Practice 1: Design the street network with multiple connections and relatively direct routes. More connected streets mean more escape routes from fires for residents and more access routes to individual properties for firefighters.

We will look for each best practice in the built-up areas that have been subject to wildfire devastation in the last season of wildfires.

Other prescriptions for fire resilience include to create defensible space (which is being borrowed from Oscar Newman's book) around communities, avoid steep slopes, and use ignition-resistant building materials such as metal roofing and cement walls.

We believe that the growing importance of addressing drought and other impacts of global warming will make FPTED an important new subfield that has heretofore been unrecognized by planners but is highly relevant to planning scholarship, practice, and education.

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Key Words: Wildfire, fire resilience, community design, fire-adapted communities, environmental design

ASKING RADICAL QUESTIONS ABOUT SUSTAINABILITY PLANNING: LESSONS FROM SUCCESSFUL PLACES

Abstract ID: 1198

Individual Paper Submission

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Existing ways of planning communities and governing societies are not working. They are not addressing climate change, growing social inequality, the negative impacts of global capitalism, or other urgent needs in a timely manner (Howes et al. 2017; Millard-Ball 2013; Wheeler 2013). A new acronym has emerged—BAU, “business-as-usual”—to denote inadequate conventional approaches. We propose that if we want to move toward sustainability, planners need to ask more radical questions and propose more radical strategies. When our world faces large and growing sustainability problems, we need planners to take the lead and ask big-picture questions, such as “How do we get to carbon neutrality by 2050?” or “How do we have more diverse, inclusive, and affordable communities?” These questions are often radical in the sense that they push people out of their comfort zones. We want to question the BAU model of urban planning and governance and the way we live our lives. Urban planners are often limited in their role, but when we only try to fix the “tail pipe” problem or the “downstream” problem, we necessarily fail to get to the heart of the problem. We argue, that current sustainability problems have developed because societies have not dared ask big-picture questions. Planners, academics, political leaders, and even grassroots activists have assumed that some possibilities were too idealistic or impractical to raise. So the focus instead turned to narrower types of research and policy development which are often useful, but not enough to deal with underlying problems. This research uses a series of cases of planning challenges to the BAU model to highlight ways in which planners can take the lead in asking more radical questions and finding more effective solutions. We highlight examples of cities where planners have initiated change and adopted innovative policies. We find that when planners ask more radical questions, they find more holistic answers to the large-scale challenges we face. Based on an analysis of the cases of innovative sustainability planning, the research proposes a series of lessons that come from asking more radical questions that may inform future planning practice and promote more sustainable solutions.

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Key Words: Sustainability, Climate Change, Innovation , Case Studies

IMPACT OF URBANIZATION ON DIURNAL AND NOCTURNAL URBAN THERMAL ENVIRONMENT USING AIR TEMPERATURE BIG DATA: A CASE OF SEOUL METROPOLITAN AREA, SOUTH KOREA

Abstract ID: 1209

Individual Paper Submission

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Accurate microclimate temperature information is a pivotal parameter to explore urban determinants of the urban thermal environment (UTE) associated with extreme heat events and the urban heat island (UHI) effect (Oke, 1981). Many UTE studies use the land surface temperature (LST) retrieved from satellite imagery because of a wide geographic and temporal coverage availability. However, its applicability to the UHI or the extreme heat event studies is limited by a coarse spatial resolution, relatively infrequent temporal resolution and poorer accuracy. Furthermore, only few studies discuss the impact of urban built environment on air temperature (AT) changes with a high temporal resolution from local automated weather stations (AWS) because such big data is rarely available.

This study discusses the usefulness of AWS AT big data to analyze the impact of urbanization on diurnal and nocturnal UTE changes in the Seoul Metropolitan Area (SMA). We collect and compare The Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) data and in-situ climate data, AWS AT big data readings above the ground from 1294 weather stations in SMA during an early summer day. To identify the impact factors on temperature changes, we perform 'Spatial two-stage least squares' regression analysis including a list of variables of natural environment, detailed land use type, the three-Dimensional surface characteristics (aggregated size of 3-D building volume, building materials, height, building coverage ratio), and anthropogenic factors.

We found that the contribution of vegetation, the landscape of different urban development pattern, and the three-Dimensional surface characteristics distinctly between day time and night time. In our analysis, vegetation and the urban built environment variables had a notable effect on the air temperature in the night time. Vegetation (NDVI) and the three-dimensional surface characteristics still remained as good predictors for the air temperature differences between day time and night time in different urban development type; however, the impact on day time temperature showed a mixed interpretation. We also anticipate our finding would provide not only a reliable conversion factor between LST and AT, but also effective UHI mitigation strategies in SMA.

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Key Words: Air temperature Big Data, Urban thermal environment, Land surface temperature, Three-Dimensional Surface Characteristics

COOL CAMPUS: RETROFITTING EXISTING BUILDING ENVELOPE TO REDUCE GREENHOUSE GAS EMISSION

Abstract ID: 1211

Individual Paper Submission

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The main goal of this research is to utilize the campus setting as a living laboratory for reducing greenhouse gas emissions by retrofitting the existing building envelope. One underutilized strategy to decrease greenhouse gases is the retrofitting of existing roofs for “cool roofs.” Cool roofs are highly reflective roof surfaces that maintain a lower temperature than regular roofs (Akbari et al, 2004). This indirectly reduces electricity use in air-conditioned buildings, increases thermal comfort in non-air-conditioned buildings, reduces the urban heat island effect, and has the potential to mitigate global climate change (Akbari et al, 2004; Cool roof toolkit, 2012). The primary purpose of this research is to measure the potential energy savings of cool roofs for the existing buildings on University of California, Irvine (UCI) campus. Using estimates and emission factors from Levinson and Akbari (2010) by zipcode, this study examined the potential benefits of applying cool roofs on the existing buildings of UCI campus. The concept of “Cool roofs” is a potential climate solution that UCI could explore and provide other campus settings with the data to demonstrate the scaling up potential of “cool” design towards climate neutrality.

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Key Words: Cool roofs, Green house gas emission, urban heat island effect, Energy savings, retrofitting building envelope

TOXIC RELEASE FACILITIES AND SOCIOECONOMIC FACTORS IN SOUTH CAROLINA

Abstract ID: 1233

Individual Paper Submission

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The Southeast region of the United States produces the most per capita toxic waste in the country. Historically, this is due to lack of regulatory policies that restrict industries in releasing waste in the environment. Many sectors moved to the South to avoid regulations in other parts of the country. On the other hand, numerous studies have found a correlation between health status and vicinity to toxic waste facilities. According to the Environmental Justice mainstream scholars, minorities and less well-off

communities disproportionately suffer from environmental hazards. That is, in general, the more vulnerable population shoulder most of the burden of such environmental disamenities. This research takes a closer look in the state of South Carolina to evaluate the validity of the common assumption in the mainstream Environmental Justice discourse.

South Carolina is one of the least regulated states with regards to environmental policies and toxic waste release in the United States. It has repeatedly scored low in environmental protection and conservation rankings. According to EPA's 2015 report, state of South Carolina is a site for more than 525 facilities that release toxic waste in the environment—which puts it fifteenth among other states with more than 34 million pounds of toxic waste release. This research adds the smaller businesses that do not report to EPA to the analysis. Out of 182,523 total number of businesses in South Carolina, 6,319 were among those that released toxic waste. Approximately 18% of the toxic waste release in South Carolina are linked to some type of cancer. More than 50% of them are known to cause neurological problems — about 38% cause developmental issues in children. Moreover, there are still unknown health impacts for at least 4% of these chemicals.

This research takes a critical realist approach and adheres to the Rawlsian egalitarian theory of justice—hence, framing the problem around the adverse impacts on a specific group of people who are less likely to be heard and weigh in the decision making process. Using ArcGIS Spatial Analyst extension, this study explores the spatial correlation between the location of toxic release facilities and socioeconomic factors of the population of each census tract in South Carolina. In other words, it tests the validity of the common assumption of Environmental Justice discourse that environmental “bads” fall into the backyard of the impoverished, the less represented, and the more vulnerable population. Further, it also looks into the spatial distribution of the smaller toxic businesses which release toxic waste but do not report to EPA. The findings indicate no correlation between the level of toxicity in each census tract and the socioeconomic status of its residents. In other words, none of the independent variables chosen in this study demonstrated any correlation with the amount of toxic waste in each tract. The results show that the level of toxicity--which includes smaller non-reporting businesses--is spatially clustered in Greenville and Charleston metropolitan areas. However, these clusters did not overlap with any of the hot spots of the explanatory variables.

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Key Words: Toxic release facilities , spatial analysis , environmental justice

WATER DEMAND OF HOA VS. NON-HOA RESIDENTS ON COLORADO'S GROWING FRONT RANGE

Abstract ID: 1243

Individual Paper Submission

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This research contributes to water resource resilience planning, to increase community scale capacity to prepare, plan, absorb, recover from and adapt to the effects of our changing climate on water supplies (Cutter, Burton, & Emrich, 2010; Romero-Lankao, Gnatz, Wilhelmi, & Hayden, 2016). Acknowledging that increasing population densities in urban areas create greater vulnerability, there is an opportunity for municipal scale changes that can mitigate these impacts (Romero-Lankao et al., 2016). While not all hazard risks can be avoided, mechanisms should be in place to minimize effects (Moser, 2010) of growing populations and warming temperatures. Land use decisions that regulate development based on adaptive water management strategies, have an undeniable and significant effect on sustainable community growth and future water demand.

This research and presentation address the state of knowledge and practice around landscaping regulations for residential developments, specifically, planned special districts and neighborhoods managed by sub-governments such as homeowner associations (HOAs). HOAs are committees or sub-governmental groups that manage the procurement of neighborhood services to maintain common spaces within a development area and ensure its members keep up appearances by mandating the type of landscaping in a neighborhood. These types of residential developments are designed to limit residential yard design with the primary objective of maintaining property values. However, if the managed yard design was xeriscaped (low water design), HOAs could provide a level of sub-governance that enforces the reduction of outdoor water use.

The project will include three municipalities along Colorado's front range, Denver, Aurora, and Castle Rock. The analysis includes comparing different housing developments' that are managed by HOAs and outdoor irrigation of non-HOA residents. Including Castle Rock, CO, one of the West's leaders in promoting xeriscaping and other low water use landscaping, provides a good comparison between a typical green lawn landscape and a xeriscape design. The project will estimate household level outdoor irrigation water consumption, based on regressions of Denver Water, Aurora Water and Castle Rock Water, customer water use data. Then registered HOAs within the respective water utility's service area will be mapped to delineate between HOA and non-HOA residents. The results allow for greater understanding of varied landscape designs' water footprint and clarify the divergences between HOA residents' outdoor water use compared to non-HOA residents. By looking at these diverse irrigation types, policy options to achieve irrigation reductions, including zoning/building codes, incentives and education, can be implemented municipalities and enforced by HOAs. This research helps inform necessary changes to HOA requirement for landscape design. In addition, the effects of these outdoor irrigation reductions on overall supply-demand balance can help communities across the West. While many Western cities have water conservation programs and municipal regulations used in times of scarcity (Mansur & Olmstead, 2012), apart from some arid southwestern cities (Holway, 2009), most urban areas don't have strict landscape ordinances as a water smart tool for resilient cities.

Finally, the research will include a look at what the literature has to say about factors associated with success in these approaches.

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Key Words: Outdoor Water Use, Land Use and Water Management, HOA

COMPARATIVE PERSPECTIVES ON SUSTAINABLE DEVELOPMENT IN POST-INDUSTRIAL CITIES IN THE USA AND FRANCE

Abstract ID: 1265

Individual Paper Submission

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Sustainable development and urban resilience have become increasingly salient urban planning and policy goals in the US and western Europe in the last two decades and well-resourced cities like Paris, New York City, Portland and Chicago have developed extensive sustainability and resilience agendas (Portney 2013). At the same time, many other municipalities suffer from the effects of economic restructuring that have resulted in deindustrialization, population loss, aging populations, entrenched poverty and other challenges. Many of these places have been labeled “shrinking” or “declining” cities and a growing literature has analyzed this phenomenon and associated challenges and proposed regeneration strategies (Hollander et al 2009). This project connects these two important themes by analyzing approaches employed by shrinking cities that engage sustainability and resilience despite the salience of other challenges or as a mechanism for overcoming economic decline and as a vector for urban regeneration.

The project asks two questions. First, we seek to understand how declining post-industrial municipalities frame and define sustainable development goals and strategies, and assess how these correspond to, or differ from, approaches taken by larger and more affluent cities typically highlighted in the literature on municipal sustainability. Second, we are interested in how approaches to local sustainable development planning in the context of economic scarcity differ between the US and France, which are both advanced capitalist democracies but have very different national contexts regarding economic development, urban restructuring and the role of national governments in local policy and decision-making.

We analyze four cities that experienced strong growth during the industrial era but are now facing challenges of deindustrialization and decline: Dunkirk and Lille in France and Rochester, NY and Baltimore, MD in the US. Fieldwork in the spring of 2019 and continuing through the summer includes interviews with key decision-makers (planners, elected officials, advocates, civic leaders) intended to develop four detailed case studies analyzing how these cities have addressed the intertwined challenges of urban revitalization and environmental sustainability.

Initial fieldwork has helped to generate a set of initial hypothesis that will be analyzed and tested with additional fieldwork in spring and summer 2019 including: 1) local environmental sustainability policies in the French cities have been influenced significantly by national-level policies that are largely absent in

the US cities, 2) advocacy by the non-profit and civic sectors has been substantially more important in the development of local sustainability policies in the US cases, and largely absent in France, and 3) the rationales for addressing sustainability issues and the associated tactics utilized by the case study cities differ in important ways from the approaches more commonly cataloged in the literature on sustainability planning in a growth context, 4) in some cities the uptake of sustainability goals has been done strategically with the hope that sustainability and related strategies and tactics can be a vector for arresting further economic decline or spurring regenerative activity. We seek to better understand the nuances of the differences and similarities among the four cities and inform subsequent research on the utility of sustainability as an orienting framework for planning shrinking cities. Importantly, this research helps move beyond normative prescriptions for how or why sustainability goals should be addressed by declining cities (e.g Schilling and Logan 2008) towards more empirically grounded investigation of how declining cities in the US and western Europe are actually engaging issues of sustainability and resilience, what successes and challenges these types of communities face when focusing on sustainability related issues, and how useful sustainability-related strategies are for achieving other planning goals in a context of scarcity.

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Key Words: shrinking cities, urban revitalization, sustainability, France

BUILDING CLIMATE CHANGE RESILIENCE IN URBAN AREAS: THE DISTRIBUTION OF GREEN INFRASTRUCTURE AND CITIZEN ENGAGEMENT IN PHILADELPHIA AND BALTIMORE.

Abstract ID: 1280

Individual Paper Submission

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One of the issues in both ecological planning and planning mitigation strategies is that we often don't ask whether or not there is a difference within a jurisdiction in terms of who gets what—as to the type of ecological service system, its magnitude or capacity and its spatial extent. It is important to focus our attention on neighborhood and household mitigation and resilience to climate change impacts. What people can see and what they can be involved with on a daily basis is going to determine how much of the strategies and costs we can expect them to take up.

Massive government expenditure to build extensive mitigation systems for a variety of climate change impacts at the same time in many US metro areas will not be forthcoming quickly enough. Our investment backlog in just new water supply related services is over \$632 billion. (EPA 2017; Council Foreign Relations, 2017) This does not account for repair of existing and ancient systems. The Federal share of cost assistance to a locality is down to 25% which is within a downward trend to expenditures. Thus, because of the magnitude of the numbers effected and the increasing frequency of weather related damage there is a growing need for explicit attention to inclusion, equity and diversity to support our

building resilience to climate change impacts. The old model of post-disaster recovery has proven to be disastrous to people of moderate means. We need only to look at the recovery efforts Hurricane Sandy in 2012 and Hurricane Maria in 2017 and Hurricane Florence in 2018 to name a few. This paper examines and evaluates green and blue infrastructure projects and strategies in two US Cities: Philadelphia PA and Baltimore, MD. Presented is a comparative evaluation in terms of citizen involvement with design, implementation, maintenance and cost sharing on Green Infrastructure (GI) and Low Impact Development (LID) projects. Both of these cities have seen an increase in urban stream, creek flooding in the past ten years. The inventory of GI and LID projects are also examined in terms of the socio-ethno and income characteristics of the neighborhoods where they are located; interrelationships across infrastructure systems; and the magnitude of proposed impact on one or two climate change issues. The problem is can we get them built fast enough, at sufficient density and done with sufficient buy-in to share costs and get behavioral change?

Baltimore's "green" and "blue" infrastructure projects tend to be more disbursed, neighborhood oriented, and participatory. In Philadelphia these projects tend to be centrally directed and administered by the Philadelphia Water Department; in Baltimore they are disbursed across a variety of differently-scaled organizations. This assessment will identify and separate site scale and landscape scale projects. This discussion should also give an opportunity to discuss the spatial distribution of investments and whether or not these patterns are equitable and have more widespread impacts.

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Key Words: Urban flooding, Green Infrastructure, Equitable development, Inclusion, resilience

MANAGING RETREAT: ASSESSING THE DIFFERENTIAL IMPACTS OF AMERICAN FLOODPLAIN PROPERTY ACQUISITIONS ON COMMUNITIES

Abstract ID: 1294

Individual Paper Submission

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Floods are the costliest type of natural disaster, create the most property damage, and affect the greatest number of people in the United States (Kousky & Walls, 2014). An estimated 41 million Americans live within a 100-year floodplain and are exposed to the risk of major flooding (Wing et al., 2018, p.1). Local

governments are increasingly seeking to reduce the risks of coastal, riverine, and rainfall-driven flooding through climate adaption planning and urban design (Anguelovski et al., 2016).

Since 1999, the Federal Emergency Management Agency (FEMA) has used federal funds to help local governments purchase flood-damaged homes at pre-flood value from willing sellers as part of the Hazard Mitigation Grant Program (HMGP), the largest federal grant program for home “buyouts” following floods. While not building on land susceptible to flooding may be the least-cost option, floodplain buyouts are an alternative to the multiple and costly rebuilding of homes after repeated floods. The public acquisition of flood-damaged buildings, typically owner-occupied residences, and their removal from vulnerable floodplain and coastal areas is an early form of managed retreat.

How do housing values change in neighborhoods with FEMA-funded buyouts? We hypothesize that buyouts have an effect on nearby housing values that differs by neighborhood socio-economic status and measures of local racial homogeneity, ethnic diversity, and segregation, and higher-income and predominantly white neighborhoods will experience greater increases in adjacent property values compared to low-income or communities of color following buyouts. A related hypothesis is that these differential effects may be due, in part, to differences in local land-use following buyouts; e.g., wealthier communities have the resources to develop and maintain new open space amenities on buyout sites, but not low-income areas.

Methods - We examined eight years of completed buyouts of flood-damaged residential buildings during 1999 –2006, a group of 3,838 buyouts in over 500 census tracts located in 21 states east of the Mississippi. Data on completed property acquisitions were provided by Open FEMA.

We used ordinary least square and spatial regression, with the change in median housing values between 2000 – 2016 in census tracts with buyouts as the dependent outcome. The independent variables, based on socio-demographic characteristics, were based on criteria used by local governments to identify environmental justice communities and the literature on social vulnerability to natural hazards (Cutter et al., 2003).

Results - Mean change of housing value in the census tracts with residential buyouts from 2000 -2016 was an increase in \$18,200; with a range from -\$74,420 to \$266,856.

The first hypothesis was supported by regression analysis, as the change in housing values in census tracts with buyouts differed, in direction and magnitude, for low-income and communities of color compared to relatively high income, predominantly white neighborhoods. These results raise essential questions about why this differential occurs and its relationship to buyouts. Is it largely due to long-term structural racism and corresponding disinvestment in the built environment? How are these trends influenced by regional differences, land management practices, and locational effects? To assess land-use and land-cover (LULC) change in places with buyouts, we next use Landsat and Census data to characterize LULC change in these areas, stratify the analysis by region and population density, and incorporate additional buyout characteristics.

Large-scale displacement of human populations is expected this century due to the impacts of a warming climate, and the consequences of current forms of managed retreat must be critically examined. These findings, though nascent, reinforce the call for urbanists to foster public investment that facilitates more equitable social and spatial outcomes. Climate adaptation must avoid reinforcing racial inequalities and offer new pathways to reducing uneven vulnerability (Hardy et al., 2017).

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Key Words: climate adaptation, environmental justice, flood risk, managed retreat

TRACK 4 - POSTERS

SCIENTISTS' ROLES IN COLLABORATIVE PLANNING AND POLICYMAKING

Abstract ID: 398

Poster

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Many planning and policymaking processes involve the use of scientific and technical information. However, this information is frequently questioned by stakeholders, particularly when it contradicts with their opinions and preferences. This study explores scientists' perspectives on their roles in such processes with the aim of gaining insights into how better-informed policies, plans, and management might be achieved through more collaborative science-policy interactions. Integrating scientific knowledge into planning, policymaking and management processes is challenging because of the inherently different purposes, assumptions, and framing of scientific information and policy information (Innes & Booher, 2010). When it comes to environmental issues such as biodiversity conservation and climate change, it is even more difficult to use scientific research to inform decision-making and implementation because these issues are particularly complex in nature, involving uncertainty, complexity, diverse conflicting values and multiple objectives in various sectors; science alone cannot provide simple 'optimal' solutions (Pielke, 2007; Young et al., 2014).

In order to overcome these challenges, prior studies have explored the gap between science and policy. Most of those studies have focused on policymakers' perspectives in light of how they frame complex environmental problems differently than scientists do and concluded with recommendations on what scientists should do to better inform policymakers. This is often through the lens of 'science communication' (van Stigt, Driessen, & Spit, 2015). However, scientists' perspectives have been relatively underexplored in comparison to the body of research on policymakers' perspectives in several areas such as climate science. The role of scientists in planning and policymaking thus remains relatively unclear, other than to better communicate to policymakers. Pielke (2007) presented a typology of scientists' roles in knowledge brokering that has resonated with many scientists, but this typology has been neither empirically tested nor academically established. Although efforts to understand knowledge users or demand-side perspectives have provided valuable insights into how to improve boundary work at

science-policy interfaces, without better understanding scientists' roles and perspectives, those efforts often reinforce the oversimplified assumption that science-policy interactions are a one-sided, simplistic process of transferring neutral facts from scientists to policymakers (Nutley, Walter, & Davies, 2007).

This study aims to understand scientists' perspectives on their roles in planning and policymaking, and how those perspectives are formed early in their careers. More specifically, it examines the development of scientists' sense of expertise and identity through a case study of a graduate education program at Virginia Tech that is designed to promote interdisciplinary knowledge about the multifaceted aspects of global change and environmental threats. An empirical exploration of participants' perspectives on their knowledge brokering roles and boundary work can provide insights into how we can facilitate more effective interactions at science-policy interfaces with implications for scientists, planners and policy-makers, and facilitators of collaborative governance. Better understanding different scientists' perceived roles will help policymakers to more effectively seek and use scientific and technical information and scientists to more effectively participate in policymaking in a goal-oriented manner with clear self-definition and boundaries. Findings from this study will have implications for collaborative governance efforts involving scientists and the knowledge they bring to the table. Insights will benefit planning and policy practitioners such as conveners, mediators, and others engaged in designing and conducting collaborative environmental governance.

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Key Words: collaborative governance, science-policy interfaces, knowledge brokering, boundary work, environmental policy and planning

ENVIRONMENTAL EQUITY AND SPATIOTEMPORAL PATTERNS OF URBAN TREE CANOPY IN ATLANTA

Abstract ID: 422

Poster

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While previous studies in environmental equity found a positive relationship between tree canopy and socioeconomic/demographic status of neighborhoods, few examined how changes in tree canopy are associated with changes in socioeconomic/demographic status. We address this gap by examining their

cross-sectional and longitudinal relationships in Atlanta, Georgia. Our analysis confirms that the relationship between tree canopy and socioeconomic status is changing and the hypothesis of inequity cannot be fully supported beyond 2000. While poverty and rentership rates consistently showed inverse associations with tree canopy across different years, areas that had a high proportion of African-Americans are positively associated with an increase in tree canopy during 2000-2009. This trend resulted in a positive association between them in 2013. An interaction effect suggests that the changes in the proportion of African-Americans can have opposite effects on the predicted tree canopy cover depending on the changes in poverty rate. We conclude with how the findings can inform planning and policy decisions.

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Key Words: environmental equity, urban tree canopy, vulnerability

CHOOSE YOUR OWN ADVENTURE: CAN CLIMATE FICTION READING GROUPS ELEVATE ATTENTION TO EQUITY ISSUES IN CLIMATE ADAPTATION?

Abstract ID: 493

Poster

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Motivating mass mobilization to adapt to climate change poses is one of the biggest problems of the 21st century. Communication and activation efforts to date in the United States have largely failed to engage the broader public in critical visioning and planning efforts. Out of the box thinking and approaches are needed. This poster summarizes research linking planning for climate change through expanding imagination (Moser 2006; Sandercock 2004; Collie 2011), personalizing and engaging emotional responses (Moser 2006; van der Linden 2016), using storytelling as a tool for communication (Sandercock 2004; Moser 2006; Collie 2011) and centering people and populations who are most vulnerable to its impacts (Schrock 2015; Reckien 2017). Specifically, the research explores the potential of climate fiction reading groups to catalyze public engagement in local climate adaptation efforts, particularly around issues of inequity.

Fiction can activate imaginations needed to explore possible futures, new ideas for encountering change and difference, and emotionally connect with other people. All of these opportunities arise through the comparative safety of a fictional world. In such ways, this be a useful approach for adaptation planners to spark collective meaning-making that promotes climate action. Recent years have seen a rise in fiction books containing elements of climate change, coining a new term in the literary world: Climate Fiction (e.g. *Flight Behavior*, *American War*, *Orleans*). These 'Cli-Fi' books may help planners working on reducing risks from climate change. Incorporating Cli-fi into public engagement may promote and facilitate conversations that imagine complex future scenarios, especially through emotional stories that humanize climate impacts. The informality of reading groups, as compared to traditional planning

meetings with formal comment periods or large group exercises, can bring people from diverse backgrounds together in more intimate settings. Moreover, readings groups provide a fun and engaging activity that explores the cognitively and emotionally overwhelming topic of climate change. Climate fiction reading groups may provide opportunities for a) exploring how equitable resilience is personally relevant, b) building new connections between readers, and c) enhancing community-wide social capital. Of particular importance is prioritizing writings from authors from traditionally oppressed backgrounds whose characters likely appeal to a broader audience, challenge stereotypes, and even help reduce prejudice, all of which are necessary elements in addressing inequity.

This poster synthesizes findings from an ongoing engaged community reading group process as part of an exploratory research project. We present findings of a multi-stage process working with an innovative public library in a medium-sized Midwestern city. Our project integrates cli-fi novels into multiple reading groups sponsored through the library. Our research design allows for comparison between treatment (cli-fi novel) and non-treatment (non-cli-fi novel) in reading groups focused on social justice and those with a more general focus. Data sources include pre-treatment and post-treatment surveys, focus groups, and participant observation (Hesse-Biber, 2014).

Our findings inform existing literature that has found that by engaging in outreach activities through already existing public library programs, such as book clubs, readers can become planning participants in convenient and comfortable environments (Halvorsen 2001). We offer recommendations for scholars and practitioners alike, who may find cli-fi to open new lines of dialogue and engagement.

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Key Words: climate adaptation, storytelling, public engagement, planning processes, equity

SURVEY OF STATE LAND-USE AND NATURAL HAZARDS PLANNING LAWS

Abstract ID: 854

Poster

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The frequency, intensity, and severity of natural disasters is increasing with time (NOAA National Centers for Environmental Information (NCEI) 2019). Natural disasters result in severe damage to

property, built environment, and often lead to loss of life. Governments at all levels (local, regional, state, federal) are looking for new ways to increase community resiliency.

It is necessary to reform the existing state statutes or introduce new legislation for combating the negative consequences of climate change (Platt 2012). Federal Emergency Management Association (FEMA) is at the forefront of working with the communities that are affected by these natural disasters. They appreciate the role that planning laws, primarily related to natural hazards, play in building resilient communities. In this project, which was funded by FEMA, we reviewed legislation from all the 50 states for laws that are intended to require, promote, or encourage local mitigation of natural hazards. We collected data on, 1) State-level planning laws, 2) State planning enabling legislation, 3) State planning-related natural hazards laws, and 4) State building code laws. The emphasis was on the intersection of hazard mitigation and land use in state legislation, and the role of the states in guiding local hazards policy.

To collect the information, we framed questions to explore each of the four categories identified above. The questions were based on the review of the literature and were structured to collect information about specific laws. We did the content analysis of the state legislatures of all the 50 states to answer 25 questions for each state (e.g. Is integration of hazards planning required or encouraged across plans such as local hazard mitigation plan, a hazard-related element of the comprehensive plan, etc.?). Thus, we collected information on a total of 1,250 questions (25 x 50). Each of these 25 questions was further elaborated and defined. For answering the questions, we designed a method to review and scan the state legislation and developed a standardized “answering” (multiple-choice) system for consistency. We also attached notes and inserted links to the specific statutes related to each answer. Then we verified the collected information by contacting the American Planning Association’s (APA) Chapter Presidents and Legislative Liaisons.

It is a challenge to summarize the results of each question, so here are a few examples of what we found. We found that only 40 states required an element related to natural hazards in their local comprehensive. We also found that only the states of California, Florida, Nevada, and Oregon required integration of hazards planning across plans, and only the states of California, Hawaii, and Oregon addressed climate change (directly or indirectly) in their comprehensive plans. Overall, even though there has been more progress in addressing natural hazards through state laws in the last decade, there is much more work needed, especially in states that are not on coasts. These results are consistent with some other work that has not been related to planning (The Pew Charitable Trusts 2018).

Many times, planning is not guided by state laws, largely because planners are not familiar with the laws. This work provides one-stop-shop information to planners working at local levels about state-planning, planning enabling (NOAA National Centers for Environmental Information (NCEI) 2019) legislation, and natural hazards laws. This work can also be used for comparative purposes and could influence the work of states (in terms of policy language, etc.) that want to develop statutes based on the laws that are already adopted in other states. There is also an opportunity to do a more longitudinal study to monitor the changes in state laws over time.

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Key Words: Natural Disasters, Climate Change, Resiliency

THE EFFECT OF ROAD INTERSECTION ANGLE ON VENTILATION: URBAN WIND CORRIDOR SIMULATION WITH COMPUTATIONAL FLUID DYNAMIC SOFTWARE

Abstract ID: 953

Poster

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Urban Heat Island (UHI) is a crucial problem for metropolises in the United States. United States Environmental Protection Agency (EPA) defines UHI as an area in a city which is warmer than its neighboring countryside[1]. In fact, UHI reduces the thermal comfort in cities and in some cases, it has a direct effect on Urban Air Pollution (UAP). Hence, mitigating UHI is a challenging dilemma for urban planners who want to enhance thermal comfort and reduce pollution. EPA proposes strategies to mitigate UHI such as Urban Wind Corridor (UWC). Roads and highways are considered the major paths for UWC. Based on the literature, road intersection angle and road direction have a high impact on wind velocity and wind flow. Thus, finding the most efficient direction and pattern to design roads and highways would increase the function of those paths[2],[3].

This study aims to simulate five intersection angles from 90° to 45° with two different road patterns at 30 feet street elevation (upstream) by Computational Fluid Dynamic (CFD) software. In addition, the average air velocity for simulation is 9 mph (based on New York average annual wind speed). The software works based on Reynolds-Averaged Navier-Stokes (RANS) model to analyze the cases and present the results[4]. First, ten patterns are modeled with AutoCAD, then after exporting those models to Autodesk CFD, the simulation was run based on our inputs. The comparison of the ten urban road pattern simulations shows that the closest wind direction to the road direction or the parallel direction of wind and roads would maximize the air flow and air velocity.

The results show the impact of road patterns on urban planning. Planners can use the results of this study for their decision-making process to design the most applicable paths in metropolises. However, this study only considered the upstream level of paths in two different shapes of urban pattern, so additional research is required for downstream and even more with some regular or irregular urban pattern. In addition, it would be helpful for planners to focus on urban heritage sites especially in downtown areas to find the best strategies to enhance the thermal comfort without sacrificing the green spaces and historic districts.

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Key Words: Urban Heat Island, Urban Wind Corridor, Computational Fluid Dynamic, Wind Velocity, Roads Pattern

SPATIAL EVALUATION OF URBAN TRIGGERS FOR THE YAMUNA RIVER POLLUTION IN NEW DELHI, INDIA

Abstract ID: 989

Poster

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Urban planning & environmental management interventions in complex environments must be responsive to spatial, socio-cultural as well as governance factors. However, it is crucial to root the multitude of responses within the spatial spectrum of urban development through land uses, infrastructure provision, demographic information, etc. The objective of this study is to spatially evaluate the urban condition of the city of New Delhi National Capital Territory (NCT) from the perspective of severe depletion of the Yamuna River. While only 2% (22 km) of the entire river stretch traverses through the city, it picks up 70% of the total pollution load, reducing the river to an open sewer and destruction of the receiving water quality. The central research question is twofold: (1) What are the urban factors of New Delhi identified through a spatial analysis that are impacting the Yamuna river? (2) How does the spatial analysis inform prioritization of interventions for near- and long-term planning of the river restoration?

Primary approach for this project is spatial analysis by GIS, using census and land use data to analyze population density, the impact of specific land use types like industrial sites, and sanitation infrastructure. Secondary sources are used to delineate the floodplain of the river within the urban area, which along with the local drainage network forms the base of the urban analysis.

Key findings:

1. Population Profile: 16% of the total population of New Delhi NCT lives on the floodplain of the Yamuna river. There is a much higher population concentration along the two major drains towards the west of the river, identified as the primary point sources discharging pollutants into the Yamuna river.

2. Landuse: There is significant floodplain encroachment through 26.7% residential use, 6.5% commercial use and 1% industrial. These sites, including cultivated lands, contribute about 46.7% of the total floodplain area. Need to study the non-point pollution discharge from agriculture.
3. Proximity of Industrial sites to the drainage network: 54% of total industrial sites fall within 1000 ft of the river and drainage network, and 85% of entire industrial sites fall within 3000 ft of the river and drainage network; corroborating that industrial effluent discharge could be a significant cause of river pollution.
4. Sanitation Infrastructure: There is a substantial number of households that are not connected to the drainage system this highest at ward level are 65,000 to 100,000 households. A high percentage of households lack individual toilets, highest at ward level is 51% - 94% of households, also showing a strong correlation with households that use open defecation; corroborating that untreated domestic sewage discharge is another major cause of river pollution.

The Yamuna is a seasonal river, and highly engineered. Before it enters the New Delhi city at Wazirabad barrage, almost the entire flow is captured to supply drinking water for 86% of the city population. Beyond this point, the river constitutes of urban discharge from the drains and runoff. It ends up like an open sewer and authorities have failed to maintain minimum water flow to sustain natural river functions. However, during heavy monsoons, the river also heavily floods leading to large-scale property destruction. Therefore, the floodplain analysis is key to capturing the dichotomy of river pollution as well as flooding. It not only identifies development impacting the floodplain but also population and properties under flooding risk. Spatial correlation is a critical tool to guide urban planning and environmental management practice. While there is a high possibility for a direct correlation between urban development and pollution of urban rivers; geospatial analysis can spatially identify areas to focus interventions, programs, and policies by mapping urban trends and infrastructure systems that need attention.

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Key Words: spatial analysis, river pollution, floodplain landuse, , sanitation infrastructure

TRIPLE- BOTTOM LINE ASSESSMENT OF GREEN INFRASTRUCTURE IMPLEMENTATION IN NEW ORLEANS

Abstract ID: 1091

Poster

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There has been a gradual but steady change in global climatic conditions. These changes have been linked to human activities, from greenhouse gas emissions to deforestation of natural forests to increase in built-up areas (Anderson et.al. 2014). It is inarguable that developments in urban areas have disrupted the natural environment and its ecosystems; real estate developments, highways and roads concrete pavements, and the artificially constructed drainage systems have changed the dynamics of the interaction of nature (Young 2011) This situation is aggravated by water bodies in cities with coastal geographies. The introduction of green infrastructure (GI) into urban ecosystem mimics the behavior of the natural environment, therefore reduce flooding and mitigate climate change. There are currently a number of efforts towards the implementation GI around cities in the United States; similar efforts are also seen in New Orleans.

New Orleans is prone to hazards mostly due its geographical characteristics; impacts of flooding have been heightened due to the use of outdated pumping systems to manage flood waters. This is exacerbated by the fact that New Orleans is a tourist town and witnesses high turnaround of visitors especially during festivals. This study assesses the use of GI in the most vulnerable areas and neighborhoods around the city, to study the impacts of flooding caused by stormwater runoff; then analyze the environmental, social and economic ramifications of implementing green infrastructure in those areas. It also examines the efforts of city government, non-governmental organizations and communities towards GI implementation. The project will achieve this through archival research; qualitative, semi-structured interviews of residence of flood prone areas and city government officials in green infrastructure development.

The triple bottom line approach applies environmental, social, and financial determinants to provide a more holistic way for a cost-effective solution to reduce the impact of flooding in the city. Benefits like social or equity can be deduced through the interview of residence, then making a comparative analysis of the impacts of GI in communities that already have with others that do not have. A compilation of rain data and history in relation to flooding will be collated and analyzed to be able to deduce best GI types can be applicable at each flood prone area. It is expected to see meaningful, however, limited gains due to the implementation of GI in a few areas.

It is our view that a city-wide assessment of such areas will produce new knowledge that can be applied universally. This study will help in making informed policy decision on city planning and also help formulate theories of the social, environmental and economic impacts of green infrastructure development in the city.

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Key Words: Green Infrastructure, Bottom-line approach, Flood, New Orleans

TRACK 5 – GENDER & DIVERSITY IN PLANNING

TRACK 5 – ROUNDTABLES

ROUNDTABLE - DIVERSITY DIALOGUE: ADDRESSING CHALLENGES OF BIAS AND DISCRIMINATION IN PLANNING EDUCATION

Abstract ID: 995

Roundtable

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Having a better understanding of the value of diversity in the planning academe and workplace is needed, as is more representation and agency of marginalized groups to fill this gap. While planning scholars and practitioners have acknowledged the importance of diversity, the planning academe and practice have struggled to recruit and retain diverse groups and promote cultural competency in programs (Harwood, 2005; Lowe et al, 2016). Across the U.S., there are increased institutional debates regarding how best to support diversity and inclusion within urban planning curricula, within our student and faculty bodies, and work spaces (Edwards and Bates, 2011; Sen et al, 2016). However, there has been limited research that examines how practitioners, students, and faculty perceive or experience diversity within the urban planning field and the steps necessary to bridge planning higher education and culturally competent practices in the planning profession.

This roundtable will discuss the findings from ACSP-POCIGs research team nationwide survey of urban planning students regarding the climate for diversity within their degree programs based on 451 responses and 50 in-depth interviews. The study highlights the experiences students have interacting within the classroom, with faculty, with peers, and with professionals as they prepare to enter into planning practice or academe. Our results show that the majority of students report an overall supportive and positive climate for diversity within their programs, regardless of a student's identity. However, students still report occurrences of bias and discrimination and describe the shortcomings of a lack of faculty diversity and support systems within planning schools. These accounts reflect a major pedagogical challenge to planning education – is doing well here good enough? Student accounts suggest that the answer is no. Overall, there remains much work to be done within our classrooms, the communities at large, which we serve, and how we interact as colleagues. The panel hopes to enable planning educators to prioritize the practice of diversity within our departments and innovate around how we teach and model this practice for our students and the communities we seek to serve.

Panelists will share their insights on four papers that explore the following: 1) Student perspectives on climate for diversity in urban planning programs broadly, 2) Student perspectives on the integration of

diversity and practice-based curriculum, 3) African American and Latino student experiences in urban planning programs and 4) International student experiences with diversity in the planning academe. To that end, the panel will address the following questions: What are the pedagogical and practice gaps in understanding diversity and inclusion in academia? How can planning education enhance student learning in a way that connects the classroom experience with being able to implement skill sets in the real-case scenarios in diverse communities? What are the systemic barriers faced by underrepresented students in planning departments? How is the planning academe and ACSP responding to the needs of underrepresented groups and supporting diversity and inclusion efforts?

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Key Words: Diversity, Cultural Competence, Planning Education, Practice, Discrimination

TRACK 5 – INDIVIDUAL ABSTRACTS

TRANSIT CRIME AND SEXUAL VIOLENCE GLOBALLY: EXPERIENCES OF COLLEGE STUDENTS IN 18 CITIES

Abstract ID: 45

Individual Paper Submission

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Central theme/research questions

The #MeToo! Movement has cast an uncomfortable but necessary lens on sexual harassment. But most attention has been given to the work place environment, and only a handful of studies have examined sexual harassment in public spaces, and particularly transportation environments. This is a significant omission, since media stories and reports around the world indicate that the incidence of harassment on public transit is quite common globally. Indeed, incidents of sexual harassment are being reported on

buses and trains in cities around the world, and ‘transit rapes’ in New Delhi, Rio, Los Angeles and Philadelphia have generated public outrage in the past. But how prominent is sexual harassment on the bus, on the train or at the transit stop, and how does it affect women? What types of harassment (verbal, non-verbal, physical) are most prevalent, and where and when do they mostly occur? Are groups other than women (men, LGBTQI individuals) also affected by harassment, and to what extent? How do victims and bystanders respond to harassers? How common is the reporting of sexual harassment crimes? Are victimization and perceived safety affected by the types of environments people encounter while in transit; if so, how? Where are most individuals afraid of being victimized: on the bus or train, waiting for public transportation or on the way to it? How is harassment and transit crime similar or different in different cities and cultural contexts? Lastly, but importantly, how can cities and their transit operators respond to harassment and other transit crime and make travel by the bus and train safer? These are the research questions which will be addressed in this study that draws from surveys with college students at two university campuses in Los Angeles. The study is part of a larger international study, co-led by the first author, which takes a global look at crime and sexual violence as experienced by college students in 18 cities, in 5 continents.

Approach and methodology

We distributed a 45-question survey to students (male and female) carrying transit passes at UCLA and Cal State, Los Angeles asking, among other things, about their travel patterns, fear of victimization while travelling on public transport, prior experiences with victimization and sexual harassment on transit; spatial and temporal characteristics of feared transit environments, reactions to harassment, and proposed responses. A similar survey was also distributed by collaborating scholars to 17 other cities, in 5 continents. The study will primarily present the findings from Los Angeles, but will also compare them with major findings from other cities. In addition to descriptive statistics, the study will present results from regression models to better understand and explain the differentiation in victimization levels as well as in perceptions of safety among students.

Findings

Our preliminary findings indicate that being female and identifying as LGBTQI are both significant predictors of being a victim of harassment on transit. This finding is consistent across the other international cities in the study, but the extent of harassment varies from one city to the other. Most women take special precautions to avoid harassment, which affect their travel behavior. Underreporting of sexual crimes in transit environments is very significant.

Relevance to planning scholarship and practice

The study will generate new insights on the extent and nature of harassment in transit environments, and how it affects travel behavior among women and LGBTQI riders. These insights will be relevant for practice as they will highlight an issue that affects an important segment of transit riders. Lastly, the study will propose policy recommendations that may have a positive impact on improving transit environments for women riders.

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Key Words: transit crime, sexual harassment, college students

THE ROLES OF FAMILY AND WOMEN IN DECLINING SUBURBS IN JAPAN

Abstract ID: 63

Individual Paper Submission

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This paper aims to investigate how family ties, especially those of the female second generation (daughters of the original homebuyer) who left the suburbs, affect conditions in declining suburban neighborhoods in Japan.

Japanese suburban neighborhoods were developed throughout the 1960s to 1980s in order to solve the problem of insufficient housing stock in inner cities. The suburban houses with their modern designs and amenities, although located far from the city center, were a dream for middle and upper-middle class families. However, after several decades, those suburban neighborhoods are rapidly aging as younger generations, which include more women in the workforce, leave for more convenient locations. The media have called it the "death of suburbia," showing images of lonely old residents, often living alone in a house and struggling with their daily lives (Soble, 2015). There are several efforts by organizations to assist those remaining elderly citizens, yet the majority of them are still largely reliant on family members for help (Hashizume, 2000; Wallhagen & Yamamoto-Mitani, 2006).

To date, the role of family members in residential choice has been discussed primarily in terms of how the family or individuals move to another location due to complex life events such as marriage, child bearing, and jobs (Clark & Withers, 2009). At the same time, Mulder (2007) points out that the influence on residential choices by family members outside the household is significant. As the provision of care for the elderly by family members is crucial for an aging society such as Japan, examining the residential choices of those who have moved away from their parents' houses and their activities in relation to their parents' suburban location is a critical step in the discussion of the future of declining neighborhoods.

Taking the case of a suburban neighborhood near Tokyo, we conducted 42 semi-structured interviews with adult children of suburban residents to answer the following research questions:

How do the children who have left their parents' houses affect the condition of suburban neighborhoods where their parents remain?

Are there any differences in terms of gender, position among siblings, marital status, and jobs that contribute to the changes in suburban neighborhoods?

We found that daughters tend to live closer to their parents than sons do; however, this was greatly influenced by birth order and marital status. The study concluded that the residents of this suburban town survived due to frequent visits from the family members (mostly adult daughters) who left the town. Strong family connections, especially those of women who feel obligated to take care of both their own and their husband's parents, as well as the tradition that married couples should live close to the husband's parents, persist among younger households. This suburban neighborhood may be slowly dying because of the residential choices of the second generation, but their frequent visits are allowing the older generation to continue living in their isolated suburban houses.

The suburban neighborhood outside of Tokyo was designed exclusively for families with a clear gender-based division of roles—working men and housewives with children. Now, despite changes in family structure such as more women in the workforce, increasing unmarried population, and aging, the neighborhood's deterioration is often delayed by the unpaid and dedicated assistance of female family members far from town. It may not be sustainable to maintain the town itself, however, once the original residents are gone. This paper calls for new strategies to revive suburban towns in Japan such as diversifying the residents, introducing businesses that can ease women's burdens, and coordinating with local organizations and businesses to assist the elderly without relying solely on their daughters and daughters-in-law.

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Key Words: Gender and Family, Japan, Population Decline, Residential Choice, Suburb

GENDER INEQUALITY IN THE JOURNEY-TO-WORK: INTERACTIVE EFFECTS OF RACE/ETHNICITY AND FAMILY STRUCTURE

Abstract ID: 239

Individual Paper Submission

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This research investigates the interactive effects of race/ethnicity and family structure on gender inequality in journey-to-work trips in the United States. I posit that gender inequality in journey-to-work

trips is associated with two additional aspects that have been understood to simultaneously affect gender roles but not jointly examined in women travel literature. The first is race/ethnicity: minority women face double oppression (Crane and Takahashi 2009, Taylor and Mauch 2011). The second is the family structure (Rosenbloom and Burns 1993, Johnston-Anumonwo 1989): an increasing number of women have joined the labor force and consequently gained socioeconomic statuses.

Using the 2017 National Household Travel Survey (NHTS) data, I use interaction terms of gender, race/ethnicity, and family structure to compare gender gaps in journey-to-work trips—measured by commute distance and commute mode—between racial/ethnic minorities and whites, and between single-worker families and dual-worker families. More importantly, I compare the differences in gender gaps between single-worker and dual-worker families across racial/ethnic groups.

The preliminary results paint a complex picture. Gender gaps are larger in whites than in minority groups and larger in dual-worker families than in single-worker families. Additionally, the difference in gender gaps between single- and dual-worker families are the largest in black families but smallest in Asian families.

The results have policy implications. On the one hand, they quantify women's additional tradeoffs in commuting trips in dual-worker families compared with single-worker families. The results suggest that transportation services that serve children's needs can to an extent facilitate women's commuting flexibility and thus their employment. On the other hand, the results suggest additional disadvantages of minority women, particularly blacks, because black women have to balance bread-winning and family responsibilities with limited transportation resources. Providing transportation services in minority neighborhoods is essential for employed minority women.

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Key Words: women, commuting distance, travel modes, employment

FROM THE PARK AS STAGE TO THE PARK STAGED: DOES DIVERSITY INDICATE INCLUSIVITY IN DALLAS ART DISTRICT SIGNATURE PARK?

Abstract ID: 385

Individual Paper Submission

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Ever since the private sector became accountable for designing, financing, programming and managing a rising number of urban spaces, the meaning of "public space" has become increasingly complex. This

“privatization” has generated criticism for not allowing protests, stifling free speech, Disneyfying, securitizing and commercializing public spaces, therefore, excluding individuals and groups based on race, gender, class, social status, and also beliefs, behaviors, and activities. On the other side, the established geography of events is shifting, and more sanctioned events are being staged in public spaces, including signature parks. Previously, all events took place in public parks were pro bono; they are now being used for several commercial and ticketed events. Urban designers employ events as a tool for animating and diversifying public spaces, though scholars have started to probe this process, exploring eventization of not only our public spaces (Smith, 2016) but also the eventization of our society (Žižek, 2014) and economy (Pine and Gilmore, 1999). The purpose of this paper is to understand the programming factors that contribute to the establishment of exclusionary strategies in a privately-managed signature park in Dallas and to explore how planners, city officials, and even donors contribute to the creation of very well diverse, though an exclusionary public space.

I deploy the “Just City Framework” (Fainstein, 2005) and “Implicit Bias Discourse” (Kahn, 2017) in a signature park in Dallas Art District, complimented by D Magazine as the “city’s most beloved public space” and referred by US Today as “the number one spot for free things to do in Dallas” to evaluate whether diversity means inclusiveness of the park. Fainstein describes diversity as the planning orthodoxy which is not helpful without considering it in the broader concept of just city. Similarly, Kahn, a legal scholar, uses the newly coined term “Recreational Antiracism” and argues that promoting diversity rather than substantive structural change will not create equal opportunity and equal outcomes.

The research methodology includes (1) interviews with the stakeholders; (2) participant observation, and (3) review of web materials, press and social media (Instagram and Twitter) for content analysis. Triangulating the results inform us of how programming and management utilize events to exclude the so-called “undesirables.” For this study, I consider “programs” to be ongoing and recurring activities, as opposed to one-time events in three main categories – commercially-, politically- and community-oriented events - and examined more than 1300 of programs that activated the park from January to December 2018.

The findings indicate that securitization and commercialization as the two principle exclusionary strategies lead to two subgroups: tangible or deliberate vs. symbolic exclusion. The non-profit organization responsible for the operation of the park uses three different mechanisms to exclude unwanted uses and users:

(1) Through private regulations and bylaws that are not posted for public information. Thus, purify the park of difference through exclusion of those who are judged to be defiant, imperfect, and marginal like homeless individuals and groups, punks, skateboarders, unsanctioned journalists, and so on. (2) By closing the publicly-used park for private parties or ticketed events. (3) By not inviting or welcoming unwanted uses and users: (3.a) By not informing unwanted users about the free programs and activities happening on site but advertising ticketed and sponsored events on social media. (3.b) Through failing to represent diversity in computer-generated imageries (CGIs). Also, (3.c) By scheduling free events in a way that unwanted users are not able to participate, such as kid-friendly events on Tuesdays and Thursdays 10 a.m. to 12 p.m., which is just accessible to parents with the luxury of a flexible schedule.

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Key Words: Public Space, Eventization, Diversity, Inclusiveness, Exclusion

COMMUNICATION BY DOING: URBAN INFORMALITY AS AN EXPRESSION OF NEEDS BY LOW-INCOME IMMIGRANTS

Abstract ID: 433

Individual Paper Submission

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Over the last decade or so, the concept of informality has garnered increasing attention among planning scholars and practitioners in the global North. Much of this work has focused on design interventions advocating for direct, provisional, and reversible interventions in space as a form of relational planning—a way of testing new ideas and inviting discussion and participation (Wohl 2018, Lydon and Garcia 2014). Tactical interventions are conceived of as a tool for planners to plan through provisionality and informality. While this offers an alternative to top-down comprehensive master planning, it does not critically examine who gets to participate, what constitutes “participation”, or the barriers to inclusion that persists in this participatory framework.

In this presentation, I argue for extending the scope of what constitutes participatory planning to informal practices undertaken by low-income immigrant residents to fulfill basic needs like income generation, housing, and transportation—what I have elsewhere called “informalities of need”. Drawing theoretically on scholarship from the global South, I frame informal practice born of need as a mode of urbanization from below (Roy 2005). Two case studies from New York City of conflict over the informal use of space will be used to frame these theoretical arguments. One involves an example of informal vending in a city park that ended with a heavy-handed crackdown. The second example—that of successful campaign to formalize informal basement apartments in immigrant districts, demonstrates the positive social justice outcomes that can result when planners and public administrators the look past myopic focus on regulatory compliance and start to see informal actions as a form of “communication by doing”.

The case studies are guided by a few key research question: how did the initial conceptualization and problem definition of the two examples of informal practices frame responses by administrators and planners? What (if any) alternative forms of participation and listening were employed by public officials to understand why lower income groups turned to informal practice in the first place? How open were public officials to listening to the needs being expressed through practice? How did their openness to listening affect final results of formalization processes? Using in-depth interviews with key stakeholders, analysis of print media, online media, and government documents, this comparison will show how officials in the street vending case were more concerned with legal compliance than needs expressed by vendors, leading to less than optimal results, while in the case of informal housing, city officials were less quick to frame informality as petty rule-breaking and were able to place the issue within a broader context of the need for affordable housing among lower-income immigrant groups.

Through the analysis of these two cases this presentation argues that planners concerned with social justice and inclusion should conceptualize informal practices of low-income immigrant groups as loosely

articulated, often imperfect, sometimes problematic, but always urgent expressions of needs. By listening to needs expressed through informal practice, planners can play a role in opening “spaces of invented citizenship” (Miraftab 2009) where excluded groups can communicate through practice what they need the city to be and to become.

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Key Words: Informality, Participatory Planning, Tactical Urbanism

MIND THE GAP: UNEQUAL PARTICIPATION OF WOMEN AND MINORITIES AT TRANSIT AGENCY BOARD MEETINGS

Abstract ID: 457

Individual Paper Submission

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In North America, public transit agencies are often governed by a board of directors, which is responsible for key strategic decisions related to fare setting, project approvals, and long-term planning priorities. The board of directors thus has an enormous impact on the way people move across their communities and regions. It has long been recognized that there is a diversity gap in the representation of women and minorities in the leadership of public agencies as compared to the populations they serve (Johnson and Crum-Cano, 2011; Sandercock and Forsyth, 1992; Bradbury and Kellough, 2011). This research examines how the diversity gap in director representation plays out in terms of unequal participation of women and minorities in transit agency board meetings.

Through a content analysis and interviews, the study analyzes the discourse, the quality of debate, and the perceived experience of the directors in the boardrooms of major transit agencies. The content analysis coded videos from all the 2017 public board meetings of the Metropolitan Transit Agency in New York City, Metrolinx in Greater Toronto, and Translink in Metro Vancouver to identify the individuals speaking, their identities, their level of participation, which topics they participated in, and the manner in which they participate. In addition to the content analysis, in-depth interviews were conducted with board members, chairs and presenters to draw from their perspectives in the boardroom.

The content analysis shows that women and visible minority board members speak proportionately less, are interrupted more, and are less likely to participate in certain topics of discussion related to budgets and major project delivery. Conversely, the interview findings revealed that the board members perceived experiences were different, as women and minority board members do not feel that they were interrupted or participated less than their white male colleagues. The paper concludes by reflecting on the

implications of these findings for the boardroom practices of major public agencies, and the way that the board dynamics impact on key transit investment decisions.

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Key Words: Gender, Diversity, Transit

GENDER AND LOCAL GOVERNMENT SUSTAINABILITY: DO DIFFERENT LEADERS PROMOTE DIFFERENT POLICIES?

Abstract ID: 503

Individual Paper Submission

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CENTRAL THEME: Men and women have well-documented differences in leadership style with women tending to be more relational, supportive of colleagues, and democratic than men (Gipson, Pfaff, Mendelsohn, Catenacci, & Burke, 2017). However, the research is mixed about whether those leadership differences translate into different policy outcomes. Some research finds no impact of women leaders on some local government functions such as budgeting or crime control (Ferreira & Gyourko, 2014). Similarly, the impact of women planners on the built environment is not evident and a supposed gender-neutral perspective perpetuates urban planning that privileges men by not taking female needs into account (Greed, 2003) and risks the subordinating planning issues identified as more of a concern to women (Larsson, 2006). On the other hand, corporations with gender-diverse leadership teams tend to be more environmentally friendly (Glass, Cook, & Ingersoll, 2016). And, women elected to office have more years of education than men (Baltrunaite, Bello, Casarico, & Profeta, 2014)—a trait found in the residents of many communities to be correlated with higher levels of sustainability. Given the discrepancy in the literature, we sought to test whether sustainability policymaking is impacted by leadership gender at the local government level. Sustainability sits at the intersection of environmental protection, social equity, and economic development and tends to emphasize values that may map well onto the leadership styles that women tend to possess, such as transformational, collaborative, and democratic.

METHODS: To investigate the question of whether gender differences impact local government sustainability policy adoption, we used the 2015 Sustainability Survey of Local Governments by ICMA (n=793). In addition to asking about the adoption of 80 sustainability policies, we asked whether the highest elected official was a woman or a man. We used a Poisson regression to test whether gender and/or other factors impacted sustainability policy adoption rates. We control for party affiliation as well as other community demographics.

FINDINGS: We find that local governments with women holding the highest elected office are 1.5 times as likely to adopt community-wide energy policies and 1.13 times as likely to adopt social equity policies

as municipalities with men in charge. These are policy areas that may require greater collaboration and therefore may fit better with women's leadership styles. The influence of women leaders is not significant in other areas, such as energy conservation in government operations which save money and therefore may be a priority regardless of gender. Other areas, such as drinking water, are heavily regulated and therefore leaders may have little discretion. Our results suggest that the gender of a leader is another potentially important factor influencing the adoption of sustainability policies by local governments.

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Key Words: gender, leadership, sustainability, local government, local policies

TRANS* IN TRANSIT: PUBLIC TRANSPORTATION EXPERIENCES OF PEOPLE WHO HOLD TRANSGENDER IDENTITIES

Abstract ID: 504

Individual Paper Submission

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Overview of research

Transgender and nonbinary identities are only recently being spoken of and acknowledged by the larger public. Often conveyed through the umbrella term trans*, gender identities beyond the binary assigned at birth include, but are not limited to: transgender, nonbinary, two-spirit, genderqueer, genderfluid, gender non-conforming, pangender, agender, bi-gender, and third gender. It is vital to understand trans* experiences as a part of planning resilient cities, equitable to everyone. The Southern California region, particularly Los Angeles, has been investing heavily in public transit as a part of the solution to reduce greenhouse gas emissions. Yet, not all groups of the public experience transit in the same way. For instance, studies show women as less likely to take transit due to perceptions and experiences of harassment and assault (Hsu, Boarnet, & Houston, 2019; Loukaitou-Sideris & Fink, 2009). Indeed, studies of power dynamics and space often focus on gender (Lubitow et al., 2017). Yet, the experiences of trans* people in public spaces remains understudied, specifically as it pertains to transportation. A 2015 survey in the U.S. by National Center for Transgender Equality (NCTE) revealed that 34% of over twenty-seven thousand people who identify as trans* reported experiencing unequal treatment or service, harassment, or assault on public transit (NCTE, 2015, p. 214). Understanding the experiences of people who identify as trans* can inform policies, processes, and design in transportation planning.

Research question

What is the experience of taking public transit for people who identify as trans*?

Research methodology + data source

This project requires primary data collection. I will conduct semi-structured interviews, approximately 1 hour each, with 10 people. I will get IRB approval prior to recruitment. I will recruit participants at UCLA's LGBT resource center and the Los Angeles LGBT Center (multiple locations). Compensation to participants will be a \$10.00 Visa gift card. Inclusion criteria are that participants use public transit at least once per week and identify within the trans* umbrella. For this sample, I will purposefully seek a diverse array of gender identities and expressions, as well as diverse racial and ethnic identities. As I myself identify as genderqueer and present as masculine-of-center, I will keep a reflexivity journal throughout the process. I will transcribe the interviews. I will code and analyze the data for themes (software assist to-be-determined), ultimately writing a paper on the experiences revealed. The limitations of this study include its lack of generalizability, the possibility of a student-majority sample, and self-selection bias for participants willing to share their experiences.

Findings

Research in progress, paper to be finished by September 22, 2019.

Implications and actionable conclusions

This is a pilot study for my dissertation. Since the transportation experiences of people with trans* identities are understudied, a pilot study will help to generate robust survey and interview instruments as the basis for a larger, mixed-methods study.

I expect the public transit experiences of people who hold trans* identities will highlight issues for this group and its subgroups in the unique public spaces of transit. Knowing what is happening to people and how they deal with it on (or avoid) public transit can inform policies and procedures to make transit equitable in practice. It could inform instruction regarding the use of public space more broadly.

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Key Words: public transit, gender, transgender, LGBT

DO MORE ACCESSIBLE AND WALKABLE BUILT ENVIRONMENTS PROMOTE GENDER EQUALITY IN TRAVEL BEHAVIOR? A CASE STUDY IN LOS ANGELES

Abstract ID: 509

Individual Paper Submission

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Previous research has raised concerns that urban sprawl and segregated land uses separate private and public spheres, constrain women to their immediate neighborhoods, and reinforce unequal access to social and economic opportunities between men and women [1]. Gender division of housework and household obligations could lead to differences in travel patterns, which could in turn further reinforce gender differences in household-related tasks [1,2]. Sustainable community design that is more dense, walkable, and accessible, could help address women's social isolation in suburbia and provide greater flexibility for married couples in dividing household out-of-home travel and activities [3,4].

We extend previous studies by examining how regional employment and destination accessibility (REDA) and neighborhood walkability (NW) influence gendered travel patterns. We investigate the following questions: (1) How do married couples respond to built environments differently in terms of travel behaviors?, and (2) Could greater REDA and NW help improve gender equality in daily travel and the gendered division of time dedicated to household-related tasks? We utilize the 2012 California Household Travel Survey to analyze differences in daily travel patterns and activity time for heterosexual married couples in Los Angeles, and examine differences by residential REDA and NW levels. Using propensity score matching to account for residential selection, our multivariate analyses assess the influence of built environments on (i) daily trip number and travel distance by mode and by gender and (ii) gender equality in travel behaviors by mode, after controlling for socio-demographics. Gender equality is defined as the absolute value of the within-household difference in travel patterns for married pairs.

Consistent with previous research [4,5], we found significant gender differences in travel and out-of-home activities. Men on average had greater daily travel distances and automobile trips but walked less than women. We also found that accessibility influenced gender differences in travel behavior. Overall, we found that men and women living in areas with greater employment and destination accessibility (REDA and NW) were likely to walk more, have more daily trips, and travel less by automobile. Multivariate results indicate that, after accounting for socio-demographic factors and residential self-selection, living in an area with greater accessibility was associated with greater equality in daily travel distances, although the effect was moderate.

These patterns indicate that more accessible urban environments are associated with greater sustainable travel overall and suggest that men and women respond to regional accessibility and neighborhood walkability differently in terms of travel behaviors. Findings suggest policies that promote more compact design with greater local and regional accessibility could bring moderate alleviation to gender inequality in travel and access to social and economic opportunities between men and women.

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Key Words: Gender equality, travel behavior, built environment, compact design, accessibility

THE DUAL-EARNER HOUSEHOLDS AND GENDER GAP IN COMMUTING TIME

Abstract ID: 533

Individual Paper Submission

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As women's educational attainment level and labor participation rate increases, the number of dual-earner household also increases. Research on commuting behavior suggests that women's travel time to work (or commuting distance) is shorter than the men's (White, 1986). The household responsibility hypothesis explains women's dual-role; married women take the prime responsibility of the housework and while they also financially support the family. Since working women have this dual role, they tend to choose a workplace closer to their homes (Johnston-Anumonwo, 1992; Madden, 1981; Turner, 1997).

As the gender gap in employment and education has decreased, women's status in the workplace has improved. But it's unbelievable that the commuting behavior of dual-earner households has changed. In this research, I analyze the commuting behavior of dual-earner households to investigate whether the household responsibility hypothesis still holds.

For the analysis, I use the Census Bureau's 2017 American Community Survey Public Use Microdata Sample (PUMS) 1-year dataset and use a series of statistical models to compare the gender gap across. Dual-earner household types are based on educational attainment level and income levels; (1) Husband's educational level (Income level) > Wife (2) Husband = Wife (3) Husband < Wife. For the comparison, I divide the educational level into five categories (lower than high school, high school diploma, some college or Associate's degree, Bachelor's degree, and Masters/Professional Degree). Income is divided into four quartiles. I compare the standardized coefficients of the gender gap for these six dual-earner household types against those of single-earner households.

I find women still spend less time commuting than men do (both in the single-earner household and dual-earner household). The severity of the gender gap differs across household types. In general, the gender gap for dual-earner households is larger than that for single-earner households. Within the different types of dual-earner household, the gender gap was as might be expected, lowest for Type 3 household (Husband's educational / income level < Wife) and largest in Type 1 (Husband > Wife) household. This suggests women in the U.S. continue to take prime responsibility for the household, despite an increase in their labor market participation. When the wife's educational level/income level is higher or similar to their husband's, their responsibility with respect to housework tends to be lower. This has a diversity of explanations; The husband may participate more in the housework. The household may purchase these services (purchase daycare, eat out, get household labor).

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Key Words: Dual-earner Households, Gender Gap, Commuting time

LOCAL IMMIGRANT INTEGRATION STRATEGIES AND CITY NETWORKS: WELCOMING COMMUNITIES TRANSATLANTIC EXCHANGE

Abstract ID: 613

Individual Paper Submission

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The need for management of diversity at the local level has become the basis of various “welcoming” strategies, programs, or initiatives as an urban policy framework for integration. With increasing pressures to ‘manage’ diversity at the city level, some cities came up with formal welcoming plans while others even sought accreditation for their ‘welcomeness’ as a city. There is no single reason why cities want to manage their diversity while signaling a welcoming message with their agenda. Objectives of welcoming programs may range from gaining, or regaining, economic competitiveness with diversity-conscious local economic development agendas (especially for cities that are losing population, jobs, and investment due to changing regional and global economic dynamics) to alleviating political and social tensions that arise with growing diversity within communities. This paper studies how welcoming city strategies are developed both locally and transnationally across cities in the US and Germany by mobilizing a wide range of community partners: What is the role of horizontal knowledge exchanges between cities, both at national and transnational level, in shaping local integration policy? How does a city network focusing on immigrant integration through welcoming strategies impact the existing community development efforts and the solidarity between communities? Empirical focus of this study is an innovative knowledge exchange platform called the “Welcoming Communities Transatlantic Exchange”, which is an initiative led by the Welcoming America, a ‘non-profit, non-partisan organization’ and a movement of ‘communities’[1]. A qualitative case study on selected cities participating the exchange program is conducted to explore the function of the networking within and across the participating cities. By using multiple case study design, this study explores the emerging “best practices” in local integration policy and the “local globalness” of urban policy making with respect to the management of diversity at the city level. Findings suggest that the knowledge exchange facilitated by the city network has immediate tangible outcomes in terms of building new community partnerships and mobilizing innovative ideas on how to become more welcoming. However, the knowledge exchanges tend to be deeper between cities that resemble each other in their strategic positioning with respect to the global economy. Besides the knowledge exchanges between the cities, the involvement with city networks also triggers synergies between the involved community partners at the city level. This paper contributes to the research on local immigration policy and integration practice that has great importance to planning research and education as diversity has become a major force that imply remarkable social, economic, and cultural change in cities. This analysis of the transnational knowledge flows with solid community development consequences shed light on how cities manage their ever-growing diversity while surveying the state-of-the-art in integration strategies in place.

[1] <https://www.welcomingamerica.org/about/who-we-are>

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Key Words: immigrant integration, local immigration policy, welcoming cities, city networks, knowledge exchange

CONSTRUCTING WOMEN'S IMMOBILITY: FEAR OF VIOLENCE AND WOMEN'S CONSTRICTED TRAVEL BEHAVIOR AT NIGHT

Abstract ID: 648

Individual Paper Submission

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Despite rapid advances in ICTs, transport infrastructures and public transits that generally enhance people's daily mobility and travel conveniences in cities, women, as the vulnerable body to sexual harassment, robberies and any other crime in urban context, are still heavily circumscribed by the socially-constructed fear of violence to enjoy the equal mobility as men have. The fear-induced gendered immobility not just aggravates women's disadvantages in job market and narrow down their job choices to near home areas, but also deprives women of other social opportunities for cultivating valuable social networks, and thus substantively, contribute to the social reproduction of gender inequality in a wider aspect.

Albeit noticed very early by feminist sociologists and social geographers, fear of violence as alternative other than gender role and limited access to resources for explaining the gender differences in travel behavior in general, and women's constricted daily mobility in particular has been understudied by transportation researchers and urban planners. This paper aims to fill this void by engaging with Pain's (1997) seminal work on the heterogeneity, spatiality and temporality of women's fear of violence, and theorizing and empirically examining the fear-induced, time-sensitive gendered constricted travel behaviors at night. Through answering the questions on (1) how the fear of violence differently affects women and men when considering travel at night and (2) how gendered fear of violence engenders women's constricted travel behavior at night compared with men, this paper not just contributes to a systematic, quantitative epistemology of the relationship between gendered fear of violence and gendered mobility, but also inform gender-sensitive urban planning and built environment design that seeks to enhance women's daily mobility and mitigate travel-based social exclusion in urban context.

Specifically, with using a large-scale household survey dataset from two Chinese cities, this paper try to (i) firstly, delineate the differences in perceiving fear of violence between men and women in terms of returning home alone at night, and towards different key transport nodes (i.e. outlying bust stations, underpasses and back streets), and examine the demographic and built environment factors that impact women's varying degree of sense of fear when considering returning home alone at night with using Logistic Regression Modelling; and (ii) secondly, to examine the impacts of fear of violence on women's and men's return-home travel behavior at night, in terms of (a) whether to return home at night, (b) when to return home, and (c) travel mode choice for returning home at night with using Structural Equation Modeling.

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Key Words: gendered mobility, fear of violence, constricted travel behavior, gender-sensitive planning, time-sensitive mobility

THE WHITENESS OF POLICE CARE: SECURITY AND PLANNING IN CENTRAL ATLANTA

Abstract ID: 678

Individual Paper Submission

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Plans increasingly integrate urban security measures, though this integration depends on a variety of institutional and political factors. Popular discourse and media largely frame security problems, with discrete and racist effects on urban plans and morphology. Local governance institutions may insert security measures into urban plans, and are more likely to do so at the neighborhood scale (Tulumello, 2017). Yet the growing body of research into security and planning shares a narrow conception of security, mostly examining security vis-à-vis crime and policing. This occurs despite diverse forms of "security" (notably, food security and infrastructure security) assuming increased importance within planning thought. Within my research, I examine how a critical approach to security—inspired by critical race theory and philology—opens up new understandings to planning's role within the racial state. Within this research, I investigate urban security projects as projects centering on care (Hamilton, 2013), and ask how these care projects inform property and urban planning within the racial state (Singh, 2014; Goldberg, 2002; Harris, 1993).

This research, representing an exploratory chapter of my dissertation, investigates policing and planning in and around two of Atlanta, GA's central urban universities: Georgia Tech & Georgia State. This

project's method and design drew upon the geo-narrative approach of Mei-Po Kwan (Kwan & Ding, 2008). Forty-five subjects installed apps onto the phone. For one week the apps logged their movements, and allowed the subject to enter geo-logged text and photographs through which they could narrate their impressions on policing and security within their urban peregrinations. Additionally, the subjects and I bookended their geo-narrative week with two one-hour interactional interviews.

Through these notes and interviews, a salient point emerged: police and crime had a very weak association with security. Even subjects who were not otherwise critical of police did not link police to security or safety; rather, police presence amplified anxiety, and geo-narrative data attest to this in powerful ways. Drawing further on interview data, race emerges as a crucial variable through which to understand the relationship between policing, care, and security. The majority of white and Asian subjects expected police to deliver care, either through healthcare delivery or by protecting the boundaries of their community from outsiders. My research highlights numerous instances of police caretaking practices, and attests to the sense of security most White students felt due to police work at the campus's border. However, all but one Black research subject emphasized the many ways that police presence amplified anxiety and failed to deliver care. They drew on personal history and extensive negative encounters with police. Collectively, subjects' interviews and geo-narratives attest to the powerful, yet oftentimes non-violent, ways that police power shaped urban space through their relationship to care.

Research unearths three related findings. First, I emphasize how police care (and not just violence and arrest) territorializes race within the racial state's urban space. Creating spaces of whiteness through racial banishment (Rothstein, 2017; Roy, 2017) entails violence yet also a series of diverse caretaking practices executed through the state's discretionary power to police. This relates to the second finding: a key aspect of whiteness's property (Harris, 1993) is the expectation of care, delivered through the state's police. This informs the third finding: planning scholarship centralizes planning's relationship to security at the urban scale. Yet, this research emphasizes security's production at two other scales: 1) the nation-state, which propagates racial categories onto which police operate, and 2) the body, which is the site of the anxiety (or care) produced by police. I conclude with discrete recommendations for planning practice.

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Key Words: security, police, whiteness, segregation, racial banishment

FROM 'FORGOTTEN NEIGHBORHOOD' TO COMMUNITY ASSET: RECTIFYING THE NARRATIVES OF TERRITORIAL STIGMA

Abstract ID: 767

Individual Paper Submission

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Storytelling is profoundly powerful, capable of traversing cultures and superseding socio-political differences. The daily practice of planning is often an exercise in reconciling the stories of residents' present-day realities with historical development patterns and institutional practices to create narratives. Planners have written extensively regarding their positive role in acquiring a multifaceted perspective that weighs the narratives and vested interests of all stakeholders in development decision-making. Planners both learn the stories of their locales and shape the resulting development narratives, advocating for policies and justifying decisions (Sandercock 2003).

But to what extent have planners used storytelling and narratives to reinforce existing biases and perpetuate hierarchies of social inequality in the built environment? And how could they guard against this in the future? Termed "territorial stigma," social ills are projected on specific urban neighborhoods (and their residents), associating them with persistent narratives that include poverty, racialized minority identity, dilapidated housing, and crime (Wacquant, Slater, & Pereira 2014). In marginalized communities, a vicious synergistic cycle can unfold as development decisions affect neighborhood trajectories and neighborhood trajectories become the basis for future development decisions. As one possible antidote to territorial stigma, narratives can be re-framed and promoted through empowerment planning, which is the use of participatory action research, direct action organization, and education to develop both individual and community capacity to seek beneficial outcomes (Rocha 1997).

Accordingly, this study examines the Porters community, a historically African-American neighborhood located in Gainesville, Florida. Although located near the University of Florida campus, Porters residents have long combated urban disinvestment, infrastructural decay, and biased narratives that have attributed inherent social ills to the neighborhood. The most widely and succinctly articulated narrative in Porters' past was "The Forgotten Neighborhood," which in the mid-2010s was doing nothing to counter the urban redevelopment chipping away at the neighborhood's historic physical, social, and cultural fabric.

Employing historical analysis of planning documents and news articles, and secondary sources, we reveal how and why planners in the Porters case perpetuated territorial stigma through the entrenchment of implicit racial bias in planning culture. To understand the broader planning culture of the times, we apply the literature to mark the evolution of planning and community development practices, including the recognition of diversity and inclusive planning and the eventual identification of empowerment planning as a means to combat territorial stigma (Umemoto 2001). The study contributes insights from a recent 15-month empowerment planning project we conducted with Porters residents and stakeholders, along with interviews of City staff, to create a new, positive neighborhood narrative that identifies the neighborhood as a community asset.

The study advances existing research, asserting that territorial stigma is not simply externally imposed on locales by the general public, but is integrated and reproduced in planning documents and further entrenched through development policy. The study expands the scope of previous examinations, capturing not only the effects of territorial stigma on marginalized communities like the Porters case, but interrogating the role of planners in perpetuating spatial injustice. The researchers affirm the fluid nature of narratives and offer empowerment planning as a means to replace stigma with a narrative of community resilience, and to infuse the new narrative into policy (Howell 2016).

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Key Words: Narratives, Territorial stigma, Action research, Neighborhoods, Social equity

THE DARK SIDE OF LOCAL INTEGRATION POLICIES: THE CASE OF DAY LABORERS IN THE UNITED STATES

Abstract ID: 808

Individual Paper Submission

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Central Themes:

This paper examines local integration policies through the case of immigrant day laborers. The paper suggests that from the 1990s onwards day laborers presented local officials with a “wicked problem” (Rittel and Weber 1973). Most of the laborers were poor and recently arrived immigrants. They often searched for day work in visible locations like busy street corners and parking lots in predominately white suburbs (Valenzuela 2003; Theodore et. al. 2015). As pockets of day laborers flourished, local officials struggled to develop policies to govern the population. This paper examines the principal policies and their consequences.

Methodology

The paper analyzes local battles and policies concerning immigrant day laborers across the country and then focuses in on the Los Angeles suburb of Pasadena. To address local battles across the country, I gathered newspaper articles through LexisNexis searches with the keyword “day laborer”. The resulting database consists of 1,503 newspaper articles, from which 12,652 claims were extracted. The database includes 75 newspapers from different localities. I then coded claims for municipality, stakeholders, types of arguments for and against immigrants, and types of policies.

The paper performs 17 with activists, advocacy organizations, and city officials with direct experience working on day laborer policies in Pasadena. The paper draws on historical archives from four immigrant advocacy organizations in Pasadena and minutes from 14 Pasadena City Council meetings for the period 2000-2010.

Findings

In the 1990s and 2000s, local elected officials across the country adopted various strategies to address immigrant day laborers in their jurisdictions. Two prominent strategies emerged. A punitive strategy sought to govern immigrants through force. Local officials employed established ordinances (loitering, traffic, housing regulations) and created new ones (bans on the public solicitation of work) to criminalize immigrant laborers and make their lives impossible. These efforts aimed to govern this “abnormal” population by banishing it (Foucault 1976). Additionally, a disciplinary strategy sought to govern immigrants by integrating and normalizing them with “worker centers”. Through these centers, immigrants were provided a proper place to look for work and services to assimilate them into the local culture. The case of Pasadena demonstrates the limits of disciplined integration. Many day laborers resisted to seek out labor within worker centers. Their continued presence on the streets resulted in the rollout of increasingly punitive practices to compel “deviant” laborers to conform. The paper therefore conceives both strategies as aiming to achieve a common goal: the governance of a stigmatized and illegalized population.

Relevance

Immigration has become one of the defining features of urban change. While sociology and geography have addressed the issue with great sophistication (Varsanyi 2014), urban planning, with several notable exceptions (Gonzalez 2017), has been slow to examine the effects of immigrants on planning and policy. In a period when immigration is at the forefront of national politics, urban planners must address the issue more than ever.

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Key Words: Immigration, Latina/o, Day laborer, Local policy, Integration

COLORBLIND RESILIENCY AS RACIAL FORMATION IN URBAN PLANNING

Abstract ID: 812

Individual Paper Submission

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Planning in the last decade has centered narratives about resiliency, sustainable development, and climate adaptation. This is particularly true in the New Orleans region, where Katrina, many planners and policymakers argued, was an opportunity to address the region’s increasing environmental vulnerability and its unsustainable land use and development patterns. In the last decade, wide-ranging and multi-scaled planning efforts have reimagined New Orleans’s future, yet they have largely done so in ways that are blind to deeper racial geographies and inequalities. As a result, urban resiliency and greening efforts

have contributed to displacement, unequal property valuation, and gentrification - causing many already disadvantaged residents to be less resilient rather than more. Thus, despite the fact that New Orleans is viewed by many planners and policymakers as the pinnacle of resiliency planning, planning processes and visions have re-inscribed racialized vulnerability via greening and resiliency processes, ideas and tactics.

Increasingly scholars are bringing focus to the unequal impacts of urban greening and resiliency planning efforts and the ways that they contribute to unequal geographical formation (Davoudi, 2012; Fainstein, 2015; Anguelovski, Connolly and Brand, 2018). Indeed, as Hardy, Milligan and Heynen (2017) argue, “colorblind adaptation planning” ignores the deep and unequal histories of racial-geographic formation, perpetuates racial inequalities in climate adaptation landscapes and creates new experiences of displacement, erasure and invisibility. As Safransky (2014) notes, greening the urban frontier hinges on processes of erasure and narrating “empty” landscapes as those in need of being revitalized, raising critical questions about how settler colonialism is at work in resiliency planning efforts, despite their normative commitments to environmental justice. While planners are committed to generalized ideas of green justice, the meaning and use of the spaces created through such planning efforts differ radically depending on which side of the racial-geographic divide you are on.

In this research, we ask how planning praxis perpetuates urban inequalities in the context of urban greening and how, upon further investigation, resiliency planning efforts re-inscribe unequal racial geographies. We examine how conceptualizations of resilience in urban planning are rooted in colorblind racism. Drawing on content and discourse analyses of resiliency planning in the New Orleans region, as well as interviews and observations, we examine the content, visions, processes and emerging repercussions of major planning efforts such as the New Orleans Water Plan, LA SAFE and the New Orleans Resiliency Plan. From our findings, we argue that rather than promoting a more resilient community for all, the colorblind approach has led not only to undemocratic planning processes, but also to the development of projects that further exacerbate issues of racialized inequality. In this paper, we analyze how concepts of resilience contribute to racial formation in shaping the region’s future through the lens of urban planning. This research contributes to planning scholarship by critiquing how concepts of resiliency, as deployed in planning practice, heighten vulnerability for communities of color and, from this analysis, we offer theoretical insights as to the limits and possibilities of addressing both racial and environmental justice.

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Key Words: Resiliency, New Orleans, Racial geographies

LIVING WITH DEMENTIA IN SUBURBAN PUBLIC SPACES: UNDERSTANDING NEIGHBOURHOOD EXPERIENCES TO IDENTIFY ENABLING AND DISABLING BUILT ENVIRONMENT FEATURES IN ORDER TO BUILD MORE INCLUSIVE COMMUNITIES

Abstract ID: 860

Individual Paper Submission

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The World Health Organization calls dementia the leading cause of dependency and disability among older adults, and globally, the number of people living with dementia (PLWD) will rise from 47 to 115 million by 2050. Contrary to popular belief, most PLWD live in the community as opposed to congregate living settings, however research on the accessibility of public spaces and the impact of the neighbourhood for this population is nascent (Biglieri, 2018). The influence of place, neighbourhood and context are recognized as some of the most important determinants of wellbeing (Corburn, 2009), and this is more acute for older adults (Ghani et al., 2018). Further, suburbs have been shown as having a negative impact on the mobility of older adults and their ability to live well (Kerr et al., 2012). This is problematic considering that the vast majority of older adults in North America live in suburbs and have expressed a desire to age in place, and PLWD deserve to age in place like their peers. This research investigates how PLWD experience their suburban neighborhood's public spaces as enabling/disabling by examining (1) PLWD's perceptions of their neighborhood and mobility prior to diagnosis, in the present, and in the future and (2) their mobility patterns and interaction with local environment.

This exploratory nested case study examines the neighbourhood experiences of seven individuals self-identifying as community-dwelling with mild/moderate dementia, living in suburban Waterloo, Canada. Multiple methods including in-depth interviews, two go-along interviews, and two-week GPS tracking and travel diaries were used to provide deep insight into individual experiences of their neighbourhoods, as well as examining similarities across cases. Go-along interviews were geocoded, with quotes being represented in space with corresponding visual images of the physical locations, and in-depth interviews were transcribed verbatim, then both analyzed using a grounded theory approach to elucidate enabling and disabling features in suburban spaces for PLWD. GPS data and travel diaries were used to expand and complement the enabling/disabling factors.

While this research highlighted barriers for participants, their suburban neighbourhoods were often perceived as enabling in diverse ways, highlighting the need for more nuanced understanding of everyday life in suburban settings. Enabling built environment features fit into three categories: landmarks for orientation (e.g. street signs, commercial stores, natural areas); street designs, micro infrastructure, and architectural features that produce feelings of comfort, familiarity, and safety; and proximity of amenities. Disabling features split into two themes: street designs that produce feelings of fear, discomfort and unease; and a lack of proximity of amenities. GPS and travel diary data expanded understandings of enabling/disabling by identifying independent and dependent mobility patterns, the distance and times traveled from home, and the most frequent types of trips. Further, when comparing perceived and lived mobility (hand-drawn maps and interviews with GPS and travel diary data), there was often an incongruence – both in overestimating and underestimating travel outside the home.

In pursuit of the just city, it is vital to understand what an enabling environment looks like for marginalized groups like PLWD. This research provides a fuller picture of the mobility and experiences in suburban neighbourhoods for PLWD, and the identification of enabling/disabling features can provide guidance to planners and policymakers on creating more inclusive suburban places. Further, it contributes to the larger project of theorizing suburban space in terms of everyday life and socio-spatial supports for/barriers to wellbeing for vulnerable populations (Lo et al., 2015).

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Key Words: Inclusion, Accessibility, Dementia, Land-Use, Urban Design

WHITE PRIVILEGE, PLANNING PRACTICE, AND CITIZEN PARTICIPATION: UNPACKING BARRIERS TO SOCIAL EQUITY

Abstract ID: 945

Individual Paper Submission

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In her classic work on a “A Ladder of Citizen Participation,” Arnstein (1969) observed that efforts to promote citizen participation typically fail to result in community-controlled initiatives that effectively address the needs and desires of disadvantaged communities. Decades of subsequent research and practice have continued to address this unresolved and problematic issue. While there are many factors and practices that influence the relationship between planning and citizen participation, the role of white privilege in planning practice as a significant barrier to citizen participation has not been fully articulated or explored.

This paper examines the basis of white privilege in planning practice and develops a model for examining the barriers to citizen participation that are posed due to white privilege. As conceived by McIntosh (ca. 1989) and others, white privilege is unearned and conferred due to structural biases and inequities. Therefore, white privilege is an influence on planning practice that exists whether or not a planner intends to knowingly benefit from their privilege. In this sense, the presence of privilege provokes a constantly shifting dialectical context for planning and the paper examines the structural characteristics that confer white privilege to planners.

The paper develops a conceptual model of the relationship between the privilege of planners and citizen participation examining how the influence of white privilege is typically actioned through behaviors of exclusion, discounting, certainty, and asymmetry (Kendall, 2002) across the various stages of the citizen participation process (see Bryson, Quick, Slotterback, & Crosby, 2013) to impose specific barriers to meaningful citizen participation.

The paper concludes by considering how various approaches to unpacking the privilege of planners as both a responsibility of the profession and an individual-level professional competency for practicing planners (Thomas, 2008) could resolve existing barriers to citizen participation and promote greater social equity in planning.

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Key Words: white privilege, race, citizen participation, planning practice

THE INFLUENCE OF MICROAGGRESSION ON MUSLIM WOMEN'S WALKING BEHAVIOR

Abstract ID: 1052

Individual Paper Submission

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During the last two decades, emphasis on social components of walking behavior has created an emerging discussion in walkability discourse. The socioecological model of walking behavior is one of the models, which determines social factors impacting walking behavior. This model discusses life-cycle circumstances at the individual, group, and regional level, which impact one's decision to walk or not walk in an urban neighborhood (Alfonso 2005; see also Mehta 2008). The present research study explores social components of urban accessibility and the influence of those factors on walking behavior of a culturally cohesive disfranchised group, Muslim women, in the Detroit Metro Area. This research determines whether a higher level of walkability in an urban neighborhood encourages walking for Muslim women or social factors impact Muslim women's walking behavior more effectively than built environment components. The socioecological model of walking behavior introduced by Alfonso was used to determine the impact of Muslim women's life-cycle circumstances at individual and group level.

Detroit Metro Area hosting one of the highest concentration of Muslims in the U.S. is a good study area for the present research. This area also represents one of the most diverse Muslim communities within urban America due to their countries of origin, religious affiliations, language skills, and years of living in the U.S. This considerable diversity among Muslims in the area provided us with an insightful perspective on Muslim's cultural values and the roles those values play in Muslim women's social life experiences. The present research tends to answer three questions of (1) does fear of others (non-Muslims) diminish

Muslim women's presence in studied public spaces (e.g. walking trails and sidewalks), (2) would living in urban neighborhoods with the majority of Muslims as residents promote Muslim women's walking behavior, and (3) what kind of barriers do community planners face to engage Muslim women in planning processes. This paper presents the outcomes of qualitative research conducted from early 2013 to late 2016 to answer those three questions. A set of research activities were completed in this period from several participants observations in walking trails and urban parks, to semi-structured interviews with 122 Muslim women as participants.

This study revealed that four factors impactfully influence interviewed Muslim women's walking behavior: 1) fear of otherness, 2) social acceptance within Muslim community, 3) cultural differences with non-Muslims, and 4) built environment components. Fear of otherness was the most impactful factor mentioned by study participants, which includes sub-factors such as micro-aggression. Microaggression has long been mentioned as an impactful factor influencing urban population's social experiences (Wing Sue 2010). This paper introduces a model for walking behavior based on interviewed Muslim women's experiences, highlighting the phenomenon of microaggression and its overarching impact on Muslim women's social lives in the Detroit Metro Area. Results of this research will also provide community planning experts with the knowledge they need to communicate with this minority group and provides a new lens through which urban planners could see Muslim minorities' priorities and limitations related to their level of urban accessibility.

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Key Words: American Muslims, Qualitative Methods, Walking Behavior, Physical Activity, Microaggression

MAKING LESBIAN SPACE AT THE EDGE OF EUROPE: QUEER SPACES IN ISTANBUL

Abstract ID: 1072

Individual Paper Submission

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Although it is explicit that there is an increase in the visibility and rights of LGBTQ+ community in Western world cases, there are still place-based struggles for LGBTQ+ individuals to cope with discrimination in housing, public accommodations, and access to safe public spaces. The level of struggle roughly corresponds to the overall visibility of LGBTQ populations as well as the racial, class and gender background of LGBTQ individuals across geographies. Moreover, this struggle is compounded by cross-cutting urban issues such as gentrification, and urban redevelopment practices that leave out the interest of marginalized and underrepresented groups.

There is a limited body of research regarding queer spaces in Turkey, and almost nothing concerning lesbians. In general, women in Turkey have struggled to have an active public presence, but public

attitudes about homosexuality have created even more difficulties for lesbians. Accordingly, lesbian spaces have been more embodied and even less explicitly visible in public spaces than in the west.

This study aims to make the invisible more visible by examining the space-making strategies of the lesbian community during the late 20th and early 21st century when LGBTQ activism reached a high point in Turkey. The 1990s saw the establishment of the first Turkish LGBTQ organizations, and 2003 saw the first pride parade. During the 1970s when the LGBTQ movement was gaining visibility in the US, that activism shaped the physical and social arena of queer life. In this paper we examine a similar situation at the edge of Europe and Asia, though at a later time period. To explore this topic we use in depth interviews gathered through snowball sampling of lesbian women who lived in Istanbul during the turn of the century, participated in the lesbian scene, and were involved in community activism. We also analyze the archives of two important LGBTQ organizations in Turkey; LAMBDA Istanbul and KAOS GL as well as review relevant newspaper coverage of LGBTQ activism.

Through our research, we trace the “invisible” power of lesbians in the queer space making in the Beyoglu neighborhood of Istanbul. We see three different strategies employed by lesbians in their creation of safe spaces. In the first strategy, we found that lesbians established/opened their own businesses such as restaurants not only to welcome the lesbian clientele but also to host the other sexual minorities. Thus, LGBTQ+ individuals could socialize without fear of harassment and discrimination in such areas. A second strategy used by lesbians was to utilize domestic spaces such as homes to socialize and to push for lesbian activism. Finally, some lesbians were able to appropriate gay and heterosexual dominated spaces such as gay bars, and women’s organizations to carve out safe spaces. Since there was not an evolved visibility of the lesbian community yet, they were not the target of pervasive hate crimes or harassment as long as they managed gender performativity and did not reveal their sexual orientation. These strategies made effective use of a trade-off between visibility and being safe.

Further work will explore later time periods of queer spaces in “New Turkey” through gentrification and urban planning implementations under the governance of Justice and Development Party.

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Key Words: queer spaces, diversity and planning, space making, LGBTQ planning, lesbians

GENDERED TRAVEL AT EVERY AGE: TRIP FREQUENCY AND PURPOSE AMONG CHILDREN, ADULTS, AND SENIORS IN THE STATE OF GEORGIA

Abstract ID: 1112

Individual Paper Submission

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Gender profoundly influences how we travel and what we use those trips for. However, the effects are not the same across all ages and life stages. How can researchers best understand the interrelated effects of gender and age? Previous studies have found that young girls are given less leeway to travel independently (McDonald 2012). Adult women have more complex trip-making patterns than men, and are disproportionately responsible for household-serving travel (trips made to maintain the household or its members) (Taylor et al 2015). Elderly women are likely to give up driving sooner than men, and suffer disproportionately from being immobile or housebound (Loukaitou-Sideris et al 2018). All of these effects can reduce women's quality of life, but many of them remain hidden if researchers do not incorporate age, gender, and the interactions between the two into analysis.

This study examines trends in mobility and trip purpose by gender and age through analysis of the Georgia subsample of the 2017 National Household Travel Survey. Daily trip-making is modeled as a function of gender and age using a count model for total quantity of trips made. Multivariate probit analysis is then used to examine differences in trip purpose. Even for age cohorts where there are not significant gendered differences in the quantity of travel, analysis of trip purpose suggests that female travelers may be deriving fewer benefits from their trips. For example, while adult women do not travel significantly less than men, their trips are more likely to be devoted to household obligations. This discrepancy in trip purpose starts in childhood and is readily evident among teenagers. Despite making fewer trips overall, we find teenage girls are more likely than teen boys to make trips devoted to transporting other household members. These findings reveal how structural inequalities, including discrepancies in the allocation of household tasks and gendered stereotypes about responsibility and vulnerability, are inscribed on day-to-day travel behavior. Unless we attend to these broader social forces, improvements to women's mobility may not realize their full potential to improve women's access to opportunity and community.

Taken together, the findings indicate that, while the specific effects vary by age, gender pervasively shapes travel behavior from childhood through old age. Female children, teenagers, and older adults are less mobile than their male counterparts. Female adults are as mobile as men, but more of their trips are devoted to household labor. The specific policies needed to promote equitable transportation vary by age group, but this study reveals one constant: a gendered lens is critical when planning for the needs of travelers of every age.

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Key Words: gender, aging, transportation, equity, household-serving travel

MANSPLAINING STILL THE NORM: GENDER DYNAMICS IN PLANNING WORKPLACES

Abstract ID: 1119

Individual Paper Submission

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Planners' workplaces are diversifying with respect to gender, but office culture and policies do not always reflect such change. We use a 2015 national survey, conducted with the American Planning Association's Women and Planning Division, to assess if planners' perceptions regarding workplace culture and benefits differ by gender and organizational characteristics of the planning office. Regression model results indicate that women were less likely to feel heard in their workplace or perceive equal opportunity, but the gender of management was a statistically significant predictor of sensitivity to gender issues, support for flexible benefits and equal opportunity for pay and advancement. Building from theories on role congruity, expectation states, representative bureaucracy, and transformational leadership, we argue management and communication dynamics are key to improving the gender dynamics of planning workplaces.

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Key Words: Mansplain, Gender, Workplace policy, Equity, Planning practice

THREE PILLARS OF GENDER SENSITIVE PLANNING

Abstract ID: 1204

Individual Paper Submission

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The recent urbanization report (UNDP, 2014) states that almost 55% of the world population is living in urban areas. Rapid urbanization, especially in developing nations, along with less than adequate infrastructures and resources is creating multidimensional problems of deprivation, poverty, and gender violence (see Beall and Fox, 2009) and many other planning challenges. Gender-based Violence is widely prevalent and occurs in both public and private realms. According to the United Nations, up to 35% of women experience some kind of violence in their lifetime. Over the last few decades, issues of violence have evolved as a primary concern in many societies around the world. Both the threat of its occurrence and its actual incidence curtail women's freedom, affect their ability to realize and fulfill their potential, and hinders their effective participation in the development process (Panda and Agarwal, 2005). Numerous studies have also explored the reasons for violence against women and girls and blamed it to the failure of urban planning in understanding the needs of women (Sassen, 2016). Studies have also discussed the need for inclusion and safety measures in urban planning to make the city safer for women and girls.

In India, the current model of development lacks the essential linkages between gender sensitive planning and safety, equal access to amenities and good governance. With this background, the paper will focus on exploring the reasons for the failure of planning in creating gender-neutral public space.

This paper discusses the failure to achieve safe urban spaces for women even after many positive measures taken by policymakers such as more police. This paper also explores the reasons behind the increase in incidences of violence against women and girls in urban India. This study utilizes primary data collected in 2017 from four states in India (Bihar, Jharkhand, Himachal, and Haryana). The preliminary findings suggest that the lack of basic amenities like street lights, water facilities, bathrooms, etc followed by lack of policing and poor governance at the local level is leading to public space violence against women and girls. This phenomenon is especially omnipresent in the second and third tier cities of India.

As per UN-Women report on safe city (2010), "A safe city is one that promotes the elimination of gender-based violence, while at the same time promoting equal opportunities for men and women in all the spheres of social, economic, cultural and political life", the paper argues that only planning for safety provisions is not enough to curtail public space violence. We need more inclusive gender sensitive urban planning that will stand on three pillars: safety, good governance and equal access to amenities.

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Key Words: Gender Sensitive Planning, Gender based Violence, Unplanned urban space, Safe City , equal access to amenities

MEASURING SOCIAL DIVERSITY DYNAMIC U.S FROM 2010 TO 2015 AND HOW IT IS ASSOCIATED WITH THE LAND USE PATTERN

Abstract ID: 1244

Individual Paper Submission

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Since the 1970s, economic inequality has grown, resulting in socioeconomic polarization and spatial segregation, especially in urban areas. Therefore social diversity has gradually become a central value in urban planning. In this study, we applied an innovated diversity entropy measure based on a study last year (Chen & Song, 2018) to identify the social diversity performance in places using the ACS 5-year estimates data from 2010 to 2015 within all U.S metropolitan statistical area at census block group level. The new measure mitigated some critical issue that not properly addressed by the original “Shannon entropy” by combining the accessibility, location quotation, and entropy measure together, therefore, become much more valid with the spatial and regional context consideration and much more applicable for small spatial study unit such as census block group. After identifying the performance of social diversity, then we use an multi-year land use dataset compiled from previous study (Chen & Song, 2018) with same scale and resolution to explore how land use mix pattern is associated with social diversity change and compared the result with previous studies in similar topic to see how the application new measure will affect the validity of the study.

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Key Words: Diversity, Diversity Measures, Land use mix, Urban form

THE NEXT TIER OF THE DIGITAL DIVIDE? TOWARD A MORE INCLUSIVE FRAMEWORK OF COMMUNITY REPRESENTATION AND IDENTITY ON SOCIAL MEDIA

Abstract ID: 1261

Individual Paper Submission

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The concept of representation and identity on social media suggests that it serves as a space where participants may freely align themselves with chosen values, politics and emotions (Ellison, 2007, Schwartz and Halegoua, 2014). Social media interactivity is conceived as a process, which in turn, influences the perception of status, reputation and credibility. In this paper, I explore the twin concepts of representation and identity among Sheffield's public housing, professionals and elites. Establishing friends, liking posts or sharing information are all activities which may reinforce a feeling of belonging which is constantly validated and perpetuated by a mediated process. Representation and identity figures prominently in how an individual conveys voice and visibility; in addition to who and what is trusted.

Individuals using social media become ambassadors of their employers, their educational establishment/history, their political/social causes and even their cultural tastes within a public sphere. For example, a Sheffield resident may 'like' the Arctic Monkeys or the Sheffield International Documentary Film Festival on Facebook and this online association indicates a way to promote not only their city and their tastes, but also themselves. In order to understand this phenomena and the ways it contributes to identity and representation, I delve into the ways that Sheffield City citizenry denoted community belonging through relational ties. The evidence collected included archiving tweets and analyzing network structures to understand ways representation and identity manifested in social media conversations and to reach an (un)intended audience.

In an age when civic leaders and e-government proponents frequently look to social media platforms as a way to engage with the public, how may diverse voices be heard and communities seen above the din clamoring for attention? The digital divide, however, means that Sheffield's public housing residents do not engage in building relational networks outside of their family unit. This paper explores the concept of representational identity and influence in the social network. Processes on social networks are based on three factors (Shalizi and Thomas 2011): homophily, social contagion, and the causal effect of an individual's covariates on network behaviour. Hence, the collective experience of belonging in the City of Sheffield, while perpetuating a shared love of the City, may also unintentionally reinforce issues of status and hierarchy through relational ties, influence, and network behaviours. Among public housing resident, a perceived lack of societal position and home ownership also influenced community identification linked to perceived limits to authority and actual access to network resources (Knapp, 2004). Elites, on the other hand, were observed cultivating a model of thought leadership and authority. This study will help inform policy on how planners, city officials and public leaders may best engage with a diverse public online.

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Key Words: social media, community representation, identity and belonging

FROM HAROLD WASHINGTON TO LORI LIGHTFOOT- A CULTURAL INTERPRETATION OF LOCAL GOVERNMENT TRANSFORMATION IN CHICAGO

Abstract ID: 1291

Individual Paper Submission

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Lori Lightfoot's election as the first black woman gay mayor of Chicago is reminiscent of an earlier historic precedent – Harold Washington's election in 1983 as the city's first black mayor. While it is not yet clear whether Lightfoot will be as progressive as Washington, their respective elections constitute important cultural moments in the history of the city. They both emerged as charismatic figures who challenged the old-style, racist and corrupt machine that governed Chicago for decades. They also

suggested the possibility of an alternative form of what Max Weber called legitimate authority.[1] This cultural achievement was often lost in the overly economistic assessments of the Washington administration. These assessments presented the administration as either a local economic development success story or a failure because it did not transform the material conditions of poor people.

However, a broader angle of vision would suggest that there is more to the desires of black and poor people than economic development. As J.Phillip Thompson argues, the economic approach is blind to the peculiar challenges that face black and minority communities- “state repression, racial segregation, and culture.” [2]

But as Weber argued, in order to have a lasting impact on institutions of government, charismatic authority has to be transformed into rational-legal authority.

The second part of the paper thus discusses Washington’s use of the rules and rituals of state formation to change the culture of City Hall.[3] More than any department, the law department carried the banner for racial empowerment. The changes initiated by the law department thus constitute the core empirical section of the paper.

The third and final part argues that while these cultural achievements were reversed during the long reign of Daley’s son, Richard M Daley, their memory endured in the public mind. As Albert Hirschman argued about the long-term effects of social movements, “the social energies aroused during the course of a social movement do not disappear when that movement does. They are kept in storage but become available to fuel later and sometimes different social movements.” [4]

In my dissertation on Washington, I suggested that Washington’s greatest legacy would be found in the inspiration he provided to a new generation of leaders in Chicago. I did not know then that he also inspired first African American president of the United States, Barack Obama. As Obama put it, “I originally moved to Chicago in part because of the inspiration of Mayor Washington’s campaign.”[5] Senior White House advisors such as David Axelrod and Valerie Jarrett were also inspired by Washington. Washington became a magnet for a new leadership corps and a new energy in the city.

Lightfoot was similarly influenced by Harold Washington. As she put it in a recent interview, “I moved to Chicago in the middle of the second Washington campaign. I have never seen such energy and enthusiasm regarding a political movement.[6]

The memory of the city’s experience under the first black and progressive mayor might be an important cultural resource in navigating its racial, political and policy challenges.

[1] Max Weber, *The Theory of Social and Economic Organization*, (New York: Free Press, 1947)

[2] J.Phillip Thompson, “The Future of Urban Populism: Will Cities Turn the Political Tides?” , *New Labor Forum*, 2017 volume 26(1)18-26, 23

[3] Phillip Corrigan and Derek Sayer, *The Great Arch* (Corrigan, Philip and Derek Sayer (1985). *The Great Arch: English State Formation as Cultural Revolution* (London: Blackwell Publishers, 1985

[4] Albert Hirschman, *Getting Ahead Collectively: Grassroots Experiences in Latin America* (New York: Pergamon Press, 1984), 56

[5] McClelland, Young Mr Obama, (New York: Bloomsbury Press, 2010) 26

[6] Lightfoot interview with Chicago Sun Times, <https://chicago.suntimes.com/politics/mayor-office-candidate-2019-election-lori-lightfoot/>

Citations

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Key Words: Chicago, Lori Lightfoot, Harold Washington, Race and Gender, Leadership

TRACK 5 – POSTERS

CRY AND DEMAND: A DRAMATIC INTERPRETATION OF IRANIAN WOMEN’S URBAN PRAXIS TOWARD THE RIGHT TO THE CITY

Abstract ID: 138

Poster

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Public spaces are the renditions of the power symmetry within the social setting it resides in, and are both controlling and confining of power. Since the Revolution of 1979, Iranian public spaces have been reshaped to both reflect and produce ideals of modern Islamic citizenship as understood by various political actors including the central government, the municipality, and other authorities. The urban component of these policies has been extremely brutal, particularly for those who do not fit into normative understandings of the dictated spatial behavior (Sham, 2013), including a significant proportion of women, especially among the newer generation who has not adapted to the mental atmosphere of top-bottom norms and demands more democratic urban spaces. Under these conditions, as well as the historical lack of inclusive urban design in Iran, ideals of urban identity, citizenship, and belonging, already threatened by the spreading malaise of the political and cultural ethic, become much harder to sustain.

Although there are different sociological, political, and cultural theories based upon which the problematics of women and urban spaces have been addressed, this study aims at interpreting the lived space of Iranian women based on the Lefebvre’s widely accepted concept of “The Right to the City.” The person who is a total human, Lefebvre argues, dwells in a lived space of the imagination and moments which has been kept alive and accessible by the arts and literature (Shields, 2001). Given the impossibility of purely theoretical knowledge, 'total human' is thus best captured with reference to 'art' (Kipfer, 2009). As much the science of the city, art and the history of art are part of a meditation on the urban which

wants to make efficient the images which proclaim it. Art brings to the realization of urban society its long meditation on life as drama pleasure (Lefebvre, 1996). Cinema, then, frames this study's lens of interpretation to see why urban life for Iranian women has yet to begin. Cinema provides urban planners and designers not only with artistic and dominant but also residual and even excluded meanings and interpretations of the space. This is particularly important for Iran, whose cinema covers a significant number of urban issues, and it has attracted international attention for its content and artistic qualities. The *Girl in the Sneakers* (Sadrameli, 1999), *Offside* (Panahi, 2006), and *Subdued* (Nematollah, 2017) are three influential and popular Iranian movies made in three different decades, representing women's praxis (social practice) toward the realization of the right to the city.

From a critical interpretive position, using a qualitative approach, this research takes advantage of the dynamic Interpretativeness of Charles S. Peirce's triadic model of semiotics to interpret Iranian women's right to urban life.

Based on Peircean terminology, the 'representamen' in this study is any image-sign (a shot, sequence, scene, or any group of shots) that conveys meaning; 'object' stands for the real-world urban space/phenomena represented by the image-sign; and 'interpretant' refers to what the interpreter, according to Lefebvre's theory, makes sense of the praxis represented in the movie. Findings of this study reveal Iranian women's challenging praxis to meet what Lefebvre refers to as their needs and expectations, including the need for security and opening, certainty and adventure, the predictable and the unpredictable, as well as the needs to accumulate energies and to spend them, even waste them in play, the need to see, to hear, to touch, to taste and the need to gather these perceptions in a 'world.'

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Key Words: Gender, Public spaces, Inclusive urbanism, Right to the City, Iranian women

TRACK 6 – HOUSING

TRACK 6 – PRE-ORGANIZED SESSION SUMMARIES AND ABSTRACTS FOR THE SESSIONS

HOUSING INSECURITY AND DISPLACEMENT –NO GENTRIFICATION NEEDED

ID: 2

Pre-Organized Session Summary

Includes abstracts: 28, 29, 30, 85, 103

Large numbers of households lose their homes each year when they cannot pay their mortgages, rents, or property taxes. These households experience high housing-cost burdens although no gentrification affects their neighborhoods. Papers in this session look at the extent of household displacement in weaker housing markets where rents and purchase prices are not high and at the results of programs that have aimed to provide affordable housing or prevent displacement in such places.

Objectives:

- Explain the reasons for failure of programs to prevent housing loss
- Communicate the scale of housing loss in weak markets with lower rents and purchase prices

'I WOULDN'T BE FACING THIS FORECLOSURE': BARRIERS TO TAX RELIEF AND FORECLOSURE PREVENTION IN DETROIT, MICHIGAN

Abstract ID: 28

Group Submission: Housing insecurity and displacement--no gentrification needed

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MEHDIPANAH, Roshanak [University of Michigan] rmehdipa@umich.edu, co-author

All U.S. states permit local governments to recover unpaid property taxes through a tax lien foreclosure process. Tax relief policies can reduce household tax burdens and prevent the foreclosure of owner-occupied homes, but little is known about their use and effectiveness. Like other cities, Detroit, Michigan, experienced a rise in tax foreclosures following the mortgage foreclosure crisis and deep recession. Michigan law allows cities to exempt low-income homeowners from their property tax obligation. Only a small fraction of homeowners eligible for the exemption receive it. This research tracked the experience of applicants whose income qualified them for the exemption and who applied for it. Implementation of the policy, the Poverty Tax Exemption, failed to protect many low-income homeowners from dispossession through tax foreclosure. State-mandated and locally determined procedures placed the burden of learning about and applying for the exemption on financially stressed homeowners, many of whom had limited mobility, and therefore restricted widespread access to this critical tax relief. Eliminating institutional barriers to tax relief can more effectively prevent owner-occupied tax foreclosures, especially in cities where a high need for tax relief occurs under local conditions of governmental fiscal austerity.

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Key Words: property tax, tax foreclosure, low-income homeownership, fiscal austerity, foreclosure prevention

FOUNDATIONS OF SAND: DEMOBILIZATION IN THE CONTEXT OF CURRENT EVICTION AND HISTORIC DISPOSSESSIONS IN RICHMOND, VIRGINIA

Abstract ID: 29

Group Submission: Housing insecurity and displacement--no gentrification needed

HOWELL, Kathryn [Virginia Commonwealth University] klhowell@vcu.edu, presenting author
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In 2018, the release of a nationwide dataset revealed that the eviction rate in Richmond, Virginia was greater than 11% for more than 16 years, making it the second highest rate of cities across the country. These data masked neighborhood variations. Majority white neighborhoods, for example, had rates below 5%, while African American and Latinx communities had rates that, in some cases exceeded 20% or even 30%, threatening the stability of not just individual families, but entire communities. We understand eviction to be about more than the individual moment when a family receives a notice, loses in court or is removed from a home. Rather, we understand eviction as an indicator, result and a cause of direct and indirect issues. Eviction is an indicator of larger structural problems within the region, specifically, historic patterns of racial discrimination in the housing market and race-based dispossession of housing and community in Urban Renewal, redevelopment and highway projects throughout the 20th century. These patterns have resulted in a population with little access to property, opportunity communities and political power. While eviction has played a critical role in the currently landscape of instability, dispossession of housing and, ultimately, of the right to the city as a cause and a result, has been a trend stretching back to slum clearance, Urban Renewal and highway construction projects that targeted African American communities in Richmond.

Housing instability has greater implications for civic engagement. While research has argued that community engagement originates from homeownership, newer research argues that this is due to the stability and control conferred through homeownership, rather than ownership itself (Lindblad and Quercia 2015). Because households that have been displaced or expect to be displaced have to overcome the concurrent challenges of finding and keeping housing, accessing jobs, catching up in school and maintaining mental and physical health, they are unable keep up with voter registration (Squire et al 1987) much less engage in community organizations, local advocacy or political organizing. Thus,

housing unstable households, regardless of tenure, are often unable to collectively advocate for changes in their buildings, neighborhoods or cities.

The consequences of “serial forced displacement” (Fullilove and Wallace, 2011)—the recurring patterns of involuntary movement from urban neighborhoods that concerted public and private action produce—are myriad, affecting individuals, families, and groups. Racial segregation frequently precedes displacement which then produces new segregation. These processes are as much a threat to health and well-being as they are a potent political tool, historically wielded to displace Black people and people of color from positions from where they could exercise political power and build political capacity. Most obviously, physical displacement from home and community can strain and sever relationships that sustain organizing. Beyond the difficulty distance creates, having a sense of place is important for identity, claims-making, and for challenging the conditions that produce urban inequality (Good, 2017; Martin, 2007).

This paper uses content analysis, observation and theory to interrogate the historic patterns of housing dispossession in Richmond, Virginia. It further explores the theoretical and practical implications of this history for the current eviction crisis and its impact of communities of color. We argue that this dispossession is cyclical, meaning that the housing instability created through previous iterations of eviction and forced displacement have placed barriers to mobilization to address basic housing needs, community engagement and organizing that might operationalize a right to the city through political advocacy. We further argue that breaking this cycle will require the creation of physical and social spaces in which to engage, as well as legal supports that facilitate control and stability in the lives of low- and moderate-income renters.

Citations

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Key Words: Displacement, Eviction, Housing Instability

THE FEDERAL HOUSING ADMINISTRATION (235) PROGRAM IN NEWARK, NJ

Abstract ID: 30

Group Submission: Housing insecurity and displacement--no gentrification needed

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The Federal Housing Administration was created in the 1930s to expand jobs by encouraging investments in housing. For many years it did this though efforts to expand supply mostly of single family homes but also of multifamily housing. Over time Congress added programs to make single and multifamily housing more affordable to lower income residents. FHA’s Section 235 program created in 1968, for

example, was intended to expand single family home ownership by increasing access to credit for borrowers who lacked it. The implementation of the program ran into a number of problems and many homes went to foreclosure (Bratt 1976; Fox Gotham 2000). Bradford (1979) explains some of these effects as the result of an easy ability to sell the insured mortgage loans into the secondary market. In this paper I consider the assemblages of human and nonhuman actors who were involved in the FHA 235 program in Newark, NJ. I consider the infrastructure for home mortgage lending, the experience of borrowing and homeownership, and the effect of the 235 program on surrounding housing and community. Academic literature, Congressional reports and hearings, administrative reports, plans and data and news reports inform the analysis.

Citations

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Key Words: Housing

SHIFTING TAX LEVY BURDENS IN GENTRIFYING CHICAGO: BALANCING AFFORDABLE HOMEOWNERSHIP PRESERVATION AND WEALTH CREATION IN COMMUNITY LAND TRUST PROPERTY ASSESSMENTS

Abstract ID: 85

Group Submission: Housing insecurity and displacement--no gentrification needed

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The community land trust (CLT) model is a central strategy for providing long-term opportunities for affordable homeownership and household wealth creation. The CLT model provides moderate household level wealth-building through home value appreciation capitalization upon resale, among other traditional benefits of market rate homeownership. Higher in areas that have experienced large increases in home values, successful individual resale capitalizations hinge on sustaining a manageable tax burden relative to income over the holding period to prevent cost-based CLT homeowner displacement. One overlooked area of CLT analysis in demonstrating successful resale equity capitalization involves the role that fair market value property assessments in rapidly gentrifying neighborhoods play in their associated tax burdens on residents, particularly relative to the average household income of CLT homeowners. In this paper, I examine the assessments and associated tax bills of CLT properties in Chicago over the last two assessment cycles (2014-2019). Rising property taxes are increasingly implicated as a factor inducing cost-based displacement of homeowners, particularly in rapidly gentrifying areas (Brown-Saracino, 2009; Immergluck, 2009; Martin & Beck, 2018; Vigdor, 2002; Zukin, 1987). Similar to previous work on the protective effects of rent regulation against displacement in gentrifying areas (Freeman & Braconi, 2004; Wyly, Newman, Schafran, & Leez, 2010), it is vital to examine whether CLTs are an effective strategy preventing cost-based residential homeowner displacement in these same areas.

In the last four years, Chicago's primary CLT, the Chicago Community Land Trust (CCLT) has seen significant increases between market rate residential property assessments and the affordable formula-

based caps on property valuation set in their deed restrictions at the time of sale. Since 2014, the City of Chicago has seen an overall 6.3% average increase in residential property tax bills, and 1.6% average tax rate increase on residential property. Chicago's property taxation has been found to be "variable and regressive," with residential property in Chicago bearing more of a burden than commercial and industrial property in citywide assessments. There was a 12.8% average tax bill increase on residential property in 2015, and CCLT homeowners are receiving tax bills higher than they can afford, because many properties are located in areas with rapidly escalating home values. High tax bills for low-income homeowners may produce compounding negative financial outcomes and higher cost-based displacement pressures, as lenders' escrow analyses re-assess and increase mortgage payments over subsequent years, regardless of assessment appeal outcomes. This paper traces scattered CCLT property assessments and tax bills over the last assessment cycle to test for pre- and post- appeal assessment valuation regressivity in CCLT properties compared to surrounding neighborhood units, and evaluates tax bill increase-driven displacement pressures. I also compare CLT properties to households of similar income living in neighborhoods not experiencing rapidly escalating housing price appreciation. I question whether the claim that CLTs may slow cost-based residential displacement based on property tax increases holds true in the City of Chicago. These findings hold important implications for optimizing coordinated responses to gentrification forces in currently transitioning neighborhoods, and evaluating the effectiveness of the CLT model as a model that both prevents cost-based residential displacement and guarantees positive homeowner equity appreciation.

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Key Words: Community land trust, Property tax, Residential displacement, Land use regulation, Gentrification

BUILDING THE EVICTION ECONOMY: SPECULATION, PRECARITY, AND EVICTION IN DETROIT - TO MOVE

Abstract ID: 103

Group Submission: Housing insecurity and displacement--no gentrification needed

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Evictions have gained attention as a problem of crisis proportions. The Eviction Lab at Princeton University estimates one million tenants are evicted each year, equal to the number of owner-occupant households displaced through foreclosure during the mortgage crisis. Scholars frequently focus on evictions in high-cost cities where home prices and rents greatly outpace wages for low-income earners and the supply of affordable housing is inadequate and dwindling. Desmond (2016) shows evictions are

also a persistent feature of low-income neighborhoods with weak housing markets. Older buildings are costly to maintain and landlords may charge higher rent in anticipation of property damage and vacancy (Greif 2018). Landlords operating in distressed neighborhoods therefore charge rents only slightly less than area averages. In cities where jobs for low-skilled workers are scarce and wages low, many households encounter difficulties consistently paying rent. Landlords in low-income neighborhoods often withhold investment in their properties, e.g., by deferring maintenance, to insure adequate returns. Low-income tenants thus pay rent not far below the area average - accounting for a large and unaffordable share of their monthly income - but are forced to endure inadequate and often unsafe housing conditions. Tenants regularly tolerate these situations as their housing options are deeply constrained, but may face eviction as they withhold rent or deduct the cost of necessary repairs.

While the broad contours of these landlord-tenant dynamics were documented decades ago, researchers have recently turned their attention to the behaviors of landlord-investors purchasing large numbers of properties in the wake of the foreclosure crisis (Raymond et al. 2018). Private equity firms purchased tens of thousands of single-family properties in Sunbelt cities hit hard by the foreclosure crisis, converting them to rentals. But in distressed housing markets where home prices and income remain low, investors follow a different model for generating profit, purchasing large numbers of low-cost properties and either renting them without making additional investment or selling them via high-cost land contracts (Akers & Seymour 2018).

This paper examines the relationship between investment in distressed properties and evictions. Net of income and housing costs, we hypothesize neighborhoods where investors have acquired single-family homes through foreclosure sales have a greater number of evictions. Inadequate and irregular income make it difficult for low-income households to pay rent. But based on prior research and discussions with anti-eviction activists, legal aid attorneys, and investigative journalists in Detroit, we also expect investors' practices create unsafe housing conditions leading tenants to withhold rent or contact building inspectors. Both cases likely lead to eviction, as the legal system is tilted toward landlords. Further, land contracts shoulder buyers with the responsibilities of homeownership but few of the protections of a traditional home purchase agreement. Contract sellers often remove buyers through eviction courts, though not the appropriate channel, to accelerate repossession.

This study draws on eviction filings and real estate transaction records in Detroit, Michigan since 2005 to examine the relationship between investor acquisition of properties repossessed for delinquent property taxes and evictions. We examine these relationships at both the property and neighborhood level. Using a longitudinal negative binomial regression model, we find a distinct, direct relationship between eviction filings in single-family residential neighborhoods and county sales of tax-reverted properties in prior years. This relationship persists for at least three years, indicating elevated eviction filings are linked to ongoing owner-tenant dynamics and failed land contracts, not simply investors taking control of properties after acquisition.

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Key Words: housing insecurity, foreclosure, eviction, Detroit

DISPLACEMENT, EVICTION, AND HOUSING MARKETS

ID: 6

Pre-Organized Session Summary

Includes abstracts: 134, 200, 205, 449

In 2018 the Princeton University Eviction Lab released a national eviction dataset that demonstrated pattern of widespread and long-term eviction across the US. We know less about the local factors and causes at play in eviction. This session includes papers that address the underlying causes and the effects of displacement, including eviction. The papers draw on theory and empirical research to explore the neighborhood context of evictions, the role of "serial" eviction filings in the displacement process, and the segmentation of housing markets as both a cause and consequence of evictions. The research these papers are based on come from a diverse set of urban contexts. The session will help understanding about the eviction crisis, and in particular, shed light on the local contexts of displacement.

Objectives:

- Understanding the role of neighborhood context, eviction, housing markets in displacement.

EVICTION AND SEGMENTED HOUSING MARKETS IN RICHMOND, VIRGINIA

Abstract ID: 134

Group Submission: Displacement, Eviction, and Housing Markets

TERESA, Benjamin [Virginia Commonwealth University] bfteresa@vcu.edu, presenting author
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This paper examines the relationship between housing market segmentation and eviction in Richmond, Virginia. Eviction is a local phenomenon that varies dramatically at the urban scale. The variegated geography of eviction suggests that a range of factors affect eviction rates, including neighborhood characteristics, ownership structure, and management practices. Specifically, research indicates that Black and non-white neighborhoods experience higher eviction rates than White neighborhoods (Teresa, 2018), larger property owners evict at higher rates than smaller-scale owners (Raymond et al., 2018 and Immergluck, 2019). These factors define housing markets so that eviction is much more likely in particular neighborhoods where specific owners operate.

Due to historical patterns of racial and class segregation in urban regions, these factors are also likely the dimensions along which segmented housing markets are defined and through which they operate to produce differential housing outcomes for tenants. Housing market segmentation theorizes that instead of a unitary regional housing market that responds to supply and demand constraints, but rather several distinct submarkets that operate independently of each other to different extents (Rothenberg, et al., 1991). Segmentation is typically defined by different groups of housing quality, which consumers pay for at different rates. From a different research tradition, segmented housing submarkets are produced by property owners and financial institutions by structuring scarcity within restricted geographical areas, creating the conditions for capturing absolute or class-monopoly rent (Harvey and Chatterjee, 1974).

In this paper, we examine what actors produce housing segmentation and with what practices, and how tenants navigate and are corralled into different submarkets. We identify high-evicting market submarkets in Richmond through describing their geography and ownership structures, and narrate the pathways and

lived experiences of tenants in those submarkets. To do so, we rely on an original large-building database for 120 multifamily buildings with more than 25 units that we created using city assessor data, recorder of deeds records, court eviction filings, and city housing code violation data. We pair this dataset with qualitative interviews with 25 tenants who have experienced at least one eviction. Our findings confirm a highly segmented housing market in Richmond, which not only restricts non-white, poor and working class tenants to the poorest quality and most unstable housing submarkets but also directs them into progressively poorer quality housing until their eviction records and credit scores are used by landlords to effectively shut them out of the private rental market. Short-term housing such as motels, informal housing, and homelessness become the submarkets of last resort.

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Key Words: eviction, housing, Richmond

FINANCIALIZATION AND RACIAL CAPITALISM OF HOUSING AFTER THE CRISIS: DISTANCE AND FORGETTING

Abstract ID: 200

Group Submission: Displacement, Eviction, and Housing Markets

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In this research we place the financialization of housing since 2008 in the broader context of racial capitalism. By mobilizing the black radical tradition, which emphasizes race as a crucial precursor to and organizing logic of capitalism, and centering the housing struggles of marginalized groups, we relate contemporary racialized displacement and dispossession to settler colonialism and the plantation. The production of racial difference that Du Bois stressed as a crucial element of economic subordination in a divided and racially tiered labor force extends to the real estate profit cycle: the devalorization of non-White bodies, places and property hastens dispossession, making way for revalorization and successive rounds of accumulation. Since 2008, the U.S. racial divide in housing outcomes has widened. The recovery has been uneven, with clustered, prolonged negative equity, the rise of institutional investors in the single-family rental space, and the resurgence of predatory forms of lending targeted at black borrowers. Neighborhoods exposed to predatory subprime lending have seen foreclosures segue into evictions. As Park (2016) and McKittrick (2011) remind us, such processes are rooted in the violence of the plantation and of settler colonial expansion; that is, they are normal and recurrent features of the U.S. economic system of subordination. Understanding the financialization of home in terms of racial

capitalism is an epistemological move that counters abstraction with history and context, suggests the importance of interventions like reparations, and ultimately foregrounds homes as shelter and sites of human relations, rather than “bifurcated systems of possession and dispossession” (McKittrick, 2011).

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Key Words: racial capitalism, financialization, eviction, foreclosure, race

THE NEIGHBORHOOD CONTEXT OF EVICTION

Abstract ID: 205

Group Submission: Displacement, Eviction, and Housing Markets

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The largest metropolitan areas in the United States are in the midst of affordable housing crises. Costs of living are increasing relative to stagnating wages, rent burdens continue to rise for the poorest Americans, and supplies of subsidized and affordable housing are dwindling while more and more renters compete with each other to call them home (McCue 2018; Marr 2017). As a result, increasing numbers of renters nationally are at risk of receiving an eviction notice (Desmond et al. 2018). Despite once being labeled the “hidden housing problem” by (Hartman and Robinson 2003), Matthew Desmond’s (2016) landmark research and a growing national media focus (e.g., Badger and Bui 2018) have brought increasing policy attention to the nationwide eviction crisis. Most recently, San Francisco and New York City enacted laws providing low-income renters a right to legal counsel in eviction proceedings, and Los Angeles and Philadelphia look to follow in their footsteps (Capps 2017). As policymakers increasingly look to eviction prevention as a means of ameliorating the housing crises gripping American cities, existing research unfortunately reveals as many questions as it provides answers.

We examine two types of evictions: court-processed evictions and evictions filed through the Ellis Act, which is a California law providing owners of rental property a pathway to exit the rental market and evict existing tenants without cause. For court-based evictions, we use a dataset of eviction case filing addresses compiled by American Information Research Services, Inc. (AIRS) in five Southern California counties between 2005 to 2015 to analyze the spatial patterns of eviction cases. For Ellis Act evictions, we rely on data from the Los Angeles Housing and Community Investment Department (HCID), which has generously supplied addresses for every application for a no-cause eviction from 2000 to 2017. We then append data on neighborhood housing and demographic characteristics from the U.S. Census’s American Community Survey and data on residential construction permits from the LA County Assessor’s Office to assess the relationship between new construction on eviction rates (in LA County only), addressing policy debates over new construction’s role in eviction and displacement.

Preliminary analysis points to links between concentrated disadvantage, gentrification, and eviction rates. Through these analyses, we develop a model that describes the determinants of eviction rates in neighborhoods, cities, and counties in Southern California that can be used to comparatively evaluate eviction's spatial dynamics.

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Key Words: Eviction, Housing, Gentrification, Displacement

MULTIFAMILY EVICTIONS, LARGE OWNERS, AND SERIAL FILINGS: FINDINGS FROM METROPOLITAN ATLANTA

Abstract ID: 449

Group Submission: Displacement, Eviction, and Housing Markets

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Evictions and eviction filings cause substantial harm to lower-income families and neighborhoods. We examine multifamily eviction filings in the five-county metropolitan Atlanta area with a rich data set of eviction filings, property characteristics, and ownership information. We find that eviction filings include many "serial filings," in which landlords file repeatedly on the same tenant. The literature suggests that serial filings are aimed less at removing the tenant and more at disciplining the tenant through state-sanctioned threat of removal. We analyze serial and nonserial filing rates at the property level, and the share of a property's filings that are serial filings (serial share). Regressions on building, location, and neighborhood characteristics reveal important factors associated with higher serial and nonserial filing rates and serial share. We then examine the owners of the largest number of multifamily properties in the region and identify those that exhibit high or low serial filing rates after controlling for building, neighborhood and location characteristics. We find that the largest owners and larger buildings tend to have high serial shares. We also find that, while properties in Black neighborhoods have higher nonserial filing rates, their serial shares are also higher than otherwise similar properties. A key result is that sales in the prior three years have a significant, nontrivial positive effect on the nonserial filing rate, suggesting that building sales are significant predictors of rising evictions. Finally, those few large owners that do have low serial filing shares tend to be located in neighborhoods that are significantly less Black than the average building. We discuss implications for policy and further research.

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Key Words: evictions, housing instability

POST-DISASTER HOUSING RECONSTRUCTION AND REDEVELOPMENT: CASE STUDIES FROM THE PHILIPPINES, PUERTO RICO, FLORIDA, AND TEXAS

ID: 12

Pre-Organized Session Summary

Includes abstracts: 168, 169, 170, 171, 176

This panel studies human interactions with the built environment in communities impacted by disasters through examining decisions in reconstruction and development. All four studied in this session are focused on housing issues after disasters using case studies in the Philippines, Puerto Rico, Florida and Texas. These studies identify leverage points to expedite and encourage safe reconstruction and redevelopment. These leverage points will be analyzed in international and the US regulatory and normative environments. With increasing severity and frequency of disasters that disproportionately affect low-income communities, this panel will discuss impacts on those most vulnerable groups. This is critical not only for improving the current situation in these communities, but also to prevent future housing failures when another natural hazard occurs. The current institutional challenges can lead to a cycle of informal reconstruction or abandonment which is not limited to our case studies; states across the US have attempted policies to encourage regulatory and code compliance and discourage abandonment and informal construction.

Objectives:

- By identifying barriers to safer and formal reconstruction and redevelopment, decision makers can implement comprehensive programs and policies geared at redevelopment of vacant buildings and implementation of building codes and formal reconstruction.
- Understanding the leverage points to expedite and encourage safe reconstruction and redevelopment.

RESETTLEMENT OF INFORMAL COASTAL RESIDENTS AFTER TYPHOON HAIYAN: COMMUNITIES' PERSPECTIVE FROM A FIVE-YEAR ETHNOGRAPHIC OBSERVATION

Abstract ID: 168

Group Submission: Post-disaster Housing Reconstruction and Redevelopment: Case studies from the Philippines, Puerto Rico, Florida, and Texas

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Informal settlements are often located in highly vulnerable areas and directly exposed to adverse environmental change (UN Habitat, 2015). With an internationally shared notion of reducing future disaster risk in the recovery process, various rebuilding programs have begun to address hazard-sensitive land use and better resettlement of informal residents through relocation to reduce risk (see UNHCR,

2014). While informality of land tenure is reported as one of the greatest hindrances to rebuilding, such settlements continue to dominate and reemerge in poorer societies where land titling systems are either malfunctioning or nonexistent (Reale & Handmer, 2010). Concerns regarding informal settlements in rebuilding have increased over the past decade, yet studies on informal settlers' perspectives on relocation-related housing remain scarce (Barenstein, 2017).

Using post-disaster recovery from 2013 Typhoon Haiyan (local name Yolanda), Philippines, as a case study, this paper unpacks the resettlement processes of informal residents by shedding light on their decisions and actions with respect to resettling in permanent housing. The overarching question asks how and why households rebuild on informal land devastated by disasters, regardless of government housing support with relocation. Specifically, this study seeks to understand: i) who, after disasters, choose to informally reside on vulnerable land; ii) how and why residents decide to live on restricted land; and iii) how residents react to government-provided relocation programs. Data collection included annual fieldwork trips to the Leyte region of the Philippines from 2014 and 2018. In addition to collecting and analyzing housing and resettlement documents locally and nationally, residents from five communities located along Cancabato Bay in Tacloban City were interviewed once a year for four years. With the aid of students/interpreters who speak Warai (local language), 40 responses to open-ended questions were collected during each of the four years using an opportunistic sampling method.

In response to the coastal devastation caused by the storm surge, Tacloban City adopted a 40-meter "no-build (dwelling) zone" to proactively minimize loss of coastal residents from a future catastrophe. To accommodate residents who owned houses in the no-build zone pre-disaster, the City planned a two-step housing relocation program in sites far from the coast: residents would first move into temporary housing to wait for the permanent housing, and then to permanent housing when the units are ready. While relocation began relatively quickly, multiple actors in the relocation process, various options for beneficiaries, political decisions, and limited resources for housing development slowed and muddled the process (Iuchi & Maly, 2017). Five years later, houses continue to occupy the no-build zone along Cancabato Bay.

Ethnographic interviews and observations suggest that there was a shift in attitudes about relocation over time. Almost all coastal residents in the early stage of rebuilding had returned to or at least near to their original residential location. Residents were aware of their informality but indicated that they were returning as there was "no other places to go". However, residents did show concern about living along the shore, as respondents were willing to receive a new housing unit and relocate inland once ready. Over time, however, there was a greater mix of residents' housing status along the no-build zone – some continued waiting for their permanent units, some rented spaces, and others purchased existing coastal units from former owners. More importantly, an increasing number of residents began owning two units – one in the relocation site and the other back in the coastal community. These residents justified this dual-residency as important for their family's continued work and education. For them, the houses provided in the relocation sites are important assets but are not yet completely suited to their lifestyle.

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Key Words: Post-disaster resettlement, Relocation, Typhoon Haiyan, Informal settlement, Ethnographic research

INFORMAL AND FORMAL HOUSING RECONSTRUCTION IN PUERTO RICO AFTER HURRICANE MARIA

Abstract ID: 169

Group Submission: Post-disaster Housing Reconstruction and Redevelopment: Case studies from the Philippines, Puerto Rico, Florida, and Texas

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Hurricane Maria resulted in significant devastation to Puerto Rico—approximately 400,000 houses are in need of reconstruction and repairs which represents a third of the 1.2 million houses on the Island (Brown, 2018). The recovery process has been strained and issues like inadequate funding have affected many communities especially where institutional support and resources are scarce (De La Rosa, 2018). Only 40% of Federal Emergency Management Agency (FEMA) financial assistance applications have been approved (Acevedo & Pacheco, 2018) and 80% of appeal cases are either pending or denied (Acevedo, 2018). As a result, many households and communities have relied on their own resources and efforts to reconstruct their houses (Portal, 2018; Viglucchi, 2018). This kind of self-reliance has widespread precedents in pre-Hurricane Maria informal reconstruction in Puerto Rico. Housing units considered ‘informal’ are more common in rural communities where residents often sell or inherit properties through informal agreements, subdivide land without completing the title transfer process, occupy government-owned land to build homes, or build a house without completing the construction permit process (akin to colonias or informal settlements commonly found in the southern US). Informal reconstruction is defined in this research as design and construction actions carried out by community members in establishing temporary and permanent features of housing (e.g. design decision, physical labor) without following formal construction procedures and codes. Estimates of informally built houses range from 260,000 to 700,000 homes—the latter constitutes 60% of total homes in Puerto Rico (Brown, 2018; Florido, 2018). Structures built using informal reconstruction, which do not necessarily comply with building codes, are expected to be less reliable and vulnerable to disasters (Burby, May & Paterson, 1998). Hence, there is a critical need to address the continuing and widespread informal reconstruction practices in Puerto Rico in order to address present and future built environment vulnerabilities to disaster exposure. This research seeks to identify the contributing drivers to informal reconstruction and barriers to formal reconstruction, as well as the interactions between these drivers/barriers that lead to this emergent informal reconstruction behavior. We posit that this emergent reconstruction behavior of interest arises out of a multiplicity of simple interactions and drivers or barriers (Sturmberg 2014), and can only be understood by looking at the residential construction process/system as a whole (Dyson 1997). Preliminary results from our research in Puerto Rico indicate that institutional factors—e.g. costs, complexity of the formal process—and socioeconomic characteristics of a household play a critical role in

shaping informal-formal reconstruction behavior (Talbot, Poleacovschi & Hamideh 2018). Using these preliminary results about the intersection of human systems with disasters and the built environment, this research pursues to identify various types of institutional and social factors that increase the likelihood of decisions to pursue informal reconstruction as opposed to formal reconstruction at the household level after Hurricane Maria. The authors have collected preliminary semi-structured interview data (N=30) in three communities (Barranquitas, Utuado and Adjuntas) and survey data (N=350) in two communities (Pueblo and Loiza) during Summer and Winter of 2018. Preliminary results indicate the importance of the community relationships and links with recovery organizations as key components for reconstruction (Talbot, Poleacovschi, & Hamideh, 2018). Additionally, the preliminary results show that costs and complexity of formal construction are the top factors for pursuing informal.

Citations

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Key Words: Housing, Hurricane Maria, Informal Reconstruction

“DEFERRED MAINTENANCE”: SOUTH TEXAS COLONIAS AND THE FIGHT AGAINST FEMA

Abstract ID: 170

Group Submission: Post-disaster Housing Reconstruction and Redevelopment: Case studies from the Philippines, Puerto Rico, Florida, and Texas

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Recent concern about the intersections between environmental and social injustices has allowed planning researchers to more directly investigate post-disaster marginalization (Bullard & Lewis, 1996; Jacobs, 2018; Jon & Purcell, 2018). One such issue is perceived urban informality; in post-disaster situations, researchers note both the possible positive (Parthasarathy, 2015) and negative (Rumbach, 2014) effects of urban informality. This paper seeks to build upon these studies to ask, within a U.S. context: how is perceived urban informality affecting access to equitable disaster reconstruction?

This paper expands upon a case report, funded by the Lincoln Institute of Land Policy, which examined the legal case LUPE vs FEMA. The case study examines post-disaster Hurricane Dolly, which made landfall on July 23, 2008 in the Rio Grande Valley, a tri-county region of South Texas that is one of the poorest areas of the United States. Following Hurricane Dolly, residents of the colonias, the poorest communities within the Rio Grande Valley, noticed a disturbingly high rejection rate for FEMA assistance from the Individuals and Households Program (IHP). Most IHP applicants in the Rio Grande Valley were rejected due to “deferred maintenance,” or a determination that house damages were pre-existing and not attributable to a disaster event. However, FEMA does not clearly define “deferred maintenance” in its IHP policies. As a result, a civil lawsuit was initiated by residents and representatives of South Texas colonias challenging the uncertain definition and implementation of FEMA’s “deferred

maintenance” policy, as the residents and their representatives stated: “The high repair denial rate in the Rio Grande Valley results from FEMA’s unpublished and vague rule requiring the rejection of housing repair applications in cases of substandard housing — a rule that institutionalizes economic discrimination” (Preliminary Injunction, p. 2).

From the residents’ victory in that lawsuit, it is evident that FEMA is not upholding its congressional mandate to not bias against low-income communities. Through the ill-defined policy of not funding deferred maintenance, FEMA biases against those subject to the housing disinvestment common throughout low-income neighborhoods. This is a significant consideration for post-disaster urban planning — it provides concrete evidence that low-income communities are systemically being withheld important funding necessary to rebuild after disasters. This is also corroborated by other low-income communities rebuilding after disaster, like Puerto Rico and areas of Houston. This structural inequality is, potentially, a significant indicator of why other post-disaster phenomena, such as displacement and disaster gentrification, are so commonplace.

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Key Words: urban informality, post-disaster, housing reconstruction, colonias, low-income communities

POST-IRMA HOUSING RECONSTRUCTION IN THE FACE OF RISING SEAS: CASE OF MONROE COUNTY, FLORIDA

Abstract ID: 171

Group Submission: Post-disaster Housing Reconstruction and Redevelopment: Case studies from the Philippines, Puerto Rico, Florida, and Texas

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What are the factors that people take into account as they decide whether or not to rebuild their homes in communities that are affected by a disaster? If their community is also vulnerable to sea level rise, to what extent do long-term risks associated with sea-level rise contribute to their relocation or rebuilding decisions? Despite a growing literature on post-disaster housing reconstruction, our understanding of factors that affect housing reconstruction decisions in communities vulnerable to sea level rise remains limited. To fill this gap in the literature, we examine these factors in the context of Monroe County (Florida Keys), which was affected by Hurricane Irma in 2017. Our data collection methods include in-depth interviews (n=23), one focus group (n=5), participatory site observation, and review of secondary sources. Based on an NVivo analysis of our data, we suggest that displaced homeowners’ focus is on their

short-term, immediate housing reconstruction needs, especially receiving the necessary permits and the financial assistance (e.g., through insurance companies and/or the federal government) in a timely manner and finding qualified contractors and construction workers, and higher insurance premiums. The key priority of displaced renters, on the other hand, is finding affordable housing compatible with their limited income, a problem which was exacerbated after the disaster. Long-term environmental risks associated with sea-level rise have little to no direct influence on affected homeowners' or renters' relocation or rebuilding decisions. The study suggests that planners and policy makers need to find the optimum period to act on sea-level rise adaptation and mitigation in the aftermath of a disaster, after affected populations' immediate needs are addressed and before these population's collective memory of the disaster is forgotten.

Citations

- Burby, R. J., May, P. J., & Paterson, R. C. (1998). Improving Compliance with Regulations: Choices and Outcomes for Local Government. *Journal of the American Planning Association*, 64(3), 324–334. <https://doi.org/10.1080/01944369808975989>
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Key Words: Housing, Hurricane Maria, Informal Reconstruction

HOW CAN ABANDONED PROPERTIES IN SAN JUAN, PUERTO RICO BECOME OPPORTUNITIES FOR AFFORDABLE HOUSING PROJECTS IN THE POST-MARIA RECONSTRUCTION ENVIRONMENT?

Abstract ID: 176

Group Submission: Post-disaster Housing Reconstruction and Redevelopment: Case studies from the Philippines, Puerto Rico, Florida, and Texas

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About 360,000 housing units in Puerto Rico were affected by Hurricane Maria and 70,000 were completely destroyed (FEMA 2018). It is estimated that reconstruction would cost about \$33 million (Puerto Rico Department of Housing 2018). Under the first 1.5 billion allocation for the Action Plan of CDBG-DR funds, one billion was allocated for new construction, rehabilitation, or reconstruction of housing for homeownership or rental assistance to low-income individuals and families.

The housing crisis in Puerto Rico already existed and it was only aggravated by Hurricane Maria. Compared to the U.S., the Island has the highest number of vacant homes that any state of the union and the value of the properties has decreased by about 10 percent since the hurricane (Center for Puerto Rican Studies 2018). The population has shrunk due to massive outmigration along with the income of families due to deindustrialization (Birson et al. 2013). According to the 2017 ACS, about 26 percent of housing units in the municipality of San Juan are vacant.

Yet, San Juan is the perfect place to redevelop. First, from the perspective of sustainability, concrete structures embody energy that could be preserved (Jackson 2005). Second, according to the Action Plan, these areas are far away from flood zones and are ideally the place to rebuild to increase resiliency given

that hurricanes are a frequent natural phenomenon in the Island. Third, currently these abandoned structures only contribute to blight and deter any kind of economic development in the central city—from housing to businesses, they also affect safety and quality of life (Accordino and Johnson 2000).

All that being said, these abandoned buildings could provide housing choice options if they were rehabilitated. Although to the naked eye it seems that these abandoned building are a great opportunity to develop affordable housing projects in dense, urban areas, that are close to transportation and amenities (García 2018), it is very hard for developers to access these buildings without state intervention and the enforcement of tax-collection, code violations or the use of eminent domain.

This article will outline the various laws in Puerto Rico dealing with abandoned and public nuisance properties to show that there is not an efficient or primary course of action for developers to actually be able to acquire these properties. This study will look specifically to the legislative and procedural land use obstacles at the local and state level. The presentation will first provide a macro perspective of abandonment in San Juan and then provide case studies of properties to illustrate the inefficiency of the different law mechanisms that have contributed to the massive abandoned property problem.

The research method employed is Participatory Action Research (Forester 1999). The author spent six months helping an affordable housing developer to find properties. In the quest of finding properties she created an inventory of possible buildings to redeveloped and investigated its legal standing as well as contacted the agencies involved in the case including the Property Registry, the Tax Collection Agency, the Public Nuisance Department, the Land Use Agency, the Mayor's Office, and the Housing Development Authority to understand how the property could be acquired for redevelopment. The author interviewed and engaged with community groups dedicated to advocate for the redevelopment of properties including Casa Taft, CAUCE, among others, to understand community efforts being taken to combat the problem and steps taken in light of the federal funds coming for the redevelopment of the Island. At the end, the author will present some recommendation to address the issue of abandoned properties for the development of affordable housing projects in the context of the post-Maria reconstruction environment.

Citations

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Key Words: housing, vacancy, eminent domain, participation, disasters

NEIGHBORHOOD INEQUALITIES IN HOMEOWNERSHIP

ID: 23

Pre-Organized Session Summary

Includes abstracts: 288, 289, 290

Homeowners often have access to privileges that renters lack: security of tenure, a savings and investment mechanism, and entry to neighborhoods that frequently contain minimal rental housing. But access to homeownership can be uneven by neighborhood, particularly for minorities and low income households. And the Great Recession precipitated changes in local housing markets and the geographic distribution of residential opportunities. The papers on this panel explore spatial dimensions of tenure both within metros and across them. They examine the geographic components of minority-white homeownership gaps and whether the transition of many single-family homes into rental after the Great Recession have facilitated access to neighborhoods of opportunity for renter families.

Objectives:

- To understand how tenure opportunities vary by geography.

TRENDS IN HISPANIC HOMEOWNERSHIP AND SUBURBANIZATION, 1990-2017

Abstract ID: 288

Group Submission: Neighborhood Inequalities in Homeownership

SANCHEZ-MOYANO, Rocio [University of California, Berkeley] rsanchezmoyano@berkeley.edu, presenting author

Homeownership is the primary form of wealth accumulation for American families, in addition to serving as a point of entry for advantaged neighborhoods, school districts, and social networks. As a result, gaps in homeownership and different homeownership experiences exacerbate socioeconomic inequality, both in the present and among future generations. Previous research on the gap in homeownership between Hispanics and whites has focused on differences in financial, demographic, and immigration characteristics. But the location of a home will affect many of the risks and benefits associated with homeownership, and understanding Hispanic-white homeownership inequality should also include analysis of where homeowners live.

Suburbanization and homeownership among Hispanics both surged in the 1990s (Belsky & Duda, 2002; Massey & Tannen, 2017), but it is unclear whether the new suburbanites purchased homes or rented, and if the new homeowners owned in the suburbs or in the city. Though city-suburb dynamics are shifting, suburbs generally retain a higher status than urban areas (Airgood-Obrycki, 2019), and Hispanics may be trading off suburban neighborhood amenities with the opportunity to own a home. Research indicates that much of the increase in suburban Hispanics was affected by the expansion of affordable rental housing opportunities in many suburbs (Hardwick, 2008; Howell & Timberlake, 2014), suggesting that movements to the suburbs were made by renters rather than by homeowners.

This research examines trends in both Hispanic homeownership and suburbanization from 1990-2017 using the decennial censuses and the 2013-2017 American Community Survey for the 100 largest metro areas where differences between cities and suburbs are most distinct. By looking at the interaction of homeownership and location, this research can begin to answer the question of whether moves into homeownership by Hispanics have been coupled with moves to opportunity in the suburbs, and whether suburbanizing Hispanics are able to capture the benefits of residential stability and wealth-building through homeownership in suburban neighborhoods. This paper will then go beyond cities and suburbs to examine how the presence of existing Hispanic communities affects Hispanic homeownership in urban

and suburban areas by analyzing both ethnic enclaves at the neighborhood level and regional Hispanic settlement patterns.

As planners and policymakers continue to advocate both for access to homeownership for Hispanics (and other minorities) and the expansion of affordable rental housing in the suburbs, it is important to consider to what extent improving equity along one measure results in stratification along the other. Suburban moves may be less successful if not accompanied by tenure security and asset-building. And homeownership may come with additional risks or more limited benefits if happening in urban, majority-minority neighborhoods. This research begins to shed light on the relationship between tenure and location for Hispanic households and what areas are more successful in achieving equal outcomes between Hispanics and whites.

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Key Words: Hispanic, homeownership, inequality, suburbanization

THE LOCATION OF SINGLE-FAMILY RENTAL AND IMPLICATIONS FOR AFFORDABLE HOUSING

Abstract ID: 289

Group Submission: Neighborhood Inequalities in Homeownership

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Single family rental housing (SFR) have increased in recent years largely as a result of the conversion of single-family detached homes from owner-occupied to rented (Eggers and Moumen 2011). Following the foreclosure crisis, owners opted to rent rather than attempt to sell. In addition, investors purchased foreclosed homes to rent, taking advantage of the availability of vacated properties at a steep discount and the weak homebuying market (Fields, Kohli and Schafran, 2016). The number of SFRs increased from 9 million to 12 million from 2004 to 2013, a 35 percent rise over this time period (Drew, 2015). By 2017, there were 16.6 million SFRs in the United States, accounting for about 39 percent of the rental housing market nationally.

In this paper, we examine the spatial location of SFRs. We identify regional variation in the proportion of SFRs across the United States, ascertain the types of neighborhoods where SFRs are clustered, and

examine changes overtime. There is a sense that the growth in SFRs is a positive development since it offers affordable rental housing, particularly for larger low-income families, in areas of opportunity across the metropolitan region. Similar to Immergluck (2018), we find that there are more SFRs available in neighborhoods where the foreclosure crisis was severe and the housing market recovery is slow. We also find that these neighborhoods that are located in the suburbs tend to be inner-ring suburbs that have lower incomes than other suburbs. We do find that SFRs are being utilized by low-income families with children in many cases. We discuss the implications of our findings for planning and policy.

Citations

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Key Words: Single Family Rentals, Rentals, Affordable Housing

EXPLAINING THE BLACK-WHITE HOMEOWNERSHIP GAP

Abstract ID: 290

Group Submission: Neighborhood Inequalities in Homeownership

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Existing studies (McCargo, Strohach, 2019) have found consistent black-white homeownership gap across U.S. cities. The black homeownership rate fell significantly following the Great Recession, and now is at the same rate as it was in 1968 when the Fair Housing Act was signed (Goodman, McCargo and Zhu, 2018). Due to the uneven impact of the financial crisis, the racial homeownership disparity in the United States has widened during the past decade. The black-white homeownership gap exists in all US cities, but the size of the gap differs substantially across the country. For example, among the top 100 MSAs with the largest black population, Minneapolis-St. Paul-Bloomington, MN has the largest black-white homeownership gap of 50 percent while Killeen-Temple, TX has the smallest gap of 14 percent.

The differences in the black-white homeownership gap across US cities spark the question of why these gaps persist, what local factors impact the differences, and how can progress be made to reduce the racial gaps. Using various data, including American Community Survey and HMDA, we will examine what factors explain the gap in the black-white homeownership rate. We will employ regression analysis and Oaxaca decomposition method to estimate which factors – e.g. demographic composition, labor market conditions, housing costs, and residential segregation – contribute most to the homeownership gap and how the relative contribution differs across cities. This analysis will also help to further identify which cities to dive deeper into. For example, we could look closely and drill down in 10 MSAs with the

greatest homeownership gap and 10 MSAs with the smallest gap, and examine how these cities differ in what drivers that contribute to the black-white homeownership gap

While our research quantifies key factors driving the racial homeownership gaps across US cities using existing data can explain the black-white homeownership disparities, it is likely that some will remain unexplained. Historical legacies, policies (Rothstein, 2017), and financing practices (Baradaran, 2017) at the national and local level would have also played an important role in widening or reducing the homeownership gaps; however, these factors are difficult to quantify. The results from our research will guide us on where to consider a deeper dive with further research and analysis to understand additional local factors and policies that lead to strikingly different homeownership outcomes. Our research will also help inform cities to effectively design local solutions and policies specifically to meet their unique conditions and needs. The research will assist in formulating the theory of change for how some cities might enhance housing strategies and policies locally to specifically address the racial homeownership gap.

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Key Words: Homeownership Gap, Racial Disparity, Local Differences

PRE-ORGANIZED SESSION - AGING OUT OF PLACE: RESIDENTIAL MOBILITY AMONG OLDER ADULTS

ID: 24

Pre-Organized Session Summary

Includes abstracts: 411, 412, 413, 414

While aging in place has received a great deal of attention in planning research, many people move later in life. Older adults move for a variety of reasons: to live near family and friends, to downsize to a smaller home, to experience a more favorable climate, to enjoy the amenities and support of a retirement community. For some, retirement enhances their freedom to choose where to live. For others, financial constraints, health problems, and functional limitations precipitate or prevent moves, and restrict their housing options. The papers in this session investigate the factors that affect older adults' decisions to move, and their choices about where to live. Each study uses geocoded survey data to trace older adults' residential locations, paired with contextual data to understand the types of places - both neighborhoods and regions - where they move. The analyses focus on questions of housing tenure, location, and inequality in later life, and draw out implications for the future of housing demand.

Objectives:

- Understand the patterns of residential moves in later life.
- Explain the broader impacts of changes in where older adults live.

HOUSING AFFORDABILITY AND RESIDENTIAL MOVES IN LATER LIFE

Abstract ID: 411

Group Submission: Aging Out of Place: Residential Mobility Among Older Adults

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Since the 1990s, US home prices have swung up and down and then back up again, in a dramatic cycle of boom, bust, and recovery. Rents have risen without interruption. At the same time, housing prices in prosperous urban areas have pulled away from those in declining urban and rural areas.

Older adults are more likely to be affected by increases in housing prices: older homeowners on fixed incomes may not be able to afford rising property taxes (though they benefit from increasing home equity), and older renters are especially vulnerable to rising rents. The divergence of housing prices in different areas of the country may also affect the places where older adults can afford to move. Older adults living in places with high and increasing housing prices face pressures to move towards less expensive places, while older adults living in places with lower housing prices may be unable to move towards more expensive places.

In this paper, we investigate two main research questions. First, how have changes in housing prices during the 2000s housing boom, bust, and subsequent recovery altered housing affordability constraints for older renters and homeowners? Second, has the divergence in housing prices between various areas of the US affected inter-regional residential mobility among older adults? We examine housing affordability and residential mobility patterns for adults over age 50 living in high-cost, mid-cost, and low-cost areas from 2000-2016, using household-level data from the Health and Retirement Study, combined with county-level contextual data from the US Census and American Community Survey, as well as the US Department of Housing and Urban Development 50th Percentile Rent Estimates and the Zillow Home Value Index.

We find that both homeowners and renters living in high-cost areas remain in place at higher rates compared with those living in mid-cost and low-cost areas. Among those who move, older adults living in high-cost regions move towards mid-cost and low-cost regions more often than the reverse. The differences are particularly pronounced for renters. The overall outcome is a net movement of older adults away from high-cost areas towards mid-cost and low-cost areas. These shifts have direct consequences for the well-being of older adults and broader implications for housing markets where reduced turnover worsens housing shortfalls. The findings suggest that economic and spatial inequalities between renters and homeowners are exacerbated in later life, especially in the context of rising housing prices. This research contributes a new perspective to the literature on housing affordability and inter-regional moves, which mainly focuses on working-aged adults, and offers insights for planners working to find housing solutions for an aging population.

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Key Words: Housing affordability, Residential mobility, Older adults, Aging

UNDERSTANDING OLDER ADULT MOBILITY DECISIONS: THE ROLE OF CHILDREN

Abstract ID: 412

Group Submission: Aging Out of Place: Residential Mobility Among Older Adults

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Despite the importance of housing and location characteristics to the wellbeing of older households, we know surprisingly little about their residential choices and the primary factors that drive their decisions to move. The majority of older households are homeowners, and many of these households have a substantial share of their wealth invested in their home. Older households are also often out of the labor force and therefore have lower incomes and may be more likely tap into their housing wealth. Even without lower incomes, older adults are entering a period of life changes, which may make them more likely to move as they enter retirement, experience health problems, or simply prefer to reduce their housing consumption. Understanding the likely behavior of older adults over the coming decades has important implications for local housing markets. Whether older adults will be more likely to downsize and relocate to urban areas, remain in their long-time homes, or relocate to be near children all have important implications for housing supply and demand during the coming years of population aging.

Our goal in this paper is to further the understanding of residential housing and location choices as we age, and to highlight the key factors that drive moving and housing decisions for older adults. We focus specifically on how the mobility choices of adult children also influence the moves of their parents. Ultimately, these findings will inform potential policies that could increase the likelihood of households living in aging-appropriate homes and communities.

We explore the following facets of older adult mobility:

1. Mobility patterns: Who moves? How do age, retirement, and other life events affect moving decisions?
2. Distance from children: To what extent are people moving closer to their adult children?
3. Age-friendly moves: What are the post-move housing and neighborhood characteristics? How do these compare with their pre-move characteristics, and those of households who stay? Is post-move housing more aging appropriate?

To answer these questions, we use data from the geocoded version of the Health and Retirement Study (HRS), a large, biennial, nationally-representative panel survey of older adults that began in 1992. In addition to detailed information on individuals and their homes from the survey, we use the geocodes to match on a variety of neighborhood and location attributes. We are also able to use the geocoded information on respondents' children coupled with questions about child co-residence, grandchildren, and proximity to children to explore how the location of children influences mobility.

With our rich dataset, we explore the role of individual, family, housing, and neighborhood characteristics in residential mobility and location choice. We explore the role of proximity to children and caregiving in moving decisions. Finally, for those who move to another home, we compare the old and the new home and neighborhood along a variety of dimensions.

Citations

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Key Words: aging, older adults, housing decisions, household mobility

NEIGHBORHOOD LIVABILITY AMONG OLDER ADULT HOUSEHOLDS

Abstract ID: 413

Group Submission: Aging Out of Place: Residential Mobility Among Older Adults

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With the aging of the baby boomers, persons age 50 and over now represent more than a third (114 million) of the US population. The number of households headed by someone age 65 and over has also risen, and is projected to increase, from 37.2 million in 2015 to 72.4 million in 2035 according to the Harvard Joint Center for Housing Studies. At the same time, geographic and housing tenure choices of older adults households have been gradually changing. Older adult households are becoming increasingly concentrated, with growing number of senior-majority neighborhoods (50 year and older); while homeownership rate among households age 50 and over declines over time, the black-white homeownership gap among the older households has become among the largest in the history. Some of these neighborhoods have services and amenities to help older adults age comfortably in place, others not. Given all these changes, this study examines the residential mobility, housing tenure, and location choices among older adult households, focusing on the differences across demographic and socio-economic groups in housing and neighborhood qualities.

The AARP Livability Index enables us to identify disparities in neighborhood livability for older adults. We use the Livability Index to create five quintile categories of neighborhood age-friendliness and then describe the geographic locations and socio-economic characteristics of these neighborhoods. Next, we examine the links between household characteristics and neighborhood livability using American Community Survey restricted-access microdata. Using the data, we conduct binomial and multinomial logistic regressions to investigate the household- and neighborhood-level determinants of residential mobility and location choices for older adults. The independent variables include demographic and socio-economic characteristics of old adult households such as age, race/ethnicity, income, education, tenure, and household composition, and neighborhood characteristics such as age structure, racial composition, housing prices. Lastly, we analyze whether there are different patterns across race/ethnicity, income, and tenure status.

Our findings show that livable neighborhoods tend to be located on the periphery of urban centers, in where single-family owner-occupied homes are prevalent. The households living in them tend to be non-Hispanic white owners and have higher incomes than those in low-livability neighborhoods. Ultimately, the findings of this study will contribute to discussions on how to create healthy, sustainable, and livable communities for the nation's growing older population.

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Key Words: aging population, older adults, residential mobility, neighborhood quality, homeownership

AGING AND HOUSING TENURE TRANSITIONS

Abstract ID: 414

Group Submission: Aging Out of Place: Residential Mobility Among Older Adults

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This paper examines the determinants for delayed transitioning out of homeownership among the elderly and explores the consequences of aging in place on housing supply. The United States is experiencing rapid aging of its population: more than 20 percent of the population will be over the age of 65 by 2029. In this rapid aging context, housing, the most important asset in households' portfolios, plays a vital role in post-retirement life. How do older generations make housing tenure transitions and when do they transition out of homeownership are having profound impact on housing market. Previous literature has shown that health status, marital status and child proximity play vital roles in elderly housing tenure transitions (Painter and Lee, 2009; Lee and Painter, 2014). Motivated by the findings[1] that compared to

AHEAD cohort, more recent senior generations (HRS and Baby Boomers Cohorts) show delayed timing of transitioning out of homeownership, this study aims at 1) investigating how the interplay of detailed health status (both physical disability and cognitive declines), household financial fragility, child proximity and intergenerational wealth transfers fastens the trend of aging in place, and 2) exploring how this trend of aging in place shapes the geographical mismatch between housing demand boomed by millennials and Gen Xers) and housing supply held up by baby boomers and elderly cohorts. This research will further shed light on how elderly housing tenure transitions can have an impact on unequal intergenerational housing wealth distributions especially in MSAs with tighter housing supply.

This study takes advantages of the RAND HRS data, sampling the period from 1992 to 2014. RAND HRS dataset and the restricted geocodes data are ideal datasets to examine this research question. RAND HRS data contains extensive information on individual and family characteristics, including detailed health status, financial and housing wealth, income information and intergenerational wealth transfers. All those variables are crucial factors determining elderly housing tenure decisions. The detailed cohort information helps this study investigate heterogeneous transitional patterns across HRS, Children of Depression, War Baby and Early Baby Boomers. Moreover, the longitudinal data structure enables us to better control for unobserved time-invariant factors affecting households' housing wealth consumption portfolios. Most importantly, the unique detailed health data helps this study disentangle the impact of cognition decline from physical disability.

The empirical model in this study employs proportional hazard model and multinomial logistic regression to examine the determinants for housing tenure transitions after controlling for households' demographic and socioeconomic characteristics as well as post-retirement income level. The dependent variable will be a constructed categorical variable indicating the tenure choice set based on self-reported value of primary residence and mortgages, reverse mortgages take-up, and the residential location indicated by zip-codes (restricted data). Independent variables of interest include detailed health status (functional, mental, cognitive and health conditions), financial fragility (indebtedness level measured by LTV on primary residence), probability of leaving a bequest, housing value/wealth, cohort, health insurance type, expectations of mortality, inter-generational wealth transfers and demographic and socioeconomic factors.

[1] Zhu, Linna and Douglas McManus. "While Seniors Age in Place Millennials Wait Longer and May Pay More for their First Homes." Freddie Mac Housing and Economic Research Insight, February 2019.

Citations

- Zhu, Linna and Douglas McManus. "While Seniors Age in Place Millennials Wait Longer and May Pay More for their First Homes." Freddie Mac Housing and Economic Research Insight, February 2019.
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Key Words: Aging in place, Housing tenure transitions, Housing supply, Financial fragility, Intergenerational wealth transfers

HOUSING VULNERABILITY AND LOSS

ID: 25

Pre-Organized Session Summary

Includes abstracts: 428, 429, 430, 431

What happens to housing in precarious conditions? What are the consequences for the people who live there? The papers in this session consider mobile home parks after a natural disaster, rental units with code violations, housing facing demolition, and informal settlements outside the reach of legal standards and city services. The authors develop new techniques using parcel- or unit-level administrative data to study types of housing that are difficult to observe. After analyzing patterns of housing vulnerability and loss, the papers go further, to ask what such housing conditions mean for their residents. For people living in mobile home parks, what happened when flooding threatened their homes? In substandard rental housing, will code enforcement improve living conditions, or simply raise rents so that residents can no longer afford to live there? How do demolitions affect the housing available for people living in poor or declining neighborhoods? Informal settlements may provide much-needed housing, but what do they offer in terms of living conditions for their residents?

Objectives:

- Understand the patterns of housing in precarious conditions.
- Describe the consequences for residents.

BEYOND THE OWNER-RENTER DIVIDE IN DISASTER PLANNING: A GEOGRAPHICAL ANALYSIS OF MOBILE HOME PARK DAMAGE AND RECOVERY AFTER HURRICANE HARVEY

Abstract ID: 428

Group Submission: Housing Vulnerability and Loss

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Mobile homes are a significant, but often unacknowledged, part of our nation's affordable housing supply. Mobile homes are the single largest source of unsubsidized affordable housing in the United States. An estimated 2.9 million mobile homes are located within mobile home parks (MHPs), which are unique land-lease communities where households own their housing unit but rent the land underneath. The population living in MHPs is predominantly low-income and includes many elderly, disabled, non-white, and non-English speaking individuals. Mobile home parks are frequently exposed to hazards and disasters. In 2017 alone, floods, hurricanes, and wildfires triggered disasters in Texas, Florida, and California, the three states with the largest populations living in mobile homes. The limited scholarship on affordable housing and disasters has focused almost entirely on site-built housing, however, and largely overlooked MHPs. Because of the unique characteristics of MHPs – their mixed tenure arrangements, park ownership structure, and treatment under local laws and regulations – we hypothesize that MHPs are exposed to, and recover from, disaster events differently than other affordable housing types.

In this paper we utilize a mixed-methods research design to study the geography of exposure and recovery of MHPs in the Houston MSA after Harvey. Texas, Hurricane Harvey, and the Houston metropolitan area present a unique nexus to study the vulnerability of mobile home parks to disasters, across different geographic, demographic and governance contexts. Texas, the state with the largest mobile home

population, also outranks all other states in deaths, injuries, and property loss resulting from floods. The largest share of Texas' roughly 1.9 million mobile home park residents (17.7%) lives in the Houston Metropolitan Area, throughout 134 cities, towns, and jurisdictions.

First, we locate all MHPs in the 9-county region using tax record and parcel data. Next, we overlay Harvey flood models to estimate the extent, and magnitude, of flood exposure. Third, we use pre-Harvey remotely sensed imagery to count the number, and type, of mobile homes in each park and use flood data to estimate the level of damage and unit loss for each park. Finally, we review local development regulations related to mobile home parks and flood recovery. These findings represent the first-time, comprehensive and comparative analysis of the exposure and recovery of the mobile home park housing stock of a major metropolitan area following an extreme event. They allow us to understand which parks, in terms of their physical location, ownership structure, and treatment under local laws and regulations, are most likely to suffer damage and to recover after loss. These findings will help planners to more accurately account for vulnerability in the affordable housing stock and design more effective hazard mitigation or community resilience plans and strategies.

Citations

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Key Words: Mobile Home Park, Manufactured Housing, Disaster, Risk, Hurricane Harvey

CODE ENFORCEMENT AND AFFORDABILITY: WILL BETTER HOUSING RAISE THE RENT?

Abstract ID: 429

Group Submission: Housing Vulnerability and Loss

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In the early 1970s, as part of debates over the focus of urban renewal, scholars debated the impact of enforcing housing standards (whether through the implied standard of warrantability or local code enforcement) on rents. In recent years, rents have risen despite stagnation in housing quality (Super 2011). One side, led by legal scholar Ackerman, argued that if standards were enforced across the board the impact on rents would be minimal. The other, led by Komesar, argued that higher standards would result in rents beyond the reach of those living in housing in need of improvement. According to Desmond, the outcome of the scant empirical research on the topic was indeterminate. Since that time, little new research has tried to resolve the issue. In this paper, I attempt to revive the discussion, by examining the impact of a targeted code enforcement initiative in Austin, Texas, on rents and housing quality. After the failure of an initiative to require all rental housing to register with the city, as a first step

toward systematic code enforcement, the city established the Repeat Offender Program (ROP). Under the ROP, buildings receiving repeat violations during a two year period are repeatedly inspected and targeted for various types of enforcement. Since 2014, when the program was established, 121 properties, containing over 10,000 units have been subject to enforcement under the program. To date, reporting on the program and anecdotal evidence suggests that enforcement has been weak, allowing owners to avoid compliance. In some cases, owners have negotiated down the fines associated with code violations upon sale of the property. Little is known about the impact of the program on housing quality and affordability for low-income tenants. I hypothesize that both the strength and speed of enforcement and the desirability of the property location affect the impacts for tenants. Since enforcement has improved over time, I hope to be able to see evidence of improved enforcement outcomes using code inspection activity data. Using proprietary data available from a local company that regularly surveys rental housing in buildings of 50 units or more, I will attempt to assess the relationship between code enforcement and rents, controlling for citywide trends in class c properties. I conclude with a discussion of the original question—does pushing for improved conditions result in rents beyond the reach of low-income renters? How do changes in rents for targeted properties vary based on other factors, such as location? What practices appear to work best (or worst) for tenants

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Key Words: renters, housing conditions, code enforcement, displacement

DEMOLITION AND NEIGHBORHOOD CHANGE IN CHICAGO

Abstract ID: 430

Group Submission: Housing Vulnerability and Loss

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Demolition is often studied as an urban redevelopment strategy employed to deconcentrate poverty and ‘clear the way’ for new development in prime real estate locations (e.g. Goetz, 2003). Many communities have been ‘twice-cleared’, first during midcentury urban renewal followed by the demolition of public housing through the HOPE VI and Choice Neighborhoods programs (Vale, 2013). Demolition is also pursued as a stand-alone strategy to regenerate communities through the reduction of disorder and crime, particularly in cities that have experienced widespread population loss (Stacy, 2018), and as an economic response to urban austerity under neoliberalism (Rosenman & Walker, 2016). In fact, research shows that in some cities, these ad hoc, scattered site demolition practices led to more housing loss than in the urban renewal period (Hackworth, 2016). Yet, scattered site demolition is an understudied component of the broader housing market. What are the housing-, parcel-, and neighborhood-specific determinants of

housing demolition? Using fine-grained administrative data on building characteristics and city demolition permits, combined with American Community Survey neighborhood measures, we employ a multilevel survival analysis to analyze the residential building stock in Chicago, IL across the 2006-2018 time-period. We then assess the implications of ad hoc demolitions for neighborhood change, in terms of the housing available for rent or sale, housing prices, housing affordability, and residential mobility of existing residents and newcomers. This research complicates the idea that demolition is a straightforward response to structural deterioration of housing – demolition can also be pursued to pave the way for redevelopment and new construction – and begins to quantify the ways in which demolition can have both helpful and harmful impacts for neighborhood residents. The findings serve to inform planners about the larger scale impacts of the increasingly prevalent practice of ad hoc demolition, and will help planners devise strategies to protect vulnerable residents living in both declining and gentrifying neighborhoods.

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Key Words: housing demolition, neighborhood effects, neighborhood change

BUILDING FOOTPRINT-DERIVED LANDSCAPE METRICS FOR THE IDENTIFICATION OF INFORMAL SUBDIVISIONS IN SOUTH TEXAS

Abstract ID: 431

Group Submission: Housing Vulnerability and Loss

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Substantial research has examined the challenges posed by the proliferation of colonias, low-income informal subdivisions located along the U.S.-Mexico border, where the lack of water and waste water service and widespread self-building of the home has contributed to severe health and safety risks for residents (Ward, 1999). Although recent research has illustrated that informal subdivisions are more widespread across the country than typically acknowledged (Durst, 2018; Durst, 2016; Ward and Peters, 2007), the time-intensive nature of identifying these subdivisions through the analysis of satellite imagery and property records necessarily limits the systematic study of these communities. This paper uses big data to develop landscape metrics capable of identifying the location of informal subdivisions across the country. We use a data set of building footprints developed by Microsoft and released publicly in 2018 to measure the size, type, orientation, placement, and uniformity of housing in more than 2,000 residential neighborhoods Hidalgo County, Texas, where more than 1,000 informal subdivisions have been documented by prior research (Durst, 2016). We use cross-validation to test the ability of these landscape

metrics to distinguish between three neighborhood types: informal subdivisions, mobile home parks, and formal subdivisions. We then illustrate how these landscape metrics data can be paired with data from other sources to examine issues of housing vulnerability and loss. We conclude by describing the methodological steps necessary to identify and systematically study informal subdivisions across the country.

Citations

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Key Words: Informal housing, Big data, Landscape metrics

PERCEPTION MEETS REALITY: SUBJECTIVE ASSESSMENTS OF HOUSING AND NEIGHBORHOODS

ID: 26

Pre-Organized Session Summary

Includes abstracts: 338, 339, 340

People's feelings about their homes have concrete impacts on their lives. This session explores how housing and neighborhood characteristics affect perceptions, and how those perceptions influence residents' well-being. The connection between perceptions and the built environment is difficult to observe. In survey responses, subjective assessments are often embedded in objective observations, and vice versa. The innovative, mixed-methods studies in this session solve this problem by using separate data sources to measure perceptions versus characteristics. The researchers link survey or ethnographic data on perceptions with datasets that provide fine-grained measures about the respondents' homes and neighborhoods. The papers reveal the importance of housing design, size, and condition for residents' happiness. At the neighborhood level, they uncover tensions between social cohesion and envy of neighbors. The authors also investigate how tenure affects the relationship between residents and their homes and neighborhoods, illuminating the divergent experiences of renters and homeowners living in similar types of places.

Objectives:

- Understand the connection between built environment characteristics and residents' perceptions.
- Explain the implications of housing and neighborhood perceptions for residents' well-being.

ASSESSING THE EFFECT OF NEIGHBORHOOD CONTEXT ON RESIDENTS' HOUSING SATISFACTION

Abstract ID: 338

Group Submission: Perception Meets Reality: Subjective Assessments of Housing and Neighborhoods

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This study examines the effect that neighborhood context has on suburban residents' satisfaction with their houses and neighborhoods. Veblen (1899) identifies the need in a consumer-oriented society to outwardly express success through what he terms "conspicuous consumption"—expenditures on goods and services that are motivated by the public display of wealth and status. Hirsch (1976, p. 2) identifies these conspicuously consumed goods as "positional goods," which he defines as those for which satisfaction depends not only on individual consumption but on consumption by others as well. Housing is a powerful symbol of wealth and prestige and is widely considered a positional good (Charles, 2018; Solnick & Hemenway, 2005). What one considers to be a large house is very much dependent upon the house's context. The concept of positionality in housing satisfaction research is compelling because it contradicts neoclassical economic principles that prioritize absolute consumption—the overall square footage of the house—over other considerations such as relative consumption. Yet it makes intuitive sense: the physical and social contexts in which housing consumption takes place are important to individuals as they assess their satisfaction with their houses and their neighborhoods.

When the higher relative housing consumption of neighbors negatively affects the utility of an individual's house, it is described as "envy" (Easton & Eswaran, 2003). But individuals may also gain from their neighbors' relatively higher housing consumption. "Basking in the reflected glory" is a behavior when individuals emphasize their connections with successful people and gain esteem through those associations (Cialdini et al., 1976). Thus, one may value the relatively higher consumption of their neighbors because they view their status as enhanced by their proximity to those higher status households. It follows then that envy and reflected glory may affect individuals' assessments of their houses and their neighborhoods differently—those living in houses that are relatively smaller and older than their neighbors may report lower ratings of satisfaction with their house but higher ratings of satisfaction with their neighborhood. Envy and reflected glory are important yet understudied concepts affecting individuals' housing satisfaction. The overarching question addressed in this study is: how do the physical qualities of surrounding single-family houses affect one's subjective assessment of their house and neighborhood?

The study begins with an online survey of suburban residents' subjective assessments of their houses and their neighborhoods. Survey respondents are first asked for their current address and whether they own or rent their home. Then, after a series of demographic questions, the survey asks respondents to measure their satisfaction with their house and their satisfaction with their neighborhood on a Likert-type scale. Next, we match the street addresses provided by the respondents to property record data to determine the physical characteristics of each respondent's house and neighboring houses (reference group). We identify all neighboring houses within the viewshed of each respondent's house—defined as houses that are located on the same street and within 100 meters. The physical characteristics of houses within the viewshed are used to calculate relative measurements of each respondent's house compared to their neighbors' houses. Using this dataset, we examine the association between the objective characteristics of housing within the viewshed of each respondent's house and their subjective assessments of their house and neighborhood quality. And we test whether these associations differ whether one owns or rents their house. The study will contribute to the literature on factors affecting housing satisfaction and will influence our understanding of why households choose to remain in or leave neighborhoods undergoing gentrification pressures.

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Key Words: housing satisfaction, positional goods, single-family housing, suburbs

HOUSING & HAPPINESS: AN EXPLORATORY ANALYSIS

Abstract ID: 339

Group Submission: Perception Meets Reality: Subjective Assessments of Housing and Neighborhoods

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There is growing awareness about how decisions made about the built environment may affect health. Most existing research focuses on the link between health and the qualities of infrastructure and open spaces, such as walkability and access to parks. Relatively little is known about how the design and use of buildings may affect health, including the most important kind of building in the built environment: the home. This research helps to fill this gap by using a rich survey data set from the Phoenix region to explore how the design of the home—whether the home is oriented to the car or not—and the tenure of its occupants relates to one aspect of health, happiness.

To start, I will use descriptive statistics and econometric modeling to investigate two often-cited assumptions about housing design, tenure, and wellbeing. The first assumption is that people who live in more human-, rather than automobile-, centric homes are happier. The features of the home that comprise a human- vs. automobile-centric design, including the location and size of the garage and driveway, the presence of a porch, and the visibility of the front door and windows from the street, will be captured through a windshield survey of participants' neighborhoods. The second assumption is that people who own their homes are happier. Participants' tenure is self-reported in the survey data. I will attempt to isolate these relationships by accounting for other individual and neighborhood characteristics that likely relate to happiness, such as income and age. I also will partly control for self-selection bias, or the tendency for happier people to live in communities with particular qualities, by accounting for participants' satisfaction with the quality of housing in their neighborhood.

Next, I will examine the role that two intervening factors—perceived social capital with neighbors and identification with one's neighborhood—may play in the relationships among housing design, tenure and happiness. I expect to find that people who live as owners in more human-centric homes are happier, because these qualities may encourage them to engage and invest more in their neighborhood, which may lead them to have higher social capital with their neighbors and identify more strongly with their neighborhood.

Overall, this research stands to build on emerging research on the link between housing and health by offering new insights on whether and how the design and tenure of the home may affect happiness, which could have broad implications for how local governments regulate housing development.

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Key Words: housing, design, tenure, happiness, social capital

DISPARATE DISCRETION: BUILDING INSPECTIONS AND THEIR CONSEQUENCES FOR HOMEOWNERS AND RENTERS

Abstract ID: 340

Group Submission: Perception Meets Reality: Subjective Assessments of Housing and Neighborhoods

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Who has the power to decide what counts as decent or substandard housing, and how do these decisions matter for residents? My mixed methods study of municipal building inspections in Chicago connects on-the-ground interpretations of building conditions to city-wide patterns in housing inequality, tracing the intentions of inspectors and the ramifications of their actions. I draw on an ethnography of building inspections in action and observations in housing court, coupled with statistical analyses of housing and rental market data.

My research shows that building inspectors in Chicago bend the rules for low- and moderate-income homeowners by not levying fines and not insisting they make repairs, or by recommending how to fix issues cheaply and still pass an inspection. On the other hand, inspectors target professional landlords, wealthy homeowners, and speculators by nitpicking and dragging them through red tape. The white, working-class background of most building inspectors means that they have an affinity for the little guy for whom the odds are stacked against, and contempt for exploitation; in their work that means the struggling homeowner, and the negligent landlord, respectively. However, their actions backfire. Landlords raise rents in response to inspectors' punitive allocation of violations and fines, low-income homeowners lose value on their homes when inspectors do not mandate that they make repairs, and inspectors often go easy on gentrifying newcomers because they are homeowners. Inequality prevails - albeit through different mechanisms for renters and homeowners - due to the structure of the housing market.

Citations

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Key Words: housing

TRACK 6 – INDIVIDUAL ABSTRACTS

DOES NEIGHBORHOOD SOCIAL MIX LEAD TO CROSS-GROUP SOCIAL INTERACTION? A CASE STUDY ON THE ISLE OF DOGS, LONDON, UK.

Abstract ID: 17

Individual Paper Submission

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As seminal works drew attention to residential segregation and concentrated poverty (Wilson, 1987; Massey and Denton, 1993), countries around the world, including the US and the UK, adopted social mix policies, or policies that promote socio-spatial integration by diversifying levels of income and forms of tenure in an area, to counter negative neighborhood effects. Mixed communities, or mixed-income and mixed-tenure neighborhoods, have been theorized to confer benefits more commonly enjoyed by higher-income groups to lower-income groups, such as social capital and upward mobility, thereby improving their welfare and life chances. However, such theorizations are predicated on the assumption that people of different social groups, when placed to live in proximity, will socially interact, form relationships, and exchange information. There is relatively little literature on whether this assumption holds true.

In order to address this gap, this paper poses the following questions. Does residential proximity create social interaction potential, as measured by spatio-temporal joint accessibility of everyday activity spaces (Farber et al., 2014)? Do residents living in mixed communities take advantage of the opportunities for cross-group social interaction? Why or why not, and what are the implications for planning and housing policies going forward? To answer these research questions, the paper devises an innovative methodological framework that triangulates quantitative analysis of the 2011 census, spatial analysis of 39 residents' activity spaces, and qualitative analysis of the same residents' reported experience of social interaction in the case study area—a mixed community neighborhood on the Isle of Dogs, London, UK.

The paper has three key findings. First, a mixed community remains difficult to define in terms of composition, concentration, and scale (Galster, 2010). A multi-scalar analysis of census data reveals a number of mixed communities, some more mixed than others, at varying geographical units in the case study area. Second, proximity in the residential space does not necessarily increase social interaction potential. Residents belonging to dissimilar social groups use different spaces for their everyday needs, living somewhat of parallel lives within the neighborhood. Third, proximity in the residential space and even increased cross-group exposure do not necessarily reduce social distance. Some limited social interactions occur in the shared spaces, but most respondents are less than enthusiastic about social interaction in general, while some demonstrate strong perceptions of different social groups as 'the other'.

The paper adds to a growing body of literature that explores the relationship between mixed communities and social interaction and, in particular, makes a methodological contribution by putting forth a unique research design involving triangulation of quantitative, qualitative, and spatial analysis methods. Furthermore, the findings have important implications for planning and housing policies; they challenge the theorized social-interactive mechanism of positive neighborhood effects and more broadly the ‘mixed communities consensus’ (Arthurson, 2012), especially in light of the emerging criticisms of social mix policies for their costs to the poor and the marginalized (Bridge et al., 2012).

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Key Words: Social mix, Mixed community, Neighborhood effect, Segregation

THE EFFECTS OF HOME PURCHASE RESTRICTIONS ON LOCAL HOUSING MARKETS IN CHINA

Abstract ID: 22

Individual Paper Submission

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China’s central government introduced home purchase restrictions (HPR) to cities with high home price levels in 2010 to reduce speculative demand and improve affordability. Widely believed as one of the country’s harshest housing market interventions, the HPR policy was first implemented in Beijing in April 2010, followed by most major cities. Previous studies treat HPR as an exogenous demand shock but find inconsistent effects on home prices across cities. In particular, studies using micro data discover opposite price effects of HPR between Beijing and Guangzhou. We believe there has been a misconception of the policy process of HPR, which should be considered as an exogenous demand shock only in Beijing, with the national effects of HPR compromised by the strategic reactions of the local governments in other cities. Specifically, we hypothesize that the rational response of buyers and sellers permitted by the strategic local implementation of the HPR policy produced housing market effects different from what happened in Beijing. Using aggregated monthly housing market data from a panel of major cities during 2009-2016, we confirm the different price effects of HPR in other cities from those in Beijing. Moreover, local governments strategically timed the implementation of HPR, which assisted the rational responses by buyers and sellers and at least temporarily counteracted the policy goal of the central government. Policy makers could learn from this in order to design future policies that minimize unintended consequences.

Citations

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Key Words: home purchase restriction, home price, timing of adoption, city, China

INSTITUTIONAL PERSPECTIVES AND HOME-OWNER OUTCOMES FROM THE CHICAGO HOUSING AUTHORITY'S CHOOSE-TO-OWN (CTO) PROGRAM

Abstract ID: 24

Individual Paper Submission

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Low-income home ownership facilitation has received little space in academic debates since the housing crisis of 2008. If anything, research has advocated against ownership as the risks associated with owning are thought to increase intrinsic vulnerabilities of low-income and minority families owing to their income volatility, housing and labor market downturns, and most importantly lack of assets to rely upon (Reid 2013, Kingsely, Smith and Price 2009, Wolff 2001). Mortgage market discrimination (Bocian et al. 2011) and spatial inequities (Galster and Sharkey 2017) further exacerbate these risks.

However from a social justice and public policy stand point, provision of a conducive policy and institutional environment for low-income families to benefit from ownership, continues to have the potential of being an important anti-poverty intervention, one that holds the promise of reducing racial wealth gaps in the United States (McCargo and Strochak 2018). More importantly the poor and minorities continue to associate homeownership with upward mobility, achievement and full citizenship (Drew and Herbert 2013; Grinstein-Weiss et al. 2011; Reid 2014; Rohe and Lindblad 2014). Evidence from projects like the Community Advantage Program (CAP) show that a well-designed mortgage product, along with appropriate subsidy and handholding, substantially increase chances of success at building equity and leveraging of benefits from homeownership for low-income and racial minority families (Quercia, Freeman, and Ratcliffe 2011; Manturuk, Lindblad, and Quercia 2012).

This paper employs a mixed-methods program evaluation framework to examine institutional processes and outcomes from another such program – the Chicago Housing Authority's (CHA) voucher based Choose-To-Own (CTO) program. Utilizing the HUD family report dataset from 2002 to 2016 for the city of Chicago and institutional interviews with CHA and its partners, we explore the following research questions. How does the CHA and its partners work to reduce low-income risk over the 15 years of facilitation? Does the program reduce propensity for tenure-transitions and foreclosure risk? We answer these questions by examining the structure of pre-purchase, post-purchase and post-program support offered by institutions; and by assessing longitudinal variations in family assets, liabilities; and by constructing future ownership trajectories.

CHA reports suggest that 1/4th of the program participants have assumed full mortgage responsibility and have moved out of the program. The CTO program could thus have demonstration value not only in fostering innovative partnerships and multi-faceted support (Rohe and Stewart 1996), but may also serve to show that sustained long-term facilitation (Elugardo and Klein 1998) can help even ‘very low-income families’ (50 to 80% of area median income) on the path to residential stability and upward economic mobility.

Citations

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Key Words: Homeownership, Low-income, Program evaluation, Institutions, Economic mobility

HOW DO HOUSING AFFORDABILITY AND TENURE TYPE IMPACT AN INDIVIDUAL’S RISK OF EXPERIENCING HOMELESSNESS? EVIDENCE FROM NEW YORK CITY

Abstract ID: 47

Individual Paper Submission

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In many housing markets around the world, rent and home prices have increased to unprecedented levels and become unaffordable, particularly for low income households. This lack of affordable housing supply and options has significant implications for access to housing and is often cited as a key contributor to substantial recent increases in homelessness (O’Flaherty, 2004). While the link between housing market fluctuations and trends in aggregate homelessness levels is well-established in the public health and urban economics literature, a compelling body of evidence exploring how an individual’s housing context relates to their risk of becoming homeless does not exist. To address this gap, this article advances a ‘multistate’ econometric approach to measuring the relationship between homelessness and housing tenure type, affordability, and assistance level over time. This approach is applied to data from The New York City Longitudinal Survey of Well-Being, a representative panel of New York City adults surveyed at three-month intervals over the two-year period between 2013 and 2015. A series of multilevel multinomial logistic regressions are specified to analyze the interrelationship between states of housing insecurity, including homelessness, and different housing tenure types such as homeownership, voucher-

assisted renting, and public housing occupancy. Results will inform planners' and policymakers' efforts to target scarce government resources toward reducing homelessness by strategically increasing housing security and affordability for those who are most vulnerable.

This research contributes to our understanding of the link between housing and homelessness by addressing several substantive and methodological gaps in the literature. First, existing studies assessing the relationship between housing and homelessness typically observe links between metropolitan- or city-level housing market characteristics and aggregate levels of homelessness (e.g. Hanratty, 2017) and thus fail to identify specific housing-related mechanisms contributing to an individual or family's path to homelessness. This article overcomes this limitation by utilizing panel data including a rich array of participants' housing characteristics, enabling inferences about the relationship between an individual's housing arrangement and their risk of homelessness. Second, the few other studies using panel data to assess predictors of homelessness at the individual level are beset with methodological and theoretical limitations. Research in this vein (e.g. Shinn et al., 2007) commonly relies on stepwise regression models applied to samples of already-homeless individuals which results in challenges interpreting statistical outputs and the limited generalizability of findings. The present study brings a more sophisticated econometric design to bear on data representative of the entire New York City adult population. Third, despite increasing evidence that neighborhood characteristics often relate to housing and health outcomes in important ways (Desmond & Kimbro, 2015), few empirical studies of pathways to homelessness investigate the interrelatedness of neighborhood characteristics, housing quality, and homelessness. Because the panel data used here include participants' locations, this study is able to incorporate several neighborhood covariates which inform inferences about whether various neighborhood characteristics impact housing's link to homelessness and reinforce notions of homelessness' multidimensionality (Somerville, 2013). In summary, this article's longitudinal, multistate approach, individual-level data, and neighborhood covariates enable a nuanced analysis of the roles housing tenure type, affordability, and assistance level play in the path to homelessness, thereby providing valuable information to policymakers seeking to prevent homelessness with housing-oriented interventions.

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Key Words: Homelessness, Housing Tenure, Affordable Housing, Neighborhood Quality

“I DIDN’T RAISE YOUR RENT, THE MARKET DID”: HOW PROFESSIONAL AND AMATEUR LANDLORDS SET RENTS IN SMALL RENTAL PROPERTIES

Abstract ID: 96

Individual Paper Submission

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Rental affordability is a serious problem across the US. Renter cost burdens remain at historically high levels with approximately 47% of renter households paying 30% or more of their income on housing. While much of the rising cost pressures on renters can be attributed to economic and demographic shifts there have also been substantial changes in who owns rental properties and how they are managed that might contribute to rising rents.

The upper boundaries of rents are usually determined by market forces. Lower boundaries are usually determined by the expenses of owning and managing a property. Within these boundaries owners and managers set rents, but how they do so is poorly understood, particularly in the stock of 1- to 4-unit properties. Many of these properties are owned by amateurs, with small portfolios and full time employment that is unrelated to real estate. Scholars have theorized a number of reasons, from the economic to the personal, why amateur owners might set rents at lower levels than professionals (Downs, 1983; Gilderbloom & Appelbaum, 1988). However there is only limited evidence that this is the case, largely due to a lack of data on rents and rental property ownership (Ellen, Been, & Gross, 2013; Stegman & Sumka, 1976).

To discover how different owners set rents I designed and conducted a large survey of small rental property owners. The survey asked owners and managers what factors they considered in setting rents and asked about current and past rents for their units. The survey provides data that are used to show the link between the factors used in rent setting and specific rent outcomes. The survey was conducted on a stratified random sample of over 30,000 owners in the top 150 metro areas in the US.

The objective of this paper is to determine (i) whether there is a generalizable difference in the rent outcomes for professionally-owned units relative to units owned by amateurs and (ii) if there is a difference, whether the difference is attributable to the owners themselves. The paper presents results examining the connection between ownership and two specific rent outcomes: whether an owner knowingly sets rent at below-market levels and the “stickiness” of rent, i.e. the decision to not change rents over a two-year period. I categorize owners using a few of the definitions that have been used to distinguish professionals from amateurs including: portfolio size, the use of corporate entities to hold property, and the proximity of the owner’s residence to their rental property.

1- to 4-unit properties collectively provide about half of the nation’s rental housing stock. Because these properties tend to have larger units than units in multifamily buildings, they are disproportionately the homes of renter families with children. Understanding how rents are set in these properties is important to understanding the drivers of cost-burdens for renter households, particularly renter households with children.

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Key Words: rental housing, affordability, landlords

ADDRESSING CHALLENGES POSED BY THE YEAR-15 TRANSITION IN LOW-INCOME HOUSING TAX CREDIT PROJECTS: LESSONS FROM DETROIT

Abstract ID: 152

Individual Paper Submission

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Central Themes

This study examines the year-15 issue for the Low-Income Housing Tax Credit (LIHTC) Program, the country's largest affordable housing production program. Under the LIHTC program, investors who have made equity investment in affordable housing projects in exchange for tax credits must ensure affordability is maintained for 15 years. After year 15, most investors would seek to transfer their ownership interest to general partners or third parties. Ownership restructuring is thus common at year 15. While projects are required to maintain affordability for another 15 years, the federal government provides no oversight or funding to support this. Ensuring that LIHTC properties can continue to operate as decent affordable housing after year 15 has largely become a state and local responsibility.

Only three studies have examined the outcome of the year-15 transition for LIHTC projects (Schwartz and Meléndez 2008; Meléndez et al. 2008; Khadduri et al. 2012). All were conducted at the national level and all are a decade old. No studies have examined what specific challenges the year-15 transition may pose for LIHTC properties at the local level. Consequently there have been no writings on what efforts can be made at the state and local level that would help address those challenges.

Approach and Methodology

For over three years, we have been working with city leaders and LIHTC industry stakeholders including nonprofit developers and syndicators in Detroit to examine the year-15 challenges for LIHTC projects in Detroit and what could be done to address them. Our research approach includes meetings with community partners to identify research needs, collection and analysis of data from a variety of sources, and interviews of LIHTC industry experts both inside and outside Detroit. At last year's ACSP conference we presented data and analysis to identify the specific challenges in Detroit. This paper focuses on examining the efforts that have been made in Detroit to address them. In addition, we have also identified year-15 practices from other localities that are relevant to Detroit. We summarize what we have learned from these different sources and offer recommendations for housing policymakers and practitioners on what could be done at the state and local level to help produce a positive outcome for the year-15 transition, which is critical for LIHTC projects to continue operating as decent affordable housing for the next 15 years and beyond.

Findings

Due to the complexity of the LIHTC development financing, we find that the first task for the state and local actors who are interested in preserving LIHTC housing after year 15 is to bring together all the key stakeholders associated with those projects. Identifying the role and responsibility of each stakeholder and how they are likely to change after year 15 is important in developing coordinated strategies to address the challenges that year 15 may bring.

We also find that one critical component in the year-15 efforts we studied is to develop technical capacity for data collection and analysis so that all parties could have an accurate assessment of the conditions of the LIHTC projects approaching year 15 and the risks they face.

With the risk assessment, the core task of the year-15 efforts involves identifying resources to address the potential risks. Risks can vary among individual projects, ranging from financial needs to organizational capacity issue as well as changing market conditions that may lead to the conversion of some LIHTC projects into market housing.

Due to the constraint of resources, we find that prioritizing resource allocation is often needed. But this can cause difficulties for some LIHTC projects and may result in neighborhood disinvestment in the future.

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Key Words: Affordable Housing, Preservation, Strategies

INVESTIGATING SERIOUSLY DELINQUENT MORTGAGES IN MEXICAN NEIGHBORHOODS IN METROPOLITAN STATISTICAL AREAS IN THE UNITED STATES

Abstract ID: 225

Individual Paper Submission

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While many scholars have extensively discussed the relatively high foreclosure rates in Hispanic/Latino neighborhoods in the United States, few have focused on the differences among neighborhoods with Mexican subgroups. This manuscript analyzes publicly available NSP 3 data from the U.S. Department of Housing and Urban Development and 2005/2009 American Community Survey (ACS) data from the U.S. Bureau of the Census. Based on descriptive statistics and Weighted Least Squares (WLS) regressions, it investigates rates of seriously delinquent mortgages in Census tracts for all Metropolitan Statistical Areas (MSAs) in the United States. Results show that neighborhoods with Mexican Census tracts had relatively high rates of seriously delinquent mortgages compared with other groups.

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Key Words: Housing, Foreclosure, Ethnicity

PROPERTY TAXES AND ELDERLY HOUSING

Abstract ID: 228

Individual Paper Submission

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As the giant baby boomer generation born between 1946 and 1964 has been a dominant force across many sectors of the housing economy in the United States, there have been considerable interests in the housing choices made by the elderly, which generally suggest several reasons for expecting homeowners to make the transition to rental status or downsize to smaller homes during retirement. This study attempts to shed light on the reasons why the elderly make a downward transition from homeownership, especially focusing on the significance of property taxes on elderly mobility. This study uses the six waves of the Health and Retirement Study (HRS) survey from 2004 through 2014. In addition to the public HRS data, I obtained restricted access to household level geographical identifiers. These identifiers allow me to identify the residence location for each household at the time of each survey interview. The identifier is crucial because it links households to several variables to capture the housing and labor market. Methodologically, the research adopts the competing risk framework of leaving homeownership and estimate the effect of renting and downsizing simultaneously. The competing-risks survival regression provides a useful alternative to Cox regression in the presence of one or more competing risks. Renting and downsizing are considered competing risks because, when the elderly are likely to consume their home equity in the retirement, they preclude action on the other. This study seeks an assessment of the affordable housing needs of seniors under rising property taxes, providing insight into understanding seniors' housing tenure decisions that lead to becoming renters or downsize to smaller owned homes before, during, and after the Great Recession. As the baby boomers start to retire, the evidence for old adults is growing in importance. Estimates of the elasticity of elderly mobility with respect to property taxes will help state and local government design fiscal policies that retain and attract elderly homeowners in their jurisdictions.

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Key Words: Elderly housing, Property tax, Homeownership

ASSISTING RENTERS: LANDLORD AND TENANT EXPERIENCES OF A RENT SUPPLEMENT PROGRAM IN MANITOBA, CANADA

Abstract ID: 238

Individual Paper Submission

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Manitoba's Rent Assist supplement program pays the difference between 30 percent of a household's income and 75 percent of median market rent directly to the household. It is available to any household below a given income threshold, including those receiving welfare. The low-cost end of the rental housing market in Canada is primarily made up of private rental housing. While public, nonprofit and cooperative housing certainly play an important role, there is simply too much demand and not enough of these kinds of housing to address housing need through nonmarket means (Suttor, 2016). Rent Assist is intended to support households in creating housing security and stability for themselves and their families in both social and private market housing. As such, it offers a way for tenants to find housing that meets their needs, and for housing providers to provide better quality housing.

It is expected that private market landlords would be pleased with Rent Assist, as it provides their low-income tenants with greater incomes—and thus greater capacity to pay rent—than they would otherwise have had. As a program universally available to those below a certain income cut-off, Rent Assist has the potential to eliminate affordability-based housing need. However, it doesn't necessarily address other aspects of housing need. Low-income tenants may face barriers to housing that cannot be fixed with a simple infusion of cash. At 75 percent of market rates, rents may be too low to allow landlords to maintain their units in good condition. Low vacancy rates, increasing rents, and a decline in the number of rental units make it difficult for many tenants to access housing (Brandon, 2014). Many tenants' access to housing is also limited by other barriers, including racism and a lack of adequate identification or credit. Increased income is unlikely to resolve these issues.

This paper explores the impact of Rent Assist on the private rental market in Manitoba. Through focus groups and interviews with tenants and landlords in urban, rural and northern areas, it examines the advantages or barriers for access to housing with Rent Assist, as well as the gaps in both the Rent Assist policy and in the broader housing system that need to be addressed to enable universal access to good quality housing. It considers how Rent Assist support tenants' access to housing in reality, not just in theory, as well as how it may affect the capacity and willingness of private market landlords to continue to provide low-cost housing.

By exploring the tenant experience with Rent Assist, this research expands the definition of housing need beyond affordability. It also contributes to the relatively small body of qualitative research that explores the role and experiences of landlords in low-cost housing provision (e.g. Desmond, 2016, Aubry et al. 2015; Allen and McDowell, 1989). As such, this research has the potential to inform rent supplement policy in Canada. As the National Housing Strategy's new Canada Housing Benefit—which is intended to provide up to 300,000 households with a portable rent supplement—is developed, learnings from Rent

Assist may contribute to a policy and program that are more directly responsive to both tenants' and landlords' needs.

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Key Words: housing, rent supplement, Canada, rental housing

OVERCROWDING AND LEARNING IN THE CITY: SHANGHAI'S BED SPACE RENTALS FROM A LIFE-COURSE HOUSING PERSPECTIVE

Abstract ID: 265

Individual Paper Submission

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China's ongoing urbanization is the physical expression of millions of people wanting to be part of the country's flourishing urban economies. With post-industrialization, jobs increasingly concentrate in urban areas and the "urban pull" has intensified. Cities are centers of services and employment. But the benefits of being in the city are priced into urban land, making cities increasingly unaffordable. While planners struggle to re-imagine the absorptive capacities of cities, people –and urban newcomers especially– are reconfiguring space in the city to work for them.

I study the housing consumption of highly educated migrants that are "transitionally poor" and come to Shanghai to "learn in the city". Neglected by official policy making, and with low starting salaries, rural high-skilled migrants live in illegal, overcrowded dormitories as a means to afford expensive urban living and to get a foothold in the city's highly competitive labor market. This niche informal market for just a bed that caters to this overlooked demographic is distinctive from conventional wisdom about informal housing: recent graduates live here temporarily and in locations with good access to jobs and opportunities, integrated in the formal build environment.

To study this housing phenomenon I draw on a mixed methods research design that synergizes the opportunities of critical digital data analysis with ethnography. I scraped, cleaned, analyzed, and mapped more than 33,000 geocoded online postings advertising bed spaces for rent in Shanghai and field-verified the internet data with market surveys. Additionally, I spent this past summer living in one of the crowded units, conducting interviews with my fellow renters, landlords, and policy analysts.

I found that bed space rentals cluster at the edge of the inner city. Typically, three bedroom co-ed apartments house an average of 24 tenants. The spatial pattern is owed to the fact that renters trade-off personal space for access: as newcomers to the city and the labor market they need to locate close to their jobs, but starting salaries don't allow them to pay high downtown rents. Long hours prevent them from paying for more personal space with their time. Delayed returns to education are the result of China's higher education policy and make them "transitionally poor". For these high skill, low income migrants a job in the big city is a human capital investment. Aspiring to upward mobility, they see their living situation as a stepping stone, a necessary, but temporary means to building a career.

The findings have implications beyond the Chinese case. The particularities of this market reflect the China context, but the trends of "emergent adulthood", changing renter demographics, and increasing labor mobility are felt globally. However, the spatial outcomes have received little academic or practical consideration. To design more efficient and equitable land uses in growing cities, we must understand how these trends translate into housing needs and act accordingly. Studying the existing informal solutions and renters' tradeoffs can inform new, practical models of denser, less private urban living.

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Key Words: Life-Cycle Housing, Migrant Housing, Rental Markets, Informality, Urban China

THE FALLACY OF FILTERING DOWN: A CRITIQUE OF THE YIMBY MOVEMENT AS A FORM OF HOUSING FILTERING

Abstract ID: 278

Individual Paper Submission

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The housing market and the processes within are extremely complicated due to the fact that it is impossible to distinguish problems associated with housing allocation from issues regarding economic growth. One process that works within both spheres is filtering. Simply put, filtering is the process in which housing is passed down from one income group to a lower income group as a result of declining market prices (Ratcliff 1945). This would then allow for substandard housing to be freed up and taken off the market. While this complex concept is approximately one hundred years old and is used amply, there is still much that remains to be understood about how this process operates and what policies need to be in place in order for it to truly provide benefits for people at each and every income level or housing market strata. This paper will delve into a deep understanding and critique of the filtering process as described by Ratcliff's 1945 seminal piece, "Filtering Down and the Elimination of Substandard Housing." Some of the issues with this theory that are critiqued include the conflict with efforts of historic preservation, filtering up due to gentrification, and the inability for the mechanism to successfully operate within a capitalist society.

Based on the critique of the Ratcliff's process of filtering down, this paper then turns to the YIMBY ('Yes In My Backyard') movement discourse that has become prominent over the past decade. The YIMBY movement, which formed out of pro-development groups, focuses on lowering rising housing costs by supporting the new production of housing, especially near jobs and transit. This paper critiques the objectives and philosophies of the YIMBY movement as well as what it has accomplished in order to examine this movement as a form of housing filtering and to see if it is successful as a method of filtering down (removing substandard housing from the market and providing affordable housing within the US neoliberal, capitalist society).

In 1945 when Ratcliff published his seminal piece, he seemed hopeful that the dynamic of filtering down, under the right conditions and with policies in place, would be a process to cure the substandard housing ills. The fact that we are still left positing the question of whether filtering down will work 74 years later also explains why there have been substantial disagreements within housing literature regarding the notion of filtering (Baer and Williamson 1988). Unless there are drastic interventions in the process of filtering, the theory will remain flawed in being able to provide affordable housing for the poor and removing substandard housing from the housing market.

Citations

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Key Words: Gentrification, Housing Filtering, Resident Displacement, Substandard Housing, YIMBY

RIGHT TO THE CITY: HOUSING AFFORDABILITY FOR MIGRANT WORKERS IN CHINA

Abstract ID: 294

Individual Paper Submission

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Over the last two decades, scholars from sociology, political science, economics and urban planning have questioned for housing security system for migrant workers, in terms of urban housing provision (Wu 2004), invisible migrant enclaves (Huang and Yi 2015), and urban village redevelopment (Liu and Wong 2018). The general disadvantage experienced by migrants has much of its root in the institutional restrictions associated with the hukou system that outweigh the combined effects of socioeconomic factors (Wu 2004). There is a dual land system in China, with rural land owned by rural collectives, and urban land owned by the state. The recent reform on urban governance and housing policy in China have tremendous impacts on the living conditions of migrant workers, especially in the context of the current implementation of the regulations on housing rental market. This study argues that firstly the lack of "security housing for all" has pushed migrant workers to live in informal housing. Second, elimination of

informal housing caused eviction of migrant workers. Third, standardization of informal housing led to gentrification; it further worsen the situation that migrant workers cannot find a place to stay on their original site which is close to their job locations. This study is built on field research trip between 2017 and 2018 in Shenzhen, Shanghai and Wuhan investigating government subsidized housing system and the living conditions of low-income migrant workers. This research suggests that city government, enterprises, and village should work together to renovate “urban village” and include it into affordable housing system. The study of right to the city in housing affordability in China adds to the state-capital discussion.

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Key Words: affordable housing, migrant workers, China

FINDING COMMUNITY WHEN HURRICANES HIT HOME: DISASTER DISPLACEMENT FROM PUERTO RICO IN THE AFTERMATH OF HURRICANE MARIA

Abstract ID: 308

Individual Paper Submission

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NGUYEN, Mai [University of North Carolina at Chapel Hill] co-author

Hurricane Maria struck the island of Puerto Rico on September 20, 2017 as a Category 4 hurricane. It was the worst storm to hit the island since 1928. The storm tracked across the island with a northwest trajectory, causing widespread flooding, mudslides, billions of dollars in damage, and the destruction of essential infrastructure (Meléndez and Severino 2017). Hundreds of thousands of individuals fled in the aftermath of the storm, leaving the island and settling across the mainland United States. The literature discussing the reasons for displacement is well established, with intuitive findings. However, there is scant research on where individuals go when they are displaced and what aspects of their destinations influence their decisions to remain or to return.

This paper uses a proprietary data set aggregated from cellphone data to track the movement of populations between counties in the mainland USA and Puerto Rican municipios from the date of the hurricane to six months after, at monthly intervals. The data tracks over 400,000 individuals who left Puerto Rico for the mainland USA, and over 200,000 who subsequently returned to Puerto Rico. Using this dataset, we examine the characteristics of counties on the mainland where disaster migrants settled to address two questions: 1) Are disaster migrants displaced to areas with comparatively low-levels of vulnerability? And 2) Do patterns of settlement by post-disaster migrants resemble pre-disaster migration trends?

The first question builds off of previous literature focused on housing opportunity and residential mobility in the context population shifts that occurred in the aftermath of Hurricane Katrina. Previous work has shown that a comparatively high number of households were able to use Hurricane Katrina as a catalyst to

leave disadvantaged neighborhoods (Graif 2016). Our hypothesis posits that, to the extent that displaced individuals have sufficient choice (supported by appropriate information and funds), they will select areas with more resilient community indicators and better socio-economic characteristics. Further, complimenting the existing literature that shows that more vulnerable populations are less likely to return (Peacock et al. 2014), we argue that those who succeed in settling in more resilient communities will be more likely to remain long-term.

Second, this paper asks if the patterns of individuals and households leaving disaster-affected areas replicate existing pre-disaster migration patterns (Black et al. 2011). Our hypothesis posits that the presence of mainland Puerto Rican populations may be indicative of extended social networks that could reduce the social and economic costs associated with migration, and therefore provide insight into destinations with better opportunities. Our initial findings suggest that previous migration patterns are highly significant in identifying initial post-disaster destinations, while their importance diminishes in explaining whether individuals remain in destination locations or return to Puerto Rico. This may indicate that the social support is more valuable initially, but that economic factors become more important in the decision to stay.

To demonstrate these findings, we use a multi-level regression model across two geographic levels to compare the impact of variables rooted in different theoretical perspectives in a manner designed to better integrate the existing literature. This leverages our findings to influence both the migration and housing mobility fields, with consideration for both economic and community development. Additionally, because our initial findings strongly suggest that understanding pre-disaster migration patterns can predict post-disaster migration trends, this work will have significant policy implications. Understanding pre-migration trends across different racial and ethnic groups can allow planners and policymakers to prioritize where resources and support should be allocated in the aftermath of major disaster events.

Citations

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Key Words: Residential mobility, migration systems, displacement, quasi experimental, disasters

HOUSING RELOCATION AND DEPRESSION: UNRAVELING THE MENTAL HEALTH OUTCOMES OF HOPE VI HOUSEHOLDS

Abstract ID: 310

Individual Paper Submission

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Planners are increasingly interested in creating communities that foster positive mental and emotional health outcomes (Pfeiffer & Cloutier, 2016). Some scholars suggest that housing relocation and neighborhood mobility programs can help advance this goal, as these programs help participating families exit distressed, high-poverty neighborhoods (e.g. Alegria, Perez, & Williams, 2003; Leventhal & Brooks-Gunn, 2003). However, there is still limited knowledge of how various compositional (e.g. age, race) and contextual (e.g. housing quality, social support) factors mediate the impacts of housing relocation and neighborhood mobility on mental health (Osypuk et al., 2012; Popkin, Levy, & Buron, 2009).

In response, this paper analyzes changes in depression symptoms among a small panel (N=75) of low-income households displaced from distressed public housing in Charlotte (NC) through the HOPE VI program. Although small, this panel provides for a powerful analysis because we can analyze changes in depression symptoms across three critical time periods: (T1) six months prior to relocation; (T2) two years after relocation; and (T3) five years after relocation. Thus, we can control for a variety pre-relocation factors that may mediate post-relocation mental health outcomes and distinguish between the short- and long-term effects of housing relocation on mental health.

The specific goals of this study are to (1) classify subgroups of “relocatees” who experienced similar trajectories of depression across the study-period and (2) identify what factors predict relocatees trajectories of depression. We accomplish these goals using a three-stage, mixed-method research design:

Stage 1: Using Optimal Matching (OM) and K-mean cluster analysis techniques, we identify subgroups of relocatees that experienced similar trajectories of depression symptoms across the study period. We then conduct a descriptive analysis of the demographic makeup of each subgroup to determine whether members have any common attributes.

Stage 2: Using OLS regression, we analyze how relocatees’ perceptions of their former public housing community and compositional characteristics are associated with their depressive symptoms at T3. This allows us to examine how relocatees’ pre-relocation circumstances are associated with their post-relocation outcomes.

Stage 3: Based on stage 1 and 2 findings, we analyze relocatees post-relocation interview transcripts to identify: (1) what aspects of HOPE-VI relocation residents described as most stressful; and (2) how, if at all, residents co-associate their relocation experience with their mental health. The goal of this stage is to contextualize and clarify the differences in relocatees' trajectories of depression symptoms.

We have already completed stage 1 and stage 2 of our analysis. Our initial findings indicate that relocatees who exhibited depressive symptoms prior to relocation reported substantial changes – both positive and negative – following relocation, and that relocatees who perceived their pre-relocation public housing community as “very unsafe” experienced significant reductions in depressive symptoms. We also find that elderly households experience significant mental health benefits from housing relocation.

Citations

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Key Words: low-income housing policy, housing relocation, neighborhood mobility, mental health

ADVANCING CHOICE IN THE HOUSING CHOICE VOUCHER PROGRAM: SOURCE OF INCOME PROTECTIONS, USAGE RATES, AND LOCATIONAL OUTCOMES

Abstract ID: 325

Individual Paper Submission

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The Housing Choice Voucher program is the largest source of federal rental assistance in the country. A key aim of tenant-based vouchers is to expand the housing (and neighborhood) choices of recipients. Yet two key criticisms of the voucher program relate directly to choice namely that a sizable share of voucher recipients fail to successfully lease housing with their voucher, and that those who do, tend to be concentrated in a limited number of neighborhoods that are highly disadvantaged.

A key hurdle is landlords. The voucher program is unusual among social programs in that take-up requires both tenant and landlord participation. A recently commissioned HUD audit study of landlords in five different markets reports alarmingly high denial rates, ranging from 78 percent in Fort Worth, Texas to 15 percent in Washington, D.C. (Cunningham et al., 2018). A few excellent qualitative studies shed some light on the landlords who choose to participate in the voucher program. Based on interviews with 127 landlords in Baltimore, Dallas and Cleveland, Garboden et al (2018) report that voucher landlords appreciate the reliable rent payments and low turnover among voucher tenants. Yet many are still wary of serving voucher holders because of their pre-existing stereotypes about how they will behave as tenants. Further, landlords complain about burdensome inspection systems and other bureaucratic impositions.

Source of Income (SOI) protection laws are often lauded as a possible solution, but the existing empirical evidence yields mixed results (e.g., Freeman 2012; Freeman and Li 2012). This paper extends earlier work by assessing a broader set of impacts at a lower level of geography, including directly assessing whether new landlords enter the program after the adoption of SOI laws. We draw on a combination of datasets, including longitudinal HUD data on the universe of voucher holders across the country, PHA data on voucher utilization, and a rarely used HUD dataset on voucher landlords. We employ a difference-in-difference approach, comparing voucher holder outcomes in jurisdictions before and after SOI protections are adopted to voucher outcomes for nearby public housing authorities (PHAs) but in jurisdictions without such protections. We begin by looking at voucher usage, captured by both PHA

utilization rates and, where data permit, success rates (or the share of voucher recipients who successfully lease up). We also examine changes in the composition of new voucher recipients, as well as changes in a range of neighborhood characteristics (including the quality of nearby schools) of new voucher recipients, and those of existing recipients who move, separately by race and family composition. Finally, going to a finer grain of geography and exploiting the HUD data on landlords, we test whether SOI protections appear to expand the number of buildings and landlords that accept voucher households.

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Key Words: Voucher, Discrimination, Landlords, Neighborhood

OPPORTUNITY WITHOUT ACCESS: ASSESSING CONFLICTING LIHTC SITING STRATEGIES

Abstract ID: 351

Individual Paper Submission

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The Low-Income Housing Tax Credit program (LIHTC) is one of the largest affordable housing programs in the United States in terms of the production of new units and the preservation of existing units. While the program is funded federally, states guide the allocation of tax credits and individual project selection through “Qualified Allocation Plans” (QAPs) that outline eligibility requirements and competitive scoring criteria.

In preparing QAPs, policymakers typically set requirements and criteria so that resultant projects best provide housing to low-income residents and lead to long-term improvement in their quality of life. On the one hand, policy has aimed to locate LIHTC housing in high-opportunity areas characterized by low poverty rates, high social cohesion, and an abundance of nearby opportunities. Research has shown that residents of low-poverty areas, particularly children, have better economic, health and educational outcomes compared to their peers in high-poverty and low opportunity areas (Chetty, Hendren, & Katz, 2016). On the other hand, policymakers have focused on providing housing with better public transit connectivity to reduce household transportation costs and increase job access (Nedwick & Burnett, 2015; Sanchez, 1999).

In many cases, these two goals have proven to be contradictory. LIHTC housing is generally located in high-poverty areas with poor access to labor markets, and environmentally degraded neighborhoods with

poor performing schools but with better transit opportunities (Ellen, Horn, & Kuai, 2018). A report published by the Poverty and Race Research Action Council showed that LIHTC housing in neighborhoods with good transit connectivity tends to be located in low-opportunity areas. In addition, transit stations are more likely to be built in neighborhoods with existing affordable housing as opposed to the construction of new affordable housing units being located near existing transit stations (Zuk, 2015).

Whereas, the literature on moving residents to high opportunity areas and connecting residents to transit separately show substantial benefits for the residents in terms of accessing employment, education and higher incomes over their lifetime, there is a gap in the literature connecting the two. It is important to further assess what effect these two competing location priorities, access to opportunity and connection to transit, have on travel times for LIHTC and other affordable housing residents using transit to get to major job centers. This study evaluates whether residents of LIHTC housing constructed in high opportunity areas in major cities in Texas spend more time traveling to job centers using transit than residents in low opportunity areas.

In the study, LIHTC housing in Texas cities is mapped against their location's opportunity designation, where opportunity areas are identified based on the definition used by the Texas Department of Housing and Community Affairs. Using geographic information system methods to calculate public transit travel times, the study assesses the time penalty paid by residents of LIHTC housing living in high opportunity areas as compared to their counterparts in low opportunity areas when accessing jobs by public transit. It is important to address this conflict between access to transit and opportunity in order to inform the development of policies that guide the location of LIHTC properties, allowing policymakers and housing advocates to better understand the impact of such policies on regional economic productivity and resident quality of life. It is important to balance opportunity and fair housing goals against resident needs as they relate to transit use to access employment.

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Key Words: Housing Policy, Low-Income Housing Tax Credit, Opportunity, Transit Access

ACHIEVING CULTURAL COMPETENCE AND RACIAL INCLUSION IN NEW URBANIST COMMUNITIES

Abstract ID: 369

Individual Paper Submission

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Planners are tasked with working collaboratively to develop plans that foster equity and inclusion. Further, major changes in the demographics of the U.S. elevate the importance of organizations and professionals who can effectively address the needs of a diversifying population. In short, an increasingly diverse society requires planners to prepare for building bridges and resolving conflicts in the communities they serve in order to limit disparities and effectively implement the values of equity and social justice in their mission delivery. New Urbanism seems to have a hard time delivering on these objectives (Talen, 2010; Trudeau & Kaplan, 2016; Markley, 2018). While, new urbanism is most identified with green fields, or new communities such as Seaside, Florida; Kentlands, Maryland; and the Disney town of Celebration in Orlando, Florida, new urbanist principles have also been used to revitalize urban brown field sites, comprehensive plans, regionally based transportation networks, and inner city redevelopment via the Department of Housing and Urban Development's (HUD) HOPE VI program and now Choice Neighborhoods Initiative (Choice). Moreover, although the Congress of New Urbanism (CNU), through HOPE VI and Choice aims to provide a broad range of housing types and price levels to bring people of all ages, races, and incomes into daily interaction in an effort to promote a sense of community – achieving diversity, particularly racial diversity in its projects, continues to be a challenge (Vale, 2013, Smith, 2002).

Choice builds on the HOPE VI program by continuing mixed-financing and public-private partnerships to replace low-income housing. Choice now extends eligibility to privately owned subsidized developments, and provides funding for projects to broaden revitalization efforts to the surrounding neighborhood through more comprehensive support services, education, and economic development activities. As part of Choice, there are three key components focused on housing, people, and the neighborhood. These transformation plans are much more comprehensive than those of HOPE VI in an effort to expand neighborhoods of choice for low-income residents. HUD has issued 79 Choice planning grants and 22 Choice implementation grants between 2010 and 2017.

Strategies for promoting more diversity in new urbanist developments have tended to focus on changing regulations or looking for more creative methods of financing. But what can be done to foster a more inclusive approach in the planning process itself? In this paper, I argue that new urbanism needs better insights about how an inclusive planning approach to building walkable, diverse neighborhoods might be achieved. Specifically, we need research that explores the ways in which cultural competency and racial inclusion might be cultivated. To answer this question, I present an example of how this research might be conducted, what it might show us, and how future research endeavors might be able to add to and solidify a growing knowledge base for cultural competency and racial inclusion in new urbanism. I do this through the lens of Yesler Terrace (Yesler), a Choice project in Seattle, WA, in which 23 interviews and archival document research were conducted. Using evidence from Yesler, this paper highlights how cultural competency in its various dimensions (e.g., knowledge, awareness, skills) were integrated into the community engagement, design, and community building process.

Findings illustrate that incorporating culturally competent planning practices can bolster diversity and social equity outcomes. Furthermore, I discuss how emphasizing a commitment to cultural competency can encourage better planning for mixed-income new urbanist communities, and I offer suggestions for future planning practice, CNU systems change, and research agenda. This research also provides insights on Choice, which will inform approaches to implementing affordable mixed income housing and promoting broader neighborhood revitalization in a way that promotes equity and racial inclusion.

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Key Words: Housing, Mixed-income, Choice, Cultural Competency, New Urbanism

WHO BENEFITS FROM SHARED LIVING AND WHO DOES NOT? SOCIAL DYNAMICS AND POTENTIAL EXCLUSION IN SHARED HOUSING

Abstract ID: 375

Individual Paper Submission

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Background: Shared living among young adults has been increasingly widespread way of life in the world, yet little is known about their social dynamics (Clark et al., 2018). Since those non-kin households are in a wide range of socioeconomic backgrounds, their personal relationship is the key to whether their shared living wanes or flourishes (Heath et al., 2017). The previous research bridges how the experience of shared living connects to various social outcomes like increased social capital or sense of community (Cho et al., 2019). Here, this study extends the bridge by figuring out which residents of the shared housing benefit from the social outcomes and which residents do not. Specifically, this study explores whether there is a potential exclusion of certain residents in shared housing due to their socioeconomic backgrounds rather than their personal traits or residential conditions.

Method: To confirm the positive impacts of shared living in terms of social dynamics and identify the potential exclusion among the residents of shared housing, we conducted a survey on 800 young single households who lived in Seoul, Korea. Among them, 300 residents lived in shared housing. The survey items include the personal traits, socioeconomic backgrounds, residential conditions, and social dynamics of the residents. We measured the social dynamics in various aspects such as acceptability with socioeconomically different people, social relationship, and social activity. With this data, to verify the positive social outcomes from shared living, we first examine the baseline differences in social dynamics between the residents of shared housing and other housing types. Then, to identify a potential exclusion among the residents of shared housing, we divide them into several groups based on their socioeconomic backgrounds (e.g. income level, gender, occupation, birthplace, etc.) and investigate how their social dynamics differ by each socioeconomic group.

Result: Our preliminary finding reveals that the residents of shared housing are more likely to have a 'healthy' life in terms of social dynamics than the residents living in other housing types. For example, they show higher satisfaction with their social relationship and participate in social activities more frequently. However, when we divide their socioeconomic group by monthly income level, the low-

income group show less satisfaction with their social relationship and participate in social activities less frequently than the high-income group. It indicates the possibility that there can be a potential exclusion of certain socioeconomic group in shared housing. We will investigate a structural link for how their socioeconomic backgrounds connect to the potential exclusion of them.

Implication: While there is a growing interest in shared housing as one of the solutions for providing affordable living place to young single households in Korea (Woo et al., 2019), we detect a sign of potential exclusion of certain residents in shared housing. To mitigate the potential exclusion and make the shared housing to be both affordable and equitable housing option for young adults, we intend to suggest several guidelines on the management of shared housing.

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Key Words: Shared housing, Young single household, Social dynamics, Potential exclusion, Socioeconomic backgrounds

UNDERSTANDING THE SHARE HOUSING SECTOR: A GEOGRAPHY OF GROUP HOUSING SUPPLY IN METROPOLITAN SYDNEY

Abstract ID: 392

Individual Paper Submission

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Share housing, once considered a transitional form of accommodation on the ladder to family formation and home ownership, has become increasingly important, particularly in high-cost cities (Maalsen, 2018). Share and group housing arrangements extend the capacity of private rental supply, but are difficult to monitor and research, hidden within different formal or informal tenancy arrangements (Vacha & Marin, 1993).

The rise of online platforms for advertising and finding rental accommodation, such as 'Craigslist' or 'SpareRoom', appear likely to have enabled and facilitated the share housing sector, but may also offer a critical window into its operation (Boeing & Waddell, 2017). This paper presents research on the share housing market in Sydney, Australia, drawing on listings data scraped from primary share housing platform 'Flatmates.com.au' (N= 3391 in 2016 and N= 5164 in 2018), as well as the wider housing market and urban indicators. The paper sought to determine the scale and distribution of shared housing vacancies in Sydney, in relation to the city's wider housing market. The share listings data collected in December 2016 broadly corresponds with the national 2016 Census survey – providing an opportunity to compare the scale and characteristics of share vacancies listed on the Flatmates platform with census data

on group households more widely. The scale and spatial distribution of share advertisements was examined in relation to dwelling characteristics, household characteristics and cost.

The study found that: data contained in online listings for share accommodation aligns with census data on the spatial distribution of areas of group households in Sydney; full-time workers advertising for roommates live in areas of dense job concentration; while students advertising share vacancies locate primarily around major universities. This alignment suggests that online listings data can offer useful insights into the poorly understood share housing sector – extending five yearly census data sources on group households through additional and time-sensitive information about share vacancies, rental costs, and occupancy arrangements. Delving deeper into the online listing data sets, the study revealed a marked increase in Sydney’s share vacancies advertised through the online platform between 2016-2018, expanding the supply of lower-cost rental housing near work locations. It also found that besides larger, stand-alone houses, apartments are also a strong supply source for share vacancies; and that inner city share homes are often accommodating much larger households than dwellings overall, with evidence of extreme overcrowding in some segments of the market. As an important source of low-cost rental housing, the share housing sector needs to be monitored, and broader responses to affordable housing need to be developed to ensure that city housing markets offer appropriate accommodation for people across the income spectrum.

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Key Words: Share housing, Group household, Geography, Housing supply

WHY PEOPLE ARE WILLING TO PAY MORE FOR GREEN BUILDING? THE PRICE PREMIUM AND THE WELL-BEING BENEFITS OF GREEN BUILDING

Abstract ID: 394

Individual Paper Submission

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The past decade witnessed a rapid development of green buildings (GB) worldwide and arose heated discussion on how green building economically and socially perform. In the economic strand, a bunch of literature has shown different evidences on the price premiums of green buildings, demonstrating that beyond being environmentally friendly, green buildings can be more economically beneficial and productive than other comparable ordinary buildings. But little evidence has been provided to explain why such price premium exists. In the social strand, the existing literature validates the benefits of green buildings from the human aspects, like better thermal comfort, better indoor environmental quality (IEQ) and health and productivity improvement. However, the findings are less comprehensive as the evidences are mostly focused on IEQ, are centered on the non-residential buildings and are mostly qualitative research rather than quantitative research, calling for further research.

Standing across these two strands of literature and focusing on the Singapore context, this paper aims to answer two research questions: (1) Does GB fetch price premium? (2) Why people are willing to pay more for GB? Presented hypotheses are as follows:

Hypothesis 1: GB fetches market-driven price premium.

Hypothesis 2: People are willing to pay more for GB because green building has better quality.

Hypothesis 3: People are willing to pay more for GB because GB can provide a more favorable living environment to their residents and contribute more to residents' subjective well-being compared to their non-green counterparts.

The main data sources are the complete transaction data of private housing between January 2005 and December 2017 and the survey data from an on-site household survey. To test hypothesis 1 and 2, we employ hedonic pricing method to examine the existence of green price premium, the change of price premium in the process of building decay and the role of building quality in the persistence of green price premium over ages. The empirical results demonstrate that GB fetch higher price than non-green building at the resale stage when price premium is mainly market driven and more possibly capture buyers' willingness to pay for the "green" benefits. Such premium can last as they physically decay and the building quality is a major factor in such persistence of price premium over ages.

In order to test hypothesis 3, employing the survival model, we firstly find that owner occupiers of green building have longer residence duration, which may be attributed to the better living environment in a green building. Further, through the on-site household survey, we find that residents in a green building are more satisfied with their living environment and that they are less likely to move and have higher subjective well-being, explaining why residents have longer residence duration in a green building. Greenery, ventilation, building quality, orientation, indoor temperature and waste disposal are the main contributing green features to the residents' subjective well-being, while energy saving plays a minor role.

Our study provides new quantitative evidence on both the economic and social performance of green building, empirically explaining why people are willing to pay more for green building. We also empirically develop a conceptual framework which connects the built environment with human subjective well-being in green building context. These findings have some practical implications for the green building industry in ways that would contribute to the future design solution along the way of green building towards human well-being. The industry needs to shift their attention to the greenery, indoor environment, maintenance and provision of waste disposal facilities, from energy efficiency, to better promote the subjective well-being of residents living in green building and to maximize the values of green building.

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Key Words: Green building, Price premium, Human well-being

SPILOVER EFFECTS IN NEIGHBORHOOD CHANGE: A SPATIAL ANALYSIS

Abstract ID: 400

Individual Paper Submission

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Neighborhoods are not isolated areas but rather components of complex urban systems. Thus, a neighborhood may decline because nearby neighborhoods decline. Indeed, Jun (2017) finds that neighborhood change is spatially dependent and thus economically improving and declining neighborhoods form clusters with nearby improving and declining neighborhood, respectively. However, Jun's (2017) study does not examine what 'specific' neighborhood attributes lead to spatial dependence in neighborhood change. In particular, racial/ethnic composition has been found as a major factor affecting neighborhood change and it is expected that the presence of blacks and Hispanics affect not only the host neighborhood but also surrounding neighborhoods through spillover process.

This study aims to examine spillover effects among neighborhood attributes in neighborhood change. I analyze the Neighborhood Change Database that contains the decennial census data at the census tract level in the largest US 100 metropolitan areas and in the 1990s and 2000s. Neighborhood change is defined housing value change at the census tract level and factors affecting neighborhood change consist of housing, racial/ethnic, and socio-economic characteristics. To examine spillover effects among neighborhood attributes, I create a spatial weight matrix and run a spatial-durbin analysis that allows examining both direct and spillover effects among neighborhood attributes. The empirical analysis clearly shows that neighborhood attributes have spillover effects in neighborhood change. More specifically, the absolute magnitudes of spillover effects are greater than those of direct effects for racial/ethnic composition variables. Also, the spillover effects of socio-economic characteristics are less dominant compared to racial/ethnic and housing characteristics.

The audience will learn what specific factors cause spatial dependence in neighborhood change.

Citations

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Key Words: spillover effect, neighborhood change

DO CALIFORNIA RENT DISPUTE RESOLUTION ORDINANCES WORK?

Abstract ID: 452

Individual Paper Submission

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In the face of a widespread and worsening housing affordability crisis, California municipalities have enacted different local housing policies to protect residents from potential harms, including unreasonable rent increases. In more recent years, a subset of policies have sought to address rent-related landlord-tenant issues in mediated processes, called “rent dispute resolution” (RDR), whereby tenants may request to meet with a landlord who has proposed a legal rent increase. Similar kinds of alternative dispute resolution (ADR) models have been previously used in other housing matters, such as foreclosure proceedings and cooperative board disputes, as a means of avoiding the costs to time, money, and emotion that are often associated with courtroom proceedings [1-4].

In California, some RDRs include mandatory provisions which may compel a landlord to attend such a meeting or arbitration, while others are entirely voluntary, and none require landlords to adhere to any agreements made through a RDR process, which is a noteworthy distinction from previously-studied ADR processes [1,5]. In the case of California, RDR has also often been proposed as an alternative to market intervention policies, such as rent control or just cause protections, and are viewed by tenant organizers and advocates as ultimately ineffectual in protecting tenants. To date, no evaluation research has been conducted on RDR programs in California.

This research has three main aims: First, we use document review and content analysis to understand the origins, intents, and advocacy surrounding RDR ordinances in California, and identify an appropriate set of evaluation measures to determine their efficacy. Second, we evaluate the impact of RDR on local housing markets based on appropriate indicators identified in Aim 1, using a difference-in-differences approach. Finally, we use semi-structured qualitative interviews with individuals who have participated in rent dispute resolution processes to understand exactly how these policies are experienced in practice. The project has completed Aim 1, is currently preparing datasets for Aim 2, and will begin recruiting participants for Aim 3 in April 2019.

Beyond addressing the immediate and policy-relevant question of RDR efficacy, this research project also speaks to broader discourses on the use of alternative dispute resolution in housing policy, especially as a mechanism for avoiding courtroom proceedings, facilitating communication between disputing parties, and improving access to just outcomes.

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Key Words: alternative dispute resolution, rent, landlord-tenant disputes, tenant rights, local housing policy

DEVELOPING COMMUNITY IN NEW YORK CITY PUBLIC HOUSING: A PRAGMATIC APPROACH

Abstract ID: 463

Individual Paper Submission

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In 2015, the New York City Housing Authority (NYCHA) introduced NextGeneration NYCHA, a 10-year proposal intended to help fill the agency's \$32 billion capital budget shortfall and revitalize the city's distressed public housing through a series of predominantly privately-financed initiatives. The most controversial aspect of the plan, called NextGeneration Neighborhoods, includes leasing 'underutilized' land adjacent to existing public housing to private developers, who will be responsible for constructing and managing mixed-income 'infill' developments. In my dissertation, I conduct a holistic, pragmatically-oriented case study on the implementation of NextGeneration Neighborhoods at two pilot mixed-income sites. I namely ask, how do stakeholders—most importantly, existing tenants—define, defend, or resist the infill plan? And to what extent does plan implementation influence residents' understanding of their community's present and future?

I conduct a holistic case study with two embedded units of analysis that evaluates the NextGeneration Neighborhoods mixed-income plan pragmatically. Evaluating plans pragmatically takes a normative approach to considering the various networks involved in influencing a plan, all while centering on the lived experiences of those most impacted by its outcomes (Hoch, 2002). In this project, such an approach involves evaluating tenants' engagement experience not only through 'traditional' forums for social planning hosted by NYCHA, but also through adjacent community organizing efforts in resistance to the plan, as well as through a more thorough understanding of residents' sentiments regarding the physical and social redevelopment of their community (Sites, Chaskin, & Parks, 2012). Data collection methods include participant observation, interviews, and a review of primary and secondary materials relevant to the plan.

This paper focuses on the efforts to redevelop two public housing communities through a series of interviews with tenants, policymakers, and private developers, as well as through participant observation in community meetings and actions hosted by non-profits and local elected officials. Using discourse analysis, the results: a) show how residents' long history of distrust of the housing authority complicates participatory processes and drives residents to outlets beyond NYCHA's engagement strategies, b) shed light on resident fears of secondary displacement resulting from the prospect of new residents moving to their long-neglected public housing campuses, and c) demonstrate how policymakers and developers invoke fiscal crisis to legitimize moving the plan forward while tenants and select elected officials do so to slow the plan down.

The results of this project contribute to planning theory and practice in three primary ways. First, the project adds to a growing literature that considers the importance of evaluating the implementation of public housing redevelopment schemes (Vale, 2019), as well as tenant resistance to such transformations

(Goetz, 2016). Further, by looking beyond deliberative and linear definitions of ‘formal’ participatory processes, it contributes to expanding definitions of participation to include alternative, transgressive voices, therefore complicating consensus-driven narratives in community planning (Thorpe, 2017). Finally, throughout the project, I have attended meetings hosted by non-profits, conducted research with advocacy organizations, presented information at an elected official’s office who has proposed suing the mayor over the infill plan, and attended protests and a day of action lobbying for additional NYCHA funding at the state level in Albany, NY. Taken together, such actions not only show how I have become a stakeholder in resisting the plan, but they also further reflect upon the pragmatic methodological approach I have brought to the research.

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Key Words: Community engagement, Participation, Pragmatism, Public housing, Neighborhood redevelopment

RECONCEPTUALIZING COLONIAS AS VIABLE COMMUNITIES

Abstract ID: 482

Individual Paper Submission

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Through one case study of a colonia in Arizona we renew attention to the ill infrastructure and poverty conditions American citizens and residents, most of Mexican descent, live with along the U.S./Mexican border. Through qualitative interviews and participant observation, we shed light on how the lack of infrastructure and public services complicate everyday tasks for colonia residents and compromise their wellbeing and life prospects. At the same time, we call attention to their allure, highlighting their promise as viable communities where families can raise their children and prosper, or, retire with dignity. We highlight the tenacity of colonia residents and practices of mutual support that make these communities resilient and far from deficient as they are often depicted. Social capital in the colonias is mostly made up of social support given by kin and fictive kin and often has an unrecognized outward projection as residents attempt to negotiate for better infrastructure and public services. These communities are socially and politically neglected. Colonia residents have set root in these communities worthy of concern and investment and we contend they ought to be folded into the larger conversation of poverty concentration, segregation and housing needs in the United States.

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Key Words: Colonias, Housing, Border, Social Support, Social Capital

EXPANDING LANDLORD PARTICIPATION IN HUD'S HOUSING CHOICE VOUCHER PROGRAM

Abstract ID: 483

Individual Paper Submission

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The Housing Choice Voucher (HCV) program aims to provide low-income families with a choice about where to live. In doing so, it relies on private market landlords to rent safe and decent housing to voucher holders. In many places, however, voucher recipients cannot find suitable housing in opportunity neighborhoods (those with low rates of poverty, good schools, etc.) or, in the worst cases, in any neighborhoods because landlords will not participate in the program. Despite their importance to the success of the program, however, research on landlord participation in the HCV program is limited.

The paper we will present at the ACSP Conference will build on studies conducted by Greenlee (2014), Varady et al., and Garbonden et al. (2018). Those studies involved interviews with landlords, public housing authority staff, to understand why landlords rent or do not rent to voucher holders and what challenges housing authorities face in recruiting landlords to program. We will go beyond prior research by probing how landlords respond to various incentives to encourage their participation in the voucher program, such as higher payment standards, streamlined inspection processes and/or reduced inspection frequency, tenant pre-screening, risk mitigation funds, and the like. We will also speak to HCV households who recently moved to provide learn about their relationships with landlords and their role in relocation decisions.

This paper will address the following research questions:

- Under what circumstances do landlords choose to rent, or not to rent, to HCV households?
- How do landlords differentiate their experiences working with HCV and non-HCV households?
- How do program regulations shape landlords' decisions to participate, or not participate, in the voucher program?
- How do landlords respond to potential incentives to encourage participation in the voucher program?

This research will be conducted in Charlotte, North Carolina where we will interview with the following groups:

- Charlotte Housing Authority staff involved in administering the voucher program and other key stakeholders including key leaders in the Greater Charlotte Apartment Association;
- landlords and property managers currently participating in the voucher program
- landlords and property managers not currently participating in the voucher program (If possible, we will include some landlords who previously rented to voucher holders but are not currently doing so.)
- HCV voucher holders who relocated within the past three months

We plan on interviewing a total of 60 individuals. We will interview both landlords who own small and large rental portfolios and we will interview landlords in higher-opportunity areas. Interviews with residents who recently moved will allow the research team to better understand how the availability of rental housing—or lack thereof—impacts HCV households. To understand how landlords respond to incentives to participate in the program, we will both consult with CHA staff and review Annual Plans of other Moving to Work agencies to identify potential incentives to discuss with landlords. These interviews will begin in early April and will be completed by mid-summer, giving us time to write a paper for presentation at the conference.

The results of this research will be of interest to academics, policy makers and practitioners interested in expanding housing opportunities for lower-income families. Based on our findings we will develop a set of recommendations for expanding landlord participation thereby expanding housing opportunities for lower-income families.

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Key Words: Housing Choice Vouchers, Landlord participation, Opportunity Neighborhoods

WHITENESS AND URBAN PLANNING: RACIALLY CONCENTRATED AREAS OF AFFLUENCE

Abstract ID: 485

Individual Paper Submission

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The ability of urban planning to fully understand and address America’s urban problems of inequality, crime, housing discrimination, educational disparities, and residential segregation is hampered by a relative neglect of whiteness and its role in shaping urban outcomes. In few places does the neglect of

whiteness in understanding urban issues emerge more forcefully than in consideration of patterns of racial segregation. From the riots of the 1960s through the crack-infested ‘no-go zones’ of the 1980s and 1990s, to today’s ‘low-opportunity’ neighborhoods of ‘concentrated poverty,’ the black ghetto has for decades captured the attention of the popular press, and been the focus of planning, policy, and scholarly attention. The focus of planners, scholars, and public discourse is on the ‘dysfunctions’ of communities of color, notably their poverty, high levels of segregation and isolation. This has diverted attention from investigation of the structural systems that produce and reproduce the advantages of affluent and white neighborhoods. Public officials and scholars frequently invoke a legacy of injustice with regard to concentrated poverty and disadvantage, but not in regards to neighborhoods of concentrated white affluence. One is “segregated” and problematized, the other idealized. We offer a justification for centering whiteness within urban planning scholarship and practice. We argue that an analytical perspective that focuses on whiteness and the protection of white advantage can offer a deeper and more complete understanding of urban spatial outcomes such as segregation, and planning and policy responses from fair housing to zoning. We offer an operationalized conceptualization of place-based white advantage - the “Racially Concentrated Area of Affluence” (RCAA), and present preliminary information on the prevalence of these communities and their basic characteristics. Finally, we suggest the beginnings of a research agenda that would more directly examine the role of whiteness in the shaping and perpetuation of regional and racial injustices in the American city.

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Key Words: whiteness, racial justice, segregation

HOW DOES INNOVATION HAPPEN IN RESTRICTIVE ENVIRONMENTS? THE CASE OF MOVING TO WORK AGENCIES

Abstract ID: 490

Individual Paper Submission

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In the U.S., public housing authorities (PHAs) are quasi-governmental agencies that operate under the broad federal direction of the U.S. Department of Housing and Urban Development (HUD) (Kleit & Page, 2015). Since the Nixon administration, through various means, HUD has increasingly devolved the decision-making around specific affordable housing programs to local agencies, such as PHAs (Basolo,

2003). For example, the Moving to Work (MTW) demonstration, established in 1996, provides qualifying PHAs with additional programmatic and operational flexibility that can be used to achieve three statutory goals: reduce costs and increase efficiency in the delivery of housing services, enhance residential choice, and achieve greater self-sufficiency for residents (Aravanel et al., 2004). For many housing authorities, MTW status is an essential element of the agency's operation that supports a culture of innovation and prompts organizations to alter and test policy and programs (Khadduri et al., 2014; Webb, Frescoln, & Rohe, 2017).

This study investigates how housing agencies use MTW, the opportunities and challenges MTW status presents, the constraints that limit the effectiveness of MTW initiatives and activities, and how MTW agencies are innovating in the face of these constraints. This study is timely as Congress renewed the 39 MTW agency agreements for an additional ten years in 2018. Furthermore, Congress also passed legislation to expand the scope of MTW to include an additional 100 PHAs.

The data and evidence used in this study were generated from semi-structured interviews with MTW PHAs. The semi-structured interviews invited agencies to share their thoughts and ideas on a range of topics including current challenges, strategic planning, streamlining activities, balancing goals between the intensity of service delivery and increasing the number of households served, and metrics and reporting. All 39 MTW agencies were invited to participate in the study and 21 MTW agencies (54%) agreed. The sample of agencies included both large and small agencies as well as agencies set in metropolitan, micropolitan, and rural areas.

The findings from this study enhance our understanding of MTW agencies, their decision-making, and how they innovate in a constrained environment. These results are relevant to a wide audience, including existing MTW agencies, PHAs that are considering MTW designation under the new expansion, housing researchers, as well as policymakers and practitioners who focus on federal housing policy. This study also will provide valuable information to new MTW agencies as they determine how to prioritize and innovate under the new flexibility provided by MTW status.

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Key Words: Moving to Work, public housing authorities, housing policy, innovation

EXCLUSION OR FAIR SHARE? LOCAL GOVERNMENT COMPLIANCE WITH AFFORDABLE HOUSING INCENTIVES

Abstract ID: 514

Individual Paper Submission

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In this paper, we investigate the degree of compliance among local governments in the State of Massachusetts, USA, with a program that incentivizes the production of affordable housing. Local governments in the U.S. have historically been reluctant to build affordable housing for several reasons. Some opposition is based on the fear that low-cost housing will mean greater service costs for local governments and reduced land tax revenues. In other cases, higher status communities oppose lower-cost housing in order to exclude lower-income households or people of color. The Massachusetts Comprehensive Permit Act (known as Chapter 40B), enacted in 1969, was designed to increase the supply and balance the regional distribution of affordable housing and to overcome the exclusionary impulses of local governments. Using quantitative methods, this paper examines the affordable housing production in Massachusetts' cities and towns between 1997 and 2017. We test hypotheses related to whether higher status communities are meeting program goals or are acting in an exclusionary manner.

In general, cities and towns in Massachusetts made steady progress in affordable housing production in the twenty-year period. According to the data, 58,975 new subsidized housing units were built statewide between 1997 and 2017, and the number of cities and towns that met the program goals increased from 24 to 65. Geographically, greatest progress has been made by communities within the Boston metropolitan area. To further study the effect of Chapter 40B, we conduct multivariate analyses on what community characteristics are associated with program compliance. The results of our cross-sectional regression models support a hypothesis of racial exclusion; communities that have fully complied with state-specified production goal have smaller proportions of White population, while the lowest-performing communities in the state (those that have a subsidized housing stock lower than 2% fifty years after the program began) had significantly smaller population sizes and higher percentages of White population. The data do not support a hypothesis of income exclusion, however. High-performing municipalities had higher median incomes than low-performing cities. The longitudinal analysis confirms these findings; municipalities that performed better in affordable housing production from 1997 to 2017 were the municipalities that became more racially and ethnically diverse during the study period. Finally, we also find that once a municipality reaches the program compliance level, it becomes less motivated to develop more affordable housing. To better understand the underlying mechanism of municipalities' compliance with affordable housing incentives, in-depth interviews with local and state officials will be conducted.

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Key Words: affordable housing, fair share, NIMBY, Massachusetts, Chapter 40B

BENEFITS OF ELEVATOR POLICY FOR OLD WALK-UP BUILDINGS: EVIDENCE FROM BEIJING RESALE HOUSING MARKET

Abstract ID: 537

Individual Paper Submission

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In recent years, Beijing and many cities in China have devoted to installing private elevators for old walk-up buildings. These old buildings are mainly occupied by senior residents, who have suffered from the inconvenience and tiresome of vertical travels within the building every day. The burdensome of walking up and down prevents the elderly from going outside often and results in many health issues, e.g., lack of exercises and insufficient exposure to sunshine. Children of these seniors and other people who take care of them have concerned with this no-elevator issue for a long time. Although relocation to a senior-friendly residential unit is always an option, the reality is more complicated. On the one hand, the housing boom in the past decade has made a new home less affordable. On the other hand, more importantly, most old walk-up buildings are in the center locations with well-developed neighborhood and facilities, and senior people have a strong attachment to these places. As a result, the elderly are reluctant to be relocated to other places and keep living a condition with health concerns.

To tackle this issue, in 2016, Beijing's municipal government passed an ordinance to subsidize the installation of private elevators in old walk-up buildings. The cost of a private elevator is on average 1 million RMB. The Beijing municipal finance department agreed to pay up to 240,000-640,000 RMB of the total cost. The rest is paid up by the residents themselves or social investments. A unanimous vote by all residents in a building decides the mode by which the elevator would be installed. The most common choice is the social investments. Some third-party companies cover all the expenses of elevator construction and maintenance and charge the residents for the usage. By the end of 2008, there are in total of 990 elevators in construction.

This paper aims to quantify the benefits of this elevator installation policy. One intuitive approach is to estimate the value of elevators and high-level floors for residents using a hedonic housing price model. This paper uses a rich dataset of resale home transactions in Beijing from 2012-2016 and finds that: 1) there exists a significant discount in price per square meter for top-floor units in a building by about 4%, which suggests a strong dislike of the top-floor by Beijing residents; 2) the largest top-floor discount (about 6%) exists in small buildings (3-6 stories), which typically have no elevators, suggesting that people need to be compensated with a much lower price to move in a top floor unit in these buildings; 3) for small buildings, an elevator would make the top floor discount disappear and change to a slight premium, which indicates the huge benefits of elevators for these type of buildings. This paper for the first time provides quantitative evidence for the value of elevators, which sheds light on the huge benefits of such policies for Beijing residents.

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Key Words: Elevator, Hedonic Price, Senior Living, Vertical Living, Beijing

HOUSING DEVELOPMENT AFTER MEGA-EVENTS IN CHINA'S CITIES: A COMPARATIVE STUDY BETWEEN BEIJING, SHANGHAI AND GUANGZHOU

Abstract ID: 543

Individual Paper Submission

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In last 20 years, there has been increased interest in China's cities for promoting urban development and transformation through the hosting of mega-events. For one thing, the "state-led" standpoint let mega-events in China become different cases from the Western experience. For another thing, it is controversial to answer whether mega-events in China have achieved their initial "state-led" intentions, as well as obtained positive political, socio-economic and spatial outcomes. It seems that mega-events venues, such as Olympic village and Expos Park, could bring great opportunities to economic growth, public service promotion and urban redevelopment. However, as mega-events can be greatly affected by locally social, political and institutional underpinnings, the influence of mega-events in different cities could perform very differently.

This assumption gives us ideas to examine the political, socio-economic and spatial outcomes of different mega-events in China's cities. In order to make effective comparison, we choose the 2008 Beijing Olympic Games, the 2010 Shanghai World Expo and the 2010 Guangzhou Asian Games to study. These three cases were hosted in the top three biggest mega-cities of China, and had similar huge socio-economic influence. To summary, we firstly review the planning and development strategies of these three mega-events, with brief introduction of their development history. Secondly, we use housing price and neighborhood diversity as indicators to evaluate whether these mega-events have brought high-value improvements to their urban surroundings. Real estate development is choose as the main field to compare effects of three mega-events, and about 15 years changes are traced to be analyzed. Thirdly, the role of governments is discussed in the process of land use, financial investment and other decision making. A horizontal comparison of political, socio-economic and spatial difference is critically considered in the study.

It is concluded that the impact of mega-events can be divided into two stages, 1) before and during the event; 2) after the event is successfully held. In the first stage, planning and government publicity played important roles on driving housing price. However, the booming change mainly happened in the second stage, as more urban newly-development and redevelopment projects were planned and implemented. It seems that the site selection of all three mega-events were well considered, and they have improved the level of public facilities around event venues. More parks, more transport and cultural facilities all help raise the housing conditions. However, the post-event strategies of Beijing, Shanghai and Guangzhou differ in terms of land use and financial investment, related to different housing value growth. Simply concluded, Shanghai applied more comprehensive development strategies, compared to Beijing and Guangzhou, and received relatively more positive and long-term development results.

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Key Words: Mega cites, Housing, Urban development, China's cities

DIVERGING PATHWAYS OF NEIGHBORHOOD CHANGE IN UNITED STATES COLLEGE TOWNS

Abstract ID: 545

Individual Paper Submission

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There is widespread recognition that higher education institutions often influence local and regional economic development through their knowledge spillovers, research, and human capital creation, however much less attention has been paid to their potential impact on neighborhood change dynamics. Recently, the implications of these potential changes have been reflected in the urban policy agendas of several municipal and regional government plans which have sought to leverage the existence of their community college and larger universities in revitalization strategies. Similarly, there has been increased scholarly attention to studentification which describes the distinct social, economic, physical, and cultural changes within college towns and university cities where the influx of post-secondary student populations creates a unique pattern of neighborhood change.

While previous research has often focused on such dynamics in large cities, this study aims to extend the literature by providing a systematic examination of these trends with a focus on small and medium-sized cities in which universities represent a critical driver of economic development, and thus an enhanced understanding of their influence on neighborhood change is essential for planners, university leadership, industry, and neighborhood residents. More specifically, consideration is given to 32 counties that are home to either one Research-1 or Research-2 university and contain a student population comprising at least ten percent of the total county population. Using data for the selected counties encompassing over 1400 census tracts, this study examines various forms of studentification and other pathways of neighborhood change (from 2000 through 2014) that have taken place in US counties where higher education institutions play an important role.

A cluster analysis technique is employed to identify distinct trajectories of neighborhood change with a focus on socio-demographic, economic, and physical dimensions of the process. Furthermore, multinomial logistic regression is carried out to obtain a more complete understanding of factors behind various pathways of neighborhood change identified by the cluster analysis. This study will assist planners by identifying the multidimensional contexts under which neighborhood change may occur in university-dominated neighborhoods, while also highlighting the challenges and opportunities for developing equitable outcomes for both student and non-student populations in these communities.

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Key Words: Universities, Studentification, Neighborhood change, Gentrification

FILTERING OF APARTMENT HOUSING, NEW CONSTRUCTION, AND LOWER-INCOME HOUSING OPPORTUNITIES

Abstract ID: 594

Individual Paper Submission

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Filtering of housing is the traditional major source of affordable housing in the United States, although this process may work better in some decades, or in some metropolitan areas, that have greater new construction rather than chronic housing shortage. HUD considers filtering to be the principal process providing “naturally forming affordable housing” in the United States (HUD 2016). In times when housing subsidies are very limited, due to fiscal constraints, lower-income families without housing assistance are extremely hard pressed to find rental housing that is affordable and meets their needs.

This paper reports on a study of filtering of rental apartments that was commissioned by the National Multifamily Housing Council, a trade association of major apartment landlords and managers. The study aims to estimate how much filtering of rental apartments has occurred in metropolitan areas over the last three decades, describing the growing access that is provided to low-income renters as housing grows older. We estimate what contextual factors have sustained greater filtering in some metros compared to others and whether those contextual factors are more important in some decades than others.

Filtering benefits can be measured by the increasing occupancy over time of low-income households in apartments built in each vintage, comparing each survey period to the next. A second definition measures filtering as declining rent burden (percent of income paid for rent) in each vintage as it grows older, relative to the average rent burden of renters of the same income level in the same metro. These two measures capture the benefits of filtered housing: either the housing grows more affordable relative to occupants’ incomes, or, at least the aging stock provides increasing shelter to low-income residents, even if tenants with very low incomes end up paying a higher share of income for rent.

Analysis is conducted with decennial Census data for 1980, 1990, and 2000, and the American Community Survey (ACS) data for years between 2005 and 2017. We estimate changes in very low-

income occupancy in aging apartment units in 300 different metropolitan areas, essentially all those that have populations larger than about 130,000. Boundaries of metros adjusted to a common definition consistent with 2013 OMB delineation based on 2010 Census.

We adopt a vintage longitudinal approach that uses repeated cross-sectional Census and ACS microdata. We trace the housing units built in a given decade as they grow older across time. This study assesses the net changes at the aggregate level, which is the end result of filtering of greatest concern to public policy. We define a household as low-income if it is at or below 50 percent of the area median household income. We emphasize this group because it matches roughly to the income qualifying standards for subsidized housing, which we wish to compare. We also weigh the volume of housing provided by the filtering process against the number of subsidized housing units, seeking a measure of the relative importance of filtering.

Preliminary findings confirm a substantial variation in the metropolitan patterns of filtering across decades. Evidence shows greater downward filtering of multifamily rentals in areas with greater new construction indicating eased competition for limited rentals. Filtering is also stronger in areas with fewer young adults, indicating less entry-level demand pressure on the rental market. In the post-Great Recession era filtering has been greatly weakened as a source of low-income occupancy for reasons to be determined.

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Key Words: Filtering, New Apartment Construction, Low-income households, Affordability, Demographics

OLDER HOUSEHOLDS IN SUBSIDIZED HOUSING: HEALTH, SERVICES, AND ACCESSIBILITY

Abstract ID: 622

Individual Paper Submission

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Older adults age 62 and over occupy an increasingly large share of federally subsidized rental housing. Elderly households accounted for 35 percent of assisted renters in 2018, up four percentage points from the share ten years ago. Since the 1990s, HUD has provided housing subsidies specifically for elderly households and has sought to provide supportive services (US Government Accountability Office, 2016). With the continued aging of baby boomers, the number of older adults in assisted housing is likely to rise over the next few years. However, few studies to date have examined the experiences of older adults in subsidized housing, the suitability of subsidized housing for aging in place, or the services that are provided at affordable housing sites. Evidence from case study locations suggests that older subsidized renters have high rates of instrumental activities of daily living difficulties (Cotrell & Carder, 2010), face chronic health conditions (Golant, 2003), and experience social isolation (Gonyea et al., 2010). This paper builds on these case studies to provide a national picture of older assisted renters, their housing, and the services to which they have access. The research highlights the needs of older residents that public housing authorities and policymakers should consider when planning affordable, age-friendly housing.

The data for this study come from a few sources. We use the 2017 American Housing Survey (AHS) to characterize the demographic composition and housing characteristics of older subsidized renters, including their household arrangements, the disabilities that are most common, the type of housing in which they live, and the impressions they have of their neighborhood. We supplement this with the 2011 AHS, which provides greater detail about the presence of accessibility features in subsidized housing. Finally, we use the National Health and Aging Trends Study (NHATS) to examine the services that these renters are typically offered. Using descriptive statistics and t-tests, we compare older subsidized renters to those who do not receive housing subsidies.

We find that older subsidized renters are more likely to live alone and have a high incidence of mobility difficulties. However, they also have access to a wider variety of services and have more accessibility features, such as grab bars and emergency systems, in their housing units. Additional features such as no-step thresholds between rooms and wheelchair-accessible kitchens could better help tenants age in place. Many older adults in subsidized housing have unmet needs for managing daily self-care activities, and expanding services that help older adults with running errands, serving meals, and doing laundry would be particularly beneficial in planning age-friendly subsidized housing communities.

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Key Words: aging, subsidized housing, health

THE EFFECT OF LOCATIONAL CHARACTERISTICS IN REDUCING THE INVENTORY OF UNSOLD HOUSING IN NEW RESIDENTIAL DEVELOPMENTS, SEOUL METROPOLITAN AREA, SOUTH KOREA.

Abstract ID: 624

Individual Paper Submission

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In cities, especially those of rapidly urbanized countries, governments have carried out large-scale residential development projects in the periphery or vicinity to resolve urban housing shortage and stabilize housing price (Wu, 2001). In some cases, however those new housing units had not been taken and left unsold (Jang et al, 2010; Molloy, 2016). This imbalance in the demand and supply of housing is by the incorrect demand estimation, and has negatively influenced the nearby housing markets and brought economic hardships to construction businesses as well as the home buyers. In order to reduce the inventories of unsold housings, increasing the demand is the only available solution.

South Korea is one of the countries experiencing this condition. Over the last three decades, from 1990 to 2019, Korea has suffered from three times of unprecedented surplus of housing supply, including the excess construction of two million homes in 1995, the IMF economic downturn in 1998, and the financial crisis in 2008. Until now, unsold housing units in large-scale residential development projects in the Seoul metropolitan area have been fluctuating. Sometimes, the improved accessibility, addition of recreational amenities and/or increased job opportunity raised the demand for housing units in a specific locations, while cancelation of a plan for procuring transportation facilities or urban open spaces has led the decline of the demand. This series of episodes suggests that it is critical to understand what types of attractions appeal to home-buyers to address unsold housing problems. Despite the magnitude of the issue, research has not been fully conducted to quantify the effects of locational attributes on unsold housing stocks.

In this backdrop, this study aims to analyze the effect of locational factors on the reduction of unsold housing stocks, in all of the new residential development projects in the Seoul Metropolitan Area, South Korea from 2011 to 2018. The factors under investigation are the proximity of amenities such as traffic facilities, open spaces, education facilities, and central business districts. We classify the unsold housing inventories data by Seoul, Incheon, and Gyeonggi province to identify the difference between each city. We use two-level model called Multilevel Growth Model, to take advantage of determining the effect of inter-urban characteristics on the rate of change of unsold housing within the city. In addition, this model sets the dependent variable observed at several points in time repeatedly.

The findings of the research will provide potential customers the reference for deciding purchase intention of unsold housings and can be used as the data which can be utilized by construction companies and public institutions holding unsold units.

This work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea under Grant number NRF-2017S1A5A8020226, and Creative-Pioneering Researchers Program through Seoul National University (SNU) (No. 500-20180205).

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Key Words: Unsold Housing Stocks, Location Factor, Residential Development, Housing Market, Multilevel Growth Model

EARLY PUBLIC HOUSING DEVELOPMENTS AS STATE-LED GENTRIFICATION IN U.S. CITIES

Abstract ID: 669

Individual Paper Submission

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Between 1934 and the time of the 1940 Census (April 1, 1940), the U.S government built and leased 30,151 units of public housing. Aside from archival accounts, we know little detail about the early public housing tenants who benefitted from this housing. To fill this hole in the literature, we have used the 1940 complete-count census and the addresses of public housing developments built and inhabited at the time of the 1940 Census to create a unique dataset of approximately 29,000 households that lived in the first public housing developments constructed in the U.S. In this portion of our project we focus on the following research question: how did decisions about where to construct early public housing developments in the U.S. and who to house in this public housing affect the demographic profile and the socioeconomic status of neighborhoods where public housing was built?

This question has relevance for planning scholarship for two reasons. First, policymakers designated most public housing developments for either white or African American residents and existing research contends that the siting of these developments reinforced existing patterns of racial segregation (Radford, 1996). Second, housing reformers debated the wisdom of using public housing to renew so-called slum areas versus building public housing on the outskirts of cities on undeveloped land. Existing research indicates that slum redevelopment became the dominant development model for public housing developments (Friedman, 1966; Radford, 1996), making the early public housing program a precursor of the urban renewal program that began under the auspices of the Housing Act of 1949. This insight, combined with a clear preference for relatively affluent households during this era of public housing (Friedman, 1966; Bloom, 2008), suggests that public housing developments may have been early examples of state-led gentrification in U.S. cities.

To answer our research question we compare the profile of residents living in public housing developments to the profile of residents living in the neighborhood surrounding each development in 1940. We focus on several characteristics related to socioeconomic status, including educational attainment, household income and employment status. We also focus on the racial mix of the neighborhoods that surrounded public housing developments relative to the racial mix in the public housing development. In support of previous research, we believe our results will show a close alignment between the racial mix present in public housing developments and the racial mix of the neighborhoods

where the housing was constructed. We also believe that households living in public housing will have substantially higher levels of educational attainment, employment and household incomes than their neighbors and, presumably, the residents that the new public housing development displaced.

If our hypothesized results prove to be true, we believe that it will provide evidence that the first public housing served as a program of early state-led gentrification. As the public housing program in the U.S. matured, public housing as an agent of gentrification did not last. Quite to the contrary, public housing quickly became associated with racialized concentrated poverty (Friedman, 1966; Schill & Wachter, 1995). However, as the HOPE VI program restructured wide swaths of public housing in the 1990s to emphasize a mixed-income profile and much public housing was destroyed without replacement, scholars have argued that public housing has emerged as a gentrifying force in recent years (Goetz, 2013). We believe that our research will indicate that the more recent role of public housing as a contributor to gentrification signals a reversion to one of the original intents of public housing in the U.S.

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Key Words: Public housing, New Deal, gentrification, race

SUBURBS AND SUBSIDIZED HOUSING IN THE UNITED STATES: WHAT MAKES SOME SUBURBS MORE RECEPTIVE TO LOW-INCOME HOUSING TAX CREDIT HOUSING THAN OTHERS?

Abstract ID: 693

Individual Paper Submission

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The Low-Income Housing Tax Credit (LIHTC) is the largest affordable housing production program in the United States. The program has been the subject of some criticism because it has done an unimpressive job of placing low-income renter households in high-opportunity neighborhoods, especially in suburban jurisdictions. This research will examine, at the municipal level, what kinds of communities tend to include LIHTC properties and which do not. The receptive communities will be compared to the exclusionary communities in terms of many measures of opportunity offered including school quality, access to gainful employment, and access to transportation. The analysis will also examine the effect of population size, region, socioeconomic and demographic characteristics, housing stock characteristics, age of incorporation, distance from central city, and extent of restrictive land use regulations. The contribution of this research will be that it will be among few efforts to analyze the LIHTC at the

municipal level, adding to the knowledge needed to guide the LIHTC toward better placement of housing in the future.

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Key Words: Low-Income Housing Tax Credit, exclusionary zoning, housing market conditions, opportunity mapping

THE DIFFERENCE TASTES OF TRANSPORTATION, URBAN AMENITIES, AND RESIDENTIAL LOCATION CHOICE IN YOUNG ADULTS

Abstract ID: 694

Individual Paper Submission

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There is substantial evidence that young adults, people born between 1980 and 2000, prefer living in cities. Several studies have claimed that the main shift in preference in this cohort was driven by experiences as the economic recession, widespread adoption of information and communication technologies, and a general awareness and change in values towards the environment. While there is evidence that young adults have been choosing to live in cities at higher rates since 2000, it is less clear if there are systematic intra-cohort differences among young adults in their preference for cities. If there are systematic differences within young adults in their preference to cities, what explains these differences and what does it say to urban planners and policymakers? This study analyzes young adults' location choice, splitting them into several groups by income, education, marital status, the presence of children, and race and examines intra-cohort differences in city preference.

Data for this study comes from the Panel Study of Income Dynamics (PSID) which is a national panel survey of families in the United States. We also use the 2000 Decennial Census, the 2010 American Community Survey, and the Economic census for years 2002 and 2012 to characterize urban areas. We examine 89 cities representing 70 MSAs in 43 states. This includes all cities with a population of 250,000 or greater, and in cases where no city in a state fits this criterion, the most populous city with a population above 100,000. This study takes into consideration a variety of neighborhood characteristics to analyze location choice and to account for differences among young adults. Neighborhoods are characterized by variables relating to the residential units in it, socioeconomic, transportation, and built-environment characteristics, as well as the available urban amenities. To minimize multicollinearity problems among these neighborhood variables, we use Principal Component Analysis (PCA) which also reduces the dimension of the nearly 30 neighborhood variables into eight principal components. Each principal

component captures a meaningful dimension of a neighborhood.

We employ multinomial choice models to examine important characteristics of location choice of young adults (and older age group to confirm the difference from young adults) and different tastes in the same age group. The independent variables used in the models are (i) the eight principal component measures for the different neighborhood attributes, (ii) dummy variables for locations within cities defined by distance from the city center (0-5 miles, 5-10 miles, >10 miles, non-city/suburban), (iii) whether the place decision was from 2000 or 2011, and (iv) decision maker attributes such as their education level, income, the presence of children, the presence of a vehicle, and race.

The model result shows the increased preference for urban amenities among young adults in 2011 (so-called millennials) as compared to young adults in 2001. Further, choices reflect higher preferences for areas with more urban amenities as measured by their numbers and types. We show that young adults gravitated towards areas with higher population density, lower car-ownership, more transit use, and less car use. Within the young cohort, there are preference differences that were driven by education, income, race, the presence of children, and vehicle ownership. For example, highly educated young adults preferred neighborhoods closer to downtown with high use of public transit while high-income young adults preferred to live in resident-oriented neighborhoods with high automobile use. We also describe the associations of these preferences with race and other variables and draw implications for planners and policymakers.

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Key Words: Young adults, Residential location choice, intra-cohort difference

REEXAMINING RENTAL HOUSING AFFORDABILITY IN THE UNITED STATES

Abstract ID: 701

Individual Paper Submission

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Housing affordability for renter households in the United States is a major concern for planners and policymakers. Media reports have highlighted large increases in apartment rents, especially in cities. Overall, nearly half of renters are cost burdened, which is defined as paying more than 30 percent of their incomes toward housing costs (Fernald, 2018). Almost 11 million renter households spend greater than half of their incomes on housing costs and are considered severely cost burdened.

Prior work has focused on how rental housing cost burden has changed in recent years. The percentage of lower middle and middle income households who are rent burdened increased substantially from 2000 to 2010 (Gabriel and Painter, 2019). Rent burden became more prevalent for all households after the Great Recession; higher income households are at greater risk of rent burden after the crisis (Colburn and Allen, 2018). In addition, the gap between the number of extremely low income households and the number of affordable rental units increased from 2007 to 2010 (Lens, 2018).

However, most existing research only considers: i) the number, or percentage, of households that cross a housing affordability threshold, i.e. affordability is treated as a binary condition; or ii) housing affordability for the typical or median household. Neither approach is particularly informative about the distribution of housing affordability across and within groups. Information about the variation in rent-to-income ratios is necessary to understand the extent of the problem and how best to address it.

This paper builds on previous work and places it within a longer historical context by examining housing cost-income trends for renter households across the United States from 1980 to 2010. Using U.S. Census and American Community Survey data, I analyze how the distribution of the rent-to-income ratio has changed over time by income quintiles and levels of educational attainment. Preliminary findings indicate that less educated households, along with lower income households, experienced bigger increases in the ratio of housing cost to income. Further, rent burden is not symmetrically distributed within groups. Less educated and lower income households with higher ratios experienced bigger changes. The results suggest that the most disadvantaged households within each group were hit hardest by rising rents and stagnating incomes. These findings deepen our knowledge of the degree and scope of housing affordability problems and have implications for how to target policies.

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Key Words: Affordability, Cost Burden, Housing Costs, Rental Housing

THE NEW BANLIEUE? CENTRAL CITY AFFLUENCE AND SUBURBAN DECLINE IN 21ST CENTURY AMERICA

Abstract ID: 709

Individual Paper Submission

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For most of the 20th century, the typical neighborhood hierarchy in US metropolitan areas followed a distinct pattern: a central city largely composed of poor neighborhoods with high concentrations of communities of color surrounded by affluent white suburban neighborhoods. In the mid-1960s, scholars began to identify changes in this hierarchy as more affluent households began to move to central city neighborhoods (Glass, 1969). Ruth Glass identified this process as 'gentrification'. Glass's observations

of working-class London neighborhoods has spawned a robust literature on forms of inner-city revitalization (see for example Marcuse 1985; Smith et. Al. 1994; Wyly and Hammel, 1999). While many neighborhoods in central cities have experienced a "Back to the City" phenomenon (Hyra, 2014), by the 2000s the opposite was happening in many inner-ring suburbs. As Kneebone and Berube (2013) document, not only are poverty rates increasing and suburbs are also becoming more racially diverse. This pattern of racial diversity and poverty in suburban communities and affluence in the urban core is typical of European metropolitan areas (see Paris as an example), could that be the new norm in the US as well?

My research question is as follows: Where and to what extent are US metro areas experiencing a "Great Inversion" as Erenhalt (2012) calls it? Meaning that central city neighborhoods are moving up the neighborhood hierarchy while suburban neighborhoods move down in status. I use census data from 1980-2016 at the tract, city and metro area level for the largest 50 metro areas in the US. My initial investigations suggest that rather than being a uniform shift toward inversion, metro area changes in neighborhood hierarchies have been extremely heterogeneous. Hierarchies in legacy metro areas like Milwaukee and Cleveland have seen little if any changes since 1980, while others like Seattle have, according to my initial analysis, experienced a complete inversion as the typical neighborhood in the city of Seattle, after following the typical US pattern in 1980, now has a higher median income than a typical suburban neighborhood.

Research by Couture et al. (2018) suggests that rising income inequality combined with the "back to the city" movement benefits the affluent at the expense of the poor. My research seeks to quantify the extent of this phenomenon and explore what this means for both metro areas that are experiencing inversion and those that are not.

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Key Words: gentrification, neighborhood change, spatial inequality

RENTSCAPES: THE PAST AND FUTURE OF A POST INFORMAL CITY

Abstract ID: 721

Individual Paper Submission

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There is nothing informal about the conversion of self-built housing for rental: it is a process generated by formal housing production. Housing in low-income, Brazilian settlements has been dictated by infill regeneration approaches since the 1980s, when settlements were accepted as key parts of the city. Almost thirty years later, policy is abandoning settlement regeneration or upgrading in favor of peripheral, mass housing (Stiphany and Ward, 2019). Regeneration was never entirely worked out, but for a long time

permitted people to stay in optimally-located neighborhoods, expand their homes for kin and commercial purposes, and access critical urban infrastructures (Roy, 2007; Caldeira, 2016). Now, the consolidated settlements that result are cultivating new modes of urbanism. The most pronounced is rental, and its paradox is the following: housing policy is abandoning informality, but issuing low-income rental vouchers indeterminately, which are leading to densification and degradation. There is debate about whether this means that informality is no longer worthy of policy attention, that the recent turn of events constitute, as Ward (2018) suggests, a second generation of State-induced slumification, or that informal rental conversion is the physical planning unit of the 21st century city.

Drawing on data collected in the context of a large-scale mixed-methods study in São Paulo, Brazil, this paper analyzes the physical and conceptual dimensions of rental conversion in consolidated settlements that have been successively upgraded since the 1980s, from comparative perspective (NSF#1513395). Using a household survey, key informant interviews, Geographic Information System (GIS) and Building Information Modeling (BIM) analysis, this article (1) presents the nature and extent of rental conversion across two large settlements; (2) describes how different rental conversion typologies interact and reinforce one another; and (3) analyzes competing narratives of people involved in rental – builders, landlords, renters, and people displaced by the rental market. My analysis reveals that State divestment in consolidated informal settlements and the ongoing circulation of rental vouchers are the central mechanisms that produce low-income rentscales. Even though the rise in rental meets a growing demand, the conditions of many are highly precarious. I conclude with a discussion of how findings are relevant for planning after informality in the Global North and South (Wegmann and Mawhorter, 2017).

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Key Words: Informality, Housing, Rental, Policy, Brazil

RESIDENTIAL MOBILITY AND THE GEOGRAPHY OF LOW-INCOME HOUSEHOLDS

Abstract ID: 725

Individual Paper Submission

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Over the past 30 years, the spread of poverty and financial distress in suburban communities has become increasingly salient. While scholars have posited a number of potential reasons for this trend, many of the causes that researchers highlight involve population migrations—in other words, explanations tend to

assume that low-income individuals are leaving urban areas for suburban neighborhoods. To be sure, over the past several decades a number of factors have pushed low-income residents toward the suburbs (Covington, Freeman, & Stoll, 2011; Williams & Berube, 2014). However, the urban poor are still rather limited in terms of their residential mobility (Glaeser, Kahn, & Rappaport, 2008), and there is little empirical evidence linking low-income households with large-scale moves from central cities to suburbs (Cooke, 2010).

Using data from the Panel Study of Income Dynamics (PSID) combined with a unique neighborhood typology, this study addresses the relative lack of knowledge regarding the geographic mobility of low-income households. Results show that from 1999 to 2015, low-income households left urban neighborhoods for suburban communities to a substantial degree. However, despite this influx of low-income households into outlying communities, the overall effect on the income composition of suburban neighborhoods was minimal: during the same time period, non-low-income households also rapidly suburbanized, meaning the proportion of low-income residents in suburban areas was relatively stable.

Additionally, findings highlight several important differences between low-income households that suburbanize versus those that remain in urban areas. For example, households that make moves from urban to suburban communities have different racial characteristics than those that relocate within urban areas, with African-American households being far less likely to relocate to the suburbs than whites. Furthermore, household resources play a role in suburbanization. Access to automobiles is a particularly strong predictor of relocation patterns: families with at least one vehicle per household driver have a high likelihood of making a suburban move relative to those who are either carless or that share a single automobile among multiple drivers. Finally, a household's neighborhood of origin is also a key determinant of relocation geography. Specifically, households living in neighborhoods that have strong urban features (high population densities, mixed land uses, etc.) and are near the city center are relatively unlikely to make a suburban move. Conversely, families that live in urban neighborhoods that are less centrally located and somewhat more suburban in character show a higher propensity to suburbanize.

The results of this analysis have important implications for policy, particularly with regard to the socioeconomic trends that they highlight. For example, while population migrations have not caused a dramatic shift in the concentration of low-income households in suburban neighborhoods since 1999, the overall number of low-income suburban residents has grown considerably since the turn of the century. This influx of poorer inhabitants likely places a significant strain on social welfare services in suburban communities, some of which may be underprepared or inadequately equipped to meet the needs of a large-scale low-income population (Allard, 2017). Low-income suburban movers may suffer from a loss of social networks, face transportation challenges, and notice a lack of public resources in their new neighborhoods. As such, suburban jurisdictions, especially in areas where the influx of low-income families is particularly salient, must be aware of the obstacles that in-moving residents face, and strive to provide services and support to ease the transition from urban to suburban life.

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Key Words: suburbanization, low-income households, residential mobility

A CONSTANT QUARTILE MISMATCH INDICATOR OF CHANGING RENTAL AFFORDABILITY: CONCEPT, PRACTICAL USES, AND DETERMINING FACTORS

Abstract ID: 779

Individual Paper Submission

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Rental housing unaffordability in the United States has reached crisis proportions despite recent modest moderation since 2011. In fact, by the conventional indicator of percent of renters paying more than 30 (or 50) percent of income, there is little variation in the crisis across large metropolitan areas. How is it possible that the San Francisco Bay Area (45.6% of renters paying 30 percent or more of income for rent in 2016) and Washington, D.C. (46.1%) could be so much “more affordable” than Los Angeles (57.3%), even more affordable than the national average (47.5%)? The weakness of conventional measurement is that a single average is used for each metro, not distinguishing between income and rent effects, or differences at high and low ends of the market.

Recently we proposed an alternate indicator system—the constant quartile mismatch (CQM) indicator—that measures growing mismatch of rents and incomes in each quartile (Myers & Park, 2019). The method divides local renters into quartiles in a base year—2000, the last “normal” year before the housing bubble and Great Recession—and then measures renters’ distribution across those same income and rent quartiles, inflation-adjusted to a target year, 2017 in this study.

The objective of this paper is three-fold. First, we report growing mismatches between rent and income distributions as well as between top and bottom of the rental market, comparing the 100 largest metropolitan areas with 2000 decennial Census and 2017 American Community Survey microdata. The CQM indicator is compared with commonly-used alternative indicators of affordability, including excessive rent burden, low-income housing supply gap, affordable availability, and shelter poverty.

Second, we explore practical uses of CQM indicator, forming the quartiles in different ways across selected exemplary metro areas. Quartiles are formed separately for single-family rentals and apartments, new construction and older housing, and for housing that is larger or smaller. In effect, this analysis permits a discussion of how today’s households are “paying like the rich people of 2000” to live in rental housing of different structure types, ages, and sizes. Shifts in the homeowner market are also descriptively contrasted against mismatches in the rental market.

Lastly, we estimate the metropolitan conditions that cause the CQM indicator to take on higher or lower values across the full 100 metro samples. Of particular interest is how the effect of new construction varies when it occurs at different brackets of the market. For example, we test what difference it makes if new housing is added in the middle of the market in place of the bottom. In addition, we estimate, how

big an effect a large employment increase would have on the CQM if this comes without commensurate new housing additions.

Preliminary findings that extend the application of the new CQM indicator clearly show that renter households who live in a newer, larger, and single-family type rental housing experience a greater mismatch between rent and income. The Washington, D.C., example is especially interesting for the reason of the coming Amazon HQ2 that could strain the local housing market. We discuss the implications for housing plans in the Washington metro area.

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Key Words: Rental Affordability, Quartiles, Rent Burden

NEIGHBORHOOD CHANGE AFTER FLOODPLAIN BUYOUTS: A CASE STUDY OF HARRIS COUNTY, TEXAS

Abstract ID: 785

Individual Paper Submission

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Post-disaster property acquisition programs (e.g. buyouts) have increased in recent decades to expedite the relocation of residents from hazardous areas into safer places and to minimize future disaster risk. Despite the growing interest in floodplain buyouts, which is known as a voluntary acquisition of property to mitigate flood damage by relocating people and structures out of harm's way, limited research has focused on community and neighborhood change in affected areas after buyouts. Many existing studies have examined the driving factors of residential mobility decisions after disaster events at the individual level (Binder et al., 2015; Cong et al., 2017), but research investigating the neighborhood-level impacts on home buyouts is quite limited.

This research explores the impacts of post-disaster buyouts on neighborhood change. Focusing on 2,559 single-family home buyouts implemented between 2001 and 2010 in Harris County, Texas (which encompasses much of the city of Houston), we seek to identify how home buyouts have altered neighborhoods through time, especially in regards to vacancy rates. Harris County was chosen as the study area due the long historical and frequent relationship with catastrophic flooding since its major

urban center, Houston, was founded in 1836. Indeed, Harris County experienced 16 major flooding events during its first 100 years, between 1836 and 1936. Since 1900, Harris County has average 3.6 major flooding events each decade, although since the 1950s that average has climbed to 4.4. Clearly, Harris County/Houston represent an excellent case for this study in that the area is perhaps the largest, most diverse, and heavily flood-exposed city in the United States.

The authors focus on county-level buyout projects carried out by Harris County Flood Control District (HCFCD) for homeowners living in flood-prone areas. The buyout data was combined with the decennial Census data, Harris County parcel data, FEMA floodplain maps, and secondary data from the municipality to assess the relationship between the buyouts and neighborhood change at the block group level. A multilevel longitudinal model is developed and estimated using 2,559 geo-coded individual home buyout cases implemented in Harris County. An overview of floodplain buyouts implementation in Harris County and findings from the data analyses, along with policy implications and suggestions for buyouts in practice are discussed.

By reviewing the local buyout practices accomplished over the long-term and analyzing the consequences for these buyouts for neighborhoods, this study contributes to the design of buyout programs. Despite the dramatic increase of research on post-disaster home buyouts since the early 2000s, little research has examined the impact of home buyouts based on changes of neighborhood characteristics. Therefore, transcending cost-effective approaches, this study provides planning practitioners an expanded and more comprehensive view of disaster-related home buyouts in the neighborhood context and an insight of hazard mitigation and community resilience.

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Key Words: Post-disaster relocation, Home Buyouts, Hazard Mitigation, Floods, Community Resilience

DISASTERS AND PUBLIC HOUSING: TAKING A COUNT OF THE DAMAGE

Abstract ID: 810

Individual Paper Submission

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Katrina brought broad national attention to the impact that disasters can have on public housing communities. Despite that moment of discovery regarding disasters and public housing, the question of what is happening nationally to public housing units in the face of continued disasters and disaster damage has not been pursued by housing or disaster scholars. Instead, studies on the topic have remained restricted largely to disaster-by-disaster discussions of resiliency, social vulnerability, or local impacts.

These contextualized studies are valuable in understanding local conditions, challenges, and innovations; but they are unable to illuminate the long term affects that disasters are creating for the national public housing stock. In a federal policy environment that has long emphasized the redevelopment and deregulation of public housing, local communities have few incentives rebuild public housing units post-disaster, and in many cases, they see disasters as an opportunity to demolish public housing units and relocate public housing households. Using data from the US Department of Housing and Urban Development as well as spatial analysis of disaster areas, this study sets out to answer a straight forward question: in the last 15 years, how many units of public housing have been lost nationally due to disasters? Our analysis uncovers a second order national disaster affecting public housing communities and suggests key policy changes to improve outcomes for public housing units and public housing residents in post-disaster environments.

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Key Words: Public housing, natural disasters, social vulnerability, US housing policy, resiliency

A DATA-DRIVEN APPROACH TO IMPLEMENTING STRATEGIES TO PRESERVE NATURALLY OCCURRING AFFORDABLE HOUSING

Abstract ID: 819

Individual Paper Submission

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Many U.S. metropolitan areas are facing an increasing housing affordability challenge following recovery from the Great Recession. A combination of low supply of new housing, income growth below rent growth, reduced access to mortgage credit, and decreased housing subsidies, among other factors, have lead households to pay an increasing share of their monthly incomes toward housing (Joint Center for Housing Studies, 2018). Many different levels of proposals have sought to solve part of this housing affordability. Broadly speaking, these proposals advocate for increasing the general housing supply, producing more affordable housing, giving money to tenants or landlords to reduce housing cost, or preserving existing affordable housing. Each of these solution categories merits research, but we focus on the challenges of preserving existing affordable housing.

Preserving the affordability of existing housing is not a new idea; however, most prior and current research and programs have focused on preserving subsidized upon subsidy expiration (Nenno, 1991; Lens and Reina, 2016). While this is undoubtedly important, the vast majority of housing units considered affordable are not covered by any form of subsidies (Dreier and Bostic, 2016). These naturally-occurring affordable housing (NOAH) units house the majority of low-income Americans, but many are at risk of becoming unaffordable due to market forces.

Recent city plans and programs have identified NOAH preservation as a key pillar of maintaining affordability (e.g., 1) Minneapolis, 2) Oakland). These programs generally provide incentives for property owners or seek non-profit partners who acquire and or operate the properties to maintain property affordability. These programs are attractive in theory, but difficult in implementation. Finding current NOAH owners and assessing their fit for preservation programs is a key implementation challenge, due to variegated ownership, multiple legal entities, databases siloed by county, and inconsistencies in spelling and documentation across database entries. These difficulties in understanding who owns what and where and who is a willing partner add time and search costs to scaled coordination of preservation programs.

Our paper provides a data-driven solution to aggregate and characterize multifamily property ownership to ease preservation program implementation. We present a step-by-step framework to amass data, clean text fields, aggregate data by specific owners, and characterize ownership by number of properties and relative distance of property portfolio to owner's head office. We highlight the use of publicly available data and show how OpenRefine, an open-source software, can be used to correct for textual inaccuracy and aggregate messy text data. After cleaning, we post-process the OpenRefine output to derive owner typologies by size, the degree of owner locality, and the degree of ownership concentration in a metropolitan area. We then provide case studies from multiple jurisdictions that have implemented this approach and have reduced coordination time and cost in their preservation activity.

This paper provides a framework to incorporate property ownership data in research on housing preservation program implementation. It also points the way for using innovative text cleaning and aggregation tools in other forms of research in planning. We believe these methodologies will be very useful to both practitioners and fellow researchers, given the amount of 'text as data' in both planning practice and planning research.

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Key Words: Housing Preservation, Naturally Occurring Affordable Housing, Multifamily Ownership, data driven solutions, 'Text-as-Data'

AN ANALYSIS OF THE MISMATCH BETWEEN AFFORDABLE RENTAL HOUSING SUPPLY AND DEMAND

Abstract ID: 824

Individual Paper Submission

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Over the past several decades, housing in the United States has become increasingly unaffordable, especially for renters. One in four renters spends over half of their income on rent. Nationally, the housing market provides only 21 affordable units for every 100 extremely low-income renter households. Federal assistance adds another 24 affordable units. Rental affordability challenges are found everywhere, not just in central cities. A sustained federal commitment to affordable housing to meet the needs of the low-income renter households is crucial.

This study examines the extent of the supply versus demand of affordable rental housing, both nationally and locally. The study investigates whom does affordable rental housing really serve? This study is particularly interested in whether the affordable rental housing supply meets the need of low-income families with children, seniors, and householders with a disability. Nationwide, forty-eight percent of extremely low-income renter households are seniors or a householder with a disability. The existing scholarship focuses on matching the affordable housing supply to demand based on household income levels. This study differs from the existing research by exploring the disparity not only based on household income level but also on household size, family composition, and special needs.

This study analyzes multiple sources of data: the US Department of Housing and Urban Development (HUD) Picture of Subsidized Households (PICTURES), the Low-Income Housing Tax Credits data and the Comprehensive Housing Affordability Strategy data, the US Department of Agriculture's (USDA) Rural Housing Service data and the ACS Public Use Microdata Sample files (PUMS) from the Census.

Examining the data between 2000 and 2017, this study addresses the following: 1) an analysis of the present-day rental housing affordability gap at the national, state, and local level and how the gap has changed over time since 2000, 2) measuring the rental housing affordability gap based on income, household size, and special needs, and how the gap has fared over time since 2000, 3) examining characteristics of low-income rental households most impacted by the shortage of affordable rental housing, and 4) the disparities in the location of affordable rental housing by household size and type and those with special needs.

The shortage of affordable rental housing is well documented. Efforts to reduce the affordability gap largely focuses on increasing the stock of affordable housing units. More in depth analysis reveals there is a disparity among those who have most benefited from such efforts and those who have faced greater difficulty obtaining affordable rental housing.

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Key Words: affordable housing, rental affordability gap, supply and demand

STAKEHOLDER KNOWLEDGE AND SKILL GAPS UNDER A VOLUNTARY INCLUSIONARY HOUSING POLICY

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In 2018 the State Government of Victoria, Australia, established a legal mechanism to allow local governments to negotiate with developers for affordable housing contributions during the planning approval process. These efforts, unprecedented in Victoria, fall under the broad umbrella of inclusionary housing (IH) incentives that American scholars have studied extensively (Schuetz et al., 2009). While much research has empirically investigated the impact of inclusionary housing on affordable housing production and on the broader housing market, “we hardly know how local planners and policy-makers view and address potential tradeoffs” (Mukhija et al., 2015, p. 231). This is particularly relevant in the context of Victoria’s nascent IH negotiations system, as the novelty of this policy and its reliance on individual negotiation skills is likely to drive significant variation in negotiation outcomes. Stakeholder skill gaps, paucity of guidance, and an absence of enabling governance structures are likely to limit the effective and just application of the policy. This raises concerns, as negotiated developer contributions delivered through weak governance arrangements do not necessarily serve the public interest (Muñoz Gielen et al., 2017).

This paper contributes to a gap in the literature on the potential impact of stakeholder skills on the success of voluntary inclusionary housing programs. We draw upon insights from the negotiation literature to better understand the likely outcome of affordable housing negotiations in Victoria. We take as a starting point Shmueli, Kaufman and Ozawa’s (2008) call for a renewed exploration of the potential contributions of negotiation theory to our understanding of planning situations, based on investigating stakeholder interests, mutual benefits, and access to information. We examine these issues through two empirical efforts: focus groups on developing a affordable housing feasibility training tool, and a survey on stakeholders skills, capacities, and expectations regarding the new affordable housing policy in Victoria.

We responded to the introduction of voluntary affordable housing agreements in Victoria by developing and launching an online Affordable Housing Negotiations Calculator. As part of our ongoing involvement in an action research project, Transforming Housing, we are strongly embedded in the affordable housing sector in Melbourne and aware of industry reactions to the voluntary negotiations policy. In particular, we anticipated there would be skill and knowledge deficits in local councils for planning officers and councilors engaging in property negotiations for the first time. This concern was reiterated by the State Government and reflected in a \$500,000 grant announced in 2018 to be used by local councils to build their competence.

We also developed an online survey to examine three elements of negotiation in the context of voluntary affordable housing negotiations in Victoria: interests, mutual gains and information. To test interests, or the ‘why’ behind the positions of negotiating parties, the survey focused on the value statements attached to perceptions of who is responsible for affordable housing and the priorities of various stakeholders. We used this instrument as a proxy for understanding why a company or organisation would voluntarily provide a social good, testing for extrinsic and intrinsic motivations. In considering mutual gains, the survey tests the degree to which respondents believe benefits are likely to emerge from voluntary negotiations, as well as their levels of trust in the other parties involved in negotiations. In testing knowledge and access to information, the survey asks questions about individual and organisation-wide capacity and expertise in development feasibility and the affordable housing sector.

Our results will add to a growing international literature on the role of the planner as negotiator under neoliberal governance structures.

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Key Words: affordable housing, community benefit agreements, negotiation, inclusionary housing

TOP-DOWN OR BOTTOM-UP: AN ORGANIZATIONAL AND OPERATIONAL TALE OF TWO LAND BANKS IN BUFFALO AND SYRACUSE, NY

Abstract ID: 847

Individual Paper Submission

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Following years of legislative negotiation, New York State (NYS) in 2011 passed its Land Bank Act (NYSLBA) in order to provide a new tool in the fight against the ever-increasing vacant, abandoned, distressed, foreclosed, and tax delinquent property crises that have been plaguing the state's shrinking municipalities. Land banks are nonprofit organizations created by local governments and granted property acquisition and disposition powers that tend to exceed those of local governments. Using these powers, land banks can often acquire, maintain, and dispose of vacant, abandoned, and tax delinquent properties—particularly those that are located in weak market areas—more effectively and efficiently than local governments. These critical tools have had notable success in pushing back against the self-reinforcing cycle of decline and disinvestment in distressed neighborhoods (CenterState CEO, 2014).

Among the first land banks created in NYS were the Buffalo Erie Niagara Land Improvement Corporation (BENLIC) and the Greater Syracuse Land Bank (GSLB). Vitality, the NYSLBA includes language saying that NYS “land banks are created by local government, are local public authorities, and operate as independent nonprofits acting in the public interest” (CenterState CEO, 2014). That is, land banks in NYS are not meant to be government-driven and operated. Rather, they are intended to function as pluralistic arenas in which collaborative, holistic strategies are designed and implemented to combat shared problems of vacant, abandoned, and tax-delinquent properties.

This research uses a comparative case study approach to analyze the operations and outcomes of BENLIC and GSLB since their founding. While both organizations share common foci and goals, they have markedly different leadership and organizational structures. BENLIC's Board of Directors is made up entirely of government officials and lacks meaningful community representation. Its executive director

came to the land bank from the private sector where she worked in economic development. At GSLB, the Board of Directors is made up of predominantly non-government professionals largely pulled from community-based organizations. It also has a Citizen's Advisory Board made up of community stakeholders appointed by elected officials. The executive director was a former community planner with the City of Syracuse, where she worked on the strategic revitalization of distressed neighborhoods.

On the surface, then, BENLIC appears to be a top-down, government-driven organization headed by an economic development professional; while Syracuse is seemingly a bottom-up, community-driven organization headed by a community planner. The overarching hypothesis of this paper is that these important organizational differences are linked to disparate decision-making practices and, ultimately, outcomes. Drawing on land bank public records, interviews with key government and community stakeholders, and data on land bank acquisitions and dispositions, the paper shows that, in Buffalo: 1) land bank staff are driven toward acquisitions that result in profit upon disposition to address a lack of reliable and sustained funding, 2) BENLIC's government-driven Board of Directors make decisions that are misaligned with local resident and nonprofit priorities, likely because 3) BENLIC lacks a community advisory board or active community engagement program. Meanwhile, in Syracuse, 1) community-engagement is a foundational characteristic of the organization and guide for decision-making, 2) continued fiscal support from the City of Syracuse coupled with state funding reduces profit-making as key guide in strategic planning and decision-making, which 3) allows GSLB to be more aggressive in its acquisitions and strategic programming and also be more community and neighborhood focused where risk is higher and profits are lower.

These findings contain valuable insights for how to structure and fund future land banks. The paper further opens a path for future research that examines the depth of the challenge facing land banks working at the regional level over top multiple local jurisdictions.

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Key Words: land banks, blight, tax foreclosure, neighborhood revitalization, community development

DEFINING HIGHER EDUCATION CENTERS: A TYPOLOGY OF HIGHER EDUCATION ANCHORS IN THE US

Abstract ID: 850

Individual Paper Submission

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Since 2000, enrollment in higher education institutions (HEIs) has grown immensely; the National Center for Education Statistics (NCES) reports the undergraduate population increased by 28% between 2000 and 2016. While much of the conversation has focused on the drivers of growth, including the wave of Millennials reaching young adulthood during that period, fewer scholars have engaged with the impacts of larger enrollments for local communities. In our research, we add a new dimension to the HEI discourse, asking, first, how are HEIs clustered and dispersed across US metropolitan areas, and, second, how are their growth dynamics impacting urban housing markets? To answer these questions, we consider variation in HEI concentration across US metropolitan areas and examine HEI growth trajectories between 2000 and 2015 to establish a typology of metropolitan areas based on the type, concentration, and growth patterns of HEIs. Subsequently, we employ this typology to assess the impacts and contributions of HEI growth on demand for rental and owner-occupied housing.

The existing place-based HEI research varies in scale. From an economic perspective, there are discussions around brain-drain and brain-gain cities, which respond to the gravitational pull of HEIs across regions (e.g., Andreason 2015; Taylor and Cantwell 2018). At a smaller scale, there is a growing body of neighborhood-level research examining the (sometimes contentious) relationships between HEIs and their adjacent communities, where residents, students, and faculty intersect (or compete) in the housing market and around amenities (e.g., Ehlenz 2018; Foote 2017; Sage, Smith, and Hubbard 2012). However, there is less discussion about the interaction among multiple HEIs within a region or their collective impacts on place. Our research seeks to fill this gap, by examining HEIs' role in housing markets more broadly. For instance, does a region with a higher concentration of HEIs experience more intense effects in its housing market? Conversely, do college towns defined by one major HEI experience different housing pressures than cities with multiple, competing HEIs?

We approach our research in two phases. First, we generate new knowledge about the role of HEIs in cities through an analysis of HEI locations and the development of a typology to identify "higher education centers" (HECs) at the regional level. Using HEI-reported data from NCES, HECs capture the interaction between HEI diversity (e.g., Carnegie Classifications), growth trajectories, and regional concentrations to evaluate patterns of change. Our typology distinguishes large college towns with one HEI from clusters of HEIs in small or large cities. Further, it contextualizes HEI dynamics to identify established, emergent, and declining HECs. Second, we use this typology as a lens to examine the contributions and effects of HEIs on regional housing markets, including housing prices, affordability, and development. Data sources include NCES data on student populations and institutional characteristics and US Census and American Community Survey data on housing markets.

This research expands the conversation around HEIs and their impacts on cities. It augments research about anchor institutions and place-based effects, by going beyond the campus and neighborhood and considering the wider, aggregate impacts of HEIs within their host cities and regions. Further, our study adds to a growing conversation around the spatial dispersion of HEIs across the US, identifying the ways HECs may benefit or potentially limit cities, as well as their residents, through unequal concentrations of HEI access and/or distortion of housing markets.

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Key Words: higher education institutions, anchor institutions, brain gain/brain drain, urban development, housing markets

DISASTER RECOVERY, HOUSING, AND EQUITY

Abstract ID: 894

Individual Paper Submission

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Low-income communities and communities of color are disproportionately exposed to environmental hazards and are disproportionately vulnerable to residential instability as a result of disasters (e.g. Bullard and Wright 2009). Further, housing recovery in communities of color advances more slowly than in predominantly white communities (Peacock, Van Zandt, Zhang, and Highfield 2014; Green, Bates, and Smyth 2007) and the recovery process widens wealth inequalities in general and inequalities by race and by housing tenure (Howell and Elliott 2018). Pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the Federal Emergency Management Agency (FEMA) provides survivors with limited financial or direct assistance to obtain temporary housing for roughly 18 months after a disaster declaration and the authorization of a housing mission. How households transition from temporary to permanent housing is crucial to individual and community recovery and to social and racial equity, but is understudied and poorly understood (Kim and Olshansky 2014). This paper first analyzes state led housing initiatives after disaster to identify the forms that those initiatives take and who they assist. As state efforts seek to help survivors recover from disasters, to what extent do recovery efforts mitigate or exacerbate racial inequality? This paper then analyzes these state led housing initiatives in light of recent legal cases challenging disparities in post-disaster recovery assistance in Louisiana, New Jersey, and Texas and assesses the extent to which subsequent state post-disaster housing efforts are learning from previous programs and their critiques.

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Key Words: Disasters, Housing, Racial equity

THE EFFECTS OF ENVIRONMENTAL HAZARD ON HOME MAINTENANCE AND HOUSE PRICE APPRECIATION

Abstract ID: 916

Individual Paper Submission

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The literature on environmental justice seeks to understand the impacts and interactions of race and income in the distribution of environmental hazard. However, research also needs to address the social context in which these variables of race and income are reproduced as they are socially coincident in the urban context and housing markets. Further, there is a need to understand how the existing distributions of environmental hazards continue to impact neighborhoods across generations. In this paper, I aim to understand how the presence of environmental hazards in a neighborhood has the potential to impact homeowners' maintenance decisions and the potential for these decisions to impact the Los Angeles County housing market.

In this study, I investigate the relative appreciation rates between houses in census tracts with varying levels of environmental contamination. In this method, I hold the housing characteristics data constant and allow the environmental hazard values to change over time in order to estimate the appreciation of house relative to its surrounding environmental hazard. I do not find evidence that appreciation rates of houses with lower levels of environmental hazard differ in any significant way from houses with higher levels of environmental concern suggesting that homeowners may not make considerable changes to their home maintenance routines according to surrounding environmental conditions. I suggest this is likely to do lack of availability of high-quality data on environmental conditions for prospective home buyers and existing homeowners.

Building on the existing literature on the hedonic impacts of environmental impacts on housing prices, I investigate how environmental hazards impact individuals' home maintenance decisions. There has been little research to date which tries to understand how environmental hazards impact home resale. Previous hedonic estimation studies have been aimed at understanding people's willingness to pay for avoidance of environmental disamenities such as poor air quality, noxious land uses (including Superfund sites and garbage facilities) and poor water quality. Boyle and Kiel (2001) performed a review of these environmental hedonic studies. They find that air quality studies typically find that signs on coefficients for air pollution are not usually statistically significant and the signs on the coefficient for air quality depend on other included variables. Water quality studies typically find that the signs on the coefficients are correct and are generally statistically significant. Studies about noxious land uses find the most promising results with signs on coefficients being as expected and results being statistically significant. However, as information about the noxious sites changes, the impact of noxious sites on nearby house prices changes. This suggests that there is a need to conduct longitudinal studies across neighborhoods instead of point-in-time estimates of environmental impacts to housing. Using a repeat sales methodology, I estimate house price appreciation and track how individual house prices change over time. Using the methods of Gatzlaff, Green and Ling (1998), I do not hold aging constant so that appreciation can be estimated net of physical depreciation.

To estimate environmental hazard, I rely on United States Environmental Protection Agency (EPA) Risk-Screening Environmental Indicators (RSEI) from 1999 to 2010. RSEI provides screening-level human risk values based on released chemicals' fate and transport, toxicity and potential population-weighted

human exposure (EPA 2018). Block-level RSEI data were then matched to housing transactions collected by CoreLogics.

This study expands both the environmental justice and housing literature by considering the impacts of environmental hazard on house price appreciation. This research is relevant for policy makers, planners, real estate developers and environmental regulators. Understanding the full costs and benefits to an environmental hazard is critical to performing cost-benefit analysis of the hazard to the ecology, the people, and their neighborhood.

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Key Words: housing, environmental justice, repeat sales, environmental hazard, housing values

QUANTIFYING SHELTER POVERTY IN SOUTH CAROLINA

Abstract ID: 925

Individual Paper Submission

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The most common approach for evaluating housing need is a ratio-based measurement of housing cost burden; households spending more than 30 percent of income on housing and utilities are classified as cost burdened. While the ratio's simplicity has propelled its widespread appeal, underlying issues compromise its accuracy and usefulness. Though easily quantifiable, this threshold does not correspond to any specific theoretical definition of housing cost burden. A ratio fails to account for the fact that expenses are often not scalable to income and vary based on geography and household configuration. A household can choose to spend a large share of its income on housing out of choice, and it may be unable to afford any amount of money for housing at all if its necessary non-housing expenses exceed its income. Housing cost burden, tautologically, should measure whether (and how much) a household is burdened by its housing costs; there is reason, both conceptually and in extant literature, to think that the ratio method does not meet this challenge.

A number of researchers have highlighted these challenges and proposed a residual income approach, "shelter poverty," which evaluates housing affordability after accounting for minimum costs covering other essentials. These works were largely theoretical, however, in that they were more focused on argumentation and potential methods rather than quantitative results. This paper builds on that literature to empirically evaluate both measures of housing cost burden to quantify and describe housing need.

The central innovation of this research is the use of the Self-Sufficiency Standard in operationalizing shelter poverty. This work provides a detailed breakdown of expenditure levels required to compute shelter poverty by geography and household composition that can be joined with American Community Survey (ACS) microdata to calculate housing cost burden for each household in the sample. It is then possible to determine the breadth of shelter poverty as well as its depth and scale data up to the population at large using provided household weights. The use of this approach allows for a more precise identification of households for whom spending on housing and utilities is prohibitive.

Using the 2013-2017 ACS and a 2016 Self-Sufficiency Standard report for South Carolina, it is possible to determine that 585,300 households experienced shelter poverty statewide, 31.5 percent of those for whom a calculation could be conducted. This is slightly higher than the traditional rate of housing cost burden (29.7 percent). Variances become appreciably larger when results are broken out by housing tenure; dramatically fewer homeowners with a mortgage are burdened under the shelter poverty measure than the 30 percent threshold, while the reverse is true among homeowners without a mortgage.

The more compelling result is the aggregate depth of shelter poverty, i.e., either the amount of subsidy required to eliminate housing cost burden or the amount of essential expenditures that households went without or needed to secure from public assistance, charity, or friends and family. This gap totaled \$8.4 billion per year, or \$14,330 per burdened household. This is much lower than the corresponding figures of \$3.0 billion and \$5,462 under the 30 percent ratio standard. Again, mortgage status affects the magnitude of these results. There is also appreciable variance by geography within the state. Rural areas tend to have the highest rates of shelter poverty, both overall and relative to the 30 percent threshold, while more densely populated areas experience deeper average distress.

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Key Words: shelter poverty, housing affordability, Self-Sufficiency Standard

ENDING GATED COMMUNITIES: THE RATIONALE FOR RESISTANCE IN CHINA

Abstract ID: 940

Individual Paper Submission

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Gated communities are widely acknowledged as a global phenomenon. Yet, China views neighborhood enclosure as its centuries-old tradition. China's economic reforms since 1978 has largely been propelled by housing privatization since the 1980s, leading to unprecedented socioeconomic and spatial transformations in the urban realm. One of the most salient characteristics of today's Chinese cities is the prevalence of enclosed residential neighborhoods. Studies on Chinese residential neighborhoods have adopted the concept of "gated communities" originated in North American contexts (May, 2017).

Analyzing gating in China links discourses of Chinese housing development with the broader debates about rising neoliberalism across the globe.

Causes of the prevalence of gated communities are manifold, mainly including psychological, economic, cultural, and political aspects. Viewing across the globe, neoliberal housing markets are criticized for spawning gated communities as socially exclusionary urban enclaves for the wealthy (Bagaeen, 2015; Glasze et al., 2006). Reviewing China's urban history, scholars point to the cultural continuity in the forms of neighborhood enclosure and in the political purpose of social control (Bray, 2005; Qian, 2013). These discourses that rationalize the prevalence of gated communities underpin our study on China's recent policy against neighborhood enclosure.

Although gating was once promoted and even mandated by regulations in Chinese cities, recent and contested urban policy reform seems intent on ending such neighborhood typology. On December 20, 2015, the Chinese central government convened a Central Urban Work Conference, which has been widely perceived as a "turning point" for developmental trajectories (China Xinhua News, 2015). The Conference laid stress on improving urban environment through measures against "urban illnesses," which entail overpopulation, traffic congestion, housing shortage, pollution, environmental degradation, and resource scarcity. The Conference's stated intent to "abolish gated communities in new developments" and "open up current gated communities" has sparked heated and extensive debate. Neither the practicability of this new policy nor its potential impact is fully understood in China.

So far, the policy on ending gated communities has little impact in practice. It is worth noting that the Conference also urged the redevelopment of all shantytowns and urban villages by 2020. The irony of such a strategy lies in the fact that wholesale demolition tends to replace low-cost, open residential communities with oversized, exclusionary real estate developments. The new high-end neighborhoods often occupy a few gated superblocks. With the continued official promotion to eradicate low-end neighborhoods, the ensuing redevelopment has created additional gated communities and inaccessible superblocks—precisely what the other key piece of the new policy proposes to undo. In order to realize the progressive policy goals against the notorious "illnesses" in the urban environment, the prevalent development model in forms of gated superblocks must be altered with the support of additional policy adjustment and regulatory coordination.

Building upon past literature on the rationale behind the phenomenon of gated communities both beyond and within China, our study asks: Why has the policy preference shifted from promoting gating to eliminating neighborhood enclosure? To what extent has this policy influenced local practices of residential development? Why have decisions persisted or changed in residential development?

The real problems of neighborhood enclosure are more intricate than the presence of gates itself; likewise, the potential solution ought to be multifaceted than simply removing gates. We interview experienced practitioners and knowledgeable scholars across central and coastal regions in China. We conduct discourse analysis and provide practical insights about the rationales behind the resistance against ungating. We also consider nuances in China's top-down system where changes cannot be easily implemented due to misalignment of political interests and due to the dynamic relationships among state, market and emerging middle class.

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Key Words: gated communities, China

A BURDEN OR A TOOL? RATIONALIZING PUBLIC HOUSING PROVISION IN CHINESE CITIES

Abstract ID: 943

Individual Paper Submission

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Public housing is widely discussed as an important component of the welfare state. Public housing is often viewed as an economic burden and its provision largely relies on local governments. Through examining growing Chinese cities, we provide an alternative view of the role of public housing in emerging markets. The definitions and formats of “public housing” vary across different geo-political contexts. In our paper, the term “public housing” is used similarly to China’s “she hui bao zhang fang,” a crucial entity of China’s welfare state. We use this concept generally for housing 1) that requires public subsidies in various forms (such as direct monetary investment, tax exemption, and opportunity cost of the allocated land) and 2) that targets specific social groups (including the disadvantaged populations that local governments are required to support and the preferred populations who receive favorable policies). Based on these commonalities, we construct a framework that delineates the production of public housing as a process that generates variegated typologies and impacts across various urban conditions. Rather than viewing public housing as a pre-given empirical object, we interpret it as a concept that is laden with mediated, interpretive construction embedded in the context.

Since the 1980s, China has undergone dramatic changes from a social housing system to a dynamic housing market, but its formal housing systems today have largely failed to accommodate the low-income population (Deng et al., 2011). Chinese cities struggle to sustain growth due to issues such as exorbitant housing prices, increasing urban poor, and rising inequalities—all posing threats to socio-political stability. By 2011, China has recognized public housing as a pillar of its social security system and a top priority on its political agenda. Studies suggest that local governments remain reluctant to provide public housing despite the centrally mandated provision targets. Public housing is regarded as an economic burden due to direct expenditure, opportunity cost from allocating land and insufficient subsidies from the central government. Local reluctance is blamed as the major barrier to housing affordability, leaving housing needs for the poor largely unmet. Recently, China’s central government stimulated public housing provision to enhance people’s livelihoods and remedy social inequalities. It ambitiously announced to build “36 million public housing units” in the Twelfth Five-Year Plan 2011-2015 (TFYP), and strictly imposed provision targets on local governments. Public housing provision became an important criterion for officials’ promotion. This top-down plan led to both heterogeneity and commonality in municipal provision strategies.

Challenged by variegated local responses, we ask: How did municipal governments design city-specific public housing programs in response to central mandates and why do local programs differ? We trace the conceptions of local public housing programs by examining intentions and attitudes stated both in major policy documents and by interviewed local officials. We reflect on explicit languages and reveal unstated rationales underlying municipal responses. We focus on two major cities exemplifying different development stages—Chongqing as an industrializing city and Shenzhen as a deindustrializing one. We conduct a case-based, inductive study and construct a conceptual framework of cost-benefit considerations based on extensive literature review and the unique experiences in these two cities. This open-ended framework interprets the intricate, mediated, and dynamic relationships among constituents of local decision-making in growing Chinese cities and invites further elaboration and debates. Our proposition complements existing theories of capitalist welfare states by rationalizing China's variegated local public housing policies as a sub-type and by connecting lessons from Chinese experience with the global discourse about public housing. The following sections of literature review, case analysis, and framework elaboration unfold accordingly.

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Key Words: public housing, municipal housing programs, China

HOW CONSISTENT ARE RACIAL RENT PREMIA IN THE HOUSING CHOICE VOUCHER PROGRAM?

Abstract ID: 967

Individual Paper Submission

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Housing policy continues to fight an uphill battle against housing discrimination – despite decades passing since de jure segregation was succeeded by de facto segregation, waves of fair housing and anti-discrimination legislation, and major shifts in public attitudes towards racial integration, many housing markets remain racially biased.

Federal housing programs have a mandate to confront head-on the bias present in some housing markets, particularly given the mandate that HUD programs affirmatively further fair housing under the auspices of the 1968 Fair Housing Act. Despite this mandate, and efforts to use the voucher strategy as a tool to promote racial and socioeconomic integration, voucher-subsidized tenants still face bias and discrimination in housing searches. Across most of the country, discrimination against voucher-

subsidized households based upon source of income remains legal, and even in cases where source of income protection ordinances are in place, enforcement remains a challenge.

Racial bias against voucher households also remains a problem. Early, Carillo, and Olsen (2018) examine Housing Choice Voucher program data from 2000 to 2002 to assess the presence of racial rent premia on the basis of race. They find that while no rent premium exists in predominantly African American neighborhoods, that in neighborhoods with a high proportion of white households, African American voucher-subsidized households pay on average 3.6 percent more for housing (after controlling for housing quality, neighborhood amenities, and household characteristics). These results for voucher-subsidized households mirror evidence for home sales that similarly provide evidence for a racial rent premium of approximately 1-3 percent (Bayer, et al., 2017; Ihlanfeldt and Mayock, 2009).

This study builds upon Early, Carillo, and Olsen's (2018) work, using a unique longitudinal dataset on voucher-tenancy for the United States for the years 2002-2017. Using these data, I examine whether the racial rent premium observed by Early, Carillo, and Olsen in 2000-2002 remains consistent over the period 2002-2017, and also examine what neighborhood change factors influence the presence, absence, and severity of racial rent premia for voucher-subsidized households.

The findings from this work are important not only in extending and confirming the presence of a racial rent premium using data over a longer timespan, but also in identifying how neighborhood sociodemographic factors may influence the emergence or disappearance of a racial rent premium over time. In addition to providing valuable information to HUD and Housing Choice Voucher program administrators, this work provides important insight for local government and regional planners as they work to promote fairness and accessibility in local housing markets.

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Key Words: Housing Choice Voucher, Segregation, Rent, Equity

HOUSING AND HOMELESSNESS IN INDIGENOUS COMMUNITIES: A CASE OF THE TŁİCHŦ REGION IN THE NORTHWEST TERRITORIES, CANADA

Abstract ID: 990

Individual Paper Submission

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The study has the following multi-fold purpose:

1. To assess the scope of the current housing and homelessness problem in the Tłıchŧ region
2. To determine the root causes of housing and homelessness issues in the region
3. To analyze the housing policies of the Northwest Territories Housing Corporation (NWT HC)

4. To identify best practices and recommend effective strategies or solutions to ameliorate these housing and homelessness issues

The Tłıchǵ region with its own self-government is just north of Great Slave Lake with a population of 3,176 across a land mass of 39,000 sq km, but the population is concentrated in four disparate communities - Behchokǵ, Gamètı, Wekweètı, and Whatı.

The study used a mixed-method approach to collect relevant data. NWTHC provided policy and program documents and detailed customized datasets. This was then complemented by interviews with close to 60 individuals across the region over a period of seven months. The individuals included the current and former grand chiefs, the current chiefs, the elders in the communities, and the senior administrative officers, housing managers and other staff in each community. Also interviewed were several homeless individuals in Behchokǵ and in Yellowknife who are Tłıchǵ citizens.

The study makes it abundantly clear that the housing and homelessness in the region are in a critical state, especially in Behchokǵ, where it is a full-blown crisis. Homelessness is visible in Behchokǵ, which constitutes unsheltered homeless people, making up a portion of a larger at-risk population. Hidden homelessness seems more prevalent in the other three communities where the homeless are provisionally accommodated by their friends or families. The factors responsible are largely consistent with the existing literature. This study, however, uncovers a few more nuanced aspects of housing, for instance, seismic socio-cultural shifts occurring within Indigenous communities, the effects of neo-liberalism, and the unintended consequences of housing policies.

The policy recommendations suggest a set of responsibilities to be shouldered by the two key stakeholders—NWTHC and the Tłıcho Government (TG). Among several recommendations were a place-based policy approach by NWTHC along with a greater role for TG in the provision of housing.

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Key Words: Canada, Indigenous communities, Northwest Territories, Housing, Homelessness

RECOVERY CHALLENGES OF PUBLIC HOUSING RESIDENTS AFTER DISASTERS: LUMBERTON, NORTH CAROLINA AFTER THE HURRICANE MATTHEW

Abstract ID: 1017

Individual Paper Submission

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Scholars believe that residents of public housing are one of the most socially vulnerable people that face significant damages in disasters. Public housing residents often cannot afford temporary or permanent shelters in the aftermath of disasters due to many factors such as lower income and limited access to information that causes a delay in their housing recovery. Therefore, disaster recovery can be unequal, where some segments of a community are recovering fast whereas other parts, in particular, public housing residents, are lagging behind. Thus, it is crucial to study the recovery of public housing units in the aftermath of natural disasters due to the intersectional aspects of public housing residents' vulnerabilities.

Hurricane Matthew made landfall in North Carolina on October 8, 2016, as a Category 1 storm. Several communities including Lumberton were devastated by heavy rainfall and the river flooding that occurred after Hurricane Matthew. Lumberton is a diverse socio-demographic city with one-third of households who live at or below the poverty level. Also, Lumberton has a particular combination of minorities, with a high percentage of African American and Native American citizens. The flood destroyed over half of the total residential units and 37% (270 units) of public housing units in Lumberton. Flood damages forced 264 families of public housing developments to be displaced.

Using Lumberton as a case study, I compared the recovery process of public housing developments with privately-owned housing units to understand the challenges of the recovery of public housing units. In this regard, I used a combination of qualitative and quantitative analysis. This research is a part of a larger longitudinal and interdisciplinary recovery-based field study in Lumberton conducted by the Center of Excellence (CoE) on Risk-Based Community Resilience Planning with collaborators from the National Institute of Standards and Technology (NIST).

Specifically, social vulnerability factors including race, income, poverty, age, education, and housing tenure of the residents at Block Group level were collected from the 2015 ACS-5-year estimation. I used these statistics and spatial analysis to map the social vulnerability of the city. Then, the map was overlaid with public housing complexes' locations. Moreover, data on home damages, recovery resources, decisions, and dislocations were collected using two longitudinal field study surveys conducted in December 2016 shortly after the flooding, and January 2018 one year after the disaster. Then, I explored the impacts of funding, policy-making, and planning on the recovery of public housing units using media content, official documents and in-depth interviews with local officials and authorities in Lumberton. Consequently, the impact of social vulnerability factors, as well as policy makings on the outcome of the recovery of public housing units, were investigated.

Findings show that housing tenure, race, and poverty make up the largest portion of vulnerabilities of public housing residents. The dynamic social marginalization decreases the role of socially vulnerable people in the recovery decision-making process and the static vulnerabilities limit their access to the resources of recovery. Particular timelines, funding resources, and eligibility criteria have influences on the recovery of public housing residents. The social vulnerabilities of the residents of public housing units affect the pace of recovery by being marginalized in the decision making and funding process in the aftermath of disasters. Furthermore, lack of well-organized planning for allocation of funding sources and disbursement as well as recovery resulted in the high number of families' displacement and abandoned units of public housing residents.

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Key Words: Housing Recovery, Social Vulnerability, Public Housing, Disaster

MEASURING THE EFFECT OF MULTIFAMILY RESIDENTIAL DEVELOPMENT ON NEIGHBORHOOD-LEVEL EVICTION PATTERNS IN DANE COUNTY, WISCONSIN

Abstract ID: 1019

Individual Paper Submission

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Recent scholarship on evictions has shown that the distribution of eviction can represent a form of urban displacement that is disproportionately experienced through a combination of decreased housing security and forced movement at both the household and neighborhood levels (Desmond, et al., 2015; Sullivan, 2017). One of the important conclusions that has surfaced from these findings is that eviction should be understood as the result of two intersecting fields that together shape the overall process: the production of urban poverty and the structural limitations on affordable housing production (Desmond, 2016). This strongly sociological analysis on eviction has tended to focus on the former—i.e., identifying the specific householder characteristics that are associated with eviction such as race, gender, and household composition and centering eviction around household vulnerability and the discourse of “neighborhood disadvantage” (Sampson, 2012).

While this approach to eviction has revealed important patterns, it has also tended to push other explanatory factors rooted in housing market dynamics to the periphery of analysis. One consequence of which is that traditional models emphasizing the re-making of urban space that have led to displacement—notably gentrification—have been dismissed within eviction research (Desmond & Gershenson, 2016). This research seeks to bring renewed attention to the relationship between gentrification and displacement by focusing on the association between multifamily housing production and eviction filings in a rapidly changing Midwestern urban landscape experiencing uneven housing market pressures from continued de-industrialization on one hand as well as a re-industrialization around a growing “cognitive-cultural” economy (Scott, 2008) on the other. In order to analyze this relationship, a database of recently constructed multifamily housing developments valued at over \$500,000 was produced. Permit data from the planning department was then acquired at two points in time—i.e., the initial permit stage during early development and the “lease-up” stage after certificates of occupancy are issued and units are available for occupancy—in order to reflect the distinct market signals of different moments in the development process. Georeferenced eviction filings surrounding each development were aggregated into five distance-based catchment areas and two primary relationships are investigated through an interrupted time series (ITS) analysis: (1) the effect of different types of multifamily housing development on eviction filings—e.g., condominiums versus apartments—and (2) the geography of impact or the distance, if any, at which relationships occur.

Data for the research has been acquired, processed, and is currently being organized for ITS analysis. I anticipate that the uneven spatial and temporal pattern of eviction filings in relationship to multifamily housing developments will expose causal forces beyond the individual household level. In this way, the evidence contributes to an argument regarding the production of displacement that emphasizes not only household vulnerability, but also the role of important housing market actors—e.g., property management companies, developers, financial institutions, etc.—who while acting at different scales, produce neighborhood-level displacement effects.

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Key Words: eviction, displacement, gentrification, neighborhood disadvantage, housing development

LOW-INCOME HOMEOWNERSHIP IN RURAL AREAS: AN ANALYSIS OF USDA DIRECT LOANS

Abstract ID: 1025

Individual Paper Submission

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Expanding homeownership has been the primary goal of US housing policy since the Great Depression. While policies such as tax-exempt mortgage revenue bonds and the mortgage interest tax deduction act to lower the cost of homeownership, rarely have federal policy makers considered programs which directly subsidize the housing costs of low-income homeowners. In this project I examine the only contemporary exception—the Section 502 direct loan program administered by the US Department of Agriculture (USDA).

Through Section 502, the USDA offers direct loans to low-income borrowers which keep monthly payments between 22 to 26% of their income. Although previous analysts have examined the administrative complexity of this program (McCarthy et. al., 1998), this project is one of the first to examine the characteristics of Section 502 loan recipients, their homes, and the communities in which they live.

I present this paper in three parts. In the first, I provide a descriptive analysis of the characteristics of Section 502 loan recipients, the physical and demographic characteristics of their communities, and the physical features of their homes. In the second, I conduct a spatial analysis of Section 502 lending activity. I am particularly interested in whether loan recipients tend to cluster on the boundaries of metro- and micropolitan areas. The program guidelines limit the use of the Section 502 program to areas that are “rural in character”, but lend to properties located just outside densely settled areas. Legislators designed the program to benefit both low-income borrowers and rural communities, but the clustering of borrowers

on the periphery of urban areas may call into question the program's ability to achieve either of these goals. In the third and final section I discuss policy implications.

I focus my analysis on the use of Section 502 in states in the Upper-Midwest using data from multiple sources, including: the USDA, the Home Mortgage Disclosure Act, Zillow's ZTRAX database, and the US Census Bureau. My results will be of interest to both planners working in rural areas and those interested in low-income homeownership more broadly.

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Key Words: Housing, USDA, Low-Income Homeownership

AN ANALYSIS OF THE UNIVERSITY DEVELOPER EQUITY MODEL: THE CASE OF BOSTON

Abstract ID: 1026

Individual Paper Submission

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Recent popular and scholarly work has drawn attention to the issue of the lack of affordable housing in urban America in large, dense urban centers like Boston (Bluestone and Huessy, 2017). In particular, a growing body of literature has focused on the causes and consequences of neoliberal housing policies on longtime residents of urban neighborhoods (Shaw, 2018). However, fewer scholars have examined the role that anchor institutions such as universities play in the production of housing. This paper presents an exploratory study on the evolution of the policy and planning challenges of housing the nation's largest student population in Boston. We ask the following questions: 1) What are the characteristics shaping the problem of affordable housing in Boston?; 2) What is the impact of the university developer equity model on the production of housing?; and 3) What lessons can be drawn for urban planners and policymakers? We begin with a synthesis of the literature on the role of anchor institutions in community and economic development, and we find that key themes emerge around the ideas of the incentivizing the innovation economy, creating livable communities, fostering social inclusion, and advocating for collaborative governance (Perry and Wiewel, 2015; Rodin, 2007; and Trani and Holsworth, 2010). Then, we draw on an in-depth case study of a novel housing development project to examine the impact of the university developer model. We identify the Columbus Avenue Student Project at Northeastern University, a \$160 million housing project in the Roxbury neighborhood of Boston as the case study. Drawing on archival analysis of public documents and key informant interviews with university officials, local planners and

policymakers, developers, community organizers, and other stakeholders, we find that the university as an anchor institution facilitated the production of new housing by partnering with a private developer, American Campus Communities, through an innovative public-private partnership. Through a ground lease to the developer, 812 new housing units will be created. Our results identify the tensions of this development model: 1) university-driven development that expands into a historically low-income urban neighborhood; 2) the impact on the production of affordable housing; and 3) public and transparent nature of housing development. We conclude by reflecting on the consequences of the developer equity model on the local housing market by considering the roles of anchor institutions, local government, and private developers.

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Key Words: community development, economic development, affordable housing, university planning, anchor institutions

ASSESSING THE ECONOMIC RESILIENCE OF TRANSIT-WALKABILITY NEIGHBORHOODS ON HOUSING VALUES DURING A HOUSING MARKET DOWNTURN

Abstract ID: 1045

Individual Paper Submission

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Background and Purpose: Walkable and transit-friendly neighbourhoods can promote physical activity. They may also bring economic benefits from public and private-sector investment, and mobility benefits especially for low-income populations with limited travel options. However, additional research, including economic analyses, is needed.

Objectives: The study investigates the economic resilience of retrofitted walkable neighborhoods and transit friendly neighborhoods, by analyzing single-family (SF) housing values during the housing market downturn (2008-2012) in Dallas, Texas.

Methods: We used a pre-post and case-control design with propensity score matching to compare before-and-after values of SF homes in three matched pairs of case and control neighborhoods based on: (1) walkability, (2) transitability, and (3) walkability and transitability combined. Walkability and

transitability were measured using Walk Score and Transit Score with a threshold of 50 (≥ 50 is high, < 50 low).

A total of 2,786 SF homes in 16 neighborhoods within Tax Increment Financing (TIF) redevelopment districts were categorized into three groups based on the Walk Score and Transit Score. Each SF dwelling in each case group was matched with the most identical one in the corresponding control group by controlling for structural attributes (e.g. building age, area, number of bedrooms and bathrooms) and residential location factors (e.g. employment number, distance to city center). Average treatment effects were examined to assess the economic resilience of walkable neighborhoods on SF housing values during the Great Recession.

Results: On average, high walkability neighborhoods preserved \$4,566 more in SF housing values compared to the low walkability comparison neighborhoods. However, SF homes in high transitability neighborhoods lost \$22,266 more than those in their counterparts. Areas with high walkability and high transitability saw a loss of \$15,605 on average SF housing value compared to their comparisons. Compared to the average of 20% decline (around -\$32,000) in median housing value in Dallas citywide during the Great Recession, all three groups performed better in holding the housing values.

Conclusions: We found walkable and transit-friendly neighbourhoods may help protect homeowners from excess loss in home equities during a housing market downturn. This study primarily examined transit-friendly neighbourhoods that were retrofitted during an economic recession through a policy incentive (TIF). Understanding the economic consequences of Transit-Walkability Communities redevelopments is important to provide legitimate evidence to promote such redevelopment strategies, especially in the current era of economic uncertainty and obesity epidemic. Retrofitting existing community designs was shown to be successful, which is especially important for low resource communities that may not be able to completely redevelop existing areas.

Implications for Practice and Policy: Promoting walkable and transit friendly environments by retrofitting existing communities may serve as sustainable approaches to bring both economic benefits as seen in the current analyses and the previously well-documented health benefits through physical activity gains.

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Key Words: Property value, Transit-friendly neighborhood, Neighborhood retrofitting, Tax Increment Financing, Economic resilience

PAPER HOMES: THE POLITICS OF INCLUSIONARY HOUSING POLICY AND IMPLEMENTATION IN INDIA

Abstract ID: 1079

Individual Paper Submission

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Inclusionary housing (IH) policies have failed to produce expected numbers of affordable housing units in many cities (Schuetz, Meltzer, & Been, 2011). IH policies are a means through which private developers are induced/mandated during the plan approval process to produce affordable housing units. I contend that the efficiency and the success of IH policies are directly dependent on how the policy comes into being and that examining these processes would help planners identify areas that need focus in ensuring a successful strategy. I use the case of IH policy framing and implementation in Vijayawada, an Indian city with a successful track record of utilizing federal money for housing programs, to understand the preparation and implementation of IH policies in India and the role played by different actors at multiple levels in influencing it. I ask, how do state and local governments respond to federal policies for inclusionary housing reforms while managing developer opposition? And how does this impact the policy design and translate onto ground level implementation? I find that the failure of IH policies is mainly due to the power play between developers, government and the civic sector - the urban regime politics (Stone, 1993) - that result in inconsistencies in the policy framing and implementation.

The Indian federal government has pursued IH objectives through its national schemes and programs on urban development and housing since 2005. Given that housing is under the state governments' purview, the federal government was unable to influence state and local governments' compliance using legislation or mandates. Instead, it encouraged other approaches to policy compliance through tools like administrative direction, executive orders, grants, public information, and social regulation among others (Salamon, 2002). This paper centers on the experience of the city of Vijayawada and the state of Andhra Pradesh and their enterprise in utilizing federal schemes for funding affordable housing. Focusing on the IH reforms, this paper argues for an enhanced scope of the urban regime politics that includes the study of intergovernmental relations between multiple levels of governments (Wright, 1978), and their relationship with the civic sector and the developer industry at all levels. I employ this framework, to assess its impact on the delivery of affordable housing units in the state of Andhra Pradesh and the city of Vijayawada.

To understand the history and the intent with which different actors proposed and responded to the specific components of the IH policy during various stages, I conducted interviews with policymakers, civic sector developer associations, and officials and consultants at the state, local, and federal level. Also, I visited the construction sites in the city of Vijayawada to evaluate the implementation framework under the recent version of the federal funding scheme for IH.

Fieldwork findings demonstrate that, in the absence of legislation and proper channels of programmatic funding, intergovernmental channels negatively influence federal IH policies that target state and local compliance, weakening the initial policy and its intent. Two facts undermined IH policies: 1) the control developers wielded over government decisions, and 2) the pork-barrel politics that revolved around the creation of housing units rather than the means to achieve them. Careful study of IH policies in India revealed that there is a need to align different tools and schemes of policy implementation and, to encourage consensus building for creating effective IH policies. This study makes a case for expanding current IH policy research to focus on the intergovernmental and urban regime processes that ultimately impact the effectiveness of IH policies. This expanded view will help planners frame IH policies that create more than just paper homes.

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Key Words: Inclusionary housing, intergovernmentalism, affordable housing, urban regime, urban governance

JOB ACCESSIBILITY OF LIHTC PROJECTS: ITS EFFECTIVENESS IN ADDRESSING THE EVOLVING ISSUE OF SPATIAL MISMATCH

Abstract ID: 1082

Individual Paper Submission

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The spatial separation between residential locations and job opportunities, also known as the spatial mismatch problem, was first diagnosed by many studies as one of the major contributing factors to the high unemployment rate among minority groups in the USA (Kain and Meyers, 1970). The theory of “modal mismatch” then emerges and claims that it is the means of mobility that presents the commuting challenge for the low-income population (Taylor and Ong, 1995). Low-wage workers have been observed to largely depend on slow modes of transportation, which exert time constraints on the spatial range of job opportunities that can be reached. With the rise of the information and service economy, the disparity between the higher job skills required by the labor market and those possessed by the disadvantaged group (also known as “urban skills mismatch”) has been incorporated into the discussion of “spatial mismatch” as a primary barrier. To tackle the evolving issue of spatial mismatch, especially for the disadvantaged group, housing policies have been considered as one of the mitigation strategies to move the poor to job-rich areas (Fan, 2012). Among these housing policies, the Low-Income Housing Tax Credit (LIHTC) Program, as the federal government’s primary source of funding for building new or preserving existing affordable housing, makes preserving or developing location-efficient and accessible housing possible for the low-income population. This study sets out to evaluate the challenge of spatial mismatch faced by the low-income population in various metropolitan contexts, and to explore the effectiveness of LIHTC programs in addressing the general issue of spatial mismatch.

To fully capture the influence of spatial mismatch, this study develops an index of low-skilled job accessibility by transportation modes at the census block level, based on a gravity-based model, which measures the aggregated number of low-skilled employment opportunities after adjusted to the travel impedance. While empirical studies typically focus on the low-wage ethnic minority or inner-city neighborhoods, the accessibility index is calculated for seven metropolitan areas in the US by applying the 2010 census and GTFS (General Transit Feed Specification) data. The accessibility results of LIHTC projects are statistically analyzed against all neighborhoods, as well as low-income neighborhoods with similar demographic and economic profiles, in each metropolitan area, to determine whether the LIHTC

projects have an issue of spatial mismatch. Besides, the statistical analyses are performed in inner-city and suburban areas respectively.

The results of this study generate some insights into the role of LIHTC projects, in inner-city and suburban areas, as a countermeasure in addressing job accessibility differences and modal mismatch for the disadvantaged groups in various metropolitan areas. This study highlights the extent to which the job accessibility experienced by inner-city residents is different from suburban residents after years of suburbanization of poverty. It contributes to a deeper understanding of the evolving spatial mismatch issue, in particular, spatial separation, modal mismatch, and skills mismatch, based on a multi-region analysis. This accessibility evaluation suggests whether the LIHTC program serves as a possible means to achieve certain community visions, such as improving employment outcomes. In the meanwhile, it provides some suggestions to developers of affordable housing and housing agencies about preferred development locations to further improve economic mobility. The findings of this study will become the analytical foundation for further research, which will investigate the degree to which LIHTC programs have helped to achieve community visions, as well as the influence of the siting discretion, which state housing agencies have to target resources, on the locational choices and accessibility of LIHTC projects.

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Key Words: Low-Income Housing Tax Credit (LIHTC) Program, spatial mismatch, job accessibility, social mobility, transportation equity

LOCATING SECTION 8 RENTAL ASSISTANCE HOUSHOLDS NEAR TOD STATIONS IN WASHINGTON, DC, ARLINGTON AND ALEXANDRIA, VA METRO AREA

Abstract ID: 1085

Individual Paper Submission

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The development of transit stations as Transit-Oriented Development (TOD) have been expanding in recent years all over US cities. The number of TOD stations has increased from 100 stations in 2004 to 1,600 stations in 2016 (Cervero, 2004, Renne et al., 2016). Regard these developments, the demand for housing units near transit stations is increasing, because of job opportunities, and housing options

provided around these stations (Nelson, et al., 2015). However, if we consider housing plus transportation cost it may become more affordable because of reduction of transportation cost.

Since 2007, the Federal Transit Administration (FTA), and the Department of Housing and Urban Development (HUD) started a collaboration to provide better affordable housing and transportation opportunities. This collaboration intends to decrease combined housing and transportation by amplifying housing choices near to transit stations.

According to HUD, housing vouchers for section 8, tenants pay 30% of their income for the rent of their accommodation. This assistance is provided for families, elderly, and disabled individuals who are categorized based on their income under three categories; low-income, very low-income, and extremely low-income. However, the Location Affordability Index (LAI), and the Center for Neighborhood Technology (CNT) recommends that housing and transportation should not exceed 45% of household income to be considered affordable.

An analysis of 8,857 HUD section 8 assistance properties found that 15% of mean income is spent on transportation for households. In sprawling metropolitan areas, a higher percentage of households expended over 15% of their income on transportation. (Hamidi, et al., 2016). A study of 4,399 transit stations in the US found that housing near TOD stations are more expensive to rent, or buy than Hybrid, and Transit-Adjacent Development (TAD) stations, but living near TOD stations is more affordable in terms of transportation cost. (Renne, et al., 2016).

This research will use a previous classification of transit stations as TOD, Hybrid, and TAD stations and locate the units that are within half-mile of transit stations in the Washington DC metro area. This research aims to investigate whether low-income population who receive Section 8 Project-Based Rental Assistance (PBRA) will benefit from living within a half-mile buffer of TOD stations in Washington, DC, Arlington, VA, and Alexandria, VA metro area. The research intends to identify the most beneficial locations for low-income residents in order to reduce the cost of housing and transportation in US cities.

We will use a HUD data set to locate section 8 units in GIS. Also, the research will use ANOVA as a method to analyze the variation between different groups which will help to indicate the affordability of living near TOD stations in terms of housing, transportation, jobs opportunity, and educational attainment.

This research assumes that living near TOD station areas is affordable in terms of housing and transportation combined. But, in terms of jobs, TOD's are not in favor of households who are receiving a rental assist. Therefore, other location may be considered a better choice for some of these households.

Households that are receiving section 8 assistance are considered low-income, 48% of these households are elderly, and 58% of these households didn't complete high school and may face difficulties finding jobs near TOD stations. On the other hand, the demand for affordable housing is increasing every year, and the cost of housing and transportation is increasing. Locating households that receive rental assistance near TOD's may not be considered a better choice for them. The outcomes of this research will define locations that are better for households who are receiving rental assistance.

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Key Words: Hosing Affordability, TOD, Rental Assistance Programs, Section 8

ACCESS TO SAFETY: SOCIOECONOMICS AND EVACUATION DURING A CATASTROPHIC WEATHER EVENT

Abstract ID: 1089

Individual Paper Submission

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Global climate change is forcing the administrations of countries and cities to develop flood risk management policies that address not only water inundation but population management. To that end, flood policy is transitioning from a "technical analysis and measurement after the event" model to a more "holistic preventative flood management policy" model. This study will investigate if low-income individuals who pay about 30 percent of their annual adjusted income for rent, living in public housing are at risk during a catastrophic weather event due to the geographic location of their public housing unit and its proximity to evacuation routes. The 25 federally funded low rent public housing tax credit developments around the city of Houston and their juxtaposition to evacuation routes will be analyzed in an effort to determine if socioeconomic factors play a role in determining how quickly and easily individuals are able to evacuate an area during a life-threatening weather event. When Hurricane Harvey made landfall August 17, 2017, 6618 individuals whose household income was between \$0 and \$25,000 were living in public housing with 5749 living within the Houston geographic parameters and under the jurisdiction of the Houston County Housing Authority (HCHA). Using data garnered from the Hurricane Harvey weather event compiled by the Homeland Infrastructure Foundation-Level Data (HIFLD), the Department of Homeland Security (DHS), the Federal Emergency Management Agency (FEMA), and the National Oceanic Atmospheric Administration (NOAA) as well as data from HCHA, this study will investigate if the planned evacuation routes of Houston Texas give equal access to safety or if a new method for planning evacuation routes should be explored, specifically, how to attract developers to build more low-income housing by offering incentives in the form of a zoning bonus. According to Warren R. Seyfried, in his seminal article, *Measuring the Feasibility of a Zoning Bonus*, one method that can be used to incentivize low-income housing production is to offer developers a zoning bonus. Seyfried argues that exogenous forces that encourage blind profit production can be mitigated by using endogenous forces that appeal to developers and ultimately benefit the public -the zoning bonus is one such endogenous force. This study will explore if a municipal ordinance can entice developers to create higher density (usually expressed as housing units per acre) in return for providing some feature considered to be in the public good - in this case, public housing closer to an evacuation routes.

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Key Words: Poverty, Hurricane Harvey, Low-Income Housing, Evacuation Routes, Houston, Texas

CAN INFORMATION HELP LOW-INCOME FAMILIES ACCESS OPPORTUNITY?

Abstract ID: 1094

Individual Paper Submission

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Low-income families who receive housing subsidies through the Section-8 voucher program overwhelmingly live in segregated areas of concentrated poverty – areas that research has shown can have negative impacts on economic opportunities of children. Yet, information on the benefits of living in opportunity areas is rarely provided to voucher holders – let alone information on areas families can actually afford and access via public transit. Providing improved information has had significant impacts in other policy domains, however: high-achieving, low-income students who were provided with semi-customized information on the college application processes as well as application fee waivers were more likely to be admitted to better resourced and academically stronger colleges. If low-income students can be persuaded to apply to more elite colleges through a low-cost informational intervention, can information on opportunity areas similarly help low-income families move to neighborhoods that can have positive long-term effects on their children? What types of information should we provide?

I examine whether providing information on opportunity neighborhoods can help families access those neighborhoods. I do this through two interventions. First, I test the impact of providing information on affordable, transit-accessible opportunity areas to over a thousand families receiving vouchers for the first time. I additionally randomly assign half of these families to have access to a new digital interface, providing customized recommendations for voucher holder families based on their specific transit needs and providing information on neighborhoods in an intuitive way. I compare this intervention to a randomized controlled trial of a comprehensive housing mobility pilot including counseling for existing voucher holders with children. In both interventions, I compare the neighborhoods voucher holders move to along a variety of metrics, including poverty rates, crime rates and school quality. I also collect and compare survey responses measuring a variety of elements of well-being of families in both experiments. By comparing the relative effectiveness of informational interventions and more expensive housing mobility counseling interventions, I examine the most efficient way to help voucher holders reach areas of opportunity - thus providing lessons for other housing authorities looking to help the greatest number of families.

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Key Words: Opportunity, Housing mobility, Transportation, Vouchers, Digital tools

TENANT MOVEMENTS IN LOS ANGELES AND BERLIN: AGENTS, POLICIES, AND PROJECTS

Abstract ID: 1113

Individual Paper Submission

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The post-recession housing shortage has led to soaring rental prices in numerous global cities across North America and Europe. This research fills a gap in housing scholarship by investigating the ways in which marginalized communities develop bottom-up visions and strategies to address the housing crisis. Expanding on my past analysis of ‘inside’ and ‘outside’ tactics (Card 2018), this paper assembles the key variables that are foundational to understanding contemporary tenant movements. By drawing on two young Tenant Social Movement Organizations (TSMOs)—the LA Tenants Union (Los Angeles, USA) and Kotti & Co (Berlin, Germany)—this paper questions why and how tenant movements contest the unequal outcomes of housing markets. I conclude the paper by arguing housing scholars and planners must contend with the alternative theories and practices of managing housing markets developed by tenant movements.

Methodologically this project draws on qualitative fieldwork—ranging from active participation to participant observation—in order to reconstruct the early development of tenant movements into TSMOs. I focus primarily on three variables: (1) agents, (2) policies, and (3) projects. First, the project unpacks how tenants in these movements conceptualize the housing market, state intervention, and community mobilization. The paper traces how specific agents (tenant organizers) create social movements to ‘challenge’ and ‘solve’ the housing shortage. Second, I analyze the policy landscape of tenant movements and TSMOs, their similarities and differences, and how organizational forms influence incentives, values, and strategies. Third, tenant movements and TSMOs develop specific projects (e.g. tenant rights trainings) to focus limited resources. I analyze agents, policies, and projects comparatively across the bounded spatial-historical contexts of Los Angeles and Berlin to elucidate the general characteristics of contemporary tenant movements.

My research draws on three scholastic paradigms: urban movement theory, organizational theory, and housing studies. First, urban and housing movement theories (Castells 1983; Marcuse 1999) provide a useful set of conceptual tools to understand the origins, processes, and implications of tenant movements. Second, the sociology of organizations (Davis and Zald 2005) serves as a framework for analyzing the transition from social movements into fixed institutional entities (e.g. nonprofits). The approach reveals why and how social networks coalesce, make claims, organize, create institutions, and manifest complex visions. Third, the political economy of housing (Aalbers and Christophers 2014) provides a paradigm for analyzing how agents in tenant movements conceptualize the historical and structural dynamics between states, markets, and individuals around the provision of housing. Drawing on movement, organization, and housing scholarship illuminates how much tenant movements can contribute to our understanding of rectifying the housing crisis.

The tenant mobilizations in Los Angeles and Berlin demonstrate two cases of a new and distinct form of social movement organizing—multi-racial horizontalism—and in so doing challenges conventions of democratic organizing. The origins of the organizations, key agents’ biographies, policies, and projects, illuminate how starting points evolved into other organizational forms, grappled with scaling, demands, leadership, political challenges, and alliances. This also reveals how tenant struggles collaborate with other organizations, political institutions, and develop coalitions. Key agents’ analysis of the political economy of housing critiques the perceived and real limitations of contemporary systems of low income housing provision: such as in the United States the funding of affordable housing via tax credits, operations of Section 8 vouchers, and provision of services for the homeless; and in Berlin the massive privatization of formerly public housing. Urban planners and housing scholars focusing on addressing the housing crisis must contend with how tenants experience it and challenge mainstream political and scholastic approaches to balancing disequilibrium in housing markets.

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Key Words: housing, tenants, urban movements, Los Angeles, Berlin

ANALYZING THE COORDINATION OF EDUCATION AND HOUSING POLICY ACTORS IN FEDERAL ASSESSMENTS OF FAIR HOUSING

Abstract ID: 1116

Individual Paper Submission

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This paper presents an initial analysis of the extent to which education was coordinated with housing policies in twenty-two Assessments of Fair Housing (AFH) approved by Housing and Urban Development in 2016 as part of the Affirmatively Furthering Fair Housing (AFFH) rule. Due to pervasive inequality of access to high-quality schools across metropolitan areas, and increasing fragmentation by race and income (Owens, Reardon & Jencks, 2016; Hasan & Kumar, 2018), there is a strong need for the coordination of education and housing policies at local and regional levels (Holme &

Finnigan 2018; Haberle & Tegeler, 2019). Given the lack of analysis regarding when and how education and housing policy actors coordinate, and the types of policy space that connect them, the HUD AFFH plans present a valuable opportunity to examine the nature of coordination around these areas. An essential first step is to gather more information about what state and local governments included in their AFH plans that were required by HUD in 2016 under the “contributing factors” criterion, which includes “access to proficient schools.” Prior studies (Steil & Kelly, 2019) have presented initial analyses of the components of the AFFH plans, but none have looked explicitly at how educational policies were included in the plans. To fill this gap, this study examines how local governments have conceptualized this linkage, and how they may have begun to implement policies and practices that bridge the two policy areas.

We draw from a systematic analysis of existing AFH plans submitted to HUD in 2016 and interviews with state and local government officials completing those AFHs to better understand the nature of accountability and coordination around the intersection of housing and education. Our analysis of approved AFH plans examines how each local agency’s stated goals relate to addressing housing and education issues. Also included are codes for the following information: With whom did the agency coordinate with (e.g., local school district)? What exactly was the local government planning to do? What proposed measures would be used to evaluate progress? Were any other community or government partners mentioned? Was there mention of recommended funding to support the plans (i.e., Community Development Block Grants)? When goals are included, do they mention improving access to schools, quality of schools, school integration and/or poverty deconcentration, and/or institutional agencies linking the areas of housing and education?

To complement our analysis of coordination between housing and schools in AFH plans, our interviews provide a more detailed picture of the extent to which the plans are being implemented; what institutional agencies are involved; what barriers there have been to enactment; and any measurable indicators of progress to date. We focus specifically on interviewing representatives of institutional actors and non-profit partners referenced in the plans. Based on collective analysis of the data, we present an initial typology of education-housing coordination activities and policy instruments. This initial study provides a significant knowledge baseline for future studies of regional studies of housing and education policy coordination at state and local levels.

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Key Words: Fair Housing, educational policy, urban planning, segregation, stratification

GENTRIFICATION, HEALTH PROMOTION AND LIFE EXPECTANCY

Abstract ID: 1135

Individual Paper Submission

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Questions about the scale of displacement in gentrifying neighborhoods persist as research does not find widespread displacement, but cannot discount its presence and associated negative aspects. Provision and maintenance of affordable housing in gentrifying neighborhoods can limit displacement even as social and structural neighborhood changes still have adverse impacts on non-displaced households (Shaw and Hagemans, 2015). Research reports ambivalence from long-term residents who experienced some financial, social, and political benefits as their neighborhoods became more attractive to middle class black and white residents, but expressed concern over rising prices and their diminished influence in local matters (McKinnish, Walsh, and White, 2010; Freeman 2006). Increased property values attributable to gentrification can provide an ‘escape route’, allowing lower income to leave areas of concentrated poverty. There is less information tracking shifts in health data following neighborhood change (Hyra, Moulden, Wetted, & Fullilove, 2019). The central research question is: How are the socio-demographic trends that typify gentrification associated with preventive health care, health-promoting behaviors, and life expectancy? As a scholarly contribution, the project adds depth to the conversation about disinvestment, gentrification, and displacement and the impacts on community well-being. We build on recent research linking health and gentrification (Izenberg, Mujahid, & Yen, 2018; Gibbons, J., Barton, M., & Brault, E., 2018) with the addition of housing affordability variables and an expansion to outcome variables beyond self-reported health.

To answer this question, our study links three datasets with a national scope: gentrification index by census tract, the CDC’s 500 Cities: Local Data for Better Health, and the U.S. Small-area Life Expectancy Estimates Project–USALEEP. We operationalize gentrification by census tract for the United States using an approach developed by Freeman (2005), which identifies low income census tracts within center cities with a history of disinvestment that experience an increase in educational attainment and housing prices during the intercensal period. CDC’s 500 Cities dataset contains data for 2013, 2014 and 2015 (including model-based small area estimates for 2013 and 2014) for 27 measures of chronic disease related to health behaviors, health outcomes, and use of preventive services. The USALEEP dataset (also known as the Neighborhood Life Expectancy Project) provides life expectancy at birth for most U.S. Census tracts for the period of 2010-2015. We base the proposed model on a theory of endogenous gentrification to predict waves of gentrification using longitudinal census data and spatial regression. Our adaption of this model will include health behaviors and health outcomes data and will allow us to explore differences in health-promoting behaviors, use of preventative services, and health outcomes in communities experiencing gentrification versus communities not experiencing gentrification.

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Key Words: social determinants of health, gentrification, displacement, life expectancy

GEOGRAPHIES OF HOPE: WEALTHY LATINO NEIGHBORHOODS IN HISTORICALLY REDLINED AREAS IN LOS ANGELES COUNTY (1940-2017)

Abstract ID: 1149

Individual Paper Submission

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Despite the passage of the Federal Housing Act of 1968 which outlawed racial discrimination in the housing market, there exists significant disparities in homeownership rates between Whites and minorities, contributing to a growing gap in wealth accumulation. In 2017, the average homeownership rate for non-Hispanic Whites was 72 percent, compared to 42 and 46 percent for non-Hispanic Blacks and Latinos (Joint Center for Housing Studies, 2018). Disparities in wealth are even more pronounced. In 2013, the average White family owned \$13 and \$10 for every \$1 owned by the average Black and Latino family, respectively (Shapiro, 2017). To address these disparities, scholars are examining the legacy of historical redlining on today's neighborhoods.

Recent works such as Richard Rothstein's *Color of Law* (2017) have brought renewed attention to the lasting impacts of residential security maps created by the Home Owner's Loan Corporation (HOLC) during the Great Depression. These maps were created in the 1930s for 239 cities across the United States. Surveyors color-coded and graded neighborhoods based on their credit worthiness and perceived risk. In particular, they considered the racial/ethnic makeup of neighborhoods, percent foreign-born, and housing characteristics, among other factors. It is well-documented that neighborhoods with significant shares of Blacks and/or immigrants were redlined, and individuals seeking home loans in those neighborhoods were denied at higher rates than non-redlined neighborhoods (Hillier, 2005; Rutan & Glass, 2017; Aaronson, Hartley & Mazumder, 2017).

Today, many historically redlined neighborhoods suffer from persistent poverty and disadvantage. Thus, scholars argue that neighborhoods continue to be impacted by racist and xenophobic policies from the past. However, not all of these neighborhoods have followed this trajectory. In fact, a minority of historically redlined Latino neighborhoods in the Los Angeles region have been able to accumulate wealth and advantage over time. Studying these neighborhoods is important to planners because they can help inform policies that seek to remedy wealth disparities produced by structural inequalities associated with redlining. Furthermore, Los Angeles contains the largest number of Latino neighborhoods out of any metropolitan region in the United States, making it an ideal place to study (Sandoval & Jennings, 2012).

This paper makes a significant contribution to the literature by analyzing the impacts of historical redlining in Latino neighborhoods in Los Angeles County using true spatial methods (i.e. spatial lag/error models, spatio-temporal models). Most studies on redlining use traditional statistics. This is problematic. If spatial processes vary by neighborhood grade and similar neighborhoods are clustered with each other, then spatial autocorrelation may exist, biasing the results of traditional models. In addition, quantitative

studies mainly use aggregate-level data or focus on a few select cities (e.g. Philadelphia, Cleveland, Chicago, Pittsburgh). These studies also tend to focus on Black/White neighborhood disparities. However, the United States is a much more diverse society than in the past and scholars must move beyond a Black/White paradigm and recognize that redlining also affected Latino neighborhoods.

This study combined various data sources, such as the Los Angeles County Union Census Tract Data Series, 1940-1990, the U.S. Census, the American Community Survey, and the Home Mortgage Disclosure Act (HMDA) to help answer three main research questions: 1) What factors contributed to the development of wealthy Latino neighborhoods in historically redlined areas in the Los Angeles region? 2) How have the socio-demographic characteristics of the historically redlined Latino neighborhoods changed from 1940 to 2017? 3) What is the relationship between neighborhood diversity and neighborhood-level outcomes (e.g. Latino homeownership, neighborhood stability) in historically redlined Latino neighborhoods? This study provides a nuanced analysis of redlining, moving beyond the Black/White paradigm, and makes important contributions to Latino scholarship and planning using spatial methods.

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Key Words: redlining, Latino neighborhoods, housing discrimination, Los Angeles County

RENT STRIKES AND THE RIGHT TO HOUSING: COMMUNITY ORGANIZERS, NON-PROFITS, AND STRATEGIES TO RESIST DISPLACEMENT

Abstract ID: 1157

Individual Paper Submission

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Struggles organized around the notion of the right to the city (R2C) and the right to housing (R2H), have animated activists and theorists alike. In Canada, non-profit and advocate groups have recently called on the Prime Minister to formalize a right to housing in law. While non-profit organizations are adopting what they call R2C/R2H demands, community organizers are pursuing the same goals but with a different vocabulary, and often in ways that do not align with the mandates of non-profit organizational mandates. As a result, non-profits and advocates supportive of R2C/R2H in principle may struggle to productively support 'bottom-up' community-based organizing that is working (and succeeding) to achieve these goals in practice. This paper explores this challenge by analyzing the relationship between tenant organizers and non-profits in Toronto's Parkdale community, where tenants have launched historic (extra-legal) rent strikes against finance-backed corporate landlords. These 'financialized' landlords have recently acquired

53% of the suites in Parkdale's apartment buildings, and are aggressive in applying to raise rents, pursue evictions, and renovate units for higher-income in-movers in a context of local gentrification pressures. This paper builds on a research partnership with organizers, and uses mixed qualitative methods, including participatory action research, ethnographic participant observation, and interviews (n=30) with tenants, organizers, representatives from non-profits, and other key informants. The paper outlines the principles and strategies of community organizers in fighting displacement, and explores the ways that non-profits can best support organizers in their pursuit of R2C/R2H goals.

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Key Words: Housing, Rental Housing, Community Organizing, Right to Housing, Right to the City

THE EFFECT OF ADU REGULATORY CHANGES ON RENTAL HOUSING IN LOS ANGELES

Abstract ID: 1160

Individual Paper Submission

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To address the state's housing shortage, California legislators adopted laws in 2016 to ease regulations and encourage the construction of accessory dwelling units (ADUs)—small, secondary housing units on lots zoned for single-family homes. In the two years since the change, the City permitted over 5,000 ADUs, almost ten times what was permitted in the decade prior. However, because we do not know how homeowners use ADUs, we do not know how large an effect the recent policy change will have on the rental housing market. To understand how ADUs will affect rental prices, we need to understand under what conditions homeowners use ADUs as rental properties, as well as what factors affect their decision to rent them out as long-term or short-term rentals.

This research examines what effect the legislative change has on rental housing in Los Angeles by examining how homeowners in the City use or plan to use their ADUs. To understand this, I use a survey of homeowners who received a permit for an ADU between 2013 and 2018 to assess the degree to which homeowners with a permitted ADU use or intend to use their property as a long-term housing unit or rental unit rather than as a short-term rental through a site like Airbnb or for another purpose entirely. I analyze these results in relation to individual demographic factors from the survey as well as to neighborhood characteristics from the American Community Survey (ACS), particularly related to socioeconomic factors like tenure, average rent and mortgage expenses, income, race, and poverty. This

research provides planners a better understanding of how statewide regulatory changes affect rental housing in Los Angeles, who benefits the most from the changes, and in turn, how this might affect the availability of rental housing across the city.

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Key Words: housing, accessory dwelling units, second units, rental housing

HOW A HOSPITAL REMEDIES GOVERNMENT FAILURES IN AFFORDABLE HOUSING PROVISION: LESSONS FROM THE NATIONWIDE CHILDREN'S HOSPITAL

Abstract ID: 1162

Individual Paper Submission

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Why would a hospital become a provider of affordable housing? We explore a case of Nationwide Children's Hospitals (Nationwide) collaborative efforts with Community Development 4 All People (CD4AP, a local community development corporation) in developing and renovating housing in Columbus, OH. The neoliberal transition in housing policy enables the private sectors –nonprofit organizations and for-profit organizations—to be involved in affordable housing production. This climate fosters unexpected partnerships that may offer new mechanisms of housing production and ownership that can resolve problems of up-keep and poverty concentration, problems that are considered failures of government-provided publically owned housing.

The purpose of this study is to identify the publicness in the private sector and the extent of achieving the desired public outcome in the context of affordable housing provision. We use the Bozeman and Moulton's (2011) integrative publicness theory for understanding the contributions of the Nationwide and CD4AP to affordable housing provision. Analysis of interviews of staff and residents and descriptive statistics of organizations' administrative data presents challenges and opportunities of affordable housing provision through this new mechanism. This study emphasizes the role of policy makers in encouraging the private sectors to contribute to a desired public outcome.

This study will offer new insight into the affordable housing planning field by utilizing a lens of public management. While adding empirical evidence about the relation between operational publicness and the

public outcome, we conclude by sketching possible policy interventions for improving efficiency and effectiveness of the public-private partnerships in affordable housing provision.

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Key Words: Affordable Housing, Neoliberalism, Public-Private Partnerships, Non-Profit Organization, Hospitals

ESTIMATING THE RESIDENTIAL MOBILITY IMPACTS OF RENT CONTROL IN CALIFORNIA CITIES

Abstract ID: 1165

Individual Paper Submission

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The ever growing concern about residential displacement is contributing to the resurgence of rent control advocacy and policies in American cities (Chew and Treuhaft 2019). Only a handful of studies have looked at the impact of rent control on residential mobility, turnover in units, and displacement in U.S. cities, mostly looking at older generation of rent control policies. Previous research indicates that rent control can contribute to residential stability. Clark and Heskin (1982) found that mobility rates of renters in the city of Los Angeles significantly declined in the two years after the adoption of rent control in 1979. For New York City, Gyourko and Linneman (1989) found significantly longer tenure length of residents in apartments that were rent controlled versus not. More recently Diamond and coauthors 2018 found that the expansion of rent control in San Francisco increased the probability that renters stayed in their home by 20 percent.

Yet the above research has looked at households on aggregate, failing to differentiate by income groups, making it difficult to assess the effectiveness of rent control in protecting low income tenants. Furthermore, rent control policies vary in their design and implementation, which may significantly impact their ability to protect low income tenants. This study seeks to fill this research gap by asking how

the presence, design, and enforcement of rent control policies affect out-migration patterns of low-income residents.

We combine various datasets to answer this research question. Using parcel-level assessor data we construct a database of rent controlled units for five cities in the San Francisco Bay Area (East Palo Alto, San Jose, Mountain View, Campbell and Los Gatos) with differing policy designs, demographics and housing markets. We merge this data with individual-level (geocoded to the block) residential mobility data from the New York Consumer Credit Panel/Equifax (CCP) dataset. Finally, we combine the above with neighborhood-level data on housing and demographics from the American Community Survey.

We use a propensity score matching to compare block groups with a large proportion of rent controlled units with similar block groups (by housing market and demographics) with few rent-controlled units. Using a difference in difference approach, our preliminary findings suggest that the effect of rent control policies on residential mobility varies by policy design and housing market conditions. These findings will contribute to the ongoing debates and policy designs emerging from recent efforts to expand rent control in American cities.

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Key Words: Rent Control, Housing, Residential mobility, Displacement

PRIVATE PROPERTY AND THE INJUSTICE OF TENURE INSECURITY: IMPLICATIONS FOR THE RIGHT TO HOUSING

Abstract ID: 1166

Individual Paper Submission

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This paper draws upon the political philosophy literature to critically evaluate the injustices of tenure insecurity, understood as a status characterized by the absence of secure legal rights to the occupancy and use of a private dwelling, for the public justification of the institution of private property. According to

Macedo (1990, p. 41), “public justification” refers to the idea that “the application of power should be accompanied with reasons that all reasonable people should be able to accept.” I argue that tenure insecurity, if taken seriously, presents a serious challenge to any public justification of private property, because while private property affords legal protections and rights to property owners, private property simultaneously fails to provide the same protections to those without property.

Justifications for private property have addressed the complaints of those without property in various ways. For utilitarians, private property is justified even if some are left without property, because private property maximizes social welfare by promoting the efficient use of scarce resources. For John Locke (1980), private property is conditionally justified if property owners leave “enough and as good” unoccupied property for others to acquire. For Thomas Paine, private property is conditionally justified if citizens receive compensation for the loss of their “natural inheritance” (Lamb, 2015).

In this paper, I critically evaluate these and other justifications for private property that appeal to the interests of those whose housing tenure is insecure. I explore the implications of Essert’s (2016) argument that private property is justified, not in spite of private property’s contribution to tenure insecurity, but because it uniquely solves the problem of tenure insecurity. This argument provides strong support for a right to housing, understood as a right to secure tenure, that is not only compatible with private property but is constitutive of a more defensible and just conception of private property, provided that private property and government institutions are structured to safeguard tenure security, promote tenure neutrality, and encourage low-cost housing production. This understanding of the right to housing differs from other conceptions that are based on the assumed incompatibility between liberal property rights and the right to housing (Marcuse and Madden, 2016). The right to secure tenure provides a justification for measures that expand the scope of renters’ rights to approximate the tenure security that owner-occupants enjoy, while taxing housing, rather than subsidizing it.

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Key Words: housing, justice, private property

THE CRYSTALIZING INFLUENCE OF HOLC RESIDENTIAL SECURITY MAPS

Abstract ID: 1193

Individual Paper Submission

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The “residential security” maps were created by the Home Owner’s Loan Corporation (HOLC) during the New Deal era to map perceived lending risk in the agency’s effort to provide emergency bailout loans

during the 1930s mortgage crisis in the US. As the agency relied on local banks and realtors to appraise neighborhoods based on their lending risk, these maps can be seen as a proxy for differential access to mortgage borrowing, mostly prominently manifested in new mortgage lending practices through the Federal Housing Authority and the Veteran's Association post-WWII. The durability of housing, the historical value of homeownership as a vehicle for wealth creation, and the differential access to credit that impacts the availability of housing along racial and socioeconomic lines all mediate the residential sorting process on both an individual and neighborhood level. The spatialized nature of housing discrimination policies constrains mobility opportunities, creates physical and social isolation, and results in a path dependency of place.

The aim of this article is to understand how institutionalized exclusionary lending policies, as embodied and perpetuated by HOLC zone designations, have impacted neighborhood trajectories from an analytical perspective. In particular, have these spatially restrictive credit designations influenced home values, ownership, and racial stratification in neighborhoods? Focusing on C and D designations, I separate 1930 to 2016 into three periods: a pre-treatment period from 1930 to 1940, during which there may have been informal discriminatory and racial segregation practices along racial lines; a post-treatment period from 1940 to 1970, during which codified lending practices were enacted by institutions such as the HOLC and the FHA/VA; and a "reversal" period from 1970 to 2016, during which federal legislation attempted to reverse and outlaw discriminatory mortgage lending.

Using tract-level Census data and geo-rectified HOLC residential security maps, I measure the influence of these zones in shaping the dynamic patterns of racial segregation and home value changes in 60 cities. I show the primary influence of home values, with race of secondary importance, in determining HOLC zone designations in the pre-treatment period, and how these designations succeeded in perpetuating or amplifying home value and racial stratification along C and D lines during the post-treatment period. Further, I suggest there is a pattern of D-zoned tracts experiencing greater levels of gentrification pressures than their C-zoned counterparts during the "reversal" period.

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Key Words: redlining, stratification, path dependency

MIGRANT FARMWORKER'S LABOR CAMP ASSESSMENT IN THE UNITED STATES: POLICY AND LITERATURE REVIEWS

Abstract ID: 1202

Individual Paper Submission

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The United States heavily rely on foreign migrant farmworkers in the agricultural industry. Due to the migratory and seasonal characteristics of the farm work, farmworkers often stay at labor camps—temporary seasonal group dwellings—that growers provide as part of their compensation. Yet, the living conditions of migrant farmworkers’ labor camps are often severely substandard. The fundamental problem of the poor living conditions stems from the current regulations for migrant labor camps, which are inefficient and unreasonable. Unlike a rural family housing, which is regulated by the Housing and Urban Development’s Minimum Housing Standard (HUD-MPS), the migrant farmworkers’ labor camps are regulated by state regulation. For example, the NC Migrant Housing Act (NC-MHA) controls the labor camp conditions in North Carolina (Arcury & Quandt, 2011). This research conducts policy and literature reviews.

This research reviews the current federal and state-level housing policies and regulations in the United States. It is understood that each state develops and maintains its unique housing policy for migrant workers. Albeit the regulations apply the distinctive environmental and socio-economic characteristics in each state, there are the shared, necessary—minimum—conditions that all regulations exercise. The policy reviews provide both shared and geographically unique understandings on the farmworker's living conditions. This research also achieves an extensive literature review on housing quality. Housing quality is an area with rich data. Literature finds the relationship between housing quality and resident well-being by housing types (Moore, 1974; Zalot & Webber, 1977), housing density (Bagley, 1974; Evans, Wells, & Moch, 2003), and household characteristics (Hunt, 1990; Kasl et al., 1982). The reviews provide the validations of certain physical and environmental features to be considered in the labor camp regulations.

Subsequently, it suggests a standardized housing audit instrument for migrant farmworkers’ labor camp and examines the appropriateness of the tool through feasibility studies (pilot studies). Field audits are held in three major labor camp types found in eastern NC—barracks, houses, and trailer homes. Each type has unique physical and environmental requirements as well as camper characteristics—i.e., the residential density. The reliability of the audit instrument is also tested.

The audit instrument shall contribute to the revision of NC-MHA regulations, which will ultimately improve farmworker’s living conditions during their stay in the United States.

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Key Words: migrant farmworker, labor camp, minimum housing quality, policy, inequity

AFTER LOW-INCOME HOUSING TAX CREDIT: THE IMPACT OF LOW-INCOME HOUSING TAX CREDIT PROJECT ON SURROUNDING NEIGHBORHOODS IN SHRINKING CITIES

Abstract ID: 1230

Individual Paper Submission

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Low-Income Housing Tax Credit program (LIHTC) plays a significant role in providing affordable housing to low-income households by promoting affordable housing development through tax credits to private investors. Now, LIHTC program has grown as the largest place-based affordable housing subsidy program in the United States providing 2.6 million housing units placed in service from 1987. Despite the program's positive role in providing decent houses to low-income families, many studies from the past decades have assessed whether LIHTC projects have negative impacts on neighboring units. Some researchers who found negative spillover effects point to the influx of 'undesirables' as the cause of neighborhood decline, while others addressed that the program brings revitalization to neighborhoods through eliminating disamenities in communities (Freeman and Botein, 2011). Disparities between subsidized residents and other residents in a neighborhood may result in dissonance among them, which may induce a drop in the average of neighborhoods if previous residents flee or potential purchasers begin to view the neighborhood as undesirable because of the new residents who get housing subsidies (Nguyen, 2005). In contrast, if subsidized households and non-subsidized households share similar socioeconomic characteristics, especially in lower-income neighborhoods, the impact on neighboring housing units may be negligible (Freeman and Botein, 2002). This underlines the significance of neighborhood heterogeneity in assessing impacts of subsidized housing that have been overlooked in many previous studies.

However, the impact of subsidized housing may vary across the local housing market, submarket conditions, and local housing needs (Woo et al., 2015). In shrinking cities like Detroit and St. Louis, especially, where continuous population loss has created disinvestment and abandonment, LIHTC often represents a rare opportunity to channel resources into distressed neighborhoods. Without public subsidies like the LIHTC, private developers did not have much interest in carrying out new development in the shrinking cities. For example, a share of LIHTC units in new housing construction between 1990 and 2009 was 33% in Detroit and 21.7% in St. Louis, while it was 6.4% in New York City, NY and 6.4% in Chicago, IL. LIHTC program can have a significant effect on revitalization in shrinking cities by attracting reinvestment and increasing neighborhood vitality.

Given this view, this study addresses the impact of LIHTC projects on surrounding neighborhoods in shrinking cities. This study examines the impact of LIHTC developments in the St. Louis region on the neighborhoods in which they are located, compared to other neighborhoods without LIHTC units. This study examines the socio-economic changes in LIHTC neighborhoods between 2000 and 2013 and compared with the changes in non-LIHTC neighborhoods. Findings identifies that the LIHTC developments in the neighborhoods with more distressed conditions produce more positive changes. This means that LIHTC development plays a significant role in the revitalization of distressed neighborhoods in shrinking cities, although we see some negative effects in high-income communities. This study can contribute to housing policy in shrinking cities as a tool of revitalization.

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Key Words: Low-Income Housing Tax Credit, Shrinking Cities

EXPLORING ACCESSORY DWELLING UNITS THROUGH THE LENS OF HOMEOWNERS WHO DO NOT YET OWN ONE

Abstract ID: 1235

Individual Paper Submission

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Accessory dwelling units (ADUs) – also called in-law units, secondary units, or granny flats – are an increasingly promoted smaller-scale option for densifying urban and suburban areas alike, while providing relatively affordable housing. ADUs are small self-contained dwellings that share the site of a larger dwelling structure, either as a standalone structure in a yard, or as a converted portion of the larger dwelling itself. ADUs have so much potential that some researchers have even estimated that ADU-like developments could provide half of California’s new housing capacity in the coming decades, for example.

ADU production has been hampered in the last few decades due to a combination of restrictive zoning in single-family neighborhoods, limited homeowner access to ADU construction financing, neighborhood opposition, and other factors. But some of those barriers are beginning to crumble. For example, recent state legislation in California has helped reduce zoning and permitting cost barriers by limiting new utility connection requirements, capping ADU parking requirements, and requiring ministerial – or “by right,” rather than discretionary – approval of ADUs. ADU permit applications have skyrocketed in some California cities since those laws went into effect. But additional barriers to widespread ADU construction remain. What additional opportunities exist to foster ADU construction?

A growing body of research elucidates the demographics, motivations, hardships, construction processes, and ADU use of homeowners who own ADUs. Yet evidence is sparse on the relevant opinions and knowledge of homeowners who do not own an ADU already. What do those homeowners know about ADUs? What would motivate them to add an ADU? What motivates them to not add an ADU? What barriers do they perceive to building an ADU? Our study helps fill that gap.

As part of the 2018 campus travel survey at the University of California, Davis, we surveyed over 300 home-owning faculty, staff and students about their ADU ownership, past attempts to permit an ADU, willingness to build an ADU in the future, and attitudes towards neighbors building ADUs, along with related demographic and attitudinal questions. We used logistic regression and other methods to examine the respondents’ willingness to build an ADU. We also conducted a complementary exploratory survey of homeowners in Davis, California, with questions targeted at better understanding what homeowners without ADUs know and think about ADUs, their regulation, their benefits, their pitfalls, and the barriers to constructing them.

Our results thus far indicate neighborhood attitudes do correlate with willingness to build an ADU. But bigger – albeit interrelated – impediments to increased ADU production likely exist, including a lack of knowledge about (the increasingly streamlined) ADU regulations, ADU financing opportunities, and opportunities for ADU construction and use. Our results indicate a need for homeowner outreach and education regarding ADUs, which accords with the recommendations from some past studies of ADU owners, planners, and builders.

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Key Words: Accessory dwelling units, Housing, Development streamlining, Neighborhood pCitations

IDENTIFICATION OF DISTRESSED COMMON OWNERSHIP COMMUNITIES

Abstract ID: 1242

Individual Paper Submission

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While new condominium construction has boomed in recent years, many older multifamily buildings that contain condominiums have become mired in financial instability. Common ownership communities (COCs) are the legal bodies that collect monthly assessments from all condominium owners in a building or buildings to fund repairs, maintenance, and capital improvements for shared or common areas. The housing market crash of the mid-2000s revealed the precariousness of many of these organizations, as their financial health is dependent on the financial health of their members. When property owners are financially distressed, it is only a matter of time until the COC itself begins to feel a similar stress and is forced to defer regular maintenance.

COCs experiencing financial problems face a series of tough choices. Regular maintenance can be delayed, but these delays also reduce a building's safety, comfort, and general aesthetic qualities, which makes attracting new buyers who could potentially stabilize the COCs finances more difficult (Mckenzie 2018).

This study presents findings from a series of interviews conducted on behalf of the Montgomery County Common Ownership Community Task Force. Montgomery County, Maryland is a diverse suburb of Washington, DC with many aging condominium developments with moderate-to-middle income residents. In an expensive housing market, these condominiums have been important source of affordable homeownership for many residents.

COCs have been overlooked within the housing and community development literature. This study begins to fill this gap by examining the financial status of COCs through interviews with property managers, COC board members, condominium residents, and local planners and policymakers. The Primary research questions of this study include: (1) What characteristics are associated with COCs in financial distress, (2) What are the specific challenges distressed COCs face when trying to regain financial stability, and (3) What neighborhood-level externalities result from COCs in financial distress?

This study is expected to identify issues that planners and local government officials should consider when dealing with COCs in distress. A preliminary analysis gathered from initial interviews of COC board members suggest that communities with master-metered utilities are more likely to experience budget shortfalls and that COCs with stable board membership are more financially stable.

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Key Words: housing, condominiums, community development

ZONING, INFORMALITY AND THE POLITICS OF STUDENT HOUSING IN TORONTO

Abstract ID: 1250

Individual Paper Submission

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This paper examines the housing needs and arrangements of low-income students attending urban universities in Toronto, and the often informal or illegal forms of occupancy that have proliferated around campuses where municipal zoning prohibits them. As a highly diverse and seemingly temporary urban population, students are typically overlooked in housing research. Nonetheless, higher education restructuring in Canada and internationally has meant that post-secondary students, particularly those who cannot afford residence fees, increasingly find themselves competing in local rental markets for affordable options or creating alternative dwelling arrangements that are transforming neighbourhoods profoundly.

The concept of informality is typically associated to the unregulated strategies of the urban poor to access services, housing, and employment in the Global South. Nonetheless, growing urban inequality in the Global North increasingly reveals social tensions and fractures similar to those previously studied in low-income cities. Using qualitative data from focus groups with students conducted through the StudentDwellTO research partnership, this paper illuminates a multi-scalar process on which higher education restructuring and internationalization, coupled with speculative local housing markets and low vacancy rates, results in housing instability and heightened social vulnerabilities for students. At the same time, I relocate 'informality' from the Global South to the Toronto context as a versatile analytical tool to examine the agency of low-income and marginalized students in Toronto's exceptionally unregulated multi-tenant rental market, with particular attention to the city's racialized, low-income inner suburbs.

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Key Words: student housing, rooming houses, universities, community development

URBAN DEVELOPMENT, PUBLIC POLICY AND THE CONTRADICTIONS OF DECENT HOUSING: INSIGHTS FROM MEXICO

Abstract ID: 1263

Individual Paper Submission

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Decent housing (*vivienda digna*), typically defined on the basis of some combination of structural characteristics, security of tenure, extent of overcrowding, and access to basic services, remains a prominent social concern in much of the Global South. Indeed, recent data suggest that approximately two billion people in the developing world are relegated to “inadequate” housing. In response, the United Nations and a host of international organizations have pursued an ambitious global campaign of promoting access to “inclusive, sustainable and adequate housing”.

In the case of Mexico, access to decent housing is mandated in Article 4 of its (still) revolutionary Constitution of 1917. Nonetheless, about one-third of Mexico’s population occupies dwellings classified as inadequate based on international standards. The Mexican Constitution also accords the state with the primary responsibility for determining the means of providing access to *vivienda digna*. As a consequence, the Mexican government has implemented a number of initiatives in recent decades to address housing needs throughout the country. Recent policy interventions, like the 2014-18 National Housing Plan, respond to the prevailing international conceptualization of decent housing and seek to improve the quality of urban and rural housing, reduce the country’s housing deficit, and use housing policy to control urban sprawl.

Using a case study approach informed by a combination of secondary sources, spatial analysis and primary (survey) data, this paper offers a critical appraisal of Mexico’s current urban development and housing agenda. Specifically, the study poses two research questions: What role does the subsidized construction of mass-produced housing for low and moderate-income households play as the primary means of providing *vivienda digna*? And, to what extent does “densification” work as a strategy for combating urban sprawl and promoting more sustainable urban development?

In both cases, the study concludes that policy interventions have failed to achieve their purported objectives and that housing built in response to the prevailing international conceptualization of “decent housing” and under the premises of densification as a vehicle for sustainability is both indecent and

unsustainable. Accordingly, rather than addressing the real needs of Mexico's population for adequate shelter, the complementary discourses of vivienda digna and densification actually serve to fulfill three distinct objectives: allowing the Mexican government to achieve positive indicators of development, in line with international standards; generating large numbers of jobs in construction and additional employment in related industries; and subsidizing the profitability of a small group of national and regional construction firms who control the country's homebuilding industry. In light of these findings, this study offers a critical approach that may prove effective in analyzing decent housing policy initiatives in other parts of Mexico and the Global South.

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Key Words: Housing, Development policy, Policy analysis, Urban heat islands, Mexico

MOVING TO OPPORTUNITY, OR AGING IN PLACE? THE CHANGING PROFILE OF HUD-ASSISTED HOUSEHOLDS

Abstract ID: 1281

Individual Paper Submission

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While there is an abundance of research on subsidized housing, particularly in the context of neighborhood opportunity, there is little attention being paid to whether and how the composition of subsidized households has changed over time. Understanding the changing profile of subsidized households is important to both the development, and implications, of housing policies. With that in mind this paper combines administrative data from the U.S. Department of Housing and Urban Development with census data to analyze:

- 1) whether and how the composition of subsidized households has changed over time in aggregate, and across subsidy programs
- 2) whether and how subsidized households have changed relative other households in the tract where they live and
- 3) whether and how these demographic changes interact with what researchers consider an “opportunity neighborhood”

We find that between 2000 and 2017, an increasing number of subsidized households were headed by persons aged 62 or older, while the share of households with children dropped significantly. These changes are accompanied by increasing levels of disability, even among seniors, and increasing reliance on non-wage income. Most striking are the trends among voucher households, who used to be quite young compared to both the general population and to households in other HUD programs, but have aged rapidly. We also find that current definitions of ‘neighborhood opportunity’ are not well equipped to accommodate these changes.

The findings of this paper are important for subsidizes housing policies and studies that focus on this topic.

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Key Words: Subsidized housing, neighborhood opportunity, elderly

TRACK 6 – POSTERS

AFFORDABLE HOUSING FOR MIGRANT WORKERS: THE RELATIONSHIP BETWEEN PUBLIC, PRIVATE, AND LOCAL COMMUNITY FOR SUSTAINABLE DEVELOPMENT

Abstract ID: 149

Poster

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Housing plays a central role in connecting individual, family, and society in human life. Having decent housing in a suitable living environment is a dream of families around the world. In developing countries, migrant workers are the major labor forces for factories in industrial zones. These groups of young people leave their village to find a better future in the city while building the momentum for the economic development for the region.

In Vietnam, a renovation program has been started in 1986 with the purpose of transforming the central-planned economic structure of the market-oriented economy. Since then, the country has implemented policies and strategies to realize the goals and visions of the programs. As one of the approaches to bring Vietnam into the production chain worldwide, industrial parks have been prioritized as places attracting domestic and foreigner investments. Three-quarters of the industrial parks’ labor force are migrant workers. Vietnamese Government has provided different policies and programs in supporting the housing

supply for workers working in industrial zones. However, only 7-10% of migrant workers are living in the housing development built by the Government or private investors. More than 90% of migrant workers are on their own in finding a place called “home” after long hours of working at the factory. The majority of migrant workers choose to live in nearby villages where informal housing is provided by villagers.

This study highlights the role and actions of major players in providing affordable housing solutions for migrant workers. They are the government, private developers, factories’ owners, and the local villagers. Each of these players has their own pros and cons in participating in the supply of affordable housing stock for migrant workers. These lead to various priorities and strategies in providing affordable housing. The study uses qualitative approaches for the 5 largest industrial zones in Hanoi, Vietnam. The findings shed light on the differences between these housing providers’ approaches and outcomes. The study also presents critical recommendations for the policymakers based on the housing and neighborhood quality and the sustainable development for migrant workers. Finally, this study can be used as a case study for affordable housing, community development, and public policy management in developing countries.

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Key Words: migrant workers, Vietnam, affordable housing

ASSESSING BENEFITS OF ARTS AND CULTURAL ORGANIZATIONS TO SINGLE-FAMILY PROPERTY VALUES: A SPATIAL HEDONIC STUDY IN CINCINNATI, OHIO

Abstract ID: 466

Poster

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Recently, promoting cultural industries has become a popular strategy to stimulate city redevelopment (Murdoch, Grodach, and Foster, 2016). By attracting and supporting arts and cultural organizations (ACOs), small retail, and service businesses, the strategy is expected to generate city revenue, transform blighted urban spaces, and develop urban identity (Markusen, 2013). Research shows that ACOs have positively contributed to city image branding, resident attraction and retention, and brownfield redevelopment (Evans, 2005).

Questions. Although housing prices act as an index to quantitatively measure the attraction of a neighborhood, we have few, if any studies to address the effects of ACOs on residential property values. This analysis seeks to fill this research gap by investigating two questions:

- (1) Do ACOs have a positive impact on residential property values?
- (2) If so, what type of neighborhood would benefit most from the introduction of ACOs?

It is hypothesized that there is a positive relationship between single-family property values and the number of ACOs within walking distance (5 and 10 minutes).

Methodology. The study area of Cincinnati, a rust belt city in the Midwest, had started to fund local ACOs as part of its community development strategy since 1989. The fund, The City of Cincinnati Arts Allocation, applies 0.14 percent of its General Fund to support the Cincinnati-based artists and arts and cultural organizations of all sizes. Utilizing property transactions data from Cincinnati Area Geographic Information System (CAGIS), business data from the Infogroup Historical Business Dataset, as well as census data, this paper develops a spatial approach to the evaluation of the effect of ACOs on housing prices. This study implemented three models based on hedonic pricing modeling: a standard hedonic model, a spatial lag model, and a spatial error model. To spatially illustrate the results, this study further used a Geographically Weighted Regression (GWR) function in ArcGIS to identify those areas that would benefit most from ACOs.

Findings. The results show that by controlling lot size, number of bedrooms, year built, distance to the nearest highway exist, as well as community median household income, all three models confirmed the hypothesis that the numbers of ACOs within 10 minutes walking distance are positively significant for single-family property values. This research also found that by controlling spatial autocorrelation, the spatial lag model effectively increased the accuracy of the coefficient estimated by the standard hedonic model. Thus, this research concludes that ACOs do have a significant impact on the prices of surrounding single-family properties. Application of the GWR pointed to three different lower income riverfront neighborhoods having the highest coefficients, suggesting the possibility that increasing the number of ACOs in these neighborhoods might increase single-family property values much more than the other areas in the city. However, the sample size of high impact areas identified by GWR is too small. Thus it is too early to make a conclusion about the common features of these areas.

Implications. For decision makers, the finding that the number of ACOs matters in the single-family property values highlights the need for supporting ACOs in cultural led revitalization strategy. More specifically, by pointing out the high impact areas in the city, urban planners can make a better ACOs promoting strategy in Cincinnati. My further studies will extend the study objects to multi-family properties and apartments, and include a longer period property transactions data to build up a more reliable sample size.

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Key Words: Arts and Cultural Organizations, Hedonic Model, Property Values, Spatial Autocorrelation

RECONSTRUCTION OR RELOCATION? MOBILITY DECISIONS OF HOMEOWNERS EXPOSED TO RECURRENT DISASTERS

Abstract ID: 535

Poster

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As global climate change increases the incidence and intensity of natural disasters, the threat of property damage also increases. Rising levels of property damage will increase the total cost of damage, the share of homeowners who seek disaster assistance, and the amount of assistance requested. Limited funds for disaster assistance, combined with increasing demand for such funds, necessitates a broader understanding of affected homeowners' preferences to either rebuild or relocate following disasters.

Relocating homeowners has proved the preferred method for hazard mitigation as residents can be relocated to safer places and land-use can be converted into open space, thereby reducing injuries and deaths from disasters. FEMA, which launched the Hazard Mitigation Grant Program in the late 1980s, has implemented floodplain buyout programs since 1993 (de Vries & Fraser, 2012). Despite growing interests surrounding buyouts, many researchers have indicated that effective adaptation should have integrated policy options, such as development controls, emergency management, repair and reconstruction, and selective relocation, as individuals are differentially impacted by disasters (Nicholls et al., 2007; Muñoz & Tate, 2016). In addition, since post-disaster recovery is a sequential process during which the household seeks temporary shelter, short-term housing, and then ultimately permanent housing, mobility decisions made in the immediate aftermath of a disaster contribute to long-term residential mobility and choice (Bukvic & Owen, 2017).

Despite current limitations of funding opportunities, research has found governmental financial assistance to be one of the most critical factors behind post-disaster mobility decisions (Bukvic & Owen, 2017; Xu et al., 2017). However, little research has examined the contribution of federal funding in facilitating hazard mitigation for individual recipients through property elevation or reconstruction. Furthermore, few researchers have investigated the impact of subsequent or repetitive disasters on changes to recipients' mobility decisions. This research contributes new knowledge on the decision-making process of homeowners offered disaster assistance for property elevation, reconstruction, or acquisition and additional considerations involved in this process in the context of recurrent disasters.

We conducted in-depth interviews with homeowners in Lumberton, North Carolina, which experienced two disasters over a two-year span (Hurricane Matthew in 2016 and Hurricane Florence in 2018). Disaster assistance for property elevation, reconstruction, or acquisition was offered to selected homeowners following Hurricane Matthew; however, delays in the funding process left homeowners susceptible to additional property damage from Hurricane Florence. This research addresses the residential decision-making process of two distinct sets of homeowners: those who will rebuild and those who will relocate. We explore the role of the type of disaster assistance received by homeowners affected by Hurricane Matthew in aiding or obstructing homeowners' preparations for Hurricane Florence. Furthermore, this research considers the effects of Hurricane Florence on residents' perceptions of their mobility decisions, which were made prior to the subsequent disaster.

The results will enhance our understanding of 1) the factors that affect homeowners' decisions to either rebuild or relocate, 2) changes to homeowners' perceptions of their mobility decisions in the wake of a subsequent disaster, and 3) homeowners' perceptions of their mobility decisions in the context of repetitive losses from recurrent disasters. Our results will contribute to policymakers' understanding of homeowners' post-disaster mobility decisions, furthering knowledge on the optimal allocation and distribution of disaster assistance to reflect homeowners' mobility decisions. For planning practitioners, our results will demonstrate the implications of disasters on the long-term mobility decisions of homeowners and the impact of these decisions on the broader community. In addition, our findings serve as a basis to help emergency managers and other cities, state, and federal officials understand homeowners' mobility decisions and develop appropriate disaster mitigation and recovery strategies.

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Key Words: Disaster, Mobility Decision, Post-disaster Relocation, Hazard Mitigation

EXPLORING SPATIAL PATTERNS OF GROWTH IN VACANT HOUSING: A SPATIAL ANALYSIS

Abstract ID: 653

Poster

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The growth of vacant housing has been a serious issue in many countries. The number of vacant housing units in Korea is 1.26 million (7.3% of the total housing units) in 2017 and has been growing (Population and Housing Census, 2017). Studies applying the broken window theory find that neglected and poorly managed vacant housing units not only cause various socio-economic problems such as crime and housing price decline in the host neighborhood but also negatively affect residential environment in nearby neighborhoods via spillover effect (Accordino&Johnson,2000; Jeon & Kim, 2016; Na, 2017). The spread of the negative effect caused by vacant housing can be a serious burden for local governments by requiring spending more resources for crime prevention and reducing property tax revenues. Thus, it is important to understand spatial patterns and factors affecting the incidence of vacant housing to solve the problems that are associated with the concentration of vacant housing.

While there are studies examining spatial patterns analyzing vacant housing and factors influencing the concentration of vacant housing (e.g., Morckel, 2014; Kim et al, 2018), those studies mostly depend on cross-sectional analysis but do not analyze longitudinal patterns of vacant housing over time. Also, only a few studies examine if factors affecting growth in vacant housing differ by geographic location.

Depending on the conditions of housing submarkets, the magnitude of factors affecting growth in vacant housing can be differentiated. Furthermore, few studies examine vacant housing in Seoul where the contradictory conditions, both housing shortage and growth in vacant housing, are present. In this regard, this study asks the following research questions: 1) How are the spatial patterns of growth in vacant housing between 2010 and 2015 in Seoul? 2) Do factors affecting the growth in vacant housing in Seoul between 2010 and 2015 differ by geographic location?

To examine the research questions, we use the 2010 and 2015 Population and Housing Census of Korea. The dataset includes the share of vacant housing units, the dependent variable, and housing, socio-economic and demographic characteristics, the independent variables, at the neighborhood level. We employ Local Indicators of Spatial Association (LISA), a spatial analysis to analyze the spatial patterns of growth in vacant housing and Geographically Weighted Regression (GWR), a spatial regression model to analyze factors affecting growth in vacant housing that are differentiated by geographic location.

The empirical results show that there is considerable spatial effect in growth in vacant housing and neighborhoods with a large share of vacant housing form clusters. We also find that factors affecting growth in vacant housing differ by geographic location.

The audience of this study will learn spatial patterns of growth in vacant housing and factors affecting growth in vacant housing differentiated by geographic location. Also, the audience will learn the strategies to effectively manage vacant housing.

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Key Words: vacant housing, spatial analysis, housing vacancy

WHAT TAGS DID YOU ATTACH TO INFORMAL SETTLEMENTS: UNDERSTANDING THE INTERACTION BETWEEN THE PUBLIC'S PERCEPTIONS IN SOCIAL MEDIA AND THE STRATEGIES OF NEIGHBORHOOD REDEVELOPMENT

Abstract ID: 796

Poster

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25% of the world's population have flooded into unplanned and informal settlements on the land without legal tenure and adequate facilities. To inclusively formalize informal settlements through neighborhood redevelopment projects is a long-lasting topic due to the complexity of opinions and interests among stakeholders of different types. Important to inclusive neighborhood redevelopment are the abilities of community stakeholders to form partnerships and understand the demands of each other. However, due to unbalanced access to education opportunities and facilities between the general public, policymakers, researchers, and informal settlement dwellers, their powers of voice and their impact on decision-making during neighborhood redevelopment are diverse. Therefore, it is unknown whether the general public, who live outside informal settlements, significantly influences the directions of neighborhood redevelopment at the cost of informal settlement dwellers' well-being.

This paper aims to investigate the public's sentiments of informal settlements in social media worldwide and to evaluate how different neighborhood redevelopment strategies influence sentiment at the national and subnational levels. Tweets and comments or forwarded messages in microblogs are one of the richest resources for crowdsourcing public sentiment related to neighborhood redevelopment. This study will also focus on the context of different regimes and local urban governance in the global North and South. We will employ natural language processing tool for collecting comments data. We will examine how public sentiment regarding public security, poverty, economic development, and the well-being of informal settlement dwellers over time and in response to high-profile local neighborhood redevelopment events.

We will identify the key local neighborhood redevelopment events by using the Global Database of Events, Language and Tone. Also, we will collect tweets by selecting the keywords relevant to national or subnational redevelopment schemes (i.e., Slum-free Scheme in India and Penghuqugaizao in Beijing, China, etc.) and features of global or local public events or movement (i.e., Public-Private Participation, forced displacement, legislation of anti-violent displacement, etc.). We will analyze the temporal-spatial data of events and sentiments in comments, twitter, and microblogs through deep learning methods including convolutional neural network models. We plan to visualize the clusters or correlations between the events of different types and the sentiments regarding the reasons, processes, and outcomes of informal settlement upgrading.

While accounting for the larger trends in the public perception of the informal settlements, the study intends to find whether biased or stereotyped sentiments of informal settlements emerged or reinforced during the aftermath of urban redevelopment events. Such type of sentiment consists of, but not limited to, negative attitudes towards neighborhood insecurity in informal settlements and the blame based on the perception that informal settlements are the breeding grounds of crime and violent conflicts. Furthermore, the news about innovative and inclusive urban redevelopment strategies and poverty alleviation at the local level enhance the public's empathy with the urban poor. Empathy, rather than sympathy, could further inspire discussions about applicable paths to inclusiveness and social justice during urban redevelopment worldwide. The study implies great importance to adopting advanced mixed methodologies to understand dynamic community participation in future planning practice and community education.

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Key Words: Displacement, Data mining, Sentiment analysis, Slum upgrading, Eviction

GEOCODING INACCURACIES: A CASE STUDY FOR EVALUATION OF THE LOW-INCOME HOUSING TAX CREDIT PROGRAM DATA

Abstract ID: 872

Poster

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Many studies on the Low-Income Housing Tax Credit (LIHTC), the largest federal subsidy program for affordable low-income housing, rely on a national spatial database. A fundamental task in the use of the database is to identify the location of individual LIHTC projects by associating an address record with a point on the map. However, the literature often neglects how accurately the geocoded addresses are positioned and offers little insights into its impact on program evaluation. I examined these issues for Los Angeles County, California, by combining the federal database with local assessor's parcel map as ancillary data for accuracy measurements. I found that the positional accuracy of geocoded LIHTC database is generally high, but the accuracy varies depending on the measurement method and areal unit of analysis. A demonstration analysis on transit-accessibility shows that the inaccurate database overstates transit-accessibility of LIHTC projects. This is likely to mislead researchers and policymakers in evaluating locational affordability of LIHTC program. I conclude by recommending creating a parcel-level LIHTC database to increase positional accuracy of geocoded LIHTC address records and consequently enhance the quality of LIHTC program evaluation.

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Key Words: Low-income Housing Tax Credit (LIHTC), Geocoding, Positional Accuracy, Federal LIHTC Data, Local Parcel Data

STATEWIDE PLANNING FOR AFFORDABLE HOUSING IN SOUTH CAROLINA

Abstract ID: 930

Poster

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In the United States, the Low-Income Housing Tax Credit (LIHTC) is the largest source of funding for the construction and preservation of rent-restricted housing. The process for awarding these tax credits is delegated to state housing finance agencies (HFAs), who must publish a Qualified Allocation Plan (QAP) that allows each HFA to make funding decisions in a way that considers local housing needs. Due to the preferential treatment in federal law for proposed projects located in distressed neighborhoods and stereotypes about who needs “affordable housing,” LIHTC developments have often been concentrated in urban, high poverty areas. This has led to critiques that the program is “warehousing” low-income individuals and families, particularly those of color.

Many states have implemented QAPs that give additional consideration to projects in neighborhoods outside those traditionally served by the LIHTC program. This can be done in a variety of ways, but often involves scoring bonuses and/or set-asides for sites in “high opportunity areas,” locations with one or more positive characteristics like local schools that perform well on standardized tests or above average access to employment opportunities. The evidence on the effectiveness of these efforts in spatially redistributing LIHTC housing is mixed, and limited data exist on whether tenants’ lives have actually been improved on metrics such as household income, but there is increasing adoption of these policies.

HFAs calibrate their QAPs in this dimension and others, such as cost containment, based on stakeholder input, organizational change, perceived emerging trends, and other factors. The limited extant literature on QAPs pays little attention to the political processes that lead to change relative to the results; with few exceptions, researchers take these documents as given when assessing their impact or simply identify these processes as an item for future research. This represents a major oversight; researchers and activists alike should be aware of how these plans are developed, the formal and informal processes involved, and whose interests are represented—or not—when decisions are made. There is an inherent connection between state QAP processes and how, or whether, planning practitioners will be able to implement desired policies for their community with respect to housing development.

This paper will present a case study of how the South Carolina State Housing Finance and Development Authority (SC Housing) developed its 2020-2021 QAP. Due to extensive turnover among senior staff since the last two-year QAP was written, including a new Executive Director, and the deployment of a new Authority-wide strategic planning process, the composition and mindset of internal policymakers is appreciably different. Meanwhile, there has been extensive dissatisfaction communicated to SC Housing from local interests that the QAP has compromised their ability to receive affordable housing funds or locate developments on the sites that they would prefer.

An overall evaluation of the QAP development process and its results will be presented, as well as how the new scoring characteristics for project sites might have changed prior years’ allocation decisions *ceteris paribus*. Other content for analysis will include Authority documents, participation from external stakeholders in public forums and comment periods, other interviews and surveys, and internal work product and deliberations where possible, as well as the author’s views as a key participant in the process.

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Key Words: affordable housing, housing policy, Low-Income Housing Tax Credit, South Carolina, state policymaking

TRANSPORTATION ACCESSIBILITY, HOUSING INVESTMENTS, AND HOUSING PRICES: APPLICATION OF HEDONIC PRICE MODEL IN DES MOINES, IOWA

Abstract ID: 1047

Poster

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Affordable housing provision has been a challenge in the United States over the past years. As housing prices increase, a high number of people cannot afford to have their housing, and most residents can only afford to live in apartments in rental areas. The percentage of Americans who rent their houses was 31.2% in 2006, which increased to 36.6% in 2016 (U.S. Census Bureau, 2017). This problem may become more substantial for the people who may not afford to live near their workplace, having to experience a longer commute to reach their job. This spatial mismatch between housing and job location highlights the importance of proximity and access to the public transport system.

To help mitigate the housing demand, different non-profit organizations across the country are investing in providing affordable housing for the people who need it the most. Previous studies indicated that housing investments have a positive impact on nearby housing prices. These studies on the relationship between housing investment, transportation, and housing prices and they showed mixed results (Ding, Simons & Baku, 2000; De Sousa, Wu, & Westphal, 2009; Mulley et al., 2016). There is evidence of both positive and negative relationship between housing investment and housing prices. However, very few studies were found to incorporate housing investment, transportation and housing price in the same method.

In this study, I examined the relationship between the housing investments by a non-profit organization and housing prices in the city of Des Moines, Iowa. The hypotheses for this study were: the closer the residential unit is to the housing investment, the higher the housing price; and the closer the public transportation infrastructure is to the residential unit, the higher the housing price. From the literature, the hedonic price model found to be the most suitable method to use to achieve the objective of this study. Two different models were estimated for 2000 and 2018, one for before the investment and one after the investment took place. The housing sales price for 2000 and 2018 reported by the Polk County Assessor's

Office was collected and used as the dependent variable for the models. The investment data from 2003 to 2014 and public transit information were used as independent variables. A buffer around the housing sales location was created, and the presence of investment and transit stops within that distance was calculated. However, housing price also depends on structural characteristics such as building age, number of bedrooms and bathrooms, and neighborhood characteristics such as median income, access to parks and schools, among other attributes.

The results from the model indicated that housing prices had a significant negative relationship with the presence of new investment in the defined buffer distance—the presence of investment results in the decrease in housing prices. The models indicated an increasing rate of price drop with the increasing distance between the housing unit and new investment. The model indicated that the relationship between housing price and transit proximity is positive for closer distance in 2018, whereas it did not show any such evidence for 2000. In a city where public transit is not the most efficient, investment and transit access is not the most significant divided of the housing prices. However, as non-profit organizations are investing all over the country, they should follow a spatial strategy in the process to make it efficient. Based on the findings from this study, a spatial strategy to identify the locations and the pattern of investment could be of vital importance for the non-profit organizations in carrying out their functions properly, and not transfer any negative relationship to the housing prices.

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Key Words: Affordable housing, Housing Investment, Hedonic Price Model, Transit access

SUBURBAN SOCIAL: SHIFTS IN THE RENTAL HOUSING LANDSCAPE, TRANSIT ACCESS, AND RACE IN LOS ANGELES, CA

Abstract ID: 1050

Poster

GUY, Tam [UCLA] tamjguy@gmail.com, presenting author

Overview of research

In the past decade, housing pressures contributed to spatial shifts in affordable rental housing in the Southern California region, corresponding with drops in transit accessibility for low-cost rental housing seekers (Guy, 2018). This aligns with prior findings regarding the suburbanization of poverty (Howell & Timberlake, 2014). It also presents a problem for households, especially those with low incomes and no

car access, that prefer to locate in transit-rich neighborhoods (Glaeser, Kahn, & Rappaport, 2008). Yet, as policy makers seek to lower greenhouse gas emissions and vehicle miles traveled, rising housing costs could be affecting households' access to affordable housing and transit differently based on neighborhood racial demographics. Through this research I examine whether the shifts in rental units at various price points at two time periods in the Los Angeles region, and the associated differences in transit accessibility, correlated with race.

Research question

Were the shifts in the spatial distribution of rental homes by monthly gross rent brackets between the American Community Survey 5-year datasets 2006-2010 and 2012-2016 in Los Angeles, CA, and thus the corresponding the changes in transit accessibility, correlated with race?

Research methodology + data source

Secondary data. Using American Community Survey (ACS) data, I compare the ACS 5-year datasets 2006-2010 and 2012-2016. The ACS includes racial demographics within census tracts and counts of units within a range of monthly gross rents brackets. Adjusted for inflation, the ACS data revealed which areas lost and/or gained units during the time period. Transit accessibility can be measured using the University of Minnesota Accessibility Observatory's Transit Across America: Access 2016 data.

Analysis. I used geographic information system (GIS) software to identify the shifts within the ACS data in the quantity and location of rental housing units available in each gross rent bracket by census tract. Based on the shifts in location of concentrations of units in a given rent bracket, I calculate the change in transit accessibility as well as check for correlations with race.

Findings

Research in progress, to be finished by August 1, 2019.

Implications and actionable conclusions

Checking for correlations with race for shifts in rental housing markets and associated transit accessibility shifts could reveal a deeper picture of demographic changes in Los Angeles and the Southern California region. The implications of these shifts might warrant adjusting policies related to locating affordable housing (Hamidi, Ewing, & Renne, 2016), providing transit services (Giuliano, 2005), and targeting economic development services in the region (Howell & Timberlake, 2014) to explicitly consider differential impacts by race.

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Key Words: race, rental housing, affordable housing, transit access

TRANSITION OF OWNERS AND RESIDENTS OF LONG-STANDING COOPERATIVE HOUSING COMMUNITIES LOCATED IN THE CITY CENTER -THROUGH COMPARISON OF THE “TOJUSO” SERIES DATING FROM THE SAME PERIOD AND OF THE SAME SCALE

Abstract ID: 1065

Poster

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Japan has no law to establish housing associations for cooperative housing. Consequently, unions are formed solely at the time of construction, and after construction is completed, the building structure becomes separately owned condominiums. However, since union members are involved in the construction jointly, a close community comes into being, a feature that is appealing about cooperative housing. Cooperative housing is considered a form of co-housing. However, as time passes after construction and owners are replaced, the sense of community starts to weaken, and co-housing is thought to end up the same as the standard type of separately owned condominiums.

This paper’s research question seeks to investigate whether Japan has cooperative housing where the community stays strong even as time passes after construction. It will also investigate contributing factors.

To this end, the TOJUSO series of cooperative housing, which is found mainly in the central city area was selected as the target of this research. There are 20 buildings, mainly in the central Osaka area. The buildings are 16 to 40 years old. The reason for selecting this series of buildings is because they were built around the same time and are of the same scale, making it easy to make comparisons.

Two methods were adopted for the research: an investigation of land and building registers and interviews with the condominium owners.

The investigation of land and building registers provided an understanding of the transfer of ownership for each residence, and a comparison was made with residence maps and name registers. A cross-comparison of this information was made at each residence. The interviews with residence owners targeted the principal owner of each residence.

In terms of results, the investigation of land and building registers revealed that although the number of original residence owners decreased with the passage of time, the pace of this decline was relatively slow in some instances and rapid in others. Moreover, although there were many dwelling units being used by the owner, the investigation also revealed that there are a certain number of units that can be assumed to be empty or rented out.

The interviews revealed that, not only the first owners who had formed a close-knit community, but also

young owners who move in after buying the real estate actively participate in maintenance. The community is activated and there are instances where the maintenance of the residence is sustainable. On the other hand, in other residences where there is a large proportion of original owners, maintenance may be carried out enthusiastically, however, but the owners are aging and have not found a generation to follow them who is enthusiastic about management.

In conclusion, even though cooperative housing complexes may be of the same age and scale, they do not follow the same management process. Even in instances where owners have changed, it is possible to foster the next generation and maintain a close-knit community by engaging in resident-centered management. There is no need for many of the original owners to remain in the building. However, it is very important that the original owners communicate the original idea from the time of construction to the new residents.

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- Reproducing housing commons. Government involvement and differential commoning in a housing cooperative

Key Words: Cooperative housing, Long-standing housing, Maintenance, Urban habitation

PLACE-MAKING IN PRECARIOUS ENVIRONMENTS: PLANNING AND DESIGN FOR DISPLACED POPULATIONS

Abstract ID: 1158

Poster

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By the end of 2017, there were 68.5 million forcibly displaced people in the world, including 40 million internally displaced (UNHCR, 2017). An inherent part of displacement is that of forced relocation, often involving a transitional period of living in temporary or improvised environments. Characterized by their “less-than-ideal conditions,” they are called “precarious” in this study, and we focus on post-disaster. Research on recovery efforts that account for the variability in disasters response (by the government, organizations, and citizens) has advanced, leading to improved interventions. Still, response failures have occurred worldwide, especially in the provision of temporary housing, as solutions have often been considered inappropriate (Lizarralde & Davidson, 2006), and even rejected (Oliver, 2003). How can we learn from these failures?

Suddenly-displaced people are expected to readily accept any form of shelter, but a suitable housing arrangement must create living conditions that are acceptable to their occupiers (Oliver, 2003). Studies on forced relocation show that people navigate sudden changes in their home environments with difficulty, but commitment to remake place connections remains strong (Fullilove, 2013). As displacement has been shown to trigger a process of meaningful adaptation, this study hypothesizes the same to be true, irrespective of the conditions of the new place. An understanding of how processes of remaking place

unfold in precarious environments is sought by asking: What does place-making look like in a post-disaster temporary housing? Some secondary questions are: What issues are foremost in the minds of those displaced? What about the house works for them? In what ways is it not appropriate? If unsuitable, what adjustments are they making? Studying meaning-making, in context, is important for understanding how these people see the world, perceive constraints, and choose to act.

A qualitative case study of temporary housing response to recent (2017 and 2018) wildfires in Southern California will be carried out. Participants will be individuals affected by any of the fires, who have experienced the loss of a home, and are living in temporary housing. Data will be collected through interviews, observations, walk-through sessions, sketches, and photographs. Through a cultural-ecological approach to planning and design, findings should encompass planning and design solutions imposed “by design,” others made by their users, and what these mean to them and to their recovery process.

From this study, we expect to learn about how people in the U.S., especially in Southern California, view and cope with disasters; how these people see themselves and their environments. There are hardly any studies on this, and an in-depth understanding can spur more meaningful action. This study also applies traditional theories of place to a context not yet investigated: precarious environments. Further, describing displaced people’s processes legitimizes their active role in driving important parts of recovery efforts. This is especially important to the planning profession: by understanding how these processes unfold, disaster planners and designers can facilitate them through solutions that are more responsive to peoples’ needs and wishes, contributing to the transformation of temporary housing into a home.

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Key Words: Displacement, Disaster planning and design, Place-making

TRACK 7 – INTERNATIONAL DEVELOPMENT PLANNING

TRACK 7 – PRE-ORGANIZED SESSION SUMMARIES AND ABSTRACTS FOR THE SESSIONS

PRE-ORGANIZED SESSION - IS DEFINING INFORMALITY AS A PROBLEM A FALLACY FOR PLANNING?

ID: 1

Pre-Organized Session Summary

Includes abstracts: 443, 444, 445, 446, 447

Globally, urban planning has problematized informality with top-down solutions for affordable housing, formalisation of skill training, jobs, and access to credit. Even in cases with a pro-informality planning culture, participatory and inclusive outcomes are difficult to ensure and sustain. Using examples from Accra, Manila, Luanda, and Mexico City, this session will discuss how long term, effective planning solutions work in contexts constrained by politics and praxis. We hope the discussion helps move the planning conversation beyond simply viewing informality as temporary, ahistorical, or sectoral, in short, a problem to be ‘solved’.

Objectives:

- To contribute to current debates regarding informality and policy, building theory from practice in the Global South
- To contribute to planning research and theory by revealing the contribution of informality as a means that allows low-income families to address their basic needs including housing, employment, local retail economy, etc.
- To highlight the importance of participatory approaches to policymaking that empower residents in informal settlements to participate in solutions to improve the living conditions.

MOVING INFORMALITY FROM PAPER TO PRAXIS: A CASE STUDY OF STREET VENDORS AND PLANNERS IN ACCRA, GHANA

Abstract ID: 443

Group Submission: Is defining informality as a problem a fallacy for planning?

NORONHA, Kimberly [University of Pennsylvania] knoronha@upenn.edu, presenting author

Developing countries are subject to an imposition of a lexicon of planning narratives that their bureaucrats may not be ready for. This impacts the ground-level planning experience. One such term is ‘informality’, where funds and technical assistance from the UN, the World Bank, and other agencies, are contingent on a positive planning environment for the informal economy. In this paper, I study street vendors in Accra, Ghana and examine how a ‘positive’ narrative on street vendors (in the informal

economy) has crept into the dominant planning narratives. I hold that the ground-level experience of the street vendors in Accra does not necessarily match this ‘positive’ narrative.

I use a mixed methodology first examining national planning documents such as the 2015 National Spatial Development Framework, and the Land Use and Spatial Planning Act, 2016 (Act 925). Additionally, there is aid literature such as the 100 Resilient Cities (100RC) resilience plan for Accra, the Salaga Market redevelopment project, and the Marine Drive redevelopment project. I support this with on-ground observation and interviews with national and city planners and street vendors. In November 2018, I was part of a 100RC resilience exercise with AMA and LUSPA officials (national and local level), local architects and planners, and the People’s Dialogue (PD), the Ghana chapter of Slum Dwellers International (SDI). Finally, I conducted field observations and interviews in Accra, Ghana in June, July, and November 2018, with follow-up interviews via phone from January-March 2019. Overall there are 600 minutes of interviews that support the following conclusions.

I focus on two key findings. First, I place officials on a spectrum of those who problematize street vending, and those that do not. The former tends to be national-level officials who, while cognizant of the issues, are faced with broader policy questions of a uniform planning narrative, and budget and project funding. The latter tend to be at the city-level interacting frequently with street vendors, and therefore more sensitive to their issues. Second, I focus on the street vendors either individually or through collectives such as WEIGO, that have managed to create platforms for direct interaction with the government. While these serve a cathartic function for the vendors, it is still difficult to guarantee sweeping change. Yet, I find that the issues they present have found their way into the spoken lexicon of the ground-level officials.

Historically, aid agencies have used project funding as an impetus for what they see as ‘positive’ policy change. Their documents recognise informality as a factor in urban development and through their documents demand planning and policy solutions take informality into account. In 2016, HABITAT III called for a stronger role of urban planning in the New Urban Agenda. These feed into the international Sustainable Development Goals (SDGs), of which, two goals, Goals 8 and 11, deal with informality. Translating these into action is admittedly difficult. By studying how these narratives move from paper to praxis, I will demonstrate the gaps that planning education and training can address when policy changes are imposed on a system not used to “thinking” a particular way, particularly in situations where organic growth proceeds planned development.

Finally, I find that the planning in Accra, Ghana is subject to a dual narrative imposition: top-down from aid agencies, academicians, and other activists; and bottom-up from the street vendors themselves. There is a ‘social justice’ narrative framing this discourse, which is not fully accepted by the planning bureaucracy because this pits street vendors against the dominant planning hegemony. I argue that viewing street vendors as legitimate citizens and stakeholders in planning is a better framework for planners and policymakers.

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Key Words: street vendors, planning for informality, urban livelihoods, Ghana, Accra

THE SPATIAL PATTERNS OF POLITICS: MEASURING THE GLOBAL RELATIONSHIP BETWEEN CLIENTELISM AND TYPOLOGIES OF INFORMAL URBAN GROWTH

Abstract ID: 444

Group Submission: Is defining informality as a problem a fallacy for planning?

DEUSKAR, Chandan [University of Pennsylvania] cdeuskar@upenn.edu, presenting author

Is the growth of informal settlements simply the result of poverty, or does politics also play a role? Do particular political dynamics have a spatial ‘signature’ in terms of patterns of urban settlement? This paper attempts to shed light on these questions by exploring the relationship between clientelism, i.e. the informal provision of benefits, including urban land and services, to the poor in contingent exchange for political support, and informal urban growth, across a globally representative sample of 200 cities. It uses recently released data on political behavior (V-Dem) and urban growth (the Atlas of Urban Expansion) as inputs.

Qualitative evidence from literature across disciplines provides examples, from around the world, of political patrons distributing land to informal settlers or helping to regularize preplanned, coordinated land invasions in exchange for political support. Based on a review of this literature, the paper hypothesizes that countries with more clientelistic politics experience more urban growth in the form of ‘informal subdivisions’, which, according to the Atlas of Urban Expansion, feature signs of coordination and planning prior to settlement, such as equally-sized land parcels and gridded streets of consistent width, but which appear to lack paved streets and other basic infrastructure. Clientelism may or may not play a role in other types of residential growth, including ad-hoc informal settlements and formal developments, and so there is no hypothesized positive or negative relationship between clientelism and these types of growth.

Ordinary least squares, negative binomial, and multilevel models are used to test whether the share of each of four types of residential growth experienced by a city between 1990 and 2015 was correlated with the level of clientelism in the country at the beginning of that period, controlling for the country’s initial GDP per capita, the city’s initial size and density, and other variables. The analysis is conducted first using all cities in the Atlas sample, and repeated for only cities in low-income countries and only cities in low- and middle-income countries.

Consistent with the hypothesis above, the analysis finds that cities in more clientelistic countries are likelier to experience urban growth in the form of informal subdivisions, but are not necessarily likelier to experience unplanned, ad-hoc informal growth. The main model for informal subdivisions finds that if a country were less clientelistic by one point on a 0-10 scale in 1990, the proportion of residential growth in

the form of informal subdivisions between 1990 and 2015 in its cities would decrease by 16% of its previous value, a magnitude equivalent to the effect of a \$2,700 increase in 1990 GDP per capita.

This paper is the first to measure the global correlation between informal politics and informal urban growth. It provides an example of how newly available data may be used to advance our understanding of the relationships between politics, urban space, and informality. It also suggests that simply devoting more resources to planning or requiring more public participation in planning may have limited impact on patterns of urban growth in clientelistic environments, where understanding and adapting to the politics of informality is crucial to making planning more effective.

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Key Words: informal, clientelism, politics, spatial, global

USING TRANSFORMATIVE CAPACITY TO ASSESS INFORMAL RESETTLEMENT PROGRAMS IN METRO MANILA

Abstract ID: 445

Group Submission: Is defining informality as a problem a fallacy for planning?

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In just six hours during September 2009, Typhoon Ketsana unleashed a record months-worth of torrential rain upon Metro Manila, killing hundreds and racking up over US \$1 billion in damage. Ketsana served as the impetus for internationally-lauded “transformative” policy reforms in the Philippines that prioritized planning, funding, and technical capacity-building for local disaster risk reduction. However, the 2009 floods also initiated a PHP\$50 billion program to resettle more than 100,000 informal settler families (ISFs) residing along flood-prone waterways. Implementation challenges, especially amidst persistent flood impacts and violent forced evictions, continue to prompt public debate over the efficacy of goals and processes for resettling ISFs who currently live in vulnerable areas. With the aim of informing inclusive efforts to avoid and mitigate flood risk in informal settlements, this study investigates what characteristics differentiate successful from unsuccessful state resettlement programs in Metro Manila since 2009.

Document analysis and coding of more than two dozen news articles and institutional reports offer insight into the actions and outcomes of three prominent resettlement campaigns in the Pasig-Marikina-Laguna watershed, since the 2009 floods. This study uses transformative capacity, a concept increasingly mentioned in adaptation planning but rarely tested, as a measure of evaluating resettlement processes and outcomes. Transformative capacity is defined as the collective and emergent ability of stakeholders to anticipate, prepare for, create, and therefore achieve a fundamental change in meaning, values, norms, power structures, or institutional arrangements. I use Wolfram’s ten indicators to provide a framework for coding transformative capacity according to factors such as diverse participation and inclusion, effective

leaders, local empowerment, knowledge co-production, reflexive learning, community-based innovations and experimentation, and cross-sector, cross-scale changes in technical capacity.

Evidence suggests that successful resettlement efforts feature qualities such as proactive negotiation, genuine participation, permanent housing solutions, adequate compensation and incentives, and opportunities for livelihood protection. Between 2009 and 2019, the adoption of participatory “people’s plans” and near-site relocations improved outcomes of social learning and community-based experimentation in many resettlement campaigns. However, these campaigns failed to consistently produce other critical qualities such as inclusion, reflexive learning, awareness, foresight, and innovation across relevant organizational sectors and scales. These results not only advance working knowledge of barriers preventing desired adaptation, development, and risk reduction. They also highlight the need for planners to develop enforced procedures that scrutinize resettlement proposals’ appropriateness and alternatives in the first place. By linking the politics of planning with systems theory concepts like transformative capacity, planners can more reliably understand informal resettlement’s implications and alternatives.

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Key Words: Informal Resettlement, Transformative Capacity, Disaster Planning, Flood Risk Governance, Philippines

CONTEMPORARY URBAN PLANNING AND THE (RE)STRUCTURING OF THE METROPOLISES OF THE GLOBAL SOUTH: THE ROLE OF INFORMAL TRANSPORT IN LUANDA, ANGOLA

Abstract ID: 446

Group Submission: Is defining informality as a problem a fallacy for planning?

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Introduction:

Metropolitan cities of the Global South are the product of socioeconomic, political and cultural organizations, in which formal and informal forces interact. This research seeks to demonstrate how the informal transportation systems, in the case of Luanda, Angola, - represented by the *candongueiros* -

(re)structure the urban/metropolitan space. This study focuses on the impact and predominance of informality as a fundamental factor in the socio-spatial shaping of contemporary metropolises in the Global South. Through its material or subjective representative components, informality has a direct impact on the social dynamics and urban organization of peripheral countries, defining a hybrid spatial order, which is scantily understood and not taken into account by contemporary and global hegemonic approaches of urban planning. In this paper, informality is informal transportation, not only as *modus vivendis* but also as a *modus operandis*, effectively fostering urban transformations, the appropriation of space, socioeconomic, political and cultural relations, while reconfiguring the metropolitan/urban life of Luanda.

Methodology:

I used mixed methods, including a qualitative empirical/bibliographical study of documents such as the Luanda Metropolitan and Mobility Plan (PDGML 2015-2030), research, interviews of government agents responsible for Luanda's transport, and trade and territorial planning, as well as academics, architects, urban planners and agents of non-governmental organizations linked to the study of urban issues, such as the Development Workshop, leaders of informal transport associations, drivers, collectors, passengers and traders both formal and informal between May 2015 and June 2016. I conducted additional follow-up interviews via social media between 2017 and 2019. Additionally, I conducted and produced geospatial analyses using tools such as the GIS and data from the Atlas of Urban Expansion and the Global Human Settlement.

Findings:

The analysis is framed within the dialectic relations between order/disorder; and the processes of metropolization, conventional urban planning, reconfiguration and management, embedded with the aspirations of development, modernization and global insertion. However, such take on urban processes are frequently characterized by socio-spatial segregation, inequalities, privileges and precariousness of the cities, in which informality prevails in its most diverse forms, mainly in the urban transport system. These trends and practices are inherited from the colonial rationality and modernist planning principles, neglecting the endogenous powerful cultural informal forces and expressions which structure complex reality.

In conclusion, I posit that there is a space between the formal and the informal, which configures a third order, a hybrid order structured by the transport system dominated by the *candongueiros*. Understanding informality and its contributions goes beyond the dualistic dialectic addressing complex forms of survival strategies.

Relevance to planning scholarship or education:

In aligning themselves with the idea of “modern global planning”, many African governments, including Angola's, have not considered peculiarities resulting from their historical processes of urbanization and their political, social, economic and cultural contexts that conform *modus vivendis* and *operandis*. Through my study, I argue that informality can be significantly mitigated by changing urban and regional planning paradigms, particularly by approaching urban planning with the physical and empirical realities of the territory recognizing informality as a key factor for equitable urban development. The approach builds an intermediate and transformative urban system based on informal transport activity and its externalities characterized as evolutionary hybrid space, more balanced and without the inconvenient separation between formal/informal; organized/disorganized; included/excluded, the planned and the

unplanned, the designed and pre-established and the spontaneous and unpredictable, seeking a richer and resilient urban ecology.

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Key Words: Luanda, Angola, Informal transport, Metropolitan planning, Hybridization, structuring of space

I BUILT IT WITH MY OWN HANDS”: THE ALBAÑILES OF ISIDRO FABELA, HETEROGENEITY OF INFORMAL HOUSING QUALITY, AND PARTICIPATORY SLUM UPGRADING IN MEXICO CITY

Abstract ID: 447

Group Submission: Is defining informality as a problem a fallacy for planning?

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Participatory approaches to slum upgrading offer the most effective solutions to improving quality of self-built dwelling units in informal settlements. However, such participatory approaches to slum upgrading require empirical attention to building design, structural quality, and materials used in the self-help construction process. We examined the quality of self-help buildings in Isidro Fabela, a consolidated informal settlement founded in the 1960s on the southern fringe of Mexico City. This colonia popular is now in an advanced stage of self-help consolidation but still displays great heterogeneity in housing quality, making it an exemplar of the sort of range of conditions found in other consolidated informal settlements. In our research, we simultaneously conducted surveys, architectural observations and measurements, and in-depth interviews in 108 lots.

Our research drew on principles of participatory slum upgrading by including self-help builders as research partners. This participatory approach allowed us to collectively identify the most important indicators of housing quality: 1) earth works, 2) the size of structures, 3) the material of roofs, 4) the staircase quality, 5) the sewer system, and 6) the quality of decorative materials on facades. These indicators, in turn, allowed us to construct a Self-help Housing Quality Index (SHQI) that provided a nuanced picture of the heterogeneous self-help construction quality in Isidro Fabela. Most self-built buildings in Isidro Fabela are of medium quality, but we also documented precarious buildings of very low construction quality, illustrating the importance of conducting fieldwork.

In the case of Mexico, this heterogeneity of housing quality in informal settlements has been explained as a product of family size, economic resources, and other capacities to invest in their homes. However, our

research revealed other important factors that also shaped the consolidation process, including social networks and government assistance. In particular, we found that collective self-help housing efforts known as *faenas* coordinated by community leaders, especially women founders of Isidro Fabela, were critical during the early years of the settlement. These collective efforts allowed self-help builders known as *albañiles* to develop construction knowledge and become a local source of expertise. The history of Isidro Fabela also illustrates the important role of publicly funded, low-cost training programs and technical assistance, as well as the significant contributions of community-based organizations in terms of channeling external assistance while guarding against divisive political co-optation.

Together, the insights from such life stories combined with the architectural observations and measurements allowed us to present a nuanced picture of informal housing development in Isidro Fabela, accounting for the spatial heterogeneity in housing quality but also the range of historical experience of residents. The wide spectrum of housing quality in old *colonias populares* such as Isidro Fabela belies the binary narrative of slums, which is so commonly reproduced by policymakers, instead revealing that self-help consolidation is a sustainable form of housing production that has allowed most families in Isidro Fabela to improve their homes over the past five decades.

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Key Words: housing quality, informal housing consolidation, participatory slum upgrading, self-help housing, Mexico City

PERSONAL MEMOIR OF INTERNATIONAL PLANNING FIELDWORK IN THE GLOBAL SOUTH

ID: 31

Pre-Organized Session Summary

Includes abstracts: 439, 440, 441, 451, 734

The session introduces personal memoir as a self-reflective approach to interrogate researchers' positionality in relations to international urban planning issues. Haraway (1988) emphasizes the embodied knowledges, indicating that researchers' identity, positionality, and partial perspectives shape the way in which knowledges are (re-)produced. An inquiry on situated knowledges leads to inviting a personal memoir as a way to discover remote places, people and urban planning issues in Global South. This session introduces a personal memoir as a potential pedagogical tool to produce situated knowledge through the lens of researchers' positionality as an outsider, foreigner, woman/man, practitioner, development geographer and urban planning scholar (Chacko, 2004; Giwa, 2015; Scott et al, 2006). In addition, the personal memoir provides an opportunity to share trials and errors when it comes to navigating a social network of local planning expertise, conceptualizing unique urban planning experiences in Global South, and connecting isolated urban issues to international planning community.

Objectives:

- To situate how international planning researcher's identity, positionality, and partial perspectives shapes the process of knowledge (re-)production about the Global South
- To discuss experiences of trials and errors during international planning fieldwork
- To suggest personal memoir as pedagogical tool for the international planning research

SITUATING PLANNERS' EVERYDAY LIFE: PERSONAL MEMOIR OF INTERNATIONAL FIELDWORK FOR THE RED RIVER DEVELOPMENT PROJECT IN HANOI, VIETNAM

Abstract ID: 439

Group Submission: Personal Memoir of International Planning Fieldwork in the Global South

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Critical theories on the Global South have emphasized the importance of building an earthwide network of connections, including the ability to translate knowledges among power-differentiated global communities (Haraway, 1988, p578-580; Robinson, 2002). In the light of empowering knowledge production through situated meanings and embodied planning practices in the Global South, this presentation shares a personal memoir as scholarly experimentation to weave agency of planning stakeholders into a larger structure of society, environment, politics and institutional culture (Mill, 2000; Schwartz, 2018; Whatmore, 2002).

In this personal memoir, I share international fieldwork experiences as a participant observant in reviewing design proposals for the Red River Development Project at Hanoi Urban Planning Institute in Hanoi, Vietnam in summer 2017. Data include fieldwork memo, meeting note, personal journal, interview transcripts, photos, and site analysis maps. Drawing from international fieldwork experience, I use a personal memoir as a way to navigate not only complexity of positionality, identity, and power relations in the planning office but also interactive forces in formulating relational, contextual, and reflexive knowledge on institutional culture of planning practices, knowledge, and elite community in Hanoi, Vietnam.

Personal memoir demystifies a myth of the dichotomy between subject and object; emic and etic; field and home; native and foreign (Sultana, 2007). While immersing myself as a planning researcher in everyday life of Vietnamese planning office, my learning experiences elucidate seemingly disorderly yet intricately networked Vietnamese institutional planning communications over flood mitigation strategies, land speculation control through urban design, formal/informal negotiation with developers/investors for the Red River Development Project.

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Key Words: International Fieldwork in the Global South, Situated/Embodied Knowledge Production, Reflexive Planning Research

LOCATING KNOWLEDGE PRODUCTION: REFLECTIONS ON METHODS, THEORY, AND FINDINGS FROM FIELDWORK IN URBAN INDIA

Abstract ID: 440

Group Submission: Personal Memoir of International Planning Fieldwork in the Global South

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This paper examines the role of personal memoir in the production of knowledge within the context of international planning research. Following Haraway's (1988) call for knowledge claims based on "epistemologies of location, positioning, and situating," this work attempts to locate the multiple sites of knowledge production within the experience of ethnographic fieldwork abroad.

For this paper, I focus on a research project in urban India, which entailed 13 months of fieldwork in Agra and New Delhi between 2012 and 2015. This included interviews, participant observation, and historical data collection. In-depth, ethnographic interviews were conducted with NGO workers, Agra municipal employees, slum residents, and local historians. Two research assistants, both of whom are young women living in Agra, aided me in the interviews with slum residents. We conducted interviews with 69 households, including over 250 residents. I conducted additional structured interviews with urban scholars working in Agra and New Delhi.

To examine the relationship between personal memoir and knowledge production, I juxtapose two very different writings I created about my fieldwork in India. The first is a journal article based on a portion of the data I collected during this time that was recently published in the *International Journal of Urban and Regional Research*. Using data from ethnographic interviews, that article employed Foucauldian-based analysis to make visible problematizations of urban shit(ing) and exposed the divergent logics used by urban actors. The second writing is a personal blog that I maintained while living in India. This was a space for me to share deeply personal reflections about India with my family and friends; often expressing things that I never expected would appear in my academic work.

Investigating the ways in which my personal writings influenced the choices in my academic research is a way to make explicit my position that research is a socio-political act. Ellis, Adams, & Boncher (2011) make similar claims for the method of autoethnography, another form of personal writing. However, this paper differs from Ellis, Adams, & Boncher's perspective in a key way. Ellis et al view autoethnography as both process and product. The purpose of this paper is to explore ways in which personal writings impact upon the production of knowledge, where the personal writings are not the ultimate product. Using the categories of methods, theory, and findings as organizing concepts, I find that both academic and personal writings were mutually influential. In particular, my field notes and personal blog influenced the methods and theory that I used in my academic writing.

Although these findings relate directly to ethnographic fieldwork abroad, the concepts may apply to situations of research where the researcher is more closely aligned with the subject of research. Investigating cases of transnational research, where the differences between the researcher and the subject

of research are greater, can make the positionality of the researcher more obvious, but does not mean that positionality is less important in other cases. It calls for what Nencel (2014) refers to as a situated reflexivity, in which our modes of reflection should also be attendant to varying situations. Further, the focus of this paper has been on qualitative methods, where the situatedness of the researcher is often under scrutiny. However, quantitative researchers are not exempt from similar conditions of situatedness and the rigor of all research – qualitative and quantitative – can benefit from the kind of reflexive analysis proposed by Haraway.

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Key Words: Knowledge production, ethnography, qualitative methods, reflexivity

THE STRUCTURAL FORMATION OF THE LOCAL-TRADITIONAL URBAN SETTLEMENT IN THE GLOBALIZED ENVIRONMENT

Abstract ID: 441

Group Submission: Personal Memoir of International Planning Fieldwork in the Global South

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One crucial problem in cities of the global south like Jakarta is the apparent disintegration process between the existing traditional urban elements and the new-coming global-oriented urban structures. The situation has been worsened with the city planners making a hasty decision to declassify the existing local-specific urban forms as “inefficient” or “insurgent to the modernization.” The city fails to prove itself to be inclusive with the disappearance of urban kampongs and traditional markets. Thus far, there is no satisfying effort to put the two types of urban structures with historical and cultural differences in the balanced position.

Despite the fast-growing modern city, Jakarta is becoming, urban kampongs still retain the pre-modern/pre-industrial concepts, where working and living are inseparable. The population of micro-entrepreneurs, who live in these kampongs, has survived modernization processes and has significantly increased since 2010. The kampongs' residents work and are able to provide jobs in various industries, including fashion, recycling, IT, automotive and urban agriculture. The kampongs also provide skills and services for not only people living in kampongs but also to the larger Jakarta communities.

This research aims to identify the overall formation of a city as a human habitat by examining: 1) internal organization structure of production in urban kampongs and traditional markets; 2) the relations between production and living activities; 3) the process of spatial formation from a simple small-scale home industry to a more complex city with social and commercial facilities.

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Key Words: traditional urban settlement, resilience, role of planners, inclusivity

WHY FORMALIZING SLUM IN INDIA IS SO TOUGH? AN EXPLANATION FROM THE PERSPECTIVE OF INDIVIDUALISM

Abstract ID: 451

Group Submission: Personal Memoir of International Planning Fieldwork in the Global South

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The rapid pace of unplanned urbanization has given rise to slums in India. According to Census in 2011, one in six Indians in cities live in informal settlements. Slum dwellers often live with inadequate facilities, dilapidated housing conditions, over-crowdedness, and socio-economic exclusion. Since the 2000s, Indian union government and subnational governments have launched multiple urban redevelopment missions including ambitious slum upgrading plans. However, the progress of slum formalization is still far behind the goal of being “slum-free” India, which was proposed in Rajiv Awas Yonjana (Slum-free India Mission) in 2011.

In addition to the existing explanation on the problems of slum upgrading in the global South, we intend to explain why government-initiated slum upgrading programs in India confronted challenges from the grassroots. Through utilizing multistage stratified random sampling, we selected 600 slum households from cities of Bihar—Patna, Muzzafarpur, Gaya, and Bhagalpur. We also had participatory observations, 24 focus group discussions, and 35 semi-structured individual interviews in 16 slums in Patna. We identify a unique pattern of slum dwellers’ housing preferences and behaviors in mitigating the exclusive process and unsatisfactory outcomes of slum upgrading, which partly affected the progress of slum upgrading. We describe this pattern as “individualism.” It consists of slum dwellers’ preferences for in-situ upgrading projects over displacement, self-built over collectively-built construction, single-family house over multi-family apartments, complete land tenure ownership over land renting, and private solutions to basic infrastructure insufficiency over collaboration for applying for formal and communal infrastructure. Furthermore, we select two cases to discuss how to deal with such structural toughness of slum upgrading successfully. Our research implies that to cultivate the mutual understandings about all stakeholders’ interests in urban redevelopment from formally empower slum dwellers is the key to break the vicious circle between slum upgrading project design and execution.

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Key Words: Community governance, Informality, Slum formalization, Countering-hegemony

TRANSFORMING TRANSPORTATION AND URBAN FORM BASED ON BIG DATA ANALYSIS: CHINA AND BEYOND

ID: 34

Pre-Organized Session Summary

Includes abstracts: 565, 573, 576, 582, 589

This special session offers a selection of articles on transportation and mega-region growth in China. The papers using case studies in China, compare the path of both transportation facilities supported urban growth under both urban and rural contexts. All the papers are developed evolving the topic, how to integrated urban planning with transportation under different context. Currently in China, transportation is not only shaping the urban form on mega-region level, but also shaping livability in city and rural environment. The scale and speed of transportation supported urban growth provide both opportunities and challenges. For example, how to integrate transportation with mega-region policy; how to make these transit systems more sustainable to land use and calm down with traffic; how to use big data support road network analysis; what are the commuting characteristics for difference income groups; what is the social outcome of transportation infrastructure and so on. This session provides implications for decision makers on how to make vast investment on transportation infrastructure more beneficial under the rapid construction trend in China.

Objectives:

- It provides policy implications for decision makers on how to make vast investment on transportation infrastructure more beneficial under the rapid construction trend of transportation in China and other developing countries.

IMPACT OF TRANSPORTATION INFRASTRUCTURE ON EMPLOYMENT SUCCESS OF THE LOW INCOME – CASE STUDY OF URUMQI

Abstract ID: 565

Group Submission: Transforming Transportation and Urban Form based on Big Data Analysis: China and Beyond

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Public transportation investments are increasing rapidly in the western cities of China, while its impact on job accessibility and employment success is still insufficient. Using trip survey data from Urumqi, this paper examines the impact of Bus Rapid Transit (BRT) on Jobs-Housing spatial relationship and employment success. By using jobs-housing balance index analysis from 2010 to 2014, it shows that BRT

brings more employment opportunities along the BRT routes inside the old and new city center while attracting more jobs from suburban neighborhoods. Linear regression on commuting time and binary logistic regression on employment status reveal that shorter walking time to BRT will improve job accessibility, but only significantly promote full-time employment for the low-income group. It also shows that younger age groups, men, private car users, and higher income groups, and property owners have longer commuting time; while elder age groups, men, public transit users, higher income groups, and property owners have more probability to be employed. This paper provides policy implications for urban planners and transportation planners. Investment in mass public transit might benefit the local low-income people by increasing employment success in the job market and promoting job-housing ration along the public transportation corridor.

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Key Words: Job Accessibility, Jobs-Housing balance, Bus Rapid Transit, Binary Logistic Regression, Urumqi

IMPROVING PUBLIC TRANSPORTATION IN A MAJOR FACTOR FOR REDUCING TRAFFIC CONGESTIONS

Abstract ID: 573

Group Submission: Transforming Transportation and Urban Form based on Big Data Analysis: China and Beyond

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With the rapid growth of motor vehicles, Chinese cities generally encounter more serious traffic problems. This paper identifies the main problem of road space resources by evaluating road traffic efficiency and bus competitiveness, based on the big data of China Road Monitoring Network. First of all, because of the influence of traditional wide street design and the low proportion of roads used in land, the problem of low density in urban roads in China is widespread, resulting in insufficient urban road traffic capacity. Secondly, because of the imbalance of road network hierarchy, lack of road connectivity, unreasonable traffic signal timing, improperly road entrances and exits, and unreasonable bus station settings, road traffic efficiency is generally low. By case study in Wuxi, it finds that the passenger volume for street is only about 500 car/hour per lane. In addition, although public transport priority has always been a national strategy for urban transport development in China, the lack of bus lanes, the lack of bus stops, and the lack of public transport signals fail to give priority to reliable bus services. According to the big data, the average of travel time of car is generally about two times of bus. Studies have shown that the improvement of urban transportation in China is inseparable from the management of traffic demand, but it also needs to optimize transportation supply. The policy implication of this research lies in beyond the slogan of encouraging public transportation, there are still implementation process needs to be focused in the next steps in order to calm down traffic by a comprehensive approach.

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Key Words: public transportation, traffic congestions, big data, traffic capacity, traffic efficiency

RESEARCH ON THE COMMUTING CHARACTERS OF DIFFERENT INCOME GROUPS FROM SEVERAL CHINESE CITIES

Abstract ID: 576

Group Submission: Transforming Transportation and Urban Form based on Big Data Analysis: China and Beyond

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By accumulating data from China street network monitoring, the commuting gap for different income groups emerges as an important issue in terms of urban transportation justice. In order to compare commuting distance distribution generated by different income groups, this study implements a cross-categorical descriptive analysis using personas and commuting data in 61 cities from Baidu Huiyan Spatial-temporal Big Data Platform. Results indicate that commuters with high income live farther from their homes whereas commuters with low income are more likely to choose works closer to their homes. This character is more significant in the first-tier cities and quasi first-tier cities. In the second-tier cities, however, commuters with high income live closer to their workplaces. Furthermore, the happiness of commuters with similar income varies between different cities. High-income commuters who work in the second-tier cities and smaller are happier than commuters with similar income in the first-tier cities. Findings imply that commuting distance could be a good “name card” for cities that aims to attract workers. The policy implication lies in that public transportation provides important means to promote transportation equity in most Chinese Cities

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Key Words: Transportation Planning, Commuting Behavior, Low-income Group, Social Equity, China

PLANNING TOOLS FOR HUMAN-CENTERED URBAN STREET SPACE DESIGN

Abstract ID: 582

Group Submission: Transforming Transportation and Urban Form based on Big Data Analysis: China and Beyond

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Strategically, planners need to advocate for the shift of design concept from vehicle-centered to human-centered. Pedestrians and non-vehicle travelers' right shall be strengthened by re-allocating space on the street. Specifically, infusing street space could be a better strategy compared with construction red-line control. Additionally, daily communication and lifestyles needs to be fully considered. This study reviews the research and practices of complete streets. Several key principals are extrapolated to echo the contexts of Chinese cities. Planners may set alleviating congestions and improving infrastructure qualities as two major goals. To fulfill these goals, planners need to implement thorough analyses of high-volume intersections, parking space, and low-speed space. Several recommended planning tools include optimizing traffic flow at intersections, releasing space for slow-speed trips, designing non-vehicle parking areas, modifying intelligent infrastructure management, and reshaping open space.

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Key Words: planning tools, human-centered design, complete streets

CHALLENGES AND PLANNING SOLUTIONS OF TRANSPORTATION ISSUES IN MEGA-REGION OF CHINA

Abstract ID: 589

Group Submission: Transforming Transportation and Urban Form based on Big Data Analysis: China and Beyond

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Mega-region in China has been under dramatically changes in recent years. Though new policy brought to table on promoting modern mega-region growth in early 2019, but traditional transportation facilities are still not sufficient to support new growth. This paper identifies the methodology to define mega-region in China and analyzes the current problems in terms of key transportation facility lay out. It selects Beijing

as case study site, traces the development history of transportation planning, and explains the planning practice in terms of mega-region transportation back-bone system under different scenarios. Results show that spatial development needs further development of transportation facility support and integrated transportation planning tools. It also finds that mega-region growth needs more rapidly, comprehensive and efficient transportation analytical method to support. And the transportation hub layout forms also need to change from a concentrative pattern to a spatially balanced pattern, and provides more convenient service to passengers.

Also, based on data from 50 cities in China, this paper introduces the practice and iterative upgrading of the urban governance empowered by data from China Academy of Urban Planning. Urban portrait and planning procedures empowerment can be completed through data analysis, by which urban planners and decision makers can focus on problems and find strategies. This paper aims to build solutions for smart transportation, empower urban construction, develop improvement strategies based on urban development issues, and design scenarios smart transportation application. The policy implication of this paper lies in that it provides reflection to previous concentrative transportation planning in the traditional mega-region planning, while shedding lights on transportation planning in the new era to support modern mega-region growth in rapidly developing regions.

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Key Words: mega-region, transportation facilities, urban governance, smart transportation

STUDYING UP, STUDYING DOWN VS. ATTUNEMENT TO THE SENSORIUM: REFLECTIONS ON FIELDWORK IN POST-REVOLUTION TUNISIA

Abstract ID: 734

Group Submission: Personal Memoir of International Planning Fieldwork in the Global South

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Ethnographic methods in research design privilege participant observation as a pillar of understanding the fields in which we are engaged. Unlike interviewing for instance, the main tool for participant observation is the researcher's own body as she encounters new fields of research, or familiar fields that she reconstitutes anew. In this presentation, I share my experience as a female researcher conducting participatory observation during dissertation fieldwork in post-revolution Tunisia. I highlight the ways in which attention to the sensorium, my body's sensory recordings of the spaces where I conducted fieldwork including smell, sound, sight, and heat/cold, enabled me to reformulate my arguments. I situate

this presentation in conversation with participant observation that privileges either studying up practices of elites, government officials, or planning practices as a field of power, or studying “down” the lifeworlds of people who live in conditions of poverty and disenfranchisement. I reflect on what it means to be attuned to the sensorium, and the ethical positionality it demands of the planner in the field.

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Key Words: sensorium, participant observation, post-revolution Tunisia

TRACK 7 – ROUNDTABLES

IACP/APSA JOINT ROUNDTABLE - MEGA-REGION DEVELOPMENT IN ASIA

Abstract ID: 425

Roundtable

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This roundtable is jointly organized by the International Association for China Planning (IACP) and Asian Planning Schools Association (APSA) in response to fast-evolving mega-region development in Asia.

The roundtable will tackle urgent tasks to identify opportunities and challenges of mega-region development in Asia countries and to develop a research agenda. Mega-regions have emerged as new global economic units, concentrating production resources, human capital, and consumer markets (Florida, et al, 2007), but research on mega-regions are conducted mainly in western countries, e.g. the Great Lakes Megaregion in the U.S. and South East England in the U.K.

Mega-regions in Asia also demand research attention. In addition to established mega-regions of Seoul National Capital Area in South Korea and Greater Tokyo Area in Japan, other Asian mega-regions are rapidly evolving, including Mega Manila in the Philippines and the Guangdong-Hong Kong-Macao Greater Bay Area in China.

Planning for mega-regions could be different in Asia than in western countries, particularly because of the high-density and the top-down planning process in Asian countries (Yang, 2009). Additionally, contemporary mega-region planning and policies need to pay great attention to sustainable development (Wheeler, 2009), social equity (Benner and Pastor, 2010), and regional coordination (Schafran, 2014), in addition to economic development.

Under the new circumstances, planning researchers and practitioners in Asia need to examine the lessons learned and the best practices of mega-region development in western countries and propose new approaches that are appropriate for the Asian context. For planning academics specifically, researchers need to develop a new theoretical framework—which can potentially be built upon existing theories developed in western countries—and to propose a research agenda that caters to the development demands of Asian mega-regions. To this purpose, this roundtable is organized to initiate the dialogue.

The goals of this roundtable are three-fold: 1) engage productive and in-depth discussion among scholars who are interested in Asian regional planning; 2) to identify planning opportunities and challenges of mega-region development; and 3) to develop a research agenda and plan for future collaborative activities.

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Key Words: Asia, mega-region

ROUNDTABLE - URBAN DESIGN IN THE GLOBAL SOUTH: A COMPARATIVE PERSPECTIVE

Abstract ID: 459

Roundtable

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The urban design literature focuses largely around issues and concerns in the US, Canada, and Western Europe, with very little attention and coverage of cities in the Global South. However, at a time when

major transformative urban development is taking place in the Global South, it is important to focus on consequential urbanism in a comparative perspective and inquire how important urban design challenges and concerns are played out in the Global South.

The roundtable discussion will concentrate around some of the key issues and questions discussed in the book drawn from case studies in Global South. This book, titled *The New Companion to Urban Design*, published by Routledge is a “sequel” to an earlier volume we co-edited and published in 2011. While we do not anticipate being able to cover all these issues extensively within the span of 60 minutes, we will poll the audience for their preferences and choose to discuss at least 3 of the following topics/questions.

This is the focus of a new book titled: *The New Urban Design Companion* (Routledge: 2019), which is edited by the organizer and the moderator of this panel. Panel participants have all contributed chapters to this book. In this Round Table we intend to focus on three critical themes addressed in this book:

- Informal urbanism represents a reality and sometimes a challenge for cities of the Global South but also of the Global North. What is the role of design in addressing urban informality in cities.
-
- “Unsettledness” because of war, natural or economic disaster, or displacement and homelessness has become a frequent occurrence as a condition of exception in cities globally. Are there design strategies that can help respond to this “urbanism of exception”?
-
- Rapid urbanization, accompanied by explosive growth fueled by a global economy, has significantly transformed many cities in the Global South, often causing irreversible changes in their historic structure, environmental degradation, and at times exacerbating disparities between landscapes of wealth and landscapes of poverty. How can urban design respond to the challenges of dramatic urban growth in some cities of the Global South?

Participants who have agreed to participate in this Round Table are:

- Daniel Abramson, University of Washington
- Manish Chalana, University of Washington
- Diane Davis, Harvard University
- Annette Kim, University of Southern California
- Lawrence Vale, Massachusetts Institute of Technology
- We expect this list to grow as other contributors decide to attend the conference.

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Key Words: urban design, informal urbanism, urban form, rapid urbanization, displacement

TRACK 7 – INDIVIDUAL ABSTRACTS

THE COMMON GROUND: CLASS, ENVIRONMENTAL JUSTICE, AND THE BATTLE FOR PUBLIC SPACE IN GURUGRAM, INDIA

Abstract ID: 19

Individual Paper Submission

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The following paper explores the emergence, prevalence, and discursive treatments of middle-class environmental activism in India through the case of Gurugram's Aravali Biodiversity Park. Gurugram (formerly Gurgaon) is a highly privatized, affluent city on the outskirts of Delhi, known for its gated communities, malls, office parks, limited green space, inadequate trunk infrastructure, and some of the worst air pollution in the country. The city is also home to an active community of environmental organizations working to ameliorate many of these issues. Among them, the NGO "I Am Gurgaon" has maintained the 380 acre Aravali Biodiversity Park along the Delhi ridge since 2010, often referred to as the city's "green lung". To date, its organizers have successfully defended the park from major encroachments, including the National Highway Authority of India's (NHAI) proposal to seize a third of its land for a road project. During the same period, however, hundreds of migrants squatting inside the park were forcibly removed; their makeshift housing demolished by the municipal government. With urban land in the National Capital Region (NCR) at a premium, the push to reclassify restricted wilderness to feed real estate development in the greater NCR's Aravali hills, has placed pressure on state politicians seeking reelection. While conservation areas can easily become targets for real estate development lobbyists, they also provide a short-term housing solution for the urban poor (Baviskar, 2018). Protecting the park from encroachment at all costs has highlighted the dilemma between conservation and the just treatment of the city's landless and most vulnerable populations. How and why did middle-class citizens become the primary caretakers of a public park, and can such projects reconcile their objectives with notions of social justice and inclusion in the Indian city?

The planning of public space has often enforced class divisions, particularly around issues of cleanliness and sanitation in Indian colonial and post-colonial cities (Chakrabarty, 1991). Delhi's brand of middle-class activism, at its worst, pushes for the removal of nuisances associated with low-income livelihoods on public roads, i.e. cycle-rickshaws or livestock. This kind of "bourgeois environmentalism" seems to target the urban poor in "the pursuit of order, hygiene, safety and ecological conservation" (Baviskar, 2011, p. 392). In contemporary Delhi, informal settlements are often demolished under similar pretexts (Ghertner, 2011). Defending the Aravali Biodiversity Park, as an ecosystem service for the city, has also meant defining and restricting the use of public space in ways that make it accessible primarily to middle-class and elite publics.

Drawing on fieldwork and interviews with more than 40 participants, including local residents, activists, planners, and the park's founders, the paper offers an articulation of the "middle-class turn" in environmental governance in Gurugram and Delhi (NCR) that complicates the above narrative of class antagonism. The paper outlines the history and political context for Gurugram's deregulated land regime, and the rise of various middle-class organizations, such as I Am Gurgaon, in response to the adverse effects of urbanization on quality of life in the city. The findings suggest a complex range of attitudes, beliefs and conflict-averse approaches to activism and environmentally just conservation and planning. The paper also considers the biodiversity park project in relation to other organizations and institutional practices in the city more broadly. As an urban commons, the biodiversity park highlights the challenges of promoting conservation and the management of urban parks in the context of extreme inequality in the

Global South. The paper concludes by discussing the implications of these findings for local organizations and policymakers.

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Key Words: Environmental Justice, Urban Parks, India, Citizen Planners, Public Space

GENTRIFICATION AS INJUSTICE: LARGE-SCALE RESIDENTIAL PROJECTS IN HANOI

Abstract ID: 49

Individual Paper Submission

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The periurban landscape of developing Asia is undergoing a profound transformation. These changes are typified by the functional and spatial expansion of urban built forms, functions, and socio-economic relations into rural territories. An important instantiation of this process in the periurban zones of Hanoi is the massive development of large-scale residential projects. New housing in these planned projects is geared towards the rising local upper-middle and upper classes and towards expatriates. Most of these new residential spaces are built in densely settled peripheral areas where former agrarian communities and migrant populations drive a largely in situ urban transition process. This migration of capital and residents to periurban zones appears to be gentrification, as the redevelopment of urban spaces for more affluent users situates this transformation in line with Hackworth's (2002) now classic definition of gentrification as "the production of space for progressively more affluent users". But appearances may be deceiving.

Current debate over the definition of gentrification has focused on whether the concept has become too broad to be useful in different institutional and spatio-temporal contexts. While some authors push for a generalizable definition based in capitalist development (e.g., Lees et al., 2016), others make the case that unique local circumstances call the easy application of the term "gentrification" into question (e.g., Maloutas, 2012; Yip and Tran, 2016). The latter argue that superficial similarities of local urban transformation to gentrification processes in the West disguise substantively different urban processes because they surreptitiously embody socio-spatially distinct ideological and ontological assumptions. Just because a process resembles gentrification in other locations does not mean that it is gentrification. This concern with the applicability of "gentrification" is explored here through the case of Hanoi and its large-scale periurban residential developments.

The paper first identifies one such conceptual assumption that must be made explicit since it provides the

term's politicizing thrust: displacement generates social injustice. Drawing on Shklar's (1992) notion that injustice is determined by self-identified victims and serves as a motivation for political action and transformation, the paper argues that a determination of gentrification requires both displacement and the perception that the displacement is unjust. Therefore, the paper evaluates the existence of gentrification in periurban Hanoi on the basis of the residents' own understanding of their villages' urbanization and the construction of large residential projects nearby. This is done by examining five types of displacement on the city's outskirts, including phenomenological displacement, which entails the loss of a way of life or local identity due to neighborhood change (Davidson and Lees, 2010), through surveys and interviews with residents as well as interviews with real estate agents, government officials, and academics conducted in Hanoi between 2013 and 2017.

The research finds that the term “gentrification” is of little use because displacement only occurs in marginal cases and generates limited feelings of social injustice. In fact, the periurbanization propelled by planned land redevelopments represents a new way of life that is welcomed rather than resisted and does not thereby create phenomenological displacement. However, strong claims of injustice do stem directly from these projects, but gentrification fails to capture these injustices. The injustices raised in Hanoi instead concern the distribution of the costs and benefits of rural land redevelopment as the country rapidly shifts from a predominantly rural to a predominantly urban society and economy. At this stage in Vietnam's urban transition process, we suggest that more political traction can be gained by talking about the injustices generated by large-scale residential developments as “livelihood dispossession” and as “ground rent appropriation” rather than as “gentrification”.

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Key Words: gentrification, social justice, Hanoi, periurbanization, large-scale residential projects

ON THE NECESSITY AND TRANSFORMATION OF URBAN AND RURAL PLANNING UNDER THE MARKET ECONOMIC SYSTEM —RETURNING TO THE USE VALUE OF THE SPACE

Abstract ID: 73

Individual Paper Submission

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This paper demonstrates that two extreme situations in China's urban development and construction—the lack of market-based urban planning and planning management lack of market understanding—are not desirable in practice and theory. By sorting out the background of China's special urbanization process and institutional transformation, and drawing on the new Marxist concept, the article points out the necessity of urban and rural planning under the Chinese market economy system, and argues that planning should

assume the dual role of service providers and managers. The use value of space under socialist urbanization should take precedence over the exchange value, while urban-rural planning is a powerful tool for the government to return production and living materials to use value.

China's special urban-rural dual household registration system and the control of land policies make the city and the country in a binary opposition. After entering the new stage of development and the transition period, urban and rural planning has become an indispensable means of building socialism with Chinese characteristics and a powerful tool for the return of future space use value.

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Key Words: Urbanization, New Marxism, Urban and rural planning

THE FAVELA BAIRRO PROGRAM 25 YEARS LATER: RIO'S FAILED POLICY OR A BRIDGE TO A SUSTAINABLE FUTURE

Abstract ID: 88

Individual Paper Submission

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This study looks to examine how informal settlements in mega-cities, in particular Rio de Janeiro Brazil incorporate resiliency into their day-to-day lives. In particular we examine the Favela Bairro sustainable favela program instituted by the city of Rio de Janeiro, after more than 15 years that it was implemented. This study will help to answer various questions. Are informal settlements more resilient on their own or are they more resilient by following policy? How do issues of land tenure rights play into an informal settlements resiliency? Critical data to answer these and similar questions come from an initial survey of all the informal settlements in Rio de Janeiro that institute the Favela Bairro program as well as in person interviews to better understand the impacts of the Favela Bairro Program on making the Favelas in Rio more sustainable.

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Key Words: Favela, Rio de Janeiro, Favela Bairro Program

HOUSING AFFORDABILITY AND HEALTH OUTCOMES: INFORMAL SECTOR HOUSING IN INDUSTRIAL ZONES FOR MIGRANT WORKERS IN HANOI, VIETNAM

Abstract ID: 99

Individual Paper Submission

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Since 1986, Vietnam opened its door to the world by transforming its economy from one that was centrally planned to a market-based economic system. A priority with the national economic reform movement, known as Doi Moi, included efforts to connect Vietnam to the worldwide production chain, thereby encouraging more global investment in the country. These reforms have led to rapid economic growth and urbanization, positioning Vietnam as the fastest growing economy in Southeast Asia. Booming industrial parks that house global firms, such as Samsung, the Gap, and West Elm, are evidence of the foreign investment that is rapidly changing the landscape of Vietnam's urban areas. As of September 2016, roughly 325 industrial zones existed throughout the country, employing about three million workers. Located on the fringes of large metropolitan areas, such as Hanoi and Ho Chi Minh City, there are locational firm advantages, such as proximity to economic hubs, infrastructure, and transportation networks.

However, for workers in the industrial parks, finding quality housing has been challenging and living on the fringes of a mega-metropolis can be isolating. About three-quarter of the workers in these industrial parks are rural migrants who left their hometown to work and live in industrial park areas. In the initial phases of the industrial park development, there was an extreme undersupply of housing. The Vietnamese government and private firms have only provided about 7-10% of migrant workers with housing. The remainder of workers seek housing in the rapidly expanding informal housing sector built by local villagers and is largely unregulated. Due to the rapid pace of growth in informal sector housing, very little is known about the character and quality of this housing and the impacts on workers' quality of life.

This paper explores the relationship between housing affordability and health outcomes of workers in the five of the largest industrial parks in the Hanoi, Vietnam metropolitan area. Analyzing 500 surveys of industrial worker households living in informal sector housing, this study asks whether housing unaffordability contributes to negative mental and physical health outcomes, after controlling for housing quality, social isolation, and sociodemographics. This is the first study of informal housing in industrial zones in Vietnam and will provide the national government with recommendations on how to improve the quality of living conditions for workers in industrial zones.

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Key Words: Informal Housing, Migrant Workers, Health Outcomes, Vietnam, Industrial Zone

CONTEMPORARY DISPLACEMENT REGIMES IN BRAZIL: MAPPING EVICTIONS IN PORTO ALEGRE

Abstract ID: 104

Individual Paper Submission

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Why is Brazil, a country with one of the most progressive and inclusive land policies in the world, being accused of violating its citizens' constitutional right to housing? Why is the Brazilian Judiciary, despite all the legal mechanisms created by recent legislation to reverse exclusionary patterns of land use, ordering and executing forced evictions of thousands of marginalized families? I argue that these removals must be understood as part of what I call legalized displacement, land dispossession practices that are not only a direct result of the financialization of the housing sector, but of a much broader discriminating process, in which the courts are playing a major role. When looking at displacement processes in the Global South, Yiftachel (2017) argues that marginalizing powers are currently being exerted through policy and legal systems. Bhan (2016) goes even further and states that, in the case of India, the courts are becoming the primary site of urban planning. The author highlights that the judiciary represents the greatest threat of eviction and Ghertner (2015) adds that evictions are now understood as acts of governance rather than a violation. According to Fernandes (2011), the role of the courts in generating inequalities in Brazil is very much underestimated, as the current urban-legal paradigm is directly responsible for creating exclusionary patterns of urban development. He continues by claiming that "both the lack of land regulation and the approval of elitist planning laws that fail to reflect the socio-economic realities that limit access to land and housing by the poor have had a perverse role in aggravating, if not determining, socio-spatial segregation" (p. 51). Drawing from Porto Alegre, a city with tradition in participatory planning, this research analyzes the spatial patterns of post-millennial evictions in the city. Brazil has one of the most advanced legal and policy frameworks on land use and it is impossible to think about housing and property rights without looking at the country. Not only several scholars around the globe pay close attention to the intellectual debates on urban reform happening in the country, but many foreign governments also incorporate urban planning mechanisms developed by Brazilian policymakers. Porto Alegre's participatory budgeting experience is an example of that. Paradigmatic land policy and property legislation, like the 2001 City Statute, were established in Brazil in the last decades creating an innovative urban-legal framework to democratize the access to land and adequate housing. Nonetheless, these recent events might also have had perverse consequences. Initiatives targeting land regulation, associated with social housing programs, might have increased social-spatial segregation and the risk of legalized displacement. These laws, by enforcing the right to urban property, making more people eligible to land titles, also inflated the urban land market in Brazil and made millions more vulnerable to financial manipulations within the formal housing market. After accessing over 6,000 eviction court records filled in Porto Alegre between 2001 and 2018, I geocoded the addresses of these contested properties in addition to census tract data to explore the incidence of evictions among demographic and socioeconomic groups. Exploring the incidence of removals in certain regions of the city helps us not only to understand the logics informing these exclusionary practices, but also to clarify how the territorialities of marginalized populations are being regulated. Studying displacement matters because evictions are not only a form of impoverishment, but they are its very source. Finally, at stake specifically in the case of Brazil, is the violation of the constitutional right to housing and, thus, the full enactment of citizenship.

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Key Words: Displacement, Eviction, Right to the city, Housing, Brazil

EVALUATION OF TRADITIONAL VILLAGES IN HANGZHOU BASED ON THE SUSTAINABLE COMMUNITY-BASED TOURISM

Abstract ID: 126

Individual Paper Submission

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Chinese government put forward over 4000 national traditional villages for mandatory protection. Rapid developments in China broke the self-organized operational system of traditional villages, resulting in the outflow of villagers and decadence of villages. Tourism is widely accepted as a method for the vitality of traditional villages (Mao, 2015), but current implementation did not have much effects because of low attraction to visitors, less benefits received by villagers (Zhou, 2018) and constructive deterioration to local environments. In sum, previous works indicate that sustainability should be considered during tourism development of traditional villages (Wu, 2001).

The study firstly revised the framework of Sustainable Community-Based Tourism (SCBT) (Dangi & Jamal, 2016) based on the conditions of Chinese traditional villages. Detailed criteria of three dimensions and an evaluation system were provided: The economic criteria include economic efficiency of tourism industry, local jobs offered by tourism industry, economic benefits received by villagers and the efficiency of institutional mechanism to ensure economic benefits. The environmental criteria include carrying capacity and environmental-friendly spatial development. The social-cultural criteria include conditions of public services and infrastructures, local involvements of tourism industry and the preservation of valuable traditional culture, lifestyle and handicrafts.

Secondly, 52 traditional villages in Hangzhou were evaluated based on the new SCBT framework. Data was collected from onsite surveys, official archives, OpenStreet map, Baidu map and USGS websites. For each village, 50 effective questionnaires of villagers and one interview with local government officials were made. The original and current land cover types of each village were classified based on aerial photos of 1970s and satellite imaging of 2018. And the land cover changes indicated the impact of spatial development on natural environment. Other location factors such as transportation condition and distance to urban areas were also collected to investigate correlation between location and development. The official average economic data of rural villages in Hangzhou were used as economical reference. Local carrying capacity, calculated based on real situations of each village, was used as environmental

reference. The public services and infrastructure used the standards of urban community as reference to signify the gap between urban and rural areas.

The evaluation results indicated the following facts. Firstly, the current tourism industry of traditional villages in Hangzhou is not economically sustainable due to limited economic benefits and lack of efficient institutional mechanism. Secondly, local capacity of each village has not been reached because of the outflow of villagers and limited visitor population. The land cover changes varied in different villages. But the major conversion (from farmland to developed land) indicated a great loss of farmland during the past 50 years. Thirdly, basic infrastructure is guaranteed in all traditional villages, while public service condition varied. Inconvenient public service was one of the reasons for the villagers' outflow. Local involvement of tourism industry is unsatisfactory due to limited number of participants and ways of involvements as well as unbalanced distribution of benefits and resources. The preservation of traditional culture was satisfactory because of protection policies, while only a few elderlies in the village still kept traditional lifestyles and handicrafts. In addition, GIS spatial analysis reveal clear patterns that the closer the village is to the major highway and urban area, the better economic benefits and public services the village will have.

The study put forward new SCBT framework that can be applied in the future planning and evaluation processes in China. The evaluation result will not only offer reference for local reformation and innovation, but also revealed problems that are very likely to be encountered by traditional villages in other regions. And potential policy references were made for further development.

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Key Words: Traditional villages, Sustainable community-based tourism, Evaluation, Tourism industry

FINANCIAL SECTOR ACTORS AND MEGAURBAN REGIONAL EXPANSION: ASSESSING SOUTHEAST ASIAN EXPERIENCES

Abstract ID: 234

Individual Paper Submission

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This article analyzes the role of financial sector actors in recent plans for the expansion of the megaurban regions of Southeast Asia. An emergent literature on financialization has argued that, in the contexts of wealthy countries, the politics of the production of urban space has been transformed by capital switching to the urban built environment in the aftermath of the crisis of profitability of industry that deepened in the 1970s. Urban planning and policy, in this view, have increasingly been shaped by the interests of banks, hedge funds, pension funds, and other financial sector actors. This article argues that a focus on

the changing role of financial sector actors is highly relevant to an understanding of urban expansion in Southeast Asia's megaurban regions, but that theories of the financialization of urban production must take into account two significant potential sources of variation in these contexts. These are: variation in the role of the state, and especially the national state, in fostering regulatory, fiscal, political, and institutional environments to attract international financial actors; and variation in the sources of finance that are shaping urban outcomes. Focusing on the case of Greater Jakarta, the paper argues that the recent wave of proposals for megaproject infrastructure investments have reflected a historically and contextually specific interaction between financial capital and national state actors who seek to extend their power by maximizing their ability to direct urban development in ways that build political coalitions and feed discourses of state developmentalism. These proposals also reflect the current moment of capital switching from China, which has provided the Indonesian state with an alternative source for, and model of, financing urban development, albeit one that poses distinct geopolitical and financial risks. The result of this combination of circumstances has been a distinct state strategy of engagement of capital, in which the Indonesian state has sought to assert new economic powers through the empowerment of state-owned enterprises in urban development, and in which the state strategically tacks between various sources of capital to maximize its agency and autonomy.

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Key Words: Megaurban regions, Financialization, Megaprojects, Asia, Jakarta

THE MISSING INSTITUTIONAL LINKAGES IN CREATING SLUM INSECURITY: EXCLUSION, POLICING, AND SLUM UPGRADING IN INDIA

Abstract ID: 272

Individual Paper Submission

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This paper seeks to address the gap in current knowledge about institutional linkages partly responsible for both the formation of neighborhood insecurity in slums and exclusion originating from the bias towards slums and the unclearness of policies generated by administrative agencies in India. Bihar is one of the underdeveloped states in India. Its capital, Patna, was selected as a model city of the Smart Cities Mission. Through this national initiative, model cities were required to provide citizens with "core infrastructure," including basic public facilities, affordable housing, good governance, and public security. However, due to the incomplete institutional design of city redevelopment at the national level, the local goals and execution of urban governance have led to uncertainties in policing and community governance at the neighborhood level.

At present, it is unknown how much existing neighborhood conflicts in slums are responsible for violence in slums and how big a role slum dwellers' perception of neighborhood insecurity plays. In order to fill

this knowledge gap, this paper utilizes multistage stratified random sampling to select 224 low-income families in sixteen slums in Patna for household surveys between 2016 and 2017. Based on IV-probit models and treatment effect models, this paper finds that unfavorable government actions toward slums—including eviction threats, relocation attempts, and regularizations—are associated with the “identity of living in slums” and that the informality in slum housing and land tenure influences police patrolling and encourages police harassments in the slums. This transmission mechanism from top to bottom through policing is the primary reason for slum dwellers’ violent resolutions toward neighborhood conflicts and their perception of insecurity at the neighborhood level. Through individual interviews and focus group discussions, this paper finds that slum dwellers’ opinions about slum upgrading policies and their perceptions of their roles in urban planning and community design are essential. These results reveal that when it comes to more inclusive slum upgrading and more effective redevelopment, the key is to mitigate distrust between the local government and slum dwellers and maintain neighborhood security.

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Key Words: Formalization, Policing, Informality, Inclusion, Slum upgrading

ANALYSIS ON THE EMBEDDED STRUCTURE OF SINO-FOREIGN COOPERATIVE UNIVERSITIES

Abstract ID: 280

Individual Paper Submission

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The global economic activities have shifted from Labor-intensive economy to Knowledge-intensive economy in the twenty-first century, which makes higher education the main driving force for improving national economic strength (Tierney & Lanford, 2015). The General Agreement on Trade in Services (GATS) lists higher education as one of 12 transnational services and encourage international trade in education and service-related industries. Cross-border higher education is considered as a product of global trade, which has led to a rapid increase in cross-border education activities around the world. With the development of globalization, the types of cross-border education services are gradually diversified, and cross-border education forms shifts from the initial movement of students to the movement of institutions and programs (Knight, 2010). International branch campus (IBC), a cross-border educational institution, represents the final stage of higher education internationalization: establishing a satellite campus in another country (Healey, 2014). As of January 2017, 217 international branch campuses were identified by the Cross-Border Education Research Team (C-BERT) at the State University of New York at Albany. China, with 32 branch campuses, is the largest importers (host countries) (C-BERT, 2017).

The purpose of this paper is to explore the constitution mechanism of Sino-foreign cooperative universities. International branch campus is a complex institution, which is simultaneously under two types of isomorphic pressures. On the one hand, IBCs are obliged to conform to the institutions of their host countries, adapting to the local context, which is called the external networks. IBCs gain legitimacy in their local milieus and thus reduce tensions with local stakeholders. On the other hand, IBCs are required to maintain their parent unit's identity across borders, which is called the internal networks. By maintaining similarity with their parents, they differentiate from the local competitors and therefore better compete in the market place (Education, 2014). This paper proposes to construct the embedded structure of "node-distance-network" of Sino-foreign cooperative universities, based on the dual functions of the internal and external networks. Firstly, in the globalized social network within the campus, stakeholders such as the governments, institutions and individuals of the host country and the home country constitute nodes at different levels. Secondly, the distance between nodes is evaluated, including the institutional distance between the home and the host country, the organizational distance between institutions and the cultural distance between individuals. Finally, an embedded network structure is formed, which is composed of social contact network, institutional cooperation network and cultural exchange network. Through this structure analysis, we can find the best set of positional strategies for Sino-foreign cooperative universities.

Sino-foreign cooperative universities are independent entities established by foreign universities and Chinese partners under the close control and supervision of Chinese government, which have both the common characteristics of IBCs and special properties in Chinese environment. An in-depth analysis of Sino-foreign cooperative universities' embedded structure can provide a reference for the formulation of sustainable development strategies for IBCs. While, the structure still needs to be further tested, and we call for further empirical studies which draw comparisons between the strategic orientations of IBCs from different country.

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Key Words: International branch campus, Sino-foreign cooperative universities, The embedded structure

INFORMALITY, PERFORMANCE, AND THE PLACE-ING OF INSURGENT PLANNING

Abstract ID: 337

Individual Paper Submission

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Insurgent planning calls for revealing and facilitating the production of “invented spaces” (Miraftab, 2009) to foster radical speech and planning action. This is an intriguing and promising call, especially for planners working in informal settlements in neoliberal cities in the Global South. Here the fracturing of the state seems to provide openings for radical action due to the networked, decentralized, and fragmented governance regimes where planning action is outsourced to a variety of civil society and private actors. This paper seeks to examine the potential of a post-representational approach to insurgent planning theory, specifically in terms of capturing the emotional geographies of landscapes and the role of everyday performance in producing new material and social spaces and hence openings for radical action of places on the margin. My goal here is to “place” insurgent planning by locating the potential for radical change in the performative relationships between the social and the material, drawing on a post-representational understanding of landscapes as simultaneously lived and represented (Lindholm, 2011). The paper builds on 12 years of engaged scholarship in the informal settlement of Los Platanitos, Santo Domingo Norte, Dominican Republic. This work has been pursued in collaboration with residents of Los Platanitos and Dominican civil society organizations since 2008, often accompanied by graduate students from the University of Texas, and has focused on environmental risk, solid waste management, and capacity-building and development of community-based organizations. The paper draws its inspiration from a vermicomposting project (composting using earthworms to speed up the decomposition process) initiated by the women-led organization Mujeres Unidas in 2012. The project is intended to provide a source of income while supporting residents’ own household plant production. Los Platanitos is located within a steep canyon, and the vermicomposting project consists of a rustic shelter situated at the foot of one of the most frequently traversed, steep stairs leading down into the community. The lower, concrete walls of the shelter are painted with a colorful mural illustrating the mission of Mujeres Unidas while the rest of the walls consist of a curtain of recycled plastic bottles, providing the site with a look unusual to Los Platanitos and transforming the neighborhood landscape through its built form. However, the site assumes even greater significance for community-based planning action through the performative role of members of Mujeres Unidas as they gather for meetings, deposit food waste into the composting bins, and even sing to the worms. These mundane everyday practices make the vermiculture site meaningful by vesting it with emotional resonance, while disturbing the hegemonic representation of Los Platanitos as a distressed, dystopian landscape that epitomizes lack, violence, and the failure of urban development. Furthermore, by growing medicinal plants using the compost produced by their worms, members of Mujeres Unidas illuminate and “make sense” (Harrison, 2000) of the important, emotional geographies constituted by the everyday, intense and loving relationships between residents and their plants.

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Key Words: Informality, Emotional geographies, Insurgent planning, Landscape, Dominican Republic

URBANIZATION WITHOUT MIGRATION? TOWARD A THEORY OF IN SITU URBANIZATION

Abstract ID: 346

Individual Paper Submission

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Emerging research on in situ rural-to-urban transitions in South Asia and Sub-Saharan Africa points to a compelling hypothesis: that some settlements in the Global South are becoming urban without witnessing in-migration (Denis et al, 2012; Fox, 2017; Potts, 2018). In contrast to the dominant popular and scholarly imagination of urbanization as a process of major population movements from villages to cities, these settlements appear to undergo in situ urbanization through a process of endogenous population growth, densification of the built environment, and a shift in the local economy toward non-farm activities.

This phenomenon adds an important new dimension to a spirited debate on the nature of urbanization in the Global South and the degree to which Southern cities demand a reformulation of existing urban theory (Scott & Storper, 2015; Robinson & Roy, 2016). If urban settlements are forming in the absence of in-migration, this would also raise questions about the relationship between urbanization and development, from both economic and sociological perspectives. Further, the proliferation of small urban settlements across the Global South suggests that planning scholars and practitioners have a vital role to play in shaping a large-scale urban transition beyond the major metropolitan areas where most planning research on the South is still focused.

In this paper, I first outline the emerging evidence on in situ urbanization. I then explain the unique combination of demographic pressures and mobility constraints that characterize some regions of the Global South and that may underlie this phenomenon. Finally, I elaborate an agenda for research and practice in new urban settlements proliferating throughout South Asia and Sub-Saharan Africa – aimed at both clarifying the theoretical consequences of these in situ transitions and developing modes of engagement for planning scholars and practitioners.

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Key Words: Urbanization, Global South, Migration, Development

THE TRANSFORMATION OF LAND PROPERTY RIGHTS: UNDERSTANDING THE ROLE OF CHINESE STATE-OWNED ENTERPRISES IN THE PROCESS OF HOUSING CONSTRUCTION

Abstract ID: 389

Individual Paper Submission

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The evolution of urban space is not only the renewal of physical space, but also the transaction and reconstruction process of land property rights, which is in a specific institutional context and is sensitive to policy. Over the past 40 years of China's reform and opening up, the establishment of socialist market economy is a transformation process with decentralization and marketization as the main clues, and has shaped the structure of separation and balance between land ownership and land use rights. However, state-owned enterprises still retained the characteristics of socialist “danwei”, their land use rights were basically equivalent to land ownership, and had built a mass of housing. The study applies the property rights theory of New Institutional Economics to analyze the role of state-owned enterprises in the process of housing construction from the perspective of land property rights.

Jing'an district in Shanghai, where many state-owned enterprises located in, has undergone large-scale urban residential space renewal under the reform of economic system. Through the inquiry of urban construction archives and investigation interviews, it is discovered that three stages of housing construction were observed in Jing'an over the past 40 years, indicating the adoption of three land property rights that have evolved sequentially, namely, socialist land use rights, the informal land development rights, the informal land privatization rights.

(1) Socialist land use rights before 1980s. Most of the state-owned enterprises took the place of local governments to provide housing to workers as social welfare through the socialist land use rights in planned economy period, and the housing construction was mainly in the form of public residence under the reform of socialist public ownership. Profit-making state-owned enterprises could build high-quality housing, while loss-making enterprises could not provide workers' housing. Due to the different profits of state-owned enterprises, housing distribution system had led to significant social stratification.

(2) The informal institution of land development rights after 1980s. Decentralization had shifted the decision-making rights of urban development and investment from central government to local governments, which greatly facilitated urban housing construction. The "two-level government, three-level management" economic system reform in Shanghai had created a local developmental state, that was a form of collaboration between local government and state-owned enterprises. Although the land of state-owned enterprises was allocated that belonged to the state, they could transfer land to development companies at low prices through the informal institution of land development rights. The housing construction was mainly facilitated by the joint development of state-owned enterprises and development companies in the form of land stock-cooperation.

(3) The informal land privatization rights after 1990s. Operational-level rights originally assigned to different actors had been gradually reclaimed by the land owners through the effect of market forces since the reform of land use system. However, due to ambiguous property rights and incomplete legal system, the state-owned enterprises were still the de facto owners of property rights. In the process of urban industrial upgrading, the land replacement of state-owned enterprises could obtain high income through the informal land privatization rights. Urban government and real estate developers had gradually replaced state-owned enterprises as the main subjects of housing construction, public residence was gradually being replaced by high-intensity and high-quality housing. The remaining public residence with poor location conditions had gradually degraded from the popular living space to the social marginal space, leading to the significant social segregation.

The study attempts to construct the logic of land property rights of state-owned enterprises in housing construction, and clarifies the practical obstacles of property rights transactions, in order to provide references for the orderly development and public policy transformation of urban residential space renewal.

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Key Words: Property Rights Regime, State-Owned Enterprise, Housing Construction, China, Land Property Rights

RAPID URBANIZATION: THE CHALLENGES AND OPPORTUNITIES FOR PLANNING IN INDONESIAN CITIES

Abstract ID: 399

Individual Paper Submission

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Smart City, Green City, Resilient City or Sustainable City, all terms with slight differences in their implications but all referring to recent trends in planning and management of cities that emphasize quality of life over the long term. Asian cities have embraced all four mantras with enthusiasm. But has these produced effective ways to manage the rapid urbanization upon? Drawing upon cases from Indonesian cities, this paper will critically assess the challenges and opportunities that these new movements have provided. Indonesian cities as diverse in scale such as megacity Jakarta and the nation's second and third largest cities (Surabaya and Bandung), and modest-sized ports such as Semarang and Makassar, all have claimed "Smart City" as their future, and connections to the Green City, Resilient City and Sustainable City movements to varying degrees. Innovations in transit, including new or expanded bus rapid systems (and the first mass transit and light rail systems in Indonesia that came on line in Jakarta in 2019) have been widely touted as "smart" responses to rapid urbanization. But in several cases, they are far from "rapid" and actually add to the congestion that is crippling many of these cities because of expanded private car and motorcycle usage. Smart city also refers to enhancing responsiveness to citizen concerns (clearly also an outgrowth of the democratization that has swept through Indonesia over the past two decades, and each of these cities has created a "command center" to apply new technology to manage urban services. But has the room full of screens and monitors in some of these cities made a difference. National laws require expanding green areas but much of the previous green spaces have been lost to new urban construction. And enhancing infrastructure related to roads, water and sanitation are all encompassed by these new future focused efforts, and has produced some significant improvements in several of these cases. Efforts to green and enhance resilience in Indonesian cities has been particularly connected to ongoing confrontations with natural disasters in cities. But often these efforts fall short of anticipated benefits, in large part because rapid spatial expansion of the urbanized area is creating new needs faster than existing ones can be addressed. And, in many cases, the benefits of these new planning initiatives have bypassed a large segment of the population. In critically examining the successes and future potential of these movements in Indonesia, the extent that they perpetuate historic inequities needs

to be considered. But assuming that these efforts do offer some potential to address Indonesia's urban challenges and bring new opportunities, this paper will seek to offer some views on how best to introduce innovations in planning and managing urbanization that seek the goal of an inclusive urban experience. In addition to the growing literature on these urban management efforts in Indonesian, the paper will draw upon firsthand discussions with planners and city leaders in these cities, as well as a rich array of public discussions on these efforts, heavily covered in the Indonesian media.

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Key Words: rapid urbanization, sustainability, international development, Smart City, Green City

UNDERSTANDING SOCIAL ECONOMY IN THE DISCOURSE OF URBAN REGENERATION IN SOUTH KOREA

Abstract ID: 410

Individual Paper Submission

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Since the 1997 Asian financial crisis, South Korea has been experiencing the rapid globalization of Neo-liberalism and now is entering into the so-called era of the New Normal where global trends of low growth and low interest have perpetuated. This extensive change in social and economic contexts has both directly and indirectly influence urban lives, leading to numerous urban problems such as the decline in the local economy, dissolution of communities and gentrification from huge capital. In response to the issues, the Korean government enacted the 「Special Act on Promotion of and Support for Urban Regeneration」 in 2013 and has implemented urban regeneration projects to invigorate shrinking cities and recover citizens' lives.

Along with national urban regeneration schemes, the government has ever-increasing interest and support of social economy as an alternative economic system, pursuing its potential in the delivery of public services, the creation of local employment, the expansion of local social capital, participatory governance, etc. Laville&Nyssens (2001) emphasized the role of social economy, particularly social enterprise, in serving communities and creating positive externalities in social cohesion and local development. Regarding this innovative approach, urban development through a close connection between urban regeneration and social economy presents a promising mechanism for urban development beyond the limitations of traditional market-driven urban development or state-driven top-down urban regeneration policies.

This paper aims to suggest the role of the social economy and its direction moving forward to lead sustainable and successful regeneration policies and projects. For this, I first determine the extensive topography of social economy in the discourse of urban regeneration in Korea by comparing and integrating the trends of urban planning policies and social economy. Second, I explore the relationship between the degree of local deterioration and revitalization and the changes in the characteristics of social economy organizations, their roles in public service delivery, and their forms of operation. Finally, I reveal the limitations of the current social economy organizations in acting as active agents for urban regeneration and make suggestions to boost the synergy effects.

It is expected that this research can provide basic data to estimate the social and economic impacts of social economy in the evaluation index for urban invigoration or the performance indicators of urban regeneration projects.

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Key Words: Social Economy, Urban Regeneration, Public Service Delivery

AN ALTERNATIVE PERSPECTIVE TO THE SOCIO-CULTURAL BARRIERS OF URBAN GREENSPACE PLANNING IN THE KUMASI METROPOLIS, GHANA

Abstract ID: 456

Individual Paper Submission

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A consequence of rapid urbanization is the decline of urban greenspaces. Set against urban policies and decisions, the attitudes and preferences of residents are often characterized as one of the reasons for greenspace decline in rapidly urbanizing areas of Africa. The argument is that residents have a low appreciation for urban greenspaces and contribute to their decline through encroachment and vandalism. Using data collected from 400 respondents in the Kumasi Metropolis, this paper examines residents' attitudes and preferences for and willingness to support urban greenspace initiatives in the Metropolis. The paper offers an alternative argument to that which characterizes residents, in a negative light, as encroachers and destroyers of urban greenspaces. It advances an argument that the socio-cultural factors surrounding the demand and support for urban amenities in the Kumasi Metropolis place a low emphasis on urban greenspaces. It reveals that the low emphasis is indicative of residents' priority of meeting their basic needs over a desire for urban greenspaces, and not merely actions of encroachment and/or vandalism. To transcend the contestation that emanates from resident's socio-economic needs and provision of urban greenspaces in the Metropolis, the paper suggests and argues for an articulated

framework that integrates residents' socio-economic needs into urban greenspace planning in the Kumasi Metropolis, and Ghana in general.

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Key Words: Urban Greenspaces, Urban Planning, Urbanization, Ghana

THE LOGIC OF CONVENIENCE: MUNICIPAL AID DEPENDENCE AND URBAN INFRASTRUCTURE DEVELOPMENT IN AN AFRICAN CITY

Abstract ID: 478

Individual Paper Submission

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Aid dependence discourses position the implications of dependency on governance reforms solely within the realm of national policy-making decisions and implementation success therein. Yet aid dependence is not simply a national concept with macro-level political and economic implications. The absence of considerations of aid dependence on municipal governance is especially peculiar in light of the decades of decentralization reforms promoted across the globe. In this paper, I adapt and redirect the aid dependence discussion toward the city. I argue that in aid-dependent states like Mozambique, aid dependence at the national level also translates at the local level, producing a dense physical and socio-economic footprint of the aid industry (and its affiliated private interests) in the capital city (where foreign stakeholders typically hold a base). Bolstered by the rise of Southern cooperation arrangements across Sub-Saharan Africa especially, promoted by China, India, Brazil, and South Africa, how does the growing density of international stakeholders in a rapidly developing capital city like Maputo shape urban infrastructure planning processes and city neighborhoods that are today, more than ever, also increasingly inhabited by the poor? In short, what are the physical and socio-economic implications of the exponential rise of international aid at the city-level? This is the central question addressed in this paper.

Drawing on both qualitative fieldwork in Maputo between 2009 and 2015, existing data on aid in Mozambique, and a spatial analysis of new residential developments, this paper argues that aid's urban footprint fosters financial dependency and the adoption of a logic of convenience among municipal

authorities, allowing them to forgo a cohesive strategy to address growing infrastructural inequalities. Instead, urban infrastructure and basic services development is typified by what appear as ‘low-hanging fruits’ for the public sector, reflecting the prioritization of projects with quick access to international funding—that is to say, prioritization of projects’ financial efficacies over concerns about local equities and what Lefebvre first called the ‘right to the city’.

The paper provides an accounting of the rising density of international aid stakeholders in Mozambique and the related promotion of private capital ventures from affiliated bilateral donors’ countries. It then considers the political economic impact of such aid—and private capital—on Maputo, particularly through infrastructure development. I argue that the aid dependence phenomenon delimits the potential for Maputo’s own-source revenue development and with it, the possibility of tax bargaining between local communities and city government. I show that this is due to two major factors related to the aid industry’s significant financial (and physical) presence in the city. First, this is because the concentration of international donors in Maputo creates a significant and politically acceptable, if unpredictable, source of non-tax financing for the municipal government. Second, international parties’ growing need for staff housing and business services couple with the strategy of a rentier class in Maputo that receives a major—if not primary—source of income from renting their central residences to foreigners, in effect eliminating the critical support of the rising middle class for property tax reform. With the lack of an effective financial bargaining tool, the urban poor in Maputo, representing the majority of the city’s residents, have little capacity to lobby for basic infrastructure that directly prioritizes and benefits them. The result is continued physical and socio-economic inequality in the urban fabric, despite international and local efforts to bolster change.

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Key Words: African cities, Infrastructure, Property Tax, Inequality, Aid

LOCAL CAPITALISTS AND THE POLITICS OF PLANNING INFRASTRUCTURE THROUGH PARTNERSHIPS IN SMALL CITIES

Abstract ID: 561

Individual Paper Submission

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This paper investigates the ways in which locally embedded, domestic capitalists and elites work in concert with a rescaled state for the spatial development of a small city in southern India, Tiruppur. Small

cities and towns, like Tiruppur, house (and will house into the near future) nearly two-thirds of urban residents across Asia and Africa, but often lack the planning capacities found in their megacity counterparts. I focus on the case of a public-private partnership (P3) to build water and sewerage infrastructure for Tiruppur, a global textile manufacturing hub built up over three decades by ingenious local capitalists, who are also key stakeholders (private partners) in spearheading and instituting the infrastructure project. In tracing the capitalists' participation in urban governance through the P3, I ask the following questions: What are the underlying motivations for capitalists to partner with the state in the production of a public good? What are the institutions that enable and mediate their participation in the P3? In turn, what are the implications of the capitalists' participation for the politics of distribution surrounding water access and subsequent planning processes for infrastructural improvements in the city?

In contrast to studies of P3s that focus on inter-organizational transactions and/ or their impacts on service quality or affordability, I adopt an historically informed, actor-centered approach (Shatkin, 2008) to trace the role of local capitalists, their agendas and politics of participation in relation to other actors in urban governance as well as the small city's changing relations to the regional and global political economy (cf. Weinstein, 2014; Heller et al., 2019; Shatkin, 2019). The paper draws on content analysis of planning and policy documents and the local business association archives, as well as in-depth interviews with key stakeholders in the P3 project. These include state actors at various levels (provincial to municipal) including the engineers responsible for delivery of water-sanitation service delivery at the household level in selected neighborhoods.

Findings indicate that economic motivations, mainly the sustenance of the textile industry amidst increasing water scarcity and low municipal planning capacity underpinned the partnership. Participation was enabled by the industry's socio-spatial embeddedness and links to both global capital and pro-growth state actors even as it was mediated by active business associations and caste-based social networks (cf. Kudva, 2013). Capitalists' interests not only dictated the P3 project design but they also indirectly shaped infrastructure operations by legitimating which actors and interests got prioritized (or sidelined) in subsequent plans for network expansions and service delivery. By highlighting local actors, partnerships, and power structures that shape the governance capacity of municipal planning institutions in small cities and towns, the findings of this paper offer important lessons for planning theory and practice to advance inclusive and sustainable urbanization beyond metropolitan cities.

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Key Words: local capitalists, public-private partnerships, infrastructure, small cities, India

CITY AT WORK: EXPLORING EVERYDAY URBAN TRANSFORMATION IN DAR ES SALAAM, TANZANIA

Abstract ID: 616

Individual Paper Submission

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As urbanization becomes ubiquitous in the Global South and Africa, the need remains for refocusing urban theory and planning frameworks (Roy 2013, Watson 2009), and looking at local production systems and organizations working on the ground (Simone 2004). Our goal is to contribute to this research call through analysis of urban co-production in Dar es Salaam as it happens on the ground and connects with national, regional and global development forces. Specifically, in this paper we look to answer the question of whether and how creating a safe space for convening informal networks of governance to discuss dynamics associated with Dar es Salaam's urban transformation can shed light on the multiplicities of urban transformation in and around the city, and re-imagine possibilities of co-production that reflects urban dweller's appropriation of the city space. Two sets of thematic urban experiments: urban walks and urban nights informs this analysis. The goals of these are experiments are threefold: first, convening local actors often missing in mainstream urban analysis but nonetheless involved in the co-production of space; second, creating a safe space for dialogue and discovery; and third, addressing the call for urban theory to place contemporary urbanization of countries in the Global South in the evolution of global capitalism while also peculiarizing knowledge within localities and regions, and planners to be more imaginative as facilitators of urban transformation (Robinson 2002, Sandercock 2003).

Three urban walks and one urban night that took place between October 2016 and February 2019. The former are small-scale, guided events that facilitate grounded exploration of particular territories. The latter larger events combining guest lectures with public debate in a social setting.

Findings indicate that local geography and social profile of participants affected the nature and depth of debate during each urban walk. The first walk in peri-urban Dar es Salaam highlighted how development in this area is incremental, and based on local level provision and management systems. The second walk in Dar CBD revealed that not only spatial but also political transformation affects the city's appropriation. Rise in police surveillance on the street increasingly impacts practices once deemed acceptable in the central city, including photographing and assembling. The third walk in inner-city neighbourhoods revealed interdependency occurring at the neighbourhood level, at multiple scales: between land owners and renters, residents and market traders, and local community leaders and ordinary citizens. In contrast to the situated discovery and debate of urban walks, the urban night set the stage for debates around contested topics related to urban transformation in Dar es Salaam and Tanzania through exposure to examples outside the city.

Preliminary analysis point to some emerging themes, namely, that the decentralization of urban systems and services contrasts with the recentralization of governance promoted since 2016, with consequences that need to be better understood. Also, transformation in the use of central city space can occur even in the absence of re-building, with a regressive effect on the ability of users – residents, visitors and street traders – to appropriate the central city space. Further analysis of situated events will continue to shed light on urban co-production in Dar es Salaam, helping measure whether and how these experiences help facilitate urban co-production and pointing to connections occurring at the regional, national and global levels.

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Key Words: urban co-productio, Global South, urban walks, safe space

THE POST PLANNING CITY: RETHINKING SUBURBANIZATION FROM THE CONTEXT OF BRAZIL

Abstract ID: 674

Individual Paper Submission

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This paper engages the geographies of post planned cities, defined as cities whose characteristics are defined in large part by the failure of large-scale neoliberal development projects, the entrenchment of inequalities, and the depoliticization of development efforts (Escobar, 2004). Using this frame as a starting point, we use the notion of the 'post planning city' to explore the historical divide between the Global North and South, and to engage with theories attending to the problems faced by the majority of the world's population (Watson, 2009).

From this theoretical starting point, this paper will draw on the case of Brazil to consider key spatial operations that evidence the ongoing state of post planning and exacerbate suburbanization, including mass housing, corridor planning, and infrastructure (Rolnik, 2015; Stiphany & Ward, 2019). We begin with a background of the co-evolution of these operations in the context of Brazilian urban reform. We then explore how in each case, governance is driven by three modalities – mechanisms through which suburban governance proceeds: the state, capital accumulation and authoritarian private governance (Ekers et al., 2012). This literature underlines a universal nature to suburbanization processes, yet is also marked by local specificities and diverging forms. While studies on suburban governance are largely the purview of urban scholarship in the Global North, suburbanization is increasingly termed a global process, and peripheral urban growth takes on both diverse characteristics and local specificities. Studying suburban governance through the case of Brazil thus involves revealing the public and private processes, actors, and institutions that shape and are shaped by the planning, design, politics, and economics of suburban spaces. We argue that ongoing states of post planning are leading to opportunities to “unsettle” “taken-for-granted assumptions” about planning in the Global South (Watson, 2009: 2259). We conclude by discussing three novel modalities for confronting suburbanization from a south-south metropolitan planning framework.

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Key Words: suburbanization, peripheral growth, governance, Brazil

THE ENGAGEMENT TRIGGER: HOUSING EVICTIONS, SENSE OF PLACE, AND ACTIVISM IN INFORMAL SETTLEMENTS IN FORTALEZA, BRAZIL

Abstract ID: 680

Individual Paper Submission

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The goal of this paper is to assess whether there is a relation between community engagement and the risk of housing displacement in informal settlements. It presents the engagement of local stakeholders to regulate certain communities as Special Zones of Social Interest (ZEIS) – inclusionary zones in Fortaleza, Brazil. The decade-long struggle to implement ZEIS in Brazil requires constant organized action. Parallel government interventions and plans have constantly jeopardized the permanence of existing informal settlements, even those which are supposedly protected by the special zoning ordinance (Freitas, 2017). In Fortaleza, of all 45 ZEIS delimited in 2006, only 10 have pushed forward until 2019 to develop individual management and urbanization plans. A key step of this fight has been for each ZEIS to elect representative management councilors in 2018. The councilors had to run campaigns and be elected, which indicated their personal interest in pushing this agenda forward. However, it remains unclear what factors triggered them to become leaders in this process. This paper investigates the questions: did the condition of risk (forced housing displacement) fuel representatives’ desire to become engaged? To what extent did Place Attachment (PA) motivate this involvement?

Fostering active citizenship and community participation in local affairs is a desirable process in contemporary planning (Innes & Booher, 2004). However, engagement can emerge from situations of vulnerability, which poses a particular challenge for studies and management practices of informal settlements (Saegert & Winkel, 1996). The study also investigates the role of PA, which has been reported as an emotional component that influences risk perception and action (Bonaiuto, Alves, De Dominicis, & Petrucci, 2016; Manzo, Kleit, & Couch, 2008). This study is unique in understanding how certain communities perceive housing insecurity and how PA mediates how that gets translated into activism. It also provides insight into how threats and attachment can lead to legitimate action if supported by planning tools such as inclusionary zoning ordinances.

A mixed-methods sequential explanatory design was adopted in the research. A previous quantitative study indicated strong positive correlations between the existence of community organizations and how likely those informal settlements were to be the target of housing displacement (n=797). This paper presents the results from the second data collection phase conducted over two months of fieldwork in Fortaleza. A total of 10 semi-structured interviews were conducted with different stakeholders elected as

part of the management council of their individual communities. The goal was to understand councilors' motivation for involvement in regulating ZEIS, struggles they encountered, and strategies put in place in face of challenges and historical context.

The results present how the ZEIS ordinance has been used as a flag to unite community members while also reinforcing dweller's rights to housing security. Simultaneously, the constant risk and fear of eviction remain a key motivation trigger that is harnessed by local civic organizations and research institutions to catalyze dwellers' sense of unfairness into action. Both PA and risk have influences that depend on characteristics of the built environment: varying degrees of proximity to the city center, infrastructure, wealth, and level of consolidation. It is paramount for planners to understand these emotional connections and spatial specificities and how they can be leveraged to encourage local participation. Statements from government representatives also expose planners' ethical role in promoting inclusionary housing.

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Key Words: Activism, Housing Displacement, inclusionary zoning, informal settlements

NEIGHBORHOOD ENVIRONMENT AND INCLUSIVE CITY: AN EMPIRICAL STUDY OF NATIVE RESIDENTS' ATTITUDES TOWARD MIGRANT POPULATIONS IN BEIJING, CHINA

Abstract ID: 695

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Worldwide cities face challenges of fostering inclusiveness of urban societies amid growing social polarization and the influx of migrant populations. From a planning perspective, scholars have debated over whether planning of public space, which presumably foster inter-group encounter, potentially reduces prejudice against minorities such as migrants, and eventually promote social inclusiveness (Piekut & Valentine, 2017; Valentine, 2008). Planners also have advocated for social mix as a means to fostering inter-group encounters in shared locations and thereby more inclusive social climate (Van Kempen & Bolt, 2009). However, empirical evidence on the effectiveness of public spaces and social mix on inter-group inclusiveness remains at most mixed.

An extensive literature has studied social integration experiences of migrant populations in Chinese cities (Wu & Logan, 2016; Wu, 2002). Most studies have focused on migrants' exclusion from economic and social opportunities, such as housing, employment, and social welfare, with insufficient attention to a subtle form of migrant marginalization, i.e., the daily life prejudice and stigmatization that minority-status migrants receive from majority-status native residents. Indeed, few studies have examined migrant social inclusion from the native residents' perspective in Chinese cities.

This research investigates the role of neighborhood physical environment (i.e. provision and proximity to various types of public spaces and facilities) and social environment (i.e social mix) contribute to a more positive attitude among native residents toward migrant's integration through fostering more frequent neighborly social interaction. Data for this study were derived from a large-scale questionnaire survey conducted in 36 neighborhoods in Beijing, China, in April-May, 2017, supplemented with neighborhood environment variables derived from field observations, geo-coded point-of-interest (POI) database, as well as neighborhood-level census data. Preliminary findings from structural equation modeling analysis reveal that (1) public spaces neighborhoods positively predict more inclusive attitudes among native residents; (2) proximity to quasi-public spaces surrounding the neighborhood (e.g. shops and transit stops) -- rather than typical urban public spaces (e.g. sidewalks, city parks), are more effective in promoting neighborly interaction and enhancing positive attitudes toward migrant inclusion; but (3) the effectiveness of public spaces and facilities are only significant for a more superficial dimension of social inclusiveness, but less so when it comes concerns migrants' equal entitlement to government welfare resources.

This research contributes to both the scholarly understanding of neighborhood physical and social environment on social inclusion for immigrant populations, as well as the emerging literature on migrant social integration in Chinese cities. By revealing the complex effects of neighborhood public spaces and social mix, this research also provide critical knowledge for urban planners in the pursuit of building inclusive cities.

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Key Words: Migrant Social integration, Neighborhood Environment, Public Spaces, Social Mix, China

A GOVERNMENT WORKING AGAINST ITSELF? EMERGING URBAN PLANNING INSTITUTIONS IN MEXICO

Abstract ID: 705

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The massive expansion of housing finance in Mexico since the 1990s has led to sprawling urbanization patterns, with significant negative economic, social and environmental consequences. Municipal city planners have been unable to either control this expansion or support it with relevant investments in urban infrastructure – such as transit, public spaces, and civic buildings – to build new cities, not just housing. This is exemplified by the limited success of the 2016 planning law, which sought to require all municipalities to update their urban development plans using a new methodology for plan creation. Very few municipalities have done this.

Yet not all cities have fared equally over the last 20 years, however, and some appear to have developed more effective urban institutions than others. There are now over 60 municipal planning institutes across the country, a new institutional form that began in the 1990s in the context of decentralization, democratization, and the rising need for municipal level planning. The majority of these planning institutes undertake functions local governments had not, including research and plan development, and some are increasingly involved with urban regulatory processes such as reviewing proposals for changes in zoning designations and increased density in infill projects.

This paper will describe evolving municipal urban planning efforts in Mexico over the past two decades, and assess why some cities have developed more capacity for planning than others, beyond simply their economic resources or political networks. We report on a survey applied to the planning institutes and local governments in the 100 largest urban areas of Mexico, that asks respondents a series of questions about the size and institutional capacity of the planning institute, the scope of their activities, and the implementation of plans. This survey will allow us to evaluate the relationship between local economic or political conditions and planning practice, and sets the groundwork for a future qualitative study.

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Key Words: planning capacity, IMPLAN Mexico

REIMAGINING SEGREGATION THROUGH “TARGET-HARDENING” : A STUDY OF THE QUETTA HAZARA

Abstract ID: 727

Individual Paper Submission

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Residential segregation is both a tool and product of state policing, and spatial and social segregation frequently implicate racialized conceptions of group identities (Rothstein, 2017). State regulatory practices, including land-use zoning and master plan implementation, reinforce these racialized identities. Literature from North American and European contexts highlights the legal, social, and economic factors

that lead to segregated outcomes (Krysan & Crowder, 2017). Moreover, security measures taken by the state and private individuals also create segregation in cities, reinforcing class (Caldeira, 2000), sectarian (Bou Akar, 2012), or other political differences (Fawaz, Harb, and Gharbieh, 2012) in cities in the Global South.

In this paper, I show that, even in the absence of laws that mandate spatial segregation, policing and security strategies focused on safety can create and reinforce new forms of social isolation: a policy paradox. I base this on my field work in Quetta, Pakistan, a multiethnic city near the border with Afghanistan that has frequently seen conflict and violence. Using my own observations and interviews with security officials, planners, bureaucrats, and community organizers, I investigate the application of these security strategies looking specifically at a state policing tactic called “target hardening”. Enacted to protect the ethnicized Hazara population following years of targeted terrorist violence, government target hardening policy creates physical and psychological barriers that effectively create two separate cities – one for the non-Hazara population, and one for minority Hazara settlements.

While target hardening strategies are central to a decline in the incidence of violence targeted at the Hazaras, the city outside Hazara settlements remains as unsafe as ever. As a result, the Hazara community has relocated most social and economic activity into hardened settlements – effectively intensifying social, economic, and spatial isolation. From an earlier position of relative social and economic affluence, most Hazara citizens in Quetta are now restricted to life and limited opportunities walled within the two Hazara settlements of Marriabad or Hazara Town. The extent and intensity of this isolation has forced a redefinition of the ‘city’ for Quetta’s Hazara population, illustrated by the rigid physical and psychological separation between Hazara settlements and the rest of Quetta.

This redefinition is a manifestation of the balancing act that the state must perform between securing different kinds of rights – to life, to free movement, to the city – for its residents in contested urban spaces like Quetta. Planning scholarship can use this study to reflect on how community and citizens’ conceptions of the city can be different from – and even opposed to – administrative or planning notions of the same. My investigation of the paradox of isolation and redefinition highlights the role of a police force and security strategies in determining the reproduction of urban space, therefore signifying the importance of institutional coordination before policies are implemented especially in weak states in the Global South.

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Key Words: violence, policing, security, isolation, segregation

NUDGING PRICE INFORMATION IN CHINA’S RESIDENTIAL REAL ESTATE MARKET

Abstract ID: 730

Individual Paper Submission

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Through 30 years of rapid urbanization, China has witnessed tremendous growth in the real estate industry. But problems came along: skyrocketing housing prices in large Chinese cities make home-ownership an unachievable dream for many beneficiaries of China's economic transformation. In this context, the study seeks to interpret how the information of residential commodity housing in the China's real estate market is shaped, presented, influenced and utilized by various stakeholders including the central and local governments, developers, real estate search engine companies and consumers. This research is one of the first attempts to analyze the incentives and effects of the government's regulations on China's housing market from nudging the price information in the residential real estate market point of view.

The research analyzes how various stakeholders nudge the price information of residential commodity housing. Based on the facts that the local governments use direct housing price restriction policies to influence people's expectations about the real estate market and that some developers circumvent the regulations by releasing fake or misleading information pertaining to housing sales, we propose the following research questions: 1) What's the rationale for the local governments to favor the housing price restriction policies? What actors are involved in this decision making process, and what are the powers and interests of these actors? 2) What are the violation behaviors adopted by the developers to circumvent the housing price restriction policies? And why do these behaviors widely exist?

To answer these questions, we conducted a series of interviews with different stakeholders in China's real estate market and derived an institutional framework to analyze their dynamics. Studying the housing price restriction policies using the organizational theory, we find that the process of the central government assigning the task of curbing rising housing prices to lower-level governments follows the model of an "administrative subcontract", in which the central government sets the goal for the lower-level governments to dampen the rising housing price as well as endows the latter with considerable discretionary power to decide on the specific means to achieve the goal. As a result, the local governments have the proclivity to take occasional rather than successive actions and to favor means with instant effects than long-term but more legitimate measures. This explains why the local governments are prone to take administrative measures in housing price regulations such as price-limited housing (PLH) policies and universal housing price restriction (UPR) policies in recent years.

Then, the study analyzes how the actual housing transaction prices are deviated from the registered housing prices in China's real estate market as a result of developers nudging and distorting housing information. We unveiled the following malpractices of developers: (1) producing fictitious or exaggerated housing information; (2) transferring the housing construction costs; (3) restricting access to the information of housing stocks and prices; (4) omitting the information of housing management and surrounding settings; (5) signing dual-contracts with consumers. The main takeaway is that by leveraging essential property-related information in the real estate market, the developers can still reap extraordinary profits despite the tightened control. We then analyze the factors contributing to the impediments of policy implementations.

The developers' malpractices masked by the "seemingly tame" housing price suggest that there is not a "one size fits all" approach in cooling down the overheated real estate market. By uncovering the countermeasures taken by those developers and the inaction of the local government agencies on

rectifying the order of real estate market, this research appeals to the developers and government agencies to build trust by taking up more responsibilities in producing, releasing and regulating information in the real estate market.

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Key Words: information regulation, China's real estate market, institutional analysis, political economy, organizational theory

SANITATION FOR LOW-INCOME REGIONS: A CROSS-DISCIPLINARY REVIEW

Abstract ID: 731

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Sanitation research focuses primarily on containing human waste and preventing disease; thus, it has traditionally been dominated by the fields of environmental engineering and public health. Over the past 20 years, however, the field has grown broader in scope and deeper in complexity, spanning diverse disciplinary perspectives. In this article, we review the current literature in the range of disciplines engaged with sanitation research in low- and middle-income countries. We find that perspectives on what sanitation is, and what sanitation policy should prioritize, vary widely. We show how these diverse perspectives augment the conventional sanitation service chain, a framework describing the flow of waste from capture to disposal. We review how these perspectives can inform progress toward equitable sanitation for all (i.e., Sustainable Development Goal 6). Our key message is that both material and nonmaterial flows—and both technological and social functions—make up a sanitation “system.” The components of the sanitation service chain are embedded within the flows of finance, decision making, and labor that make material flows of waste possible. The functions of capture, storage, transport, treatment, reuse, and disposal are interlinked with those of ensuring equity and affordability. We find that a multilayered understanding of sanitation, with contributions from multiple disciplines, is necessary to facilitate inclusive and robust research toward the goal of sanitation for all.

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Key Words: Sustainable Development Goals, WASH, sanitation, sanitation planning, human right to sanitation

SOCIAL CAPITAL FORMATION AS A STRATEGY FOR BUILDING RESILIENCE IN SOUTH ASIA’S INFORMAL SETTLEMENTS: EMPOWERING WOMEN RESIDENTS TO MANAGE CLIMATE CHANGE HEALTH IMPACTS

Abstract ID: 770

Individual Paper Submission

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Central Theme:

How can women residents of informal settlements be best empowered to assess their climate-induced health vulnerabilities and take resilience action? What impact does such empowerment have on the climate resilience capacities of their communities?

India, Bangladesh and Nepal are amongst the countries most threatened by climate change. The dense urban populations are particularly susceptible, with the most vulnerable being women living in informal settlements. This paper presents the empowerment model and evaluation findings of an action research project. The project addressed four major climate health risks – heat stress, flash floods, acute water shortages and vector borne diseases, building. The project tackles community organizing and knowledge barriers in building capacities of slum communities and city governments for assessing vulnerabilities in these communities, particularly critical partnership gaps between technical experts, local governments and low income communities to undertake participatory risk assessments and design joint technical solutions.

Methods:

The two-year evaluation research project measured the degree to which a women-focused community empowerment model developed by Mahila Housing SEWA Trust (MHT) over the past 20 years (to address housing issues) could be effectively adapted to climate resilience health issues in three types of communities: established cities (MHT had previously organized), emergent cities (MHT was beginning to organize), and partner cities (MHT trained partner NGOs in employing its community empowerment model). The project identified 100 intervention slum communities in 7 cities in India, Nepal and Bangladesh divided amongst these conditions. Control slums were identified to match the demographic conditions of the treatment slums. Extensive pre- and post-intervention surveys of women residents were conducted to measure perceptions, knowledge, behaviors and specific resilience conditions around climate-induced health conditions. A resilience indicator was developed incorporating vulnerability to the four health risks relative to the strength of household social and financial capital and compared prior to and after intervention relative to change in control slums. This differences-within-differences quantitative analysis was complemented with a detailed case analysis of project actors, actions, and impacts, using structured interviews and nVivo data analytic techniques.

Results:

Women residents of informal settlements, when provided with the requisite knowledge to undertake vulnerability and risk assessments and equipped with available resilient-technologies, are able to devise and implement locally relevant and pro-poor climate resilient solutions. When so empowered, urban poor are also able to better influence climate resilient city planning and ensure that effective urban adaptation practices are in place. Such empowerment is built on socio-technical partnerships between communities, technical experts and city officials, including grassroots-developed household and community based adaptation strategies as well as infrastructure, institutional and financial mechanisms, linked to technical resource groups and city agencies.

Relevance to planning:

Social capital strategies provides an effective entrée into community self-empowerment around climate change resilience. Elements for success include:

1. 1. Build women-led action groups at both the neighborhood (Community Action Groups: CAGs) and citywide (federations of CAGs: Vikasinis).
2. 2. Link advocacy with knowledge by training CAG leaders as advocates and users of resources on climate vulnerability assessment, collective response action and technical solutions.
3. 3. Promote systematic interaction between local technical resource groups and CAG/Vikasini leaders.
4. 4. Employ tools for evidence-based decision-making and communication implementable by CAGs.
5. 5. Develop a compendium of pro-poor, gender sensitive solutions, customized and validated by communities.
6. 6. Evaluate and document processes for building social capital and cross-learning's between local residents and the scientific/policy community, to reach out to multiple cities.

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Key Words: informal settlements, climate change, resilience, social capital, civic engagement

HOW DO TRANSPORTATION PLANNERS PLAN FOR UNPLANNED TRANSPORT? ANALYSIS OF PLANS FROM SUB-SAHARAN AFRICA

Abstract ID: 783

Individual Paper Submission

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Paratransit (privately-owned small vehicles – Matatu, Dala Dala, Gbaka) provides most urban public transport in African cities (Barrett and Kumar, 2008). Analysing 10 transport master plans developed for Sub-Saharan cities in the past 10 years, this paper finds little attention paid to paratransit – also referred to as informal transport - and less to its planning and evolution as part of a city-wide transport plan. Despite policy and research increasingly acknowledging the likely continued centrality of paratransit modes, and arguing for integration and improvement, master plans lag behind (Stucki, 2015; Behrens et al, 2012). In every plan analysed, paratransit is the most common motorized mode at the time of its writing, and substantial shortcomings are always identified. Yet there is little in the plans that addresses how to regulate, integrate, improve or even effectively ban paratransit – one or more of these is often assumed or asserted to occur in the future with little or no dedicated planning or budgeting.

The deep social and cultural histories of paratransit (Rekhviashvili and Sgibnev, 2018; wa Mungai, 2013) in African cities as well as the labour and economic arrangements of the industry, guarantee competition and resistance to such new plans, and the failure of imported approaches to understand these will significantly hamper crucial necessary improvement in transport. This paper argues that cities, planners and funders of such plans must better recognize the importance, centrality, organization, resilience and long local histories of paratransit, and thoroughly consider and address its role as a central pillar of future transport plans.

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Key Words: transport planning, informality, planning bias, paratransit

THE TRANSFORMATIVE IMPACTS OF PRO-POOR SHELTER POLICIES: PLANNING LESSONS FROM SURABAYA

Abstract ID: 791

Individual Paper Submission

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This paper explores how the pursuit of pro-poor shelter policies, especially in situ urban upgrading, over decades effected and sustained wider transformations in planning and governance in the Indonesian city of Surabaya. In the fast expanding and increasingly unequal cities of the Global South, providing adequate and affordable housing for the poor (King et al. 2017; Monkkonen 2018) and managing informality (Roy 2005) are key challenges for reducing urban inequalities. In situ participatory slum upgrading is regarded as an effective policy and planning tool for addressing, in part, both these challenges (Das 2018; King et al. 2017), and, Surabaya's pioneering and persistent efforts with participatory upgrading, which preserved affordable shelter and livelihoods options for the poor in core locations, offer exemplary insights on how and how not it ought to be pursued. These efforts and their impacts catalyzed broader planning and governance reforms, which are deemed essential for inclusive and sustainable cities (Dahiya & Das, forthcoming; Watson 2016). Critical insights gathered from multiple qualitative methods—extensive review of secondary literature, analysis of policy documents, primary fieldwork (over a decade), 20 in-depth expert interviews, and conversations with various stakeholders—inform this study. In offering a rare account of the evolutionary trajectory of Surabaya's efforts over 50 years, it finds that Surabaya's success stems from long-term implementation and incremental expansion of local innovations, strong and sustained political will, crucial external funding, and institutionalizing city-university-community collaborations. Rising property values and demand for prime land, weak participation by civil society organizations, neoliberal shifts in shelter policy, and the exclusionary treatment of poor migrants are emergent threats to an inclusive and sustainable future. Analyzing the essential catalysts for and inhibitors to sustaining Surabaya's transformative gains and potential suggests that for planning in the Global South to be effective and inclusive, planning research must concentrate more on understanding the hitherto less-appreciated roles/importance of individual leadership, leadership succession, and planning education.

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Key Words: urban upgrading, progressive planning, institutional collaboration, Surabaya, Global South

HOW DID THE TOWNS WITH LARGE POPULATION GROWTH DEVELOPED THEIR ECONOMY? A STUDY OF TOWNS IN JIANGSU PROVINCE OF CHINA

Abstract ID: 798

Individual Paper Submission

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In developing countries that have large amount of rural population and urban-rural disparities, towns are important nodes of urban rural linkage. They have the advantage of stimulating rural development and integrating urban and rural economies. (Rondinelli, 1983)

However, as small urban settlements, towns are considered to have relatively weaker agglomeration effect than cities. Cities have better facilities and job opportunities than towns, it was expected that most of the farmers would choose to live in cities instead of towns. As developing countries become more urbanized, the population and industries are expected to be more concentrated in cities, while towns and rural areas tend to be shrinking.

However, it is found that most of the towns in Jiangsu province of China are growing. In some areas, there were even larger population growth in towns than in cities, which is in contradictory with theoretical prediction.

This research tries to address the following research questions: What is the relationship between town economic development and town population growth? How did those towns with large population growth developed their economy?

This research took Jiangsu Province of China as the research area. We used the statistical data about all the towns in Jiangsu from 2005 to 2016. The data includes the population and other socio-economic statistical indicators. In addition, we also used the enterprise-level data from Economic Census and Industrial Enterprise Databases to do the analysis.

Firstly, we used multivariate statistical regression methods to analyze the correlation between various aspects of towns and their population growth. After that, we selected towns with large economic growth, using economic and enterprise-level data, we analyzed their characteristics of industrial composition and development. Then, we further selected typical towns at different regions of Jiangsu with different

economic development conditions to do detailed case studies, by interviewing key informants, analyzing documents and statistical data, we compared towns of different economic status, analyzed how those towns' economy were developed and the reasons why those industries chose to stay in those towns.

The research found that from 2005 to 2016, 85.6% of the towns in Jiangsu had a growing population. Towns' population growth was closely related to their nonagricultural economic development. Towns in Jiangsu can be divided into two categories according to their source of economic development. Towns with exogenous development are those whose industries are mostly developed through "investment attraction". Towns with endogenous development are those whose pillar industries are mostly developed by local entrepreneurs. It is found that most of the towns with strong economic growth have a large endogenous economic base. Because of the increase in labor cost, many exogenous companies have moved to lower-cost locations, while endogenous companies stayed in the town. Endogenously developed industries have a larger degree of embeddedness in the town. They still have various kinds of connection with the local towns and villages.

Most of the endogenously developed industries have formed strong industry clusters, which made them more competitive and have strengthened the embeddedness of the whole industry in that area. Agglomeration economies have been achieved through large-scale, specialized clusters. In addition, the introduction of technology and talents from large cities by the leading companies of the cluster have upgraded the whole industry. Large enterprises have connected external technology and local clusters through their linkage with the outside world.

Towns are important in providing nonfarm jobs and in-situ urbanization opportunities for rural people. Planner and local policy makers in developing countries should care more about the endogenous development of towns in addition to "investment attraction", and help with fostering local industrial clusters so as to strengthen the embeddedness and competitiveness of local economy, so as to narrowing urban-rural disparity and achieve more inclusive urbanization.

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Key Words: Towns, Population Growth, Industry, Endogenous development

OPPORTUNITY FOR WHOM? SPATIAL ANALYSIS OF AFFORDABLE HOUSING PROJECTS IN SHANGHAI

Abstract ID: 811

Individual Paper Submission

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Inequality in access to housing has been a significant social issue in urban China. This paper examines the spatial distribution of the Economical and Comfortable Housing (ECH) program, a major affordable housing production program and purchase subsidy in Shanghai. The analysis links available ECH units between 2011 and 2016 with neighborhood and township characteristics, demographics, and opportunity indicators. Even though housing policy in China is branded as a social welfare policy, affordable housing programs do not consider neighborhood opportunity while choosing the sites of housing projects. The spatial analysis result shows that the majority of units sited are located in the urban fringe. It is also common to have several projects clustered together. While most projects are located in areas with relatively easy subway or commuter rail access, relocated former downtown city residents are facing reduced access to many other amenities, such as access to top-tier hospitals and employment centers. Such a subsidized affordable housing program seems to further exacerbate housing inequality in Shanghai. Using a logistic regression framework, one main factor associated with such siting pattern is the availability of cheap land. Such a housing program has shown to put lower-income households at greater disadvantage.

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Key Words: China, housing, affordable housing, spatial, segregation

EXTERNAL INTERVENTION AND INDIGENOUS ORDER IN TRADITIONAL VILLAGE PRESERVATION: A CASE STUDY OF THE WORLD BANK LOAN PROJECT IN GUIZHOU PROVINCE, CHINA

Abstract ID: 830

Individual Paper Submission

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In recent decades, many organizations such as the World Bank and foundations from developed countries have carried out a series of community development projects in third world countries and regions, aiming to promote local economic and social progress. Introducing advanced planning concepts and management modes, these projects represent important external interventions which can transformatively impact local communities. Unfortunately, a large number of them were not able to achieve the expected results. Some

of them even saw negative outcomes, such as dispersion of the local community and destruction of the historic environment.

This paper, taking the World Bank loan preservation project of traditional minority villages in Guizhou Province, China (Guizhou Project in brief) as an example, aims to address the positive and negative impacts of external intervention on historic environment, local cultural and social structures, discuss the causes of these impacts, and explore implementation methods of localizing external projects for smooth execution toward the preservation targets.

The Guizhou Project (2010-2017) covered 20 ethnic minority villages preservation, aiming to protect the ethnic culture and enhance community capability. Villagers were the implementers, beneficiaries of the project according to the goal. Although the project objectives had been reached to a certain extent, conflicts accompanied the entire process, and the implementation even once stagnated in some villages.

Based on the process tracking of the Guizhou Project, this study reviews the two dimensions of the preservation intervention intensity, and indigenous order level of the villages, and analyzes the impact of their interaction on promoting the project and achieving the preservation goals. The study also compares the World Bank project with the local government sponsored project in these villages and projects launched by the villages themselves, by examining their advantages and disadvantages. The role of planning to effectively facilitate the process and promote the preservation are discussed at the end of the study.

The study found that: 1. The coupling between external intervention and internal order is the key to examine the adaptability of projects and villages; while investigations with a single dimension cannot explain the predicament of the project implementation. 2. The aesthetics and values contained in the external preservation project are always antagonistic towards the villagers' original cultural identity and logic of action. Without local political and cultural reflections, external projects are difficult to implement in traditional villages according to the preset standards and procedures. 3. Flexible planning concepts should be introduced to the project to constrain the extent and manners of external intervention, and to improve the localization and effectiveness of the project.

This study presents a rich preservation case involving international capital flowing to traditional villages in the undeveloped region, owing to the author's deep understanding and long-time tracking of the project as a planning consultant, from its program design to its implementation and management. Furthermore, by emphasizing the role of planning, this study puts forwards the effective methods to local managers of accepting external resources while keeping the local cultural identity. It also provides suggestions to external project organizers on proposing an implementation bearing in mind local conditions.

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Key Words: Traditional Village, World Bank, Historic Preservation, External Intervention, Indigenous Order

RE-CATEGORIZING INFORMAL STREET VENDORS TO DEVELOP INCLUSIVE URBAN POLICIES

Abstract ID: 837

Individual Paper Submission

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Informal street vending has been an increasing phenomenon in the Global South. In the case of small cities of Latin America, it has not been widely studied by literature in different disciplines. Although, in cities such as Guatemala City 66.5% of the population is informal and 9% of the urban informal workforce are street vendors (ENEI, 2018).

The main urban policy arguments against street vending are congestion, public health risks, unsightliness, and tax evasion among others. On the other hand, some of the main benefits include livability, safety, and provision of unique services at competitive prices (Skinner et al, 2018). While the most common urban policies that deal with informality like relocations, zoning, evictions, etc., have tried to account for the negative consequences of informal street vending, they have fallen short at acknowledging the positive ones and vendors' right to the city. Similarly, some of these policies have tried to help vendors transition from informality to formality; however, vendors still remain informal.

Under this context, planners often operationalize formality and informality as binary but argue that both coexist and transform each other in the same urban space and there is not a clear divide between them (Yiftachel, 2009; Roy, 2005; McFarlane, 2012). This stand has been echoed by the International Labor Organization (Recommendation No. 204, 2015) and Skinner et al (2018) who argue that informality is a key element of the policy making process and the voice of informal should be heard.

This paper argues that informal vendors that participate in urban relocation policies can be more formal than they seem. A redefinition and recategorization of this group of entrepreneurs is necessary to develop more inclusive policies that benefit both, the city and the vendors. The main objective of this study is to answer how should urban informality be measured and approached in order to develop more inclusive policies that could help vendors transition to formality.

To answer this question, this study analyzes the case of a group of informal vendors in the historic downtown of Guatemala City from the ILO decent work perspective. Using national publicly available data from ENEI (2018), a logistic regression is proposed to find the main determinants of informality. These determinants are later applied to a local survey data for the case of Downtown Guatemala City. Finally, informality is redefined as a continuum instead of a binary category, e.g., formal or informal.

Results show that when informality is defined, street vendors' categorization within an informality to formality spectrum changes. Being part of a union or organization, having a contract and having access to physical infrastructure are the main national determinants of informality. When these results are applied to the local case, vendors overall likelihood of being formal increases. This suggests that relocation

policies may help vendors transition to formality. However, key policy elements identified through the study must be included to ensure this transition. Lessons learned from this study can potentially inform not only other countries in the Global South, but also countries and theories in the Global North, where the informality phenomenon is emerging.

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Key Words: Informality, Street Vending, Right to the city

PLANNING FOR RESILIENT CITIES IN DEVELOPING COUNTRIES: ENVIRONMENTAL CORRELATES OF INDIVIDUAL RESILIENCE IN SHENZHEN, CHINA

Abstract ID: 844

Individual Paper Submission

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Urban resilience is now widely accepted as a theory and a set of capacities and strategies implemented to address uncertainties and unpredictable states of flux associated with external shocks to cities, such as natural disasters. The increase in frequency and intensity of natural disasters in relation to climate change, e.g., urban flooding in developing cities, highlights the adverse impacts of rapid urbanization and calls for a more resilient built environment. Nonetheless, the substantial life and property loss caused by urban flooding might not be the pure result of the vulnerable physical environment - social environment, particularly the capacities and perceptions of individuals and communities and the link to the built environment, could have pivotal roles to play in the resilience discourse. It is therefore necessary to examine how individual resilience of residents can be enhanced in developing cities to better prepare them for natural disasters associated with climate change, such as urban flooding.

Environmental cognition that provides psychological and physiological benefits to people by adding motivation to interact with the place, could be important factors influencing people's resilience-oriented behaviors, but have largely been ignored in existing research. This study will first establish a theoretical framework for the concept of individual resilience to urban flooding in developing cities. A scoring system has also been developed to evaluate individual resilience based on the self-reported strategies adopted by residents to cope with, recover from and adapt to urban flooding. Gongming, a sub-district of the Chinese city of Shenzhen, with high vulnerability to urban flooding, is selected as the case study area. Personal perceptions, i.e., perception of urban flooding risk, perception of quality of physical environment, perception of social wellbeing, along with the conventional control variables such as household and individual socio-demographic factors, derived from the questionnaire surveys, are

explored as the potential determinants of individual resilience. Through regression analysis using a hierarchical linear model (HLM), the determinants of individual resilience on individual and community levels are identified and the findings suggest that there exist significant spatial variations in terms of individual resilience to urban flooding among different communities. Furthermore, at the individual level, the weak risk perception, poor quality of physical environment and the loose social network perceived by residents, limit the nurturing of individual resilience in Gongming. At the community level, the regression results suggest that the social environment, in particularly its gatedness, is pivotal to individual resilience. This study offers an approach for analyzing the key factors that limit individual resilience from the environmental perspective, providing useful references for improving individual resilience with due regard to its social dimension, thereby recommending place-based measures to optimize resilience-nurturing programs such as the Sponge City Initiative. Such evidence-based research could also provide insights in formulating relevant policy recommendations to improve urban resilience through urban planning and management strategies to other rapid urbanizing flood-pronged cities (such as Dhaka) in developing countries.

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Key Words: resilient cities, urban resilience , disaster reduction and planning, Urban flooding, hierarchical linear model (HLM)

RIGHT TO THE CITY: FORMALIZING INFORMAL SETTLEMENTS IN ANTANANARIVO, MADAGASCAR

Abstract ID: 851

Individual Paper Submission

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With the progress of urbanization, the number of people living in slums or informal settlements has been growing around the world. In Sub-Saharan Africa, more than half of the urban population dwelled in slums in 2014. Madagascar is no exception. In Antananarivo, the capital of Madagascar, informal settlements account for 70% of the settlements, though not necessarily slums. Most of the residents there are poor, including incoming migrants, and informal dwellings are prone to flooding and other disasters. The World Bank and the French Development Agency have been implementing slum-upgrading projects to improve basic infrastructure such as roads, water supply, and drainage in informal settlements. This research analyzes how informal settlements can be formalized in urban planning and management systems to improve living conditions in Antananarivo.

One of current popular approaches to informal settlement improvement suggests that granting property rights to those who live on small plots in slums is necessary in initiating self-improvement by urban slum dwellers based on the market mechanism. However, urban planning laws that guide and control development by determining requirements and standards for permissible housing through land use and building regulations are not necessarily conducive to the approach of slum upgrading based on land ownership. Land use and building regulations, such as building coverage ratio, floor-area ratio, and minimum lot size, are often strictly set, imitating the laws of colonizing countries, for the sake of building a better and beautiful city. Nevertheless, such strict regulations work against the development of good-quality housing and well-organized residential areas. Planning officers are afraid to relax these regulations to accommodate informal settlements in formal urban planning systems so that building houses on small plots in slums is legalized, which would encourage investment in those properties, as well as land transactions. As a result of these rigid regulations, illegal housing construction will continue or even increase, and local governments will not be able to collect taxes and fees on property or construction permits due to the lack of accurate records of properties. Proper urban planning regulations are crucial in ensuring the success of a property-based approach to upgrading slums.

This research explores the importance of developing urban planning regulations appropriate for informal settlement improvements in the case of Antananarivo Agglomeration in Madagascar. The data collection was primarily conducted for the urban master planning project funded by the Japanese government, for which the author worked as a consultant from 2017 to present. The analysis reveals the need for appropriate urban planning regulations to improve informal settlements. However, it also illuminates the difficulties and resistance to adjusting urban planning systems for that purpose, despite the mounting necessity to take action to prevent the expansion of informal settlements and improve urban living environments in these settlements.

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Key Words: Informal settlement, Regulations, Madagascar

CONTINENTAL PLANNING: A NEW SCALE

Abstract ID: 899

Individual Paper Submission

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In 2001, the African Union (AU) created the New Partnership for African Development (NEPAD) as its "technical body" responsible for planning the economic and infrastructural integration of the entire continent. Rather than focusing on nation-states, the cornerstone of this emerging planning practice is the "regional economic community", collections of public and private institutions that have a shared geographic and economic interests—they are organized around formal economic communities as much as by the management of river basins. NEPAD is exemplary of a new generation institutions that are shifting Pan-African politics into the technical realm of infrastructure and development planning. As such, the

institution has conducted a continent-wide participatory planning effort to identify dozens of priority projects for African integration. Yet critics of the program argue that there is a disconnect between this continental effort and the citizen and domestic level where its negative impacts are felt the most. In this presentation I take NEPAD as a site from which to examine the contestations surrounding this scaling-up of infrastructure planning in Africa. How far will the language of participation be extended to broaden—or curtail—public input in technical development plans? And how and to whom might these publics make claims? And how might this create new fissures in what is today a rather clean vision of African ownership, partnership, and unity?

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Key Words: Participation, Infrastructure, Scale

NEOLIBERAL URBANISM: ASSESSING ROLES OF URBAN ACTORS IN INDIA'S 'MILLENNIUM CITY'.

Abstract ID: 907

Individual Paper Submission

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Since the adoption of a neoliberal approach to economic policy, the Indian landscape has been rapidly urbanizing into highly uneven geographies of self-contained enclosures. In addition to the consolidation of a trend towards deregulation and privatization of urban space and services, the new economic policies influenced Indian metropolitan cities to compete for “global city” recognition. New Delhi was ranked in the top five of the Kearney's 2014 Emerging Cities Outlook list. Its neighboring city, Gurgaon in the state of Haryana, which was an ordinary village until the 1980s transformed itself into a global financial landmark within a few years. It has become an ever-expanding archipelago of corporate parks, gated luxury apartments, and shopping malls encircling older village settlements.

On the flipside, Gurgaon is facing severe water shortage even in upscale localities. Its air quality is worst in the country due to rampant construction activities. Traffic, crime, and power outages are on the rise. The rapid increase in competition and speculation in the real estate market in Gurgaon has left hundreds of farmers dispossessed of their land, negatively impacted the livelihoods and increased vulnerability of women, especially of poor and lower caste women living in peri-urban areas (Vij and Narain 2016; Cowan 2018). The city has received some scholarly attention recently due to its rapid urban transformation and changing administrative boundaries, speculative real estate market, environmental injustice, social exclusion, and dysfunctional urban planning. However, the specific roles urban actors play, especially town-planners and architects, in the city-making process have not been studied extensively.

Transformation of Gurgaon has been substantially influenced by conflicts between the state government and the local government, participation of non-state and foreign actors, civil society groups, and interplay between caste and class identities. The state of Haryana pioneered deregulating the participation of

private developers in real estate industry. This enabled developers to negotiate directly with farmers for land exchange at market rates (Chatterji 2013). While the state has played a key role in facilitating land acquisition for large-scale urban projects, property developers have partially reclaimed the project of urban planning from planning experts by applying flexible principles of land use and exceptions for their own benefit (Gururani 2013, Shatkin 2017).

Using the case of Gurgaon, India's "Millennium City", this research examines the interplay between neoliberal processes and the practice of urban planning and architecture to understand city making in the global South. Specifically, it examines the roles and interests of various local and global urban actors shaping the city such as private property developers, planners, architects, investors, real estate firms, city authorities and NGOs. The question of who is shaping contemporary market-driven urbanism is more crucial than ever to begin addressing the challenges facing the neo-liberal city. Using in-depth interviews with urban actors and policy document analysis, this study uncovers specific ways in which neoliberalism is materialized in Gurgaon. The interview data is analyzed using NVivo data analyzing software to identify themes; while content analysis of policy documents provides the institutional context for the development of Gurgaon.

The study suggests that several new stakeholders such as foreign "concept architects," global investment management companies, and NGOs now play key roles in shaping India's contemporary urban landscape. Additionally, private property developers and investors have gained immense power in making important decisions about place-making whereas the role of urban planners in decision-making has remained limited in neoliberal cities like Gurgaon. Urbanization driven primarily by profit and envisioned by only few powerful urban actors inevitably leads to disadvantage and results in unsustainable and highly uneven landscapes.

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Key Words: Land Use Policy, Decision-making, Neoliberal Urbanism, Uneven Development, Gurgaon India

RETHINKING URBAN INCLUSION AND INSURGENCE: RURAL-URBAN "IN-BETWEENER" IDENTITY AND COMMUNITY IN CHINA

Abstract ID: 927

Individual Paper Submission

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There are about 1.5 million people moving from the countryside to the city globally every week. They are often regarded as living in a seemingly “transient” or “liminal” status, and their ambiguous status of identity and place has long been taken for granted as temporary, exceptional, unstable and undesirable in both state-dominant political discourse and critical urbanists’ scholarly examinations. However, my research finds that communities of Chinese rural-to-urban migrants challenge this assertion and pursue the right to permanently inhabit this liminal status between rural and urban. They identify themselves as rural-urban “in-betweeners”, build “in-between” informal settlements on the rural-urban periphery, and mobilize themselves to maintain and defend their in-between-ness as a permanent and positive identity.

I utilize mixed methods to analyze why this community of rural-to-urban migrants constructs an in-between identity and how they create, maintain and defend this identity. In previous work, I analyzed data from the Chinese Family Panel Survey regarding migrants’ attachment to place, community, and local government. In the present study, I focus on in-between identity formation processes, drawing on data from my extensive ethnographic observations, interviews, and focus groups with two in-betweeners’ communities in two Chinese cities from 2016 to 2018. In addition, I analyze content of community members’ emails, text messages and social media posts, to detail. This analysis reveals a nested set of logics that migrants express to construct and preserve their in-between identity. They explain it as a unique opportunity to resist being stereotypically labeled as “floating people” by the dominant culture, to seek autonomy from state discipline and to pursue both rural and urban welfare benefits provided by the state.

These findings enrich scholarship on migrants’ social movements, critical urban theory and methods of urban ethnography. First, they challenge long-standing presumptions in social movement research that rural-to-urban migrants, as a typical marginalized group, participate in collective movements primarily for material gain. Instead, I find that their mobilization originates in a search for a new identity and social position. Second, they challenge critical urbanists’ assertion about migrants’ general desire to move from a “liminal” status between rural and urban to a permanent urban status. Instead, I theorize this in-between identity as a folk deconstruction process in which migrants collectively and creatively deconstruct the presumption that they are in a temporary, undesirable status that compares poorly to being recognized and formalized as “urban”. By constructing and mobilizing around this in-between identity, migrants are able to respond to and resist the multifaceted repercussions produced during the urbanization process. Third, this study demonstrates another way in which urban ethnography is a promising methodology for investigating previously neglected dimensions of urbanization in people’s everyday life practices.

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Key Words: Aisan Urbanism, Urbanization, Rural-Urban Migrants, Collective Identity , Social Movements

EQUITABLE ACCESS TO SANITATION IN CITIES IN THE GLOBAL SOUTH

Abstract ID: 941

Individual Paper Submission

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The paper explores actionable approaches to fecal sludge management in cities in the global South. It describes the scale of deficiencies in fecal sludge management in cities in the global South, with a focus on the global picture, and then the paper provides a more detailed look at 15 cities in sub-Saharan Africa, Asia, and Latin America. It describes how global definitions and data gaps are misleading about the scale and scope of the urban sanitation crisis and the challenge of providing equitable access to fecal management services. The paper then analyzes the affordability of different fecal sludge management schemes from the household perspective. The paper focuses on two action areas to improve fecal sludge management services. The first is off-site sanitation solutions, including the provision, extension, and improvement of city-wide sewers, condominal sewers, and community-based decentralized sewage. The second focuses on on-site sanitation solutions, including private and communal septic tanks, container-based sewage, and pit latrines. The paper provides a technical description of each actionable area, risks, and responsibilities; enabling conditions, such as the availability of water, governance capacity, municipal finance; and examples of where different fecal sludge management schemes exist, successes, and challenges.

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Key Words: basic infrastructure and services, fecal sludge, inequality , access to public services, international development planning

URBAN PRACTICES, GRASSROOTS ORGANIZATIONS AND ACTIVE CITIZENSHIP UNDER A REPRESSIVE POLICE SYSTEM: THE CASE OF FAVELA DA ROCINHA IN RIO DE JANEIRO, BRAZIL

Abstract ID: 957

Individual Paper Submission

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This paper deals with recent collective and collaborative urban practices, especially those developed by grassroots organizations and how these practices contribute to enhance active citizenship in favelas of Rio de Janeiro, Brazil. The time framework encompasses the period from 2016 onwards, when two important public programs for favelas in Rio were concluded — the Program for the Acceleration for the Development - Urbanization of Precarious Settlements (PAC-UAP) and the Pacifying Police Units Program (UPP). PAC-UAP consisted mainly of slum upgrading projects, such as housing units, sports facilities, health and childcare units, mobility structures and basic infrastructure. Community participation

was part of the project through the Social PAC, which intended to involve population in the formulation, implementation, administration and evaluation phases of the proposals. The UPP and the PAC programs stimulated new urban dynamics in some favelas, such as new services and commercial ventures, upgrading of homes, expansion of informal real estate, new touristic, leisure and sport activities, which generate new jobs, income and new perspectives for dwellers. The upgrading schemes generated new expectations towards public safety, better infrastructure and quality of life demanding a more effective public response and encouraged new forms of participation. They also provoked an increase in real estate values and rents as well as gentrification. However, with the end of the mega-events and the recent economic and political crisis happening in Brazil since 2016, one observes an upsurge in violent conflicts, in police confrontation and in homicides.

Since then, the political context of Brazil and Rio de Janeiro changed drastically, and police actions and raids in favelas became increasingly repressive and violent, threatening the results of these programs. The new ultra-right wing state governor in power since January 2019 has given police a “license to kill.”

I am trying to investigate in this paper if the mandatory institutional participatory process of PAC-UAP contributed to strengthen community participation as well as actions of grassroots organizations and how these involvement are influencing new urban practices, participation and resistance within an increasingly militarization of favela space.

The case study focuses on the community of Rocinha, the largest slum in Brazil, with an estimated population of 100,000 inhabitants. This community received funds and works from the two programs mentioned above, has an impressive number of grassroots organizations, a history of community involvement, and has been the stage of many violent conflicts. The data for this research comes from information and statistics collected by the author’s research group about the grassroots organizations in Rocinha, and selected interviews with dwellers, community leaders and NGOs participants. The paper also presents data about violent conflicts, homicides due to police raids, shootings and gunfights, and tries to identify community manifestations and acts of resistance after the conflicts. My theoretical departure point is anchored on three basic concepts: the right to the city (Lefebvre, 1974), dialectical utopia (Harvey, 2012) and autonomy (Freire, 1996).

Preliminary results show that death due to police intervention in Rocinha has sharply increased since 2016, rising from 1 to 19 occurrences in 2018. Findings also show that despite the increasing repressive context and the militarization of the favela space, grassroots organizations and NGOs are very active in Rocinha and are finding new arenas of manifestation and action. Expression of insurgency and active citizenship manifests not only in cultural and artistic groups but also in identity centered ones (gender, race and ethnicity). It seems that the institutional participatory process of PAC-UAP did enhance community participation.

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Key Words: Participatory planning, Slum Upgrading , Empowerment, Grassroots organization

PREFABRICATING MARGINALITY: LONG-TERM SHELTER IMPACTS OF DISPLACEMENT IN POST-DISASTER MONTSERRAT

Abstract ID: 964

Individual Paper Submission

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This paper investigates the long-term shelter impacts of post-disaster displacement, particularly examining the factors that influence differences in housing satisfaction. Relatively little has been written on the displacement of sizable populations following natural disasters and their housing implications (Levine et al., 2007). For example, the Internal Displacement Monitoring Centre (2015: 17) states that, “Knowledge about the duration of displacement following disasters is ad hoc and unconsolidated, as is more detailed identification and analysis of cases of particular concern.” Recent reviews have also highlighted the relative lack of research on long-term housing recovery following disasters (Peacock et al., 2014). This paper seeks to address this gap in the literature. The paper focuses on Montserrat, a British Overseas Territory, located in the Leeward Islands of the Eastern Caribbean. Montserrat is a little researched setting, despite being a unique laboratory for the study of disaster-induced displacement and resettlement. The island’s unique context stems from the eruption, between 1995 and 2010, of the Soufrière Hills volcano. The eruption destroyed Montserrat’s capital, Plymouth, and permanently displaced at least two-thirds of the island’s population. The complete destruction of Plymouth makes Montserrat relatively unique, as only a small number of cities have not been rebuilt on site following disaster or war (Vale and Campanella, 2005).

The paper draws on detailed interviews with 89 randomly selected households, including displaced and non-displaced residents as well as different at-risk sub-groups, including poorer residents and recent migrants from elsewhere in the Caribbean. The interview data was analyzed using quantitative and qualitative methods. The results show a number of findings that can help inform future disaster planning efforts in Montserrat, as well as in other post-disaster contexts. Interviewees housed in the first generation of post-disaster houses - prefabricated units imported from Australia – reported the lowest housing satisfaction. Later housing interventions, focused on self-built homes, enabled through financing programs, were associated with higher levels of satisfaction. All residents housed in the first generation prefabricated homes were Montserratian citizens, while many who took advantage of later programs were not. In particular, it was the poorest Montserratians were most likely to reside in the early prefabricated homes and who now report the lowest housing satisfaction. These residents report lower satisfaction than more recent economic migrants to the island, a group also considered to be economically at-risk. The primary complaints with the first generation houses relate to their design and materials, which many argue are not appropriate for local conditions. In debates over which form of housing should be deployed for displacees, it was representatives of the United Kingdom (UK) who advocated most strongly for the adopted prefabricated design. The case shows how efforts to house displacees, led by UK officials, created the physical conditions that now leave many Montserratian residents with considerably lower housing satisfaction than others on the island, including both foreign retirees and poorer economic migrants. The case argues for both deep consideration of any housing designs that are deployed in post-

disaster contexts, with particular attention given to unique local needs and conditions, and for closer attention to the input and perspectives of local populations.

Citations

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Key Words: Disaster, Housing, Montserrat, Caribbean, Volcano

INDONESIA'S ENERGY TRANSITION AND ITS CONTRADICTIONS: EMERGING GEOGRAPHIES OF ENERGY AND FINANCE

Abstract ID: 972

Individual Paper Submission

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The term 'energy transition' is broadly defined as the "radical, systemic and managed change towards 'more sustainable' or 'more effective' patterns of provision and use of energy" (Rutherford and Coutard 2014, 1354). In recent years the study of energy transitions has witnessed a geographic turn (Bridge et al. 2013; Calvert 2016), shifting from a focus on technological innovations driving change in socio-technical systems (Geels 2004; Lawhon and Murphy 2012; Coenen and Truffer 2012) toward a conception of energy transition as a 'geographical process, involving the reconfiguration of current patterns and scales of economic and social activity (Bridge et al. 2013, 331).

This article examines the emerging geographies of energy generation and governance shaping Indonesia's solar energy sector, and their political ecological implications for the country's renewable energy transition. Drawing on policy analysis, attendance at renewable energy finance conferences, and expert interviews, I argue that the recent shift toward a more market-based renewable energy policy framework, while successful in attracting foreign investment, has resulted in a series of contradictory outcomes for Indonesia's energy transition. Efforts to reconcile demands of profit-driven investors and developers with the needs of the approximately 25 million Indonesians who currently lack access to electricity has resulted in a geography of renewable energy generation characterized by large-scale centralized generation facilities, the capital and land requirements of which severely constrain opportunities for local ownership and control over the energy system. The result – a major contradiction when viewed through the lens of Indonesia's energy transition development objectives – is not only a flow of economic benefits out of the country and limited improvement in energy access for much of the country, but a missed opportunity in terms of addressing the inequities that have long characterized the political-economic geography of the Indonesian energy system.

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Key Words: Energy transition, renewable energy, climate change, development, Global South

A CENTURY OF EMINENT DOMAIN IN MEXICO (1917-2017): EVOLUTION AND TENDENCIES BEFORE AND AFTER THE DEMOCRATIC TRANSITION

Abstract ID: 988

Individual Paper Submission

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Objectives

The general objective of this presentation is to explore the evolution and tendencies of the application of eminent domain as a tool to frame the processes and practice of land use planning in Mexico. The specific objectives are to explore how the concept of eminent domain has evolved in the practice in regards to issues of takings, defining the public interest, compensation clause and parameters, power distribution and authority, the role of the judiciary, and controversies around the exercise of eminent domain.

Background

Mexico underwent a revolution at the turn of the XX Century; the Mexican Revolution officially started in 1910 with the Plan de San Luis that called for the resignation of then-president Porfirio Diaz and the call for a democratic government. From 1910 until 1921 revolutionary factions fought for control until the consolidation of one strong party system through the Institutionalized Revolution Party or PRI. In the midst of this, in 1917 the revolutionary factions agreed to and enacted the Mexican Constitutions that is still the law of the land in Mexico. There are two key constitutional Articles that are relevant to land use planning: 1) Article 27 which sets the general parameters in regards to eminent domain law and takings, and 2) Article 115 that offers the main framework in regards to power distribution and planning authority. Mexico, since the 1980s has undergone a democratic transition when the strong one-party system started to crumble. In 1982, opposition parties won the majority in Congress, and in 2000 the PRI lost the executive branch to the National Action Party (PAN) and Mexico join the club of democratic nations.

Question and hypothesis

The main question is: What are the main changes that the democratic transition in Mexico has brought to the processes and practice in land use planning in Mexico? The main hypothesis is that democracy and the existence of a check and balance system has enhanced the role of the judiciary in administering property rights and, therefore, planning processes and practice have become more complex and face more challenges. Thus, planning is more contentious and plans are more difficult to implement. The paper will focus on testing the idea that the land use law and practice have moved from a conventional physical taking into the more controversial and more uncertain area of regulatory taking claims.

Methodology

The paper will employ a content analysis methodology supported by the use of the Atlas.ti software. Data about eminent domain will be analyzed from different official sources that published court decisions from the federal level (Supreme Court) to the state-level decisions by the legislative and courts. In addition, iconic cases will be followed in different official and non-official sources such as the news media.

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Key Words: Mexico, Eminent Domain , Takings, Planning Law, Regulatory Takings

TOWARDS CULTURE-BASED SUSTAINABLE DEVELOPMENT: THE CASE OF MOROCCO'S NEW TOWNS

Abstract ID: 1004

Individual Paper Submission

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Recent trends have shown that Morocco's future will be urban. By 2050, it is estimated that 73.6% of Morocco's population will live in urban areas, exceeding the global urbanization rate of 68% (High Planning Commission, 2015; United Nations, 2018). Increasing urbanization has put pressure on the country's overcrowded cities. In 2004, the Moroccan government responded to the pressure growing populations placed on major cities with the initiation of the New Towns Program. Created by royal decree, the program proposed fifteen new urban centers to be established in satellite areas near major cities, to curb urban sprawl and provide affordable housing to middle and lower income families.

Tamesna and Tamansourt are two of the planned fifteen new towns that have been constructed to date. Land for the new towns was selected in an opportunistic manner. Former land owners or informal occupiers of the land were compensated either monetarily, with serviced auto-construction plots or with subsidized apartments. After “freeing” the land from its former users, planners and architects were free to subdivide and design the new towns from scratch, without taking into account the pre-existing communities and physical features of the land (ie. farms, trees and wells). Both towns were designed using modern urbanization and tabula rasa urbanism strategies, also known as “blank-slate development”. Pre-existing neighborhoods, their way of life and former practices were not considered in the planning process. Rather than embracing culture and capitalizing on social and cultural practices the newly built towns have proven to understand the region from a more abstract perspective, leaving aside the particular physical realities and the mechanisms through which traditional Moroccan cities were produced.

This paper seeks to understand the socio-cultural effects of tabula rasa urbanism on the Moroccan culture through the lens of contemporary new town dwellers. Over a period of 6 months (3 months in each new town) we gathered ethnographic and qualitative data from participant observations, semi-structured interviews and immersion in the everyday life of a new town dweller.

We found that socio-cultural practices have been altered as a result of the planning process of the new towns. Sprawling neighborhoods, lack of amenities, and other factors negatively impact and isolate the towns’ most vulnerable populations. Based on our empirical evidence in new towns Tamesna and Tamansourt, we question the planning strategies undertaken in the New Town Program and we suggest that in planning for sustainable new urban developments, more attention needs to be paid to socio-cultural practices and everyday life.

Our work seeks to join global efforts that encourage culture-based solutions to urban problems in order to ensure sustainable development. In 2015, the United Nations’ 2030 Agenda for Sustainable Development Goals (SDG) called for making “cities and human settlements inclusive, safe, resilient and sustainable” (United Nations, 2015). We are almost 10 years away from the SDG goals and there is so much that can be done in new urban areas that can contribute to achieving the global sustainable development goals. Recognizing that development and progress can be linked to locally and culturally-driven initiatives, this paper highlights the role commoners and pre-existing communities in the development of Morocco’s new towns today. We recommend a strategy of co-production whereby planners and pre-existing communities work together to ensure future new towns become safe, inclusive, resilient and sustainable cities (Koster & Nuijten, 2016).

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Key Words: new towns, socio-cultural practices, sustainable development, socio-spatial inequality

MANUFACTURED URBANITY: EXAMINING THE GLOBAL SOUTH AND THE ONGOING EXPERIMENTS OF NEO-LIBERAL URBANISM. CASE – GURGAON, INDIA.

Abstract ID: 1009

Individual Paper Submission

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Gurgaon, 'The Millennium City' in India is a very fascinating exhibition of neoliberal ideology at play, especially due to its divorce from the promise of the postcolonial search for Indian-ness (post 1947) and the massive surge in 'West Inspired' urban development experienced by the country, post economic liberalization (1991) (Kalyan, 2011). He further suggests that this city is a case of fragmentation today that has resulted due to its ideals of finance, design, and identity. The author has explained Gurgaon earlier through research as a demonstration of a privately 'manufactured urbanity', one that is empirically computed (through the knowledge of market driven data) to achieve economic performance primarily rather than an urbanity that is visualized or composed as the 'Urban Ideals' of our memories. According to him, the present topography of Gurgaon demands to be described through 'Altitudes of capital'. 'Peaks and Troughs', 'Ridges and Valleys', are no longer the physical changes in terrain, but rather represents an emergent built topographic condition marked by market and money potentials, indicating factors such as income and expenditures (Banerjea, 2019).

Gurgaon is inextricably connected with the world economic order, with all its sectors (from finance institutions to global labour migration) affected by forces that are increasingly multi-national in scale. The author has argued in the past that The 'Gurgaon' of today, has surpassed the fundamental sociological manifesto presented by John Friedmann in his 'World City Hypothesis' of 1986. Through a methodological process, Banerjea has introduced a new set of hypothesis earlier, for extending research possibilities pertaining to the architecture and urbanism of 'World Cities' like Gurgaon, belonging to the Global South.

1. Southern 'World Cities' attempt to ensure efficiency on the pretext of experience.
2. Southern 'World Cities' exhibit a high degree of impermanence, due to constant urban experimentation of the inter-relationships between life forms and the built environment.
3. Southern 'World Cities' carefully foster seclusion and exclusion as processes to eradicate social contestation and resistance.
4. In case of the 'World Cities' of the South, the most developed zones (residential, commercial, and institutional) are the primary social voids of the city, promoting a ruptured urban condition.
5. Southern 'World Cities' promote shopping as the last remaining form of public engagement with the city and urban space. All possible public imagination for urban intervention leads to some form of commodification, often even of public space.

The City is and will be subjected to a constancy of impermanence, primarily because of its impatience for proliferation of wealth. One can even try to understand such contemporary cities as the sites of serial policy failure as well as resistance to neoliberal programs of urban restructuring (Peck, Theodore and Brenner, 2009). They further explain how neoliberal ideology and its experiments, rests on the belief that open, competitive and unregulated markets, liberated from state interference and the actions of social collectivities, represent the optimal mechanism for socioeconomic development. But in the case of Gurgaon, often the state has sponsored such conditions, through the delivered master plans that has primarily benefited the elites and various multi-national agencies, to operate in the city. This research, through a detailed analysis of the five master plans of Gurgaon, from 1977 to 2031, would attempt to understand the developmental mechanisms adopted by the city state, which has resulted into social seclusion and promotion of a fragmented urbanity (Hypothesis 3 & 4, Banerjea, 2019). The research

would draw frameworks for discussing 'social distancing', through established global urban theories and local responses to global pressures.

This discourse would expose urban researchers to the concept of 'Manufacturing an Urbanity', empirically, through multi-layered processes governed by neoliberal ideology and its institutionalization.

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Key Words: Manufactured Urbanity, Globalization, Social Contestation, Neoliberal Urbanism, Urban Mutation

“WHAT’S IN A WATER BILL? PAYMENT AND NONPAYMENT FOR WATER AND SERVICE IN AMRAVATI, MAHARASHTRA”

Abstract ID: 1071

Individual Paper Submission

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Intermittent water supply (IWS) is a service mode where water is available from taps, and is pressurized in all pipes in the network, for less than 24 hours per day. Continuous Water Supply (CWS), where water is continuously pressurized and available at all times, is considered to be the ideal operating mode for a piped water service and is indeed the norm in most urban areas of high- and middle-income countries. However, IWS remains common in many low-income countries. It is the dominant mode of supply in India, affecting at least 300 million people (almost all urban residents with access to piped water), and at least an additional 300 million throughout the rest of world.¹

24x7” water supply or CWS is an aspiration for many urban water utilities, and is often seen as an a priori goal. In India in particular, which may represent a majority of the global population with piped connections to IWS,¹ and where no urban area provides water on a continuous basis, “24x7” has become a policy priority. This priority is embodied in the adoption of “Service Level Benchmarks” for water supply including CWS as a goal, and the allocation of central and state government transfers for this purpose.²

Policy documents suggest that an important motivation of moving towards 24x7 projects in India is the assumption that improvements in service levels can improve customers willingness to pay.³ This is in line with literature on utility nonpayment which suggests that people in low-income countries may tend to not pay for water bills due not only to financial stress, but also as a mode of protest against unacceptable service quality.^{4,5}

This paper tests that assumption by building a typology of payment and nonpayment patterns using household-level water meter and billing data in Amravati, a city of 700,000 people in India that converted ¼ of its population from IWS to CWS in 2009-2013. Cluster analysis of bill payment time series revealed four general patterns of non-payment: (1) customers who almost never pay for water, building large arrears which are occasionally paid off (2) customers who almost always pay for water (3) customers who cease paying for water after their meter does not provide volumetric readings (4) customers who pay off their water bills intermittently after 3-4 billing cycles. Descriptive correlational analysis indicates that lower-income households were more likely to miss water payments, and that households that eventually received CWS were more likely to pay for water beforehand. This indicates that whatever technical criteria were used to target the CWS areas were correlated with existing bill payment rates. Controlling for socioeconomic status, meters being non-readable is the single largest predictor of bill nonpayment for customers with individual connections, including with CWS. In Amravati, when a meter is unreadable, the utility bills customers for an amount equivalent to roughly twice the average consumption level in the city. There was little evidence for customers who previously were not paying for water beginning to pay after being converted from IWS to CWS.

These patterns suggest the importance of the perception of the legitimacy of water charges and reciprocity in customer-utility relationships as an important factor in water bill payment over and above affordability or service quality. That is, many may be willing to pay what they feel is owed, but refuse to pay bills estimated by illegitimate means if meter readings have been established as the legitimate determinant of bills. This suggests that generating trust in customer-utility relationships may require significant investment in addition to technical improvements in service quality if utilities wish to improve bill collection as a revenue source.

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Key Words: water supply, water bills, nonpayment

YOUNG, INFORMAL, AND SUSTAINABLE. YOUNG LAND INFORMAL OCCUPATIONS AND THE RIGHT TO THE CITY IN SÃO PAULO, BRAZIL

Abstract ID: 1087

Individual Paper Submission

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International development planning scholarship has only recently started analyzing the temporality of informal settlements. Most research on slums and informal urbanization focuses on how to improve infrastructure and living conditions either via slum upgrading or via redevelopment and resettlement in public housing (Pimentel Walker 2016). This type of solution assumes a consolidated informal settlement. Others have aimed to prevent the formation of precarious slums by making sites and services schemes available (Owens, Gulyani and Rizvi, 2018). Slums have a life-cycle, they emerge, consolidate, and age. Issues of decaying upgraded infrastructure, for instance, will start to become a problem. This research investigates the birth of favelas and ask: What would happen if the provision of support were to take place in early stages of consolidation? In this paper, we explore sustainable strategies for young informal settlements, especially those that are five years or younger.

Young land occupations are a main driver of peri-urban growth through the consolidation of informal housing in areas of environmental protection. In their early years, slums are subjected to legal challenges that evoke the narrative of environmental degradation and unsustainable practices to force eviction or deny urban services. By the time that municipalities assess that it is legally sound to upgrade them, it is often too late to guide their settlement patterns towards healthy and ecologically sensitive development (Pimentel Walker and Arquero de Alarcón, 2018). However, there is an opportunity within young communities to be proactive in their methods of land occupation towards greater sustainability. The early years of these occupations are particularly critical in initiating sustainable strategies of occupation to minimize deforestation and environmental pollution, while seeding necessary socio-spatial infrastructures and providing healthy shelter for residents. It is precisely in these early, most vulnerable years that these occupations may capitalize on their connections with other occupations to implement innovative, environmentally-driven tactics that are not available through municipal support. It is this way that, in the path to obtain tenure security, residents may become publicly recognized protagonists in creating better futures for themselves.

This investigation employs mix methods of data collection and analysis and an action-research methodological approach (Thiollent and Colette, 2017), in which the researcher participates directly in an action along with other members of a particular collective, in this case the informal dwellers. Our partners suffer the consequences of tenure insecurity; thus, capacity building and strengthening the strategies of resistance is a key research objective. In this project, the co-production of knowledge unfolds via field work and three community workshops on technical, legal, environmental and sociological areas. The workshops gather oral histories narrating personal and community strategies of occupation, a community timeline with networking strategies to build knowledge on legal instruments and environmentally sustainable land occupation practices promoting public health. With these, the project gives visibility to the growing phenomenon of peripheral young land occupations while devising mechanisms to build internal capacity in the formative years for the land occupations.

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Key Words: Young Land Informal Occupations, informal settlements, sustainable strategies, slums life-cycle

THE LEGAL GEOGRAPHIES OF INFORMAL PERIPHERAL URBANIZATION IN SÃO PAULO, BRAZIL.

Abstract ID: 1092

Individual Paper Submission

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What does the spatial distribution of court cases adjudicating land-use conflicts between the constitutional rights to housing and a healthy environment tell us about informal urbanization? This article examines the spatial dimensions of court cases from São Paulo's Court of Appeal (Tribunal de Justiça) between 2013 and 2016 for disputes involving informal settlements located in areas of environmental protection. The research investigates how the law, especially conflicts between the right to housing and the right to environmental protection become inscribed in the city, not only through the spatial dimension of court cases, but also through municipal planning and urban policy making.

This study employs qualitative and quantitative methods of data collection and analysis (e.g. Bernard, 2011). We identified 36 lawsuits, which left the district courts through appeals, and analyzed the common types of lawsuits, the environmental violations, the access to justice indicators, and the predominant legal parts. The fieldwork component of the investigation includes visits to four favelas, which represent the diversity of legal disputes, litigants, and environmental damage in the study. Methods also include an analysis of the legal framework regulating urban environmental protection and access to adequate housing, in-depth interviews with key informants, who are protagonists in mediating housing and environmental conflicts; and, the development of a mapping tool to spatialize the investigation.

The cartographic analysis of the spatial distribution of the 36 court cases rendered 25 in the periphery vis-à-vis 11 in centrally located areas. The fact that 69 percent of the court cases are located in the periphery, reflects the latest pattern of urban growth in many cities of the Global South, such as São Paulo and Mexico City, where population increases in the periphery are higher than in the city center, and informal land occupations of green and rural areas are one of the key drivers in the production of urban land (Aguilar 2008; Caldeira 2017; Maricato 2017; Torres and Oliveira 2007). Despite the higher number of claims requesting informal settlement removal (78 percent), in only 19 percent of the cases so far, informal dwellers have been removed.

After an in-depth analysis of the 36 cases, we selected a subset of 4 to conduct additional fieldwork and interrogate the socio-spatial characteristics of the informal settlements targeted in the legal cases: Vila Nova Galvão, Piscinão São Matheus, Favela Ponta da Praia, and Favela Cocaia I and Favela da Toca. The

selection criteria included legal and spatial variables. The four cases represent the most common litigants, including Public Prosecutors, the Municipality, Landowners and Public Defenders as plaintiffs and the Municipality and the Informal dwellers as defendants. We also considered the Jurisdictions within the São Paulo Court of Appeals (Public and Private Law Chambers and the Environmental Law Chamber). Finally, the four cases illustrate the two most common types of legal actions (Public Civil Action and Repossession Suits).

By spatializing these court cases and analyzing them against surrounding urban development patterns as well as recent and existing zoning and land-use laws, we can better assess and discern the aspects of urban governance, which prevent conflict anticipation and resolution.

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Key Words: Peripheral urbanization, The Judiciary, Informal settlements, Environmental protection, Municipal governments

METHODOLOGY TO DEVELOP URBAN SUSTAINABILITY INDICES FOR DISTRESSED PLACES

Abstract ID: 1099

Individual Paper Submission

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In response to emerging challenges and threats in urban agglomerations, contemporary cities have been developing indices to gauge the sustainability of urban policies. However, urban sustainability indices are only seen as a goal for developed areas (Huang, Wu, and Yan 2015), yet many distressed places also seek measures and policies for pursuing urban sustainability. Our research bridges this gap and focuses on creating and developing new indices for distressed places to measure urban sustainability from a holistic perspective. (Hák et al. 2018) call for “immediate concerted action” to develop a set of sustainability indicators and implement them systematically and extensively. Yet, this study argues that existing sustainability indices such as Ecological Footprint, Green City Index, City Development Index, Human Development Index, and Sustainable Society Index are compromised in distressed places.

To address sustainability indices for distressed places, we investigate two fundamental research questions. First, what is the definition of a distressed place? According to the preliminary literature review, there is no profound definition for distressed cities and communities. We use three themes as criteria to quantify

and state a definition of distressed places. These themes are 1) Climate and Environmental Stress; 2) Geopolitical Stress, and 3) Socio-economic Stress. Second, what methodology should be followed to design a framework of urban sustainability indicators for a system under stress? The proposed methodology consists of multi-criteria and integrated approach that combined multiple methodologies.

To begin with, the study will adopt the Bellagio STAMP “Sustainability Assessment and Measurement Principles” to foster the sustainability objectives for distressed places, adopt a holistic perspective, incorporate sustainability in the assessment process, and support decisions (Waas et al. 2014). Then, Driving force–Pressure–State–Impact–Response indicator framework, which is considered the most widely adopted framework, will be employed to provide a holistic socio-economic and environmental analysis (Yigitcanlar, Dur, and Dizdaroglu 2015). Lastly, the proposed framework to be constructed will have a SMART characteristic – each indicator to be used should have Specific, Measurable, Achievable, Relevant, and Time-related characteristics (Shen et al. 2011).

In order to investigate the validity of the proposed methodology, the study selects the City of Duhok in the Kurdistan region of northern Iraq to implement this methodology to develop an urban sustainability index. The Kurdistan Region of northern Iraq is concerned about sustainability but lacks the measures to guide such policies. One of its main cities, Duhok, offers an example of the use of sustainability Indices in a distressed region. Duhok is primarily a Kurdish city of over 400,000 people, and in some ways shows its resilience to past challenges, yet it faces political, economic, and environmental threats to its growth and quality of life. It offers an example of the use of urban sustainability indicators in an emerging region that experiences urban stress.

Two urban sustainability patterns for the city have been identified after finishing preliminary data analysis from 1990 – 2010. Negative urban sustainability progress during the first decade in the 1990s was the first pattern. Second, there was steady progress toward urban sustainability post-2003. Policies proposed to improve potential urban sustainability include 1) increasing levels of community civic engagement; 2) balancing migration policy with ecological capacity, and 3) adopting green design implementation.

Developing a methodology to create urban sustainability indices in distressed places enriches the body of sustainability research. The proposed methodology attempts to overcome some of the challenges of developing indices and provide a holistic overview of how stressed communities seek sustainable urban policies.

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Key Words: Distressed places and cities, Measuring urban sustainability, Sustainability Indicators , Sustainability Indices

SOCIAL NETWORKS AND ITS IMPACT ON SERVICE DELIVERY IN CITIES- A MULTIVARIATE REGRESSION ANALYSIS OF URBAN HOUSEHOLDS IN INDIA

Abstract ID: 1120

Individual Paper Submission

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In many cities the state struggles to provide adequate housing and basic services. In such cases, the urban poor resort to informal tactics such as squatting or extralegally acquiring services to obtain necessary resources. Some examples of these tactics are- casual work opportunities, under the table payments, building homes on unowned land, getting piped water, phone lines or electricity through informal channels, spreading merchandise out in the urban sidewalks, and increased activity with municipal bureaucracies and neighborhood organizations (Anjaria JS.2016). These tactics are action-oriented, they are overwhelmingly quiet since the claims are made largely individually rather than by united groups. They help the urban poor remain in the city, indirectly challenging the propertied and powerful (Bayat 2004). This paper examines the implications of these tactics in the context of urban planning.

Drawing from a nationally representative urban sample of approximately 20,000 households in India, I show how these tactics by the urban poor are made possible through vast, intricate social networks. The survey covers 971 urban neighborhoods across India gathering information on infrastructure in cities among other issues (India Human Development Survey-II). Using a multivariate regression and structural equation model, I compare the factors that impact access to basic services between slum and non-slum households. I find that having more network ties in the community leads to a significant increase in access to basic services for slum households. Further, slum neighborhoods leverage their organized networks significantly more than their unorganized networks. Organized networks like membership and affiliation with non-profits, alliances, political parties, self-help groups and unions have a much larger effect on access to basic services than unorganized networks like acquaintance with the local politician. Membership to a political party has the most significant impact on access to basic services in these communities.

Understanding the role of these informal networked tactics helps conceptualize informality as a planning modality (A. Roy 71.2). Through these networked tactics, the urban poor transform the place they inhabit. They build not only parallel infrastructures, but also set up entire communities. Hence, this work places informal tactics centrally in analyzing planning practices. More specifically, it helps understand planning challenges and opportunities in spaces where there are multiple claims to the use of resources like housing and allied services. Critical planning theories like participatory and embedded planning suggest the need to reinvent master planning and promote citizen participation as a key component in planning contentious spaces in cities (Holston, J. 2009). Thus, analysis of social network activity and informal tactics can further the understanding of citizen participation in the field of participatory planning. Finally, this work also motivates the study of planning through a social justice framework, especially the right to the city, where such tactics could be seen as an expression of these rights (Scott 1990).

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Key Words: Informality, Social networks, Urban infrastructure, Global South, Participatory planning

A PRESCRIPTIVE MODEL OF GROWTH OF NON-PLANNED URBAN FORM: REVEALING THE INFORMAL DEVELOPMENT STAGES (IDS) THRU THE USE OF RETROACTIVE MAPPING OF INFORMAL SETTLEMENTS.

Abstract ID: 1121

Individual Paper Submission

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A staple theme in the literature on urban informality is the territories’ constant state of construction. Western biased planning has overlooked the study of informal settlements as a unique urban form. This research presents “slums” as a particular urban form beyond the discussion of “lacking formality,” specifically, arguing that informal settlements’ whose most noticeable feature is its constant state of physical change in the midst of urban growth, specifically the increase in the amount of physical infrastructure and people.

Traditionally, mapping informal settlements have presented challenges for planning and policy implementation because most sites in the world lack consistent plotting of these areas. However, an emerging body of literature on mapping focuses on informal settlements unique patterns to identify and map such areas. From this research, new algorithms emerge as ways to describe such forms. While many advances have been made in defining the mathematical rules that comprise such an elusive urban form, little has been theorized on what being able to describe these places means in the context of planning and urban policy. Furthermore, what such change over the lifespan of the settlement means for theorizing and defining informal settlements. This research focuses on building on conventional and emerging ideas about the everchanging nature of informal settlements by asking: What are the implications for planning and urban policy that emerge from a reflection upon urban form growth and evolution as the defining features of informal settlements?

To answer such a question, this research builds on historical and new literature on the self-building nature of informal settlements and on empirical evidence of the mapping of ten informal settlements from their early stages to the present in Latin America. For the empirical aspect of the research, we use a mixed method approach called retroactive mapping. Since informal areas are not historically mapped, no evidence exists that can describe informal settlements piecemeal evolution. A retroactive mapping is a tool to assess such processes by going back in time to re-map the process of evolution of informal

settlements. This mapping mixes quantitative data such as historical imagery in the form of aerial images, current vector maps, and census information (which allows measurement of the evolution of places over time and direct measurements of urban features such as density, population changes, and open space) with, qualitative data in the form of semi-structured interviews with community members who experienced the evolution of these settlements from their initial moments to the present. The most important feature of the retroactive mappings is that, from these mappings, we can acquire data to understand the rates of change of such places and infer common patterns.

This research finds that the physical form of these informal settlements' changes following successive urban patterns in prescriptive ways. Those patterns of development present informality, as a rational and predictive urban model, one that can be described and forecasted in which the variable of time-space plays a fundamental role in explaining the apparent randomness of the development process of informal settlements. Such prescriptive moments in time I call Informal Development Stages (IDS). The successive stages of informal settlements are Foundation, Infill, and Consolidation. A crucial finding is that the stages prove that the physical features identified in the phases of informal development are consistent with what the theory presented. These stages mark settlements evolution in both physical terms and in its communities social organizations. This process of evidence forming theory presents informal settlements as predictable and reframes current homogeneous planning practices towards these places. Furthermore, this work offers new future scenarios for planning interventions and policy.

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Key Words: Informal Settlements, planning theory, urban growth, mapping, International Development

HOUSING AND HISTORIC PRESERVATION: LATIN AMERICAN CITIES IN COMPARATIVE PERSPECTIVE

Abstract ID: 1143

Individual Paper Submission

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In Latin America, the practice of historic preservation is at a crossroads. Over the last three decades, cities throughout the region have invested in the restoration of historic buildings and streetscapes in central-city neighborhoods. While these efforts have helped preserve important cultural assets and sustain service-based economic development, many of these neighborhoods persistently experience population decline and vacancy, leading to a decrease in the quality of the built environment. Sprawling, low-density growth patterns in the region's cities, coupled with reduced state and municipal capacity to invest in integrated urban development, make this decline in habitability all the more alarming.

In this context, this paper asks: can the planned preservation of historic districts accommodate housing, and specifically social housing—affordable for low and very-low income households?

Research on this question reveals that the relationship between housing and historic preservation has rarely taken center stage in the literature, not just in Latin America, but in the United States as well. Notable exceptions include a special 1998 issue of *Housing Policy Debate*, and its centerpiece article “The Contributions of Historic Preservation to Housing and Economic Development,” by Listokin, Listokin, and Lahr (1998), in which the authors address a common accusation against preservation—that it restricts development and thus limits potential supply for housing—and point to flexible regulatory incentives that can mitigate potentially negative consequences. In 2003, D. Rykpema’s article, “Historic preservation and affordable housing: the missed connection” pointed to the location advantages of historic areas and the tremendous opportunity for increased supply that could be achieved through the adaptive reuse of otherwise vacant historic buildings. In the Latin American context, a 2001 flagship publication by FLACSO, *Centros Históricos de América Latina y el Caribe*, addresses the question of housing as emblematic of a more abstract category, the ‘social’, which, as many of the volume’s essays suggest, was ignored during the early decades of professional preservation practice (1950s-1970s).

In both the United States and throughout Latin America, more recent sources still bundle housing as part of larger economic and community development issues; gentrification and displacement have, in particular, come to the fore as potentially negative (and still debated) byproducts of otherwise successful preservation initiatives. Yet, scant few ideas have been presented for how to increase the supply of affordable housing through preservation.

In light of this gap, this paper serves as a kind of comparative and narrative literature review. That is, it first offers a brief history of preservation practice throughout the Americas, a task that is necessary to understand the context in, and background against which, questions of housing policy have interacted with historic preservation. Second, with this narrative history in place, the paper then discusses how preservation practice has typically conceptualized and actually dealt with housing topics, referring and analyzing emblematic experiences from Latin American cities. Overall, this paper serves as a foundation on which to develop a set of policy prescriptions for how and why to deliver affordable housing through preservation programs in the 21st century Latin American city.

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Key Words: affordable housing, historic preservation, Latin America, economic development, community development

FEASIBILITY STUDY ON RENEWABLE ENERGY PLANT PLANNING ALONG HIGHWAY RIGHT OF WAY IN CHINA

Abstract ID: 1183

Individual Paper Submission

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Due to the “green vs. green” conflict (Salter T, 2010; Outka U, 2011) brought about by the expansion of renewable energy land, many countries and regions have begun to pay attention to the use of marginal land, especially highway right of way to develop renewable energy to alleviate the contradiction between land supply and demand.(D R Carder, 2003; Carson Poe and Gina Filosa, 2012; Yuhwa Lee, 2016)

The current cities development background in China is ideal for projects that develop renewable energy along highways. The sustainable development of cities in China faces serious problems, such as energy demand growth (Chien-Chiang Lee, 2010), the contradiction between land supply and demand, and the deterioration of the ecological environment. The high energy consumption of the transportation system, large-scale land occupation, and high pollution are particularly prominent. Transportation land has not been fully developed and utilized for a long time, and there are serious wastes and idle phenomena. The traditional way of thinking in transportation planning limits the emergence of innovative methods to solve traffic problems to a certain extent.

Therefore, the transformation of innovative planning for energy and land use in transportation systems has become necessary.

This paper explores the feasibility of renewable energy production along highway right of way, proposes to make full use of this kind of marginal land to develop renewable energy planning strategies, and alleviate the problems faced by the current urban and transportation systems in China. This research focus on feasibility for policy, energy potential, economy, social development in China by analyzing relevant theories and practices and the construction of renewable energy planning strategies along the highway right of way.

We found that legal and policy constraints are major issues facing the development of relevant research and practice in China. Although there are no relevant legal provisions in China directly supporting the development of relevant research and practice, there are policy orientations and backgrounds suitable for its development in both renewable energy and land intensive use. In terms of production of renewable energy along highways, this research use GIS, PV syst and other software to quantitatively simulate the renewable energy potential in Chinese highway right of way. The results show there are a large amount of transportation marginal land are available in China, and there is considerable potential for renewable energy generation on these lands. And we continue to analyze the potential economic, social and environmental advantages that the project may bring.

Finally, the research proposes the strategy of renewable energy planning for transportation marginal land along highway. From the aspects of planning principles, planning objectives and characteristics, planning technical process, development management and potential influencing factors, the main mission in the planning process is to establish a planning system suitable for China. Combined with the planning and practical experience of the United States, it compared the similarities and differences between China in terms of laws and regulations, planning position, and summarized its important enlightenment to China.

The research summarizes the international advanced research theories and practical experience, quantitatively analyze the renewable energy potential along highway in China, and proposed the planning strategies to promote future transportation and renewable energy planning, to provide constructive and innovative recommendations, to accelerate the sustainable development of cities in energy, land, economy and society.

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Key Words: renewable energy planning, highway right of way, feasibility study, potential analysis

THE “CHRISTIANITY” OF INTERNATIONAL DEVELOPMENT? RETHINKING RELIGION, SECULARIZATION, AND THE DEVELOPMENT ENTERPRISE

Abstract ID: 1196

Individual Paper Submission

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In July 2018, Mark Green, the Administrator of the U.S. Agency for International Development (USAID), took the podium at the Ministerial to Advance Religious Freedom to ensure the Agency’s “firm and continued” commitment to promoting religious freedom internationally through development initiatives. To some critics (mostly secular humanists), such engagements represent a marked aberration from the secular (in the sense of a religious nature of the development enterprise. To the ministerial audience (mostly conservative evangelicals), however, the initiative heralded an old mission of delivering the “good news” to the world—or as Green framed it in a secular language, of promoting “the quintessential American value” and its “greatest gifts to human civilization:” the freedom of worship. This issue gives rise to two lines of inquiry pertinent to development debates, namely what does it mean for a development agency to promote religious freedom globally? And which kinds of religion are assumed as worthy of protection and promotion and as conducive, and in some cases even necessary, for developmental practice?

The argument of this paper is twofold. I first argue against the conventional view that international development is devoid of religion simply because it has been established as separate from, even as opposed to, theology. In fact, the idea and practices of international development have historically relied on a particular understanding of religion (that is, “secular religion”) that has a specific Christian (or more accurately, Protestant) genealogy. More specifically, I show how the two secularized concepts of conversion(to modernity) and redemption(as a state project) have been at the core of development enterprise from the outset. Second, the paper examines the United States’ engagement in international development since the late nineteenth century to specifically demonstrate how three forms of exceptionalism (namely, American exceptionalism, Third World exceptionalism, and Christian exceptionalism) have come together to form a somehow forgotten genealogy of the development field. The analysis shows that, in fact, the USAID’s recent policy-focus on promoting religious freedom

globally is not an aberration from an areligious nature and history of the field—as some critics argue. Rather, it is a continuation of a larger state project (or aspiration) of redeeming the world through conversion to modernity, a project that began with the Philippines War and evolved through the post-WWII rhetoric of human rights and anti-communism to the present post-9/11 era of the push for secularization in the Middle East.

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Key Words: International development, Religion, Secularization, Redemption, Conversion

PUBLIC TRUST, PUBLIC PARTICIPATION, AND INFORMAL COMMUNITIES

Abstract ID: 1212

Individual Paper Submission

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This paper addresses the important topic of public trust, specifically among informal communities in the city of Patna, India. Due to the lack of formal planning, Patna has recently been labeled as the dirtiest state capital in the nation, while residing in one of the country's most corrupt states. The increasing perception of corruption is particularly problematic as government distrust negatively impacts the ability of the government to implement policies and initiatives. Moreover, such distrust can lead to feelings of alienation and withdrawal from political processes (Diamond, 2007), thus, effectively reducing public participation.

Public trust is said to be an indicator of the quality of governance. Therefore, it is essential to identify the determinants of public trust in attempts to highlight where governments lose the confidence of their constituents. Several issues like corruption, slum eviction, harassment and less than adequate public services over the years have led to a decrease in public trust among slum communities. Declining trust across this sub-sect of the population is particularly problematic in terms of addressing the sanitation issues plaguing the city.

Evaluating public trust of government institutions, Jamil, Askvik, Dhakal, and Tawfique (2015) found that trustworthiness of civil servants was the most ubiquitous prerequisite towards attaining citizen trust. In a similar study, Houston, Aitalieva, Morelock, and Shults (2016) concluded that the perception of civil servants is significantly influential, as these are the government representatives most accessible to citizens. Moreover, Sun and Wang (2012) found that active communication and transparency positively influenced public trust. Diamond (2007) further found that when citizens feel the government is too distant from their access and is not engaging with or meeting their concerns public trust is hindered.

Thus, to identify the determinants of public trust among slum dwellers in Patna, this study relies on demographic and perception data from a 2016-2017 household survey of 15 slums across the city. This study utilizes a spatial logistic regression analysis to identify the determinants of public trust among slum dwellers. Additionally, the identification of the determinants of public trust is further supplemented and given context through focus group discussions conducted for each of the 15 slums. Several of the findings are in line with that found in prior literature.

Perceptions of the quality of governance were found to be significant and highly influential through the proxy variable of perception of elected representatives. Similarly, the proxy variable for the provision of basic services, the perception of local development bodies, was also found to be significant. This was also the case for the perception of police and administrators, which acted as a proxy for interactions with civil servants. However, in regards to demographic identity variables, the findings deviated from that revealed in prior literature. There was no significance related to gender, caste or religious affiliation. This is most likely due to the generalized marginality experienced by slum dwellers as a whole, which can suppress the influence of demographic identity variables.

This research has significant planning and policy implications as we conclude that without public trust the government's ability to implement public policies diminishes. Without the trust of the citizens, sanitation-related policies will more than likely fail in Patna, as government services are over capacity and incapable of addressing the solid waste issue. The findings of this paper are intended to provide insights toward the determinants of public trust for future initiatives aiming to increase trust and public participation among citizens in informal communities. The results of this analysis shed light on the need to further explore the determinants of public trust within informal communities in Patna.

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Key Words: Public Participation, Participatory Planning, Public Trust, Informal Communities

PLANNING BY PERMIT: HOW MUNICIPAL OFFICIALS CRAFT AND SUSTAIN WORKING RULES FOR HOUSING AND LAND DEVELOPMENT IN PERIURBAN GUADALAJARA, MEXICO.

Abstract ID: 1226

Individual Paper Submission

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What are the meaningful mechanisms through which planners in peri-urban municipalities influence development? Drawing on the daily experiences of local land governance in the outskirts of metropolitan Guadalajara, this institutional case study describes one small space of planning agency: how land use officials have invented and sustained informal institutions around land use and construction approvals over political-administrative transitions. Using an institutionalist lens to engage with conversations on the ‘grammars’ of practice (Fawaz 2017), this paper follows in the tradition of scholarship describing actions of the state (Gupta 2012) and in particular those detailing the nuanced roles of underestimated ‘bit actors’ of planning (Monkkonen 2016).

The case focuses on Tlajomulco, a municipality about twenty miles and one to two hours on a bus south of Guadalajara. The municipality has been an extreme epicenter of growth; the population quintupled between 2000-2015 to over a half million residents. Most new residents live in new formal subsidized affordable housing, nearly all of which was built in sprawling low-density developments with poor access to services and transport. Many of the developments failed to qualify for incorporation, yet were sold and exist in a state of purgatory, and an estimated sixth of these new units remained vacant as of 2018.

Initial analyses suggest that the informal institutional apparatus of daily planning in these municipalities – including checklists, handouts, archive systems, spreadsheets, flowcharts, unwritten rules of thumb, institutionalized networks- contain and communicate deliberated norms and strategy about the future of development in the area. While these are the tools of street level bureaucrats, they are firmly collective and do not reflect individual discretion à la Lipsky. Officials in my primary research site, Tlajomulco, spoke proudly of their checklist as a way that they had as a group could ‘do what they could’ to restrain, through time and effort, what they saw as unsustainable or illegal housing development – and to overlook illegal actions that in their view bothered no one. Planners in Tlajomulco also framed the crafting the tools as oriented to ensure survival of their specific governance practices over political and administrative transitions; in contrast, in several reference municipalities in the metropolitan area, officials aimed to leave as little trace of their activities as possible.

Although just one of many ‘gray’ spaces of land use practice between law, policy and informality, my initial findings suggest that working rules of localities in some cases can tip the balance on development. This coincides with findings on the importance of ‘lists on the wall’ in permitting offices in Mexico City (Ugalde 2017), and might be especially true in highly sensitive periurban land markets. To more fully trace the active institutional threads (Healey 2007), the paper supplements the primary fieldwork of actors and tools inside municipalities with an additional 30 interviews with metropolitan, state and federal-level officials past and present, civic actors and developers. Further, an ongoing quantitative examination of permitting patterns over transition periods aims to better tease out one aspect the impact of uncertainty in working rules on development.

Looking beyond greater Guadalajara, formal urbanization increasingly occurs in small jurisdictions at the peripheries of larger cities. In these places, where land use and planning laws often apply selectively and the capacity to enforce is low, local governments are important players in land development. The day-to-day actions of local officials admittedly navigate at the margins of powerful national and international currents driving land use development. Yet amid the ‘leftover’ tools of rational planning, they offer one modest opening for shaping more just cities.

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Key Words: land use approvals, construction permits, street-level bureaucrats, sprawl, implementation

CONFLICT RESOLUTION IN URBAN INFORMAL SETTLEMENTS: A CASE STUDY OF PATNA, INDIA

Abstract ID: 1232

Individual Paper Submission

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Urban slums are now a common sight in Indian cities. An astronomical rise of slums dwellers in Indian cities are often attributed to rapid urbanization due to unsustainable productivity decline in agriculture in rural areas and an unaffordable formal housing situation in cities. The problem becomes even more complex when this urban growth is unplanned. Patna is the capital of Bihar, one of the most backward states in the country on almost every developmental indicator. The city of Patna has a population of 1.68 million and another million people live in the Patna Urban Agglomeration making this city one of the most densely populated tier 2 cities in the Country. Patna has rapidly urbanized and failed to plan its growth. The city is experiencing several problems such as housing shortage, congestion, and poor sanitation. Patna is also called the crime capital of India. In 2016, Bihar banned alcohol consumption and Government declared high instances of conflict and crime as one of the motivations. Incidences of conflicts (violent and non-violent) are quite high in Patna slums.

This research attempts to identify the determinants of conflicts in informal settlements. According to the official data, there are 110 slums in Patna. This research utilizes primary data of 215 households (1200 individuals) from 16 slums in Patna. Apart from the detailed household survey data, I utilize slum profile of all 16 slums to identify existing infrastructure provisions within slums. The survey was carried out in 2017 in the 4 largest cities in Bihar. In the paper, we are using only data from Patna. We utilize regression analysis to identify reasons for conflicts in slums. Preliminary findings suggest that households are more likely to engage in conflicts when competing for basic amenities and public services. Lack of basic infrastructure such as insufficiency of toilets, drinking water, the absence of waste removal provisions are main sources of conflicts. However, we also find extreme policing in the form of harassment, corruption, and eviction threats play a significant role in enticing dwellers to resort to violence. Further, we find that even a smaller provision of soft infrastructure reduces conflicts in slums significantly. Also, higher participation of slum dwellers in building the soft or hard infrastructure reduces the conflicts significantly. Factors such as higher educational attainment of women, formal employment, and the presence of NGO's positively affect the conflict resolution processes.

This research has a huge policy implication in reducing the level of conflicts and it establishes the importance of basic infrastructure provisions and the vital role participatory planning methods could play in conflict resolution.

This understanding will help policymakers to increase the effectiveness of policies aimed at informal settlements. Conflict resolution should be an integral part of urban planning objectives and the findings may inspire planners, policymakers, and civil society to formulate and implement measures in this regard to achieve more inclusive and sustainable cities.

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Key Words: Informal Settlements, Conflict Resolution, Soft Infrastructure, Urban Slums

THE PARADOX OF PLANNING IN POLITICIZING TIMES: HOW PLANNERS' KNOWLEDGE COMES TO PERPETUATE MARKET-BASED WATER POLITICS IN TIMES OF SOCIO-NATURAL CRISIS.

Abstract ID: 1252

Individual Paper Submission

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Over the past decade, protests against governing elites and political economic systems have proliferated in city squares across the globe. In an era of widespread socio-natural crises, this discontent is creating deep uncertainties for the future of urban life. How are governing authorities and planners interpreting, and responding to, the new demands of urban citizens? To what extent, if any, are anti-system mobilizations reshaping the relations of power in urban governance and planning? In this paper, I address such questions through a year-long ethnographic study of one instance of intensifying urban discontent, in Santiago, Chile, where market-based water governance has prevailed since the 1980s. In that city, since 2008, convective storms in the Andes have caused high turbidity events in the Maipo River, leading Chile's largest private water company to take the extreme measure of cutting water supplies to 4 million people for days at a time. The turbidity crisis, coupled with the increasingly conflictive political climate, has led to widespread protests against the water company and market-based water governance more broadly.

Drawing on participant observation and interviews within the headquarters of that company, I trace the multiple ways that planners, engineers, and lawyers in the planning department are planning for the future of the city's water supplies in these increasingly politicizing times. I advance two central claims relevant to urban studies, planning, and international development. First, I trace how technical knowledge created by planning staff on the recent water crises is deployed by the company in public policy debates to promote a depoliticizing techno-managerial discourse. This strategy proves to be somewhat successful in

neutralizing political claims against the company, which stands accused of immoral profiteering and illegal political influencing during the water crisis. Secondly, I demonstrate that beyond the company, that depoliticizing discourse takes on a life of its own, becoming conjoined with efforts by lobbyists and conservative media outlets to subdue anti-elite protests and popular claims for democratic reform to Chile's crisis-ridden market-based water governance model. Paradoxically, in the end, I find that knowledge produced by planners—many of whom are sympathetic to the demands of protestors for more democratic water governance—services and strengthens the status quo of market-based water governance. Planners' knowledge, problematically, is being used to neutralize demands to plan meaningfully for the future of essential urban services. These findings will be of interest to scholars of planning and resource politics in contexts of increasingly conflictive politics, as well as progressive-minded professional planners seeking to push for democratic change within those contexts.

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Key Words: urban governance, protest, depoliticization, neoliberalism, water

RESILIENCE PLANNING IN MEDELLIN AND SANTIAGO DE CALI: EXAMINING THE INFLUENCE OF LOCAL POLICY RATIONALITIES AND INSTITUTIONAL LOGICS ON CLIMATE CHANGE ADAPTATION

Abstract ID: 1254

Individual Paper Submission

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The research presented in this paper compares the housing and compensation strategies of climate resettlements in two Colombian cities, Medellin and Santiago de Cali. A growing practice, climate-related resettlements involve the relocation of households vulnerable to risks such as floods and landslides. This practice is associated with resilience planning and climate change adaptation. (Anguelovski et al. 2016, Ferris 2015, de Sherbenin et al. 2011) This research considers the innovation of these strategies within the broader context of Colombia's effort to integrate climate change adaptation measures into existing land use and housing policies. At stake is how these cities define the global policy discourse of urban resilience through the development and implementation of their resettlement strategies.

A leader in resilience planning, Colombia's National Adaptation Plan for Climate Change (PNACC, 2016), in alignment with the Paris Agreement (UNFCC COP21), encourages municipal investment in sectoral strategies within local land use and housing policy frameworks. However, the specific strategies chosen vary across cities. These strategies are informed by distinct though related policy rationalities and institutional logics determined at the municipal level. Therefore, through a comparison of these two cases this research (1) identifies and (2) examines the local policy rationalities and institutional logics which

have shaped the implementation of climate resettlements through varying housing and compensation strategies in recent years.

Since Colombia's adoption of national policy (Law 1523 of 2012) requiring cities with over 250,000 residents develop a risk reduction and management plan, both Medellin and Santiago de Cali have increased their investment in sector based measures to reduce residents' exposure to climate-related risks. Both cities have also partnered with the Rockefeller Foundation's 100 Resilient Cities program to develop an urban resilience strategy.

How does resilience planning vary in these two Colombian cities? How do variations in Medellin and Cali's housing and compensation strategies reflect local policy rationalities and institutional logics?

This research was conducted over a period of two summers through a collaboration with Universidad del Valle's Centro de Investigaciones Territorio, Construcción y Espacio (CITCE) in Santiago de Cali. Researchers interviewed city officials from Medellin and Santiago de Cali's disaster risk management and housing agencies, program participants in focus groups, and accompanied city teams on site visits.

This research finds Cali's approach, formulated in partnership with the national government, emphasizes prospective interventions on the basis of climate model projections. In contrast, Medellin's approach, based in a traditional disaster risk management practice is concerned with emergency response and security. In the first case, policy goals include the permanent relocation of households and the accommodation of adaptive infrastructure projects. In the second, the city has invested in building a resilient housing market defined by its ability to absorb sudden influxes of new residents when disaster strikes. These variations yield important policy lessons for the building of climate governance structures and resilient housing markets.

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Key Words: Climate Change Adaptation, Urban resilience, Housing, Land use

LINKING URBAN TRANSPORT, LAND USE AND POVERTY REDUCTION IN FOUR CITIES IN EAST AFRICA

Abstract ID: 1277

Individual Paper Submission

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Rapidly developing cities in Africa face particular challenges to mobility and to the coordination of transportation and land use, including spatial mismatches between jobs and work, weak zoning and planning regimes, and insufficient transit and underdeveloped road infrastructure (Cervero 2013). The poor tend to be on the fringes in African cities, isolated from job opportunities in the urban core, and they tend to trade off high transport costs for cheap (informal) housing costs. Further, weak urban planning controls, such as zoning, and institutional fragmentation undermine the coordination of urban services within and across sectors: strategic planning and coordination of transportation and land-use across transport modes is rare, as institutions are often preoccupied with reacting to rural-to-urban migration pressures (Dimitriou & Gakenheimer 2011). High transport and congestion costs, low mobility, and insufficient organization of land use activities to facilitate effective linkages between transport and housing-to-work mobility are typical.

Transport investments are widely recognized as an effective tool for achieving economic growth, poverty reduction and other socio-economic benefits, and there is a long theoretical basis for that expectation. Reductions in transport costs creates linkages that makes specialization and economies of scale possible, improves mobility, and affects the resulting transport/land-use equilibrium. Road investments have the potential to address spatial mismatch problems, reduce commuting costs, improve intra-city mobility, and spur poverty reduction and economic growth. In Africa, whether or not to use transport investment as a means to achieve economic growth becomes a strategic public policy question, because in African cities it is mainly provided by the public sector (Srinivasan 2005). However, when it comes to the specific guidance for transport investment decision-making, particularly at the strategic level, knowledge on the linkages of transport with poverty reduction, economic growth and land use is not adequate (Liu, 2005). Empirical studies can help inform policy prescriptions for influencing growth of certain land uses, for poverty alleviation or economic productivity, for development control mechanisms or efficient implementation of urban master plans (Cervero 2013).

In this study, we examine the extent to which the timing and spatial incidence of public investment in roads in four cities in four countries in East Africa in the first decade of the 21st Century is synchronized with land use and private investment in formal and informal housing and commercial and industrial structures, with economic productivity and population density changes. The cities studied are Dar Es Salaam in Tanzania, Nairobi in Kenya, Addis Ababa in Ethiopia and Kigali in Rwanda for the 2003-2013 time period. Using data derived from very high resolution satellite images we quantify road investment using well-established remote sensing classification methodologies at a very high spatial resolution, and we examine the extent of synchronization among these investment processes in these cities by precisely measuring urban and peri-urban roads and land used for homes, and commerce/industry at very fine granularity (0.5 m spatial resolution for roads and 8m spatial resolution for land use). The fine spatial resolution of our data allows us to examine the spatial location of different types and magnitudes of road investment and land use change. Given that we have data for two points in time for each part of the city, we use econometric techniques, including differences-in-differences with Propensity Score Matching (PSM) to estimate the quantitative associations between road investment, land use changes, economic productivity and population density. This research was funded by The World Bank.

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Key Words: Africa, land use, transportation, international development

POLITICAL LANDSCAPES AND CONDITIONS OF POSSIBILITY: EXPLORING THE NATURE OF DISASTER RISK IN MÉXICO CITY

Abstract ID: 1295

Individual Paper Submission

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México City is exposed to environmental hazards and socioeconomic vulnerabilities that amplify disaster risk and complicate recovery. The city has a legacy of major infrastructure projects designed to shape the natural environment and control it for optimized capitalist production schemes and political power. Further, there have been and continue to be socioeconomic and political factors that affect vulnerability and construct unevenly distributed risk in the city. The social production of risk and responsibility has been examined often and in depth throughout disaster studies discourse for decades, especially in the US context. However, thinking about México City, and Latin American cities in general, gaps show less investigation around how the politics of risk are taking shape in terms of the existing political landscapes. In other words, given the existing ecological and urban regimes in Latin American cities, how is risk distributed, and how does a sudden major disaster change that? Further, what kinds of political coalitions line up (or could line up) around different ways of addressing disaster risk? To get to the bottom of this, I look at the political ecology and conditions of possibility in México City during the 8.0M earthquake that devastated the city in 1985. By identifying disaster risk reduction policies and projects enacted after this event, I can make comparisons with the 7.1M earthquake that struck the city exactly 32 years later in 2017, and better understand what makes México City's communities resilient.

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Key Words: Disaster, Risk, Politics, Mexico, Earthquake

TRACK 7 – POSTERS

LANDSCAPE INTEGRATION ENHANCEMENT OF CHINESE TRADITIONAL VILLAGES IN ZHEJIANG, A CASE STUDY OF THE ZHANGSI VILLAGE

Abstract ID: 127

Poster

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Landscapes of each traditional villages are historical heritages and potential tourism resources. However, the unorganized constructions in the past 20 years greatly deteriorate the traditional landscape (Sun, 2014). Currently rural protection planning in China usually divides traditional villages into several zones with different degrees of control over architectures' height, style and decoration, and new settlement zone will be outlined if necessary. Besides, previous researches mainly focused on the landscape transformation, evaluation and restoration for traditional settlements (Liu, 2011), while few studies considered the landscape integration between traditional settlements and the newly built areas. In sum, the landscape integration enhancement of traditional villages needs further investigation. The Zhangsi village, located in the east central Zhejiang, was selected as one of the national traditional villages in 2013. The study takes Zhangsi as an example to illustrate the strategies of planning and design in order to enhance the its landscape integration.

The study firstly classifies the three land types in traditional villages, namely traditional settlements, newly built regions and farmlands & natural regions. Three spatial patterns are identified based on the relative positions of different land types. The first pattern is that the traditional settlements are separated from newly built regions by farmlands & natural regions. The second pattern is that the traditional settlements and newly built regions are mixed together. The third pattern is that traditional settlements is surrounded by newly built regions. In order to gather the images of traditional villages, ancient maps of the Zhangsi villages were investigated and 50 onsite interviews were conducted to build a historical image of the village from local villagers' memories (Jin, 2014). Thirdly, Five elements, namely paths, architectures, landmarks, land covers and public spaces, were identified from the most frequently mentioned images. Fourthly, the design and planning strategies for the three spatial patterns were put forward to enhance landscape integration in traditional villages. Finally, the landscape design of the Zhangsi villages were made for verification of the strategies.

In all the three spatial patterns, the village boundary of developed lands should be delineated firstly to guarantee the balance between human settlements and natural environments. Secondly, all the newly built houses in the traditional villages should be accordance with traditional buildings in terms of height, decorations and styles (García-Moruno, 2010). Thirdly, only pedestrian pathways should be allowed through out the villages to restore the traditional walking environment. The original landmarks should be restored and new landmarks with similar elements could be set up along the pathways in the newly built zones together with public facilities. Fourthly, all the cables and pipes should be hided or painted with similar colors as walls. As for the first spatial pattern, the pathways and ancient ditches with traditional decorations are the landscape connection between traditional settlements and newly built areas. Cement pavement should be avoided in the newly built zones. The residential relocation zone of the Dongziguan village is a good example for the architectural design, of which building styles and decorations maintain the image of the local traditional residences, while at the same time are considered modern lifestyle. Landscape design of of the second and the third spatial patterns should strictly control the facades of new built houses. And traditional slopping roof and usages of traditional materials are highly recommended. As for the third pattern, the public facilities are recommended to be built in the central traditional settlements in order to utilize the lost space and encourage public activities in the ancient settlement. The landscape design of the Zhangsi village, which includes all aforementioned three spatial patterns. was included at the end of the study.

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Key Words: Landscape integration, Traditional villages, The Zhangsi village, Newly built zones

SMART CITY AND QUALITY OF LIFE: IN THE CASE OF SEOUL, REPUBLIC OF KOREA

Abstract ID: 626

Poster

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Cities around the world, both in developed and developing countries, are suffering from various urban problems from provision of appropriate infrastructure and housing to traffic congestion and environmental pollution. Recently, in the notion of smart city is getting a great attention as future city model, which is expected to solve the current urban issues and improve the quality of life by maximizing the efficiency of a city equipped with ICT (Information and Communication Technology). What cities aim to achieve through various smart city initiatives varies depending on characteristics and economic growth stages of cities, but the ultimate goal of the many smart city initiatives is to improve the quality of life of citizens. Although the introduction of the smart city notion is assumed to solve various urban problems and improve the quality of life, there is not much empirical research conducted on the impact of smart city initiatives on quality of life. Against this backdrop, the study aims to assess the current status of “smartness” of 25 districts in Seoul by analyzing relevant indicators and investigate the impact of smartness on the quality of life by conducting a multi-level regression analysis. Seoul, the capital city of the Republic of Korea, is chosen as a study area given its reputation as one of the world-leading smart cities with globally recognized e-government system and a longtime experience as a ubiquitous city. The smartness of districts were measured using 12 indicators in three categories, namely technology and infrastructure, institutional and governance and human resources and innovation, which were identified based on a thorough literature review. The quality of life is quantified using results from an annual survey conducted by Seoul Institute on life satisfaction. The preliminary results from the multi-level analysis show that the urban characteristics measured using indicators explain quality of life by 15%, while personal characteristics account for the rest. Especially, the public transportation service and the wireless internet system categorized in the technology and infrastructure play an important role in improving the quality of life in Seoul. On the other hand, urban characteristics related to human resources and innovation turn out to have negative impacts on the personal quality of life. The results indicate personal satisfaction tends to be rather enhanced by a direct experience of “smartness” of a city such as technology and infrastructure.

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Key Words: smart city, quality of life, sustainable city, smart city indicators, multi-level analysis

METHODOLOGY TO DEVELOP URBAN SUSTAINABILITY INDICES FOR DISTRESSED PLACES

Abstract ID: 1115

Poster

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In response to emerging challenges and threats in urban agglomerations, contemporary cities have been developing indices to gauge the sustainability of urban policies. However, urban sustainability indices are only seen as a goal for developed areas (Huang, Wu, and Yan 2015), yet many distressed places also seek measures and policies for pursuing urban sustainability. Our research bridges this gap and focuses on creating and developing new indices for distressed places to measure urban sustainability from a holistic perspective. (Hák et al. 2018) call for “immediate concerted action” to develop a set of sustainability indicators and implement them systematically and extensively. Yet, this study argues that existing sustainability indices such as Ecological Footprint, Green City Index, City Development Index, Human Development Index, and Sustainable Society Index are compromised in distressed places.

To address sustainability indices for distressed places, we investigate two fundamental research questions. First, what is the definition of a distressed place? According to the preliminary literature review, there is no profound definition for distressed cities and communities. We use three themes as criteria to quantify and state a definition of distressed places. These themes are 1) Climate and Environmental Stress; 2) Geopolitical Stress, and 3) Socio-economic Stress. Second, what methodology should be followed to design a framework of urban sustainability indicators for a system under stress? The proposed methodology consists of multi-criteria and integrated approach that combined multiple methodologies.

To begin with, the study will adopt the Bellagio STAMP “Sustainability Assessment and Measurement Principles” to foster the sustainability objectives for distressed places, adopt a holistic perspective, incorporate sustainability in the assessment process, and support decisions (Waas et al. 2014). Then, Driving force–Pressure–State–Impact–Response indicator framework, which is considered the most widely adopted framework, will be employed to provide a holistic socio-economic and environmental analysis (Yigitcanlar, Dur, and Dizdaroglu 2015). Lastly, the proposed framework to be constructed will have a SMART characteristic – each indicator to be used should have Specific, Measurable, Achievable, Relevant, and Time-related characteristics (Shen et al. 2011).

In order to investigate the validity of the proposed methodology, the study selects the City of Duhok in the Kurdistan region of northern Iraq to implement this methodology to develop an urban sustainability index. The Kurdistan Region of northern Iraq is concerned about sustainability but lacks the measures to guide such policies. One of its main cities, Duhok, offers an example of the use of sustainability Indices in a distressed region. Duhok is primarily a Kurdish city of over 400,000 people, and in some ways shows its resilience to past challenges, yet it faces political, economic, and environmental threats to its growth

and quality of life. It offers an example of the use of urban sustainability indicators in an emerging region that experiences urban stress.

Two urban sustainability patterns for the city have been identified after finishing preliminary data analysis from 1990 – 2010. Negative urban sustainability progress during the first decade in the 1990s was the first pattern. Second, there was steady progress toward urban sustainability post-2003. Policies proposed to improve potential urban sustainability include 1) increasing levels of community civic engagement; 2) balancing migration policy with ecological capacity, and 3) adopting green design implementation.

Developing a methodology to create urban sustainability indices in distressed places enriches the body of sustainability research. The proposed methodology attempts to overcome some of the challenges of developing indices and provide a holistic overview of how stressed communities seek sustainable urban policies.

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Key Words: Distressed places and cities, Measuring urban sustainability, Sustainability Indicators, Sustainability Indices

TRACK 8 – LAND USE POLICY & GOVERNANCE

TRACK 8 – PRE-ORGANIZED SESSION SUMMARIES AND ABSTRACTS FOR SESSIONS

PRE-ORGANIZED SESSION - EVOLVING LAND USE REGULATIONS: CASES FROM THE US AND AUSTRALIA

ID: 18

Pre-Organized Session Summary

Includes abstracts: 217, 218, 219, 220, 221

In light of current high demand for rental housing, planners are facing unprecedented pressure to reform land-use regulations to accommodate higher densities, require greater affordability, and streamline processes. In this panel, five scholars of housing and land use will provide comparative perspectives about the current state and recent evolution of residential land-use regulations and housing programs in the 50 largest US metro areas, California, Oregon, metropolitan Portland, and the Australian states of New South Wales and Victoria. The presentations rely on a broad range of methods -- surveys, analysis of secondary data, GIS analysis, and in-person interviews -- to generate important insights about the complexity of regulations and regulatory reform.

Objectives:

- Increase knowledge about trends in residential land use regulations
- Increase understanding of US and Australian cases

HOUSING AFFORDABILITY IN OREGON: PLANNERS' PERCEPTIONS OF A CRISIS

Abstract ID: 217

Group Submission: Evolving land use regulations: Cases from the US and Australia

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National reports from the Urban Institute, Harvard's Joint Center on Housing Studies, and Up For Growth point to a housing crisis – cost burden is rising and housing supply is not keeping up with demand. (Urban Institute, 2017; Harvard Joint Center on Housing Studies, 2018; Up For Growth, 2018) The lack of housing affordability is an issue facing urban and rural areas alike. While some studies focus on the largest metropolitan areas in the United States, data on Oregon shows that cities of all sizes are facing an increase in the number of households that are cost-burdened. Parker and Lewis (2016) found that, in cities outside of Portland and Salem, 76% of renter households earning 80% or less of the Area Median Income (AMI) and 64% of owner households earning 80% or less of the AMI are cost-burdened (e.g., they pay more than 30% of their household income for housing). While there is robust literature on regulatory barriers, much of the literature focuses on larger metropolitan areas. Further, there are limited

studies of how community-level characteristics affect cost-burden at a city level. We sought to understand 1) the state of housing affordability in cities of all sizes in Oregon; 2) planners' perceptions of housing affordability and barriers to providing housing in their communities; and 3) how community characteristics like demographics, land supply, and policy adoption are associated with cost burden.

Our methods include descriptive data, survey analysis, and regression analysis. We rely on data from Comprehensive Housing Affordability Survey (CHAS), American Community Survey (ACS), and the Oregon Housing and Community Services (OHCS) Inventory of Affordable Housing to describe the state of housing affordability across cities in Oregon. We administered a survey to the Oregon City Planning Directors Association email list including all 241 Oregon cities. Our survey included perception of housing affordability, needed types of housing, barriers to providing housing, and an inventory of adopted housing policies. We received 115 responses for a 48% response rate. Finally, we integrate descriptive data and survey data in regression analysis to examine how community characteristics and policies impact cost-burden across communities.

Preliminary survey results show that 44 percent of respondents indicated that housing was “more important or much more important” than other issues facing their communities. With respect to housing need, 88% of respondents indicated a “lack of market-rate, family-sized units” and “lack of affordable, market-rate rental units” in their community. Respondents identified a number of perceived barriers to housing affordability including lack of available vacant land (60%), lack of affordable housing provided by developers (59%), high land costs (58%), and lack of development ready land (50%). Infrastructure is an issue in many communities. Funding was the most frequently identified barrier to providing infrastructure (89% of respondents). This research provides insight into the factors affecting housing affordability at the city level.

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Key Words: housing affordability, regulatory barriers, land use, rural

DOES UPZONING IMPROVE HOME AFFORDABILITY? A LONGITUDINAL QUASI-EXPERIMENTAL ANALYSIS AT THE PARCEL LEVEL

Abstract ID: 218

Group Submission: Evolving land use regulations: Cases from the US and Australia

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A growing body of research suggests restrictive land use regulations such as low-density single-family home zoning decrease housing construction, reduce housing supply, and raise housing costs (Been, Ellen, & O’Regan, 2019; Gyourko & Molloy, 2014; Monkkonen, 2019). Some American cities such as

Minneapolis, Seattle, and Portland are taking initiatives to remove exclusionary single-family home zoning practices and upzone neighborhoods to promote affordable homes. Despite the increasingly popular idea of promoting home affordability via upzoning, our understanding of the impact of upzoning on housing development and affordability is still limited. Most of the existing studies are cross-sectional analyses at the aggregate levels (e.g. cities and metropolitan areas). Longitudinal analyses at fine spatial scales are rare because time series data of land use regulations and housing development are hard to obtain. To fill this research gap, I collect parcel-level data of zoning changes, housing development, and housing transactions between 1998 and 2018 in the city of Portland, Oregon. With this 20-year panel data set, I conduct longitudinal quasi-experimental analyses of the impacts of upzoning on housing developments and costs.

This study addresses three research questions: 1) Does upzoning speed up housing development and redevelopment? 2) Does upzoning lead to more housing production? 3) Are new homes in upzoned areas more affordable? The three research questions can be answered by estimating three separate statistical models to compare land parcels that experienced upzoning and those did not experience upzoning during the study period. The comparison, however, may not be appropriate because upzoning does not occur randomly, causing an endogeneity problem in the models. Addressing the potential endogenous relationship between land use regulations and land development has been a major barrier to teasing out the causal impacts of upzoning on housing costs. I propose to use a longitudinal quasi-experimental design to address this endogeneity issue. Specifically, I construct and compare two groups of land parcels before and after upzoning: a treatment group that includes land parcels that were upzoned (treated) and a control group that consists of similar land parcels that were not upzoned during the study period. I identify land parcels in the control group through the propensity score matching method to make sure land parcels in the treatment and control groups had the same probability of being upzoned. In addition to the propensity score matching method, I would also like to test other feasible methods such as the two-stage least squared method to evaluate the robustness of my analysis results.

I expect the results of this study to have two major policy implications. It will provide empirical evidence at the micro-level on whether upzoning is an effective planning tool to encourage housing construction and promote housing affordability. It will also suggest under what conditions upzoning is more effective in promoting affordable homes.

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Key Words: upzoning, land use regulations, housing costs, home affordability

REGULATORY LANDSCAPES IN THE US: RESULTS FROM A 50-METRO SURVEY

Abstract ID: 219

Group Submission: Evolving land use regulations: Cases from the US and Australia

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Are land-use regulations getting more strict? Many economists think so (see, for example, Glaeser, Gyourko, and Saks (2005) and Furman (2015).) Such suppositions are based on anecdotes, however, rather than on a firm basis of data. In this paper, I draw on results of a just-completed (2019) third round of a survey first conducted in 1994 and repeated in 2003 on residential land-use regulations and affordable housing programs in the nation's 25 most populous (1994) and 50 most populous (2003) metropolitan areas. The paper will track whether, how, and where the landscape of regulations changed from 2003 to 2019 at the metropolitan level (building on Pendall, Puentes, and Martin 2006) and present initial evidence of jurisdiction-level changes (building on Pendall et al. 2018). With about 1500 respondents to the 2019 survey (about a 50 percent response rate), several hundred jurisdictions will have responded to all three surveys, and many others will have responded in both 2003 and 2019.

A recent analysis of 728 repeat respondents to the 1994 and 2003 surveys formed the basis of a recent article (Pendall et al. 2018) showing that residential land use regulation is in flux to a perhaps underappreciated degree, complicating the narrative of across-the-board tightening. New regulations are enacted often, but old ones are also abandoned. Local governments tailor regulatory tools to their circumstances, responding not only to demands for greater protection but also to the demand for deregulation. Their responsiveness is often constrained, however, by state laws. Many regulatory changes responded to changing housing demand during that decade, when late baby boomers and the first gen Xers transitioned into family formation, work, and homeownership and early baby boomers transitioned into move-up housing. The demand for rental housing was soft in many metropolitan areas. Regulatory changes from that decade, accordingly, responded mainly to the demand for new detached single-family homes in suburban areas.

The crisis of 2008-2010 contributed to a sharp change in the housing market toward rental housing. Nationally, owner-occupant households stayed flat at about 75 million from 2007 to 2016, whereas renters grew from nearly 37 million to nearly 44 million households (author's analysis of American Community Survey data). The growth in renter households also has been a consequence of the departure of millennials (born 1981-1996) from their parents' homes and slower transition into homeownership. Furthermore, development pressure has been strong in central cities and inner suburbs and much weaker in suburban and exurban locations compared with the 1990s and early 2000s. These changes in housing markets are likely to have yielded changes in residential land-use regulation that differ markedly from the changes we observed from 1994 to 2003; in this paper, I will explore those differences and points of similarity.

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Key Words: Zoning, Affordable housing, Regulations

DOES PLANNING REFORM LIFT HOUSING SUPPLY AND AFFORDABILITY? LESSONS FROM AUSTRALIA

Abstract ID: 220

Group Submission: Evolving land use regulations: Cases from the US and Australia

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Housing supply and affordability have been key policy concerns in Australia since the turn of the new millennium. Federal and State governments have blamed local planning regulations for constraining new homes, while sponsoring major reform agendas to release new land and override community objections to higher density housing. This paper examines these reform agendas and their implementation over 17 years (2001-2018), drawing on political statements, policy documents, and planning legislation as well as data on residential building approvals, completions, sale and rental trends. It asks whether deregulatory planning reform can lift housing supply and improve affordability by increasing the quantum and or diversity of new homes across the market. With similar concerns about the impact of planning controls on housing supply and affordability in other parts of the world – including the US, the UK, and New Zealand (Austin, Gurran, & Whitehead, 2014; Pendall, 2006), Australia's planning reform agendas and outcomes offer wider insights into relationships between land use regulation and housing affordability. Focusing particularly on reforms in the two most populous states of NSW and Victoria, the analysis shows that Australian planning reform has sought to: free up residential land supply; standardize and reduce the burden of local development controls particularly on residential housing; and depoliticize local planning processes. These efforts have brought about looser regulatory regimes and have increased housing approvals. However, translating these approvals into completed housing units depends on market conditions. Under the buoyant market characterizing Australia between 2012-2017, housing production surged in the major cities – along with prices for new and established dwellings (Ong et al., 2017). Nevertheless, in the absence of inclusionary requirements, these reform efforts failed to deliver affordable rental or ownership units, with less than 2% of new homes produced as subsidized housing development and 'naturally occurring' low cost market accommodation remaining in critically short supply (Gurran et al., 2018). When Australia's housing market finally did reverse – with capital city house prices falling from 2018 – the trigger was neither planning nor new supply – but rather financial constraints on new mortgage lending. The Australian case shows that planning reform can enable new and diverse housing, but that increases in new supply depend on high market demand, and that specific policies are needed to deliver affordability benefits to lower income groups. The economics of the outcomes in the Australian market are not surprising, and are based on behavior of key market participants, not the simplistic static demand and supply models that have been used to estimate the impact of planning in many jurisdictions (Kendall and Tulip, 2018).

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Key Words: planning regulation, housing supply, housing affordability, Australia, planning reform

HOW DO CITIES IN CALIFORNIA LIMIT HOUSING PRODUCTION? PROCESS VS. PROHIBITION IN LOCAL LAND USE REGULATIONS

Abstract ID: 221

Group Submission: Evolving land use regulations: Cases from the US and Australia

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California's residents are spending historically high sums of money on housing or relocating out of the state altogether. A failure to build new homes is undoubtedly one driver of these trends. There is general agreement that local land use regulations prevent new housing from being built, but there is less agreement about how exactly regulation reduces housing supply. One obvious channel is prohibition: most cities do not allow more than one housing unit on the vast majority of the parcels in their jurisdictions. Planners often cite prohibition (a lack of developable land) when asked about slow housing production. Developers, on the other hand, point to process: even on sites where rules permit multifamily housing, these rules—ranging from impact fees, inclusionary housing set-asides, parking requirements, or just multi-step approvals that require many hearings—often make new building too expensive.

We seek to disentangle the differential impacts of these two aspects of regulation using the Turner Center Residential Land Use Survey. We will do this first, by modeling housing permitted recently (from 2011-2017) across cities as a function of market demand factors and the two dimensions of land use regulations, process and prohibition. We will measure process factors using responses to questions about approvals and public opposition, and prohibitions with questions about single-family zoning and minimum lot sizes. Econometric studies of regulation and housing markets suffer from endogeneity threats, which we avoid somewhat by modelling new supply rather than home prices (which are more prone to both reverse causality and omitted variables). We will also address the issue of endogeneity directly, and examine the conditions under which endogeneity truly biases estimates of a regulation's impact.

A second step in our analysis will be to ground-truth some of the survey responses. Survey answers reflect the perceptions of respondents, and while the perceptions of developers and planners are important (in fact, often decisive) they may also not be accurate. Therefore, we will correlate perceptions about development conditions with external data. For example, planners may believe their city has few vacant sites for development. Vacant sites inventory data from HCD can cast light on the validity of that impression. We can make similar comparisons between survey answers and outside data from the Regional Housing Needs Allocation (RHNA) process, the Census, and GIS analysis of land use.

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Key Words: Zoning, Housing production, Regulation, California

TRACK 8 – INDIVIDUAL ABSTRACTS

DOES URBAN FORM INFLUENCE ECONOMIC MOBILITY IN THE POOREST CENSUS TRACTS IN FORSYTH COUNTY, NC?

Abstract ID: 9

Individual Paper Submission

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Recent studies into economic mobility have exposed the role urban form plays in residents’ future economic prosperity. These studies have generally shown that neighborhood characteristics matter and where an individual resides can contribute to increased or decreased levels of economic mobility. The influence of the specific urban form found in different locations on economic mobility has not been studied in great detail. Not all geographies are the same, with some areas being more densely developed and others more suburban and sprawling. It is generally hypothesized that a more compact urban form leads to several factors related to higher levels of economic mobility. These factors associated with less sprawling communities include lower levels of residential segregation, less income segregation, decreased job-home imbalances, and more transportation choices – all of which can improve economic mobility. To determine if this hypothesis and the limited literature on this subject are correct, a regression analysis will be performed to examine the relationship between economic mobility, urban form and a select group of variables chosen from a review of the existing literature on economic mobility. Economic mobility, the dependent variable, will be measured by examining the percentage change in median household income between 1990 and 2010 for each census tract. This will help in developing a better understanding of the impact urban form has on economic prosperity. The independent variables examined in this study included a variety of measures of urban form that have been utilized in previous studies (Ewing et al. 2016; Chetty et al. 2014; Chetty et al. 2013). These variables include a sprawl metric developed by Dr. Reid Ewing for each individual census tract. The sprawl metric, utilized in dozens of previous studies, is an indices developed from four different dimensions of urban form including: development density, land use mix, population and employment centering and street connectivity. Additional urban form variables that will be included in the analysis include percentage of the census tract covered in impervious surface, availability of public transportation, mean commute time to work, job density, and population density. In the end, this study will provide insight into the influence of the built environment on economic mobility and lead to specific policy recommendations for business, individuals and government to aid in alleviating acute problems associated with the lack of economic opportunity in the poorest parts of Forsyth County in particular and the United States in general. Specific planning policy recommendations will be offered that help to alleviate the problem of impeded economic mobility for certain populations.

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Key Words: Economic mobility, Land use, Urban form, Sprawl, Spatial Justice

MUNICIPAL BOUNDARY BATTLES: ANNEXATIONS IN ALBERTA, CANADA

Abstract ID: 21

Individual Paper Submission

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Adjusting municipal boundaries changes a municipality significantly in how and where it grows, manages its financial affairs, and provides services to its residents. Furthermore, boundary changes profoundly shape the nature of future relationships and cooperation between or among municipalities, especially infrastructure provisions, servicing agreements, and growth locations. Despite its significance and frequency, the phenomenon of boundary adjustment has not been very well understood by planning scholars or practitioners.

Annexation is the most common and frequent form of municipal boundary adjustment in the province of Alberta and elsewhere in Canada. Annexation is a permanent acquisition and incorporation of territory of an adjacent or non-contiguous municipality. The final decision on annexation lies with the provincial cabinet, based on the recommendation made by the Municipal Government Board (MGB). Annexation, despite its permanence, is not subject to review *ex post facto*. No systematic or comprehensive study exists on annexations in the Canadian context.

The study examines annexation to address the following questions:

1. How effective is annexation in expanding municipal boundaries?
2. What are the implications of this strategy? Specifically, has it provided planning and land use control measures in city-regions, strengthened the tax base, and contributed to making urban-regional economies healthier?
3. How does Alberta's use and outcomes of annexation compare to other jurisdictions in Canada?
4. What is the fiscal impact of annexation on the municipalities involved?

To answer above questions, the study used both quantitative and qualitative data, focusing on the following: 1. Academic and grey literature available literature on annexations in Alberta and in other Canadian and American jurisdictions. 2. Municipal government documents such as Intermunicipal Development Plans, Annexation agreements and Intermunicipal Collaboration Framework and MGB orders. 3. Interviews with former and current elected and municipal officials and staff of the MGB. 4.

Spatial (and census) data from municipalities to examine this data for changes in population, vegetation, land use, density, and other factors.

This paper presents a preliminary typology of annexations in Alberta with a few recent trends that are shaping the annexation debate in the province. It also expounds on the reasons for where and why they happen in the province and how they impact the municipal and regional growth patterns. The quantitative modelling exercise provides us a preliminary idea of whether annexation is economically beneficial to the annexing municipality.

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Key Words: Annexation, Canada, municipal boundary adjustment

EXPLORING DISPARITIES IN URBAN EXPANSION AND CENTRAL GOVERNMENT POLICY IMPACTS ACROSS LARGE, MEDIUM AND SMALL CITIES IN CHINA

Abstract ID: 62

Individual Paper Submission

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In order to promote coordinated and sustainable development across its large, medium and small cities, the central government of China has introduced a series of policy changes since the early 1990s. With policies increasingly focused on developing small cities, these cities have been rapidly expanding and sprawling. For instance, Tan et al. (2005) reported a relatively high arable land loss in smaller cities in the Beijing-Tianjin-Hebei region from 1990-2000; Gao et al. (2016) also reported a substantially higher level of urban sprawl in some small cities in western China than cities in other regions from 1990-2010 based on their analysis of nighttime light images and national census data. While a number of empirical studies have identified that economic, demographic and social factors, such as industrial development, population urbanization, real estate development and land-use regulations are the predominant drivers of urban sprawl (see e.g., Zhang, 2000; You and Yang, 2017; Liu et al., 2018), there is a deficit of research investigating the driving mechanisms of urban sprawl and how these differ between small and large cities in the era of China's rapidly developing economy.

The purpose of this study is to examine whether the rapid expansion of urban areas in small cities is related to central government policy changes towards coordinated development of all cities across different size. Using the city tier system that classifies all 265 cities in China at prefectural level and above into large, medium and small cities, we address two interrelated research questions: 1) How does urban expansion differ across different-tier cities over the past two decades, from 1995 to 2015? 2) How did three central government policies – regional development policy, the hukou system, and land and housing market policy – affect urban expansion in different-tier cities?

Using multi-temporal land-cover maps collected from the European Space Agency Climate Change Initiative (ESACCI-LC) together with data from the China City Construction Statistic Yearbooks (1995-2015), we first quantify the spatial features of urban expansion in different-tier cities over five periods (i.e., circa 1995, 2000, 2005, 2010, 2015). We then explore the differentiated effects of policy changes on urban expansion across large, medium and small cities by developing linear fixed-effect models. The results show that small cities have sprawled to a much greater extent than large cities since 2000 following the shift in policy directions to control the growth of large cities and promote more active development in small cities. We conclude the paper by discussing the negative effects of policy changes on urban expansion in small cities. Our findings advance the understanding of different policy impacts on urban expansion across large, medium and small cities, and provide insights for the development and implementation of coordinated and sustainable urbanization policies.

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Key Words: urban expansion, urban sprawl, policy impacts, different-tier cities, China

PUBLIC PARTICIPATION, EQUITY, AND SUBURBAN HOUSING DEVELOPMENT

Abstract ID: 141

Individual Paper Submission

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Many studies examine the role of public participation in plan and policy making (Arnstein 1969; Berry, Portney, and Thomson 1993), but fewer consider its role in more ad hoc procedures related to development proposals. These studies have also tended to regard public participation as a means of fostering more equitable planning outcomes. But other scholars have argued that in areas facing demand for new housing, current homeowners often use the public participation process to voice opposition to new residents who would join them in using local schools, roads, parks, and other services, facilities, and

amenities (Fischel 2001). When it is successful, this opposition serves to effectively ‘hoard’ high-quality services and amenities within these privileged communities (Reeves 2017). This is to the detriment of excluded users, and contrary to values of equity.

In this paper, we examine the content and effects of public participation in rezoning processes related to residential developments in growing suburban areas. What are the drivers and consequences of public participation in these processes? To address this question we consider three decades (1986-2015) of public comments made at planning commission meetings regarding proposed rezonings for residential developments in Henrico County, Virginia (USA), a largely suburban county adjacent to the city of Richmond.

Using descriptive statistics and logistic regression analysis, we find that the nature of public participation in these cases is overwhelmingly negative, and that this negativity stems most often from anxiety over traffic, flooding, road connections and access, proposed development density, and property values. We find that larger rezonings, the incorporation of multi-family or zero lot-line housing, higher census tract populations, increases in homeownership rates, increasing population density, and increasing racial diversity are all associated with higher levels of opposition. Public input in the case study county contributes to the adoption of numerous zoning conditions related to traffic, drainage, and site design, but more commonly to restrictions on density and increased floor areas. In consideration of these and other researchers’ findings (Pendall 1999), we conclude that a primary effect of public participation in decisions related to suburban housing development is to reduce the amount of housing produced and elevate the quality of what is produced, thus reducing housing access and producing less equitable outcomes than may otherwise be realized.

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Key Words: Public participation, land use and zoning, suburbs, equity

ASSESSMENT OF POLYCENTRIC DEVELOPMENTS NATIONALLY FOR TRANSPORTATION IMPACTS

Abstract ID: 199

Individual Paper Submission

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Since the early 20th century, the notion of “polycentricity” has been used to describe the urban landscape, but it is only recently that urban planners and policymakers have turned to polycentricity as a possible solution for more sustainable development (Davoudi 2003; van Meeteren et al. 2016). A “polycentric” region consists of a network of compact developments connected through high-quality transportation options. As the antidote to sprawling suburbs, compact centers could encourage all the things sprawl discourages: public health, environmental sustainability, social cohesion, and economic diversity (European Commission, 1999; Hamidi et al., 2015; Meijers and Burger, 2010).

This study asks 1) how polycentricity is defined and quantified in planning practices and 2) its transportation benefits. We first conducted a comprehensive review of 126 regional transportation plans (RTPs) across the U.S. Then, using spatial regression and propensity score matching, we identified activity centers in 28 regions and compared travel outcomes between households in centers and those of matched households outside of centers.

A review of 126 RTPs shows that the term “center” is used in connection with various geographic levels—region, city, sub-region, town, community, and village. Alternatively, the term ‘center’ is also used to signify clusters of certain functions such as an employment center, transit center, or entertainment center. Generally, the center is described as the densest part of an area, characterized by compact, mixed-use development, multiple transit options, and employment opportunities.

Only 25 RTPs included any quantitative indicator, and some of these indicators are overly broad. The quantitative criteria can be classified into four main factors—employment density, residential density, total population or employment, and area size. Synthesizing the quantitative criteria found in the 25 RTPs and the qualitative criteria found in all plans, we articulated general guidelines for identifying common types of centers.

Next, the identification of centers was done in two steps. First, we identified the location of central business districts (CBD) in 28 U.S. regions using local spatial autocorrelation techniques. These techniques enabled us to identify the highest local peaks in terms of employment density as potential CBDs. Second, having identified CBDs, the locations of potential employment subcenters are identified using Geographically Weighted Regression (GWR). Then, multi-step criteria are applied to exclude unqualified candidates. As a result, a total of 592 centers as either CBDs or local density peaks were identified in the 28 regions. Out of 81,113 households included in the household travel surveys, 1,506 households (18.6%) live within centers.

Finally, we compared travel outcomes between center households and non-center households. On average, households living in centers tend to drive fewer and shorter trips, take transit more, walk more, and bike less. After matching households having similar socio-demographic status using propensity score matching method, center households drive shorter (24.6 vs. 29.8 miles traveled per household per day) and walk more (0.99 vs. 0.78 walk trips per household per day) than their counterparts outside of centers. These findings show that when a household in a suburban area moves into an existing center, or a city develops a new center by increasing its employment density and land use diversity, the average household is expected to have significantly shorter auto trips and more walk trips.

The relevance of this work to planning scholarship and practice lies in the specific guidance it provides in establishing quantitative criteria for designating centers and in quantifying the travel-related benefits of

polycentric development. To our knowledge, no prior academic research has accomplished either of these two tasks.

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Key Words: polycentricity, regional transportation plan, travel behavior, geographically weighted regression

ARE WE THERE YET? REVISITING “PLANNING FOR SUSTAINABLE DEVELOPMENT” 20 YEARS LATER

Abstract ID: 236

Individual Paper Submission

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Almost 20 years ago, Berke and Conroy (2000) set out to answer whether planning practice had responded to the UNCED Rio Conference directive to plan for sustainable development. The authors established six sustainability principles (livable built environment, harmony with nature, place-based economy, equity, polluters pay, and responsible regionalism) and used those principles to evaluate plan policies of 30 high-quality and sustainability-focused plans across the United States. The overall findings set forth that plans intending to promote sustainability and those that were otherwise noted as high-quality were not significantly different in how well they promoted the principles. Both sets of plans did promote one principle (livable built environment) significantly more than the other five, establishing a very unbalanced promotion of the concept for practice (Berke and Conroy, 2000).

Planning for sustainable development remains an active and promoted paradigm in the planning literature. Not only does the Berke and Conroy (2000) article have over 800 citations, most coming since 2010, searching via Academic Search Complete for “planning” and “sustainable development” (limiting to planning related journals) reveals hundreds of articles published since 2015. The paradigm also serves as the foundation for “best practices for comprehensive plans” (Godschalk and Rouse, 2015). However, in light of the increased attention to specialty plans addressing, for example, climate change, ecosystem services, and resilience, the planning community remains generally unaware of the level of integration of fundamental sustainability principles into community comprehensive plans.

Berke and Conroy (2000) did not measure plan quality itself. Instead, the work evaluated the strength with which plan policies promoted sustainability principles. However, it remains a component of the plan quality evaluation literature (Berke and Godschalk, 2009). That literature has developed in the intervening years to capture communicative processes (Norton, 2008), detailed internal and external plan characteristics for best quality evaluation practices (Berke and Godschalk, 2009), as well as “anticipatory governance” considerations (Berke, et al., 2014). Given these progressions both on the evaluative and topic foci, we are again challenged to understand how well planning practice is translating sustainability considerations into primary documents, notably the community comprehensive plan.

This paper examines three research questions based on the original work. First, do the original sustainability principles used for evaluation remain valid when considering the evolution of the sustainability paradigm to issues including, for example, resilience? Second, do the updated plans for each of the original communities promote sustainability principles more strongly and/or in a more balanced manner than their initial sustainability evaluation? Third, do new high-quality plans promote principles of sustainability similarly (strength and balance) to the updated original plans?

We examine the research questions by first establishing the essential considerations of the current plan evaluation literature, including the target plan topics of those evaluations. Then we evaluate the ability of the Berke and Conroy (2000) framework to capture the topical and methodological evolution. Based on that assessment, we return to the 30 community comprehensive plans from the 2000 study and apply the established methodology to determine how well they promote sustainability principles. Finally, we then evaluate the award-winning comprehensive plans from the past decade using the same method to compare how well they promote those same principles. This study is important in that it will assess the relevance of the Berke and Conroy (2000) principles in light of the literature progression and provides needed insight regarding the state of practice in promoting sustainable development.

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Key Words: sustainable development, plan evaluation, comprehensive plans

THE FINANCIALIZATION OF ZONING AND THE FINANCIALIZATION OF INFRASTRUCTURE: PLANNING LESSONS FROM NEW YORK

Abstract ID: 305

Individual Paper Submission

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Financialization refers to the growing claim of the financial services sector on the rest of the economy. For a variety of macroeconomic reasons urban real estate development is ground zero for this trend (Fischler, 2018). Using Chicago as case study Weber (2015) has traced the longer trend and cyclical dimensions of relationship. Using New York City as example this paper concentrates on the ways in which these larger forces take policy shape in the details of land use regulation and place-based infrastructure finance. Although conceptually separate, the zoning financialization and infrastructure financialization typically go hand-in-hand shaping the contemporary built environment and need simultaneous consideration.

Location value accounts for the bulk of real estate asset value. Zoning and infrastructure placement count for much of this private balance sheet value. Because the innovations of transferable development rights (TDRs) and incentive zoning hold great potential to generate ever more balance sheet value, they have become drivers in the growing integration of zoning and financialization.

This interrelationship is further complicating by infrastructure finance. Infrastructure too enhances location value. Consequently, infrastructure finance is often directly tied to stimulating an increase in real estate value in hopes of capturing asset value via tax increment financing (TIF) to pay for the initial improvement. Air rights, either singularly or in tandem with TIF like mechanisms therefore play a determinative role in the ways in which financialization now defines the physical structure of urban space (Sclar, 2019).

Using extensive and historic case material from New York City's experience with TDRs, incentive zoning and TIF, the evolution and implications of this financialization for urban land use planning are explored.

As these zoning tools and financing mechanisms transformed from singular situations to widespread standard policy practice their consequences for the social and physical structure of cities has been extensive. In general, this has meant a growing differential in physical access to urban opportunities across social classes, with the more affluent attaining increased access and lower income groups less (Stahl, 2019).

An important aspect of this evolution, explored here, has been the detachment of development rights from the particular locations where initially conferred to freely float to widening array of alternate sites. The extent of this air right fungibility is limited by zoning regulation. Its intensity is driven by the vagaries of global financial markets. It is out of the pushes and pulls of regulation and market imperatives that the contemporary financialized urban built form emerges.

The planning importance of this can't be overstated, especially for cities that are attractive locations for inflows of global investments. Fully understanding the dimensions of this growing intersection among financialization, air rights fungibility and infrastructure finance for urban planning practice is imperative if the equity and environmental challenges of 21st century planning are to be successfully addressed.

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Key Words: Air Rights, Transferable Development Rights, Zoning, Financialization, Tax Increment Financing

PLANNING AND IMPLEMENTATION: THE CASE OF CALIFORNIA'S HOUSING ELEMENT

Abstract ID: 312

Individual Paper Submission

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About one-third of the states in the U.S. require municipalities to adopt a housing element to accommodate housing needs and achieve housing equity. Generally, local governments must adopt and periodically update a housing element to accommodate state-forecasted population growth, and the plan is subject to direct or indirect state review. California goes a step further by dividing the housing needs into four income categories and imposing stronger state oversight. All California municipalities must adopt a comprehensive plan with a housing element that demonstrates how the jurisdiction will provide adequate housing for households of very-low, low, moderate, and above-moderate incomes. The housing element must be updated every five to eight years, and be reviewed and approved by a state agency. With stronger state enforcement and within a comprehensive planning framework, municipal housing elements are viewed as a viable approach for addressing local regulatory barriers to low-income housing (Ramsey-Musolf, 2017). On the other hand, the effectiveness of California's housing element law is unclear.

This study is motivated by two criticisms on the implementation of California's housing element law. First, California charges regional council of governments (COGs) to allocate housing needs to each jurisdiction in their regions. Voluntary regional planning organizations are often seen as ineffective in affecting local development outcomes (Allred & Chakraborty, 2015). Second, evaluating the implementation of the housing element has long been a challenge due to the lack of data available on housing production. Previous research has produced inconclusive results about the effectiveness of California's housing element law (Lewis, 2003, 2005; Ramsey-Musolf, 2016). This study fills this gap.

Using the recently released data on California jurisdictions' housing element compliance status and annual permit issued by income category for the 5th allocation cycle, I first assess the extent to which each region, governed by one COG, has complied to the housing element law (i.e., adopted an approved housing element) and is on track to meet its housing needs, as measured by the number of permits issued at various income levels.

Next, I use the Southern California Association of Governments (SCAG) region as a case study to examine municipalities' progress in implementing their housing elements. I divide municipalities into three categories based on their progress in achieving their housing goals: (1) on track to meet market-rate housing (i.e., above-moderate income housing) needs only; (2) on track to meet low- and moderate-

income housing needs only; and (3) on track to meet housing needs of all economic segments of the community. I use multinomial logistic regressions to analyze jurisdictional characteristics associated with different types of progress made by municipalities.

To further understand factors facilitating or impeding the effective implementation of the housing element, I then derive a stratified sample of municipalities within the SCAG region and review their current housing elements. Content analysis is conducted to understand municipalities' progress made in the previous planning cycle, current development goals, constraints on development, and strategies for meeting the allocated housing needs. I also conduct interviews with municipal planning staff to understand why particular types of development are preferred and what thwarts the effective implementation of the housing elements.

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Key Words: Housing elements, State mandate, Exclusionary zoning, Affordable housing, California

DOES SMART GROWTH AFFECT TRAVEL BEHAVIOR OF THE ELDERLY? A CASE STUDY IN THE CENTRAL PUGET SOUND

Abstract ID: 357

Individual Paper Submission

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As an alternative to the prevailing pattern of sprawl, the Smart Growth urban planning policies and interventions have encouraged cities to return to compact and mixed-use patterns as way to foster less automobile-dependent and sustainable development, and to promote residents' active travel. In view of that U.S. is undergoing a major demographic transformation as Baby Boomers cross into the 65+ category, smart growth principles have been incorporated with the Active Aging concepts in planning efforts to enhance the elderly's well-being. However, previous environmental concerns on the elderly's mobility largely focus on the neighborhood and community scale, a more macroscopic discussion still lacks.

This study attempts to explore the association between smart growth practice and the daily travel behavior of the elderly with empirical reference to the Central Puget Sound metropolitan area, where smart growth has long been highly focused planning issue with growing attention to the aging society as well. The

followings are the main research objectives: (1) to examine older adults' daily travel intensity on different purposes and the smart growth principles associated with them; (2) to examine active travel (walking and bicycling) and public transit use among the elderly and the smart growth principles associated with them.

Based on the Puget Sound Region 2014 Household Travel Survey data, this study firstly uses multiple linear regression model to explore influencing factors of the frequency/ distance of older adults' daily trips on different purposes (total, utilitarian, and recreational travel respectively). Then ordinal logistic model is adopted to investigate various attributes on the elderly's transit use frequency. Finally, based on binary logistic model, the influencing factors of older adults' odds of having daily active travel (walking and bicycling) is examined.

The findings of this study indicate that smart growth strategies (urban growth boundary, regional growth center, high density, mixed land use, high transit accessibility) have non-negligible influence on older adults' trip intensity, transit use, and active travel, which challenges previous speculation that older adults' mobility is not sensitive to the urban form. The results add evidence to the correlation between built environment and the elderly's travel at a more macroscopic level other than at the neighborhood scale, and indirectly corroborate the efficacy of smart growth strategies though a specific population group.

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Key Words: Smart growth, Travel behavior, the elderly

CREATING COAST-SMART COMMUNITIES IN MARYLAND

Abstract ID: 402

Individual Paper Submission

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The Sea Level Rise (SLR) has challenged coastal states as it increases flood risks that threaten valuable properties, human lives, and natural resources. The State of Maryland has been concerned with SLR impacts resulting from a combination of rising seas and sinking land. About one third of Maryland's counties are expected to be at high SLR hazard rank (1.49 - 2.35 meters) by 2100. Therefore, recent

studies encourage planning to accommodate SLR of 2 feet along Maryland's shoreline over the next 50 years, and more than 5 feet for structures with a lifespan of 100 or more years (Canick et al., 2016).

The State of Maryland has taken serious actions to reduce, mitigate, and manage potential SLR impacts. It created the Adaptation Strategy for Sea-Level Rise and Coastal Storms (2008), the Living Shoreline Protection Act (2008), and coast resilience programs and grants among others. One of major State programs is the CoastSmart Communities Program that was launched in 2009 to help coastal communities improve their preparedness to address SLR hazards. It provides financial and technical assistance enabling local governments to incorporate natural resource and coastal management issues into local planning.

Despite State efforts it is unclear whether Maryland's communities are prepared to handle potential SLR hazards. Therefore, this research paper assesses community preparedness through investigating two major questions: what are local land use policies adopted to address SLR hazards in the State of Maryland? and to what extent are these land use policies Coast-Smart? Coast-Smart policies, as defined by the State Program, include land use policies that seek to reduce coastal hazard vulnerability and build community resilience to SLR impacts.

The research methodology relies on three sources of evidence: findings of a survey of Maryland's communities located in counties with high SLR hazard rank, content analysis of local comprehensive plans and hazard mitigation plans/programs, and secondary data obtained from state and local planning and environmental agencies, and the Federal Emergency Management Agency among others. The statistical analysis demonstrates major land use policies adopted by coastal communities, and shows variations in local coast-smart levels that are affected by communities' geographic location, population, income, and technical and institutional capacity for planning.

Findings of the research analysis point to strengths and weaknesses of current local land use policies, show challenges facing Maryland's CoastSmart program to help communities mitigate SLR impacts. Research findings will improve our planning knowledge of effective local land use policies to address potential SLR hazards. They suggest significant policy implications for local governments seeking to create community resilience to SLR hazards.

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Key Words: Sea level rise, Coastal resilience, Local land use policies, Maryland

BOUNDARY ORGANIZATIONS IN GOVERNING AGRICULTURAL LAND: COMPARATIVE ANALYSIS OF TWO AGRARIAN COMMUNITIES IN JAPAN

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Coordination across different jurisdictional levels has been a challenge in land-use planning. The barriers against flexible coordination to successfully exploit cross-level opportunities include transaction costs, rent-seeking, dependency and divergence from checks and balances (McGinnis, 2008). With the understanding that these challenges essentially arise from multiple perspectives held at different levels, scholars and practitioners have postulated the utility of boundary organizations or intermediary mechanisms to enhance accountability and participation, ensure translation and co-production of knowledge, and facilitate mediation across the levels (Cash et al., 2006; Graham & Mitchell 2016).

This paper explores why a same cross-level intermediary mechanism performs differently across local communities to meet a policy goal in agricultural land use. In an attempt to promote the productive use of farmland in Japan, the government introduced an intermediary mechanism called farmland banking in 2014. Farmland banks are semi-public boundary organizations established at the prefectural level (i.e., the first level of jurisdictional division) to coordinate different needs and interests in farmland use at the local, regional and national levels and facilitate farmland transactions through tenancy for better economy of scale in farming. With a goal to expedite farmland aggregation, the national government gives more power to prefectural authorities to take advantage of regional resources and bring new actors into tenancy arrangements in the context of agricultural abandonment. At the same time, it allows them to delegate some administrative tasks to municipal agencies to mobilize local resources for program implementation. Some local communities have collectively adopted this new program, but the majority of agrarian communities have been largely indifferent to it. With a focus on local actors' participation in the program, this study seeks to better understand factors affecting the performance of boundary organizations in governing land.

The study employs a comparative case study of two local communities in Ishikawa Prefecture, which were selected based on the contrast of program adoption under a same farmland bank. In Ishikawa Prefecture where land-extensive farming for rice production has formed typical Japanese agricultural landscapes, one community has fully adopted the program on a community basis, and the other has remained largely with conventional tenancy arrangements without relying on the program. Drawing on over 20 semi-structured interviews with farmers in each community, the study examines farmers' responses to the program. It also uses semi-structured interviews with government officials and experts to identify roles and responsibilities of institutional actors at the local, regional and national levels in policy making and implementation. The analysis is explored with multi-level governance as empirical and theoretical models to delineate a complex pattern of institutional relations and their effects on coordination of different interests and needs in farmland use (Hooghe & Marks, 2009).

The comparative analysis finds that program adoption builds on not only available economic opportunities for land use but also historical trajectories of institutional change at the household and community levels. Furthermore, it elucidates the widening inter- and intra-generational gaps in farmers' perspectives on farmland, suggesting threats to forging collective action for farmland management. The study also reveals that despite the reallocation of authority, the centralized evaluation and supervision with the budgetary control has impeded mutual learning among institutional actors in governing farmland. The findings suggest the need to attend to dynamic, contextual and diverse views on farmland that remain contested even among farmers (Varble et al., 2016). The study highlights the importance of enhancing local mechanisms where farmers' commitment to long-term farmland use and management is enshrined and extended to multi-level land governance.

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Key Words: Boundary organizations, Multi-level governance, Land use, Coordination, Farmland

DOWNLOADED, BUT NOT OUT: AN EXAMINATION OF MUNICIPAL EFFORTS TO MANAGE BROWNFIELDS, INFILL, AND URBAN REVITALIZATION IN ONTARIO, CANADA

Abstract ID: 460

Individual Paper Submission

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Despite keen support from the federal and provincial government for brownfields redevelopment in the early 2000s, there is a sense that municipalities in Ontario, Canada have been largely left to fend for themselves. While some perceive this as neglect, others feel that it has inspired an array of innovative efforts to link urban planning and economic development in order to better address urban revitalization, brownfields, and infill challenges at the local scale. This research employs online surveys of municipal brownfield specialists and case studies to examine municipal brownfield management efforts in Ontario and builds on two previous studies examining brownfields assessment and cleanup (De Sousa and Speiss 2018) and redevelopment (De Sousa 2017) activity in the province. The specific questions guiding the examination are:

What is the current brownfields situation facing Ontario municipalities?

- How are municipalities currently engaging in brownfields assessment and redevelopment activities, particularly in terms of internal coordination, policy, and funding?
- What has been the perceived role of other levels of government and external stakeholders in helping to manage brownfields, and how effective has this been?
- Can any broader implications be distilled from Ontario municipalities in terms of supporting a more effective and sustainable brownfields management regime?

Preliminary results reveal that the role of municipalities in brownfields redevelopment varies considerably in character throughout the province, despite the fact that all municipalities are given the same statutory authority to address the issue. While most municipalities have experience in utilizing various tools to support assessment, cleanup, and redevelopment, there is no formal or coherent strategy for achieving and assessing success or for sharing best practice among municipalities. As such, there is significant variability among municipalities depending on the strength of their real estate market and political will, which will affect the province's goal to grow in a more compact and smart manner.

The research highlights the strengths and weaknesses of Ontario's approach, which relies much more heavily on municipal coordination than in Europe or the US where upper levels of government are more active. The research is of relevance to urban planners and policy makers interested in this domain of urban revitalization and redevelopment, as well as to the cohort of planning scholars who have made a significant contributions to this field of research over the last two decades, because it sheds light on the potential role of municipal planners and actors left on their own to address a national issue in the absence of leadership, support, and engagement from upper-levels of government.

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Key Words: brownfields, redevelopment, municipal, policy, management

POST-DISASTER RESIDENTIAL REDEVELOPMENT: THE DURATION OF VACANCY AFTER HURRICANE IKE

Abstract ID: 473

Individual Paper Submission

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Vacant lots increase after a disaster, when property owners do not rebuild or repair damaged structures. These vacant lots may represent uncertainty for the neighborhoods. The uncertainty can include decreased housing prices (Han, 2014) and increased abandonment (Zhang, 2012). The speed in which vacant

properties are redeveloped may mitigate these negative consequences. However, it is well known that disaster recovery can be uneven (Peacock, Morrow, & Gladwin, 1997), resulting in some neighborhoods and communities lagging behind (Hamideh, Peacock, & Van Zandt, 2018; Peacock, Van Zandt, Zhang, & Highfield, 2014). For these neighborhoods, vacant land can exist many years after a disaster, or never recover.

The goal of this research is to analyze pre- and post-disaster vacancy conditions and the recovery speed of vacant land after a major coastal flooding event, Hurricane Ike in 2008. Galveston Island and Bolivar Peninsula were the hardest hit communities in Texas during this event. The storm surge resulted in extensive housing damage, forcing not only the dislocation of many households, but also the abandonment of properties and the generation of vacant properties. Indeed, even a decade after Hurricane Ike, many vacant lots have not been redeveloped.

This research identifies the spatial disparity before (2007-2008) and after (2009-2017) Hurricane Ike. The Galveston County Appraisal District (GCAD) data was used to distinguish if vacant lots generated by Hurricane Ike from those that existed prior to the hurricane. The GCAD data were combined to create a longitudinal database to assess the probability of redevelopment of residential vacant lots. Specifically, these longitudinal land-use database provide an opportunity to model the probability of redevelopment focusing on factors that promote or hinder the process. The Hazard Ratios from a Cox Proportional Hazards Model assess the probabilities of redevelopment by lot and neighborhood-scaled socioeconomic characteristics such as property values, owner occupied housing units, vacant housing units, seasonal or recreational vacant housing units, and additional household and socio-demographic characteristics.

While vacant lots were generated as a consequence of hurricane damage, other socio-economic factors appear to have consequences on redevelopment. Preliminary findings suggest that property value, tenure, vacancy rates, and household size were the significant factors that reduced the probability of redevelopment. A vacant lot with a \$150k pre-Ike improvement value had a 20% increased chance of redevelopment, when compared to a vacant lot with a \$50k pre-Ike improvement value. The density of flooding related vacant lots also delayed redevelopment efforts. A vacant lot in a neighborhood with a 20% vacancy rate had a 3% decreased chance of redevelopment, when compared to a vacant lot in a neighborhood with a 10% vacancy rate. In addition, the redevelopment trajectory of vacant lots showed that the initial redevelopment ratios in the first two years determined their redevelopment outcomes in the following years.

Our hope is that findings from our research can be used to improve disaster recovery plans such as shaping reinvestment strategies and incentives following a major disaster. Additionally, we hope that this research will help identify areas within a community that have a higher probability of long term recovery or regeneration issues.

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Key Words: Disaster Recovery, Vacancy, Residential Redevelopment

THE ART OF IMPLEMENTATION: IMPLEMENTING INCLUSIONARY PRACTICES IN ARTS AND CULTURAL PLANS

Abstract ID: 474

Individual Paper Submission

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While there is a great deal of research that critiques how well comprehensive planning processes incorporate inclusionary practices and offers suggestions for improvement, we know relatively little about how topical plans address these important issues through tangible strategies and investments. Although these plans may draw less scrutiny, they still represent a vision that cities and communities endorse and may still make a significant impact on their communities through the implementation process. For example, the development of arts and cultural plans is an increasingly popular economic and community development strategy but it is unclear to what extent arts and cultural planners are prioritizing inclusive language, goals, and resources. In addition, planners and officials increasingly position arts and culture as a valuable extrinsic tool for addressing community problems around equitable development rather than purely as an aesthetic amenity or for intrinsic benefits alone. Yet, if done poorly, arts and cultural planning can be criticized as engaging in cultural appropriation, sanitizing or eliding aspects of local culture, or even removing that culture altogether. Thus, we seek to answer two research questions: To what extent do arts and cultural plans incorporate inclusionary goals and practices, and, given their treatment in the plans, how likely are those practices to be implemented? This study is part of a larger research project that will eventually investigate actual implementation outcomes.

For this first phase, our research design centers on a quantitative content analysis of arts and cultural plans from a national sample derived from a National Endowment for the Arts database. Drawing on the extensive body of work of plan content analysis developed by Berke, Burby, Norton, Loh and others, we first evaluate the extent to which the plan and its associated planning process strives to honor diversity and foster inclusion. Then, for each element of the plan, we evaluate to what extent that element would further diversity and inclusion goals (or would not), and how concretely the plan lays out implementation steps to actually achieve an on-the-ground result. This initial research endeavor allows us to better understand how planners and those involved in the governance and development of these topical plans see ways to leverage arts and culture for more inclusive and equitable communities.

This first phase, thus, has three points of merit: 1) it adds applied knowledge to a community of scholarly research on how arts and cultural plans shape policies and investment, 2) it gives practitioners and policymakers information on their efforts around diversity and 3) it provides further knowledge of how implementation works.

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Key Words: arts and culture, implementation, diversity and inclusion, topical plans

GROWING TOGETHER OR GROWING APART? AN EVALUATION OF VOLUNTARY REGIONAL LAND USE PLANNING IN LANCASTER PENNSYLVANIA

Abstract ID: 530

Individual Paper Submission

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Land use planning in the United States is predominantly a local activity. Local governments have primary control over land use and rarely engage in collective action to address land use issues that cross jurisdictional lines although there might be compelling reasons to do so (Carruthers, 2003; Innes, 1993; Wheeler, 2000). While some states mandate or incentivize regional land use planning (Burby & May, 1997), the majority of states use a hands-off approach by leaving it to local governments to determine whether to plan regionally and to do so voluntarily. However, very little is known about whether voluntary cooperation can “evolve” around land use issues in the absence of significant mandates and incentives (David, 2015; Visser, 2004). Further, do voluntary regional efforts have the ability to impact development patterns on the ground? What are the benefits and costs of such efforts?

I use Pennsylvania as the sub-state institutional context for this paper. Pennsylvania is prototypical of a permissive planning state with limited state-sponsored and institutionalized channels for cooperation. In this regard, Pennsylvania is representative of most states in the U.S. Pennsylvania’s 2566 municipalities have broad planning and zoning powers i.e., municipalities have the power to prepare, adopt, and implement comprehensive plans and ordinances to guide growth and development within municipal boundaries. In 2000, the Pennsylvania legislature passed Act 67, which allows municipalities to plan regionally. Act 67 enables municipalities to forego their individual comprehensive plans and write joint / multi-municipal comprehensive plans with other contiguous municipalities (or municipalities within the same school district). The municipalities with multi-municipal plans can implement these plans individually or jointly. Preliminary research indicates that at least 172 joint /multi-municipal plans have been written by about 742 separate municipalities.

I use a case study of eleven municipalities in central Lancaster, PA that have written a regional land use plan to evaluate the promises and perils of voluntary regionalism on land use issues. I use multiple approaches to collect and analyze data. I use document review of local comprehensive plans, ordinances, newspaper articles, and background reports to tell the story of regional land use cooperation in Lancaster, PA. I use spatial data (e.g., building permits, land developments, agricultural preservation) to evaluate the impact of the regional planning effort on growth and development. I use interviews with elected

officials and planners from the case study communities to provide a thick description of the challenges of voluntary cooperation on land use issues.

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Key Words: regional land use cooperation, growth management, regional planning, coordination, regionalism

HOW BUILT ENVIRONMENT AFFECT URBAN VITALITY AT LOCAL LEVEL? A CASE STUDY IN SHANGHAI

Abstract ID: 539

Individual Paper Submission

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The urban transformations have brought dramatic changes to Chinese cities in terms of both physical and social space. To deal with the social problems caused by this transformation progress, urban vitality has been emphasized to make a vital and lively city. However, limited research has investigated the relationship between built environment and urban vitality in Chinese cities. Inspired by Jane Jacobs' research on urban vitality, this paper studies how built environment at local level affect urban vitality by combining taxi trajectory data and poi data in Shanghai. Urban vitality is defined as economic vitality, social vitality and cultural vitality, reflecting the city's development ability and quality of life. Economic vitality is measured by the number of restaurants and other service companies, social vitality as the number of taxi arrivals in certain time period and cultural vitality as number of cultural facilities in a certain area. The paper finds that urban vitality of Shanghai is decreasing from the center to the suburban area and the vitality of the Puxi area is better than that of the Pudong area. Using the local moran's I index, the spatial agglomeration of urban vitality is tested. The impact of built environment on urban vitality is studied using OLS regression models and GWR models at local level. There are some preliminary results. First, population density has an inverted U-shaped effect on urban vitality, and dense population will reduce urban vitality. Second, POI point density, road network density and POI point mixing will promote urban vitality. Third, the increase of average building layers and the increase of building density will reduce the social vitality and cultural vitality of the block, but will enhance the economic vitality. Fourth, distance to the nearest subway station will reduce the economic vitality of the block. Policy implications are discussed.

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Key Words: urban vitality, block level, points of interest, China

SHOULD I STAY OR SHOULD I GO? ADAPTIVE MIGRATION AND CLIMATE JUSTICE IN COASTAL LOUISIANA

Abstract ID: 654

Individual Paper Submission

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In response to environmental change and flooding hazards, residents in coastal communities can continue to live as they have, take adaptive measures to safely stay in place, or adapt through migration (Bailey et al., 2014). When they stay in place, they must respond to climate related environmental changes such as stronger and more frequent severe storms. Climate change is compounded by development practices that reconfigure the shoreline and put people at risk. In recent decades, Terrebonne Parish, located in southern Louisiana, has experienced severe coastal land loss, in part from a century of oil and gas exploration through the marsh. The Parish is projected to lose more than half of the remaining marshes, which historically have served as a buffer for the coastal communities, in the next fifty years. Land loss in conjunction with more severe storms threaten these coastal communities. If residents stay, they are at risk of danger and loss of assets and wealth. If they leave, they lose community and cultural ties, and attachments to people and places. What does climate justice look like in this circumstance?

Nonstructural policies to strengthen resilience, including flood proofing and home elevation, have focused heavily on interventions that help people stay in place. In some situations, buyouts have been used to reduce residential development in high risk areas. Increasingly, residents and local officials in Louisiana and elsewhere are discussing the possibility of relocating residents to reduce vulnerability. Analyses show that migration away from the Louisiana coast is already occurring and that the most advantaged residents have relocated at a faster rate leaving behind an increasingly poor and elderly population (Hobor & Plyer, 2014). Yet, surprisingly little is known about the factors that shape residents' decisions to migrate due to climate and hazard-induced vulnerability (McLeman & Hunter, 2010; Warner et al., 2010). How can justice and equity be centered in adaptation planning that must account for ways that people adapt when they stay and when they migrate, if, in both cases, residents feel that they have no choice? Adaptive migration in coastal Louisiana reveals the complexity of climate justice in coastal settlements and how questions of justice intersect with poverty, property valuation, historical and cultural ties to place, and community change.

This research explores how residents' perspectives on their decisions whether and when to stay or leave and can inform planning and policy frameworks for addressing the impacts of climate change and socio-cultural vulnerability. Drawing on semi-structured interviews with nearly 60 current or former residents of coastal communities in Terrebonne Parish, this paper shows how households respond to immediate and long-term environmental change, including how they make decisions when to stay or relocate. The residents recounted efforts to stay, the inevitability of leaving, and the barriers to doing both. This paper contributes to planning scholarship by examining residents' adaptation efforts and priorities, and interrogating climate justice in a situation with no fair outcomes. It contributes to planning practice by exploring how the residents' perspectives and a climate justice framework can shape adaptation policy that addresses both relocation and living in high risk communities.

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Key Words: adaptive migration, climate justice, relocation, adapting in place

UNDERSTANDING THE DYNAMICS OF URBAN DENSIFICATION: HOW DO CURRENT AND PLANNED LAND USES INTERACT AND EVOLVE OVER TIME?

Abstract ID: 688

Individual Paper Submission

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Urban densification has long been sought as a desirable pathway (or proactive planning strategy) towards sustainable urbanism, and increasing scholarly attention has been paid to the mechanisms through which density increase takes place in various places. While existing studies tend to focus on aggregate patterns of the association between densification and several determinants, it has been widely recognized that urban densification dynamics are highly context-dependent. Moreover, the distribution (or concentration) of densities within a region has been found to be crucial to economic development and transportation efficiency, indicating the importance of where densification should be promoted to improve the broader spatial structure more sensibly (Eidlin, 2010; Florida, 2012).

This study aims to provide new insights into the complexity of urban densification dynamics with a focus on thirty cities in Southern California where considerable efforts have been made to expand public transit services, and thus urban land use intensification is assumed to be desirable. Specifically, the present study employs a set of exploratory spatial data analysis techniques and Bayesian statistics to examine the (parcel-level) current and planned land uses and their intertemporal (2008-2016) relationships in the selected cities. Explicit attention is given to how planned land uses have changed (in relation to the

expansion of public transit services in the study areas), to what extent planned land use changes have led to shifts in actual land use patterns (particularly densification), and how changes in land use can induce further modifications of plans or zoning structures in nearby areas.

The results suggest that public transit accessibility shapes the dynamics of both current and planned land uses significantly in a way to increase conditional probabilities of upzoning and urban densification. However, densification is found to take place in various forms and settings rather than occurring in a uniform fashion. While planned land uses appear to guide the process of urban development in subsequent years, the direct effect of upzoning on actual densification turns out to be weaker than expected in many of the cities examined. Furthermore, a systematic spatial mismatch is detected between areas with a strong market force and areas with a strong planning desire for densification embodying various aspects of urban reconfiguration.

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Key Words: Urban densification, Land use regulation, Upzoning, Transit accessibility

ALTERNATIVE LAND ACCESS FOR DIRECT MARKET FARMERS IN PERI-URBAN AREAS IN THE PACIFIC NORTHWEST

Abstract ID: 723

Individual Paper Submission

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Direct market farms offer potential social, economic, and environmental benefits for metropolitan regions. However, direct market farmers face many challenges in accessing land in the USA, where land access is mediated mainly through capitalist relations of production and accumulation (Araghi, 2000). These challenges are exacerbated near metropolitan areas where the exchange value of land for development often exceeds its use value in farming (Inwood & Sharp, 2012; Horst & Gwin, 2017). Beginning farmers without access to capital and farmers from historically marginalized communities, including immigrants, farmers of color and LGBTQ farmers, experience additional barriers. In the face of this challenge, non-profit organizations, community-based organizations, for-profit enterprises, and governmental actors are innovating a variety of interventions to decommodify farmland ownership and ensure access by people who otherwise would not access land (Borras and Franco, 2012). These interventions include different land ownership, access, governance, and land use approaches, and range from affirmative easements, farm incubators, public land leases, development supported agriculture, “farmer friendly” lease and lease to own practices, benevolent and community funding models, land trusts, cooperative farms, and land-based reparations (Wittman et al., 2018). In this paper, we inventory

existing such cases in the Pacific Northwest. We highlight cases that prioritize beginning farmers and/or farmers from marginalized communities, and that include attention to community benefits and land decommodification. Based on interviews with key informants, we identify some of the common strategies used and challenges to scaling and replicability. Finally, we assess the the potential of these alternative land access arrangements to overturn dominant, market-based and individual ownership arrangements and enhance land tenure by people who are currently marginalized. We conclude with reflections for planners and their collaborators in how they can better support alternative land access for direct market farmers.

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Key Words: land access, land tenure, direct market farms, local food systems

EVALUATING THE SUITABILITY AND ALIGNMENT OF ZONING AND LAND USE PLANNING IN FLOOD-HAZARD AREAS

Abstract ID: 840

Individual Paper Submission

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Flooding is among the most deadly, destructive, and costly natural hazards that affect U.S. communities, accounting for dozens of fatalities and billions of dollars in damage every year. Along with broader trends in climate change and coastal urbanization, local land use and development decisions are important contributing factors as these figures continue to rise. Land use is frequently cited by academic and government publications as one of the most important variables in determining community resilience (Berke et al., 2015; National Research Council, 2014).

Urban planning and zoning guide and regulate the use of land in communities, but some land uses are more suitable than others in flood-prone areas. For instance, parks and open space are significantly less vulnerable than dense residential developments to flooding. To better understand how land use decision-making affects flood vulnerability – and explore the relationship between zoning regulation and land use guidance – we develop a method to evaluate the suitability and alignment of zoning and land use planning in flood-hazard areas. We then demonstrate this method in the vulnerable coastal city of Tampa, Florida.

Spatial analysis of zoning regulations and land use prescriptions helps address questions such as:

- Is a community's future land use plan guiding it in a more suitable (less vulnerable) direction, with respect to land use in flood-hazard areas?
- Is a community's zoning ordinance regulating for more suitable (less vulnerable) land uses in flood-hazard areas?
- How well do these two land use documents work together?

The evaluation proceeds in three steps. (1) First, spatial data (and supporting documentation) are acquired for a community's existing land uses, zoning designations, and future land uses, and then clipped to the flood-hazard area(s) of interest (e.g. 100-year floodplain). (2) Land use categories in all three layers are then standardized and assigned an appropriate 'land use suitability class'. (3) Finally, geoprocessing is performed to determine the 'land use suitability change' for each parcel, assuming regulatory and planning prescriptions are followed.

Findings from the case study suggest that Tampa is generally 'moving in the right direction' with respect to planning in flood-vulnerable parts of the city; planned land uses are more suitable than existing land uses, on average. In contrast, lands in flood-hazard areas are more frequently regulated for less suitable uses than currently exist. Despite this, zoning aligns reasonably well with the direction set in the future land use map, suggesting potential for even greater suitability in the future, should zoning evolve to conform more fully to the future land use plan. Parcel-level results offer additional detail about land use suitability and alignment across the city, and may be useful as part of a focused reevaluation aimed at strengthening resilience through land use.

This method provides a new perspective on the relationship between community zoning and land use planning vis-à-vis the costly and growing threat of flooding hazards. It may be applied by researchers and practitioners to evaluate the relative suitability of adopted land use regulations and guidance. Using widely available data and a straightforward process, critical information can be gathered regarding a community's long-term, publicly vetted land use plans and the regulations used to implement them, facilitating reassessment and a more resilient direction for land use in flood-hazard areas.

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Key Words: Land use planning, Zoning, Flood hazards, Resilience

DOES MIXED-USE DEVELOPMENT HELP U.S. OLDER ADULTS AGE IN PLACE?

Abstract ID: 866

Individual Paper Submission

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This paper intends to substantiate the positive impacts of the mixed-use residential environment on older adults to age in place. Age or aging in place is a term that describes people living in their homes and neighborhoods as long as they want and receiving necessary support and services as they age. In the U.S., a dominant proportion of older adults prefers to age in place, instead of being relocated to nursing homes or assisted living facilities (Farber, Shinkle, Lynott, Fox-Grage, & Harrell, 2011). The aging-friendly cities and communities policy movements, such as the WHO Global Age-Friendly Cities and the WHO-AARP Age-Friendly Communities, and the APA Policy Guide on Aging in Community promote the mixed-use residential environments as beneficial to older adults who wish to age in place. In addition, the benefits of mixed-use and/or compact development have been widely supported by the renowned planning and design movements such as Smart Growth, New Urbanism, and Form-Based Code. However, the positive impacts of mixed-use development, particularly on U.S. older adults to age in place, have not been supported by an ample amount of empirical evidence, despite that this proposition intuitively makes sense (e.g., proximity to amenities and services makes the life of an older adult more convenient) and assumed to be true (e.g., less auto-dependent lifestyle facilitates walking and healthy aging of older adults) (Alley, Liebig, Pynoos, Banerjee, & Choi, 2008; Kerr, Rosenberg, & Frank, 2012; Scharlach, 2012). Employing geographically weighted regression and using five cities in Ohio, Columbus, Cleveland, Cincinnati, Toledo, and Dayton, as a case, this study aims to find a set of evidences that there is a positive relationship between land use (zoning), particularly the mixed-use development, and years older adults stay in their homes. Population aging is a global phenomenon, and in the U.S., one in every five people will be age 65 or older in only about 10 years. As surveys reveal that an increasing number of aging baby boomers prefer mixed-use and/or compact residential environments (American Planning Association, 2014), this study provides a timely input to the debate whether mixed-use developments does help U.S. older adults age in place.

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Key Words: Aging in place, Mixed-use development, U.S. older adults

POTENTIAL FOR VALUE CAPTURE TO FUND PUBLIC TRANSPORTATION: EVIDENCE FROM FREMONT, CA WARM SPRINGS BART STATION'S IMPACT ON THE VALUE OF NEIGHBORING RESIDENTIAL PROPERTIES

Abstract ID: 897

Individual Paper Submission

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Central theme or hypothesis

While the extant literature has demonstrated the property value impacts of rail transit investments and a few studies have empirically simulated the potential magnitude of value capture (VC) revenues for financing transit. Most recent studies focus on light rail systems with very little recent research documenting the impact of heavy-rail-based rapid transit systems—such as the San Francisco Bay Area Rapid Transit (BART)—on property values. Furthermore, these studies—new or old—either focus only on single-family houses or club together various housing types such as single-family houses, condominiums and townhouses. The recent Warm Springs BART Extension (WSX) Project, located in Fremont, CA, which includes a 5.4-mile rail line extension and the opening of a new Warm Springs (WS) Station in March 2017 provides such a research opportunity.

This research seeks to answer the following two research questions:

Question 1: What is the house price impacts of the WS BART Station on the following two property types—single-family houses and condominiums/townhouses?

Question 2: How much of the house price increase would have been adequate to fund the WSX Project, after accounting for the property value increase already captured by other VC tools such as property taxes?

Approach and methodology

This study first uses the Alameda County, CA, and Santa Clara County, CA, Tax Assessor's data to estimate owner households' willingness to pay for houses within 2 miles of the WS BART Station, compared to those located 2-5 mile away from the station. Two sets of spatial regression models are run—the first set to estimate the impact of the WS BART Station on the prices of single-family houses and the second set to estimate the impact on the prices of condominiums/townhouses. Next, using the estimates from the regression models run for the first step, the study calculates the total property value increment attributable to the WS BART station.

Findings and relevance of work

The study finds that compared to the houses sold in the referent category (houses sold in the 2000-2001 period and located 2 to 5 miles from the WS BART Station), an average-priced single-family house within two miles of the WS BART Station was higher in price by 9% to 15% at various time periods during 2007-April 2018—a period that starts well before March 2017 when the station opened for commercial service. The total property value increment for the single-family houses within WS BART Station's 2-mile radius is large enough to fund the entire \$802 million WSX Project (in 2018 dollars) five times over.

The study findings support advocacy efforts for enhancing transit service in the San Francisco Bay Area specifically, and nationally broadly and should help build consensus that VC tools can be used to fund transit projects. The findings also address the NIMBYs' concerns related to rail transit's negative impact on property values. Therefore, I urge transit agencies, elected officials and policy makers to proactively pursue LVC tools to fund transit projects and to consider changing their approach to interacting with the community about transit provision—from an almost complete focus on alleviating property owner concerns about transit's negative property value impacts to engaging the community to share the property value increment to fund transit, while addressing community members' genuine concerns—for example, concerns around sound and station area vehicular traffic. Apart from providing much needed transit funds, such a local share would also help secure state and federal funds that require local commitment and funding.

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Key Words: Value Capture, Infrastructure and Capital Facilities, Transit Investments, Housing Markets, Heavy Rail

FLOOD RISK MANAGEMENT ON PRIVATE LAND IN FLANDERS (BELGIUM): A SURVEY AMONGST HOMEOWNERS

Abstract ID: 920

Individual Paper Submission

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One of the main principles of the EU Floods Directive is to share responsibilities in flood risk management between water managers, spatial planners, land users, and market actors. This means that homeowners in and outside of flood-prone areas are expected to contribute to flood risk management on their private land through private flood protection. However, since flood risk management research has mainly focused on the isolated study of mostly technical systems and a strong public tradition, there is little knowledge available on how to share responsibilities with homeowners.

To gain insight in private flood protection, this paper analyzes the point of view of residents of flood-prone areas, based on a survey (n=183) in the Dender basin (Flanders, Belgium). The paper first discusses the relation of residents to their place of residence, their sense of responsibility in flood risk management, and their willingness to protect themselves against flooding. The survey shows that residents are very much attached to their homes, but at the same time take very little action to protect themselves against flooding. Remarkable is that even though Belgium has a relatively weak tradition in spatial planning, they place responsibility for living in flood-prone areas on the government, and therefore they feel entitled to public protection. The paper then reflects on how public flood risk management and society interact, and how spatial planning could promote more a sustainable spatial development of flood prone areas.

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Key Words: land use, Responsibilities, Residents, Flood prone areas

EVALUATING THE ROLE OF LAND USE ON MODE CHOICE CONSIDERING TOUR COMPLEXITY

Abstract ID: 954

Individual Paper Submission

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Background:

In recent decades, considerable efforts have been made to investigate the link between land use and transportation using tour-based analyses. However, with the most attention being paid to residential neighborhoods, the impact of land use at destinations has been underestimated. In addition, due to the difficulty of aggregating and analyzing land-use characteristics measured at all the destinations of a tour, most of the tour-based research appears to focus on just one. Therefore, an important question this study asks is how the built-environment factors of various tour destinations make a difference in predicting mode choice.

Study Design:

Using the 2011 Oregon Household Travel Survey, this study investigates the relationship between mode choice and land use at both origin and destination. The concept of travel involving multiple purposes at a single destination (MPSD) is adopted to understand whether the impact of land use at destination depends on tour complexity. A series of multinomial logit (MNL) models were developed in this study. The base model was estimated to compare to the expanded models with added built-environment factors at the destination. For home-base work-tours (HBW), built-environment factors at the workplace were added to the expanded model. For home-based non-work-tours (NHW), to explore how the built-environment factors at destinations make a difference in mode-choice prediction, three expanded models were developed with the built environment measured at three destinations involving: (1) first activity, (2) primary activity on a hierarchical basis, and (3) activity with the longest duration. In addition, to estimate the impacts of land use by tour complexity, we built two models with the interaction terms between tour complexity and built-environment factors for HBW tour and HBN tours, respectively.

Results:

The model results confirm that built-environment variables at both the origin and destination have significant impacts on the individual's mode choice. For HBW tours, density of the residential area was found to have a strong influence in reducing car sprawl, with positive coefficients on all the non-auto modes. It was also found that small block size at the workplace has the strongest positive impact on the likelihood of walking for people who make MPSD tours, while its effects on simple tours are the weakest. For HBN tours, the connectivity and density measures at both the origin and the destination have significant influences on mode choice, but the total number of the significant factors is smaller than for HBW tours. In addition, Log-likelihood ratio tests indicate that the model with the built environment

measured at the primary destination performed the best, and the conventional trip-based model that uses the first destination was inferior to the others.

Conclusion/Contribution:

1. Commuters' travel behavior has clearer relationships with land use, suggesting that land-use policies would be more feasibly and effectively implemented in employment centers.
2. The tour destination involving primary activity is suggested to be the first option for land use data collection for non-work tours.
3. Land-use characteristics at the tour destination have a different impact depending on tour complexity, which could provide new implications for planning policies and land-use strategies to reduce car sprawl.

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Key Words: tour complexity, mode choice, land use, MPSD

THE EFFECTS OF LAND USE POLICY IN CONTROLLING SUBURB LEAPFROG SPRAWL: THE CASE IN SOUTH KOREA

Abstract ID: 982

Individual Paper Submission

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[Problem] This paper aims to examine the effects of land use policy in controlling suburb leapfrog sprawl in South Korea. Urbanization is a global phenomenon with a paramount impact on the quality of human life. Not different from other areas rapid urbanization occurred in South Korea led to a lack of space for development in urban area, and consequently caused the proliferation developments in suburb. Suburb development without considering of neighboring land use caused the outward expansion of urban area as well as leapfrog sprawl in suburbs (Luck, M., & Wu, J., 2002). Sprawled development in suburb inevitably caused many problems such as destruction of natural environments and landscape.

Suburb management policy of South Korea had been established in 2007 and implemented to solve problems caused by the leapfrog sprawl of suburbs. Paradoxically there has been criticism the suburb land use policy induces leapfrog sprawl of suburb, since the private sector is abusing the loopholes in the regulation under the discretion of the local governments. However, these criticisms are only based on the number of development permits or the distribution of factories, not taking into account geospatial changes. According to literature reviews, it is important to analyze geospatial changes using land cover

data to empirically analyze leapfrog sprawl, since the spatial pattern of land use reflects underlying human processes and influences the ecology of urban environment (Redman, 1999).

[Research Methodology] A quantitative analysis describing the spatial fragmentation from land cover data was presented on three years: 2000, 2007, and 2013. Spatial fragmentation indices are used as an indicator to assess management the policy in suburb (Lewis, R., & Knaap, G. J., 2012), and in this study we used four landscape indices to examine leapfrog sprawl pattern and its trend. We used NP(Number of Patches), PD(Patch Density), AM(Area Mean), CI(Contagion Index) indices calculated by 'Fragstats' one of landscape analysis program. Specifically, the more index values of NP and PD increase and the more values of AM and CI decrease the more leapfrog sprawl increases in suburb. After calculating indices, the effects of land use policy the policy was analyzed using adjusted interrupted time series(AITS) approach.

[Findings] Analysis results showed the NP and PD indices decreased temporarily in 2007, and sharply increased after the implementation of the land use policy in suburb. In addition, the AM and CI indices increased temporarily in 2007, and sharply decreased after the implementation of the policy. In other words, the degree of leapfrog sprawl in suburbs has worsened after the policy.

[Policy Implications] Planners should consider strict land use policy to control the leapfrog sprawl of suburb, unless local government do not strictly control leapfrog sprawl because revenue from land leasing and land tax is becoming important to local government (Zhang, 2000). In addition, since suburb land use regulation encourages low-density development and the strict separation of land uses (Ewing, 2008) thereby causes fragmented development, the importance of administrative officials and experts who are the subject of regulating discretion is emphasized in controlling leapfrog sprawl.

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Key Words: Leapfrog Sprawl, Land Use Policy, Fragmentation Index, Geospatial Change, Land Cover Data

FROM CLIMATE SCIENCE TO PLANNING: NEGOTIATING CLIMATE CHANGE ADAPTATION IN LAND USE PLANNING IN QUY NHON CITY, VIETNAM

Abstract ID: 1061

Individual Paper Submission

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Scientific knowledge of climate change (including climate change scenarios, sea level rise projections, and temperature forecast) has a significant influence on adaptation and mitigation measures. It plays a crucial role in the context of land use planning to elucidate decisions concerning adaptation and

mitigation tools. Land use planning has been a proven approach to reduce disaster risks and climate change impacts (Burby, 1998). It guides growth away from hazard-prone areas, relocating existing development to safer sites, and reducing vulnerabilities in post-event redevelopment (Berke & Stevens, 2016). However, the successful utilization of climate science to improve practices on the ground involves a complex process. The progress of climate science to inform adaptation is not being translated to practice which leads to the adaptation deficits (Preston, Mustelin, & Maloney, 2015). Scientific knowledge of climate change streams from multiple sources, across multiple scales, and in multiple forms. This influences how local decision makers' use of knowledge is translated into plans and policies, and in a top-down hierarchical planning system like Vietnam's, the process is uniquely complex.

Within Vietnam's planning institutions, which enshrine rational approach reliant on master-planning, scientific information of climate change flows from national, regional and local sources. Yet, scientific knowledge's impact on plans and their implementation is minimal. Using multiple frameworks of knowledge utilization and plan evaluation, this research strives to explore how scientific knowledge of climate change informs land use planning to design and implement adaptation measures dealing with impacts of climate change in Quy Nhon City of Vietnam. Three data sources are used: 1) content analysis of the city's master plans of 2004 and 2015 to assess how well, over time, have land use plans used climate science as basis to adapt the evolving threats of climate change; 2) semi-structured interviews with 48 central, provincial and local government organizations to assess how scientists produce, and planning officials view and utilize scientific knowledge about climate change; and, 3) survey among 360 households in most flood-affected Wards of the City to evaluate the implementation of adaptation measures in land use practices. Major findings of this research are: 1) institutional changes are imperative in achieving implementation of climate science in land use decisions in rapidly transforming cities like Quy Nhon; 2) the role of boundary agents is most effective in promoting science dissemination in countries where formal institutions are not yet set up; 3) regardless of institutional capacity and quality, climate science produced closer to planning agencies are more trusted than produced by national agencies; and 4) higher frequency of interaction between climate scientists and planning agencies increased utilization of climate science. The methodological contribution of this research is proposing a framework of climate science utilization in planning, especially in cities of developing countries where top-down planning dominates and local planning capacities are limited.

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Key Words: knowledge utilization, climate science utilization, land use planning, climate change adaptation, Vietnam

DISASTER CARRYING CAPACITY IN COASTAL CITY

Abstract ID: 1067

Individual Paper Submission

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[Problem] The purpose of this study, first is to identify the vulnerability of coastal erosion and coastal disasters due to the development of natural habitats in coastal areas, and second, to find a balance of natural habitat and carrying capacity to ensure that coastal areas are safe from erosion and disaster. Carrying capacity is defined as an analysis of the amount of development a region can accommodate to an irreversible environmental change or to a extent that the environment is free from harm (Edward J. Kaiser, David R. Godschalk and F. Stuart Chapin, Jr., 1995).

The coastal area is an important part of the tourism industry and is expected to be home to three-quarters of the population within 60 kilometers of the coastline worldwide by 2020. In other words, as coastal values increase, human activities and development activities in coastal areas are expected to continue to increase.

In Korea, the population concentration is due to socio-economic utilization, landscape and environmental values around coastal areas, which is expected to cause serious casualties and property damage in the event of a natural disaster (Kang et al, 2011). Safety management for coastal areas plays an important role in the national economy, especially in coastal cities, as tourism plays an important role in maintaining the quality of the area and continuing to attract tourists.

The risk of disaster and erosion due to continued development in coastal areas is rather a factor that reduces the value of coastal areas in the long term. In response, coastal areas need a balance of natural habitat protection and development activities to reduce the risk of disaster and erosion.

[Research Methodology] This study used the inVEST model and the System Dynamics model to validate the two hypotheses. In this study, we intend to analyze the vulnerability of coastal areas due to damage to natural habitat in coastal areas, the effect of coastal areas development on coastal erosion and hazard risks was identified.

To this end, the Coastal Vulnerability module of the inVEST model was used to analyse the coastal area vulnerabilities due to changes in land cover around the coast. Next, the system dynamics model was used as a methodology for finding the appropriate carrying capacity for coastal areas to be safe from disasters. The system dynamics model assumes that the causal relationship between system components is nonlinear and is a method of finding satisfactory alternatives through simulations, unlike linear methods of finding the optimal year (Kwak et al., 2016). In this study, we intend to analyze using development of the natural habitat, natural disaster damage, and disaster prevention capacity variables.

[Findings & Policy Implications] The analysis of inVEST model showed that the level of erosion and disaster vulnerability in the surrounding coastal areas was increased as natural habitat(wetlands and forest areas and grasslands) were damaged. In other words, it was verified that damage to the natural habitat due to the development of coastal areas could affect the risk of erosion and disaster in coastal areas. Using the system dynamics model, an analysis of the size of the population and buildings that are currently acceptable to natural habitats from erosion and disaster has shown that they exceed the acceptable disaster limit at the stage of zero due to continuous damage to the natural habitat.

The reckless development currently taking place in the majority of coastal areas is reaching beyond the acceptable disaster limits of natural habitat. To grow into a sustainable coastal area, cities will have to be managed within a balance of conservation and development of natural habitat.

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Key Words: carrying capacity, coastal vulnerability

ADAPTING FASTLAND ZONING FOR SHIFTING COASTAL SHORELANDS

Abstract ID: 1076

Individual Paper Submission

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Rising sea levels and increased storminess are shifting ocean coastal shoreland areas landward and placing them at increased risk from high-energy waves and inundation (Portman, 2016). This is true for Great Lakes coastal shorelands as well, given ongoing background erosion rates typical of the lakes and increasing storminess throughout the Great Lakes region (Norton et al., 2017). While planners and lawyers clearly anticipate changing land uses over time through the planning and zoning schemes they promote, they have given less attention to changing land forms over time as a result of natural phenomena. But that approach may fall short in dynamic shoreland areas, where the landscape itself can shift discernibly when coastal shorelines shift, coastal sand dunes migrate, and river beds wander.

Zoning was focused on ‘fastland’ settings when it first appeared in the early 20th Century, and that focus remains prominent. Even so, researchers have called for adapting planning and zoning to account for dynamic natural phenomena like flooding and coastal hazards since at least the mid 20th century (e.g., Gray, 1956). Proposed modifications have included, for example, structural elevation requirements, setbacks from natural features, limits on landscape modifications (e.g., impervious surfaces), limits on or standards for infrastructure development, and vegetation cover requirements (e.g., Beatley et al., 2002). These requirements can be applied in different ways, such as through overlay districts or general standards that apply in all districts. Similarly, district boundaries can be set in a number of ways, such as by defining and mapping them from a shoreline feature, or describing them conceptually and specifying a process for making site-specific delineations. Because of the character of the coastal area itself, these same provisions can often be used simultaneously for hazard mitigation and coastal resource conservation.

All of these approaches have been described and promoted through guide books (e.g., Adrizzone and Wyckoff, 2012), on-line planning tools, and collections of model ordinances. Even so, there has been less empirical work on whether these approaches have been widely adopted, whether they have been effective, or whether they might be improved—especially to account for dynamically shifting landscapes. For this paper, we address four related research questions:

- 1) To what extent have coastal localities incorporated shoreland management provisions for hazard mitigation or resource conservation into their zoning codes?
- 2) Given the uncertainties described, are conventional approaches sufficiently responsive to shoreline dynamics?

3) To the extent not, are there approaches that might be used to adapt conventional zoning in order to better respond to shifting coastal shorelands?

4) To the extent there are, and given current practice, are there likely legal or political barriers to the local adoption of those new zoning approaches?

The focus of this study is on Michigan's Great Lakes coastal shorelines. Building on a literature review on planning and zoning for coastal shoreland management, research methods include the collection and systematic content analysis of local plans and zoning codes; interviews of local planners, shoreland residents, and municipal attorneys; and focus group/workshop meetings with those same stakeholders.

In responding to our research questions, we provide several dimensions of analysis, including:

- 1) The various ways to construct zoning provisions (e.g., use of overlay districts);
- 2) The potential allocation of responsibilities for the on-site analysis of shoreland conditions (e.g., analysis conducted by the locality to map boundaries, or conducted by a landowner via permitting);
- 3) The appropriate timing and allocation of liability for anticipatory mitigation or post-damage removal and retrofit (e.g., mitigating through building restrictions, allowing development while allocating liability between the locality and property owners); and
- 4) Constitutional issues (i.e., primarily due process and regulatory takings issues).

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Key Words: zoning, coastal shorelands, hazard mitigation, environmental protection, resource conservation

JOB HOUSING BALANCE IN AN OUTLIER CITY - HONG KONG HIGH DENSITY, TRANSIT DOMINATED AND FULL LAND OWNERSHIP POWER

Abstract ID: 1088

Individual Paper Submission

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An imbalance between employment and residential location can result in urban issues, such as longer commuting, higher pollution, and spatial injustice (Loo & Chow, 2011; He, et al., 2018). Some evidence has suggested that an improvement in accessibility would mitigate this problem in the cities of the United States where driving dominates the travel pattern (Levine, 1998; Lee, et al., 2010). This suggestion rests on that the choices of job and house locations are largely determined by the accessibility in a similar magnitude. Given the difference in travel preference, there is a question on whether such conclusion can be applied to a transit-dominated city.

In this paper, an exploratory cross-sectional analysis investigates the impact of accessibility on job-housing balance in over 200 tertiary planning units (TPU) across Hong Kong, as a representative of high-density, transit-dominated city with strong planning power (i.e., full ownership of land) and about 45% of the population living in public housing.

To explicitly explore our research question, we construct a structural model of two equations to estimate the effects of accessibility on employment density and population density. The accessibility in our framework comprehensively embeds the road, public transit, and pedestrian networks. This simultaneous equation model also allows the interaction between employment and population density. We include location features, as well as some common controls, to account for geographical heterogeneities.

Our preliminary results show that an increase in accessibility can statistically significantly increase both employment and residential population density. However, the job-housing balance is not significantly improved. This is caused by the disparity of elasticities of accessibility in employment and residential population density and uneven supply of accessibility in Hong Kong. Based on the estimates, employment density is more sensitive to the change in accessibility than residential density. Moreover, we visualize multiscale accessibility in Hong Kong and show that the distribution of accessibility is highly concentrated in employment centers due to the interaction of Hong Kong geography and the configuration of public transport infrastructure. We conjecture that an improvement in job accessibility in employment centers advocated by some policies can only attract more workplace than living and thus exacerbate the job-housing imbalance.

This research contributes to the literature by shedding light on the relationship between multi-modal transport network accessibility supply and job-housing balance in a transit-dominated city with strong planning power. Traditional transport and economic policies have heavily relied on research related to transport demand modelling. Most of these policies are based on people and encourage investment in people and their mobility. This research, in contrast, emphasizes the role of supply-side accessibility shaped by both urban design and geography. Based on our findings, one crucial implication to mitigate the job-housing imbalance is to strategically understand the role of multi-network accessibility configuration (McLeod, et al., 2017). A limitation of the current study is that it is cross-sectional. Further studies will investigate panel data.

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Key Words: Job-housing balance, Accessibility distribution, Transit-dominated city, Full land ownership power

UNDERSTANDING THE CONTEXT OF MIXED-USE DEVELOPMENT: A CASE STUDY OF KANSAS CITY

Abstract ID: 1127

Individual Paper Submission

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The concept of mixed-use has become one of the most prevalent principles of urban design and planning. Mixed-use is considered as “an unquestionable spatial virtue” that brings benefits such as social diversity, safety, public health, environmental and economic sustainability. However, there is a lack of empirical evidence that elaborates the connection between mixed-use and its benefits.

This research addresses two major research questions. First, what are the characteristics of the morphological context around mixed-use developments? Second, how do the characteristics of mixed-use context relate to social benefits? This research analyzes a case study of 240 neighborhood centers in Kansas City Metropolitan area. Kansas City has pursued sustainable community development and downtown revitalization through rigorous planning efforts of Smart Growth and Smart City initiatives. Planning policies and development plans have promoted a wide range of mixed-use strategies.

The research employed factor and cluster analysis to develop a typology of mixed-use contexts. We then conducted multiple regression analysis using factor scores to identify the relationship between characteristics of mixed-use contexts and their impact on social benefits. The research identifies various characteristics of mixed-use development surroundings in relation to the spatial configuration of urban form. In addition, this study proposes a classification system for mixed-use contexts to help assess the impact of mixed-use development at a neighborhood scale. Based on the findings, urban design guidelines and physical planning strategies for mixed-use development are discussed.

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Key Words: Mixed-use, Neighborhood center, Land-use regulation, Urban morphology

THE IMPACT OF PUBLIC PARTICIPATION ON FUTURE LAND USE MAPS IN COASTAL NORTH CAROLINA: A COMPARATIVE CASE STUDY

Abstract ID: 1169

Individual Paper Submission

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This study investigates the relationship between public engagement, future land use maps, and comprehensive plan implementation in coastal North Carolina in response to a natural experiment created by changes to the North Carolina Coastal Area Management Act (CAMA) in 2016. Since 1974, CAMA has required comprehensive land use planning in the state's 20 coastal counties. Seventy-two cities and towns within these counties have also voluntarily created these plans, locally known as CAMA Land Use Plans. Until 2016, the NC Division of Coastal Management required public participation in the creation of the CAMA land use plans in return for state funding for the planning process. The planning grant program was repealed in 2016 and along with it, the signal from the state that public engagement is expected as local governments develop their CAMA plans. This regulatory shift created a natural experiment. Some local governments have continued to engage the public in plan creation after the 2016 regulatory changes but others have drafted new comprehensive plans with limited to no opportunities for the public to impact the plan in a meaningful way.

The paper focuses on the future land use maps included in CAMA Land Use Plans created before and after the 2016 regulatory changes and asks if and how public engagement resulted in a plan that meets the CAMA goal of balancing coastal resource protection and economic development. The study is mixed-methods and employs a qualitative analysis of public participation in combination with geospatial modeling through Urban Footprint to quantify the differences between the pre and post-2016 land use maps and subsequent zoning map changes. Four cases are included in the study, two counties and two towns, all of which have drafted a new CAMA plan in the past three years. The paper responds to three bodies of research: studies on the impact of mandates on plan quality (e.g. Spurlock 2018), research on public participation across the planning to implementation continuum e.g. the survey in Beierle and Cayford 2002), and several studies of CAMA plans published in the early 2000's which found that at that time, most CAMA plans prioritized economic development over natural resource conservation (e.g. Norton 2005a and b).

The study is mixed-methods and employs a convergent parallel research design in which qualitative and quantitative data is analyzed separately and then compared. The qualitative portion of the study considers the specific participatory mechanisms selected by local governments, the breadth, depth, and timing of public engagement, and the impact of public participation on the policies included in individual CAMA plans. The quantitative portion of the study treats the pre and post-2016 future land use maps and the 2019 zoning map as three land use scenarios in Urban Footprint (comprehensive plan and zoning conformance is not required in NC). Existing development is treated as a fourth land use scenario. With Urban Footprint I compare land consumption (including total consumption, agricultural land, open space, and redevelopment) and the degree to which development is encouraged in areas that are likely to flood (including number of dwellings, jobs, and the total population at risk). I conclude the analysis by comparing public engagement in each case to progress toward the goals of preserving open space and encouraging development in less flood prone areas.

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Key Words: public participation, future land use map, comprehensive plan, North Carolina, coastal land use

TOWARDS SMART DECLINE? A COMPARISON OF SOCIO-TECHNICAL SYSTEMS OF DEMOLITION IN OHIO.

Abstract ID: 1207

Individual Paper Submission

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Throughout the United States, and especially in the Rust Belt, demolition is widely used to remediate blight. Recent scholarly work (Dewar, 2015; Hackworth, 2016) indicates that the realization of social and economic benefits in areas experiencing high rates of demolition has been mixed at best, with target neighborhoods still lagging “healthy” neighborhoods and many even declining further on some measures. Despite these concerns over the efficacy of demolition as urban policy, it remains an important tool in practice for neighborhood stabilization. In Ohio, the Neighborhood Initiative Program (NIP) alone has distributed \$122 million in federal dollars for demolition and greening since 2014, and disbursements will continue until at least October 2019.

Central to the practice of large-scale demolition is the identification and prioritization of neighborhoods and individual properties. This places today’s demolitions in a long history of neighborhood and property analysis that can be traced to the emergence of planning as a professional field in the United States in the 1920s (Light, 2009). This paper asks how current identification and prioritization strategies for demolition connect data and decision-making. Scholars have suggested a range of prioritization models to enhance the effectiveness of demolitions in a context of urban decline, including spatial optimization (Thomson, 2008; Morckel, 2017), quality index optimization (Griswold, n.d.; Dynamo Metrics, 2016), and combinatorial optimization (Johnson, Turcotte, & Sullivan, 2010). Little to no planning scholarship exists that seeks to analyze the current data development and management practices that inform the selection and prioritization of large-scale demolition activities in American cities. This project seeks to address that gap by conducting an in-depth analysis of 29 applications for NIP funding in Ohio, submitted between 2016 and 2017, combined with a more detailed comparison of four case studies and a spatial analysis of all demolitions funded through NIP that took place in Ohio in those years. The four cases include land banks from a mix of urban and ex-urban counties, and those using formal and informal selection and prioritization methods.

This analysis results in three main conclusions. The first is that the focus on “tipping point” areas as mandated by the Ohio Housing Finance Agency did not yield any significant similarities between the areas targeted for demolition by the local jurisdictions, either in the applications or the resulting

demolitions. No significant correlations between the locations of NIP-funded demolitions and common socio-economic indicators like income level or property values were observed. This finding raises questions about both the usefulness of the “tipping point” category but also about the relationship between state and county government and the level of discretion at the land bank level. The second finding relates to the wide range of data gathering and management strategies used to inform demolition activities. While most jurisdictions included data on foreclosure rates and property value changes in their applications, many included additional variables and criteria, ranging from the percentage of residents in a neighborhood that receive some form of disability benefits to the presence of green-space. Despite efforts by non-profit entities to provide technical support to smaller jurisdictions with little or no full-time staff dedicated to the land banking activities, the diversity of criteria used and the frequent absence of any formal criteria complicates calls for smart decline (Popper and Popper, 2002). The third finding from our analysis is that in specific jurisdictions there is some evidence that spatial targeting of demolition activities align with historical patterns of exclusion, particularly redlining. These findings suggest an urgent need to reconsider data gathering and management in the context of cities dealing with land use challenges associated with vacancy and abandonment.

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Key Words: spatial targeting, prioritization, demolition , urban decline, data

PLANNERS AND CATASTROPHE: RE-INVENTING LAND USE PRACTICE IN CONTEMPORARY SYRIA

Abstract ID: 1215

Individual Paper Submission

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What bureaucratic land planning practices survive prolonged catastrophes? Even during seemingly impossible circumstances, urban construction and expansion typically continue along with some form of regulation. Day-to-day tools such as sales and leasing forms can remain the same despite radical shifts in governance and intentions for land (Kallimachi 2018). But in the aftermath of crisis, when large-scale rebuilding processes begin to expand, how and what informal land practices do local planners preserve, reinvent or discard? Drawing on interviews with planners active in Aleppo and other Syrian cities during the past decade (2008-2018), this paper traces local planners’ strategies and values as they selectively reinvent and apply a land planning apparatus. As a case of cities under extreme stress and transition, the paper attempts to identify nodes of resilience in informal institutions, and specifically the ‘working rules’ of urban land governance.

Billions of dollars of funds will reshape Syrian cities in the coming years; since mid-2017, the Damascus-based government control of Syria has stabilized, and cities are navigating a ‘scramble for reconstruction’ (Asseburg and Oweis 2018). This is an immense task; bombardment, tanks, and massive emigration battered the social and infrastructural networks across the country. Contextual and inclusive planning processes could, in theory, coordinate and direct the expected influx of resources to more sensitively heal and justly rebuild Aleppo – and Daraa, Homs, Raqqa and others. Clientalist networks and the systematic and symbolic targeting of opposition neighborhoods will likely continue to dominate regime-led rebuilding (Heydemann 2018). But assuming some marginal space for planners’ agency outside of these larger interests, where and how the investment occurs will also respond to what aspects of the planning system remain relevant; in other words, examine the ‘grammar’ of practice (Fawaz 2017) of what land use institutions persist and continue to be respected and prioritized by planners and decision-makers.

Although arguably an extreme case, the relative strength of land use planning institutions in Syria pre-2011 facilitates a fine-grained examination of the specifics of institutional change over time - and what has the potential to be a critical juncture in land use practice (Sorensen 2018). Through an intentional and de-facto decentralization of planning over the past decades, Syrian cities generally had a relatively strong cadre of local planners and planning tools. In particular, urban planners in Aleppo, Syria, had significantly strengthened the city’s planning apparatus in the years prior to 2011. A dedicated team of urbanists, with solidified regeneration plans for the historic center, developed a sub-municipal office and channelled foreign assistance and national funding to infrastructure replacements, parks – and systems and capacities of building plans. Skilled local planners, and some external investment, also came to the larger municipality, and extensive studies of informal settlements and sectoral challenges, were underway in preparation for a revised metropolitan masterplan. Limited consultation, primarily of representatives of official groups, as well as a limited amount of resident neighbors had also begun.

Amid this rich material, the paper focuses narrowly on a set of informal-yet-routinized actions and materials of lower and mid-level planners, including checklists for land use approvals, enforcement protocols and mapping techniques. Documents, laws and maps situate the context, and the core evidence draws from a series of interviews with planners who relocated just outside Syria, in Gaziantep and Beirut, planners who recently returned and those who continued working in the municipal planning offices and large international organizations with operations inside Syria.

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Key Words: land use, governance, informal institutions, municipal planners, bureaucracy

TRACK 8 - POSTERS

THE HOUSTON TOWNHOUSE: LEARNING FROM A TWO-DECADE EXPERIMENT IN SMALL-LOT URBAN DENSIFICATION

Abstract ID: 57

Poster

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It is a truism for US-based planners that single-family detached houses dominate the built environment, even in most large cities. Starting over a century ago, municipal zoning ordinances reserving the plurality of land for single-family detached houses began to proliferate (Hirt, 2013). Even the Smart Growth movement, which since the 1990s has sought increased housing densities for urbanistic, social, and environmental reasons (Danielson, Lang, & Fulton, 1999), largely took the primacy of single-family zoning in existing neighborhoods as a given. Instead, its adherents have largely focused their efforts towards encouraging dense infill development along arterial roads, near transit stations, on the sites of failed malls, and in other predominantly non-residential locations.

Now, however, change is in the air. In 2016, California passed sweeping statewide legislation that curtailed the ability of cities to restrict Accessory Dwelling Units from lots zoned for single-family uses. In December 2018, Minneapolis became the first large US city to change its comprehensive plan to allow for multiunit housing on all parcels, even those long zoned single-family; under Minnesota state law, concomitant zoning changes are likely to follow (Bertolet, 2018). At the time of writing, Oregon's Speaker of the House is actively advocating effectively banning single-family zoning in all cities in the state with fewer than 10,000 residents (Mapes, 2019). Suddenly, what had seemed impossible is seeming possible in at least some jurisdictions, with likely many more to follow in coming years.

For all of these reasons, it would be useful to empirically examine the experience of a large US city that, with little fanfare, dismantled many of the barriers to redeveloping single-family parcels about two decades ago: Houston. Though it famously stands alone as the sole large US municipality lacking zoning, in many respects Houston's various other regulatory mechanisms combine to produce a city whose built environment does not look terribly different from that of its Sunbelt peers (Lewyn, 2004). In at least one respect, however, Houston exceptionalism is warranted: Starting in 1998, the city dramatically reduced the minimum lot size and other restrictions on housing development within a large central swath. The result has been a proliferation of "Missing Middle" (middle density) housing (Parolek, n.d.)—with at least the potential to be attractive to households with children—of the sort that has been so strikingly absent in most US cities for decades.

In Houston, much of this development has taken the form of single-family houses, usually notably tall and narrow compared to their surroundings, that occupy small lots. Many of these developments have replaced older single-family houses occupying large parcels. With similar patterns of small-lot redevelopment poised to unfold in the near future in Minneapolis and elsewhere, it is timely to assess the Houston townhouse phenomenon as a whole and pose several relevant research questions: 1) How much townhouse development has taken place? 2) How much pre-existing housing have townhouses replaced? 3) What neighborhoods have received large quantities of townhouse development, and which have been bypassed, perhaps due to weak market conditions, restrictive covenants, or other factors? 4) Is there any evidence that townhouses have contributed to providing housing for children in central areas of Houston?

And finally, 5) Do townhouses offer reasonably priced housing when compared to other alternatives in the housing market?

To answer these questions, I will rely on two main sources of data: tax assessor data (from at least two different points in time) and sales transaction data, analyzed using GIS. I will also conduct interviews with persons knowledgeable about the Houston townhouse phenomenon, including architects, planners, builders, real estate agents, and others.

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Key Words: Houston, Missing Middle housing, Townhouses, Single-family housing, Small lot densification

COMMUNITY AND RE-WILDING: DIVERGENT OWNERSHIP MODELS AND REGENERATION IN RURAL NORTH AND WEST SCOTLAND

Abstract ID: 532

Poster

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Danish billionaire Anders Povlsen has acquired over 200,000 acres of land in the highlands and islands of Scotland, becoming the largest private landowner in the country. His plans for the landscape, already underway since his initial purchase in 2006, involve a "re-wilding" initiative, involving reforestation, a re-introduction of large predators, and a reduction in deer populations. While the initiative has gained praise from some environmental groups and local residents, it runs somewhat contrary to land reform efforts and the community buyout movement. Community buyouts, started in the early 1990s, emerged when residents formed community land trusts to purchase the large rural estates they lived on from the private marketplace. Since then, with legal and financial assistance from the newly devolved Scottish government, community land trusts have gained ownership of over 500,000 acres in rural Scotland, upon which communities have enacted their own programs of reforestation, green energy projects, and community regeneration. Many residents assert that

This poster combines field interviews from areas under community ownership with analysis of remotely sensed data to examine how divergent narratives, even among those with shared environmental goals, may manifest in the assemblage of community. "Community" here is understood as a "more-than-human" phenomenon which incorporates the human, built, biotic, and geological environment. Common property

dynamics play a central role in mediating these community relations. This work informs comprehensive rural planning that incorporates environmental, economic, social, and energy concerns.

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Key Words: rewilding, community land trusts, community ownership, Scotland

EMERGENCE OF SUB-OPTIMAL LAND UTILIZATION PATTERNS IN INDIAN CITIES

Abstract ID: 619

Poster

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As Indian cities grow, their expansion and redevelopment needs to be carefully planned to ensure productive and optimal land utilization. Land is a highly priced and an important resource for the city, particularly in central city areas. It is important to use land efficiently, as serviced urban land is expensive and available in limited quantity. Inefficient land utilization leads to higher costs for both cities and residents. The hypothesis is that general building density levels in city centers are much too low to maximize land values and land utilization efficiency. This results in gross utilization of valuable and scarce serviced urban land, which does not make economic sense in Indian cities experiencing rapid urbanization. The objective is to provide a nuanced understanding of land utilization patterns and improves understanding on how sub-optimal patterns emerge in Indian cities. It examines the urban morphology and built form of Ahmedabad, India's 5th largest and one of its fastest growing cities.

We analyze how land utilization patterns arise and how land is consumed under private domain (buildings, setbacks and margins, and internal open spaces) and public domain (streets, public parks and open spaces). Nine study areas are analyzed in Ahmedabad along four urban form parameters: public streets, building footprints, public open spaces, and private open spaces. Land utilization in Ahmedabad is also compared to seven cities around the world.

The study finds that compared to other cities around the world, land utilization in Ahmedabad is sub-optimal, and an excessive amount of urban land is fragmented and underutilized as private open spaces. There is clear indication of low intensity development patterns in Ahmedabad as compared to world

cities: In Ahmedabad as much as 45.68% of all land is underutilized, mainly in margins, setbacks and other privately owned open spaces around buildings. In contrast, only 10.93% land is under private open space in world cities. In Ahmedabad, the land area under public domain (public streets and parks) accounted for only 18.36% of total area, public domain is much higher in world cities at 35.44%. In Ahmedabad, land area used for building is only 34.66%, in contrast, land utilization is much higher in the world cities with 53.77% area being under buildings. The average gross FAR is only 1.31 in Ahmedabad, but is much higher at 3.34 in world cities.

The study recommends that land area under public domain needs be increased through planning and development processes; land area underutilized as private open spaces needs to be reduced; costs and benefits of regulations should be critically analyze and their rationale should be examined; and context-specific development regulations need to be developed along with revision and relaxation of development standards such as setbacks and margins, common open plot, and other regulations.

Keywords: Urban land utilization, urban development, built form, Indian cities

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Key Words: Urban land utilization, Urban development, Built form, Margins and setbacks, Indian cities

ACQUIRING PROPERTIES FOR OPEN SPACE RESTORATION: A MULTI-CRITERIA SPATIAL METHOD FOR SELECTING BUYOUT PROPERTIES WITH ECONOMIC AND ECOLOGICAL BENEFITS IN HARRIS COUNTY, TX AFTER HURRICANE HARVEY

Abstract ID: 738

Poster

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The impact of Hurricane Harvey and the repetitive flood losses experienced by properties in the Houston metropolitan area have led to proposals for buying out chronically damaged properties to return them to more natural open space areas as a strategy for reducing future flood damages. While previous buyout analyses show significant flood reduction benefits from open space restoration (Tate et al. 2016), there is a paucity of studies that also consider the complementary ecological benefits or co-benefits of buyout

programs (Zavar, 2015). Land acquisition and buyout programs are almost always focused on selecting properties that are most economically viable with little consideration for clustered open space restoration, resulting in an uncoordinated, checker-board pattern of open spaces that does little to protect environmental assets or remove groups of structures from areas vulnerable to flooding. In addressing this problem, we propose the following questions: Does existing buyout selection policies maximize ecological benefits for open space restoration? Can a proactive selection of buyouts in proximity to natural features serve dual economic and ecological benefits? We answer these questions through a proximity analysis (Zhang et al, 2015) of flood-prone properties in relation to ecological features such as wetlands, protected areas, parks, floodplains as well as existing buyouts. We further compared historic flood loss and avoided future damages with the cost of acquiring and restoring damaged parcels to open spaces. Our analysis shows that extending local and federal buyout eligibility requirements to include proximity to natural features does not significantly reduce the cost effectiveness of land acquisition, making it easy to fold the acquired properties into parks, and other natural functions. The results also show a benefit-cost ratio of about 1.62 to upwards of 2.55 across multiple scenarios with different distance bands and proximity to natural features, generating over 5,000 potential buyout properties in Harris County, TX, with acquisition cost ranging from about \$15 - \$410 million. These findings further strengthen the economic case for open space restoration and will enable planners to evaluate parcel-level flood mitigation measures which have cumulative impacts for local jurisdictions (Highfield et al, 2014). This approach will also enable planners to increase green space and help their communities to become more resilient to flood impacts over the long term.

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Key Words: Buyouts, Property acquisition, Open space restoration, Proximity analysis, Benefit-cost analysis

FINDING AFFORDABLE, CONVENIENT, AND SAFE PLACES TO LIVE IN FLORIDA USING THE PLACE DATABASE

Abstract ID: 873

Poster

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The newly launched Lincoln Institute's Place Database, an online/interactive U.S. map that can visualize dozens of housing, land use, and environmental indicators (Lincoln Institute of Land Policy, 2019), allows its users to explore questions like - If an aging baby boomer couple with moderate income wants to live in a major city in the "Sunshine State," where are some possible locations? Can they find places for housing and transportation affordability, accessibility or proximity to amenities, and safety from potential

risks of flood, all at the same time? By overlapping three criteria – housing affordability (rental units 80% of AMI), transportation cost (less than 20% of income), and land use (mixed-use zones) – and the FEMA flood risk layers in the Place Database map, this poster, expanded from a project submitted to the Lincoln Institute’s Place Database Contest, identifies and compares locations that satisfy these conditions in five cities in Florida, Jacksonville, Miami, Tampa, Orlando, and St. Petersburg. In only about 10 years, one in every five people in the U.S. will be age 65 and older. At the center of this “Silver Tsunami,” there are aging baby boomers (born in between 1946 and 1964) who began to retire and would consider moving to places that are affordable, flexible (e.g., rental units with “right-sizes”), and convenient (e.g., high density and/or mixed-use areas for better accessibility/walkability to live, work, and play) (American Planning Association, 2014). In the meantime, climate change, another global phenomenon, has become a reality in the U.S. Its negative impacts, such as more frequent and/or extreme hurricanes or tropical storms, have affected cities and rural areas in the country, particularly those in the South (Scavia, et al., 2002). Florida is arguably one of the most popular destinations in the country to retire in (and possibly work again) due to its temperate climate, affordable costs of living close to the national average, and favorable tax system (i.e., zero state income tax) (Longino & Crown, 1990). And yet, it is one of the less flood-safe states to live in because of its geo-climatic conditions, making it susceptible to climate change-affected, extreme weather-driven disasters. The narrative from this poster sheds a light on the nexus between these two global megatrends (Gamble, et al., 2013), population aging (and migration) and climate change (adaptation), by focusing on the built residential environment, infrastructure, and fiscal management systems of the five largest municipalities in Florida, as the state strives to attract and sustain the aging population and to prevent or mitigate the anticipated negative impacts of the climate-driven disasters.

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Key Words: Population aging and baby boomers, Migration and location choices, Climate change adaptation, Land use planning, Mixed-use residential development

PUBLIC, PRIVATE, AND NOT-FOR-PROFIT PARTNERSHIP: QUESTIONING INCLUSIVENESS IN DOWNTOWN DALLAS SIGNATURE PARKS

Abstract ID: 1060

Poster

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The provision of privately-owned and -managed parks has become an increasingly popular mechanism for cities to provide publicly-used spaces given the limited municipal resources. While the privatization has been appraised for increasing the total quantity of publicly accessible space and the creation of clean, well-maintained and to many safe and comfortable parks, scholars affirmed privatized public spaces to be problematic and a poor replacement for the traditional public spaces for lack of inclusivity, diversity of uses and users, therefore democracy. Downtowns are the most exposed districts to the privatization processes as well as the governance shifts, where the functions formerly performed by the government are increasingly outsourced to a complex mix and often a hierarchy of public, private, and non-profit entities, many of which have been formed to serve distinct missions. Along the same line, signature parks are often managed by different forms of non-profit organizations (NPOs) including Business Improvement Districts (BIDs), Downtown Activation Groups, Friends of Parks Coalitions, Faith-based Organizations (FBO), and so on.

While a small number of urban planners, geographers, and social scientists have studied quasi-public spaces, but they have overlooked the differences among various private entities who own and manage these spaces and referred to them all as privatized public spaces. One goal of this paper is to fill this gap, to document, explain, and analyze the roles different types of NPOs play in the management of our public spaces, as well as assessing their performance and impacts on the inclusiveness of those spaces. To do this, the paper focuses on three deliberately selected signature parks in Downtown Dallas: (1) publicly-owned and publicly-managed by City of Dallas through a downtown activation NPO; (2) publicly-owned and privately-managed by a friends of the park model NPO on top of a BID NPO; (3) privately-owned and privately-managed by a FBO. Exploring these spaces with different levels of private control, as well as different types of non-profit involvements, help evaluate their impacts on the degrees of inclusion. The research methodology includes semi-structured interviews with the park owners, managers, city officials, participant observations, and the content analysis of their official calendars and websites.

The findings reveal that privatization of public space might not necessarily affect publicness negatively, and this study cannot confirm the association between privatization, and the inclusiveness of the parks. The preliminary research shows, there is not one single public in these three quasi-public spaces, but each governance form aims to attract slightly different kinds of “public” that are sometimes contradictory and often in conflict with the others who occupy each of the parks. Interestingly, not only the private space – owned and managed by an FBO- welcomed the most undesirable users (homeless individuals and groups) and uses (protests), but also even the publicly-owned and -managed park was excluding people through over-commercialization strategies and the presence of an additional level of security guards on site. Whereas, the publicly-owned but privately-managed park is the most exclusionary space among all. Correspondingly, this paper underlines the importance of educating people about the existence of quasi-public spaces and their differences from traditional public spaces. It also emphasizes the point to distinguish between the spaces owned by local or state government and the privately-owned sites and not addressing the issue with common phrases such as “privatized public spaces,” “POPS,” “POPOS,” etc. Considering the right to exclude others from one’s private property is a critical stick in the bundle of rights associated with private property ownership, planners should formulate how to “publicize” the publicly accessible private spaces alongside the current concerns related to the privatization of the public space.

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Key Words: Public space, Privatization, Governance, Non-Profit Organization, Inclusion

TRACK 9 – FOOD SYSTEMS, COMMUNITY HEALTH & SAFETY

TRACK 9 – ROUNDTABLES

ROUNDTABLE - FOOD SYSTEMS PLANNING CONSTRUCTS, THEORIES, AND METHODS: PAST, PRESENT, PROGRESS

Abstract ID: 1159

Roundtable

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Food systems planning and scholarship have evolved extensively in the past few decades. The field has moved away from a simple definition of access centered on a physical proximity to healthy food outlets (Powell et al. 2007). Today, food scholarship embraces a more nuanced definition of access incorporating issues of social justice, ownership and sovereignty (Raja et al. 2018, Agyeman and McEntee 2014). It also examines economic development and land use questions in connection with food systems planning (Green et al. 2011). The field also leverages a myriad of methods, from qualitative case studies, spatial modeling, social network analysis, regression, historical analysis, and others.

This session aims to engage conversations on the progress and future of food systems planning research. In doing so, the panel revisits some of the accepted wisdoms in food scholarship, discuss new and evolving methodologies in evaluating community food systems, and offer perspectives of opportunities and limitations of interdisciplinary approaches to evaluate and plan for a healthy, sustainable and just food system, nationally and internationally.

This roundtable consists of scholars at different stages of their scholarship and from various institutions. We hope to spark a broad conversation about useful constructs, theories, and methods in food systems research – how have these ideas changed as the field has advanced? How should we be thinking about honing our approach going forward?

Panelists will share ideas based on their own research to answer the following questions:

1. The constructs of "food desert", "food swamp" and "food oasis" have informed many research, governmental guidelines, and public policies. For example, USDA still measures food desert based on lack of access to supermarkets and funds projects to alleviate food deserts. How have these concepts been helpful, what are their limitations, and how do we move beyond them?
2. Similarly, methodologies used to study food systems have been advanced significantly, almost reaching a "state of science" (Lytle and Sokol 2017). How the sophistication of methodologies has helped food scholarships? What are the limitations of these methods? And, how they can be improved? Which are complementary? For example, the incorporation of social network analysis

into intermediated supply chain research has shifted the analytical approaches and findings of local food system supply chains research.

3. How does food scholarship differ across disciplines (e.g. planning vs. public health)? How could scholars from different disciplines complement and build on each other's works?

4. What constructs and methods might be similar or different for food systems research in the global south context?

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Key Words: food systems planning, scholarship, methods, interdisciplinary, constructs

ROUNDTABLE - PLANNING FOR HEALTH: WEAVING HEALTH INTO INTERDISCIPLINARY PLANNING RESEARCH

Abstract ID: 1213

Roundtable

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Background: In 2017, the American Planning Association along with seven other professional organizations representing architecture, landscape architecture, public health, park and recreation, and land development issued a Joint Call to Action to Promote Healthy Communities. The roles of planners in influencing public health have become increasingly important with the growing evidence supporting the health significant roles of our community environments (e.g. built, natural, social and technology).

The impacts of community environments on public health are both direct (by exposing people to healthy/unhealthy features such as urban nature, microclimate, and pollutants) and indirect (through shaping behaviors/lifestyles such as physical activity and diet behaviors). Despite the growing recognition, how and to what extent community environments influence health outcomes are still unclear. The environment-health pathways are complex. Establishing causality among the multi-level and multi-domain factors linked with health outcomes remains a challenge. Natural Experiments (NEs) have emerged as feasible ways to evaluate causal impacts of planning interventions that are not suitable for controlled experimentation, and can facilitate disentangling some of these complex pathways.

Purpose: This roundtable aims to put forward Planning for Health as a unique, timely, and interdisciplinary area of scholarship in urban planning. It is to foster discussions around the three domains of protecting, developing, and restoring health through planning research. It brings attention to the recent achievements including illustrations from the two on-going NIH-funded NE projects: Active Living Austin (ALA) and Active El Paso (AEP). They are longitudinal, case-comparison studies representing two common types of NE interventions: “relocation” in ALA (i.e. people moving to a walkable community) and “exposure” in AEP (i.e. residents exposed to new transit services in the neighborhood). The round table discussions will also highlight emerging and frontier issues in Planning for Health research, and the remaining gaps that require further attention in future efforts.

Panelists: This panel brings experts from multiple fields/disciplines, who address a wide range of Planning for Health research topics including (a) natural experiments in active living research – Chanam Lee; (b) urban ecology and public health – Forster Ndubisi; (c) healthcare, work, and learning environments – Xuemei Zhu; (d) transportation and smart communities for health – Wei Li; (e) technology and geographies of health – Greg Griffin; and (f) economic impacts of healthy environments – Minjie Xu.

Structure: The first half of this roundtable session will feature short pitches by the panelists (a) reflecting their disciplinary and interdisciplinary viewpoints on Planning for Health research, (b) showcasing their recent/current research or emerging issues, and (c) sharing thoughts on major knowledge gaps and tips on funding applications. For the second half, the organizer and moderator will facilitate the panel-audience discussions on strategies to promote Planning for Health research in urban planning and beyond, which may include establishing an interest group, publishing journal special issues/books, and organizing webinars or workshops on relevant topics/skills such as cross-disciplinary collaboration, synergistic topics in planning and health, and interdisciplinary grantsmanship.

Learning Outcomes: Attendees to this panel discussion will be able to gain and share insights related to Planning for Health as a disciplinary and interdisciplinary area of scholarship. They will be able to understand a wide range of traditional and frontier issues in Planning for Health research, and learn about the latest, relevant initiatives and funding opportunities from multiple fields. Attendees will also be provided with the opportunities to join the top-priority initiatives to promoting Planning for Health research, which will be identified during the panel-audience discussions.

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Key Words: public health, interdisciplinary research, natural experiments, healthy communities

TRACK 9 – INDIVIDUAL ABSTRACTS

RESTAURANTS, STREET FOOD, AND EVERYDAY URBAN PLACES

Abstract ID: 3

Individual Paper Submission

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This paper aims to understand the role of diversity in shaping spatial landscapes, specifically through the lens of “super-diversity,” a concept developed by anthropologist Steven Vertovec (2007) to describe heterogeneous settlement patterns of contemporary cities. This conceptual investigation will not only advance urban planning and social science scholarship, but is extremely timely: approximately 67 percent of the world’s people will live in cities by 2050, as opposed to just over 50 percent today, according to a 2010 United Nations report. David Harvey (2009) argues that these massive migrations to city centers will have as much, if not greater, significance in shaping urbanization in the twenty-first century as the powerful dynamics of capital mobility and accumulation. As such, multiethnic neighborhoods are becoming more common as a result of mixed migratory flows that are engendering complex changes to population characteristics and generating new patterns of prejudice, segregation, and inequality, but also vibrant forms of quotidian urban liveliness.

Due to constraints in the formal labor market such as racial discrimination, language barriers, compulsory work permits, and unfamiliarity with cultural norms, immigrants significantly contribute to the food service economy because of their tendency to accept the low wages and difficult jobs common in the hospitality industry. Yet, once they gain experience in the food industry, Krishnendu Ray (2016) maintains that low capital requirements make it possible for foreign-born entrepreneurs to enter the business of feeding others even with excessive competition, narrow profit margins, and high risk of failure. Eric Fong and Brent Berry (2017) assert that the agglomeration of immigrant owned food businesses instrumentally influences the character of neighborhoods, particularly those with high concentrations of immigrants.

Despite the robust scholarship illustrating the varied forces and conditions stimulating population shifts (Sassen, 1999; Ong, 2006; Brenner, 2014) which are generating multiethnic agglomerations in cities around the world, Richard Alba and Nancy Foner (2015) argue that there is a lack of scholarship that provides context for how immigrants, with the particular kinds of diversity they bring, remake, and transform societies. In an effort to address this problematique and advance urban planning scholarship and methodologies, my paper asks: how are immigrant operated food businesses in multiethnic neighborhoods influencing everyday urban places in contemporary cities? Engaging with De Certeau’s *Walking in the City* (1984), it specifically examines the spatial compositions of food businesses in Queens, New York from three scales—an aerial view, the street, and the sidewalk.

Between August 2017 and September 2018, I lived in Jackson Heights to undertake research, utilizing a mixed-method iteration of surveys, interviews, sensory observations, photography, and critical cartography techniques developed by Kim (2015). In doing so, from an aerial view, the examination of food businesses reveal that spaces are carved out for its multiple publics, illustrating multiethnic neighborhoods as clusters segmented by specific world regions. From the street, restaurant storefronts reveal that multiethnic neighborhoods produce hybrid streetscapes that are composed overtime with

numerous layers of materials, languages, and meanings by populations from different places with diverging tastes, experiences, expectations, and understandings of local laws and policies. Finally, investigations of mobile food enterprises show that sidewalks are transformed into milieus of consumption, where various habits, tastes, and legalities jumble together—demonstrating that multiethnic neighborhoods maintain spaces for unlicensed street food vendors to operate in legal limbo, illuminating informal food enterprises as urban infrastructure. Taken together, the enquires examined in this study provide richer insight into everyday life, illuminating empirical situations that will influence the way in which cities are imagined, structured, designed, managed, and experienced.

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Key Words: Ethnic Multiplicity, Immigrant Entrepreneurialism, Urban Informality, Urban Periphery, Critical Cartography

THE IMPACTS OF NEIGHBORHOOD CHARACTERS ON CRIME: EVIDENCE FROM CITIES IN THE NORTH CENTRAL TEXAS REGION

Abstract ID: 16

Individual Paper Submission

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Built environment factors in the community are believed to play an essential role in shaping the geography of crime rates (Sohn et al, 2018). However, criminologists and urban planning researchers hold different views on the specific effects of built environment (BE) variables like land-use diversity, street permeability, and urban green, etc. (Stucky and Ottensmann, 2009; Sohn et al, 2018;). Criminologists often claim that neighborhoods with a higher proportion of commercial land uses are likely to be more vulnerable to crime because commercial facilities attract outsiders to the neighborhood, thereby increasing its exposure to potential offenders. However, advocates of compact, mixed-use neighborhoods, on the other hand, suggest that combining commercial and residential uses can reduce crime by increasing opportunities for human surveillance, encouraging social interaction, and promoting a sense of community and social control among neighborhood members (Jacobs, 1961; Sohn et al, 2018).

In addition, fewer previous studies on the effect of built environment on crime have taken full account of the social environmental factors. Scholars have argued that social structure of neighborhoods is important for realizing the norm and behavior of its residents (Jones and Pridemore, 2018). Several researchers have tested the relationship between the built environment variables jointly with the effect of social economic conditions (Jones and Pridemore, 2018; Harris et al, 2018; Stucky and Ottensmann, 2009). However, the research is limited in scope and results are inconclusive. While studies in general acknowledge the effects

of social environment on crime, the effects of built environment are less clear. For example, Jones and Pridemore (2018) found mixed land use at the street-level is directly associated with the increase in crime. Stucky and Ottensmann (2009), on the other hand, found the effects of specific land use types vary by types of crimes. Harris et al (2018) studied the effect of the construction of The 606 in Chicago. The results suggested that neighborhoods along the trail experienced a significant reduction in crimes. More empirical studies are needed to inspect and validate the effect of environmental design on crime prevention.

This study investigates the relationship between crime and the neighborhood built environment characteristics (mixed land-use, street permeability, the percentage of green space, the percentage of vacant lot, access to liquor stores, etc.) under different socioeconomic conditions at both the street and the census block group levels. Multiple level modeling and the spatial cluster techniques (ArcGIS) will be applied to analyze the data in the North Central Texas Region. Findings of this study will provide new empirical evidence and contribute to the ongoing debate in the research of urban crime and the growing effort of Crime Prevention Through Environmental Design (CPTED). Implications to crime prevention policy and planning practice for safer community will be discussed.

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Key Words: Community Safety, Urban Crime, Crime Prevention Through Environmental Design, Environmental Equity

CO-OPERATION OR CO-OPTATION? DUAL FACETS OF GOVERNMENT INTERVENTION IN SCALING UP LOCAL FOOD PROCUREMENT IN SEOUL, SOUTH KOREA

Abstract ID: 105

Individual Paper Submission

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Increasing reliance on the global corporate food system has made food supplies more vulnerable and threatened local food economies. While private-sector, community-led and non-profit efforts to re-embed food systems are emerging in many global cities, such as food hubs and farms to school, few of these efforts to shorten and re-localize supply chains have been led by the public sector except for a few examples in Brazil and Slovenia (Forster et al., 2015). My study examines opportunities and challenges for urban and regional planners in re-localizing food systems, using the Urban-rural Coexistence Public Meal Program (UCPMP) in Seoul, South Korea as a case in point. UCPMP is a city-level effort to link small- and mid-sized rural farmers and public institutions including daycare centers, welfare facilities,

and government buildings in the Seoul metropolitan area. With UCPMP relying on proactive government intervention, this study elucidates: 1) the ways in which public food procurement through urban policy can contribute to the livelihoods of rural smallholders, 2) stakeholders included/excluded in this new food governance, particularly given the existing body of region-based grassroots food movements, and 3) twisting dynamics by which civic stakeholders utilize intruding public intervention as a political window to enhance long-term civic capacities.

The broad process of corporate concentration and globalization of food systems have configured profit-oriented supply chains in which outside actors grip the control over the shape and the use of local food systems (Clapp & Fuchs, 2009). Transnational food corporations have outstripped the infrastructure and capacity regions once had to undertake in managing the middle of the food system, from aggregation, processing, to distribution, which connects rural producers to regional consumers (Reardon et al., 2009). This consolidation of food supplies into a handful of large-scale foodservice providers has specifically excluded small- and mid-sized local producers by favoring volume purchases of standardized, low-cost commodities from any source (Monteiro et al., 2013). Local food procurement policies in cities, however, with concentrated and growing populations, would have a significant impact on regional food systems. The concept of the infrastructure of the middle coined by Stahlbrand (2016) refers to resources to rebuild "the missing middle" in food systems. In efforts to re-embed the infrastructure of the middle, public institutions as anchor organizations can provide a stable source of demands to rural farmers practicing small-scale sustainable agriculture. I ask in this paper whether the new public food governance across scattered stakeholders and multi-level governments enhances local grassroots initiatives or debilitates bottom-up capacities which laid the ground for UCPMP.

To answer this question, methods in use include a) direct observations of project sites, b) in-depth interviews with critical stakeholders such as government officials, program operators, involved civic actors, and rural farmers, and c) a broad spectrum of document analysis. Findings of this study will suggest that public food procurement can make a meaningful contribution to scaling up short food supply chains, supporting a transition to sustainable local food systems, only when coupled with the thriving of local grassroots food actors. The questions of who decides and who takes away the benefits of public food procurement should be answered in these emerging efforts to re-localize the middle of food systems.

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Key Words: Food Systems Planning, Urban Food Policy, Grassroots Food Movements, Public Partnership

THE RELATIONSHIP BETWEEN BUILT ENVIRONMENT AND TEENAGER OBESITY — TAKING SHIJINGSHAN DISTRICT BEIJING AS AN EXAMPLE

Abstract ID: 121

Individual Paper Submission

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Context:

Environment of the society and quality of residential life have changed a lot in Beijing of China over the past few years, and a survey proves that the index of teenager obesity in Beijing is much higher than before. Substantial researches have demonstrated that built environment factors are related to eating and physical activities in western countries, but in China the situation might be different. This article is to find out how possible the built environment factors are related to teenager obesity in China.

Methods:

Using Geographic Information Systems(GIS) to combine the geographic spacial data(supplied by Beijing survey and mapping institute) and teenagers health tracking study data(supplied by Beijing children hospital) with the digital map big data created by the Internet crawler, then analyzing the procurement data with statistical method.

Findings:

Built environment especially the street connectivity and the accessibility of activity space have a strong correlation with teenager obesity. The communities with ready access to health foods and more “Gray Space” have significant negative correlation with teenager obesity. Teenagers in low-income family have a much lower risk of obesity.

Conclusions:

Built environment, physical activity in outdoor space, healthy diet habits and school education are strongly recommended in reducing the teenager obesity. Based on the authors’ review, increasing the connectivity of community streets and the density and the accessibility of outdoor activity space will help to reduce the possibility of teenager obesity; increasing supermarket and Chinese market access, more building “Gray Space” may also be promising strategies to reduce teenager obesity.

This article is supported by the National Social Science Major Projects, Coastal Metropolitan Security Strategies and Comprehensive Disaster Prevention Measures Based on Smart Technology

Processing medical data and spatial data using big data methods to process medical data and spatial data

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Key Words: Built Environment, Street Connectivity, Outdoor Activity Space Accessibility, Digital Map Big Data, Teenager Obesity

SMART CITIES PUBLIC HEALTH INTERVENTIONS AND EQUITY: A SYSTEMATIC REVIEW

Abstract ID: 237

Individual Paper Submission

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Smart cities are a current and controversial approach to urban planning which has been promoted by governments, societal actors, and business interests in furtherance of improving efficiency and effectiveness (Kitchin, 2014). Much of the existing smart cities scholarship has focused on urban economic issues and development (Glasmeier & Nebiolo, 2016; Hollands, 2015). A number of scholars have criticized this parochial focus for failing to adequately consider and address the social issues and concerns of urban citizens (Paskaleva et al., 2017). Consequently, the smart cities approach has become increasingly popular in other fields such as public health (Trencher & Karvonen, 2018). As smart, healthy cities research emerges, it is critical to understand the field's inclusion of equity considerations with respect to "smart" community interventions to ensure that social issues and concerns are being addressed. The current study presents a systemic review which purposed to explore the state of equity in smart, healthy cities research. To achieve this aim, the review posed the following question: "what are the main equity approaches, characteristics, features, objectives, and outcomes of smart public health interventions?" This review documented and synthesized public health interventions across the globe which were conducted utilizing a smart city approach, specifically analyzing each study for its consideration and inclusion of precise equity criteria outlined in the Cochrane Methods PROGRESS-Plus tool. The electronic databases for this review needed to draw content from the fields of behavioral science, geography, public health, and urban planning. Given this diversity of subject matter, the search strategy was carried out in four strategically selected databases: The Cochrane Library, PubMed, SCOPUS, and Web of Science. Findings are thematically organized based on the different equity criteria of the PROGRESS-Plus tool. Specifically, this review explores the range, extent, and thoroughness of the inclusion and analysis of sex, gender, socioeconomic status, race, ethnicity, culture, and disability in smart city public health interventions. This review ultimately identifies and discusses a number of strategies and methods to improve the conception, facilitation, and evaluation of urban health interventions with respect to their equitability. Results from this systematic review can be utilized by a variety of different audiences. Findings and discussions can inform practitioners on ways to improve the organization and design of urban public health interventions, assist scholars and evaluators in deciding what equity considerations their studies and programs should consider, and improve the awareness of students regarding the necessity of ensuring the social concerns of citizens in technology-oriented interventions.

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Key Words: equity, interventions, public health, smart cities, systematic review

HOW TO DESIGN BUILT ENVIRONMENTS AROUND PARKS TO ENSURE PEDESTRIAN SAFETY

Abstract ID: 248

Individual Paper Submission

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Parks have been identified as an amenity that not only provides ecosystem services but also brings several social, environmental, and economic benefits to surrounding communities (Brown, Schebella, & Weber, 2014; Wolch, Byrne, & Newell, 2014). Government agencies have implemented several strategies such as the use of underutilized transportation infrastructure to provide sufficient park space, especially in park-poor communities (Wolch et al., 2014). Although people walking to park could have a high level of physical activity and a better health status, traffic safety concern is one of the key factors in deterring resident's willingness to walk to park. It is critical for planners and policymakers to provide green space with a high accessible locations and pedestrian-friendly environments. However, few studies investigated the associations between various built environments and pedestrian safety near parks.

This study is to explore the impacts of built environments at different scales (both street and neighborhood levels) on pedestrian safety around parks in Orlando, FL by using two-level negative binomial models. To validate the appropriateness of two-level analysis, we calculated the design effect; it shows that one-level analysis may produce the biased results if the value is greater than 2 (Snijders & Bosker, 2012).

Parks located in a high population density area were linked with more pedestrian-vehicle collisions. More commercial and office parcels along the street segment near parks were related to a higher number of pedestrian crashes. Single- and multi-family residential uses along street segments were related to a decreased number of pedestrian crashes. More transit stops along street segments were related to more pedestrian crashes.

The findings of this study not only confirmed the previous literature but also provided an insight for planners on the approach to create a safe environment around parks for pedestrians. The results could be implied to two directions: (1) how to retrofit the built environments around existing parks and (2) refer the findings for the site selection for future parks. For the retrofitting of built environments around

existing parks, the traffic conflict management is very critical, especially at the high-density area. From our results, traffic conflict plays an important role in causing pedestrian-vehicle crashes around parks. Since a traffic conflict represents two or more users advance each other at the same space and space (Cloutier et al., 2017), strategies to create the separation of time and space between vehicles and pedestrians is essential to avoid a collision, especially at the transit stop location and driveways near commercial and office uses. For the future site location of the parks, one of the site location requirements should consider the pedestrian safety. From our results, the residential areas with relatively lower traffic volume and speed could be an appropriate area to improve pedestrian safety around parks. Moreover, if there is limited land space for the park site selection, planners should at least keep monitoring and managing the potential traffic conflicts around parks.

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Key Words: Pedestrian safety, Crash, Built environment, Park, Multi-level analysis

HOW WELL IS URBAN AGRICULTURE GROWING IN THE SOUTHERN UNITED STATES? TRENDS AND ISSUES FROM THE PERSPECTIVE OF URBAN PLANNERS IMPLEMENTING URBAN AGRICULTURE REGULATIONS AND POLICIES.

Abstract ID: 268

Individual Paper Submission

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In this exploratory study, we evaluate urban agriculture trends within 55 cities in the Southern United States. Our research is important for three reasons. First, while the geographic scope of urban agriculture research is limited mostly to Northeast and West Coast cities, we focus on the South, the fastest growing U.S. Census region. Southern cities have also made strides which warrant attention. Second, despite rapid growth, this region has also experienced the highest rate of poverty and reported cases of food insecurity. Third, we solicited input from urban planners. Planners have a comprehensive perspective of local land development, regulate and monitor urban agriculture sites, develop urban agriculture policies and programs, and work closely with urban decision-makers; other works call for planning taking a stronger role in community food systems. The study documents urban agriculture changes in Southern U.S. cities from 2000 to 2010. It also considers types of projects, implementation barriers and strategies used to promote urban agriculture. A survey questionnaire was mailed to planning officials in 153 Southern cities; 55 cities responded. Forty-eight respondents (87%) reported the existence of urban agriculture in their jurisdiction. Among Southern cities reporting urban agriculture, 69% (33) experienced urban agriculture growth, 21% (10) reported decline and 10% (5) did not report a change. The most common

projects included neighborhood gardens, school gardens and community-supported and entrepreneurial agriculture. Irrespective of urban agriculture growth or decline, subject cities relied on the same types of regulatory and policy approaches. Only respondents reporting growth in urban agriculture implemented programs to preserve and enhance urban agriculture; however, a smaller proportion of these cities reporting growth utilized these programs. Respondents cited land conversion and lack of economic sustainability as main barriers to urban agriculture. The findings suggest the need to further explore the effectiveness of urban agriculture planning approaches between cities reporting urban agriculture growth and those reporting decline. Emphasis should also be placed on solution-oriented approaches which address barriers.

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Key Words: Urban Agriculture, Urban Planners, Southern United States, Land Use

EXAMINATION OF SOCIAL NETWORKS, THE BUILT ENVIRONMENT AND HEALTH HABITS IN A NEIGHBORHOOD

Abstract ID: 329

Individual Paper Submission

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Obesity is a worldwide health problem, and the U.S. is among the most overweight countries in the world (WHO, 2018). An important factor influencing obesity constitutes person's social network (Christakis & Fowler, 2007), which represents a group of individuals who have social ties to each other, and has a specific number and pattern of ties. While previous studies explored the importance of family relationships on obesity, there is dearth of research examining the role of other types of relationships on obesity, such as neighborhood relationships. Moreover, previous work has primarily focused on larger geographical areas (Duncan & Ichiro, 2018). The complexity of this issue could be served by our study, which will take place in the context of River Bend neighborhood in the city of Des Moines, Iowa.

Our study has three specific goals: 1) understand strength of neighborhood ties and how it affects one's health habits, specifically obesity; and 2) examine how neighbors perceive the built environment they live in, and what are neighbors' health habits. We posed two hypotheses about the diversity of the social

network and the intensity of socialization: obese residents who have a network composed predominantly of obese residents will have higher likelihood of having unhealthy habits compared to obese residents with more diverse networks (i.e., non-obese and obese), and increased socialization with obese residents will be associated with less healthy habits, respectively.

Social networks in a specific neighborhood are often hidden from view. After an extensive literature review, we have identified the Respondent-driven sampling (RDS) as the appropriate sampling method for this study (Heckathorn, 1997). RDS requires a chain of peers providing researchers with additional respondents—the initial respondents are labeled as “seeds,” i.e., participants who are embedded in the area of study and agree to recruit individuals from their network into the study.

Our methodological approach involves a community mapping activity, a survey questionnaire, and a quantitative analysis of the social network. First, the community mapping activity will serve three purposes: (1) to understand how residents define the physical elements of their neighborhood (related to the built environment such as parks, trails, food stores); (2) to understand how residents view the boundaries of their neighborhood; and (3) to assist researchers in identifying participants for RDS. We expect the community mapping activity to have around 30 participants. Second, using RDS, neighborhood residents who agree to participate in the study will complete a survey questionnaire, which will include weight and height measurements, in addition to questions about the built environment, and the social network. We are targeting a sample of 100 respondents to be recruited using RDS, and will complete the survey questionnaire. Third, results from the questionnaire will be used as variables in regression models and social network analysis measures at the dyad and network level that will use Body Mass Index as the dependent variable.

Findings from this study advance knowledge of how neighborhood planning and social networks can be utilized to increase healthy habits, and also how to improve the built environment. Knowledge contributions that are specific to River Bend could involve ideas of what health-related policy and program changes could be more effective, and what improvements could be made to the neighborhood plan that Des Moines has in place for this neighborhood. Moreover, findings from this study could advance knowledge of how to target positive connections in the social network. Researchers have suggested that both positive and negative habits could be spread through social network connections and that there are individuals who are centrally located in network chains who could be more effective in creating change (Christakis & Fowler, 2007; Perkins et al., 2015).

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Key Words: social networks, obesity, neighborhood planning

INCORPORATING EXPERIENCES OF FAMILIES LIVING WITH CHILDHOOD DISABILITY INTO SCHOOL SITE PARKING PLANNING

Abstract ID: 404

Individual Paper Submission

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The spread of automobility has undeniably influenced school site designs and school transportation experiences. Using private vehicles, many parents now routinely enter and park on school sites to drop-off and pick-up their children. However, due to ableist parking designs and practices that overlook much of the human condition's bodily and physiological diversity, parking at school can produce inequitable, work-intensive experiences for families living with childhood disability. This paper presents parking-related findings from an ethnographic study of how families living with childhood disability experience everyday school travel across the Greater Toronto and Hamilton Area (GTHA) in Ontario, Canada. In this paper, we ask, "how are families living with childhood disability experiencing parking on planned school sites?"

The presented findings are based on interviews and photovoice (Wang and Burris, 1997) exercises conducted with parent-disabled child dyads (i.e., 15 parents and 15 disabled children) across the GTHA. All children had one of three genetic conditions that result in chronic physical disability and associated mobility impairment. These conditions were osteogenesis imperfecta (brittle bone disease), Duchenne muscular dystrophy, and spinal muscular atrophy. Throughout the study, we used Smith's (2005: 51) generous concept of work to support inquiry into the families' unpaid, inequitable, and obligatory activities that typically go unnoted as work. We also used Goodley's (2014) critical ableist studies perspective to facilitate the recognition of ableism and to question the normalcy of disability's exclusion from school site parking designs and operations.

This paper contributes to planning scholarship and practice by offering insight into the various ways in which families of disabled children can experience planned school site parking in inequitable, work-intensive ways. For example, we show how the families are frequently required and relied on by schools to perform various types of access work (i.e., work that is physical, temporal, social, and emotional in nature) to compensate for school site inaccessibility. Further, we found that the families sometimes encounter technically accessible, but functionally inaccessible school site parking options. These findings suggest that school site parking can be added to the troubling list of school site elements that continuously challenge disabled children's education access (e.g., inaccessible school playgrounds/play-spaces and building entrances; inadequate snow removal; and dangerously uneven walkways; Stephens et al., 2015; Pivik, 2010).

To advance more accessible school parking and, in turn, more equitable education access, we argue that planning scholars and practitioners, as well as schools and school boards, could benefit from deliberately engaging the unique experiences and viewpoints of families of disabled children. We also call on these parties to incorporate a critical ableist studies lens into school site planning and design processes to facilitate the recognition of ableist designs and practices, prevent the production of barriers, and to unsettle the normalized exclusion of disability from school sites.

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Key Words: School travel, Parking, childhood disability, ableism, inclusion

WHAT ARE THE MAIN CHALLENGES THAT FACE SMALLHOLDERS IN THE ARAB REGION AND PREVENT THEM FROM BEING INTEGRATED INTO THE FOOD SYSTEM PLANNING PROCESS? THE CASE STUDY OF JORDAN

Abstract ID: 420

Individual Paper Submission

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Smallholder farmers are marginalized through limited access to resources, information, technology, capital, and assets. The current international food politics tend to control the poorest rather than expanding their choices. Smallholder farmers' cooperatives find it challenging to compete with local subsidiaries of global trading firms. As governments retreat from the regulation of domestic markets, farmer organizations lose a political forum of negotiation at the global scale. However, a new role for smallholder farmers could limit the power of government in shaping local and regional food systems, giving farmers greater control over their primary source of livelihood. This approach would address equity and social justice issues, help achieve household food security, and improved nutritional status for those who depend on agriculture for their livelihoods.

This research will answer several questions critical to achieving food sovereignty in the Arab World by empowering smallholder farmers in the region. The primary research question is: What are the main challenges that face smallholders in the Arab region and prevent them from being integrated into the food system planning process? The goals of the research include identifying the different challenges smallholder farmers face, from their position, that limits their ability in being incorporated in the policy-making process in the food system planning process, how smallholder farmers define these different challenges, and how they perceive their role in the food system planning process.

To answer this question, I will have conducted a closed-end survey that targets a large sample of smallholder farmers in Jordan and an in-depth, open-ended semi-structured interview with a smaller sample of smallholder farmers that include a series of questions regarding (1) food crisis occurrences, (2) perceived consequences resulting from the food crisis, and (3) perceived future risks. This interview will capture the (4) perceived resources that were critical for smallholders in responding to the food crisis. To identify specific actions taken by the governments to recover and their impact on smallholders' situation, this interview will include (5) questions discussing short-term actions and their impact on smallholders' position and power, along with questions about (6) long-term actions (such as land grabbing) and their impact on smallholders' position and power. The interviews will also ask about (7), the value of regional

food system planning approach in the Arab World, and (8) how smallholders perceive their role within a regional food system planning approach.

This interdisciplinary research contributes new insights into how alternatives approach in the Arab World could strengthen smallholder position within the food system planning process and how the current regional process could be refined to incorporate smallholders' role through collaborative strategies. This research aims at understanding the necessary steps to achieve food sovereignty in the Arab World through the identification of strategies to support smallholder farmers in the region. The ultimate goal of this research is to promote the well-being of smallholders, decrease inequality in the region, work to resolve problems of social justice, and achieve food sovereignty in the region. The research findings will contribute to the current literature on regional food system planning and generate crucial insights on social equity for smallholder farmers populations.

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Key Words: Smallholder Farmers, Social Justice, Interactive Policies, Policy Reform

IMMIGRANT FOOD ENTREPRENEURS' ROLES AND IMPACTS ON COMMUNITY WELL-BEING

Abstract ID: 454

Individual Paper Submission

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Researchers have examined disparities in access to healthy foods in low-income communities extensively, typically comparing predominantly African-American neighborhoods to predominantly white neighborhoods (Galvez et al. 2008). Early scholarship reduced Black neighborhoods to either “food desert” or “food swamp”, representing White neighborhoods as epitomes of healthy food environments for their easy access to supermarkets (Powell et al. 2007). Food scholarship has moved away from these early reductionist and derogatory definitions of food access. Their legacy, however, has stayed with many government studies that inform public policies that shape distribution of resources and investments. This is evident from numerous current studies and policy guidelines which still ignore the complexity of urban food environments and discount contributions of “other retailers” to food provision (United States Department of Agriculture 2017).

At the same time, immigrants establish small to medium-size food businesses in their receiving communities. These businesses carry affordable, wholesome and culturally appropriate foods. A handful of studies have examined the degree to which ethnic food markets contribute to food security and health (Emond et al. 2012). Food provision is only one way through which immigrant businesses impact health and well-being. For example, the dense commercial space created by Latino entrepreneurs helped to pull

immigrants out of their houses during the 1995 Chicago heat wave, ultimately reducing the number of Latino casualties and saving lives (Sandoval-Strausz 2013). However, scholars have paid less attention to the health effects of immigrant entrepreneurship than to its roles in upward mobility, economic development and community revitalization.

This study focuses on the multifaceted ways that immigrant food entrepreneurs impact health and well-being of a hyper-diverse working-class suburb (Upper Darby, PA). This study revisits two misconceptions in research on immigration and food access: the view that immigrant small businesses have minimal and short-lived impacts; and the emphasis on national chain supermarkets as the primary source of healthy food. I explore immigrant businesses' impacts on the food environment, food shopping, food consumption, community development and wellbeing through three main lines of inquiry. The first relies on historical research to examine the ways that immigrant food businesses impacted population, vacancy and employment. The second utilizes interviews, field observation, and survey of customers at ethnic and non-ethnic food businesses to explore the roles of these stores among Ecuadorian, Salvadorian, Indian, West African, Korean, Vietnamese and native-born African American and White households. The third draws on cross-sectional surveys of a purposive sample of residents to understand how residents of different backgrounds navigate their food environment in a diverse setting.

The food environment of Upper Darby is neither black nor white. It is not a "food desert" with limited access to healthy foods nor a "food oasis" where all residents purchase and consume healthy foods. The diverse and dense food environment of Upper Darby is more complicated than these two predominant images, so are its residents and their shopping and consumption patterns. Ethnic food markets have shaped the community and its food environment in multiple ways: 1. The persistent operation, ownership and business transfer of ethnic food businesses stabilized the community and provided continuous access to food. 2. Ethnic food businesses promoted walking, especially among the foreign-born elderly population. 3. Ethnic food businesses contributed to the diversity and density of the food environment, enabling residents to navigate the food environment based on their own needs, preferences and food budget. 4. Ethnic food markets played critical roles in shaping the diets of the foreign-born shoppers. This study carries implications for local governments that seek to achieve the triple goals of creating healthy communities, community and economic development, and integration of newcomers in receiving communities.

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Key Words: Immigrant entrepreneurship, Food access, Ethnic food market, Revitalization, Well-being

EFFECTS OF STREET CONNECTIVITY AND DURATION OF EXPOSURE ON VISITING FAST FOOD RESTAURANTS: A GPS-BASED, CASE STUDY OF THE ATLANTA (USA) REGION

Abstract ID: 499

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Convenient access to fast food restaurants has been linked to being overweight, although the association between fast food restaurant access, food consumption, and body weight was varying (Gordon-Larsen, 2014). Duration of time exposed to food resources offers a novel perspective to understand how people interact with a food environment (Widener & Shannon, 2014). Scully (2016) observed that a relatively short time spent within a certain distance of fast food restaurants decreased the odds of reporting a fast food restaurant visit. We have observed that higher neighborhood street connectivity was associated with lower odds of visiting a fast food restaurant in a neighborhood (unpublished study). Therefore, it is possible that higher neighborhood street connectivity decreases the time exposed to neighborhood fast food restaurants, which, in turn, decreases the odds of patronizing those restaurants. To test the influence of exposure time in accessing food resources, we employed the travel diary and GPS data in the 2011 Regional Travel Survey for the Atlanta area to examine the cross-sectional association between GIS-measured neighborhood street connectivity, an individual's time exposed to fast food restaurants, and the frequency of visiting neighborhood fast food restaurants. We classified participants in three subgroups (high, medium, and low), according to the average property values within participant activity space. For each subgroup, we used mixed-effects regression models to estimate differences in the frequency of visiting neighborhood fast food restaurants across different levels of GIS-based neighborhood street connectivity. We then estimated differences in the time exposed to fast food restaurants across neighborhood street connectivity. Across different subgroups, we consistently observed a lower frequency of visiting fast food restaurants with a higher street connectivity in block groups in which such fast food restaurants resided. We consistently observed shorter times spent within 100 m of fast food restaurants with higher street connectivity in the block group in which fast food restaurants resided. The associations were strongest for the low property value subgroup and weakest for high property value group. Our results suggest that being exposed to highly connected neighborhoods might be protective against obesity, particularly for persons who go about their daily lives in poor activity spaces.

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Key Words: food access, exposure, activity space, obesity

HOW DO YARD LANDSCAPE CUES INFLUENCE SAFETY PERCEPTION IN NEIGHBORHOODS?

Abstract ID: 501

Individual Paper Submission

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A neighborhood that is perceived to be safe has healthier individuals (Burdette et al, 2006) and is more engaged in the local community (Jabareen and Zilberman, 2016). An important contributor to perception of safety are the immediate surroundings. Specifically, the built and natural environments affect how residents think and act in neighborhoods (Aziz et al, 2018). The natural environment in a neighborhood includes natural elements such as vegetation, yards, parkstrips, or any other designated area as green space. It may represent varying degrees of design, management and care. Nassauer (1995) in her seminal work, identified 'landscape language', which is a hypothesis that all landscape communicates cues to the observer, who then process the information. This paper aims to understand specific natural environment factors in a neighborhood, which might influence personal safety concerns. Particularly, I am looking at 'private' landscape, that is front yard design, care and conditions, that may affect how residents perceive safety. The main research questions that I want to answer is -

- What factors in private landscape (front yards) affect perceived crime safety?

There is a three-step approach to this research.

First, I engaged in door-to-door interviews and walk-along interviews in four neighborhoods in Salt Lake City – two low income and two medium income. The interviews started off as open-ended, and I further asked participants specific questions about yard landscape, and their perceived safety by looking at variations of design, care and quality of yards.

Second, I compiled all issues that I gathered from interview data, and identified variables that might affect sense of safety in neighborhoods. I also extracted possible landscape cues from literature.

Third, I designed a survey which has manipulated photographs with different landscape scenarios. I implemented this survey to about fifteen hundred individuals across Utah, via a crowdsourcing internet e-commerce website known as MTurk. MTurk is owned by Amazon, an e-commerce giant. Through Amazon, having access to greater number of households translates to greater reach and response rate of participants. Finally, I used the responses to make observations and conclusions about perceived safety from yard landscape.

Preliminary results indicate expected concerns. Ill-maintained landscapes with untrimmed hedges, overgrown yards, lack of grass, absence of trees (in some cases) incite safety concerns. Some purposeful landscape designs which are more 'organic' than 'conforming' influence safety concerns. Organic landscape design is often confused with lack of maintenance, which affects perceived safety of the observer. Medium income neighborhoods were concerned about safety arising from yard landscape, but low income neighborhoods were comparatively less concerned about discomfort from other people's yards. Supplementary data and several iterations of the model is required to reach a stronger conclusion.

This research has important contributions to the field of safety and community planning. There are three clear outcomes of this research.

1. Fear of crime has been a persistent social problem in residential neighborhoods. Understanding and reducing fear or crime in private yards can realistically provide more transportation options rather than simply driving.
2. At the moment, United States is grappling not with infectious diseases, but with lifestyle diseases – obesity and poor mental health. Fear in neighborhoods which stem from landscape cues inhibit active living, which has an effect on lifestyle diseases. If a particular form of landscape is more desirable than another, city codes could be tweaked to accommodate those changes. Ultimately, the aim is to build healthier communities, in which residents are active, and spend time outdoors.
3. Perceived safety and community relations affect each other. If we address ‘perceived safety’ we can reasonably increase community bonds, which leads to better quality of life.

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Key Words: Perceived safety, neighborhood safety, landscape cues

ASSOCIATIONS BETWEEN URBAN SPRAWL AND LIFE EXPECTANCY IN THE UNITED STATES

Abstract ID: 557

Individual Paper Submission

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In recent years, the United States has had a relatively poor performance in respect to the life expectancy compared to the other developed nations. In 1980, the United States was ranked 11th on life expectancy. By 1990, however, it had fallen to 13th and by 2006, it was 21st (Crimmins et al. 2011). In nearly half of U.S. counties, today's women are not living as long as their mothers did. Other research has shown that life expectancy is not changing uniformly across the United States. There are disparities of more than 20 years between counties with the highest and lowest life expectancies (Murray et al. 2006).

Several studies have sought to investigate the key determinants of life expectancy including socio-demographic variables and behavioral and environmental modifiable risk factors, such as smoking (Crimmins et al., 2011), obesity and associated chronic diseases (Crimmins et al., 2011), traffic fatalities (Kochanek et. 2011), and poor air quality (Silva et al., 2013) contribute to reduced life expectancy. Most

of these behavioral and environmental correlates of life expectancy are also associated with urban sprawl, a type of development pattern characterized by poor accessibility and automobile dependence. Although these observations suggest that urban sprawl may affect life expectancy, the literature provides little or no evidence on the exact nature of the relationship.

This study investigated cross-sectional associations between sprawl and life expectancy for metropolitan counties in the U.S. In this study, the measure of life expectancy for came from a recently released dataset of life expectancies by county. This study modeled average life expectancy with a structural equation model that included five mediators: annual vehicle miles traveled (VMT) per household, average body mass index, crime rate, and air quality index as mediators of sprawl, and percentage who smoked as a mediator of socioeconomic status.

After controlling for socio-demographic characteristics, this study found that life expectancy is significantly higher in compact counties than in sprawling counties. Compactness affects mortality directly, but the causal mechanism is unclear. It may be, for example, that sprawling areas have higher traffic speeds and longer emergency response times, lower quality and less accessible health care facilities, or less availability of healthy foods. Compactness affects mortality indirectly through vehicle miles traveled, a contributor to traffic fatalities, and through body mass index, a contributor to many chronic diseases. These findings support further research and practice aimed at identifying and implementing changes to urban planning designed to support health and healthy behaviors.

Despite very high levels of expenditure on health care, the U.S is not among the countries with the highest life expectancies. Changes in urban form are a potential intervention to address health in urban areas. If the results of this study and other related work are confirmed there will be further reasons to promote alternatives to sprawling patterns of urban development “by intent” rather than incidentally.

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Key Words: Urban Sprawl, Compactness, Mortality, Built Environment, Life Expectancy

ASSOCIATION OF THE BUILT ENVIRONMENT WITH OBESITY AND PHYSICAL ACTIVITY IN OLDER PEOPLE: EVIDENCE FROM THE NATIONAL BASELINE SURVEY OF CHARLS

Abstract ID: 611
Individual Paper Submission

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The prevalence of overweight and obesity in Chinese adults has risen steadily over the past three decades. In addition, it is recognized as a major threat to public health, accounting for substantial disability and costs for older people. Physical activity is regarded as an important determinant of health and body weight, and, activity level of older people may be influenced by built environment. This study aims to investigate the associations between objective neighborhood built environment, physical activity, and overweight and obesity of Chinese older people over 60 years old. We used the data from the Chinese Health and Retirement Longitudinal Study (CHARLS, 2011–2013). This was a cross-sectional study in a sample of 7650 older people (≥ 60 years) including 3833 urban samples and 3817 rural samples. Of the 7650 samples, 47.6% were men and 52.4% were women; 28% were overweight, 4.5% were obesity (based on WHO). This research uses logistic and multilevel linear regression models to examine the associations between neighborhood built environments and individual odds of obesity under controlling individual risk factors. Individual variables measured objectively in the CHARLS data including BMI (body mass index) and sociodemographic attributes such as age, gender, race, marital status, education attainment, employment status, and whether an individual smokes. Neighborhood built environment characteristics (public facilities such as convenience stores, farmers' markets, recreation facilities and supermarkets out of neighborhoods, facilities in community such as exercising facilities, entertainment facilities, activity center for the elderly and so on) and physical activity level (vigorous activity, moderate activity, leisure-time physical activity) at baseline were collected. The model demonstrated a significant positive relationship between BMI and public facilities density. Compared with rural areas, the effect of community facilities have higher impacts on overweight and obesity in urban. Higher public facilities density (total convenience stores, farmers' markets and supermarkets) were linearly associated with lower BMI (all $p < 0.05$). All of which indicate an approximate 0.75 kg/m² increase in BMI for each additional public facilities per hectare ($p < 0.01$). Moreover, older people's BMI was positively associated with their duration of leisure-time physical activity and negatively associated with vigorous activity, moderate activity in China. Collectively, built environment characteristics are associated with obesity and physical activities. The demand for above neighborhood built environment could influence developers and designers to create communities that promote walking and improve the health of older people.

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Key Words: built environment, obesity, physical activity, older people, China

A PRODUCTION-POLICY MISMATCH: SUPPLY CHAIN THREATS ON SMALLHOLDER FARMER FINANCIAL SECURITY IN KERALA, INDIA

Abstract ID: 660

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Smallholder farmers contribute significantly to food security for millions of people throughout the Global South [1]. A key component of food security is smallholder farmers' access to equitable food supply chains, defined here as the "farm-to-fork" sequence of activities, including food production, processing, aggregation, transportation/distribution, retail, and consumption [2]. Food supply chains operate at many levels from the local to global, and prior literature has described how globalized, export-led supply chains can benefit smallholder farmers by creating opportunities to capital through access to new partners, consumers, and high-value markets [3]. Despite the promise of globalization, however, many smallholder farmers in the Global South increasingly face challenges related to financial security and sustainability of their farm operations [4]. Yet, the experiences, challenges, and needs of smallholder farmers in the context of increasing globalization in the Global South is poorly understood.

This paper aims to examine smallholder farmers' challenges and adaptations to accessing supply chains in urbanizing environments, as part of a global action-research project, Planning for Regenerative, Equitable Food Systems in Urbanizing Global Environments (Plan-REFUGE). The study was conducted in Thiruvananthapuram and Thrissur districts of Kerala, India. This study setting is among the most urbanizing states in India, and has long been studied by scholars as a model of development [5]. However, recent transformations in globalization and urbanization, as well as the effects of such global forces on individual well-being remain under-studied in this context. Qualitative data was collected through in-depth interviews with smallholder farmers (n=13) and key stakeholders (n=7) in both districts. Audio-recordings of interviews were translated and transcribed by native speakers. A codebook of 72 parent codes and 5 child codes was developed, and data were analyzed using a qualitative analysis program (NVivo 11).

Preliminary findings reveal that with increasing pressures of globalization, smallholder farmers face a variety of challenges participating in supply chains in Kerala, including lack of food storage, limited food aggregation infrastructure, and unstable markets. In particular, storage infrastructure is price-prohibitive, causing smallholders to harvest and sell produce daily. In addition, lack of storage and aggregation infrastructure limit smallholder farmers' agency in accessing retailers (i.e., when and where). As a result, smallholders are largely forced to sell within unpredictable markets, many of which provide low market rates and late payments. One adaptation among smallholder farmers with limited supply chain access is overproduction of agricultural crops. To do so, smallholders increase the use of costly agricultural inputs (e.g. fertilizer, technology, labor), which further threatens the financial viability of smallholder households.

Furthermore, we find that local government policies are not planning for infrastructures to advance the success of smallholder farmers. Limited regulation of urbanization continues to threaten farm operations, as land developed for commercial and housing stock displaces agricultural production. In addition, due to barriers to supply chain participation, smallholder farmers are unable to share the benefits of urbanization, such as viable markets and transportation routes, which further burden smallholders' economic wellbeing. In what we term a production-policy mismatch, opportunities remain for local government action to align with smallholder farmers' needs and strengthen access to local supply chains, particularly in the context of increasing globalization and urbanization. As global forces continue to intensify throughout the Global South, policy makers will need to consider localized strategies to food systems planning through land use strategies, agricultural subsidies, and infrastructural investments that support a variety of food crops in order to increase economic security and wellbeing of smallholder farmers.

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Key Words: smallholder farmer, supply chain, urbanization, food systems planning

ENVIRONMENTAL JUSTICE AND FOOD: REGIONAL PLANNING OPPORTUNITIES TO ADVANCE ACCESS TO HEALTHY FOOD FOR ALL CITIZENS

Abstract ID: 662

Individual Paper Submission

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Scholars in planning and public health have increasingly called attention to the need to enhance environmental justice and promote equal access to healthy food for all citizens. Unreliable access to healthy food hinders children's growth and development, and increases risk for obesity, diabetes, and other diet-related disease over the life course. Defined by a growing body of literature, access to healthy food is determined by a variety of factors: nutritional adequacy, cultural relevance, affordability, proximity to food sources, and the ability to travel to and acquire food. Disparities in healthy food access are also well documented and rooted in structural inequities, with communities of color and lower income experiencing greater environmental barriers to accessing healthy food.

Over the last two decades, local and regional governments have developed and implemented a variety of plans to assess and address challenges related to food access. An evaluation of local comprehensive and sustainability plans across the United States reported on the many strategies local governments have planned for to improve access to supermarkets, farmers markets, and community gardens. Yet, regional food planning remains understudied. Regional plans play an important role in healthy food access, given the inextricable links between a city and the broader surrounding region. For example, a study on the last-mile food distribution system in New York City found that an estimated 19 billion pounds of food travels through a food distribution system of warehouses, food hubs, distribution facilities, transportation routes, and retailers each year. More than half of this food is transported by truck over just four bridges and two tunnels. Little is known about the extent to which regional plans are planning for food access and how plans for transportation and land use are promoting (or inhibiting) equal access to healthy food for all citizens.

This study aims to evaluate the extent to which adopted regional plans in the United States address access to healthy food, defined by nutritional adequacy, affordability, cultural relevance, food sovereignty, social justice, and spatial justice. Additionally, we examine how land use and transportation plans facilitate/inhibit spatial justice i.e., whether food is available to people in all geographic areas of the region and are not inhibited by spatial disparities.

We conduct a comparative plan evaluation of adopted regional scale plans that address food systems concerns in the United States from 2000 to 2018. A call for regional plans was distributed to organizations interested or engaged in food systems planning, including the American Planning Association's Food Systems Planning Interest Group, Planners 2040, and Growing Food Connections. Drawing on an extensive literature review and prior work on comparative plan evaluations, we developed a plan evaluation instrument, including 119 measures each rated on a scale from 0-2 that assess key elements of a plan (vision, factual basis, proposed implementation actions, monitoring, and process) and the extent to which they address nutritional adequacy, affordability, cultural relevance, food sovereignty, social justice, and spatial justice. Based on the spatial justice scoring, we further examine two cases of regional plans with the lowest and highest score, and assess the ways in which respective transportation and land use plans advance (or inhibit) access to healthy food.

Preliminary findings indicate that regional plans addressing food access did not receive high scores overall. Regional plans received the highest scores related to addressing nutritional adequacy and the lowest scores related to addressing social justice, cultural relevance, and affordability. This study presents

a new tool to evaluate how well adopted plans are addressing food systems concerns and discusses ways to improve regional food planning, particularly related to advancing spatial justice in healthy food access.

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Key Words: Food access, Healthy food, Regional plan, Local government, Environmental justice

ASSESSING THE BUILT ENVIRONMENT CHARACTERISTICS FOR PEDESTRIAN SAFETY: A CASE STUDY IN BUFFALO

Abstract ID: 728

Individual Paper Submission

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Exercising or walking in the built environment that is both walkable and safe is essential for people to engage in physical activity. This justifies the importance of studying the built environmental correlates of pedestrian safety, specifically which of the D variables (density, diversity, design, and destination accessibility) contribute to pedestrian safety. While many cities and communities are designing and modifying the built environment based on the D variables to make it more walkable, we argue that these variables are also important to create a safe environment for pedestrians. This study aims to quantitatively examine the combined impact of conventional pedestrian safety correlates as well as the D variables while controlling for the spatial autocorrelation effects (SAE), and further discuss the association of built environment with both safety and walkability.

Current research on the built environment characteristics related to walkability may provide references for identifying pedestrian safety correlates and determinants to build an environment that is both walkable and safe. In addition to the environmental correlates of pedestrian safety studied in existing literature, such as intersection density, roadway design, and traffic volume; geographically weighted Poisson regression (GWPR) models are performed to examine the spatially varying effects of some additional D variables on pedestrian safety. Pedestrian involved accidents from 2012 to 2016 in the city of Buffalo, New York are used as the dependent variable. The study assesses the association of the built environment with pedestrian safety using the two widely used buffer zones representing walking distance, 400m (0.25mi) and 800m (0.5mi), to analyze and compare environmental impact on pedestrian safety.

The results from the GWPR models are much more pronounced compared with those from the global OLS models for both buffers, indicating the significance of controlling for the SAE in safety-related environmental studies. Within 400m, the GWPR models suggest intersection density, street types (whether it's one-way street), and Walk Score are significantly associated with pedestrian safety. Within

800m, intersection density, street types, traffic volume, Walk Score, employment density, population density, black population density, and street integration are recognized as the built environment characteristics related to pedestrian safety. Most variables show a consistent relationship with pedestrian safety in both buffers. Specifically, intersection density, street types, Walk Score, traffic volume, population density are negatively associated with safety; while employment density is positively associated with safety in both buffers. Interestingly, black population density and street integration are negatively associated with pedestrian safety in the 400m buffer while positively associated with pedestrian safety in the 800m buffer. Some of the variables show conflicting impacts on safety and walkability, for example, intersection density, Walk Score, and population density are negatively associated with safety while positively associated with walkability.

A number of the D variables are incorporated in the study to systematically analyze the environmental impact on pedestrian safety. The conflicting impacts of some variables on safety and walkability provide us new perspectives and emphases in terms of creating both a walkable and safe environment. The spatially varying effects of the built environment on pedestrian safety are thoroughly examined by controlling for the SAE, which verifies the significance of spatial analysis in safety studies. The well-observed negative impact of intersection density on pedestrian safety necessitates urban planners and policy makers to monitor pedestrian activity and improve safety amenities such as traffic signals in areas with more intersections. Traffic management and accident prevention authorities should prioritize large population areas because population density negatively affects pedestrian safety. The inverse relationship between black population density and pedestrian safety within different buffers are mediated by socio-economic status, advocating more attention to susceptible populations such as low income and ethnic minority groups.

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Key Words: pedestrian safety, built environment, geographically weighted Poisson regression, D variables

“THE ROLE OF BUILT ENVIRONMENT, PERSONAL, RELIGIOUS, CULTURAL AND SOCIOECONOMIC FACTORS IN INCREASING OVERWEIGHT AND OBESITY RATE IN WOMEN VS MEN: A CASE STUDY OF KARACHI, PAKISTAN.”

Abstract ID: 773

Individual Paper Submission

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“Overweight and Obesity” have been reported to increase steadily in both developed and developing countries. Among many Asian countries, Pakistan is also facing the increase overweight and obesity rate as an epidemic. Interestingly, this trend is not uniform across all socioeconomic classes and genders but is more prevalent in women and varies across different age groups and socioeconomic classes in Pakistan.

According to the Lancet (2013), 27.9 % male adults and 38.4% female adults (20 years and older) have been reported to be overweight /obese in Pakistan. Various studies suggest that women are less involved in physical activities (PA), hence are found more overweight /obese than their male counterparts, but there are several contributing factors which restricts women to actively engage themselves in PA. Built environment, personal, religious, cultural and socioeconomic factors play a great role in determining women participation in PA indoor and outdoor. There are strong evidences of several neighborhoods in middle-income and low-income classes in Karachi and other parts of country, where women are not seen in parks and play grounds at all.

The 2001 study of three socioeconomic classes (high-income, middle-income and low-income) in 600 household for Karachi urban areas compared the heights and BMIs of adults and children of both genders. The study concludes that the women tendency of being overweight/obese increases with their age and uplift in socioeconomic status (Hakeem, 2001). However, this study (or any other study) does not measure the impact of built environment and other factors in the neighborhoods which cause more obesity in women than man in case of Karachi, Pakistan. To fill the lacuna, the proposed study explores how built environment, personal, religious, cultural and socioeconomic factors tend to cause more overweight /obesity in women than men in largest city Karachi, Pakistan.

Mega-city “Karachi” in Pakistan is home to more than 23 million people and has witnessed rapid urban sprawl since 1980’s. The urban area of Karachi can be divided into three categories based on socioeconomic classes i.e. high-income, middle-income and low-income. Neighborhoods in each socioeconomic class differ considerably by house sizes and conditions, access to open spaces, amenities and infrastructure, and other built environment factors. Informal settlements are illegal encroachments on public land and do not have a formal neighborhood plan; therefore, we exclude them from this study.

The built environment, personal, religious, cultural and socioeconomic factors are independent variables (X’s). The dependent variable (Y’s) are “Obesity and Overweight” ($BMI \geq 95$ th percentile of the CDC for Health Statistics growth curves). Samples were classified into four categories of weight profile namely: underweight ($BMI < 18.5$), normal weight ($BMI 18.5-24.9$), overweight ($BMI 25.0-29.9$), or obese ($BMI > 30$). We selected 200-300 random samples of 20 years or older male and female adults from each socioeconomic class (70-100 from each SEC, 50 % male and 50 % female approx.). The sample data was analyzed in three categories of socioeconomic classes through ordinary least square regression modelling in GIS/SPSS/Statista. The survey questionnaires were used along with the interviews, observations and/or discussions with focused group.

This research is intended to highlight the underlying evidences of various built environment disparities found in different socioeconomic classes as well as measure the impacts of personal, religious, cultural and socioeconomic factors on overweight /obesity in adult males and females. Overall when all these factors combine, they put more physical and psychological burden on women at neighborhoods scale that leads to more overweight /obesity in them. In addition, this study will also inform us about the extent to which the different socioeconomic classes differ to each other in defining the overweight /obesity profile for both genders in Karachi, Pakistan.

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Key Words: Built Environment, Gender, Socioeconomic Classes, Obesity, Overweight

USING SOCIAL MEDIA TO MEASURE THE NEIGHBORHOOD DISPARITIES IN ACCESS TO HIGH-QUALITY GROCERY STORES

Abstract ID: 778

Individual Paper Submission

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Despite two decades of research on food deserts, most discussion has revolved around the disparities in the quantity (number and size) of food stores, with little attention to the quality of these stores. Scholars focusing on the latter have mainly employed the availability or variety of healthy food options to measure such quality. However, these measures are limited as they ignore the features of grocery stores other than food quality, which may affect the consumers' perception of the stores and therefore their food access. To fill this gap in the literature, this paper takes an innovative approach to measure the quality of grocery stores. Specifically, I use the numeric ratings of grocery stores available on the Yelp website as a proxy for grocery store quality, which captures both their observed and unobserved characteristics. I then analyze whether any racial or income disparities exist with regard to access to high-quality grocery stores in the Phoenix region. The results show that neighborhoods with higher proportions of blacks or Hispanics tend to have less access to high-quality grocery stores in the inner city. However, I find no disadvantages to accessing high-quality grocery stores among ethnic minorities in the suburbs after taking into account neighborhood income levels. A content analysis of narrative reviews on Yelp also reveals a wide range of factors that customers value in evaluating grocery stores. This study helps planners make more informed decisions to reduce the neighborhood disparities in food access (in terms of both quantity and quality), in addition to showing the potential of using social media as a planning tool.

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Key Words: Food accessibility, Racial food disparities, Social media

A SPATIAL IDENTIFICATION OF THE EFFECTS OF HEAVY PRECIPITATION AND HOT DAYS ON TRAFFIC CRASHES: A CASE STUDY IN FLORIDA

Abstract ID: 780

Individual Paper Submission

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We are facing more severe, more frequent, and longer lasting extreme weather events (i.e. extreme hot days, heavy rainfall, heavy precipitation etc.) due to climate change. There is a large body of emerging literature focusing on the impacts of extreme weather events on the built environment and human health safety. One unsettled debate in traffic crash research is whether or not extreme weather events positively affects traffic accidents in the U.S. Many studies prove that weather can affect traffic situations and intensities by influencing traffic demand, volume, modes, and travel behaviors (Cools, Moons & Wets, 2010; Guo, Wilson & Rahbee, 2007; Maze, Agarwai & Burchett, 2006; Smith et al., 2004); whereas, some scholars argue that the association between weather and traffic crash are mixed and ambiguous (Eisenberg, 2004).

The mixed findings have led us to examine the relationship between extreme weather events and traffic accident with more rigorous analytic methods and more reasonable data. However, very limited studies use spatial econometrics methods to control for spatial dependency. It is important to look at the spatial-temporal relationship because, first, the cross-sectional analysis fails to consider the temporal correlations or time-persistence of unobserved factors within each county, which induces bias to coefficient estimations, for example, precipitation volume at the aggregate level in cross-sectional analysis could undermine the relationship between heavy precipitation and accident chances. Second, ignoring space and time cannot capture the county inner dynamics across time, which may bias. Third, spatiotemporal analysis can better explain among counties why spatial traffic patterns form over time. The Poisson and Negative Binomial models are widely used in modeling traffic crash, however, using these models requires the data have equal variance and mean, no serial correlation, and ignores the effect the unobserved heterogeneity. Hence, this study uses a time series and cross-sectional data panel to estimate the weather-crash relationship.

Motivated by the observed “booming” of traffic crashes and “tortured” road system caused by extreme weather events, this paper examines the relationship between heavy precipitation and extremely hot days and traffic crashes in the State of Florida during the period 2006-2015. Four models are applied here: fixed effects spatial lag model, fixed effects spatial error model, random effects spatial lag model, and random effects spatial error model. This study considers various factors associated with traffic crash, including the occurrence of accidents and fatalities caused by accidents: county population, county average income, the extremely hot days in a year, yearly heavy rainfall volume, Gini index coefficients, and proportion of households without a car. Results suggest that heavy precipitation, population, and household without a car are highly significant influencing the number of total crash and fatalities in the State of Florida. The comparisons indicate benefit from using random effects spatial error model when numerous spatial and temporal effects are unobserved.

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Key Words: traffic accident, hot days, safety, spatial dependency, health

DOES GREEN SPACE REALLY MATTER FOR RESIDENTS' BMI? A NEW PERSPECTIVE FROM GOOGLE STREET VIEW

Abstract ID: 842

Individual Paper Submission

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For years urban planning researchers have built well the link between the built environment and health-related outcomes, and there are emerging attention on the relationship between green space and residents' body mass index (BMI) from both local municipals and academic scholars, since overweight and obesity may contact with many health risks, including diabetes, heart disease, and certain cancers (Janssen et al. 2004). Some scholars state that green space could promote people's physical activity for good weight management (Nielsen and Hansen 2007). However, Feng et al. (2010) found their relationships are still not consistently established, for instance, there is no significant correlation between green space and BMI (Mowafi, Khadr et al. 2012). They explained the potential reasons might due to the different approach, measuring the features on green space (Fong, Hart et al. 2018). Despite growing literature, there is less evidence examining the association between vision-based greening at street level and people's BMI. Consequently, the primary aim of this research is to explore the impact of eye-level greenness on resident's BMI and obesity. We took Shanghai as the study area since it has a high-density construction environment with a rapidly growing population and the issue of green space disparity had appeared. In order to test our hypothesis, this exploring research was based on a survey with 9,524 respondents from 40 communities in the metropolitan area. We carefully followed the approach from Ye et al. (2018), using the technique of deep convolutional neural network architecture to extract eye-level information of the Street View image. We attempted to calculate the visible green index at the vertical level. Besides that, we utilized the normalized difference vegetation index (NDVI) and the accessibility of urban parks to assess to control both the size and service effects of green space. In general, the multilevel estimation reflected that the traditional variables of normalized difference vegetation index (NDVI) does not have a significant impact on the body mass index (BMI) in Shanghai, whereas, the eye-level greenness is found significantly associated with obesity. Moreover, elderly people's BMI seems more sensitive to all type of green features.

This paper made a contribution to planning scholarship through its review of the current literature on the role of greenness on public health. Secondly, it made a compelling case for why built environment green space planning is necessary by using quantitative analysis. Also, this research will allow for better planning strategies on how to further develop green infrastructures for different social groups and mitigating the green unevenness. Above all, this paper can help planners, and related professionals understand the association between the human being and the natural environment.

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Key Words: Green space, Eye-level, Street view image, BMI, Shanghai

CAN AGE FRIENDLY PLANNING PROMOTE EQUITY IN PUBLIC HEALTH ACROSS THE RURAL-URBAN DIVIDE?

Abstract ID: 849

Individual Paper Submission

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In the US, rural communities face more challenges to meet the public health needs of elders and children than urban and suburban places. Rising rates of obesity among children and elders have led to calls for increased attention to opportunities for physical activity in streetscape design and park development. However, age-friendly planning and design guidelines are decidedly urban-focused. New Urbanist principles of density, walkability, and mixed-use are difficult to achieve in rural communities. In addition, rural communities typically provide lower levels of services. Planners need to develop a rural lens for community planning that addresses physical design and service provision, and promotes civic engagement to help rural governments advance public health.

Planners are giving greater attention to building age friendly communities to promote better public health. In 2014, the US based AARP developed a Livability Index based on WHO's eight domains of age-friendly communities. The index includes livability indicator scores on health, housing, neighborhood, transportation, environment, engagement, and opportunity. The index also includes local government policies in each category. In this paper, we link the unique AARP livability indicators with demographic structure and socio-economic factors from the American Community Survey at the community level to determine which factors drive age-friendly communities and advance public health. We run OLS regression to examine the relation between the seven AARP livability indicators and the factors differentiating health outcomes by metro status. We find that places with better access to life, work and play rank higher on the AARP health outcome indicator. Rural areas lag on the health indicator, compared

to urban and suburbs, but rural communities, which give more attention to engagement and opportunity, rank higher on health. Local government actions to build age-friendly communities are important, as planning, which increases civic engagement and creates an inclusive environment, has a key role to play in helping move rural communities forward in addressing public health challenges and create livable communities for all ages.

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Key Words: aging, health, rural, engagement, planning

PLANNING FOR HEALTHY COMMUNITIES: SUPPORTING MARGINALIZED COMMUNITIES THROUGH TRAUMA INFORMED COMMUNITY DEVELOPMENT

Abstract ID: 994

Individual Paper Submission

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Chronic stress and trauma are well recognized contributors to poor health outcomes and health inequity. High levels of trauma at a neighborhood scale can be a profound barrier to community development, community well being and health. Models of trauma informed community building seek to support community development through the lens of trauma informed practice. For highly traumatized communities, community planning can be a critical activity to empower, restore hope and foster a sense of agency, while addressing critical community stressors. Thus planning can play a profound role in supporting the mental health of our most marginalized communities.

Trauma informed strategies have gained widespread acceptance in other fields such as education or social service provision. In the context of city planning, trauma informed community development practices have documented success but are still emergent, with limited examples to inform scholarship or guide future practice. Most existing scholarship on planning and trauma focus on acute forms of community trauma (e.g. natural disaster) or historical collective trauma while being less attentive to ongoing forms of chronic community trauma (e.g. gun violence or housing insecurity). The proposed paper adds to the emerging literature on trauma informed community building to document the structure, benefits, challenges and opportunities for planners to engage trauma informed practices.

The proposed paper and presentation present a case study of the I Am My Brothers Keeper (I Am MBK) program implemented on the South Side of Columbus, OH as a model of trauma informed community

development. I Am MBK utilized a trauma informed approach, to support marginalized boys of color through intensive community building activities. Facilitated and managed in a collaboration between Franklin County Job and Family Services, The Ohio State University, the Columbus Urban League and neighborhood organizations, the program worked over a 3 year time span to affect change in more than 75 South Side children and their families. The program was also implemented in coordination with more traditional community development efforts to support improvement to the built environment, expand community resources and enhance public spaces in the South Side.

The program works with a cohort of highly at-risk youth and their families on the Southside. South Side African American boys and their families face some of the most challenging conditions in the Columbus region. Persistent poverty, family instability, community violence, food insecurity, housing instability and health challenges plague families and create tremendous obstacles for success for youth. At a neighborhood scale these challenges create tremendous barriers to neighborhood revitalization efforts. The I Am MBK program provided in-depth engagement, intensive experiential learning, community building and visioning, life skills coaching, youth advocacy, violence prevention efforts and ongoing family support (e.g. housing or transportation). Through intensive engagement, I AM MBK worked to connect participants to resources to meet family needs and fostered resiliency in youth who face perilous conditions.

The case study integrates mixed methods (interviews, surveys, observation and other evaluation data) to document the program's design, impact on the community, implementation challenges, sustainability and replicability. The program has positively influenced participants and their families in terms of academic outcomes, character outcomes, personal optimism, and their relationship with various at-risk measures. Findings from I Am MBK illustrate how trauma informed practice fits into existing traditional community development activities (such as housing stabilization), while also demonstrating the benefits of linking trauma informed practice with other contemporary community development models, such as collective impact and asset based community development. The program provides a model case study to contribute additional evidence to our emerging scholarship of trauma informed community development and planning practice.

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Key Words: trauma informed, community development, community health, diversity, equity

DHS CRITICAL INFRASTRUCTURE PARTNERSHIPS – BRINGING INFRASTRUCTURE SYSTEM DEPENDENCY ANALYSIS TO HAZARD RESILIENCE PLANNING

Abstract ID: 1064

Individual Paper Submission

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Resilience has been nationally defined as “the ability to prepare for and adapt to changing conditions, and to withstand and recovery rapidly from disruptions” (Presidential Policy Directive 21). The fields of planning, architecture, and landscape architecture have integrated resilience concepts and disaster impacts into academic and programs and planning practice. However, resilient design and disaster planning practice largely neglects the role of infrastructure systems in supporting the functions that are essential to community and regional resilience. Operational and physical systems that can suffer from rolling and compounding disruptions with cascading consequences (O’Rourke 2007). Increasingly interdependent infrastructure and technological systems introduce vulnerabilities that extend beyond the documented local impacts from demographic change, geographic hazards, and decisions that allow development in high risk areas. A failure in cyber or communication systems, for example, dependent water, and transportation systems may fail causing disrupting hospitals, industries, and other services. The Department of Homeland Security Cybersecurity and Infrastructure Security Agency (CISA), with support from the DOE National Laboratories, have developed methods for working with the private and public sector to assess these dependencies and documenting the consequences when critical disruptions occur, but accessibility for the planning community has been hampered by protocols for protecting information and the cost of such studies for localities. The impacts and cost of reconstructing infrastructure after the 2017 hurricane disasters demonstrated the importance of integrating this knowledge into pre-disaster comprehensive and hazard mitigation plans at various scales. CISA also entered into an agreement with the USACE, which leads federal infrastructure disaster response and recovery functions, to expand and apply this knowledge to port functions.

How can these federal methodologies and knowledge be integrated and expanded to create a holistic guide for planners to use with the public and private actors to assess vulnerabilities and recommend to address interdependent infrastructure systems and enhance their resilience at various scales? The paper presents the methods for developing a resilience assessment and decision guide including: a review of assessment methods and findings; a joint port study with the USACE to define the infrastructure systems that support core port transportation functions; validation of an assessment and decision guide from simple to more data-dependent through port case studies and pilot projects; and validation and dissemination through the private sector and government coordinating advisory councils that are chaired by DOT and other federal agencies as part of CISA’s role for leading the implementation of the National Infrastructure Protection Plan (NIPP, DHS 2013). The objective is to develop a transferable and scalable guide for planners to work with the private sector to consider infrastructure system interconnectivity of ports or other facilities and to transfer such approaches through the national infrastructure partnership managed by CISA.

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Key Words: infrastructure systems, Resilience and Security, Planning guide, Regional planning, Ports

NAVIGATING IN TWO SYSTEMS: INDIAN HEALTH SERVICE ACCESSIBILITY IN LOS ANGELES COUNTY

Abstract ID: 1069

Individual Paper Submission

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During the 1950s, urban centers across the country experienced a rise in Native American populations as a result of federally-supported relocation programs. These programs promoted the relocation of Native American people from the reservations of Federally Recognized Tribes into urban city centers by incentivizing better access to education resources, job opportunities, and higher income. The Relocation Era created a mass exodus causing Los Angeles and San Francisco to experience the highest growth rate of relocated Indians by 1970, foreshadowing the rise of Native Americans residing in urban areas than reservations (Fixico, 2000).

In 1976, Congress passed the Indian Healthcare Improvement Act which outlined approaches to providing health care services for both rural and urban Native American populations and subsequently created Indian Health Services to fulfill this task. The goal of Indian Health Service is “to assure that comprehensive, culturally acceptable personal and public health services are available and accessible to American Indian and Alaska Native people”, acknowledging the importance of cultural-sensitive approaches to promoting and treating health (Indian Health Service, 2019). And yet, while Indian Health Services provides culturally-appropriate health care, physical access to Indian Health Services remains a common problem for beneficiaries who may need to balance between the immediate need of health care services and health care that is contextualized for a target population. This challenge poses two questions to be addressed: (1) What is the spatial accessibility of Indian Health Services compared to other health care providers; and (2) How can spatial accessibility to Indian Health Services and other health care providers be improved to promote better health for Native American and Alaska Native communities?

This paper examines the spatial accessibility of Indian Health Services and other health care providers in Los Angeles County using an enhanced two-step floating catchment area method (E2SFC) in ArcGIS. The E2SFC method is useful in that builds upon the two-step floating catchment approach by applying different weights to travel time zones, thus allowing an easier interpretation of accessibility to the health facilities in question (Luo and Qi, 2009). Preliminary findings show that the spatial accessibility of Indian

Health Services is concentrated in an area in Downtown Los Angeles and is not accessible to clusters of Native American and Alaska Native communities in other cities in Los Angeles County. Though other health care providers are more readily accessible to the population clusters outside of the Indian Health Service area, there may be opportunities to provide culturally-appropriate health care services through collaboration between Indian Health Services and other healthcare providers in areas where Native American and Alaska Native populations are higher, ensuring greater equity in healthcare accessibility among multiple dimensions (Penchansky and Thomas, 1981).

Physical accessibility health care services are paramount to begin to understand the ways in which health care planning can be better facilitated with target populations in mind. The paper concludes with a discussion on how planners and public health officials can coordinate efforts to increase holistic accessibility to health care facilities to promote healthy communities.

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Key Words: Indian Health Service, Los Angeles, Health Care Accessibility

RETHINKING HUMAN SERVICES EDUCATION DELIVERY IN RURAL COMMUNITIES: A REVIEW OF POLICY IN CANADA AND AUSTRALIA

Abstract ID: 1093

Poster Submission

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Helping professionals, specifically doctors, nurses, teachers, early childhood educators and social workers play essential roles in the vibrancy and health of communities. Educating, recruiting and retaining these essential workers is increasingly problematic and challenging in rural communities across countries like Canada and Australia. Factors such as geography and demography, a 'rural' culture, resource limitations, and workforce shortages (Strasser, 2001) complicate abilities to implement effective education, workforce planning and practice-training with corresponding downstream impacts to economic and community development—in essence, a vexatious and vicious circle. While effective education and training programs are key to supporting the successful delivery of rural health and social services there is a paucity of research that examines the design of training and education models within an inter-professional and community-based frame in rural jurisdictions. This research intends to answer:

How might we best design a training and education model to meet the needs of helping professionals during their primary training professional education in rural jurisdictions?

In what ways does the current policy context and broader education, health and service structures interplay with one another and impact and inform rural and remote health and service delivery?

This research paper presents a conceptual framework of rural and remote health developed by Bourke, Humphreys, Wakerman, and Taylor (2012), based on Giddens (1986) theory of structuration, to explain the connection of what happens in rural locales within broader structures and actions, while integrating health policy, community action, political decisions, and rural service delivery. It considers geographic isolation, health systems, and social structures to demonstrate that rural health and service delivery is understood as spatial and social relations among local residents in relation to the actions of professionals. It uses policy and document analysis as the main methods of data collection as well as personal reflection and insights. This research examines the empirical evidence and theoretical frameworks that underpin education and workforce development and planning in rural communities, as well as the role that post-secondary education (PSE) plays in labour market transformation in rural contexts. This research provides recommendations for community planners, policy makers and educators about how to build education and training methods for helping professions, particularly within rural and remote locales.

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Key Words: rural communities, community health, education planning

SPATIAL DYNAMICS OF URBAN FABRIC: SOCIAL CAPITAL AND NEIGHBORHOOD SAFETY IN PLACE-BASED CONTEXT

Abstract ID: 1102

Individual Paper Submission

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Urban neighborhood characteristics and transition is important for formulating effective programs for revitalization and community development. This article is motivated from an intellectual tradition that seeks to explain variations of neighborhood outcomes such as crime and civic participation. While there are various factors that matter with spatial variations of neighborhood outcomes (inequalities) in an urban area, this study is particularly interested in place based social capital and their impact on neighborhood outcome such as safety. In urban planning fields, social capital has been applied in a variety of contexts to explain the ability of a community to solve the problem of collective action. The spatial dimension of social capital arises from the fact that their value and the way they are valuable to an individual depends on the physical distance. Social ties/networks may be restricted by the geographic location. Thus social capital is location specific.

The paper examines the interconnectedness and spatial dynamics among social capital, civic participation and neighborhood safety (crime), using GIS and statistical models. The main research question is “Do social capital contribute to neighborhood outcome (i.e, lower crime rate)?” In doing so, a novel approach

is introduced to create the social effect composite index to contain spatial dimensions of place based social activities. Thus the spatial dynamics of social indicators are analyzed at a finer level of analysis such as parcel and street level. The traditional and common method of social capital research uses survey methods, with the unit of observation being either metro areas or cities or counties or zipcodes. This method is not necessarily well suited to capture the spatial dynamic nature of neighborhood characteristics at a finer level, e.g. street or parcel level. The paper proposes methodological improvement to fill this research gap. The fast growth of GIS and spatial data removes former barriers to increasing spatial resolution, and the improvement of statistical modeling supports spatial data analysis of the research to be better worked. For empirical testing, SEM (Simultaneous Equation Modeling) and Path models are utilized. The study area is the City of Lincoln, Nebraska. Lincoln has a strong history of community organizations, voluntary activities, and neighborhood social capital supports.

The findings show that place-based neighborhood social capital and civic participation strongly influences the spatial variation of neighborhood outcome - crime. Government authorities see social capital as a heuristic tool that sheds new light on public intervention and the way in which public services can use this potentially valuable ingredient to attain their objectives. Along this line, the research reinforces the importance of developing formal organizational dimensions of social capital to support collective civic engagement in urban neighborhoods. To identify implication for planning practices, the paper discusses environmental strategies to promote positive social effects.

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Key Words: Neighborhood Safety, Social capital, Place based neighborhood outcome, Spatial dynamics, Neighborhood social environment

NEIGHBORHOOD WALKABILITY AND VIOLENT CRIME

Abstract ID: 1138

Individual Paper Submission

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Background: Crime and violence is one of the major social and health concerns, particularly in urban neighborhoods [1]. Neighborhood crime may directly influence physical injuries to residents as well as indirectly harm people through psychological stress or health behaviors [2, 3]. When people feel that their neighborhood is safe, they tend to walk more frequently in their neighborhood, in other words, insecurity

or fear of injuries impede people move out of their home [4]. A number of built environment features have been also identified as triggering a crime. Land use diversity, bars, drug treatment centers, alcohol malls, and other undesirable facilities are known to be associated with high crime rates [5]. Although considerable research effort has been directed towards addressing the role of built environment on crime [6], little is known about the effect of the walkable environment itself on crime rates.

Objectives: This study sought to examine the effect of the walkable environments on actual violent crime. In general, we hypothesize walkable environments are not associated with higher crime levels by controlling other factors such as undesirable facilities, racial diversity, and neighborhood quality.

Methods: We used data from the city of Austin, Texas with a population of 790,390 (U.S. Census Bureau 2010 Population Estimate). To analyze neighborhood-level violent crime incidents, we used census block groups as the unit of analysis. 449 census block groups within the city limits were used in the study. As a dependent variable, violent crime data for 2008 to 2012 were extracted from the Austin Texas's open-source data on crime as reported by the Austin Police Department (APD). Neighborhood walkability indicator, a key independent variable, was created through using Walk Score®. We used negative binomial models for aggregates of crime over the neighborhoods after controlling for exposure variable (population density) confounding variables (percent of individuals being under 15 years old, racial diversity, median household income, physical disorders, vacant housing rate).

Results: Adjusting for exposure variable and confounding variables, neighborhood walkability was significantly associated with violent crime incidents. Walk Score was found to be positively associated violent crime incidents (IRR=1.024, $p=.002$) while Walk Score squared was negatively associated with violent crime (IRR=0.999, $p=.022$).

Implications: The findings suggest that there exists meaningful neighborhood walkability thresholds measured by Walk Score in terms of violent crime. The results showed that total violent crimes started to drop when Walk Score reached certain threshold levels. Below thresholds, neighborhood walkability may lead to increased crimes by inviting more strangers to the neighborhoods. However, beyond this threshold with sufficient street activities and density of amenities, increased neighborhood walkability can help reduce violent crimes possibly by increasing informal social control and surveillance, which is consistent with Jacob's expectation. The findings of the study can help develop evidence-based planning, design, and policy strategies for creating safe street, which not only creating more walking-friendly environment but also reducing crime rates. It also provides milestone of foundation to explore the built environments that affect the relationship between public safety and walking behavior.

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Key Words: Neighborhood Walkability, Walk Score, Violent Crime

IMPACT OF URBAN LANDSCAPE AND SOCIODEMOGRAPHIC CHARACTERISTICS ON HEAT-RELATED HUMAN HEALTH

Abstract ID: 1139

Individual Paper Submission

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Background: Climate change causes many problems that deteriorate human health (Patz, Campbell-Lendrum et al. 2005). In particular, the rise in temperature due to climate change has caused urban heat island (UHI), and this extreme heat has adversely affected human health; UHI with extreme heat dramatically increases human's death and illness (Madrigano, Mittleman et al. 2015). The way a city is designed can either ameliorate or exacerbate those conditions through modification of the microclimate (Jaganmohan, M., et al., 2016). This study is to identify the relationship between urban landscape with sociodemographic characteristics and heat-related human health to suggest design guideline to mitigate heat-related damage to human health. We analyzed the neighborhood characteristics of the areas where the heat-related incidents occurred and compared it with urban landscape characteristics. We also considered the relationship between sociodemographic elements and heat-related human health.

Methodology: This study compared the relationship between two different situations: hot weather (June, July, August, and September) and normal weather (April, May, and October). To identify heat-related health outcome, we extracted only the heat-related types such as heat exposure, heat-related heart problem, headache, and breathing problem among various types of Emergency Medical Service (EMS) data in Cincinnati between 2015 and 2017. In this EMS data, they provide 26,547 heat-related incidents and their detailed time and location. For the urban landscape elements, we used area of vegetation, impervious pavement, water mass, and tree canopy after reviewing the literature. In addition, heat vulnerability index was used to analyze the impact of sociodemographic characteristics such as age, poverty, education, race, and house condition on heat-related health. Lastly, a linear regression model was used to identify their relationship.

Results: A total of 17,782 heat-related incidents occurred during hot weather and a total of 9,765 heat-related incidents occurred during normal weather conditions. According to the result, there is an impact of increasing the amount of urban vegetation, tree canopy, and pervious surface on alleviating heat-related health. In particular, urban landscape elements are lacking in the area where the heat-related incidents occurred. Decreasing the distance from the water mass and increasing the area of the water mass are related to the reduction of the heat-related health problems. When compared to other normal weather, heat-related health during hot weather was more likely to occur in black individuals than in other races and more likely to occur among people living in areas that received less public support. These results suggest an imbalance in the efficiency of urban heat management strategies by age, income, and race. In order to address human health problems, we conclude that urban heat management should prioritize areas of greatest population vulnerability.

Relevance of your work to planning scholarship, practice, or education: Despite the climate change and urban heat island are getting worse and creating serious conditions that can harm human health, there is a lack of empirical research related to urban landscape design and their impact on heat-related health. This study suggests empirical evidence on the relationship between urban landscape characterizes and heat-related health, need for microclimatic landscape design, and what factors should be considered to address heat-related health problems. It may be useful for practice or education in related fields.

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Key Words: urban landscape design, urban heat island, heat-related human health

NEIGHBORHOOD CONDITIONS AND SPATIAL EFFECTS ON OBESITY

Abstract ID: 1144

Individual Paper Submission

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Obesity continues to be a public health problem in the United States, with some 35 percent of Americans considered to be obese when measured by body mass index (Flegal et al. 2012; BMI). Indeed, some 69 percent of Americans are considered overweight (Ogden et al. 2012). While there are several studies that examine the socioeconomic (e.g., McLaren 2007) and even transportation (e.g., MacDonald et al. 2010) determinants of obesity, there are less studies that take explicit account of neighborhood conditions and obesity and particularly residents' own perceptions of these conditions. The central concern of this paper is to quantify residents' own perceptions of their neighborhood conditions and use spatial regression techniques to examine the relationship between these conditions and obesity. We hypothesize a negative relationship between perceptions of poor neighborhood conditions and obesity and that there will be negative spatial spillover effects of these conditions.

This study utilizes primary survey data collected from 370 participants in and around a revitalizing downtown and midtown of Detroit. The survey asked respondents to describe their neighborhood conditions along several dimensions: concerns about the health effects of air pollution and the presence of air pollution, particles, dust, litter, blight, and abandonment. I use a promax principal components rotation to reduce these seven variables into 2 factors, the first capturing local environmental concerns and the second capturing blight and abandonment. I control for several other factors, including socio demographic characteristics, distance to local amenities (e.g., supermarkets), distance to disamenities (e.g., liquor stores and gas stations), and transportation habits. I use spatial regression models—spatial autoregressive (SAR) and error models (SEM)—to regress these variables on BMIs.

I find evidence of spatial spillover effects, with the SAR models producing more substantial effects. The more substantial effects of the SAR model highlight the spatial spillover effects of poor neighborhoods: these neighborhoods affect not only their residents, but neighboring residents. Some of these spatial

consequences may be because of decay effects with distance but they may also be a result more discrete effects: for example, one needs to walk through other neighborhoods to leave or get home. Other results with regard to demographics and distances to amenities and disamenities are not surprising: poorer women, longer distances to supermarkets, shorter distances to fast food restaurants and package stores, and more reliance on cars are associated with higher BMIs.

The results confirm the importance of upstream planning in determining health outcomes (see Botchwey et al. 2015 for a review) and help make the case for a larger role for planning in order to improve health outcomes.

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Key Words: Obesity, Principal component analysis, Spatial regression, Neighborhood conditions

SPATIAL ACCESSIBILITY TO HEALTH CARE SERVICES FOR ASTHMA: DO DISTANCE, TRAVEL TIME, AND DENSITY MATTER?

Abstract ID: 1171

Individual Paper Submission

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Urban asthma is the chronic childhood morbidity that is susceptible to social and physical environments. In particular, more non-Hispanic black children were diagnosed with asthma than Hispanic and Non-Hispanic white children in 2012 (Brewer et al., 2017; Williams, 2009). Studies have identified social risk factors including education attainment, poverty, and race/ethnicity and environmental risk factors including proximity to major roads, air pollution, built environment and poor neighborhood and housing conditions (Corburn, 2006; Wright and Sternthal, 2011). Scholars in urban planning and public health have examined how living in the disadvantaged neighborhoods is associated with increased morbidity of asthma and higher utilization of health care services. From the perspective of social environmental determinants, health care access is considered a risk factor for asthma. Children defined as vulnerable in urban area are less likely to utilize health care services as they are more likely uninsured (Ash and Brandt, 2006). Access also includes physical access to facilities and accessible transportation. However, little attention has been paid to whether physical access to health care facility is associated with children asthma morbidity. This study aims to examine whether 1) distance to primary physician, 2) travel time to

primary physician, or 3) density of health care provider is associated with health care and whether those spatial characteristics contribute to widening urban asthma disparities.

This study uses health care utilization data of Medi-Cal enrollees and health care providers in Los Angeles County and utilizes their geographical information to measure distance and travel time to health care facilities (e.g., Primary Care Physicians) and density of health care providers. Types of health care utilization include outpatient, hospital admission, and ED visits during 2017-2018. The addresses of the enrollees' home and medical provider facilities are converted to the 311 zip code centroid latitude and longitude coordinates, and the distance. Travel time between two coordinates are calculated by use of Google Maps and SAS macro. Density of health care providers is measured by dividing the number of primary care physician by 1) the number of population and 2) area for each zip code. Fixed effects and Generalized Estimating Equations (GEE) models are applied to identify potential neighborhood characteristics. The multi-level models test the association between the three measures of physical access to health care facility and utilization of asthma, controlling for the patients' demographic information and neighborhood-level characteristics, which are considered risk factors for asthma.

The analyses focus on the disadvantaged neighborhoods in South Central Los Angeles with higher asthma ED visits, a higher proportion of African American and a higher poverty rate. The findings will demonstrate unequal access to health care and disparities in health care utilization in the disadvantaged neighborhoods and address physical risk factors for asthma disparities. This paper will provide planning, transportation, and health care policy implication to increase the physical accessibility of health care facilities and services and to reduce asthma disparities among children.

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Key Words: access to health care, asthma disparities, neighborhoods, spatial analysis, transportation

THE IMPACT OF PHYSICAL DISTANCE TO HEALTHCARE FACILITIES ON HEART DISEASE OUTCOMES IN ANDERSON COUNTY, SOUTH CAROLINA

Abstract ID: 1173

Individual Paper Submission

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Heart disease is the leading cause of death in the United States which causes one in every seven deaths a year in this country (American Heart Association, 2017). Heart disease is also the second leading cause of

death in the state of South Carolina and Anderson County. According to the report revealed by the Bureau of Community Health and Chronic Disease Prevention in 2013, heart disease accounted for 50,827 hospitalizations with a total cost of over \$3 billion in Anderson, SC. The age-adjusted heart disease mortality rate in this county was 179.2 per 100,000 in 2013 which is comparable to the rates in the United States.

Heart disease outcomes are highly dependant upon prompt access to emergency medical treatment (Yamashita & Kunkel, 2010). Evidence suggests that the majority of adverse health outcomes pertaining to heart disease occur within one hour after the symptom onset (American Heart Association, 2017). Any delays in treatment can increase the likelihood of adverse outcomes such as severe disabilities and even death among patients (Yamashita & Kunkel, 2010). Although early identification of the symptoms and immediate seek of medical help is crucial to mitigate adverse health outcomes of heart disease such as mortality and readmission rates (Fang et al., 2008), it is postulated that physical distance from a healthcare provider can also impact these outcomes among patients.

This study aims to investigate how physical distance to healthcare facilities in the county of Anderson, South Carolina can impact heart disease outcomes among the patient population in the proximity of the facilities. Patients' addresses will be obtained from electronic medical records, and geocoding techniques will be utilized to map where patients reside. Using the Network Analyst extension of ESRI software package, the travel time from each data point to the healthcare facilities will be determined. Spatial statistical analysis will be employed to determine the relationship between proximity to healthcare facilities and heart disease outcomes including mortality and readmission rates. Further analysis will be conducted to examine potential associations between socioeconomic and demographic factors and heart disease outcomes in this county.

This paper examines the role of proximity to health care facilities in health outcome among patients with heart disease. While this work is mostly focused on the accessibility to a health care provider as the key variable, the study also explores the socio-economic, demographic, and geographic factors as explanatory variables to find their potential relations to heart disease outcomes.

Clarifying the relationship between distance to a healthcare provider and heart disease outcomes enhances our understanding of other health-related burdens that the built environment can potentially impose on us. Such disparities can be circumvented by paying closer attention to the service area that each healthcare facility can cover to discover further the need for areas that fall outside the service area.

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Key Words: Public Health, Driving distance, Heart disease

OUT-OF-SCHOOL TIME ACTIVITIES, COMMUNITY RESOURCES, NEIGHBORHOOD SAFETY, AND PHYSICAL ACTIVITY AMONG LOW-INCOME CHILDREN

Abstract ID: 1187

Individual Paper Submission

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Background: Regular healthy physical activity patterns for children help promote continuous physical activity (PA) habits when they become adults, and help combat childhood obesity [1]. Children's PA has recently decreased even though the health benefits of PA are well-known, including decreasing biological cardiovascular disease and increasing psychological health such as self-esteem (Van der Horst et al., 2007). According to the US Physical Activity Guidelines for Americans, school-aged children are encouraged to participate in 60 minutes or more of moderate to vigorous physical activity (MVPA) each day [2,3]. Unfortunately, more than 50% of children and adolescents are not active enough to promote a healthy lifestyle [4]. Especially for among low-income children, they have more chances to expose to the hazard environment and/or less accessibility to the community recreational facilities (e.g., community centers, parks, and playground) to discourage to increase their PA. The safety concern is also one of the potential biggest barriers to discourage children's PA [5]. Of course, school programs can provide various opportunities for children to be involved in PA. However, many studies declared that the amount of PA in school does not guarantee enough children's PA, less than 40 percentages of the recommended amount of time. In order to satisfy the guideline for children's PA, children need to participate in out-of-school time activities.

Purpose: This study aims to understand the overall PA in relation to out-of-school time activities in their community and perceived safety among low-income children.

Methods: 2016 Minnesota Student Survey (MSS) conducted for students in grades 5, 8, 9, and 11 statewide. This study focused on 5th grade students (N=41,865) to figure out children's PA across Minnesota counties. MSS is the historical and continuous student survey in the Sates to capture the overall student's behavior. The outcome variable is self-reported PA, which was measured by asking students to report how many days during the last 7 days they were physically active for a total of at least 60 minutes per day. We used perceived neighborhood safety and type of out-of-school time activities (i.e., community resources, parks or outdoor places, private PA lessons or sports team). The low-income category was measured based on receiving free or reduced-price lunch at school.

Results: Out of 41,854 students, 30.6% were low-income children. Low-income children were less likely to spend their time for physical activity (3.7 days per week), compared to non-low-income children having 4.4 days per week with being physically active. During out-of-school time, low-income children tend to spend more time in community recourses such as community or other youth centers, and parks: low-income children (community or other youth centers: 18.3% and parks: 38.8%) versus non-low-income children (community or other youth centers: 15.4%, parks: 31.0%). However, low-income children were less likely to participate in PA lessons or sports team (17.4%), compared to non-low-income children (28.8%). However, low-income children reported that community programs for youth (86.9%), compared to non-low-income children (91.4%). In other words, community can provide a variety of programs for low-income children. In addition, safety concern is an important factor to determine children's access to the community resources. However, lower rate of reporting that their

neighborhood is safe (89.3%) detected, compared to non-low-income children (95.6%).

Conclusion: Improving accessible community resources and neighborhood warrants further attention as a promising strategy to promote children's PA, especially for low-income students having lack of access to the opportunities for PA during the out-of-school time (e.g., after-school, summer vacation). This study will inform planners and community organizers who can use this information for designing safe and activity-friendly communities and providing accessible youth organizations for those disadvantaged children to help them to engage in PA.

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Key Words: Physical Activity, Low-income children, Out-of-school time activities, Neighborhood safety, Community resources

DESIGNING WALKABLE NEIGHBORHOODS: RELATIVE MARKET DEMAND

Abstract ID: 1214

Individual Paper Submission

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Background and Purpose: Great enthusiasm has been promoted by recent literature and initiatives to promote walkability and walkable neighborhoods. A growing body of literature shows that walkable neighborhoods promote physical activity because they provide an array of destinations within walking distance and direct access to parks through a connected street network. Other studies have identified environmental “co-benefits” of walkable neighborhoods, such as the reduction in carbon emission and air pollution. However, the market demand of walkable neighborhoods is relatively unclear.

Objectives: The study assessed the market demand of a walkable neighborhood, Mueller, a 711-acre master planned community being developed on a former municipal airport site in Austin, Texas. The housing resale data were collected from 2008-2018 Multiple Listing Services (MLS), provided by the Austin Board of Realtors.

Methods: We conducted a case-comparison study to compare 347 resale homes in the Mueller neighborhood with other resales in Austin, primarily located in less walkable areas. Between 2008-2018, there were 264,207 property sales in Austin. Using propensity score matching (PSM) approach, we matched each Mueller transaction with the most identical one in the comparison group by controlling the following covariates: sold year, structural attributes (e.g. building age, area, number of bedrooms, bathrooms, stories, and garage), and amenities (e.g. trees size, water access, water front, view). The homes within the same ZIP code and 1 mile distance from Mueller were removed from the comparison group. All the transactions with missing variables were removed from the analysis.

After 1 to 1 matching, (1) final sold price, (2) cumulative days on market (CDOM), and (3) Walk Score, Bike Score, and Transit Score were utilized as the proxies of market demand outcomes, and average treatment effects were examined to compare the market demand outcomes between the Mueller neighborhood and other less walkable neighborhoods.

Results: On average, the homes sold in Mueller between 2008-2018 have a (1) higher final sold price, \$522,391 vs. \$386,319, (2) shorter CDOM, 68 days vs. 91 days, and higher Walk Score (55 vs. 17), Bike Score (80 vs. 20) and Transit Score (42 vs. 39), compared to comparison neighborhoods.

Conclusions and Discussions: We found Mueller, as a model of a walkable neighborhood, has higher market demand compared to other neighborhoods in Austin. The housing market has become more diversified, and neighborhood preference has been changing in recent years. Although the preference of certain home buyers toward auto-oriented neighborhoods remains strong, there is a shifting trend in demand toward walkability and some market responses with modest increases in the supply of walkable places. However, the supply of walkable neighborhoods falls far short of the demand, with the vast majority of new homes still being built in auto-oriented environments. Support from the policy makers and public sectors on promoting walkable neighborhoods has been stronger in recent years; thus, zoning regulations and design guidelines along with more supportive lending policies may become more widely available to increase the supply of homes in walkable environments.

Limitation: This study did not well address location, one of the most important covariates to determine housing value. In addition, this study did not consider affordability, and the consequences of equity and gentrification.

Implications for Practice and Policy: The benefits and demand for walkable neighborhoods are solid. However, auto-oriented and less walkable suburban neighborhoods continue to be preferred in most new residential developments. This study aims to help planners, developers, and other relevant sectors, by documenting the evidence of market demand of building walkable neighborhoods.

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Key Words: Market demand, Walkable neighborhoods, case-comparison study, Housing price, Days on market

IT'S NOT JUST THE FOOD ENVIRONMENT: SPATIAL ANALYSIS OF HOUSEHOLD FOOD RETAIL SHOPPING PATTERNS IN THE BUFFALO-NIAGARA METROPOLITAN AREA

Abstract ID: 1222

Individual Paper Submission

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A great deal of scholarship suggests that inequities in access to healthy food influences community nutrition and health outcomes (1, 2). Yet, there is limited empirical information about how variations in food environment impact actual patterns of people's food shopping behaviors. The lack of evidence about how, where, and why people shop for food limits the effectiveness of initiatives to increase healthy food access. Drawing on household-level grocery receipt data of 203 primary food shoppers collected in 2012, this cross sectional study investigates the factors that explain food shopping patterns in Erie County, New York (3). The study analyzes spatial clustering of 4201 shopping trips by type of store within a metropolitan environment using Getis-Ord Gi* method. The results suggest that people shop for food outside of their neighborhoods. To explain why, the study uses multivariate regression to examine the association between the volume of household food shopping trips to particular food stores with the characteristics of the built environment including urban form and in-store characteristics. Results suggest that preference for particular stores is mediated by both food environment landscape as well as in-store characteristics.

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Key Words: Food shopping behavior, Local food environment, Spatial analysis

THE RELATIONSHIP BETWEEN ACTIVITY CENTERS, TRANSIT ORIENTED DEVELOPMENT, AND PUBLIC HEALTH

Abstract ID: 1224

Individual Paper Submission

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Public health issues have been a concern for many years, especially when it is related to the built environment. Much research has been investigated with the built environment and its relationship to physical activity and public health (Ewing, et al., 2014). Consequently, many found a significant relationship in different cases (Chandrabose, et al., 2019).

According to the Center of Disease Control and Prevention, chronic diseases have increased in the past years. Moreover, around 45% of the US population suffers from one chronic disease (Raghupathi & Raghupathi, 2018).

A research by Ewing, et al., (2014) investigated the relationship between urban sprawl and physical activity, obesity, and morbidity. The study used compactness and sprawl measures to model health outcomes and behaviors using a multi-level analysis as a method. The outcomes of this research found compactness measures have a negative relationship to obesity, heart disease, high blood pressure, and diabetes. Moreover, the research recommended compact areas, which may have an effect on obesity and chronic diseases in urban and suburban areas. Furthermore, a meta-analysis of longitudinal studies of the built environment and cardio-metabolic reviewed articles between 2000 and 2016, the study identified 36 articles. The research used a meta-data analysis as a method. The results of this research found strong evidence that a longitudinal relationship occurs between walkability and obesity, type 2 diabetes, and hypertension. Moreover, the research found that urban sprawl has a strong impact on obesity outcomes (Chandrabose, et al., 2019).

Similarly, research has investigated the relationship between the built environment and public health, but mostly have investigated the relationship on the county level. Moreover, very few have investigated TODs, or activity centers and their relation to public health.

This study seeks to address this gap by investigating the relationship between TOD station areas and activity centers, and obesity, type 2 diabetes, heart disease, and high blood pressure in Washington, DC Metropolitan area. The research will answer the following questions:

1. Is there a relationship between TOD transit stations and public health?
2. Is there a relationship between activity centers and public health?

Furthermore, the study will conduct a comparison between transit stations and activity centers in terms of public health. To answer the research questions, we are using regression to investigate the relationship, and later we will use ANOVA to analyze the variation between transit stations, and activity centers in terms of public health. Our data will be collected from the CDC database, 500 cities, and census data on a census tract scale.

The Washington Metropolitan Council of Government (COG) adopted the activity centers and clusters based on the transportation planning board's vision in 1998. These centers are compact, walkable, mixed-use, and some have access to transit stations. However, these centers and clusters are classified into five categories, DC Core, Mixed-Use Centers, Employment Centers, Suburban Employment Centers, Emerging Employment Centers. Some of these activity centers are located in suburban areas, and others are located in the inner cities. On the other hand, TODs had a major contribution in embracing mixed land use, walkability, high access to transit, and improving quality of life (Nelson et al., 2015).

The expectations of this research indicate a negative relationship between TOD stations areas with obesity, type 2 diabetes, heart disease, and high blood pressure. We expect to find a negative relationship between activity centers served with transit and the aforementioned diseases. On the other hand, activity centers that are not served by transit may have a positive relationship with obesity, type 2 diabetes, heart disease, and high blood pressure.

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Key Words: Public Health, Activity Centers, Transit, TOD

DO COMMUNITY CHARACTERISTICS AND LAND USE INFLUENCE HEALTHY FOOD AVAILABILITY AROUND SCHOOLS IN OKLAHOMA CITY?

Abstract ID: 1272

Individual Paper Submission

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The influence of nutritional environments on diet related diseases such as obesity and diabetes suggests physical interventions in the built environment may serve to improve community health. Improvements to the nutritional environment may be particularly important for children whose early dietary habits impact future obesity, heart disease, and diabetes and whose activities may be more spatially confined in ways that heighten the influence of food options encountered on the way to and from school.

Spatial proximity and access to less healthy and more affordable food options can be particularly problematic for children within the context of the school-home walkshed. Children who experience fast food in walking to and from school may drink more soda and consume less vegetables and fruit than other children (Davis & Carpenter, 2009). A recent review of literature on this topic revealed that the nutritional environment around schools is more likely to play a role in supporting healthy body weight among school

aged children than it is to influence utilization of healthier food because of factors like food price, personal preferences, and individual perceptions of food availability (Williams, et al., 2014).

Affluence, both educational and financial, as well as neighborhood racial and ethnic composition are likely to be influential mediators of both the nutritional environment and dietary related behavioral outcomes. Children living in more well off neighborhoods may be more likely to consume components of a healthy diet and limit intake of unhealthy dietary choices (Carroll-Scott, et al., 2013) due in part to decreased access to sources of food that are fast, convenient, and low in nutritional value in these communities (Forsyth, et al., 2012). Nutritional opportunities experienced on the way to school may be particularly important for children from families of more modest means, who may be more likely to walk to school than their affluent peers (Su, et al., 2013) and experience more prolonged exposure to the local nutritional environment.

Method

We utilize data on the spatial location of 55 public schools in Oklahoma City, Oklahoma and the number and type of food service locations within $\frac{1}{4}$ and $\frac{1}{2}$ mile walkshed of each school to understand the relationship between the nutritional environment, community characteristics, and land use. We employ nonparametric tests to investigate differences in food availability based on socioeconomic and land use patterns of the school environment derived from 2016 American Community Survey data and City of Oklahoma City Comprehensive Plan to understand how race, ethnicity, education, income, and land use pattern influence opportunities for students to purchase and consume healthy and unhealthy food.

Key Findings and Relevance to Planning

This research is currently ongoing. Based on previous studies we hypothesize that the land use mix and socioeconomic factors influence food availability such that sources of healthy food will be less available around schools situated in low income non-white communities while the availability of unhealthy sources of food will be heightened in the neighborhoods around these schools.

If public schools located in low-income communities of color are more likely to host disproportionate sources of fast, convenient food and less healthy sources of food planning interventions should address this inequity. Planners may retroactively consider moratoriums on development of new sources of unhealthy food in these communities or proactively advise communities on ways to spatially arrange land use to support healthy dietary opportunities are available to all students.

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Key Words: food security, spatial inequality, schools, nutrition environments

ASSESSING THE EFFECTIVENESS OF COMMUNICATION TOOLS FOR REDUCING HOUSEHOLD FOOD WASTE

Abstract ID: 1276

Individual Paper Submission

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One element of food security that often receives inadequate attention is the challenge of food waste. In Canada, for example, the average consumer throws out an estimated 170 kilograms of food a year (CEC 2017). To address this problem, there is a growing call by food systems planners to implement food waste reduction campaigns to inform the public about the magnitude of food wasting and identify opportunities for households to reduce their food waste (Quested et al. 2013).

This study attempts to determine whether food waste reduction campaigns can be a meaningful tool to address the challenge of food waste. Our study of food wasting is informed by practice theory, a theory that seeks to solve the “value-action” gap in environmental behaviour (Shove, 2010). The research answers the following questions: 1) Do food waste reduction campaigns encourage more sustainable practices such as food waste prevention and reduction? 2) What types of innovations can be integrated into food waste reduction campaigns to move people to action?

Previous research on the impact of food waste reduction campaigns has shown that the provision of information on how to perform food waste reduction behaviours (procedural information) and why food waste reduction is important (justification information) are necessary but not sufficient for making significant reductions in household food waste (Bernstad et al 2013). This project tests a food waste reduction campaign that includes procedural and justification information, social modeling (with community workshops) and gamification. The effectiveness of gamification for food waste reduction has not yet been assessed in the literature although it has been found to be effective in influencing other types of environmental behaviour, such reductions in domestic energy consumption (Johnson et al 2017).

The experimental design for this study included a control group and three treatment groups for 400+ residents of single-family and multi-family buildings. All of the informational materials were based on the UK’s Love Food Hate Waste campaign. The three treatment groups were: information only, information plus participation in community workshops, and information plus gamification. The game offered points for completing challenges related to the key messages of Love Food Hate Waste.

Surveys of residents were conducted at the beginning, and end of the campaign, as well as three months after the campaign, asking about food purchasing, storage, cooking and waste practices as well as awareness of food waste issues. The end-of campaign surveys also asked about the use of campaign resources.

Findings from the study suggest that the gamification approach has the most impact on food wasting behaviours. This group showed a statistically significant decrease in perceived food wasting behaviour

and was the most responsive to changing one particular behaviour, namely food waste practices associated with Best Before dates. The community workshop group and information-only groups showed very little take-up of the campaign material.

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Key Words: food systems planning, food waste, waste reduction campaigns, gamification

ASSOCIATION OF OFFICE BUILDING CHARACTERISTICS AND OCCUPANT OBESITY OUTCOMES – A CASE FROM THE GREATER SEATTLE REGION

Abstract ID: 1292

Individual Paper Submission

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Background - Physical inactivity and obesity are major health challenges in U.S. due to their high prevalence and causal relationship with series of medical complications (Tobias et al. 2014). Employed adults spend half of their waking time at workplaces and many of them work in office-based environments with prolonged sitting time and limited food choices, which makes workplace environment an important area to consider for physical activity and diet promotion strategies. Despite the abundance of studies on the relation between work environment and occupant obesogenic outcomes, most of them are based on self-reported data and only look at a few built environment features at a time (Zimring, Craig, et al). In this study, by joining weight information, objectively measured physical activity data and building feature information from the commercial real estate database CoStar, we aim to estimate the health effect of building physical characteristics as well as economic and sustainability indicators important to real estate decisions.

Method - The city of Seattle and Bellevue in King County, Washington are used as the study area. Physical activity data of participants were collected using GPS and accelerometer. Moderate to vigorous physical activity (MVPA) bouts was defined as a time interval with more than 2690 accelerometer counts per minute for 10 minutes or longer, allowing for at most two-minute of activity below the threshold (Hurvitz et al. 2014). Participants were also provided a written or on-line survey with questions on sociodemographic, weight and height information (Kang et al. 2013). In terms of building features, this paper examined building internal structures (height, number of stories and number of elevators), building amenities (food court, bike storage, and parking), economic indicators (rentable building area, vacancy and rent) as well as sustainability certification (Energy Star and LEED).

Findings – Using generalized linear models and best subset selection, we found that when controlled for socioeconomic status, office building height, rentable building area and the certification of Energy Star are negatively associated with body mass index (BMI) while the number of parking spot has positive associations. After introducing participants’ physical activity level into the models, the effects are attenuated but remain significant.

Implications - Three implications are expected to be drawn for planning practice from the results. First of all, this paper aims to generate empirical evidence and add to the existing body of literature using objective physical activity data linked to real estate databases. Secondly, by examining common indicators in real estate sector, we hope to provide a link between research and policies that aim to incorporate health criteria in development guidelines. Finally, through the analysis we hope to test the strengths and limitations of using the CoStar commercial real estate database in planning and public health studies.

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Key Words: Obesity, Physical Activity, Office Building, Sustainability, GPS

TRACK 9 – POSTERS

AN EXPLORATORY STUDY OF FOOD DESERTS IN A SMALL TOWN IN MISSISSIPPI

Abstract ID: 189

Poster

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Cities and towns across the United States are experiencing an upsurge in the proliferation of a relatively new phenomenon referred to as “(a) food desert.” The U.S. Department of Agriculture (USDA) defines a food desert as “any census district where at least 20 percent of the inhabitants are below the poverty line, and 33 percent live over a mile from the nearest supermarket” (USDA, 2015) where affordable and nutritious food is difficult to obtain, particularly for those with limited or no means of transportation. The increasing phenomenon of food deserts has not limited itself to large urban areas. Indeed, they appear more prevalent in small rural towns and cities, which have little to no access to resources that provide nutritious, healthy food choices. In the deep southern state of Mississippi, the small town of Utica historically and currently is predominantly rural and is one such locale, which has been identified as having all the common characteristics of a “food desert.”

As such, the purpose of this study is to investigate a community's journey in improving and increasing their access to venues that offer a wide variety of healthy, nutritious food products at lower prices, including the creation/opening of farmers' markets. It is the goal of this study to determine if there are other causal factors not previously indicated in typical reviews that can be identified and addressed. More specifically, an examination of the history of Utica is explored to provide possible indicators of forthcoming trends and patterns of development.

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Key Words: Food Deserts

RESILIENCE OF COLLECTIVE URBAN AGRICULTURE PRACTICES: EMPIRICAL FINDINGS FROM COMMUNITY GARDENS IN NEW YORK CITY

Abstract ID: 311

Poster

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Since their renaissance in the 1970s, community gardens, as a collective urban agriculture practice, have served various environmental, economic and social functions in contemporary American cities, ranging from providing alternative food sources to community building and cultural identity expression. Despite these benefits, they oftentimes face the danger of displacement and redevelopment due to ambiguous land tenure and housing development pressure. While such issues have long been a challenge to gardeners and interested organizations, factors influencing the resilience and longevity of community gardens remain an unsolved puzzle for planning researchers, with only a few interview-based case studies and no quantitative evidence.

One such area, which is essential for the success of community gardens but currently under- investigated is the governance structures of community gardens. As a collective space of the commons, community gardens are often governed in a variety of organizational forms, including neighborhood coalitions, NGOs and public agencies. Such governance structures not only determine the ownership and funding resources of community gardens, but also link individuals to the broader social and political environment. This research examines the impact of these governance structures on the life span of community gardens. In particular, we investigate how each governance structure performs in different types of neighborhoods and under different political and social context.

We compiled geodatabases and documentation on community gardens from 1990 to 2019 in New York City, which is one of the cities with the longest history in community garden development. The life span of a community garden, which is the primary interest of this paper, is measured by the time until the occurrence of redevelopment or displacement of the community garden. We applied a multi-level

framework rooted in political economy and examined factors from three levels: individual level (neighborhood social and demographic features), collective level (types of governance structure), and institutional level (political environment and public discourse). For governance structures, five organizational entities are investigated, which are the Trust for Public Land, the New York Restoration Project, the Department of Housing Preservation and Development, the Department of Parks and Recreation, and other coalitions. For the institutional level variables, the political environment is measured by the time period and the public discourse is measured by the number of occurrence of the word “community garden” on the New York Times at that time period using content analysis. Interaction terms between variables of the collective level and variables of individual and institution levels are created to investigate the performance of organizational structures in different neighborhoods and under different institutional environment. An event history modeling framework is adopted to examine the associations of the aforementioned factors and life spans of gardens.

Through large-scale empirical analysis on the longevity of community gardens in New York City, the results are expected to provide insights on the challenges and solutions to sustainable common resource management and urban agriculture practices. It also suggests new directions for future studies that examine community gardens with quantitative analysis.

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Key Words: urban agriculture, community garden, resilience, multi-level event history analysis, , collective governance

PLANNING FOR FOOD ACCESS: EXAMINING THE SNAP-AUTHORIZED FOOD RETAIL ENVIRONMENT IN SOUTH CAROLINA

Abstract ID: 759

Poster

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Food security is defined as having reliable, adequate food to live a healthy life. Therefore, food insecurity is the lack of adequate food to live a healthy life, thus contributing to malnutrition and undernutrition that leads to chronic diseases and hunger. Despite being a developed, wealthy nation, over 12% of American households experience episodes of food insecurity at some time during a year. Food insecurity has been associated with low household income, single female or male household with children, and black and Hispanic households. Food security varies by geographic location. In terms of retail type, convenience stores are the most common food access point among communities with high levels of food insecurity. Living in poor and minority have less access to healthy and affordable food than more affluent and non-

minority neighborhoods. In addition, reliance on these small food stores may contribute to food insecurity since the price of staple foods are higher compared to grocery stores. Further, residential segregation is associated with unhealthy food retail environment, food insecurity and obesity.

The Federal Supplemental Nutrition Assistance Program (SNAP), known commonly as “food stamps”, aims to improve food security by providing financial assistance on food purchases to income-eligible households. However, there is very little research in the link of SNAP-authorized food retail types and their proximity to residents participating in SNAP.

Despite the prevalence of food insecurity, food systems and access planning has not received as much attention in city and regional planning as are seen in transportation, housing, environment and economic development. Food systems, in general, including food security are not commonly studied in planning research. This study examines the relationship of residents and households participating in SNAP and the location of the different types SNAP-authorized food retailers, with a focus on South Carolina.

The list of current SNAP-authorized retailers is publicly accessible through the USDA website. The South Carolina data were downloaded and codified by retail type using the North American Industry Classification System codes. All SNAP retailers were geocoded and aggregated to the census tract level as well as at the ZIP code level using ArcGIS. Applying the Centers for Disease Control and Prevention (CDC) formula, the Modified Retail Food Environment Index (mRFEI) was calculated on SNAP-authorized food retailers to determine the healthy or unhealthy food environment. SNAP redemption data were collected at the ZIP code level, providing an indication of SNAP purchases. Household characteristics, such as Race/Ethnicity and SNAP participation, were collected at the census tract and ZIP code level from the American Community Survey. The SNAP-mRFEI were calculated at the ZIP and census tract levels, and their relationship to SNAP redemption, driving distance, population density and household demographics were analyzed using regression analysis.

Of the 5,129 SNAP-authorized food retailers in South Carolina, 2,290 were gas stations or convenience stores. The study is currently in progress. However, there are geospatial variations of the SNAP-authorized mRFEI in South Carolina. Areas with high rates of SNAP participation are more likely to have unhealthy SNAP-retailers within short commuting distance. Rural census tract areas have higher mRFEI indicating more SNAP-authorized unhealthy food retailers

The federal SNAP program processes vendor applications and monitor compliance while the state and local-levels process consumer/household applications and educate on healthy eating and budgeting. Therefore, there is a disconnect between local level need and SNAP-authorized vendor selections. Results from this study can inform planners and local SNAP programs to target healthy food retail for SNAP vendor applications and identify food retailers to improve healthy food availability. Further, working with city planners can help prioritize healthy food access in comprehensive plans.

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Key Words: Food Security, Food Access, GIS

CONTEMPLATING TO WALK? PARENT AND ADOLESCENT PERCEPTION OF WALKING TO SCHOOL IN AL AIN, UAE

Abstract ID: 843

Poster

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The United Arab Emirates (UAE) is one of the developed nations in the middle-east with rapid and remarkable development in terms of both economics and infrastructure. However, such fast-paced development has shifted the urban growth towards sprawling of neighborhoods within the Emirates. The obesity rate among the youth in the UAE is two to three times greater than the international standards [1]. Studies report low levels of physical activity as one of the determinants of high rates of obesity [2]. Integrating walking to school has been recommended as one of the effective ways to combat obesity in children. A recent study reported that children in UAE do not meet the required levels of PA per day [3] while another study, using responses from 529 children in UAE, reported that 35.3% of the students engaged in moderate physical activity while only 12.9% were engaged in vigorous physical activity [1]. Therefore, this research aims to study the factors that contribute to the decision making of walking to and from school and study the variation of perceptions about built environment between genders and nationality as well as the differences between parents and their children.

School going adolescents (aged 14-20) from a total of six schools in the Al Ain region of Abu Dhabi Emirates were invited to participate in the study. Three questionnaires that address issues related to walking to school were developed based on existing validated instrument [4,5]: (a) for school administration, (b) for parents of volunteering adolescents and (c) for the school going adolescents. A total of 335 student and parent survey responses were used to conduct further analysis. The outcome, Physical Activity (PA) scores were calculated for each student based on the amount of active time. A total PA score of 0-5 represented sedentary behavior while a score of 22-27 represented vigorous physical activity. The questionnaire addressed the barriers and perception of students and their parents regarding walking to and from school in Al Ain. Also, several built environment factors were used to measure the walkability index of 50 neighborhoods where the households and the schools are located.

Results indicate that majority of students travel to school by car (59.82%) followed by bus (43.11%) and 11.14% carpool to school. Only 10.56% reported walking while 1.45% biked to school. Emirati males perceive the built environment factors (Sidewalks ($p=0.588$), Street crossing ($p=0.000$), Traffic ($p=0.023$), Safety ($p=0.008$), Appeal ($p=0.016$), as barriers more than female Emirati. Parents perceive traffic (driving fast ($p=0.0500$) and neighborhood traffic ($p=0.0087$) to be more of a hindrance to walk to school than students and while students were willing to walk to school with fellow students, parents were reluctant to let them walk. Other factors related to sidewalks, street crossing, traffic, crime, and walking with an adult to school, seem to be equally important for both children and the parents. Non-Emirati student reported lower BMI in comparison the Emirati students. Policy and design recommendations

to educate the parents and school authorities, Abu Dhabi Municipality and Urban Planning department, and enhance the built-environment that affect the perception of Emirati children are discussed.

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Key Words: United Arab Emirates, Physical Activity, Adolescents, Walk to School, Al Ain

IDENTIFYING THE BARRIERS TO HOUSEHOLD RECYCLING AND COMPOSTING IN NEW YORK CITY

Abstract ID: 1075

Poster

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When it comes to solid waste management, New York City (NYC) embodies the three Es: expansive, efficient, and expensive. Daily, more than 7,000 sanitation workers operate 1400 trucks to service a city that is 302 square miles. Annually, NYC's sanitation workers dispose nearly 3.7 million tons of residential solid waste (Annual Report, 2016). As a consequence, NYC's expends roughly \$560 million dollars on annual waste collection and export (Seltzer, 2016). While these practices make NYC relatively clean, they are not equitable. NYC aggregates 75% of its exported solid waste in three low-income neighborhoods (e.g., Jamaica, East Williamsburg, and South Bronx) and annually exports 2.5 million tons of waste beyond city borders. A key measure that would reduce NYC's exported waste is an increase in household recycling (glass, paper, and plastic) and composting (food). To clarify, any increase in household participation would still require operating NYC's comprehensive solid waste management system. However, any reduction in exported waste would allow NYC to reduce its ecological footprint and add equity to its list of Es.

We argue that if NYC provides convenient infrastructure for residents to recycle and compost, allows local community organizations to operate waste services, and creates a market for these reusable materials, then these combined measures might significantly increase household participation, reduce NYC's exported solid waste, and make NYC a better global citizen. A review of the literature indicates two strategies for increasing household participation: public engagement and built solutions. Lakhan asked what is the effect of public engagement expenditures on household recycling rates (2014)? After examining the data from 223 municipalities in Ontario, Canada, Lakhan reported that curbside recycling or pay-as-you-throw schemes increased recycling rates, not public engagement. Similarly, Tonglet, Phillips, and Read monitored household recycling, conducted interviews, and determined that the

households with pro-environment attitudes were more likely to recycle (2004). Regarding built solutions, Bernstad examined the composting behavior of 1,600 Swedish households to evaluate their response to public engagement (e.g., pamphlets) and built solutions (e.g., under sink containers; 2014). After conducting pre- and repeated post-treatment weighing of food waste, Bernstad determined that the pamphlet households increased their composting by 12% whereas under sink households increased their composting by 44% to 49%.

In this study, we ask what are the barriers that prevent NYC residents from recycling inorganic (e.g., glass, plastic, paper) and composting organic (e.g., food) material from their waste? After surveying NYC residents who visited neighborhood farmers markets (n=712, 102 completed surveys, 14% response rate), we determined that 96% of respondents “always” or “often” recycled but only 30% composted this frequently. Regarding the barriers to recycling, 25% of respondents had “no space” or “no time,” while roughly 13% had “no materials” to facilitate recycling. Regarding the barriers to composting, nearly 50% of respondents had “no space,” 32% had “no materials” to facilitate composting, and 14% had “no time.” Regarding the expansion of recycling and composting services, nearly 78% (or 79/101) of respondents believed that community organizations could operate such services, 80% (or 80/100) believed that tax subsidies could support these potential services, and 70% (or 70/100) reported that community organizations could retain any income derived from these potential services.

While the sample limits generalizing the findings, we suggest that some NYC residents are open to increased recycling and composting participation and desire that NYC allow community organizations to supplement current waste management services. These findings also suggest that NYC can reduce the time and effort that households expend on recycling and composting by addressing household space limitations.

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Key Words: Recycling, Composting, New York City, Solid Waste, Households

NEIGHBORHOOD PHYSICAL ENVIRONMENT AND PLACE-BASED SOCIAL EFFECTS

Abstract ID: 1218

Poster

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The research analyzes the interconnectedness of physical environment and place-based social effects in a neighborhood. The condition of a neighborhood built environment significantly affects physical activities, perception and the quality of life for residents. How neighborhood environment is designed and managed can have both positive and adverse effects on residents' behaviors, social activity patterns and social climate. Theoretically, safe, healthy and walkable neighborhoods are expected to increase the chance of social interactions and enhance the sense of community, which leads to the activation of social capital and civic participation. This paper empirically examines the associations among conditions of built environment and neighborhood social outcomes such as social capital, civic participation and crime.

The research method includes a wide array of objective measures available for city-wide analysis as well as field observation methods for the street level analysis. GIS provides useful analytics to analyze environmental inventory of neighborhood features and community design types. A novel approach is introduced to create the social capital composite index to contain spatial dimension of place based social capital. This work also develops and uses environment audit tools to measure the conditions of residential environment and walkable environment features. The field observation method provides detailed measures of both physical conditions and social patterns along street segments. The study area is the city of Lincoln, Nebraska. Ten neighborhoods are selected by the community design types, walkability, and neighborhood characteristics.

The findings clearly show that built environment conditions are strongly associated with place based social capital and neighborhood social outcomes such as civic participation and crime. To identify implication of our findings for policy, the paper discusses environmental strategies to promote positive neighborhood effects and reduce adverse effects.

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Key Words: Physical environment, Social effects, Healthy community

TRACK 10 – PLANNING EDUCATION & PEDAGOGY

TRACK 10 – PRE-ORGANIZED SESSION SUMMARIES AND ABSTRACTS FOR SESSIONS

PRE-ORGANIZED SESSION - TRANSFORMATIVE PEDAGOGY THROUGH STUDENT AND COMMUNITY ENGAGEMENT: HOW TO INCORPORATE CRITICAL THEORY AND EXPERIENTIAL LEARNING IN CURRICULUM

ID: 35

Pre-Organized Session Summary

Includes abstracts: 590, 591, 592, 593

How can we teach students to think critically and solve problems for their diverse communities? This session explores innovative teaching methods in planning and community development. Professors who are committed to student-focused pedagogy discuss how they incorporate active or experiential learning, develop project-based assignments, and collaborate with communities to teach the next generation of planners and activists. Their teaching philosophies emphasize critical race theory, engaged pedagogy, and seamless integration of theory and practice. They will share research on topics ranging from popular education and critical theories in emerging research, case study methodology on social and environmental justice issues, and ethnography on indigenous populations. They will also discuss teaching experiences at Historically Black Colleges and Universities (HBCUs), Hispanic-Serving Institutions (HSIs), and Minority-Serving Institutions (MSIs), and each will offer lessons learned about working with indigenous and other students of color, first generation college students, and students who speak English as their second language.

Objectives:

- Integrating critical theory and experiential learning into large (over 200 students) and small courses (20 persons or less) with graduate and undergraduate students, at universities on the quarter and semester schedule.
- Sharing innovative teaching methods and projects, such as creating photo and video fieldwork projects, partnering with nonprofit and community-based organizations, and using social media for outreach and communication.
- Exchanging ideas about designing course syllabi, lectures, readings, and assignments to be more contemporary, inclusive, and community-focused.

CRITICAL RACE PEDAGOGY AND STUDENT LEARNING – THE CASE FOR 'ĀINA-BASED STUDENT EXPERIENCES

Abstract ID: 590

Group Submission: Transformative Pedagogy through Student and Community Engagement: How to Incorporate Critical Theory and Experiential Learning in Curriculum

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Critical Race Pedagogy (CRP) has emerged as an exciting strategy that centers the role of race in teaching, stresses the student’s perspective, and highlights multiple epistemologies and ways of knowing.

An offshoot of Critical Race Theory, CRP acknowledges that systems of oppression and discriminatory power dynamics are inherent in educational institutions (Lynn, 1999). Because inherency is often difficult to identify in systems, many critics of Critical Race Theory have argued that it can be too challenging to operationalize or “do” CRT in the field (by practitioners) and in the classroom (by academics). CRP responds to this notion in that it is one area that has provides tangible and critical strategies for Planning pedagogy. The main research question is: How can CRP integrate Indigenous, place-based community development models for Planning education? By utilizing a specific case example based in Hawai‘i, CRP can be used to bring place-based, or ‘āina-based interventions to enhance student learning. Offering guidance is a case study on Ho‘okua‘āina, a Native Hawaiian non-profit that utilizes an Indigenous development model to cultivate taro, while building community through educational programming.

CRP, which can be characterized as “a crucial construct in challenging the inequalities that have evolved in the context of schooling in the U.S.” (Jennings and Lynn, 2005, p. 15), has not been fully developed for the Urban Planning classroom. Application of this pedagogical method would mean acknowledging: 1. the endemic nature of racism in the U.S.; 2. the importance of cultural identity; 3. the necessary interaction of race, class and gender; 4. the importance of reflexivity; and 4. the practice of a liberatory pedagogy (Jennings & Lynn, 2005; Lynn, 1999). Other theorists add that CRP should include a challenge to dominant ideology, a commitment to social justice, the centrality of experiential knowledge and the transdisciplinary perspective (Solorzano & Yosso, 2001).

This paper combines knowledge from 10 years of piloting CRP methods while teaching community development courses along with a case study research project of an Indigenous, place-based community organization. Specific Planning course assignments and experiential exercises that stress student narratives, the history of colonization and oppression, and social justice will be described. Of particular importance to Indigenous communities and students is connection to place. Thus, the case study of Ho‘okua‘āina shows that by immersing themselves, literally, into the land or āina, students experience a deep connection with culture, historical oppression and their own genealogies. The exercise also allows for legitimization of Indigenous knowledge and of academia as both are reinforced in the dialogue surrounding the exercise which includes metaphor and story-telling.

Findings indicate that CRP in planning community development courses can be achieved by: understanding the impact of race or indigeneity in a particular place; identifying key themes related to cultural identity of place and of the individual student; using experiential, place-based learning; developing the critical consciousness of student and instructor; and embracing transdisciplinary methods towards social justice outcomes. These lessons bring to mind an ‘ōlelo no‘eau, or Hawaiian proverb: Ho‘olohe Ho ke pepeiao, nana i ka maka, a hana ka lima - the wisdom of learning through listening carefully, observing with the eyes, and working with the hands (Pukui, 1983).

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Key Words: Pedagogy, Critical Race Theory, Indigenous Planning, Student Engagement

INNOVATIVE STUDENT PROJECTS WITH COMMUNITY-BASED RESEARCH PEDAGOGY

Abstract ID: 591

Group Submission: Transformative Pedagogy through Student and Community Engagement: How to Incorporate Critical Theory and Experiential Learning in Curriculum

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Community-based research (CBR) is a collaborative process to design and implement research projects to address co-identified needs between researchers and communities (Strand, 2000, p. 85). Planners, especially in the health and environmental fields, utilize CBR or community-based participatory research (CBPR) to gather local knowledge and implement interventions, policies, and social change (Israel et al., 2006). CBPR is characterized by a partnership between local residents, representatives from nonprofit organizations, social service agencies, and academic researchers. All members of the partnership contribute their expertise equitably, in addition to share decision making and ownership in projects. This approach is similar to popular education research when students become creators of their own curriculum as teachers, learners, and researchers and breakdown the traditional dichotomous “relationships between students and teachers, researchers and subjects, and schools and communities” (Freire, 1970; Rivera, 1999, p. 498).

This study explores how CBR can be integrated into planning and policy classroom curriculum and assignments. Three example CBR projects discussed are community gardens in diverse communities, Safe Routes to Schools for youth, and universal/inclusive design for persons with disabilities. For two of these projects, the class partnered with nonprofit community-based organizations, and the third project was a partnership with a university campus center. Through course readings and lectures, students learned about different theoretical frameworks and specific research methods and skills. Student assignments incorporated research, fieldwork, spatial analysis, and visual design. Practitioners and community members were guest speakers in the classroom and at site visits. Students attended field trips with guided tours by local residents. Through CBR and project-based learning, students gained experience in writing case studies, building models to scale, observing transportation and traffic patterns, creating maps, and using photography for field observations about the built environment. By integrating community-based research into the classroom, this type of research is mutually beneficial for the students and community at-large.

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Key Words: community-based research, planning, pedagogy, curriculum development

STUDENTS AS ACTIVE AGENTS OF CHANGE FROM THE CLASSROOM TO THE COMMUNITY

Abstract ID: 592

Group Submission: Transformative Pedagogy through Student and Community Engagement: How to Incorporate Critical Theory and Experiential Learning in Curriculum

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Our cities and communities are constantly changing. As new issues and concerns emerge, so do new ways of addressing them. However, one thing remains a constant: the need for our students to build a repertoire of up-to-date strategies for being active agents of change. In an effort to work toward this goal, this paper explains and analyzes three distinct pedagogical approaches for increasing student agency, both in the classroom and the community: syllabus co-construction, social media engagement, and Opinion Editorial (OpEd)/blog writing.

My approach to teaching is heavily influenced by both engaged and critical pedagogies. In her writing on engaged pedagogy, bell hooks describes developing interactive relationships between students and teachers in which teachers are responsible for assessing the emotional intelligence in the classroom, and going beyond the surface level to determine what students know and need to know (hooks, 2010). In my classes, I find that engaged pedagogy works hand-in-hand with using critical pedagogies, which focus on relationships to power, rely on the concepts of teacher-students and student-teachers, and are meant to guide students to develop their own understanding of their world (Freire, 1970; hooks, 2004).

In urban planning classrooms, engaged and critical pedagogies can be ideal choices for teaching and have produced the three strategies discussed in this paper. Drawing on my experience teaching a range of undergraduate and graduate planning courses at public universities, as well as courses in social and educational justice, I highlight examples of each pedagogical approach. First, I discuss the idea of syllabus co-construction, in which students and instructors work together to co-construct the syllabus. This allows students to use the knowledge they already possess to guide deeper learning on issues critical to their lives and communities, which may include issues about which the instructor is unaware. Second, I describe several ways in which social media platforms can be used to engage students, whether through content creation and sharing of infographics, or using Twitter or Instagram for participation, or using social media for research projects. Lastly, I walk through the process of teaching students how to write OpEd or blog pieces, and the potential possibilities and perils of adding your voice and ideas to online public conversations.

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Key Words: critical pedagogy, engaged pedagogy, social media

RETHINKING PLANNING PEDAGOGY FROM AN HBCU

Abstract ID: 593

Group Submission: Transformative Pedagogy through Student and Community Engagement: How to Incorporate Critical Theory and Experiential Learning in Curriculum

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The very existence of Historically Black Colleges and Universities (HBCUs) provide a glimpse into the long road to racial justice in the United States. Born out of strict color lines and segregationist policies, HBCUs are sites that not only educate African Americans but celebrate an unapologetically black culture. HBCUs stand in contract to PWIs (Predominantly White Institutions) where institutions often cater to the dominant white culture while protecting the possessive investment of whiteness.

Institutionalized white supremacy led to the exclusion of American Americans in higher education (e.g., school segregation) while simultaneously fueling the objectification of communities of color in the practice of urban planning (e.g., redlining, urban renewal). In this context, the very act of training urban planners at an HBCU is a subversive practice. Challenging the profession and the academy to center communities of color, not in ways that pathologize, but that celebrate and empower them. However, the bulk of planning theory and pedagogy come from PWIs. This paper explores the shortcomings of PWI planning theory and pedagogy by reflecting on the author's experience teaching planning at Alabama A&M University, a public HBCU in Huntsville, Alabama.

Finding that pedagogy learned and practiced at PWIs are insufficient, the author discusses four ways in which PWI pedagogy must be rethought in an HBCU:

1. Outliers in planning theory are often central to student experiences of cities;
2. Discussions of diversity must move beyond the presence of non-white people in planning spaces;
3. Encouraging students to engage in local community events is fraught with legacies of segregation and discrimination;
4. 'Meeting students where they are' requires a radical rethinking of student learning that goes far beyond small concessions to technological preferences and tropes about Generation Z.

These findings are contextualized in the author's positionality as a white, west-coast, female, academic working at a southern HBCU. The paper concludes with a discussion of the need for fostering multidirectional relationships between PWI and HBCU planning programs in order to improve planning education and theory.

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Key Words: Planning Education, Pedagogy, HBCU, Whiteness of Theory

TRACK 10 - ROUNDTABLES

ROUNDTABLE - PLANNING EDUCATION AT HISTORICALLY BLACK COLLEGES AND UNIVERSITIES: PAST TRENDS AND PROSPECTS

Abstract ID: 48

Roundtable

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Five planning programs at Historically Black Colleges and Universities (HBCUs) including Morgan State University, Alabama A&M University, Jackson State University, Texas Southern University and Savannah State University discussed several critical and institutional dimensions of their programs at a roundtable titled “Planning Education at Historically Black Colleges and Universities: History, Problems and Prospects” during the 2010 ACSP Conference in Minnesota, MN. Over the past nine years, some changes and progress have occurred to planning education at HBCUs. The contributions of planning program at HBCUs are vast, yet they are often unacknowledged.

This roundtable will revisit the state of planning education and the contribution of HBCUs to the planning profession. This roundtable brings together an associate dean, three department chairs and one program coordinator to present the progress and changes of their respective programs in the past nine years. They will also discuss the following issues: (a) HBCU role in educating African American planners and the need for sustaining such programs; (b) the lessons offered by the past nine years of changes and progress for moving forward; (c) the success stories that can be inspiring for other HBCU planning programs; (d) future prospects for HBCU planning programs; (e) the support from the university administration for the advancement of HBCU planning programs; (f) creative ways of recruitment and student retention in HBCU planning programs.

Deden Rukmana, Professor and Chairperson of the Department of Community Planning and Urban Studies at Agricultural and Mechanical University will discuss the role of HBCUs in educating African American planners and increasing their representation in the profession. He will also address the development of two accredited planning programs at Alabama A&M University, its recent accreditation, and the opportunities for future growth.

Siddhartha Sen, Associate Dean and Professor at the School of Architecture and Planning at Morgan State University will discuss the problems faced by HBCU planning programs in developing student learning and program outcomes required Planning Accreditation Board (PAB). He will propose ways in which ACSP can assist HBCU planning programs develop such outcomes to get accredited.

Sheri L Smith, Associate Professor and Interim Chairperson of the Urban Planning and Environmental Program at Texas Southern University will discuss raising the profile of Planning Students and Planning Programs at HBCU's: stepping off the campus of our host institutions

Joan Wesley, Associate Professor and Interim Chairperson of the Department of Urban and Regional Planning at Jackson State University will discuss the advantages of attending HBCU planning programs and strategies to illuminate HBCUs' contributions to the planning community.

Philip Omunga, Assistant Professor and Coordinator of the Graduate Program in Urban Studies and Planning at Savannah State University, will provide potential innovative strategies to improve future students recruitment, retention, and success in planning programs at HBCUs in a changing higher education environment.

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Key Words: HBCU, Planning education, African American planners

ROUNDTABLE - PLANNING PEDAGOGY AND THE COMPUTATIONAL IMPERATIVE

Abstract ID: 540

Roundtable

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In recent years, the proliferation of large-scale, digital datasets has become of interest to urban planning scholars. Increasingly this data is used opportunistically, as its generation is the byproduct of everyday activities: devices that log the history of their use (e.g., mobile phones); transaction and interaction records across digital networks (e.g., social media or online banking); sensors embedded in the physical environment (e.g. Bluetooth or computer-vision devices); and many others. As such, this data differs from previous methodological shifts in methodology at the levels of epistemology and ethics because of its detail and breadth and requires new approaches in making sense of, governing with, and making application of this data.

At the same time, the use in urban planning of these datasets is growing. From citizen scientists to open data platforms, policymakers and startups are increasingly focused on how these data collection techniques and advanced analytical tools can be leveraged to shape the use, efficiency, and understanding of urban environments. Although some argue that this data revolution is leading to a new era of computational social science, others argue that many practitioners ignore or are unaware of the lineage of

planning theory and practice that has long attempted to integrate these new technologies and quantitative methods into the planning process.

This conflict between optimism and caution is similarly being seen in academic programs. While some institutions have created urban informatics tracks and hybridized degree programs between planning and computer science, there remains an uncertainty toward the adoption of computational teaching by many programs. Due in part to the competing definition around this emerging field as well as the constraints that urban decision makers face in balancing competing needs, goals, and priorities, there is no commonly agreed upon pedagogical framework or rubric for teaching these analytical and technical skills within contemporary planning.

Within this context of change, this roundtable discussion draws from individuals balancing between planning tradition and computational thinking. We will discuss the lessons learned and frictions from the teaching of analytical skills in light of technological change. This session draws from the experiences of various institutions and the different approaches used by these programs. In this session, we will ask what pedagogical approaches are required; what are the role of quantitative methods and computational skills in planning education; how technical skills development marries with institutional distinctiveness; and whether these discussions are at a shifting center or expanding periphery planning education?

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Key Words: Pedagogy, Big Data, Computation, Technology, Analytical Methods

ROUNDTABLE - EMOTIONS IN PLANNING, ROUND II: PEDAGOGICAL APPROACHES TO EMOTIONS IN PLANNING

Abstract ID: 801

Roundtable

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In 2018, a group of emerging planning scholars assembled at the University of Buffalo to discuss the role of emotions in shaping planning practices, outcomes, and theories. This diverse group discussed how

emotions such as fear, anger, belonging, ecstasy, and optimism appeared in their own work, and how to methodologically include emotions in the description and assessment of planning practices. Issues of equity, inclusion, legitimacy, language, privilege, and power undergird these discussions, which yielded a broader call to examine diverse perspectives and approaches to emotions in planning.

During the 2018 roundtable, we also discussed the role of emotions in the planning classroom. This produced two subtopics: the role of emotions in the actual classroom discussion, and the use of emotions in planning curriculum. This year, the Emerging Scholars collective would like to take up these topics of emotions in the planning classroom and curriculum.

A curriculum that emphasizes creative approaches to technical training can improve critical thinking skills inside and outside of the classroom. The use of affective journeys through reflective writing suggests that design students benefited from constant journaling in response to assigned work and classroom discussion. Affect strategies are designed to improve a “learner’s willingness to receive, or listen, the inclination to respond to interactions, the disposition to give value or commitment, the ability to conceptualize a value system, and the internalization of a value complex (Krathwohl et al. 1964)” (Gelmez & Bagli, 2018, p. 1062).

Building on this self-directed approach that leans into the emotional, Sandercock’s research on narrative and storytelling provides an intervention to normative planning histories, providing an opportunity to critique and “get heard” (Sandercock, 2003, p.26). Baum (2015) notes the paucity of emotional exploration in planning, citing the profession’s historical reliance on rationalist frames of discourse. For Baum, as for Sandercock, one path towards emotional awareness in the planning classroom requires training students to write stories (Good et al 2017).

We seek to understand how this emotional awareness in the classroom can push planning practice away from rational dominance towards an ethic of compassion that leads to radical approaches to planning equity and justice. Planners have an ethical responsibility to the public, their employers, and the profession, which can result in conflicting values around planning processes and/or outcomes. Resolving these conflicts, necessitates a “compassionate orientation [that] begins by challenging planners to continually consider and reframe their outlook, which involves persistently and deeply reflecting on whom we include in our scope of justice and concern” (Lyles, White, & Lavelle, 2018, p. 251).

Provocations:

- Planning has long had an emphasis on “rationality” that has limited opportunities for more ir-rational or a-rational approaches to understanding the human connections and interactions with the built environment. In what ways can pedagogical interventions challenge the rational dominance in planning theory and practice?
- Emotions are highly gendered, classed, raced, and heteronormative. The exclusion of emotions from planning curriculum limits the use of emotional planning strategies by marginalized groups, but the inclusion could very well perpetuate harmful stereotypes of the “angry Black woman” or “shrill white woman.” As Jacobs writes, “[t]he absence of Black feminism and radical planning in mainstream planning conversations does a disservice to the fields of planning and disaster management as Black feminism and radical planning were early, potent schools of thought that analyzed the relationships between social identities such as race, class and gender and their corresponding oppressions, racism, classism and sexism” (Jacobs, 2019, p. 27). In what ways can we ensure a pedagogy around emotions in planning is inclusive, affirming, and decolonized?

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Key Words: emotion, narrative, diversity, gender, race

ROUNDTABLE - PLANNING IN THE SHADOW OF GIANTS: A DISCUSSION ABOUT THE EXPERIENCES OF SMALL PLANNING PROGRAMS

Abstract ID: 1014

Roundtable

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According to the latest data posted to the Planning Accreditation Board's website there are 74 accredited master's and 16 accredited bachelor's degree programs in planning at 78 universities in the US. Among the master's programs, 15 have less than 25 total students. Among bachelor's programs, there are 4 in the same category. We call this out to draw attention to the challenges facing small programs, issues that are unique and often overlooked in the drive to support planning education more generally across the US. Yet while we all strive for growth, smaller programs offer opportunities that larger programs struggle to provide, for example:

- Small programs can provide more individualized attention to students, especially related to career guidance and job placement
- Small programs often have strong connections to profession. For example, most rely on adjunct instructors to deliver a considerable amount of the curriculum, drawing faculty from the local planning community. These university/profession relationships typically lead to stronger

connections with the local planning community adjunct professors take a personal interest in supporting student career goals.

- Small programs are often located in areas with limited local access to planning education, providing a much-needed pool of local planning talent in areas where it might be difficult to attract graduates from larger schools or more attractive locations.
- Smaller programs have the agility to develop a distinct pedagogy, for example a studio basis for instruction that allows for a greater degree of flexibility during the semester. Additionally, studio projects often become valuable partnerships for resource-strapped communities.

And while most of the challenges facing smaller programs are present across the planning academy, the degree to which smaller programs are affected often threatens their ability to remain relevant in their institutions. For example:

- Smaller cohorts (fewer students) means fewer electives can be offered, which impacts depth and breadth of the planning education they can offer.
- Maintaining a diverse student body and team of faculty is more challenging in smaller programs as students/faculty may not see themselves reflected in the current program; and instead turning to larger programs that often have more resources to support student/faculty diversity.
- Small programs rely heavily on adjuncts and teaching faculty, leaving little time for research that can help define a program and make it attractive.
- Due to the smaller faculty size, small programs have a disproportionate service and administrative burden on full-time faculty
- Accreditation standards are harder to achieve/maintain for smaller programs.
- In small programs, scholarship pools are smaller, making it harder to attract more diverse range of candidates

This roundtable will bring together small programs in the ACSP community to discuss these issues in the broader context of challenges facing the planning academy today. We seek to highlight areas needing attention while also considering opportunities to capitalize on innovation that is often found in our programs. The participants will start off the discussion sharing their experiences and then open it up to the whole group. The roundtable will conclude by determining if there is a need to have regular dialogues or develop an interest group for small programs.

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Key Words: Pedagogy, Accreditation, Education

ROUNDTABLE - STRATEGIES FOR TEACHING COMMUNITY ENGAGEMENT

Abstract ID: 1031
Roundtable

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Planning programs tend to emphasize technical skills over so-called "softer" skills. Yet in order to be effective, planners need to understand how to enter and engage with the communities in which they work in a way that builds trust and fosters strong relationships. In recent years, several planning programs have begun to integrate courses, modules, and requirements geared toward teaching community engagement to students. This roundtable brings together some of the pioneers in this area of teaching and practice. We will share our strategies and lessons learned with roundtable participants and also provide participants with the opportunity to share their own experiences.

The roundtable organizer will collect concrete course materials from participants in advance and make these available to those who attend, and to those who are interested but cannot attend the session.

Citations

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Key Words: community engagement, pedagogy, community organizing

TRACK 10 – INDIVIDUAL ABSTRACTS

CARING AS CLASS: TRANSFORMING PEDAGOGY AT THE INTERSECTION OF PROFESSIONALISM AND COMPASSION

Abstract ID: 111

Individual Paper Submission

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From excitement to fear, admiration to disgust, pride to nostalgia, and much more, feelings impact virtually every aspect of planning practice. Howell Baum argued that when we fail to attend to emotions in planning, we plan with half a mind (2015). The same is true when we fail to attend to emotions in professional education. Every student's ability to learn – and every instructor's ability to teach and mentor

– is conditioned by their emotions. In this three-part paper, we introduce what we term the emotional paradox of planning education, recount a course designed to overcome this paradox, and share results of a structured reflection process aimed at generating lessons and questions for planning educators.

First, we define the emotional paradox of planning education as the situation wherein all involved in planning education care deeply about the endeavor but rarely are encouraged or allowed to express and deeply engage with the full suite of emotions in educational settings. The paradox exists in the context of the long history in planning of elevating objectivity over subjectivity, rationality over irrationality, and, at a basic level, thought over emotion (Baum 2015). From a neuroscientific and psychological standpoint, though, separating thought and emotion is all but impossible. Concurrently, planning scholars increasingly foreground the important roles of caring, mindfulness, compassion and other fundamentally pro-social, relational ways of knowing and acting (c.f. Porter et al. 2012, Ferreira 2013, Baum 2015, Osborne and Grant-Smith 2015, and Lyles, White, and Lavelle 2017). Importantly, this line of inquiry is closely associated with lines of inquiry around diversity, equity, inclusion, cultural humility, and overcoming systems of oppression. We argue that bringing care and compassion more centrally into planning education (and practice) contributes to radical challenges of entrenched and inequitable power dynamics.

Second, we describe and reflect on our experience of developing and implementing a course intended to cut through the emotional paradox of planning education. As part of a five-year National Science Foundation CAREER award project, we spent six months developing the syllabus and materials for a course taught at the University of Kansas in spring 2019 to master's and doctoral students in planning, public administration, and engineering. The professional development and compassion components of the course were overlaid onto material dealing with natural hazards, disasters, and climate change. The course development process included: a) both instructors participating in a year-long anti-oppression training contemplative course through the Courage of Care coalition; b) understanding and harnessing the literatures on active learning and online learning; and c) consulting with numerous experts on training in professional education, compassion and mindfulness, and team building. Course implementation consisted of three modules, each of which included individual readings, mindfulness practices, and assignments, as well as in-person workshops. The modules, and the readings, exercises, and assignments therein, were designed in hopes that they can also be delivered as one-off trainings or webinars for professional development outside the traditional 3-credit course context.

Third, we share the results of structured reflection process involving asking peer instructors familiar with (but not involved in) our course to create a series of prompts for us (Kelly and Ward) to answer. Next, we a) wrote reflection responses to the prompts individually, b) talked as a pair about our written responses, and c) shared our responses with the peers who generated the prompts for a final round of feedback. From this process we generated lessons learned about course development and implementation and developed questions we hope planning educators will engage with moving forward.

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Key Words: compassion, care, professionalism, planning education, climate change and hazards

FLIPPING PROGRAM ASSESSMENT: USING STUDENT LEARNING OUTCOMES TO BUILD CRITICAL COHERENCE IN A COMMUNITY PLANNING CURRICULUM

Abstract ID: 317

Individual Paper Submission

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Program assessment is not a universally loved aspect of planning education, however investing intentionally in a process of clarifying, aligning, and mapping student learning outcomes can empower faculty, strengthen shared purpose, and create an adaptive mechanism to serve all involved. In our view, this is especially valuable for programs with a critical orientation. In Fall, 2016, the University of Washington, Tacoma (UWT) Urban Studies Program launched a new graduate degree in Community Planning. Recognizing that assessment of student learning is an important component of degree program development and culture, the faculty engaged a consultant to guide a two-year process of mapping the curriculum to student learning outcomes, revising the learning outcomes, strengthening the curriculum, and designing an assessment process. This effort brought increased coherence to a community planning degree whose faculty share a normative commitment to social justice and equitable development, enabling an approach to assessment that is driven by the mission of the program.

Developing an assessment process required a strong set of program-level student learning outcomes, a map of those outcomes onto the curriculum, a set of measures and data collection schemes, and a schedule for collecting and using assessment information in program review (Suskie, 2004). In this paper, we describe the process used at UWT to develop a curriculum map where learning outcomes accurately reflect our true intent for student learning and engagement in the degree program.

UWT's Masters of Community Planning curriculum and the student learning outcomes had been developed through a process including community planning faculty, urban studies faculty, and other campus governance committees. The result was a full curriculum over a two academic year period consisting of a set of 12 required courses (on the quarter system). From the outset, the program was focused on the ways in which community planning graduates could serve as change agents who are able to contend with complex political, social, and organizational environments (Taufen Wessells, 2018; Campbell, Tait, and Watkins 2014; Siemiatycki 2012). We had defined a set of learning outcomes that demonstrated how the curriculum focused on community planning in general, but less about the specific knowledge areas, skills, and values that students would obtain during their master's degree program. This realization and the resulting learning outcomes and curricular revisions demonstrate the value of assessment as a continuous check on student learning, program aspirations, and curricular logic (Walvoord, 2004). We describe how this begins with individual courses and faculty as the building blocks of program delivery; how collaborative review of course-level outcomes led to improved understanding

and shared articulation of what students are meant to be learning, where, when, and why; and how the identification of assessment milestones creates mutual accountability among faculty, to students, and to communities with whom we intend to engage and partner.

Our learning outcomes are unique to our program and, we hope, authentic representations of what and how we teach AND what and how we expect students to know, do, and act in a professional setting. We share these outcomes and the process that led to their development to inform members of the audience on how and why student learning outcome assessment can be done to improve your program's success. Further, we hope to share insights and observations on our process to help others avoid pitfalls and advance to success faster.

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Key Words: student learning outcomes, assessment culture, curriculum design and revision, critical planning, community development

RADICAL PLANNING ESCUELITA: IMAGINING PLANNING EDUCATION OUTSIDE THE UNIVERSITY

Abstract ID: 419

Individual Paper Submission

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Planning and urban affairs scholars are increasingly assuming roles in local communities and using non-traditional strategies in an effort to both plan with communities, and to provide education about planning concepts. Often, such engagement requires scholars to think outside the box on activities that can capture the imagination and attention of youth, families, and leaders before engaging in traditional neighborhood planning and activism especially in low-income communities of color. These processes create questions about what counts as planning and when it is best to begin planning with communities, especially in areas experiencing accelerating urban inequalities, such as gentrification and displacement.

Given the severe inequities and injustices experienced and produced in cities, coupled with the only recent struggle to increase concepts related to diversity and social justice in planning schools and curriculum (Sen, Umemoto, Koh & Zambonelli 2017), the authors of this paper examine community based strategies to organize spaces for radical planning education outside of the university. Radical planning as defined by Friedmann is based in self-empowerment and democratization (1987), yet still

holds space between the planner and the community. The authors use Davis' idea of "magical urbanism" as a theoretical space to reinvent and imagine planning education focused on the struggles of Latinx communities (2000). Both authors participated in organizing and hosting a joint community event, the Radical Planning Escuelita held in Santa Ana, CA during the spring of 2018. The event was conceived as an informal educational space where community members, organizers, and local high school and university students could learn about radical planning through workshops, "action stations" with activities to introduce concepts connected to local movement and organizing activities. This included meeting representatives from local organizations.

Building on both pedagogy of the oppressed and radical planning theories, this paper analyzes the strategies and the theories emerging from this event. Theories of critical consciousness and pedagogy call for strategies that connect education to the political and economic conditions which exist in our communities (Freire, 1970). We consider the power and pedagogy of informal planning education spaces, and analyze the Radical Planning Escuelita as an example of an informal space for teaching and sharing ways in which planning concepts can guide community-driven action around urgent local issues. For instance, participants of the Radical Planning Escuelita learned about community land trusts, participatory budgeting, tools for sanctuary planning and community defense, research justice, tenant rights, rent strikes, and more. The collection of action stations represents planning tools grounded in an approach that builds on theories of radical planning that for the most part has its origins in the academe and not in community struggles.

Authors will draw on participant observation at organizing meetings and the event itself, informal interviews with participants, a closing focus group where participants debriefed on the event, and an analysis of individual action stations. By expanding our understanding of what counts as planning education and where/how planning education occurs, this research has implications for planning literature, education, and practice.

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Key Words: Radical Planning, community based planning, planning pedagogy

TALKING STORY: LESSONS FROM PUBLIC ENGAGEMENT AROUND TRANSIT-ORIENTED DEVELOPMENT IN HAWAII

Abstract ID: 476

Individual Paper Submission

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Professionalism requires planners to possess a specialized knowledge while the communicative turn in planning calls for a more pluralistic and equal relationship between the planner and the citizen, accepting “the fact that genuine planning means giving up an element of control” (Hillier, 1996, p. 294). Today, the increasing levels of uncertainty, complexity, and conflict surrounding collective decision-making often require planners to engage in facilitation and mediation in collaborative processes for the implementation of effective plans and policies (Healey, 1997; Forester, 1999; Innes and Booher, 1999). Professional behavior evolves as individuals learn from their experiences (Fischler, 2012). Don Schön’s call for an epistemological shift from rationality to reflection-in-action (Schön, 1984, p. 21) underscored the importance of learning by doing or doing by learning – professionals were not simply technocrats but had to problem solve in “situations of [complexity], uncertainty, instability, uniqueness, and value conflict” (Schön, 1984, p. 49). Despite advancements in planning scholarship and practice, however, practice-oriented scholarship has been relegated to the margins while research and rigor of data and analysis occupy a central position in most planning programs (Wachs, 2016). Reflective practice has often privileged big ideas over qualities of professional comportment (Fischler, 2012, p. 324). Although planners are expected to foster participatory processes to democratize practice, acting deliberatively remains the planner’s prerogative. Translating theory into practice, therefore, requires reconciliation of planners’ individual behaviors, motivations, and dilemmas with relational webs at the institutional level (Tewdwr-Jones, 2002). These conflicting frames become particularly evident during participatory processes when dealing with barriers (structural, cultural, effects of governance style) to citizen consultation (Albrechts, 2002). Yet, planning programs provide little training in this regard and many rely on internships in off-campus offices to provide professional education, often forgoing the opportunity to connect theoretical knowledge acquired in class with practical knowledge in the field (Wachs, 2016).

In this paper, we explore how planning programs can prepare future planners for public engagement and to what extent such efforts can encourage them to blend professionalism with reflective practice. Drawing on data from participant observation, pre and post self assessments, focus group discussion, reflection statements, activity logs, and interviews with practitioners, we examine how graduate students in a practicum designed and implemented public participation in a planning process featuring the rail and transit-oriented development in Hawai‘i. The ‘talk story’ highlights the potential and pitfalls of this endeavor. It also foregrounds collaboration between students and faculty across disciplines in developing co-generative strategies to facilitate robust participation. Our findings provide insight into fundamental questions about efforts to democratize design and planning practice, and offer takeaways for enhancing students’ understanding of the link between theory and praxis.

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Key Words: public engagement, reflective practice, students, transit-oriented development, Hawai'i

EVALUATING SERVICE LEARNING IN URBAN PLANNING EDUCATION: OUTCOMES FOR CLIENT ORGANIZATIONS

Abstract ID: 665

Individual Paper Submission

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This paper investigates the use of service learning in urban planning education, focusing on the outcomes for client organizations. It addresses a major gap in the literature on service learning and urban planning pedagogy. Numerous studies in the *Journal of Planning Education and Research* and other publications have evaluated specific service learning projects, generally focus on student outcomes. The “lessons learned” from these studies are typically aimed at enhancing service learning pedagogy in order to improve those student outcomes. Similarly, the vast majority of publications from the broader field of service learning research focus on the relationship between pedagogical approaches and student outcomes.

Improving service learning pedagogy in a way that maximizes positive student outcomes is certainly a worthwhile cause. However, service learning also seeks to provide students with unique, “real-world” experiences (Long, 2012) that “cannot be duplicated in the traditional classroom-oriented education” (Roakes and Norris-Tirrell, 2000, p. 101), which provide positive benefits to community organizations. These community benefits are far less understood, both within urban planning literature and service learning research more broadly.

A few recent studies have taken a more holistic look at service learning in urban planning and related fields, and in the process have identified some benefits and challenges for community organizations. The benefits often go beyond the mere infusion of free student labor, as students can come up with creative solutions to problems and provide a type of expertise that may not otherwise be available to the client organizations (Littlepage & Gazley, 2013; Viswanathan, et al., 2012). Service learning programs that involve direct interaction with community members can also help to build community capacity and create a sense of opportunity (Roakes & Norris-Tirrell, 2000; Angotti, et al., 2011).

Potential challenges identified in prior research include increased expectations for client organization staff, the need to work within academic semester schedules, and differences among student skills, experience levels, and motivations (Angotti, et al. 2011; Littlepage & Gazley, 2013). Recommendations include involving clients in course design (Viswanathan, et al., 2012), better aligning course objectives with organizational needs (Roakes and Norris-Tirrell, 2000), setting realistic objectives and timelines, and establishing clear boundaries between faculty and client roles (Angotti, Doble, & Horrigan, 2011).

This ACSP paper will directly investigate the outcomes of urban planning service learning projects for client organizations. The primary research questions are “what benefits and challenges does urban planning service-learning present for client organizations” and “how can urban planning service learning better meet the needs of client organizations?”

The research for this project included a survey of urban planning program directors at ACSP-member institutions, interviews with service learning instructors, and interviews with representatives of client organizations. The research identified a typology of different service learning approaches in urban

planning pedagogy (e.g., extent of client involvement, frequency of student-client interaction, types of student deliverables, and final project outcomes), then investigated the benefits and challenges associated with these different approaches. The paper will conclude by identifying opportunities for maximizing the benefits to client organizations without compromising student learning outcomes.

Audience members will first learn about the different types of service learning approaches used in urban planning courses. They will then learn about the benefits and challenges that these service learning approaches present for client organizations. Finally, they will learn about ways in which service learning can be improved in order to maximize client benefits without compromising student learning.

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Key Words: service learning, studio, pedagogy, community, partnerships

COMMUNITY ENGAGEMENT AND COMMUNITY PLANNING STUDIOS: THE CHALLENGES AND LEARNING OUTCOMES FOR ENGAGEMENT IN MULTICULTURAL COMMUNITIES

Abstract ID: 715

Individual Paper Submission

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This study assesses the learning outcomes produced by community engagement efforts of students in comprehensive planning studios in the City and Regional Planning Program at California Polytechnic State University in San Luis Obispo, California. The comprehensive planning studio at Cal Poly, San Luis Obispo, is the capstone experience (twenty to twenty-two week studios) in a planning program with both undergraduate and graduate programs emphasizing a "learn-by-doing" education. Learning outcomes resulting from the community engagement efforts undertaken by students in eight studios, with more than 2,000 community members, spanning from 2007 to 2019, are assessed through surveys and individual extended interviews of students from these studios. The students' learning outcomes focus on the students' experiences with community members and groups, not staff or local decision-makers such as planning commissioners and city council members.

Rapid globalization has produced communities of diverse cultural and ethnic backgrounds in the U.S. Many of these communities experience social and economic marginalization that, in turn, negatively impacts civic participation (Derr, Chawla, Mintzer, Cushing, and van Vliet, 2013; Hum, 2010; Main & Rojas, 2015; Umemoto & Igarashi, 2009). There is clearly a growing recognition of the need to address challenges to community participation in multicultural communities. The multicultural and marginalized communities in which we plan pose significant challenges for professional planners. To what extent can planning programs, through planning studios, prepare students for these challenges?

Student perceptions of the following are described and evaluated: 1) the knowledge and skills gained from studio lessons and experiences of community engagement techniques, 2) the relevance and use of these skills and knowledge in future professional experiences (Edwards & Bates, 2011), and 3) the efficacy of these knowledge and skill sets in addressing challenges to community participation in multicultural communities. This study concludes with implications for methods of teaching, conducting, and evaluating the learning outcomes of community engagement with community members and groups in multicultural communities.

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Key Words: community engagement, multicultural communities, pedagogy, planning education, studio learning

HOW PLANNERS PRACTICE: A PEDAGOGICAL FRAMEWORK FOR CASE STUDIES

Abstract ID: 978

Individual Paper Submission

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The paper offers a framework and constructed language for creating and discussing case studies of how planners practice. It responds to the need for educational content that helps planning students understand how to synthesize the disparate elements of their planning education in practice. In proposing a framework, the paper seeks to enhance the comparability of individual case studies and support cases that pull back the curtain on planners' thought processes. This effort supports a renewed interest in cases as a tool for understanding and teaching in urban and regional planning (e.g., Lincoln Land Institute/ACSP Case Study awards).

The framework focuses on the planner's experience of theorizing, learning, and acting in a planning episode, defined as a planning assignment that leads to plan or policy adoption, a decision, program development, or empowerment.

Much of the scholarship on planning practice involves planning theorists "looking in" on a practitioner or a practice episode, through interviews, oral histories and observation. This practice provides valuable insights but lacks critical first-person reflection. Structured first-person reflection by practitioners is less common. The framework proposed here conceives of the planning episode in a dynamic tension between the structure for the planning activity (context) and the personal dimensions of practice, considering the planner's human agency. In the tension between those two realms emerges a planner's professional style, and the individual planning episode further unfolds in relation to these elements.

The framework is not conceived of as a structure that is applied to the complex reality of planning but a prompt for reflection and conversation. It directs attention to the use of theories in and theories of planning, implicit theorizing while practicing, along with often-ignored factors such as intuition and serendipity. These elements are conceived in a dynamic interaction with the broader context and the planner as human agent. The framework is illustrated and explained with reference to a case of developing a Climate Action Plan at Cal Poly Pomona.

This effort builds on notions of reflective practice (Schön 1983). It does not ignore the social and embedded nature of practice (Forester 1993, 2017) but argues that planning practice should be understood from the inside-out.

The proposed frame and constructed language are based on the literature and the author's experience as a scholar and practitioner. The intent of this work is to support case development for planning education and expose students to the dynamic environment of practice. The framework is part of a book project that will include eight case studies.

Disclosure: Track Co-Chair Anna Joo Kim is a case author for the book project referenced in this proposal.

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Key Words: reflective practice, planning theory, planning practice, planning pedagogy, case study

FROM COPTORS AND SAVIORS TO COMMUNITY-ENGAGED PLANNING EDUCATION AND PEDAGOGY

Abstract ID: 1287

Individual Paper Submission

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Planning educators are increasingly facing demands from students and community constituents alike for tighter links between teaching, research, practice, and activism to better understand and shape the continuing transformation of places, spaces, and the environment. Institutions of higher education within which they operate are further experiencing normative shifts toward improving relationships with surrounding areas and underrepresented communities.

While planners widely engage with multiple publics and stakeholders, the work of engaging with communities as university-based educators can be rife with tensions and contradictions. For instance, community-engaged and field-based courses tend to occur within a context of neoliberal institutional governance, whereby administrators often prioritize fundraising and donor relations so as to exert particular pressures on course activities and outputs. Moreover, curricular development and delivery often requires navigating opaque decision-making structures at the departmental, school, and university levels as well as hierarchies and prejudices among different departments, disciplines, and faculty, not to mention among local partners.

This paper considers an interdisciplinary set of courses—an option studio and a project-based course—offered during the Fall 2019 term at the Harvard Graduate School of Design focused on Miami's Overtown neighborhood. The paper presents and reflects on the experiences and struggles of the planning faculty and students to generate urban policy, planning, and design ideas that centered the perspectives and needs of Overtown residents in contemplating Miami's future as an American city while reckoning with their own affiliations and positionality. Findings focus on the challenges and opportunities of overcoming dominant narratives of underdevelopment and victimization about Overtown and exploring novel yet actionable urban planning and design proposals that harness community assets as well as current and emerging trends at the neighborhood, local, and regional scales. This work is particularly relevant to planners in academia focused on issues of justice and inclusion, power and politics, planning ethics, and building careers around engaged community partnerships.

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Key Words: community engagement, planning education and pedagogy, critical planning theory, positionality, higher education

DATA CHALLENGE – A DATA SCIENCE APPROACH IN PLANNING EDUCATION

Abstract ID: 815

Poster

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As information and communication technologies (ICTs) and internet of things (IoTs) become ubiquitous to ordinary citizens, cities are becoming hubs and incubators of innovation and creative activities. Cities are constantly evolving with intelligent infrastructure (sensors, wireless internet, etc.), which collects data in real-time, and the use of information technologies (machine learning, artificial intelligence, visualization, etc.), which makes it possible to solve issues of high complexity. In the smart city movement, the city and urban planning community also start to rethink how new technology in information and data science can possibly shift current paradigm in planning practice: Smart governance begins to transform planning's role in multiple dimensions, including integration, innovation, evidence-based, citizen-centricity, sustainability, effectiveness, efficiency, equality, entrepreneurship, citizen engagement, openness, resiliency, and technology savviness (Gil-Garcia et al., 2016). While some of the themes are recursive, certain dimensions have been transformed in the era of information technology. For instance, data integration and integrated analytical approaches have broken the boundaries between social science and data science. In addition, civic technology starts to show promising applications to engage the public in the planning process (Gil-Garcia et al., 2016).

These emerging themes (smart city, urban data science, urban informatics, etc.) generate new interests in planning education in discovering how ICTs can impact urban planning. For instance, universities (e.g. Northeastern University and University College London) begin to offer graduate degrees in urban informatics/analytics or build curriculum around smart city and urban technology (e.g. the Smart City and Urban Data Science course offered at the University of Maryland). In this study, the author looks into another new approach to integrate data science and urban technology in planning education: data challenge. The core idea of a data challenge is borrowed from Kaggle, a crowdsourcing data analytic competition that matches data providers, who host data and seek for predictive results, and challengers in data science community, whose expertise and passion lie in predictive analytical models (Carpenter, 2011). Originated in the STEM community, "challenge" is becoming popular in social science and interdisciplinary subjects (Farahi and Stroud, 2018), as well as arts and humanities subjects (Lopez, et al., 2013). The UMD Data Challenge is a week-long data exploration event hosted by the College of Information Studies and the School of Architecture, Planning, and Preservation. The event was supported by the University of Maryland's Year of Data Science initiative, which is designed to foster data science collaboration and education across campus.

In this case study, the author will present the event structure, the planning process, the educational resources, facilities, and impacts, as well as broader community partnership and social impacts of the Data Challenge. Combining qualitative analysis on event materials and interviews from different stakeholders, the author expects to formulate a practical mechanism of implementing data challenge events on university campuses. Noticeably, robust partnership between traditional data science community and non-data science community is crucial to the success for this type of event. Participatory planning and private-public partnership will augment social impacts of a data challenge on a broader audience, including different campus research units, city and regional public agencies, as well as private entities. The author will also discuss qualitatively about lessons learned from hosting and organizing the data challenge event and future efforts to engage planning educators in data science education.

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Key Words: data challenge, data science, urban informatics, planning education, case study

TRACK 11 – PLANNING HISTORY

TRACK 11 – INDIVIDUAL ABSTRACTS

THE EFFICIENCY/COMMUNITY DUALITY IN THE EMERGENCE OF PLANNING: CASES IN RURAL REGIONAL DEVELOPMENT

Abstract ID: 107

Individual Paper Submission

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The interrogation of dualities has been a major source of insights in planning scholarship. For example, one of the most important insights was the differentiation between substance and process (Faludi 1973). That led in turn to empirical studies of planning processes, which illuminated top-down (“rational”) and bottom-up (“participatory”) processes (Healey 2012).

A key duality in the field since the turn of the 20th century has been the quest for efficiency, the rational utilization of natural, built, and human capital, along with concern for community, the human needs and rootedness of local populations. The first National Conference on City Planning in 1909, often billed as the birthplace of professional city planning in the U.S., is described as a struggle between those who wanted to make cities more ordered, efficient and attractive, and those concerned with housing reform, the regulation of factory locations, and increasing park space. Post-WWII freeway disputes and clashes over urban renewal also exhibited the either/or construct, personified by the 1960s battle between Robert Moses and Jane Jacobs over the proposed Lower Manhattan Expressway in New York City. Moses’ abstract, top-down view of the city focused on relieving traffic congestion in the interest of efficiency. In contrast, Jacobs’ ground-level view saw an assault on community - neighborhoods and people, homes and businesses.

Rural regional development provides an advantageous setting through which to examine the history of the efficiency/community duality. Tietz (2012, p. 130) has commented that this duality “constitutes an inescapable leitmotif” in the history of rural regional development. Efficiency and community were initially seen as mutually reinforcing, through a synthesis of modern technology, community and regional economic development, and ecological thinking. However, the drive for efficiency ultimately engulfed community. Friedmann (1988) provided a lucid survey of this duality - “life space” (community) vs. “economic space” (efficiency) - in the context of international development thirty years ago. More recently, Halseth et al. (2010) point to the duality of place (community) vs. space (efficiency).

How the efficiency/community duality shifted from complementary to either/or, and the consequences for rural regional development, is the subject of this paper. We offer a ‘chrono-topical’ review of the efficiency/community duality in rural regional development in the U.S. from the turn of the 20th century through the Great Depression and the onset of WWII, drawing on primary sources to explore four initiatives: (1) The federal Bureau of Reclamation irrigated communities; (2) The Country Life movement; (3) Rural community surveys; and (4) River basin projects such as the Colorado River, Columbia River, Missouri River, and (of course) TVA.

We find that the efficiency/community duality once led rural regional development to be a crucible of innovation for planning practice and thought, but the duality split and marginalization of community signaled its decline. With greater appreciation of the history of rural regional development and the role of the efficiency/community duality, planning scholars and practitioners may now seek to restore the community half of the duality, for the betterment of rural places and people, and planning practice in general.

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Key Words: rural, regional, development, efficiency, community

TRACKING OUR FOOTSTEPS: THIRTY YEARS OF PUBLICATION IN JAPA, JPER AND JPL

Abstract ID: 125

Individual Paper Submission

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Background: The past thirty years have witnessed the growth of literature on planning issues. This signals people's interest in urban planning, but also makes it daunting for planning researchers to absorb the information in the large amount of literature. Thus, a systematic review of these literature and a revelation of main publication themes can be helpful. Such practices can help us better understand the dynamics of the planning literature over time and guide future research. So far, there are few efforts along this line with Gobster (2014) as an exception, and the coverage over journals has been fairly limited.

Methodology: This paper adopts text analysis, a machine learning technique, to examine all the publications in the past thirty years in three mainstream planning journals: *Journal of the American Planning Association*, *Journal of Planning Literature*, and *Journal of Planning Education and Research*. The text analysis technique effectively deals with a large body of texts and forms main themes objectively. It also allows quantification of similarity of publication themes across years and journals.

Findings: Through the analysis, this paper uncovers 1) the hot topics in the planning field in the past thirty years, 2) the change of publication themes over time, 3) how different journals favor different themes, and 4) how real-time events affect publication themes. For example, this paper finds that within three years after the 2008 financial crisis, the number of publications with a theme of economics, finance, mortgage and business increased. Similarly, within two years of a natural disaster such as the hurricane,

publications on disaster, resiliency and recovery also surged.

Relevance: This paper is a continuation of planners' efforts to adopt quantitative methods to synthesize and understand the large bulk of literature that we are faced with today. Some of the earlier works include Ewing and Cervero (2010), Fang (2015) and Stevens (2017). This paper is one of the first to introduce a new method, text analysis, to examine the planning literature. It paints a big picture of our past and present in the study of urban planning issues, shows the rise of fall of certain themes, and guides researchers in their choice of future research topics.

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Key Words: text analysis, planning literature, theme, journal publications

NARRATIVES OF CRIME, VIOLENCE, AND DARKNESS: A JOURNEY INTO CHICAGO IN THE 1980S

Abstract ID: 511

Individual Paper Submission

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The research literature on urban crime is generally of two types. Some researchers compare cities, seeking to understand why some have higher crime rates than others. And there are studies that focus on explaining variations in (as well as factors affecting) crime levels within cities. Following the second approach, this paper aims at investigating the relationship between urban design and crimes in Chicago during the 1980s. In many academic fields today, cinematic representations are rich sources through which researchers interpret phenomena. Barbara Maria Stafford, a historian of images used in the sciences, believes that in a process beginning in the 18th century, the construction of knowledge about the world has become more and more based on images rather than on written texts. Assuming that the primary elements in movies are people and their environments, then cinematic city-images provide an unparalleled context for the study of human-environment transactions in cities. The historical reason for the importance of city films, then, is that they are sensitive indicators of urban processes, changes, and movements. During the reign of Mayor Richard J. Daley who died in 1976, very few studio movies were shot in Chicago as supposedly the mayor was afraid Hollywood would portray his city negatively. That all changed under the Jane Byrne administration (after 1979) which promoted filmmaking in the city with a vengeance. *The Blues Brothers* (1980), *The Thief* (1981), *Code of Silence* (1985), *Henry: Portrait of a Serial Killer* (1986), and *Running Scared* (1986) are movies that constitute the 'text' in this study.

From a critical interpretive position, based on Charles S. Peirce's early, dominant triadic typology of signs, this paper uses 'urban cinesemiotics' as the method to capture image-signs, distinguish their

associated Chicagoan objects, and interpret their design-oriented meaning. This method also demands urban theory to provide the theoretical basis necessary for interpreting how crimes are associated to urban design. Beyond the long-accepted theories of urban crime (e.g., Social disorganization, subculture, and conflict), this paper takes advantage of urban theory for three reasons. First, urban theory provides clues for urban designers to distinguish signs of their concern from the countless number of image-signs in the text. Second, urban theory enables the interpreter to go beyond the immediate interpretation of the image-signs and reach a more dynamic ‘interpretant’ that provides the discipline with a critical lens through which cities are examined and experienced. Third, urban cinesemiotics provides a context for urban designers to critique long-accepted urban theories and revise them through the perspective of films. In this paper, Jane Jacobs’s (1961) *The Death and Life of Great American Cities* and Derek Paulsen’s (2013) *Crime and Planning: Building Socially Sustainable Communities* constitute a set of concepts and ideas for interpreting the selected image-signs.

In addition to a historical review of urban crime in Chicago in the 1980s, the findings of this paper shed lights on Jacobs’s (1961) statement that “the public peace of cities is not kept primarily by the police. No amount of police can enforce civilization where the normal, casual enforcement of it has broken down;” and Paulsen’s (2013) opposite argument that “while design is essential to ensuring a safe and secure mixed-use area, all planned mixed land-use areas should be designed to facilitate easy police patrol.”

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Key Words: Urban theory, Crime, Urban design, Cinema, Chicago

REDISCOVERY OF THE TRANSECT IN ENVIRONMENTAL PLANNING

Abstract ID: 585

Individual Paper Submission

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Today, American cities encounter complex urban problems ranging from endless suburbanization and spatial segregation to global-scale pollution and natural hazards intensified by climate change. Conventional land regulations have significantly intensified these urban issues. This paper traces the origins and evolutionary changes of transect planning in history. It identifies the characteristics of the transect through a comparison of the existing planning regulations and in the broader context of environmental planning. By examining contemporary urban projects in which the transect has been applied, this paper answers its potential as a successful alternative planning theory capable of remedying today’s urban problems.

The transect is a scientific methodology for investigating a sequence of environments by sampling geographical cross-sections of a target region. Since the German geographer Alexander von Humboldt introduced the process in 1790, biologists and ecologists have utilized it to analyze ecosystems by

tracking changes over time. Like the intrinsic function of the scientific definition, the transect method in the planning discipline implies a deep deliberation and establishment of the relationship between urban and natural environments.

The history of planning for the interaction of nature and the city follows traditions set down by leading thinkers such as Charles Darwin (1809-1882), Lawrence Henderson (1878-1942), Aldo Leopold (1887-1948), Patrick Geddes (1854-1932), Ian McHarg (1920-2001), and many others (Steiner et al., 2016). Relatively recently, the New Urbanist Andrés Duany followed this tradition and redefined the transect system for contemporary urban planning. This theory includes how to apply ecological principles to human habitats (Duany & Talen, 2002).

The contemporary transect is developed from a simple awareness of the difficult problem of building “good urban places” via conventional planning ordinances and Euclidean zoning (Duany & Talen, 2002). Conventional land use planning is regarded as the main motivation for the functional separation of human activities and a vehicle-centered urban structure; these eventually resulted in massive suburban sprawl, dismissing private interests and local characteristics in order to prioritize public interest and development.

The transect planning has many applicable possibilities as a substitute of current zoning system. Its characteristics, such as multi-scale planning, appropriate spatial locations, design with locality, and straightforward design standards, provide keys to remedy current urban issues. Today’s transect follows historical precedent and embraces the existing urban fabric. It binds previous ecological discussions to implementation in a local-to-global transect beyond rural-to-urban gradation, ultimately for sustainable human wellbeing and nature itself.

The transect planning can take a significant amount of time to regulate realistic projects as planning standards, replacing existing land use regulations. It may not accomplish a complete replacement for both political and efficiency reasons. However, the notion of the transect has already been applied to and tested by many real-life projects. This paper examines how the theories, features, and implementation methods of transect planning are realized and assisted by the practice. Through this review, we can discover the unique potential of the transect as a new planning method for a complex and unpredictable future.

The ultimate goals of planning have changed over time. There have been clear distinctions among urban greening, ecological protection, and the pursuit of sustainability in environmental planning history (Daniels, 2009). In the history, the key framework of the transect is a concern for the synergistic relationship between nature and human beings, as well as the pursuit of a planning method that could support cities’ sustainable evolution. I hope this paper will lead to more lively discussions by expanding the meaning of the transect in environmental planning and the discovery of its potential for future planning in an era of uncertainty and complexity.

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Key Words: Transect, Landuse Planning, Patrick Geddes, Ian McHarg, Andrés Duany

THE LAST OF THE “FREE POOR”: STANDARDIZING ENVIRONMENTAL RISK AND AFFORDABLE HOUSING IN THE CLEARANCE OF NEW ORLEANS’ BATTURE SETTLEMENTS

Abstract ID: 753

Individual Paper Submission

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New Orleans owes its existence to a perimeter of protective earthen levees and flood walls that separate the city from the surrounding rivers and swamps. Today, the alignment of those levees, reinforced by zoning codes, building regulations, and insurance policies, mark a stark edge between inside and outside, dry and wet, city and swamp. This binary divide was once not so clear. For much of the 20th century, hundreds of houses occupied “the batture,” an interstitial strip of land between the levees and the Mississippi River. By the mid-20th century, the batture settlements extended some six miles along the city’s riverfront. In its demographics, urban and architectural form, and orientation to environmental risk, the batture challenged the modernizing orthodoxies of mid-20th century planning. Through a series of ‘slum clearance’ operations, the settlements were largely erased over the course of the late 20th century.

This article looks to the batture for insights on the question: How did state efforts to standardize urban environmental risk in New Orleans relate to other mid-20th century socio-spatial modernization planning projects? To address the question, the article focuses on one major episode, a mass eviction of over 140 batture households in the early 1950s. The article includes analysis of archival materials, including: contemporary press accounts; legal proceedings; correspondences of politicians, officials from the levee board and Army Corps of Engineers, and others; civic organization meeting minutes and other documents. It finds that, the batture eviction debate linked state efforts to standardize flood risk mitigation to broader debates about the relative roles of individual agency and state planning in shaping the life and form of the city. The batture dwellers’ supporters presented the community in idyllic terms: racially integrated, self-sufficient, and harmoniously shaped by natural forces in its architectural and settlement form. Opponents saw the batture as a distinctly unmodern and problematic transgression of social and spatial boundaries. Where the batture was racially integrated, poor residents elsewhere in New Orleans were increasingly segregated through government efforts including new housing projects. Where batture buildings’ adaptations to flood risk mirrored building typologies in rural south Louisiana, in the rest of the urban region, development interests deployed flood infrastructure mega-projects to enable suburban development that would have been at home in Sunbelt cities from Houston to Atlanta.

The case of the batture communities and their destruction offers useful insights for planning scholarship and practice. This case links two areas of urban scholarship that are frequently treated as separate and distinct: (1) the historical development of urban environmental infrastructure, which is conventionally the territory of environmental historians, historical geographers, and political ecology scholars (e.g., Kaika 2004; Colten 2000; Cronon 1991), and (2) the histories of urban renewal, racial segregation, slum clearance, and public housing, which have typically been the domains of urban and housing historians (e.g., Vale 2007; Klemek 2011). By bridging these domains, this case provides new insights on the linkages between urban environmental risk and housing regularization, critical concerns in both rapidly urbanizing regions of the Global South and in a broad range of cities facing shifting risks related to the impacts of climate change.

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Key Words: flooding, New Orleans, planning history, displacement, affordable housing

WHAT DEFINES A SLUM? GEOSPATIAL UNDERSTANDING OF EXPULSIVE ZONING IN NEW ORLEANS, 1920-1930

Abstract ID: 761

Individual Paper Submission

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From 1927-1929, technocratic planner Harland Bartholomew was in New Orleans, preparing the city's first comprehensive zoning plan. Part of his proposal included zoning the Vieux Carré as industrial and placing a new Civic Center in the lakeward blocks of the neighborhood. These actions represent what Yale Rabin (1989) defined as expulsive zoning— designation of incompatible use in a residential area, leading to expulsion of minority residents.

The local architects and civic elite rejected Bartholomew's proposals on the premise that the Vieux Carré was historically and architecturally significant, due to its Creole heritage. The local architects also rejected Bartholomew's industrial zoning by providing their own research that showed only a few industrial uses nearer to the Mississippi River. The historic district designation of the Vieux Carré was enacted ten years later, in 1937, and the civic center and other slum clearance and housing projects were implemented in adjacent African-American neighborhoods.

This research explores Bartholomew's intention of expulsion and clearance by assessing block-by-block data of the Vieux Carré during the early-twentieth century. Geospatial mapping of 1920 and 1930 census data shows who the "minority" residents were, and answers questions about their tenure, immigration status and race. The geospatial patterns of demographics are compared with Bartholomew's plans and support not only racial expulsion, as expected, but also bring to light issues of bias against immigrants that were prevalent in the period. Building use is verified through an examination of Sanborn Fire Insurance maps, while historic photographs from the era and the 1930s Historic American Building Survey (HABS) provide insight into building condition.

Bartholomew was known for his team's on-the-ground fieldwork, and by the time of his work in New Orleans, was considered an expert in the field. His previous projects for zoning and redevelopment, most notably in St. Louis, proved his expertise to his clients. Yet, many of his projects ultimately evolved into a catalog of slum clearance, and his expert opinion on defining "slums" must be re-assessed within our contemporary perspective of racial planning. Historical primary source data, such as the census, Sanborn maps, and early planning documentation, is a valuable resource for re-examination of Bartholomew's plans using current technology, providing fine-grain insight into early planning practices in urban areas.

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Key Words: Geospatial Analysis, Demographics, Expulsive Zoning, Harland Bartholomew, New Orleans

CONVERSION OF VACANT CHURCHES: A COMMUNITY DEVELOPMENT TOOL FOR RUST BELT NEIGHBORHOODS

Abstract ID: 856

Individual Paper Submission

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U.S. cities with shrinking populations have faced tremendous challenges in conserving their built heritage on the one hand, and finding opportunities to involve and serve the local community on the other. Often, conservation work involves adaptively reusing existing buildings, most often with market-friendly uses that can help bring investment back to the area. Office and market-rate residential use is the most common conversion strategy for developers, especially as it allows for rehabilitation tax credits to be applied for income producing properties. Consequently, most reuse activity is fueled by developer and market-driven rehabilitation of historic properties through tax credits and other incentives. Places of worship like churches, however, are difficult to rehabilitate, and cities lose this urban heritage after years of vacancy and neglect, and eventual demolition. In many Rust Belt cities, this challenge is even more pronounced. There are some examples, however, that show how the local community can use these vacant spaces as tools for regeneration, and for giving back to the community. These examples provide valuable lessons that can be essential tools for struggling Rust Belt cities and their vacant religious spaces like churches. This paper examines three former churches in the City of Buffalo: one was converted first into a charter school and then into a community center for low income communities; the second was converted into a museum and a repository for the region's rapidly disappearing immigrant heritage; and the third was partially converted into market-rate apartments and community spaces with a kitchen. In each case, the process was not developer-driven; rather, a local non-profit, a local resident, and the church itself were all involved in the conversion process. Consequently, the new uses have allowed the community to be actively involved with the former churches, fueling a sense of nostalgia and veneration for the saved

former church, as well as appreciation for the new use that helps to serve the local community in unique ways in each example. The paper argues that these kinds of community-driven conversions can be a viable tool for other U.S. cities experiencing similar threats to their urban heritage by getting local communities and non-profits involved to ensure that the process is equitable, and in the interest of the community as well as the at-risk building.

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Key Words: urban conservation, historic preservation, adaptive reuse, rust belt cities, community development

REGIONAL PRAXIS: HOWARD W. ODUM, PLANNING, AND THE SOUTHERN IMAGINARY

Abstract ID: 880

Individual Paper Submission

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The paper explores Howard W. Odum's regional practice to better understand how to place it in the broader history of regional planning. Regionalism springs from nation-state crisis, and Odum's proposal insists on rebuilding national narratives through robust, diverse, regionally constitutive parts. There is a gap separating U.S. regional planning history from Southern Regionalism that requires a better understanding of Odum's praxis in relation to the cultural and literary debates of the period. Planning historians John Friedmann and Clyde Weaver observe that, "There has never been an adequate investigation of Howard Odum's part in laying the foundation of American planning ... Odum's essential contributions have been all but passed over." [i] The paper seeks to correct this omission.

Odum headed a movement for Southern Regionalism, initially, in opposition to the Southern Agrarians' reactionary nostalgia for antebellum culture. The regionalists believed that research and planning could usher in a Southern cultural renaissance that drew from its past without being shackled to it. Odum advocated for a "regional organic unity not only for its natural landscape, but in that cultural evolution in

which the age-long quartette of elements are at work—namely, the land, the people, culturally conditioned through time and spatial relationships.”[ii] The writing echoes the influence of European regionalist proposals he had studied through Trans-Atlantic networks, and brings them into a U.S. Southern context. The regionalist project garnered significant funding support from the Rockefeller Foundation and other New York philanthropy groups, which helped to provide international network opportunities.

Research questions:

How did Odum come to his ideas on regionalism? Which networks allow him to come into communication with the international regional movements of the late 19th and early 20th centuries? What are the underlying political and cultural aspirations for engaging with these international regional planning networks?

What is Odum’s relationship with the Regional Planning Association of America (RPAA) during the 1920s and 1930s? He was clearly in contact with RPAA members, but his Southern expression of regionalism is overshadowed by other figures. Why?

How does Odum’s participation in the New Deal programs, including the Tennessee Valley Authority project, influence/alter his position on regionalism, urbanization, and metropolitanism?

Was the initial opposition to desegregation a fatal flaw for Odum and his movement?

How can Odum’s legacy of Southern regionalism contribute to the history of regional planning, and how can that history be properly rectified to include Odum’s contribution?

Methodology:

I will use a mixed archival and visual-materials methodology for the research. I will conduct research on Odum in the Howard Washington Papers archive in the Southern Historical Collection of the Louis Round Wilson Special Collections Library at the University of North Carolina at Chapel Hill.

Significance:

The fields of urban planning and design, architecture, and landscape architecture have, over the past 15-20 years, looked to both ecology and ethnography as essential methodologies to incorporate into formal projection and design development at various scales. Odum was a pioneer of these techniques in his survey methodology at the regional scale. These socio-ecological framings de-emphasize the urban-rural split, which many of the metropolitanists of the early Chicago School tended to overstate. I will explore how Odum developed his regionalist theory, methodology and prescribed practice for regional planning, which he hoped would have consequential cultural and behavioral impacts on both the South’s, and the country’s future.

[i] Friedmann, Weaver. *Territory and Function*, p. 35.

[ii] Odum, Moore. *American Regionalism*, p. 16.

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Key Words: Regional Planning, Howard W. Odum, RPAA

RESEARCH ON HISTORICAL VALUE EVALUATION OF HISTORIC DISTRICT——A CASE STUDY IN SHIBEI DISTRICT OF QINGDAO, CHINA

Abstract ID: 903

Individual Paper Submission

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Central theme: China's rapid urbanization has caused the cultural heritage of many historical cities to be destroyed, and the evidence of historical development is no longer clear. Modern buildings and historical buildings in historic districts are intertwined and mixed with urban characteristics gradually fading or even disappearing. Qingdao is a national historical and cultural city in China. It has been colonized by Germany and Japan in history, leaving a rich historical heritage, but it also has the problem of the desalinization of historical districts and unclear value. In order to guide the effective transformation of historical districts, we must change the past development ideas with economic value as a single orientation, and turn to a comprehensive value-oriented development model, in which historical value should be the leading of comprehensive value. Through historical value evaluation, it aims to discover and excavate areas with historical value as much as possible and provide a basis for the accurate positioning of urban development planning.

Research focus: This article takes the old city of North District, Qingdao, China as an example. There are two main questions: 1) What is the development context and construction process of the historical urban area? What is the characteristic of its urban space development? 2) How to identify historical districts from complex urban environments, evaluate historical values through quantitative methods, and link with existing preservation systems based on evaluation results?

Approach and methodology: In view of the above problems, the main research methods adopted in this paper are: 1) Sort out the development of the city through literature review and historical maps; 2) Initially screening and identifying areas with rich historical heritage and complete features through field investigations, and delineate assessment boundaries. 3) Construct the evaluation factor system in four levels: representativeness, authenticity, completeness and operability so that the identified areas can be comprehensively evaluated for historical value.

The main conclusions of this paper are as follows: 1) The research area takes the port as the development origin, starts from the commerce and trade industry, and gradually expands to the inland, forming an economic structure in which various industries of industry, commerce and service industries develop together; 2) The 14 historical sections were selected for comprehensive scoring. Except for the 6 historical blocks that have been officially registered, 8 historical style areas that have not been officially registered are identified. The evaluation results are reported to the local government for registration preservation. Besides, the unique value of 14 historical sections was refined and summarized as the basis for subsequent planning.

Relevance: This research, as part of the work of urban planning consulting services for the Qingdao North District Government, has played a role in re-recognizing the value of Qingdao's historical urban areas and comprehensive preservation of historic urban areas. At the same time, the historical value evaluation system and method have reference significance for similar cities in China.

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Key Words: Historical Value Evaluation, Historical Preservation, Qingdao

AVERTING THE INEVITABLE: THE 1962 TRANSIT SERVICE EXPANSION AND THE REVIVAL OF TRANSIT IN TORONTO

Abstract ID: 915

Individual Paper Submission

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While transit ridership declined precipitously from the Second World War until the 1970s in cities across the United States, Metropolitan Toronto was able to arrest and then reverse the decline in transit ridership, beginning in the early 1960s. This study argues that the 1962 decision to expand frequent bus service to the newly developing suburban areas was integral to the survival and subsequent revival of transit in Metropolitan Toronto.

In 1953, the Province of Ontario created a new metropolitan level of government for the Toronto region, which was given responsibility for urban planning, and for regional-scale services, such as water, highways, and public transit. As Frances Frisken has argued (Frisken, 1991), the placement of the Toronto Transit Commission under the authority of the Municipality of Metropolitan Toronto was a key factor enabling its success. Transit ridership continued to decline through the 1950s, only briefly arrested

by the opening of a new subway in 1954. However, regional governance enabled suburbanites, through their politicians, to demand improved transit service in their areas.

In 1962, Metropolitan Toronto provided funding for the Toronto Transit Commission to act on suburban demands, and a grid of bus routes was established throughout the region's fast-growing postwar suburbia. Their comprehensiveness and relatively high frequency enabled riders not only to access downtown, but also to make cross-suburban trips by connecting bus routes. This enabled what Paul Mees described as the "network effect." (Mees 2009) From its postwar low of 267 million in 1961, transit ridership in Metropolitan Toronto soared to 346 million in 1972, despite the rapid growth of auto-oriented suburbia filled with strip malls and single-family homes. Meanwhile, transit ridership continued to decline across the United States, including in New York City.

As Boisjoly et al have demonstrated quantitatively, the service increase drove increases in ridership. Furthermore, the expansion had substantial equity benefits, as disadvantaged residents of suburban areas were given full access by transit to the city's services and opportunities. (Schaeffer and Sclar, 1975). Though many Toronto urbanists have criticized the expansion of transit service in the suburbs (Sewell 2009) as a distraction from the primary mission of serving the urban core, it enabled Toronto to achieve the near-unique status in North America of arresting and reversing the decline in transit ridership amid rapid expressway construction and expanding car ownership.

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Key Words: Transit planning, Network Effect, Toronto, Transit ridership, Transit history

EXPLORING THE RURAL ROOTS OF PLANNING FROM BELOW

Abstract ID: 1008

Individual Paper Submission

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It has been over two decades since Leonie Sandercock's book, *Making the Invisible Visible*, took planners to task for omitting the history of insurgent planners working outside of the planning profession or against the state (Sandercock 1998). Sandercock used the edited volume to demonstrate how community building practice had long been ignored in relation to the city building practice ensconced in the classic planning history texts. The book inspired planners to look beyond the role of professional planners to document the efforts of other historic agents in building community rather than city. Despite

much progress, there are still many gaps in documenting alternative forms of planning history. No place is this truer than in rural communities.

As planners came to grips with their “sins of omission” in cities (Jojola 1998), they largely overlooked the same sins of omission in communities occupying 97% of the nation’s land area. The histories of rural people and places have been discounted in the planning history tradition, perhaps because there are fewer traditional professional local planners present in rural places. The discipline is inherently urban focused, often referring to rural communities as hinterlands, places for resource extraction, inefficient in economies of scale, and lacking agglomeration potential. With some notable exceptions, the discipline has expanded to include rural places primarily when the conversation is centered around urban and rural linkages or environmental issues rather than planning for viable rural communities in their own right. Given this lack of attention by planners (and many other professions), it is unsurprising that rural people today are not doing well by any measure of human development; they are poorer and sicker than the rest of America (Bolin, Bellamy et al. 2015).

Without knowledge of a rural narrative of planning history, there is also little exploration of how hegemonic planning practice, when present, has caused harm in rural places. The discipline marginalizes the lives of rural people monolithically, erasing the very real differences in harm done to historically-excluded groups in rural communities (Catte 2018). Experiences of race, class, and gender are flattened into a singular rural narrative. Stories of rural insurgent collective action for racial and economic justice, progressive healthcare provision, and land cooperatives experiments - themes studied in the urban planning history - are overlooked. By failing to include subversive rural histories in the planning narrative, a fissure is created between rural and urban people (and planners) who are unable to connect how each other’s goals are aligned across time and place. When planners overlook how planning has happened from below, they will not see why planning from above has failed rural people. When planners are unaware of how complex insurgent planning practice has contributed to rural community-building, practitioners may not see why rural planning and development efforts might fail to produce full and healthy rural communities.

Drawing from both traditional and non-traditional planning texts and articles, this research begins to build a rural narrative alongside modernist urban history, elevating examples of insurgent rural community-building present where city building has been absent. Examples are centered around land, the power associated with land ownership, and how government-led dispossession or prevention of ownership has been used as an act of political control in rural places. These narratives start to create a more plural version of planning history that has implications for present rural and urban planning practice. The research concludes with a call for a more expansive future planning history research agenda that draws increased connections between small and large communities.

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Key Words: rural planning, insurgent rural planners, rural history

A “SUCCESSFUL” URBAN TRANSPORTATION POLICY SUITABLE FOR DEVELOPING CITIES AROUND THE WORLD. THE INTERSECTIONS OF CAPITAL ALLOCATION, NATIONAL POLICY MAKING AND LOCAL CONDITIONS WITH THE URBAN PLANNING PROCESS.

Abstract ID: 1083

Individual Paper Submission

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On November 8, 2006, Bogotá was awarded the Leone d'Oro per le Città during the Biennale di Venezia after competing with other 16 urban experiences (New York, Los Angeles, Ciudad de México, Johannesburg, Berlin, Caracas, São Paulo, Tokyo, Shanghai, Cairo, Bombay, Istanbul, Barcelona, Milano, and Torino). The prize may be, symbolically, understood as the result of a long-term process of political, economic, and social change in Colombia, and specifically in Bogotá.

One of the multiple urban policies presented as a model for other cities was the implementation of a mass transportation system technology based on buses that radically changed urban transport. Due to its inauguration some days before the commencement of the XXI century, it was called TRANSMILENIO, which started running in December 2000, and was symbolically presented as a solution for urban transport for the new Millennium. TRANSMILENIO was a risky bet that luckily ended up changing Bogotá's transport organization, and through its narrative became a paradigm for multiple cities in Colombia, Latin America, and the world.

Over the past few decades, cities in Latin America and in multiple other parts of the world have experienced vast transformations of their urban transportation systems, going from decentralized private operations within a weak regulatory framework to new systems including enormous investments, strong regulations, private concessions and centralized fare collection. A major component of this new approach has been focused on the investments on Bus Rapid Transit (BRT) and included large public resources in the development of a heavy infrastructure of support roads, stations, pedestrian bridges and public spaces complemented by private resources dedicated principally to operational aspects of these systems including bus fleets, fare collection systems and monitoring technologies.

Perceived and advertised as a remarkable success, TRANSMILENIO became an example to follow in contemporary urban transportation policy debates, first in Latin America and later around the globe. As a result, multiple observers consider it a “best policy practice,” presenting it as a “rational choice” (because it worked elsewhere, it will work equally everywhere) that can be used as a template for implementation in other urban areas. Rather than assuming off-hand that BRT policies are place and context neutral and transferable as they are, I decided to trace the policy to determine if this was actually the case.

Using in-depth interviews to more than 50 actors of the policy development, this paper examines the policy implemented in Bogotá, Colombia, which developed its own narrative and became a major inspiration for cities both in the North and the South. In particular, it approaches what happens as the narrative moves from one place to another. This is a case study of policy replication or diffusion, understood as the processes of moving ideas, people and resources from one location to another with specific interests and motives; this work hopes to shed light on the processes and transformations taking place along the way by examining the implementation TRANSMILENIO in Bogotá, following the

policy's trajectory from the local to the national scene, and then by analyzing its arrival in multiple other sites.

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Key Words: Urban Policy Difussion, Transportation, Latin America, Bogota

RHETORIC IN, POCKET BOOK OUT: A HISTORICAL ANALYSIS OF SUBURBAN OPT-OUT TRANSPORTATION FUNDING IN METROPOLITAN DETROIT

Abstract ID: 1227

Individual Paper Submission

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Since 1967, the Detroit metropolitan region has failed 28 different times at attempts to implement regional transit that crosses municipal and county borders. The consistent hang-up has been around issues of funding, allegations of corruption, and proportional representation on decision-making bodies. A limited compromise was reached in 1989 to allow suburban communities to voluntarily “opt-out” of transit funding. The result was the creation of the Suburban Mobility Authority for Regional Transportation (SMART), but with drastically reduced coverage areas, and very limited funding (D’Anieri 2007). Operating buses on fixed routes in predominantly low-density suburban areas, SMART has struggled to provide a level of service that convinces, or rewards, community buy-in. Because SMART did not receive jurisdiction over transit in the City of Detroit, it also initially failed to provide transportation that crossed into the city limits, and instead dropped off passengers at shared stations on city border. The result of this transportation model has been 30 years of truncated, patchwork coverage that does not synchronize across county lines in the greater Detroit region, and does not provide a reliable form of transportation to city or suburban residents (Regional Transit Authority Master Plan, 2015).

Beginning in 2012, the State of Michigan sought to address regional transit issues in Detroit, and once again revived attempts to coordinate transportation efforts linking the metropolitan region by creating the Regional Transit Authority (RTA). The RTA spent 4 years constructing an ambitious master plan to link the counties using bus-rapid transit, commuter rail, and increase service frequency to the tune of \$5.4 billion dollars. The proposal was narrowly defeated at the ballot box in November of 2016, with residents and suburban leaders citing concerns over taxing all suburban communities, even if those areas were not directly served. This rhetoric echoed the complaints of suburban leaders in 1989, and lead to the creation of the suburban opt-out provision.

This paper analyzes the history of the 1989 SMART opt-out funding provision, and the policy implications. My research asks the question about what role, if any, has the 1989 opt-out funding compromise impacted policy debates on regional transportation funding. My method is a case-study of

the Detroit area, with historical analysis of primary-source archival documents, as well as secondary-source documents and literature. I argue that the 1989 opt out provision is a key to understanding suburban hesitation, and must be addressed in negotiations in order to move forward with a regional funding model in southeastern Michigan (Nelles 2013). Although the 1989 compromise was well intentioned, it has grown to stymie and prevent transit growth through restrictive access to funds, and has lead to a negative stigma around metropolitan transit that has become the status quo. In 2019, 30 years after the creation of the opt-out provision, transit in metropolitan Detroit is slowly improving, but the major stumbling blocks to wide-reaching regional compromise still exist. The significance of this research directly addresses issues of regional cooperation and funding models, and uses a historical lens to conduct analysis for lessons that can learned and implemented in contemporary practice and negotiations.

This research combines contemporary planning practice, and the literature(s) around transportation planning and policy, planning history, suburbanization, regionalism, and social equity. The ongoing debate in southeastern Michigan about how to fund a reliable, coordinated, cross-county transit system has deep historical roots. Understanding the planning history of the region can reveal insights into crafting meaningful, equitable, and comprehensive regional policy moving forward.

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Key Words: Detroit, Planning History, Regionalism, Transportation

REGIONALISM, PLANNING, AND GROWTH: THE SOUTHERN GROWTH POLICIES BOARD AND THE SPRAWLING AMERICAN SOUTH

Abstract ID: 1266

Individual Paper Submission

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Beginning in the late 1960s, a wave of so-called "New South" governors was elected across the southern states. Representing both parties, the first gubernatorial cohort included Terry Sanford (North Carolina), Jimmy Carter (Georgia), Reubin Askew (Florida), John C. West (South Carolina), Dale Bumpers (Arkansas), and A. Linwood Holton (Virginia). The second cohort included Joe Frank Harris (Georgia), James Hunt (North Carolina), Bill Clinton (Arkansas), Lamar Alexander (Tennessee), and Bob Graham (Florida). Many of these governors would go on to national prominence. Attempting to put a new face on the South, these governors garnered attention for their public rebukes of the racially charged politics of their predecessors, and for their rhetoric on improving public education and environmental protection.

Perhaps more importantly, yet with less drama, the governors also doggedly pursued economic growth and urban development. In spite of all their rhetoric about ending racism and easing poverty, the primary focus of their policy agendas turned out to be an old formula of infrastructure investments and industrial recruitment, which transformed the region but did little to overturn existing race or class relations or protecting the environment.

In 1971, a handful of these governors came together to create the Southern Growth Policies Board (SGPB), a multi-state, publicly supported regional planning and development agency. Operating like a planning think tank for the region, SGPB developed policy ideas that validated and extended a growth agenda, and disseminated those ideas to successive generations of the region's political leadership. It undertook detailed applied research projects on the demographic, economic, and environmental conditions facing the South. It developed and promulgated ideas for new legislation that would improve higher education, regulate water supply, and attract industry. It also worked behind the scenes to facilitate relationships between the region's key political and business leaders. Encouraged by the SGPB, governors and legislators around the region successfully pushed administrative reforms to professionalize bureaucracies, develop consistent regulations, and court corporate investment.

This paper excavates the history of SGPB. It shows how a peculiar idea about regional planning persisted in the South, emerging when political leaders in the US South came together to create the SGPB to legitimate and sustain their pro-growth vision of state planning. The style of large-scale planning embodied by SGPB, while seemingly at odds with the anti-regulation political culture of the modern South, was in fact a manifestation of a very old regional identity that sprang from a set of social and political conditions, and fueled by an intellectual tradition, common to the southern states. It connects the SGPB back to the Southern Regionalists and forward to the politics of Sunbelt sprawl of the late 20th century. By examining the connections between state politics, development regulations, and regional context, this paper highlights how planning for growth stifled other pressing concerns, essentially marginalizing efforts to use state power to protect the environment, improve social equity, or come to terms with the South's racial politics. This paper explores one of the quiet public institutions that have helped create the modern urban South. At a broader level, the project explores a largely forgotten branch of the history of planning as it developed in the US in the aftermath of World War II.

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Key Words: Southern Regionalism, Regional Planning, New South

TRACK 12 – PLANNING PROCESS, ADMINISTRATION, LAW & DISPUTE RESOLUTION

TRACK 12 - ROUNDTABLES

ROUNDTABLE - PLANNING AND THE HUMAN RIGHTS CITY: LOCAL ACTION IN A GLOBAL FIGHT

Abstract ID: 740

Roundtable

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Since the Human Rights City initiative in 1993, transnational social movements and civil society organizations have launched toolkits, reports, and model legislations with the goal of decentralizing the United Nations Human Rights conventions. In 2005, a year after the creation of United Cities and Local Governments (UCLG), it launched the Committee on Social Inclusion, Participatory Democracy and Human Rights. Finally, in 2014 the UN Human Rights Council signaled its interest with the launch of its report: “The role of local government in the promotion and protection of human rights.” Although, UCLG has representation across the continents, local governments’ awareness and adherence has been timid.

This roundtable will bring scholars and planners together to debate issues related to the fundamental nature of local government awareness and action towards human rights enforcement. The election of ultra-conservative governments in Brazil, the Philippines, India, the U.S., as well as the Brexit vote, pose urgent challenges. Human rights violations include police violence and state-sponsored murder of minorities, especially of Black constituents across countries, zoning ordinances and traffic violation citations that result in immigration arrests and deportation hearings in the U.S., evictions that violate informal dwellers’ due process, and threats to the physical integrity of LGBTQ individuals in Brazil, just to name a few.

While there is an unmet and growing need to take action at the local level, we do not need to start from scratch. In the U.S., many cities since the civil rights era have established Human rights commissions with public participation. These commissions have enacted local human rights ordinances, deliberated on complaints on human rights infringement, and established programs and proposed reforms to prevent violations. Furthermore, in 2018 a record number of 78 municipalities earned perfect scores on LGBTQ equality index for promoting inclusive ordinances and policies, according to research released by the Equality Federation Institute and the Human Rights Campaign Foundation.

Municipal governments have been active in decentering the pursuit of human rights compliance: sanctuary cities in the US, and examples in Brazil and Spain provide good references. Together, these local initiatives have improved local performance in areas that are fundamental to planners' agency, such as public safety and hate crimes, non-discriminatory housing policies, and safeguarding immigrants in the city. By contrast, there are instances (and Canada is a prominent example) in which countries' constitutions and/or sub-national governments' legislation obligate local governments to update their bylaws such as land use regulations regarding the siting of group homes and other uses to conform to human rights mandates. To create a space of reflection and exchange of current practices and their impact, this roundtable will discuss the future of Human Rights City and the critical role that planners can take combating long-term and aggravated human rights violations in the city.

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Key Words: Human Rights, Cities, Municipal Regulations, Diversity, Equality

TRACK 12 – INDIVIDUAL ABSTRACTS

WHO DOES IT BETTER? LOOKING FOR INNOVATIONS IN PUBLIC SERVICE PROFESSIONS' CODES OF ETHICS

Abstract ID: 12

Individual Paper Submission

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Looking for innovations in public service ethics (Cram & Alkadry, 2018; Huberts & Six, 2012), we examine ethical scenarios including cultural competency, conflicts of interest, technology, public/private/nonprofit work, and sexual harassment across codes of ethics from different public service oriented professions. The codes are from the American Society for Public Administration (ASPA), American Institute of Certified Planners (AICP), International City/County Management Association (ICMA), American Society of Civil Engineers (ASCE), American Society of Landscape Architects (ASLA), International Economic Development Council (IEDC), National Association of Housing and

Redevelopment Officials (NAHRO), Institute of Transportation Engineers (ITE), American Institute of Architects (AIA), and National Association of Social Workers (NASW).

Codes of ethics clarify, “the norms that ought to govern professional behavior” (Frankel, 1989, p. 109). Codes provide: accountability, socialization, deterrence, cover when telling clients what violates the code, and dispute resolution (Frankel, 1989). Often, codes are criticized for saying the same thing. However, the differences lie in the values they express or not (Holder-Webb & Cohen, 2012).

Codes of ethics tend to be tradition-laden, but Gregor and Hevner’s (2014) Knowledge Innovation Matrix helps reveal which elements are “inventions” (new solutions to new problems), “improvements” (new solutions for known problems), “exploitations” (known solutions to known problems), or “expatations” (adopting solutions from other fields). We use methodology similar to our work comparing ICMA and AICP codes of ethics and values (Johnson, Peck, & Preston, 2017). For example, there is the scenario where a city council is balking at adopting a human rights ordinance adding anti-discrimination protections for gender identity and expression. Evaluating this scenario reveals how different professions’ codes of ethics would guide city staff in cultural competency. The AICP code has the rule, “We shall not unlawfully discriminate against another person,” which is problematic if the state the planner works in allows discrimination based on gender identity or expression. The ICMA code includes being fair in “all matters of personnel” which gives little direction to this case. However, the AIA code directs, “shall not discriminate in their professional activities on the basis of race, religion, gender, national origin, age, disability, or sexual orientation.” NASW has an “improvement innovation” with their “should obtain education about and seek to understand the nature of social diversity and oppression with respect to race, ethnicity, national origin, color, sex, sexual orientation, gender identity or expression, age, marital status, political belief, religion, immigration status, and mental or physical ability.” Through this process of applying different professional codes of ethics to ethical scenarios, we expect to see who is innovating in terms of public service and where there is room for improvement.

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Key Words: Ethics, Innovation, Public Service, Professionalism, Planning Theory

MIGRATION AND PLANNING LAW – A CRITICAL REVIEW OF THE GERMAN REACTION TO THE “REFUGEE CRISIS”

Abstract ID: 256

Individual Paper Submission

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In 2014 more than 200.000 refugees came to Germany. The following year the number grew to 890.000. This situation became known as the “refugee crisis”. The municipalities faced enormous challenges. They had to provide accommodation for refugees. Many were confronted with a tense housing market at the

same time. Activating lots for the construction of refugee accommodation often failed due to the requirements of planning law.

In this situation, the legislator issued two amendments to the Federal Building Code, the law governing planning law in Germany, the first in November 2014, the second only eleven months later. The timing already indicates that the legislator was acting in an exceptional emergency situation.

The new provisions are special regulations that apply only to refugee accommodation. Furthermore, they are limited until the end of 2019. The legislator has tried to activate lots in all areas: in residential zones, industrial zones (Gewerbegebiete) and in undesignated outlying areas. Including industrial zones and outlying areas can be questioned as it separates refugees from the normal resident population. This can have negative consequences for participation in social life and integration.

The special provisions are considered as a deviation from general standards in planning law. Above all, they change the existing balance of interests that planning law aims to achieve in favor of refugee accommodation. If planning law is seen as an instrument for avoiding, resolving or regulating urban conflicts, the balance has been shifted. The new interest of "housing refugees" was given space, so other interests have less weight. However, this did not happen in the same way in all areas. While the legislator is cautious in areas with a high proportion of residential uses, the shifts in favor of refugee accommodation in industrial zones and outlying areas are stronger. The presentation intends to examine the question of which strategies the legislator has pursued.

What stands out most, however, is a provision that allows the application of planning law to be completely suspended in extreme cases. The presentation takes the view that this is the legislator's reaction to the lack of flexibility of a planning law that is essentially based on property rights. This planning law reacts only slowly to societal changes that present themselves as restrictions on property. The sudden but serious need to accommodate refugees could not be sufficiently addressed in this property-centered planning law. This has prompted the legislator to temporarily suspend the planning law in the worst case.

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Key Words: migration, refugee, planning law, property rights

PARTICIPATORY BUDGETING IN FRESNO, CALIFORNIA: THE PROMISE OF COMMUNITY CONTROL AND THE LIMITS OF ARNSTEIN'S LADDER

Abstract ID: 397

Individual Paper Submission

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Achieving the upper rungs on Arnstein's ladder has proven challenging for many of the same reasons Sherry Arnstein highlighted in 1969. In short, formal public involvement efforts rarely concede to ordinary residents the power to shape and make decisions. Participatory budgeting (PB) offers a potential path towards empowering and meaningful public involvement. PB involves dedicating a portion of a public budget to the binding control of residents, who vote to determine its allocation. By placing decision-making power in the hands of residents, PB holds out the promise of achieving Arnstein's highest rungs, "significant social reform" (Arnstein, 1969, p. 216), and the redistribution of political power in relatively short order.

PB has received surprisingly little attention in the planning literature, despite its clear relevance to planning-related questions and affinity with Arnstein's framework. Global experience demonstrates that high-quality PB processes can significantly improve the equity of public investments, while engendering other positive changes among participants including greater trust in government, feelings of transparency, and deeper political engagement (Lerner & Secondo, 2012; Baiocchi & Ganuza, 2014). Additionally, PB can sidestep many traditional public involvement shortcomings by ensuring that participant input will affect outcomes.

In this study, we employ mixed methods to evaluate an attempted PB effort in Fresno, California. Because the outcomes from a PB process can differ substantially depending on implementation details, we identify four characteristics of "strong" PB against which we evaluate Fresno. These characteristics relate to process design/delegation of control, quality of outreach/participation support, operating funds, and total budget. Fresno's effort featured a substantial budget and binding final vote. However, its potential was limited by an initial failure to delegate decision-making power, a compressed timeline, and complex project eligibility restrictions. Above all, limited participation from those not previously involved in municipal politics reflected both inadequate outreach and a broader dearth of member-led political organizations. We conclude that PB holds the potential to achieve transformational outcomes, but whether they occur is as much dependent the broader political context as it is on the strength of the PB process itself. Identifying the limitations of PB allows us a view beyond Arnstein's ladder, which we articulate using a framework for building power based in labor and organizing scholarship (e.g., Gruelle & Parker, 1999; McAlevey, 2016).

While representing a powerful method that planners can employ to set priorities for municipal budgets, attempts to implement PB may fail as a result of not incorporating a set of key design principles. Even where PB is properly implemented, community control of resources cannot be viewed as an end-state. The potential for PB to realize transformational outcomes depends as much on broad-based community organizations as the strength of the PB process itself. This work is limited by the use of a single, exceptional case study, but the mixed methods approaches employed here draw on additional scholarship and data to outline a strategy to extend Arnstein's vision.

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Key Words: public involvement, participation, public finance, community organizing, budgeting

PLANNING TO HOUSE ADULTS AGING IN PLACE

Abstract ID: 418

Individual Paper Submission

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As calls to make our communities more age-friendly ramp up, many local governments continue to be challenged with issues surrounding the needs of a rapidly aging local population. Planners, architects and designers understand that it is not enough to plan for a built environment that includes decent sidewalks, trails, parks and gathering spaces along with enhanced transportation and housing options. These plans, or specifically their accompanying goals, aspirations and recommendations, must also be translated into actual implementation mechanisms. In this paper, we focus specifically on local housing as it relates to aging in place and evaluate the preparedness of a sample of Midwestern communities to meet the housing needs of an aging population. Are small to mid-size Midwestern communities prepared to meet the unique housing needs of a population desiring to age in place?

Based on the scholarly literature along with publications and surveys by key advocacy organizations, we first develop an evaluation framework. Using this framework, we then use content analysis to evaluate a sample of 30 local municipal plans and zoning ordinances to determine how well plans and their implementation tools support a variety of senior housing needs and desires. We chose the sample of 30 communities from states in the Upper Midwest, as these states are expected to experience continued growth in their aging populations, especially as young adults choose to locate elsewhere. We chose the specific communities based on a population threshold (above 10,000) and percent of older adults (above 20 percent). Our study communities represent a socio-demographically diverse geography that is often overlooked in favor of larger, denser metropolitan areas. In addition to our discussion about the readiness of these communities to accommodate an aging population based on analysis of municipal plans, we also highlight the extent to which local zoning ordinances reflect plan goals and aspirations surrounding housing for an aging population. The results of this analysis will enable greater understanding of local housing policies that are linked to successful aging in place in small to mid-size Midwestern communities. Research findings will also inform recommendations for participating communities which will help them modify their policy and regulatory environments and increase their support for those who want to age in place.

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Key Words: aging in place, housing, comprehensive plan, zoning

THEORY AND PRACTICE: ON IMPROVISATION, JUSTICE AND INJUSTICE

Abstract ID: 512

Individual Paper Submission

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It's not at all obvious that a general theory of justice might be able to guide planners' practices in a wide spectrum of particular cases. But it's easier to see how a specific normative account of improvised action in planning could fail to be realized or go wrong and result in diverse kinds of injustices. This paper will explore how an account of improvisation that stresses three practical moves over time—continually determining issues of value, leveraging expertise, and assembling coalitions to shape action—can inform both deliberative practices and malpractices and, with the latter, a wide range of potential injustices too.

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Key Words: Injustice, Deliberative malpractice, Improvisation, Learning, Collaboration

HOUSING AFFORDABILITY AND STATE INTERVENTION IN LOCAL LAND-USE REGULATION: EVIDENCE FROM THE NORTHEASTERN UNITED STATES

Abstract ID: 562

Individual Paper Submission

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Local control over land-use regulation has limited the quantity of housing in many high-opportunity metropolitan areas, resulting in high housing costs. State affordable housing appeals systems (SAHASs) attempt to address this problem by empowering developers of below-market-rate (BMR) and mixed-income housing to seek a state override of local land-use regulation (Marantz and Dillon, 2018). Although SAHASs share common features, the regulatory designs differ, and some commentators have suggested that these differences affect housing outcomes (e.g., Graddy & Bostic, 2010). Drawing on novel state administrative data, as well as microdata from the American Community Survey (ACS) and

data provided by the US Department of Housing and Urban Development (HUD), this paper compares housing outcomes in the four states that have adopted a SAHAS (Massachusetts, New Jersey, Connecticut, and Rhode Island), and one state that has not (New York).

Although many states impose limits on local land-use regulation, the combination of four attributes differentiates SAHASs from other forms of state intervention in local land-use regulation:

- (1) If a local government has not fulfilled its fair-share housing obligations, then qualifying BMR and mixed-income projects need not comply with local zoning requirements.
- (2) A developer proposing a qualifying project is eligible to request an expedited appeals procedure if the local government denies the proposal or approves it subject to conditions that render the project economically infeasible. This expedited procedure can significantly reduce a developer's legal fees and carrying costs.
- (3) The expedited procedure favors the developer, because the local government bears the burden of proving that its requirements are reasonable, in light of the regional need for housing. This arrangement shifts the conventional burden of proof, which – in the absence of a SAHAS – requires the developer to demonstrate that the relevant regulations are unreasonable.
- (4) A developer who prevails is generally entitled to a building permit. This builder's remedy gives developers meaningful assurance that the appeals process will culminate in the opportunity to build the proposed project.

In tandem, these four attributes may empower developers of BMR and mixed-income housing to challenge restrictive zoning practices. As a result, scholars have asserted that – when a SAHAS operates in a strong housing market – it can lead local governments to plan for BMR housing and boost BMR housing production (Bratt & Vladeck, 2014; Graddy & Bostic, 2010). Such assertions have led some to call for more widespread adoption of SAHASs (e.g., Reid, Galante, & Weinstein-Carnes, 2017), but some planners have voiced strong opposition to such systems, citing concerns about adding regulatory complexity and yielding control to developers (American Planning Association, California Chapter, 2017).

There are differences among SAHASs, and this paper presents three quantitative analyses to assess SAHAS efficacy. The first analysis compares BMR housing stock in parts of selected core-based statistical areas (CBSAs), covering territory in Connecticut, Massachusetts, New Jersey, and Rhode Island, each of which has a SAHAS. The second analysis is a multivariable logistic regression drawing on a sample of census tracts in these four states and New York State (which has no SAHAS), that identifies the correlates of development of new projects receiving tax credits under the federal Low Income Housing Tax Credit Program. The third analysis uses ACS microdata to compare the proportion of low-income households public-use microdata areas (PUMAs) with poverty rates under 10% (i.e., low-poverty PUMAs) in each relevant CBSA.

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Key Words: Zoning, Housing, Land-use regulation, Preemption

HOW CHIEF RESILIENCE OFFICERS SHAPE RESILIENCE STRATEGIES IN THE ERA OF 100RC

Abstract ID: 634

Individual Paper Submission

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In 2013, the Rockefeller Foundation created the 100 Resilient Cities (100RC) program in honor of the foundation’s Centennial. The goal is help “cities around the world become more resilient to the physical, social, and economic challenges that are a growing part of the 21st century” (100RC n.d). The foundation takes a broad view of resilience by including both the shocks and the stresses that weaken the fabric of a city but allows city leaders to define their own vision for resilience.

Since the program’s inception, 100 cities have been named as part of the 100RC program. Cities in the 100RC network are provided with the resources necessary to develop a roadmap to resilience along four main pathways:

1. Financial and logistical guidance for establishing an innovative new position in city government, a Chief Resilience Officer, who will lead the city’s resilience efforts
2. Expert support for development of a robust Resilience Strategy
3. Access to solutions, service providers, and partners from the private, public and NGO sectors who can help them develop and implement their Resilience Strategies
4. Membership of a global network of member cities who can learn from and help each other.

We investigate the relationship between the first and second pathways: a CRO’s professional and/or educational background and the pillars or goals that have been identified in their city’s resilience strategy. The CROs in these cities were given similar charges working towards the production of comparable strategies, but hail from a variety of professions and degree programs, and therefore provide leverage on the effects of professional and educational backgrounds on priority setting in these resilience strategies. The empirical subjects of this study are the 51 cities who have completed their resilience strategies as of March 2019. The strategy document is the result of a six-to-nine-month process that identifies the challenges that a city faces, as well as the capacities – including people and resources – it has to address those challenges. The strategy that is produced at the end of this process is “an expression of the cities’ priorities for building resilience” (100 Resilient Cities, n.d.).

Our work examines both the pillars or goals found in the strategy documents and the CROs who lead the process that developed the documents. We ask whether CROs with experience or formal training in the field of urban planning identify priorities in their resilience strategies that differ from generalists or members of other professions. We borrow from a rich history of Qualitative Comparative Analysis (QCA) in planning scholarship to develop policy-relevant propositions about how professions shape a city's resilience strategies and the priorities emphasized therein (Kilburn, 2004; Kort, Verweij, & Klijn, 2016).

Results show that having a CRO with planning experience or training is a necessary condition for resilience strategies that emphasize place-based solutions and equity. However, having a planner as CRO is not sufficient to cause a strategy that emphasizes place-based solutions or prioritizes equity, it only happens when certain types of shocks and stresses have been identified. These combinations of conditions, which are context sensitive, show the complex nature of choosing priorities within a resilience strategy. The use of QCA permitted a comparison between all 51 cases and also reduced the complexity of – and allowed a better understanding of – the relationship between CROs and the resilience strategies they produce. Our better understanding of this relationship may be helpful to planning educators concerned with how our professional degree programs influence policy and to practitioners concerned with their own potential biases (Dawkins, 2016).

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Key Words: resilience, NGOs, Qualitative Comparative Analysis

AMERICAN INDIAN ABUSE OF OPIOIDS - PRIORITIZING THE PATHWAYS TO TARGET

Abstract ID: 875

Individual Paper Submission

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Opioids deaths directly contribute to a decline in American life-expectancy (2018 CDC Report). The approximately 72,000 fatalities from opioid overdose in 2017 was greater than deaths from gun violence or car crashes. The crisis arises from a confluence of factors such as the over-prescription of pharmaceutical-grade opioids to patients nationwide, the highly addictive nature of opioids, and their widespread illicit availability. The spike in heroin addiction and overdose, linked directly to the rise in prescription opioid addiction, is generating direct societal harms (i.e., overdose or death) as well as indirect challenges (increase in violent crime).

The CDC data indicates that American Indians and Alaska Natives (AI/AN) had the second highest overdose death rates from all opioids in 2016 (13.9 deaths/100,000 population) among racial /ethnic

groups in the US. AI/AN had the second highest overdose death rates from heroin (5.0). AI/AN had the third highest from synthetic opioids (4.1). AI/AN were the only racial/ethnic group to show a decline in prescription opioid overdose death rates between 2015-2016.

But a crisis as multi-faceted as opioid addiction in Indian Country requires a multi-system approach to tackle the diverse causes. To reduce the incidence of opiate addiction, policymakers need to identify the upstream causal factors driving American Indians towards opiate-driven pain management in the first place. Typically, the burden of addressing the causes and consequences of the opioid epidemic has fallen to two key stakeholders – medical professionals, and law enforcement. To these we add another policy sector: community safety, which encompasses the infrastructure and practices of individual communities.(7.1% relative decrease). There is no policy guidance clearly outlining how these at-risk communities can address the opioid crisis and better support their citizen's lives and livelihoods.

Tribal jurisdiction in Indian Country is an incredibly complex organization of law enforcement. Tribes have criminal jurisdiction over members of that tribe or another tribe but not over non-Indians. The state has criminal jurisdiction over non-Indians but if tribal police are cross deputized they may act as state officers and make arrest of non-Indians. The federal government has the responsibility to investigate and prosecute major crimes in Indian Country. . The criminal justice system seeks to stop the flow of drugs and prosecute users and sellers. But disrupting the supply of drugs is exceedingly difficult because opioids are potent even in very small amounts.

Medical professionals and law enforcement agencies combat opioid misuse through rehabilitation efforts and criminal justice, respectively. . Indian Health Service (IHS) providers were sold the lie that opioids were time-released and would not be addictive if patient was really in pain. This led to massive over-prescription which creates conditions for abuse and for illicit drug use. However, both of these stakeholder groups often fail to perceive the epidemic as a complex and resilient system of interrelated societal structures and regulations. We model opioid misuse and addiction from a network perspective in which institutional factors (including causal factors related to mental health, occupational, transportation, social, and economic factors) lead individuals into the opioid supply chain. System intercepts grounded in criminal justice, healthcare, education, and social work that address opioid misuse and dependency can then be mobilized to reduce on-going susceptibility to the disease. Simultaneously, strategies in the community safety sector can help prevent persons from entering the opioid supply chain in the first place.

We believe conventional models do not work with the unique challenges facing tribal communities. Individual causal pathways can be extracted from the causal network supply chain and decision points mapped from an instigating event that leads to drug use. A causal network analysis is one strategy to characterize the drivers of the opioid supply chain and identify the inflection points that disproportionately contribute to opioid misuse and addiction.

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Key Words: Tribal Communities, Addiction, Opioids, overdose, American Indian

RETHINKING TEMPORARY SHELTER AND INFORMAL SETTLEMENTS IN THE GLOBAL NORTH: ENVISIONING COMPASSIONATE ALTERNATIVES TO THE SPATIAL EXCLUSION OF POVERTY AND HOMELESSNESS

Abstract ID: 909

Individual Paper Submission

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Planning and urban governance are lacking analysis of and options for compassionate responses to the growing numbers of people experiencing homelessness[1] and living in informal or temporary shelters in the global north.[2] Scholars have traced the rise of anti-camping, anti-homeless, and anti-social behavior laws' that give police license to expel homeless people from public spaces (Vitale, 2008), techniques of banishing homeless from entire districts (Beckett and Herbert, 2009), architectural interventions to prevent homeless loitering (Soja, 2000), and bans on charitable provisions of food (Mitchell and Heynen 2009)—all measures designed to regulate visible poverty by means of spatial exclusion (Herring and Lutz, 2015). These measures have a clear impact on the wellbeing of vulnerable populations, effectively isolating and excluding them from urban space and resources, and further displacing an already displaced population. There are broader implications for a reinforced stigmatization and the resultant criminalization of poverty, for people's relationships to land, place, and each other, and for the right to shelter and to occupy urban space for basic human needs.

My research looks at one city's response to homelessness and residential informality with the aim of identifying possible gaps, detrimental practices, and potential alternatives. I am focusing on two primary questions: 1) How are urban governments making decisions around homelessness, temporary shelter, and informality in urban areas? 2) How does wellbeing factor into these municipal government decisions?

Salt Lake City is currently undergoing a redesign and relocation of their emergency shelter system. By conducting a systematic survey of policy documents, media coverage, and secondary literature along with qualitative interviews with key decisionmakers, service providers, community members, and advocacy workers in Salt Lake City, this research looks in depth at how these decisions were made. My analysis highlights the values-based and normative goals of decisionmakers, and the ways in which emotions, stigma, and perceptions surrounding homelessness and visible poverty shape the decisions that urban governments ultimately make.

Many cities are seeing increasing numbers of people experiencing street homelessness and are pressed to make decisions around informality and visible poverty. By analyzing and observing the motivations and wellbeing implications of these policy and development decisions, this research suggests a different approach with more compassionate planning practices, modes of acceptance, and new ways of living

together in shared space. As planners, we need this deeper understanding to support necessary social change with the sensitivity and awareness that it requires.

[1] Numerous scholars point out that the terms “homeless” and “homelessness” are based on stereotypes. I want to acknowledge that these terms point to diverse groupings of people with diverse backgrounds.

[2] I want to recognize that both homelessness and poverty are the result of capitalism and colonialism. As we struggle within and against these oppressive systems, we need more compassionate alternatives to current exclusionary policies.

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Key Words: homelessness, informality, wellbeing, compassionate planning

THE EVOLUTION OF FLOOR AREA CONTROL POLICIES FROM THE PERSPECTIVE OF PATH DEPENDENCE IN TAIWAN—A CASE STUDY IN COMPREHENSIVE DESIGN REGULATION

Abstract ID: 917

Individual Paper Submission

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Density control in Taiwan has progressed from the concept of urban pathology in the early stages to the plan-based system of today. Urban pathology focuses on regulating building volume through a road-based rule to ensure the protection of light and air for public health purposes. A plan-based system uses the floor area as a mechanism for land use control and growth management in cities. The concept of development rights evolved as institutional arrangements interacted with the transition of planning ideology and its urban actors. This study approaches the essential planning tool, floor area control, as a public policy and adopts path dependence as the theoretical framework, in order to understand the critical junctures of density control in Taiwan and the factors behind the institutionalization of floor area control. The study also examines the factors that caused the relaxation of floor area control through the "Comprehensive Design Regulation" and determines which factors were the most critical. The research uses a mixed-method approach that combines quantitative and qualitative methods to define the political, economic, social, and environmental factors and their relationships with the evolution of floor-area-based density control.

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Key Words: density control, path dependence, Comprehensive Design Regulation, policy transfer, critical juncture

PLANNING FOR FEDERAL LEGALIZATION OF RECREATIONAL CANNABIS INDUSTRIES: AN ANALYSIS OF MUNICIPAL LAND USE REGULATIONS IN ALBERTA

Abstract ID: 951

Individual Paper Submission

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Canada's legalization of non-medicinal or recreational cannabis in the late fall of 2018 presented a challenge for Canadian municipalities to incorporate cannabis related uses into their land use bylaws. This challenge was rooted in three troublesome aspects: the short time frame that municipalities were afforded to prepare for the anticipated legalization, the fact that cannabis had been considered an illegal drug in Canada since 1923, and finally, that Canada would become the first country in the OECD to fully legalize the substance for both recreational and medicinal purposes.

This federal legislative shift created a unique historical moment where municipalities across Canada were examining their land use bylaws, and drafting new regulations to guide the implementation of recreational cannabis related land uses. For the planners drafting these regulations, the task offered a unique regulatory challenge because, in many Canadian municipalities, cannabis could be viewed as a new land use. Although cannabis for medicinal purposes has been legal and regulated by Health Canada since 2001, municipal land use regimes remained largely unaffected by the measure. Unlike in several American states where medicinal cannabis was legalized, cannabis dispensaries were prohibited by the Canadian federal health authority, which restricted distribution to delivery by mail and, under strict regulations, licensed less than fifty production sites nationwide between 2013-2016 (Health Canada, 2018). Under the new federal legislation, in nearly all Canadian provinces and territories, including Alberta, the sale of cannabis at physical retail outlets became a legal enterprise for the first time as part of the provincial cannabis policy frameworks.

Furthermore, with so many municipalities going through this planning exercise within a year, this has been an opportune time to undertake a general examination of the process for creating local planning laws, by comparing it across several municipalities addressing the same issue at the same point in time. Interestingly, few planning scholars have discussed the bylaw formation process in a holistic sense, with reference to the various sub-processes of new bylaw formation or amending existing ones, as well as the interconnectivity between various process components. Other observed shortcomings of the existing

literature include scant attention paid to comparing the experiences and concerns of rural versus urban municipalities when it comes to managing cannabis related land uses. Further, it offers no attempt to contrast their respective regulatory approaches to these land uses.

Drawing on this unique opportunity, this study qualitatively explores the experiences of and regulations employed by ten municipalities in the Canadian province of Alberta addressing recreational cannabis land uses in the wake of federal legalization. Content analysis of municipal documents, news articles, and key informant interviews were used to understand the process, substance, and rationale for devising new land use bylaws for recreational cannabis in rural and urban Alberta municipalities.

This paper makes a valuable and timely contribution to the thin body of existing literature on legalized recreational cannabis in the context of land use planning in Canadian municipalities, as well as of literature on the bylaw formation process in general. In doing so, it provides advice for planning practice on the topic of regulating new and controversial land uses which may be introduced in the future, proposing a cautious and flexible overall approach that takes into account sound land use principles when considering separation distances as regulatory tools. Furthermore, in anticipation of the growing field of planning scholarship related to cannabis, this research presents useful baseline research for future studies evaluating the effectiveness of the described regulatory approaches in practice, in both rural and urban settings.

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Key Words: Cannabis, Land use, Bylaw Formation, Zoning, Canada

ASSESSING THE STATE OF STAKEHOLDER ASSESSMENT IN COLLABORATIVE PLANNING

Abstract ID: 1237

Individual Paper Submission

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Thirty plus years after the ‘communicative turn’ in planning, thicker, more deliberative forms of engagement are relatively well-established (Healey 1992). While there are various models, many—like the consensus building approach—involve the explicit identification and engagement of discrete stakeholder groups with discrete and legible interests and priorities (Susskind & Cruikshank 1987). A common tradeoff with thicker methods of engagement is that there are few people directly participating at

the table. This necessitates careful attention to both stakeholder group delineation and representative selection.

The practice of stakeholder assessment—otherwise known as ‘situation’ and ‘conflict’ assessment—has emerged as a means to identify stakeholder groups, their interests and priorities, potential representation, and under what conditions they might engage in deliberation. Assessments often also prescribe a potential process for moving forward and provide some estimate of whether or not an agreement at the end seems possible. They are conducted either before or as the first step in deliberative processes. While the practice has been around since at least the 1990’s, very little empirical analysis of assessments has been conducted (Bean et al. 2007; Susskind & Thomas-Larmer 1999). This paper aims to both increase our understanding of the state of affairs and contribute to evolving best practices.

A survey with both closed and open-ended questions was distributed to professional neutrals working on multi-party public-sector disputes through key membership organizations and relevant email lists. 74 neutrals completed the survey in full, ranging in experience from two to 45 years and area of practice from water resource management to land use planning. Follow-up interviews are being conducted with a subset of respondents to gain more qualitative insights.

A key finding is that assessments are conducted only about half the time, and more often informally as the first step in an engagement process rather than as contractually distinct efforts. This despite the fact that 77% of respondents feel that they are ‘extremely’ important (and a further 15% ‘very’). It is clear that there is significant variety in the scale and nature of assessments. They involve one to literally hundreds of stakeholder interviews (18 on average), and take anywhere from a couple of hours to over a year of solid work to complete (53 staff hours on average). At the highest end, this represents a very substantial commitment to establishing a strong foundation for subsequent deliberative work. At the bottom end are more informal efforts, often unbeknownst to contracting agencies. Assessment reports range widely in scale, from one to over 1,000 pages (13 on average). They have ranged in cost from free (pro bono and/or bundled with later process facilitation work) to tens and even hundreds of thousands of dollars, with the average (among those charging) at just over \$12,000.

Respondents reported that assessments are most important for ‘identifying interests and priorities’ (above even ‘identifying stakeholders’). More precisely, assessments help to ‘clarify ambiguities’ and ‘understand how stakeholders view the situation’. Respondents also noted the importance of assessments in building trust and as part of ‘professional due diligence’. Respondents almost universally reported that assessments are ‘extremely’ or ‘very’ valuable in increasing the likelihood of agreement, the quality of agreement, the efficiency of the process, and the probability of having the right people at the table from the start.

Given the value assessments add as a precursor to engagement processes, it is curious that they are not more widely conducted. This paper also explores barriers identified and considers how they might be overcome. Documenting the current state of practice is an important first step in increasing the prominence of assessment and our understanding of best practices.

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Key Words: Stakeholder assessment, Collaborative governance, Stakeholder engagement, Conflict assessment, Situation assessment

FROM POLICY TO APPARATUS: EXAMINING THE POLITICS OF DISASTER RECOVERY IN PUERTO RICO'S COLONIAL LANDSCAPE

Abstract ID: 1253

Individual Paper Submission

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After the occurrence of Hurricane María in September 2017, conversations about the United States' colonial rule over Puerto Rico (PR) became focused on the interconnections between so-called "natural" disasters, federal emergency and disaster relief, and issues of citizenship. Although research demonstrates that marginalized and underrepresented - like Puerto Ricans living in the archipelago - are more vulnerable to natural hazards, the disastrous effects of Hurricane María and subsequent federal and territorial response efforts forced the national spotlight on the nature of PR's colonial landscape.

Libby Porter (2017: 169) argues that "any planning activity, interaction, policy, mediation or conflict that occurs in a context where colonial relations of domination are present is already saturated with all of the complex, ambiguous, hybrid and contested issues." To be sure, PR's colonial landscape directly shapes law, enforcement, politics and discourse, which all have great effects on how recovery processes develop. In this research, I present some of the multi-scalar, socio-spatial issues that add complexity to disaster recovery in PR. For example, the Jones Act of 1917 requires all goods imported to PR must be shipped from U.S. ports, be transported by U.S. vessels, and operated by U.S. citizens. This became an extra bureaucratic layer to the already complex disaster policy complex, adding more costs and regulations to the process of bringing food and other emergency supplies from outside PR.

Using postcolonialism and assemblage thinking, two lenses that provide a comprehensive framework for conceptualizing the terrains of recovery Puerto Ricans dealt with, this research examines the colonial regime that shaped disaster recovery after Hurricane María. In particular, following Routledge (1996) this research frames post-María PR as a terrain of resistance, that is, a site of contestation and a multiplicity of relations between hegemonic and counter-hegemonic powers and discourses.

Some of the disaster recovery related questions this research sets to address are: What was the context for local governance in pre-Maria PR, and how does this relate to the post-disaster environment? In other words, how did the pre-Maria context affect the disaster recovery, and, conversely, how is the disaster recovery process catalyzing social change? In general, how does a colonial landscape like PR provide unique recovery challenges?

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Key Words: Puerto Rico, disaster recovery, colonialism, policy, apparatus

“THE PARADOX OF EMINENT DOMAIN: A COASEAN METHODOLOGY FOR CORRECTING A MARKET FAILURE”

Abstract ID: 1288

Individual Paper Submission

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This study examines the Holdout Problem as a well-understood source of market failure in the provision of a Public Good— as a formal transactions costs externality--- according to the well-defined analytics of Market Failure Theory (Bator 1958, Meade 1952, Cowen 1988). The Coase Theorem demonstrates that transactions costs externalities---such as holdouts and free riders--- can be efficiently (and equitably) internalized through voluntary, mutually-beneficial (Coasean) bargaining agreements--- rather than direct government intervention---implying that eminent domain is not required to resolve the Holdout Problem. (Coase 1960, Miceli and Segerson 2007, Eckart 1985, Strange 1995). This study follows the research methodology pioneered by Coase (Coase 1974, Samuelson 1954, Cheung 1973)---providing real-world evidence where holdouts have been routinely resolved without requiring eminent domain---as predicted by the Coase Theorem. This study collects original data from three historical case studies: Columbia MD, Disneyworld FL, and the World Trade Center NYC---completed at the height of the Urban Renewal era--- including an IRB interview with WTC project manager Guy Tozzoli— who successfully resolved the first holdout of an Urban Renewal project---without requiring eminent domain.(Glanz and Lipton (2003, Parisi 2002, Bloom 2003) It also conducts interviews with real estate administrators at public universities across the US---at the height of the Kelo controversy--- who refused to use eminent domain out of Moral Hazard--- refuting by existence the strict assertion of Market Failure due to the Holdout Problem—as established by *Berman v Parker* (1954). (Tabarrok 2002, Spulber 2002, Foldvary 2004). By proving that Coasean Bargaining is a superior method to eminent domain for internalizing transactions costs externalities--- we significantly improve our unique ability ---as Urban Designers--- to efficiently and equitably provide Public Goods. (Jacobs and Appleyard 1987, Sorkin 2009, Banerjee and Loukaitou-Sideris 1998).

Citations

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- “City in the Sky: The Rise and Fall of the World Trade Center.” Glanz and Lipton 2003

Key Words: Coase Theorem, Market Failure, Externalities, Transactions Costs, Placemaking

TRACK 13 – PLANNING THEORY

TRACK 13 – PRE-ORGANIZED SESSION SUMMARIES AND ABSTRACTS FOR THE SESSIONS

DIVERSITY AND INCLUSION IN PLANNING

ID: 15

Pre-Organized Session Summary

Includes abstracts: 363, 365, 366, 267

More than a decade has passed since Susan Fainstein (2005) warned against the uncritical treatment of diversity. Contrasting the goal of social diversity with that of a “broadly satisfying public realm,” she argued that rather than privileging diversity, planning should emphasize the idea and the model of a just city. Since then the diversity project has moved from “planning orthodoxy” to becoming a staple of virtually every American university, city, and practicing planner. But even as it has secured some gains, there is increasing concern that diversity without inclusion will result in a failed project, undermining these gains. The panel is premised on the idea that exposing and resolving the fundamental tensions within the twin projects of diversity and inclusion is necessary for the genuine success of both projects.

Objectives:

- Consider diversity and inclusion as independent but complementary elements of the planning approach.
- Examine inclusion as a sentiment that is tricky to measure and sometimes even to gauge given the competing, and oppositional perspectives and strategies behind it.
- Expose and resolve the fundamental tensions within the twin projects of diversity and inclusion.

FROM EXCLUSIVE TO INCLUSIVE ECOSYSTEMS: A PARTNERSHIP APPROACH TO NAVIGATING DIVERSE INSTITUTIONAL CULTURES AND NORMS

Abstract ID: 363

Group Submission: Diversity and Inclusion in Planning

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Over the last several decades, collaborative approaches to governing and managing have developed in response to complex societal challenges, such as persistent poverty, declining health and extreme inequality. Collaborative governance involves combining the efforts of government, with expertise and resources from other sectors, citizens and communities to achieve more than any of these stakeholders could on its own. Collaborative governance enables deeper and shared understandings of complex issues involving many stakeholders, involves all stakeholders in developing solutions, and generates new perspectives on policy solutions and implementation strategies (Ansell and Gash, 2008).

Evaluation of collaborative partnerships helps us understand the structures that influence the processes and outcomes of these relationships. A successful partnership includes a shared common goal that draws

diverse actors together and ensures there are structures in place to promote constructive wrestling with differences, while also respecting and learning from each other's expertise (Gray and Purdy, 2018). Collaborative partnerships also need to account for power imbalances and differing norms and values.

One of the key tensions that exists in collaborative governance processes is what Provan and Kenis (2008) describe as efficiency vs. inclusiveness. While collaboration requires time to build trust, share information and use dialogue to agree on action, authentic inclusiveness is often sacrificed in the name of efficiency by engaging fewer stakeholders and devoting less time for partners to engage on critical issues, resulting in less buy-in and commitment around a proposed solution. On the other hand, inclusive governance builds a structure to enable relationship-building across diverse stakeholders and also ensures these diverse voices are involved in decision-making and implementation. To take advantage of the richness that diversity creates, partnerships should be structured to allow for input and contribution from all stakeholders. However, in cross-sector partnerships, imbalances of power and resources often relegate community-based organizations to a subordinate position relative to their larger more powerful counterparts—as opposed to authentic inclusion.

Community wealth building (CWB) is a multi-faceted framework employed by many US localities to simultaneously address multiple deep-rooted, interrelated economic and social challenges that perpetuate the cycle of neighborhood and individual instability and poverty. The CWB approach aims to build on existing local capacities and institutions to strengthen underutilized local assets to lift whole communities, both economically and socially (communitywealthbuilding.org). The CWB approach is system-focused and requires stakeholders to work collaboratively to develop place-based assets that form an “ecosystem of support” rooted in community (Kelly et al 2016 p. 56). Another main tenant of the CWB approach is to create an inclusive, sustainable economy built on broadly held ownership (Kelly et al. 2016) thus leading to economic democracy (Dubb 2016).

CWB efforts are multifaceted and require a diversity of stakeholders working together to achieve their shared goals. CWB strategies vary from one locality to another but generally include organizations involved with entrepreneurship, community development, economic development, workforce development, housing, and education. Like any ecosystem, the CWB ecosystem includes both large, established resource-rich organizations such as local government, foundations or other anchor institutions; as well as smaller, community-based, often more narrowly focused, resource-challenged organizations.

Richmond, Virginia was the first city in the US to codify its office of Community Wealth Building (OCWB) by making it an official part of city government. Despite its government status, OCWB has identified itself a “collective impact hub for a community of non-profits, ministries, government agencies, funders, businesses, and people.” This paper examines Richmond's CWB ecosystem to assess not only the diversity of partners involved but also the governance structures that determine the degree to which voices of these diverse organizations are included in goal-setting, decision-making and implementation of CWB in Richmond.

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Key Words: Partnership, Collaboration, Inclusion, Diversity

PLANNING THE WHITE SPACE: WHITENESS AND THE MINNEAPOLIS 2040 COMPREHENSIVE PLAN

Abstract ID: 365

Group Submission: Diversity and Inclusion in Planning

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This paper explores how Whiteness is reproduced as an ideology through urban planning by considering the case of the Minneapolis 2040 Comprehensive Plan. Heralded as an innovative planning policy, the plan is becoming a paradigm for cities aiming to promote housing options by recognizing the legacies of urban segregation and supporting the up-zoning of land uses. While the plan represents a success story for pro-density advocates, I delve into its development to show how it also upholds a normative notion of the public interest defined by a liberal-progressive white ideology that maintains the status quo rather than tackle the challenge of structural racism. Based on participant observations, archival research and the textual analysis of policies and plans, I show how Whiteness permeates as an underlying discursive and technical mode and illustrate the wicked problem of inclusion in achieving racial justice in the City. I focus on three cases to inform categories that illustrate the practices of Whiteness in Urban Planning: The cooption of gentrification as an advocacy discourse by white residents who organize against up-zoning; the historization of housing segregation to promote individual agency and choice as housing solutions, and the codification of culture as best practices to implement cultural districts policies that center capital in areas of racially concentrated poverty. As urban development processes deal with ongoing disparities in planning systems and future demographic trends point to minority- majority urban concentrations by 2040, Whiteness morphs and adapts as an ideology to retain power according to a zero- sum gain imagination. By unveiling how Whiteness functions in urban planning I argue that planners, advocates and policy makers of all racial backgrounds should move beyond the recognition of diversity as a key principle in upholding Equity and make Whiteness legible as a active positionality that frames, defines, measures the work of racial justice in the city.

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Key Words: Comprehensive Planning, Equity, Race, Whiteness, Difference

SMART BUT EXCLUSIVE: DIVERSITY AND INCLUSION IN THE SMART CITY

Abstract ID: 366

Group Submission: Diversity and Inclusion in Planning

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Almost fifteen years ago Susan Fainstein (2004) warned us that while diversity as a reaction to segregation was merited and understandable, by making it the new orthodoxy planning was missing an opportunity to address it critically. In this paper I want to explore Fainstein's insight in the under-theorized domain of the "smart city," the name for the broad use of information technology to increase the efficiency of city functions (Rabari and Storper 2014). As major investments in the smart city take place, we can expect greater urbanization and the influx of new migrants into the city. These are not just tech savvy newcomers. Rather, the agglomeration effects and the economic development unleashed by investments in the smart city will likely draw a diverse group of migrants that add to the diversity of the city. But it will also simultaneously reorganize the people of the city by their knowledge, age, ability, and status in ways that far exceed current divisions (Peck 2005).

I argue that this tension between diversity and inclusion is "an essential tension" (Verma 1995) of the smart city that is best captured by contrasting "smart" with "city." Here, smart is about technology and big-data; the city is about conviviality, community, and equity. The paper illustrates this by an example of Bhopal (India) where a large influx of central government funds is attempting a transformative change of an old, historic city and state capital to a "new" smart city, one of several such in India. The issues in Bhopal are like many other traditional cities and the transformation targets several areas, including urban infrastructure, traffic congestion, public health and hygiene, tourism, and revenue generation. While the actual goals are ambitious and well-resourced, the smart city is different from prior developmental planning efforts by its "wicked" and multi-faceted impact (Goodspeed 2015). One example is in how it creates asymmetries of knowledge by redefining knowledge as tech savvy. Another is the almost complete subjugation of local government to central government mandates. Public participation and other ways of increasing buy-in are not considered a priority because of the complex and technical nature of the subject-matter. The overall effect is the colonization and eventual domination of the life-world by the system (to use Habermas' insightful way of understanding social phenomena), where the system colonizes the life-world as the city remakes itself into its smarter future.

The full argument is in three parts. First, I set up the tension between diversity and inclusion as something that is fundamental to cities and city planning. Next, using the case of Bhopal and relying on extended interviews and first-person accounts, I should how this tension plays out in a special way in the case of smart cities. Finally, I draw general lessons on the import of this analysis for planning and public policy.

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Key Words: Diversity, Inclusion, Lifeworld, Smart City

CHALLENGES IN BUILDING AND INCLUSIVE COMMUNITY: LESSONS FROM A CO-HOUSING PROJECT IN CHICAGO

Abstract ID: 367

Group Submission: Diversity and Inclusion in Planning

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Theme: What if we conceive inclusion and diversity less as moral ideals and more as intermediate functional relationships that may offer practical support for important urban planning goals?

Approach: I compose a theoretical argument that critiques abstract and demanding dualistic conceptions of inclusion and diversity. I argue that we can sidestep analytical and political dead ends exploring how these concepts may be used to diminish or improve the ethical meaning, cognitive reach and practical efficacy of spatial planning. I compare the plans for residential condominiums and cohousing. Both draw upon similar legal and institutional conventions for organizing a shared space. I contrast how the widespread and popular condo plans exclude and homogenize the social composition of a residential place, while the cohousing plans integrate diverse households into an interdependent community. I consider the planning issues of boundaries between public, private and communal space as well as issues of geographic size and scale. I analyze how plans for each kind serve different expectations and intentions about autonomy, responsibility, community and sustainability. Finally, I explore how institutional economic, political, legal and cultural expectations shape professional planning conventions. Good practical theory can offer insights that help professionals reconsider accepted conventions. I consider how conventional expectations and rules impair unconventional efforts like cohousing (and other intentional community building efforts). But I also show how professionals and local officials can alter conventions for inclusion that turn proximate social differences into assets for improved residential community.

Findings: This is not an empirical study, but a theoretical analysis. The findings will take the form of examples drawn from condo and cohousing development. I will draw from the planning theory and housing literature, as well as directly from my experience helping organize a cohousing project in Oak Park, Illinois. The paper narrative will offer examples for understanding conceptual arguments and not evidence about empirical claims.

Relevance: The argument will offer students, faculty and professionals some distinctions they might use to move past the often needlessly adversarial conceptions of inclusion and diversity that often polarize and freeze practical planning collaboration. The argument and examples help show how we can and should use these concepts to understand how plans diminish or enhance the quality of residential places. Meaningful residential integration can include diverse households living together intentionally making their own place. This many mean not only adjusting social expectations, but also conceptions of planning code regulations and standards.

Citations

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Key Words: cohousing, intentional community, inclusion

PLANNING THEORY, FINANCIALIZATION, AND THE CITY

ID: 19

Pre-Organized Session Summary

Includes abstracts: 252, 253, 254, 255, 319

There is increasing attention being paid to the influence of capital markets on urban space, in areas as disparate as housing, infrastructure, real estate, service delivery and community development. Despite the potential impacts on planning, there has been limited analysis of how financialization and the logics of finance capital influence planning theory and practice, including the marketization of planning processes more broadly. The increasing entanglements between state and private actors raises critical questions about the public interest, governance and the changing contexts in which planners operate. In addition, the growing role of finance capital in housing markets, real estate, and other urbanization processes is intensifying patterns of uneven urban development, and creating new tensions in unequal cities. The papers in this session will develop a debate about the significance of financialization, through empirically-informed papers that address practice, processes, and theoretical implications.

Objectives

- Develop debates about financialization, marketization and planning theory
- Understand the impact of financial markets on planning theory and practice

FINANCIALIZING PRACTITIONERS: PLANNING PRACTICE IN PUBLICLY-TRADED FIRMS

Abstract ID: 252

Group Submission: Planning Theory, Financialization, and the City

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Planning practitioners often interact with the demands of capital markets in areas such as housing, infrastructure and transportation. Even more directly, many are employed by publicly-traded planning and engineering ‘mega-firms’. These firms, created through aggressive strategies of mergers and diversification, represent a form of professional practice that moves beyond traditional understandings of political and bureaucratic constraints (Howe, 1980). Despite significant changes in planning practice and local governance (Clifford & Tewdwr-Jones, 2013; Parker, et al., 2014), little is known about the implications of financialization on planning professionals and how it may re-configure both theoretical and practical understandings of planning practice. Critically, how the specific demands of shareholder growth may shape the long-held understanding of planning in the public interest (i.e. Campbell & Marshall, 2002) remains largely unaddressed in light of the increasingly influence of financialized firms.

This research examines how planners in publicly-traded firms negotiate the interactions between shareholder demands and professional practice, framed by financial views of planning practice. Drawing on interviews with three groups of actors (current and former firm employees; financial analysts; and business/merger consultants) and content analysis of quarterly reports, this work seeks to understand the financialization of professional practices in the context of planning as motivated by the public interest.

I find that the role of the planner is reconfigured by capital market demands in several key areas, with implications for issues of governance, equity and the public interest. Firstly, firms emphasize strategies such as cross-selling, diversification, and repeatable solutions to increase profit levels. While these tactics may increase share value, they present conflicts for both professional practitioners and public-sector clients. Secondly, the imperative to increase shareholder value is driven down to the professional level, with changes in compensation and firm structure oriented towards this goal. Lastly, corporate strategies blur the boundaries between professional and entrepreneurial practices, leading to concerns about the relationship between shareholder metrics and the public interest. These strategies both offer insight into the influence of capital markets on the work of planning professionals and raise questions about professional discourses of commitment to the public interest.

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Key Words: Planning practice, Professionalism, Public interest, Capital markets, Firms

THE FINANCIALIZATION OF HOUSING FOR OLDER ADULTS: IMPLICATIONS FOR CARE, AGE-FRIENDLY CITIES, AND PLANNING THEORY

Abstract ID: 253

Group Submission: Planning Theory, Financialization, and the City

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As our global population ages, there is increasing interest among planners and policymakers to plan for older adults in our communities. The World Health Organization's (WHO, 2007) age-friendly cities (AFCs) framework provides one locally-focused normative planning model to address these issues (Steels, 2015), based on eight pillars, including housing. Yet as Buffel and Phillipson (2016) point out, there is a dire need for scholars and practitioners to grapple with the ways in which broader socio-economic forces may impinge on cities' supposed age-friendliness. We take up this call, examining how housing for older adults is impacted by the rise of 'financialized landlords' (August & Walks, 2018), and seek to link literatures on financialization, planning theory, and age-friendly communities. Financialized

landlords include financial vehicles such as real estate investment trusts (REITs) and private equity funds that own rental housing, and apply aggressive property management techniques that prioritize shareholder value and profits over the goal of providing safe, affordable, and secure homes. Financialization has negatively affected quality of life for low-income tenants in multi-family rental housing (Ibid., Fields & Uffer, 2016), and poses additional potential threats to older adult housing, which differs from other rental housing in ways that should concern planners. First, there is an element of care and service provision which could be harmed by cost-cutting. Second, retirement communities marketed to higher-income older adults represent, on average, a different demographic than the general population of renters, pointing to potential social equity impacts of rising financialized ownership. Finally, one type of older adult housing with residents who require some of the highest levels of care, long-term care facilities, are subsidized by the government through construction subsidies and regular payments to cover the cost of care. Older adults living in publicly-funded, privately-run homes have worse mortality and hospitalization risks, less staff, and more resident complaints than government and non-profit homes – outcomes that could be intensified by financialized acquisition.

We take stock of the financialization of older adult housing in Canada by compiling a database of financialized landlords' involvement in the sector, their motivations for investing in older adult housing, and their business strategies, based on public filings and grey literature. Through document analysis, we identify the potential outcomes for older adults and age-friendly cities. We evaluate these impacts with respect to the key factors of the housing pillar of the WHO's AFC model. We find that while financialized landlords pursue bifurcated strategies depending on the type of older adult housing, in either case they pose risks to developing age-friendly cities, which are currently overlooked by this normative planning model. In light of the demographic growth of older adults as a cohort, their higher risk for social, health, and housing-related vulnerabilities, and their strong demand for supportive housing, it is important that the implications of the financialization of older adult housing are understood. By critically examining how financialization impacts older adult housing, we identify barriers and opportunities to planning truly age-friendly cities. Moreover, we illustrate empirically the limitations of normative planning theories that neglect to consider structural conditions.

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Key Words: age-friendly cities, ageing, financialization, housing, wellbeing

CLIMATE CHANGE AND THE POLITICS OF URBAN CREDITWORTHINESS

Abstract ID: 254

Group Submission: Planning Theory, Financialization, and the City

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In recent years, resilience has become an urban planning imperative and an object of critical inquiry among planning scholars. While many have investigated the possible distributional outcomes of resilience (Davoudi et al 2012; White and O'Hare, 2014; Fainstein 2015), the field has yet to see much empirical work conducted on the specific drivers of resilience plans. Taking a cue from planning scholarship that considers global financial markets and credit rating agencies (CRA) to be increasingly important drivers of municipal decision-making processes (see, e.g., Hackworth 2002; Weber 2010), this paper asks what the role of CRAs is in urban resilience planning, and what the consequences of this role might be as cities experience climate change. It focuses specifically on Moody's, the world's largest CRA, which announced in 2017 that it had begun to factor a city's "resilience" and "vulnerability" to climate change into its United States municipal bond rating schemes. Because of the apparent structural power of CRAs and the need for cities to issue cheap debt in order to finance critical public services (Sinclair 2005), this recent CRA activity warrants careful, critical study among planners. Thus, this paper uses documentary analysis and expert interviews with Moody's analysts and executives as well as U.S. resilience officials and experts to examine the motivations behind recent CRA interventions in urban climate change governance; how CRAs construct urban resilience as a ratable value, and what political values they embed into these nascent constructions. Miami is the first city which Moody's has explicitly rated for its actions on urban resilience. Through a brief case study of contemporary resilience planning initiatives in Miami, the paper examines the extent to which CRA activity motivates the forms and goals of the city's resilience initiatives, the possible distributional outcomes of CRA-driven resilience planning, and the novel terrains of urban climate politics onto which these plans and activities unfold and help shape. It finds that while the specter of credit rating downgrades may mobilize resources toward the development of transformative urban resilience plans, CRAs themselves have a conservative understanding of urban resilience. It concludes that this understanding, when translated into a municipal bond rating, may promote moral hazard and the reproduction of inequalities within cities while simultaneously furthering the gap between "have" and "have not" cities as climates change.

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Key Words: resilience, climate change, finance, financialization

AN "ACTUALLY EXISTING" FINANCIALIZATION OF LAND: BEIRUT AS CASE STUDY

Abstract ID: 255

Group Submission: Planning Theory, Financialization, and the City

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This presentation outlines the findings of an ongoing collective investigation of transformations in Beirut's housing sector through the lens of financialization, meaning the rising dominance of financial actors and practices (e.g. banks, mortgages) on national and urban economies including (or particularly) on land and housing markets (Aalbers 2016, Harvey 2007). Building on a survey of all building development in Beirut since 1995 (post-civil war) and interviews with over 30 developers in two neighborhoods of the city, the research looks comparatively across the city's neighborhoods at the actual materialization of financialization processes. It argues that rather than the seamless flow of capital typically predicted by Marxist theory and reported by recent research about Beirut (Marot 2018, Krijnen 2016), Beirut's market displays a version of "actually existing" financialization (Brenner and Theodore 2002) where religious sectarian, political, and family networks powerfully influence the exchange of land and housing. This is important to further our understanding of the changing landscape of land, housing, and economies in Beirut and beyond and in order to inform the choice of possible public policies that can restore the social value of land, an imperative intervention if we are to revitalize cities and set in place an inclusive planning model for their futures.

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Key Words: financialization, land, Beirut

"I DON'T THINK ALL PLANNERS HAVE TO ACT IN THE PUBLIC INTEREST": COMMERCIAL LOGICS AND THE RESHAPING OF PROFESSIONAL PLANNING IDENTITIES

Abstract ID: 319

Group Submission: Planning Theory, Financialization, and the City

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Historically, urban planning has been understood as a public activity. Professional planners have frequently been classified as public servants, working within bureaucratic structures and accountable to democratically elected officials. Despite widespread critique, they have claimed expertise, and thus legitimacy, in guiding urban development in the public interest. Academic debates have frequently focused on the validity of such claims, casting planners as either heroes, standing fast in the face of power to enlarge possibilities for equity, or as villains, serving the interests of elite growth machines; all the while planning theory has made an expanding range of normative demands that planners should do more, better, differently to keep alive the promises of progressive planning (Abram, 2004).

Recognising the salience of neoliberal processes of privatization and marketization, recent critical scholarship has raised concerns that the imposition of market-led planning rationalities is leading to values associated with the private sector (e.g. entrepreneurialism, profit-seeking, procedural efficiency) supplanting and undermining those traditionally associated with public planning (e.g. ethical commitment to public service; democratic accountability; concern for the wider public interest), potentially intensifying planners complicity in the production of exclusionary urban forms (see e.g. Linovski, 2018; Zanutto; 2019). In the United Kingdom, at the last count around 40% of members of the UK-based professional body for planners, the Royal Town Planning Institute (RTPI), worked in the private sector. Meanwhile public sector austerity and a series of managerial reforms have intensified pressures for public planning agencies to actively commodify their services. However, there has still been surprisingly little planning theoretical attention devoted to understanding how commercial logics are reshaping prevailing understandings of good planning practice.

To address this gap, this paper draws on a series of focus groups, more than twenty biographical narrative interviews with professional planners and in-depth, ethnographic studies of four planning organisations, all collected as part of a wider project on the role of the private sector in the delivery of public planning in the United Kingdom. Our analysis contributes to studies of the forms of ‘cultural work’ through which planners negotiate institutional imperatives, coping with potentially competing demands as they make sense of their practices and professional identities (Inch, 2018): in this case to incorporate commercial considerations into planning work. In doing so, we identify ongoing trends associated with older notions of ‘New Public Management’ (Imrie, 1999), but recognise some intensification of these against a background of public sector austerity and shifting arguments for planning as a means of delivering economic growth.

Moving beyond binary accounts of heroes and villains, or the public and private as fixed and immutable categories, we seek to reveal a more complex and varied set of situated realities. Whilst certain forms of commercialism have been normalised and incorporated into planning logics, others continue to be bracketed off from definitions of ‘real planning work’ in various ways and for various reasons. Excavating how and why such distinctions are drawn and redrawn, and the ways in which dilemmas come to be recognised and negotiated, enables us to explore the micro-political practices through which definitions of what is properly public and private, and ideas of ‘good planning’ are being reworked. In doing so the paper contributes a rich understanding of the ways in which pressures to ‘be commercial’ are currently disciplining how planners define what it means to ‘be professional’ and, in turn, how they relate to planning’s public interest purposes.

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Key Words: Commercialisation, public interest, professionalism, professional identity

LEARNING FROM ARNSTEIN'S LADDER: FROM CITIZEN PARTICIPATION TO PUBLIC ENGAGEMENT

ID: 20

Pre-Organized Session Summary

Includes abstracts: 242, 243, 244, 245, 246

Arnstein's "A Ladder of Citizen Participation" was first published in JAPA in 1969. It remains one of the most influential publications in both planning practice and research. In it, Arnstein depicted the failings of typical participation processes at the time and characterized aspirations toward engagement that have now been elevated over time to core values in planning practice. This session will draw on contemporary expertise, empirical analysis, and application in what is now more commonly termed public engagement in planning to examine the enduring impacts of Arnstein's work and the pervasive challenges that planners face in advancing meaningful public engagement. The session presents research from the US and Europe that utilizes, critiques, and/or revises and expands upon Arnstein's aspirational vision. The session will include presenters working on public engagement in megaprojects, with children and youth, on issues of health and food systems, in the context of historic preservation, and utilizing participatory budgeting tools.

Objectives:

- Examine contemporary applications of public engagement
- Reveal critical perspectives on engagement to inform future innovation
- Explore approaches to tailoring public engagement to varied issues and contexts

REMIXING AS PRAXIS: ARNSTEIN'S LADDER THROUGH THE GRASSROOTS PRESERVATIONIST'S LENS

Abstract ID: 242

Group Submission: Learning from Arnstein's Ladder: From Citizen Participation to Public Engagement

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When Arnstein created the ladder of participation, local governments engaged predominately-urban African American neighborhoods through federally funded programs. Fifty years later, preservationists and heritage conservationists pursuing participatory engagement models in these communities find sustaining interest difficult. Guidance on citizen controlled research and preservation planning with grassroots groups under these circumstances is absent from the literature, and this article asks practitioners and scholars to consider the optimum approach to researching or preservation planning in these contexts.

This article is specifically concerned with the conditions that support collaboration and mobilization around preservation and heritage conservation within marginalized communities. Through participatory action and ethnographic research, the author co-designed, with a grassroots preservation leader, a Symposium dedicated to preserving historic black settlement heritage in Shankleville Community, a freedom colony in Newton County, Texas. African Americans founded more than 550 freedom colonies after Emancipation in Texas, 1865-1920 (Roberts, 2018; Sitton, Thad & Conrad, James H., 2005). Today, widely dispersed descendants of freedom colonies' founders present a challenge to planners, because the stakeholders are not "in-place." Over a third of Texas' freedom colonies are unpopulated or absent from government maps. However, several descendants residing in large Texas cities remain committed to

freedom colony preservation. Such is the case in Shankleville where the author co-planned the 2015 Symposium and documented grassroots preservation knowledge using questionnaires and performative storytelling, facilitated information sharing while helping descendants to assess their capacity and to identify shared priorities and challenges.

The article begins with a discussion of theories related to participatory heritage conservation then describes ethnographic methods and data collection. A description follows of action research and co-planning approaches, which involved remixing the ladder of participation, in a way that subverts roles – expert and grassroots practitioner – which preservation often cleanly delineates. This remixing of roles results in respectfully sampling (cutting and pasting local knowledge shared through storytelling), looping (strategic repetition and reenactment of local cultural practices), and layering expert and grassroots preservation practices, data collection, and planning processes to sustain participation, citizen control, and address disparities in access to technical assistance. While acknowledging challenges, lessons learned from the relationship building, co-planning and design process, and analysis of observations follow.

Findings suggest that Symposium co-organizing and data collection catalyzed the ethical coproduction of knowledge and fostered ongoing research and preservation project collaboration after the study was completed. Action researchers and preservationists must “remix” roles and the rungs of the ladder of participation to sustain and center stakeholder involvement during preservation planning with marginalized communities. Within the case study, remixing as praxis emerged as a grounded framework for engaged preservation and heritage conservation that reinforces citizen empowerment through the identification and application of innovative grassroots practices rooted in local knowledge and culture. Remixing consists of strategically sampling, looping, and layering promising local, grassroots’ knowledge with that of experts to support citizen-centered preservation planning. As the article explicates, remixing (increased flexibility, subversion of roles and tactics) forces researchers to rethink the rungs of Arnstein’s ladder, particularly roles. By remixing roles and methods, focusing on being of service during co-planning, foregrounding situated planning knowledge, and assuming competence among grassroots planners, researchers manifest Arnstein’s vision for participation—an end to paternalistic, appropriative dynamics which undermine marginalized communities’ agency.

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Key Words: ethnography, Critical heritage, preservation, African American, participatory action research

INCLUDING YOUTH IN THE LADDER OF CITIZEN PARTICIPATION: ADDING RUNGS OF CONSENT, ADVOCACY, AND INCORPORATION

Abstract ID: 243

Group Submission: Learning from Arnstein's Ladder: From Citizen Participation to Public Engagement

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Problem. Youth are traditionally excluded from participation within planning venues, though planners increasingly recognize the value and knowledge youth can bring to planning efforts. Yet planners struggle to find ways to incorporate youth ideas and decision-making that are not exploitative, tokenizing, or coercive. Arnstein's Ladder of Citizen Participation provides useful insights into how youth can participate effectively but ultimately falls short. We investigate whether planning processes can build partnerships with youth and foster shared decision-making.

Research Strategy. Through case studies of youth-focused planning initiatives, we examine the potential for additional rungs between "placation" and "partnership" on Arnstein's ladder. We analyze the goals, methodology, and projects of each program to determine how each expands or limits youth participation.

Findings. We propose new rungs between "placation" and "partnership," which expand participation but are limited by their structure, influence, or adults' receptivity to youth feedback. These rungs are further divided by their directionality of power, and whether youth are granted power to participate or they seek it themselves. Further research could refine these rungs, especially within larger contexts of planning theory and the history of shared decision-making processes.

Takeaways for Practice. The directionality of decision-making power within planning processes shapes how youth are empowered, either through power they sought themselves or power shared with them by planners. Some models allow for higher levels of participation but are geographically and institutionally bounded. Others operate at varied scales but achieve lower levels of participation. Planners can use this guidance to partner with youth where those individuals and groups exemplify the capacity and exist within the context for elevated involvement. Lastly, we conclude that planners should carefully determine which forms of participation are appropriate for youth given different planning contexts, but that various ways of participating must be available to youth who want to contribute.

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Key Words: youth participation, ladder of citizen participation, youth in planning, children, power

CAN WE BE PARTNERS? A CASE STUDY OF COMMUNITY ACTION AND LOCAL FOOD SYSTEMS PLANNING IN LOS ANGELES

Abstract ID: 244

Group Submission: Learning from Arnstein's Ladder: From Citizen Participation to Public Engagement

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Abstract: Problem, Research Strategy, Findings: Sherry Arnstein (1969) castigated planners for their tokenistic participation processes. Since, planning scholars and practitioners have attempted to improve these processes. We report on a Los Angeles case where Community Health Councils (CHC), partnered with the city planners, public health officials, foundations, academics, and residents to pass a Health & Wellness Element in the General Plan Framework and integrate food issues into three Community Plans. We use a comparative multi-method approach interviewing officials and participants and documenting public meetings, strategy sessions, and other events. We find that CHC did develop a successful partnership that represented an improvement over Arnstein's lower ladders. CHC's public comment letters had material impact on the language of the Element's provisions. CHC's collaborative strategy resulted in inclusion of key food related provisions in the updated West Adams Community Plan. The primary limitation is our study ended prior to implementation, an area Arnstein accurately identified as a place where community power might be diminished. Takeaways for Practice: Planners working collaboratively with community groups can achieve significant improvements in their plans. This process successfully integrated food systems and other health issues into the Element and three Community Plans. This study, thus, suggests that practitioners should strongly consider partnering with -- not only including-- strong, active community-based groups in their jurisdictions to produce a more equitable, inclusive planning process. Practitioners should also recognize community-initiated planning efforts as legitimate contributions to the participatory planning process that should have equal weight in the inclusion of planning provisions. As Arnstein (1969) documented regarding Model Cities fifty years ago, creating participatory plans that don't fully share power with communities diminishes the planning process by reducing participation to mere manipulation. Her insight, although sometimes criticized as out of date, seems remarkably apropos according to the process described here. Critically, the Department recognized CHC and its allies as equal partners in the participatory planning process, producing a product with greater potential to improve the quality of life of South Los Angeles residents than previous South Los Angeles plans. We doubt that provisions reported in this paper would have occurred without this partnership, suggesting the importance of teaching and implementing planning practice as an institutional and community collaboration. Thus the inside-outside community organizing and engagement strategy employed by CHC infused equity into the planning process by lifting up communities with the highest rates of poor health outcomes and prioritizing health-related provisions in those community plans, rather than a blanket approach for all community plans. The contributions by CHC and its partners allowed planners to better align needs with plan provisions in updated South LA plans. The long process, although frustrating for all participants, well may have created time for relationships to mature, community partners to more effectively organize, and for all participants to better understand and define the proposed health provisions. Finally, the CHC Model provided an improved platform for potential implementation.

In reviewing forty official community plans in British Columbia, Stevens found that plans tend to be strong in laying out future visions and specifying goals and policies to reach that vision, yet are weak in implementation, monitoring and evaluation (Stevens, 2013). Compared to the old South LA Community Plans, as well as the control plans for Hollywood and San Pedro, the treatment community plans provide specific implementation programs and more powerful enforcement mechanisms through new development standards, even if progress has been slow. Our findings suggest that focusing on implementation is an essential element of successful community planning.

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Key Words: Sherry Arnstein, Plan Evaluation, Participatory Models, Food Systems, Health Disparities

CITIZEN PARTICIPATION IN TRANSITIONAL SOCIETY: AN EVOLUTION OF PARTICIPATORY PLANNING IN SERBIA

Abstract ID: 245

Group Submission: Learning from Arnstein's Ladder: From Citizen Participation to Public Engagement

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Arnstein's seminal article influenced both the scholars and practitioners to explore the ways of citizen engagement against the public administration and politicians. Although this proved possible in the West, how to protect the needs and interests of poor and powerless Eastern Europeans when faced with the tremendous contextual transformation? To illustrate this, I present the in-depth qualitative case study of the Belgrade Waterfront project as a distinctive example of the violation of public engagement by more powerful parties – both the state and private developers. In order to understand the patterns and dynamics of citizen (non)-participation in planning-related issues in contemporary Serbia, I briefly describe four phases of its planning history supported by the description of the socio-economic system within which urban planning is deeply embedded. Such historical analysis aims at identifying the position of citizen participation within the broader societal context.

Briefly put, immediately after the Second World War, against the context of the central planned economy, the discipline of urban and spatial planning practically did not exist – planning was only an instrument for socio-economic development of the federal state. In the late 1950s, spatial (physical) planning was introduced, however, it was controlled through the elite multidisciplinary technocratic decisions implemented in a top-down manner. Citizen involvement was rather an abstraction – they were just informed about the possibilities for public input and debate, without being truly included in social

reality and, thus, unable to influence a decision-making process. The state decentralization of the 1970s, together with the instrument of public participation, influenced the shift of planning from the state focused allocation to the community responsive planning, based on delegated power of the civil sector in partnership with representatives of local politics. However, social and economic changes that reached the peak with the fall of the Berlin Wall, in Yugoslavia were augmented by the disintegration of its territory in the 1990s. The participatory planning approach disappeared as repressive regime adopted re-centralized instrumental plan making organized to expand and protect political power. Due to omission of the local spatial plans from the planning law, on the one hand, and land development process almost exclusively driven by private investment greenlighted by the national government on the other, the citizen participation was not even manipulated– it did not exist, neither in planning legislation, nor in planning practice. Despite democratically elected government in 2000, Serbia still lacks institutional capacity for regulating the implementation of neoliberal economic principles. The privatization of state land and resources (enabled by the planning legislation just in 2009) fueled the capture of public goods mainly for advantage of foreign private developers at the expense of both public and civil sector. Experts try to find their own place in an arena of manifold interests, making the citizens able to exercise only ‘de jure’ public consultation.

Finally, using the frame of Arnstein’s eight ‘rungs’ of citizen participation, I draw comparative analysis between two specific periods of Serbian planning history: the 1970s and 1980s vs. contemporary phase. At a glance, these periods differ significantly. Nevertheless, as the comparison includes the overview not only of formal planning procedures and instruments, but also broader socio-economic sphere, I conclude about the nature and real impact of citizen participation in the process of spatial planning decision-making over time. Ultimately, the need for substantial citizens involvement is indisputable, however, the step towards its implementation follows the democratic development of Serbia.

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Key Words: citizen engagement, mega-projects, post-socialist states, Serbia, Belgrade Waterfront

THE SCALING-UP OF PARTICIPATORY BUDGETING: INSIGHTS FROM BRAZIL AND PORTUGAL

Abstract ID: 246

Group Submission: Learning from Arnstein's Ladder: From Citizen Participation to Public Engagement

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Worldwide, practices of citizen participation in policymaking have grown extensively across a wide range of policy areas, especially on a local scale. Only a few experiments on state and national scales have been conducted so far, which increases the interest of scholars. Contrasting some of the most contentious issues on the scaling-up of participatory budgeting, the State Participatory Budget (SPB) in Rio Grande do Sul (Brazil) and the National Participatory Budget (NPB) in Portugal are compared in light of the socio-political contexts in which they are placed and their institutional designs. Recasting Sherry Arnstein's lessons on the need to understand the relationship between citizen participation against social imperatives, this text provides original insights with regard to the legal and political frameworks; the degrees of engagement of governmental and non-governmental agents; the articulation of constituencies in the implementation; and the constitution of a supra-local deliberative sphere. The comparison between SPB and NPB helps problematize the scaling-up of participatory budgeting and provides original insights for further reflection on the topic.

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Key Words: scaling-up, participatory budgeting, Brazil, Rio Grande do Sul, Portugal

INSTITUTIONAL APPROACHES TO COMPARATIVE PLANNING RESEARCH 2

ID: 36

Pre-Organized Session Summary

Includes abstracts: 153, 155, 682, 683

What makes different planning experiences comparable, and the comparisons meaningful? Comparative planning research requires methodological and conceptual depth. Explicit theoretical-methodological frameworks can give greater analytical depth and enrich the comparability of such empirical investigations. A growing conversation over the last decade of research in urban studies and planning has called for more robust lenses for comparative work—across time, place, geography and North/South positions (Robinson 2016; Watson 2016). Building on these debates, this paper session will interrogate a series of possibilities of theoretical-methodological lenses for comparison, with a focus on institutionalism. In particular, the papers in the session probe (i) the potential of institutional lenses to rigorously examine seemingly disparate planning experiences (ii) the space for comparative institutional work to build cohesive theoretical and methodological robustness, and (iii) the contribution of active institutions to comparative research.

Objectives:

- Developing institutionalist theory to generate robust comparative frameworks for planning studies
- Developing more cohesive theory and methods for comparative research in planning

- Sharing recent applications of institutional analysis in planning studies

CONDOMINIUM PROPERTY INSTITUTIONS IN COMPARATIVE PERSPECTIVE: CONTINGENT CRITICAL JUNCTURES, EVOLUTIONARY PATHWAYS, AND THE PRODUCTION OF URBAN PROPERTY

Abstract ID: 153

Group Submission: Institutional approaches to comparative planning research 2

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Condominium is one of the fastest growing forms of property ownership around the world, yet there are significant differences in the way this form of property is regulated in different jurisdictions. The creation of new property and new property rights in land is one of the most significant of the processes that occur in cities, and the systems established to manage the creation of property, and to define, record, and protect it are fundamental aspects of urban governance. Planning is premised on understanding and managing processes of land development and the creation of new rights in landed property, yet these processes are surprisingly neglected as a focus of planning studies, as noted by Krueckeberg (1995) and Jacobs and Paulsen (2009). The legal systems specifying the rules and conditions that shape the creation of new urban property, and the precise specification of the rights and duties of ownership are middle-range processes which are important in shaping both behavior and the social-political incentives associated with property ownership (Healey and Barrett 1990, Needham 2006). Yet the institutions designed to regulate and define, property rights in land vary greatly between jurisdictions, suggesting the importance of comparative study in knowledge and theory development (Booth 2007, Buitelaar and Segeren 2011, Sorensen 2015).

Similar condominium laws were introduced to Florida, Ontario, and Japan in the 1960s, into different political, legal, and administrative settings, and condominium law in each jurisdiction has since followed a distinct evolutionary trajectory. The creation of new legal frameworks regulating condominium property in many jurisdictions during the 1960s provides a natural experiment that enables a comparative examination of different pathways of institutional evolution and change, and the development of comparative urban institutional theory. The hypothesis is that such differentiated institutions and path dependent processes are widespread in cities, and that studying them from a comparative perspective provides valuable insights not only into the differentiated specification of condominium property development and ownership in different jurisdictions, but also yields valuable tools for comparative research and theory-building about the institutions involved in the production of urban space. The paper applies a historical institutionalist conceptual framework to analyze the developmental pathways of condominium law and related property institutions.

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Key Words: comparison, property, law, condominium, institutions

THE CITY AS INSTITUTION, PLANNING AS INSTITUTIONALIZATION: MAKING THE SPATIAL RULES THAT REDISTRIBUTE URBAN RESOURCES

Abstract ID: 155

Group Submission: Institutional approaches to comparative planning research 2

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This paper explores the theoretical proposition that the city is an institution. Rooted in the new institutionalism, existing institutionalist approaches to urbanization and planning have primarily studied the city as a collection of other institutions or as a product of those institutions (such as property systems, market mechanisms, or government decision-making processes). This paper builds on these analyses by proposing that the city is itself an institution made up of redistributive rules inscribed into the socio-spatial fabric of urban form. By extension, urbanization and planning can be understood as rule-making processes with inherent implications for social justice.

Unlike other institutions, which are often understood as strictly linguistic phenomena, the city is primarily spatial. The socio-spatial rules that make up the city enable and constrain action through semiosis—by imparting meaning to actors through the symbolic content of urban form—and through practice—by habituating actors non-consciously through their proprioceptive encounters with urban form. The extra-linguistic nature of these socio-spatial rules makes them particularly powerful as instruments of social (in)justice. The inscription of rules into the apparently non-social, non-cognitive, spatial fabric of the city places those rules beyond the realm of both political contestation and critical analysis, naturalizing and de-politicizing their redistributive effects. At the same time, the under-determined nature of spatial transformation means that any change to the rules relies on the emergent interaction of multiple actors with each other and with the existing socio-spatial fabric. These dynamics make the city a privileged site for the contestation of social justice.

To investigate this proposition, I adapt the typology of institutional rules developed by Elinor Ostrom to the socio-spatial context of the city. Ostrom proposes seven types of institutional rules—position, boundary, choice, aggregation, information, payoff, and scope—which, I argue, correspond to four dimensions of socio-spatiality—place, territory, scale, and network. I apply this adapted framework to the urbanization and planning of a peri-urban village in the Chinese municipality of Chongqing, where I conducted two years of ethnographic fieldwork, including more than 200 semi-structured interviews, a review of relevant planning and design documents, and an analysis of the village's spatial transformation. This analysis shows how the spatial form of the village shifted from a set of informal rules that enabled the redistribution of resources within micro-scaled neighborhoods toward a set of more formalized rules designed to redistribute resources across the population of the entire village. These changes fundamentally affected villagers' access to public goods and their opportunities for collective action, underlining the social justice implications of urbanization and planning processes.

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Key Words: institutionalism, social justice, spatial planning, urban form

PROMISE AND PRACTICE: SURVEYING THE LITERATURE ON TRANSFERABLE DEVELOPMENT RIGHTS AND WATER QUALITY TRADING PROGRAMS THROUGH AN HISTORICAL INSTITUTIONALIST AND EVOLUTIONARY GOVERNANCE LENS

Abstract ID: 682

Group Submission: Institutional approaches to comparative planning research 2

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Transferable development rights (TDR) and water quality trading (WQT) programs are two of the best-known market-based environmental and land use policy instruments. Because both tools hold promise to solve critical sustainability problems in ways that tackle shortcomings of more regulatory approaches, and because both tools aim to rationalize growth and development processes and foster spatial reorganization, they are of vital interest to planners. However, the performance of these programs is uneven, with most TDR and WQT programs exhibiting modest or very low trading activity (Hamstead and BenDor, 2010; Linkous and Chapin, 2014; Van Maasakkers 2016). This is evident across a wide range of geographies and between both program types, suggesting the need for comparative research that looks across TDR and WQT programs, which are seldom examined in tandem.

This paper presents a review the literature on TDR and WQT to identify lessons about the viability of and pathways presented by these approaches to resource protection. Our theoretical perspective draws on institutional analysis as well as evolutionary governance theory. Discussing evolutionary governance theory, Beunen, Van Assche, and Duineveld write that, "it can understand the supposed polarities of market and state as mythologized polarities, and rather than two poles and a middle ground, it can map out and compare pathways of governance, in which market, state, and law relate in different ways (2015, 10)." We view TDR and WQT programs as emergent institutions, the rules and structures of which illuminate different situational histories as well as different assumptions about law, governance, and markets. Following an approach dominant in historical institutionalism (Thelan 1999) and employed by Van Maasakkers (2016) in work on ecosystem service markets, we focus primarily on empirical studies of practice and action in our review, rather than theoretical work, to situate these markets within geopolitical arenas in which behavior is shaped. We draw also on the broad, ongoing research agendas of the authors on trading programs, including the legal and historical context within which programs were developed.

Reflecting historical institutionalism's approach of viewing institutions as distributional instruments that regulate social and political processes (Sorensen 2017), we focus in particular on recent findings in both the TDR and WQT literatures that point to use of the tools to displace value (economic and/or environmental) between more and less affluent places (BenDor, Sholtes, and Doyle 2009; Linkous 2016; Linkous 2017; Linkous and Chapin 2014; Shih, Chiang, Chang, 2019; Shih, Chiang, Chang, and Change

2017). We also examine issues of path dependence and critical junctures related to the timing and sequencing of institutional development for TDR and WQT programs.

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Key Words: Transferable development rights, water quality trading, institutionalism, ecosystem service markets

UNDERSTANDING THE ROLE OF INSTITUTIONS IN PLANNING STRATEGIES FOR SOCIAL-ECOLOGICAL SYSTEMS

Abstract ID: 683

Group Submission: Institutional approaches to comparative planning research 2

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This paper advances a research agenda for the identification of a theoretically grounded approach to the analysis of ecological modernization and transition in urban planning institutions. Urban institutions for governance, planning, and management are increasingly expected to modernize planning practices in response to the challenges of governing and managing coupled human and natural systems. Drawing from empirical research on sustainable urban planning in Florianópolis, Brazil (1965-2016), this paper advances an integrated approach that draws from the strengths of both historical institutionalism and E. Ostrom's social-ecological systems framework in order to explore the intersection of collective action, multi-level governance, and institutional restructuring over time (McGinnis & Ostrom, 2014; Ostrom, 2009). Emphasizing the emergence period during which a new approach to urban planning challenged incumbent practices, this project compared interactions between incumbent institutions and collective action groups over time in two urban systems offering public goods in Florianópolis. To consider various emergence pathways in a single environment, two urban systems were chosen for review: (1) the ecological system of the city as it is preserved in public land, and (2) the electricity system. In Florianópolis, both systems have experienced a period during which a sustainable alternative to business-as-usual emerged and challenged the predominate unsustainable mode of development. While using comparative within-case analysis, this research stressed the importance of the ordering of events with slightly less importance placed on the specification of variables and their relative impact on change in the target systems. As such, the analysis draws from a narrative of the ongoing process of the ordering and re-ordering of institutional networks as they both respond to and inform urban planning strategies over time. Sustainable urban form is established and maintained through the interplay of international norms and standards, multilevel political structures, and new forms of polycentric institutional architecture emerging from networks of state and non-state actors (Greif, 1998; March & Olsen, 2010; Skocpol &

Amenta, 1986). This paper outlines a theoretical approach to understanding the tactics used by actors, who work together to accomplish strategic goals, to institutionalize sustainable urban planning.

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Key Words: Institutions, Urban planning, Sustainability, Collective action

PRE-ORGANIZED SESSION - CHALLENGING COLONIAL PLANNING

ID: 40

Pre-Organized Session Summary

Includes abstracts: 868, 869, 870

Only recently have planning scholars begun to ‘come to grips’ with how planning continues to obscure and circumvent its role in the historical and persistent subjugation and deracination of Indigenous peoples. Calls to ‘decolonize’ planning theories and practices are now common. However, the theoretical frameworks through which this process is envisioned arguably rely on normative concepts that imagine planning to be purely technical and race-neutral. The authors of this panel consider how planning may be decolonized by foregrounding how Indigenous peoples in specific contexts are themselves transforming the circumstances which inhibit and enable decolonization.

Objectives:

- Examines how planning may be decolonized by foregrounding how Indigenous peoples in specific contexts are themselves transforming the circumstances which inhibit and enable decolonization.

DECOLONIZING THE COMMUNITY LAND TRUST MODEL

Abstract ID: 868

Group Submission: Challenging Colonial Planning

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This paper considers: what is decolonization and the role of planning (Lane 2006; Ugarte 2014)? Although the methods and objectives vary, scholars assert that decolonization fundamentally requires the repatriation of land. Recently, there has been a developing discourse about how to accomplish this through property, including different property models and regimes, including Indigenous Protected Areas and Community-based Environmental Management programs, customary property and communal property. However, the conceptual architecture of this discourse arguably favors universalizing forms of

property, premised on culturally-laden objectives, such as the accumulation of wealth. Moreover, they fail to seriously consider the persistent effects of colonialism and the context-dependent aspirations of Indigenous peoples.

Similarly, there is a surging interest in the Community Land Trust Model (CLT). The CLT is purported to be capable of facilitating various purposes, including the provisioning of affordable housing, institutionalizing informal settlements, increasing local governance and securing Indigenous land tenure (Bassett and Jacobs 1997; Bassett 2005; Crabtree 2014; Davis 2010; Gray 2008; Moore and McKee 2012). However, there is a lack of empirical and comparative data to support the supposed benefits and its increasing use in the U.S. and globally (Gray 2008; Moore and McKee 2012; Crabtree 2014).

In contexts wherein Indigenous peoples are the beneficiaries of the CLT, the limited data suggests both challenges and opportunities. Louise Crabtree (2014) argues that the CLT imposes Western ideologies that presumes private property and housing leads to improved economic and social outcomes. Moreover, Ellen Bassett (2005) asserts that the CLT model is “another “replacement model”: imported from the United States and tinkered with” to reflect particular circumstances. Nevertheless, both authors reveal that the CLT is malleable, which raises an important question:

How may the legal structure of CLT be modified to reflect the historical, political and cultural circumstances that innately shape the processes of decolonization?

Focusing on a distinct context, this paper examines the Chamorro Land Trust (ChLT), a property institution enacted in 1975 by I Liheslturan Guåhan (the Guam Legislature) to return land to Chamorros, the Indigenous people of Guåhan (Guam). Although the ChLT was not conceptualized as a CLT, the legal structures are identical. This paper considers its origins and more importantly, how it has been modified to contend with contemporary circumstances facing the Chamorro people. The findings may enable a reconceptualization of the ChLT and demonstrate how the CLT is malleable and capable of reflecting particular contexts.

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Key Words: Decolonization, Indigenous Planning, Community Land Trust, Guåhan (Guam)

PLANNING WITHOUT PROPERTY? EXPLORING INDIGENOUS IDENTITY, BELONGING, AND THE MAKING OF COMMUNITY THROUGH THE WORK OF CHRISTI BELCOURT AND NADIA MYRE

Abstract ID: 869

Group Submission: Challenging Colonial Planning

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Property is central to planning (Fawaz 2016), and has also been recognized as a key technology of settler colonialism that accounts for planning's "colonial culture" (Porter 2010). Planning is a tool that has been effective in maintaining regimes of property not only in so far as it operates through the management of land, but also in the ways it accords a set of property rights and privileges by determining who has the right to participate in planning processes. In the Canadian context, planning applies racist and gendered understandings of property found within the Indian Act to reinforce colonial notions of ownership, citizenship, and identity in ways that significantly limit Indigenous political authority (Dorries 2017).

Having recognized planning's role in historical and ongoing colonial projects, planning scholars have begun to grapple with the question of how to decolonize planning theory and practice (Ugarte 2014). This paper asks what possibilities might exist for an approach to planning that does not mobilize Western models of property, but instead looks to Indigenous epistemologies for alternatives. Specifically, this paper looks to two participatory art projects conceptualized by Métis artist Christi Belcourt and Algonquin artist Nadia Myre in order to understand decolonial modes of configuring Indigenous identity, belonging, and political authority. This paper argues that Myre's Indian Act and Belcourt's Walking With Our Sisters embody a "decolonial aesthetic" that rejects the constraints of colonial narratives, and practice "an active ongoing refusal of dispossession and erasure" (Recollet 2016, 93) by rejecting the ways that Indigenous identity, community, and self-determination have been defined by colonial law. Thus, this paper argues that these works draw attention to Indigenous understandings of belonging that suggest decolonial modes of planning theory and practice that do not rely on or replicate Western property regimes

Citations

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Key Words: Indigenous planning, property, art, planning theory

DECOLONIAL PLANNING: SPEAKING OF THE INCOMMENSURABILITY OF LAND

Abstract ID: 870

Group Submission: Challenging Colonial Planning

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The "messy coexistence" of indigenous epistemologies of land and Western concepts of property has led to planning regulations that acknowledge or even require engagement with indigenous peoples and place meanings (Koh & Freitas 2017; Howitt et al 2010). Enabling laws as New Zealand's 1992 Resource Management Act and other court rulings have shoehorned indigenous land values into Western legal and planning systems. However, recognition of native land title such as Australia's 1993 Native Title Act did not resolve the fact that "indigenous ontological relations to land are incommensurate with those

developed through capitalism” (Moreton-Robinson 2015, 5). Australian Prime Minister John Howard argued for and obtained restrictions on Native Title by raising the specter that Aboriginal people might “have the potential right of veto over further development of 78 percent of the landmass of Australia.” Similarly, Hawaii’s State Supreme Court ruled in *Kalipi v. Hawaiian Trust Co* (1982) that to extend constitutionally protected native gathering rights onto developed lands “would so conflict with understandings of property, and potentially lead to such disruption, that we could not consider it anything short of absurd.”

When conflicts arise due to this incommensurability in value, cities and developers deem indigeneity as incompatible with urbanity and seek legal justification in the courts to limit indigenous control (Dorries 2009). These conflicts reveal how planning’s definitions of the public good and collective improvement are anchored in the history of colonial dispossession. European ideas about property and land rights allowed for the expulsion of indigenous peoples in the name of progress — with enclosure and privatization going hand in hand with public investment. In the United States, founding mythologies such as Thomas Jefferson’s yeoman farmer and the sturdy pioneer turning wilderness into productive farms valorized “improvement” as defined by colonial frameworks of capitalism and justified the displacement of those who had not properly utilized land by these imported standards. Fences and wheat signified “worthy” improvement, while relational knowledge of place, season, and kinship were invisible. Failure to account for epistemological differences in how to value land is in fact at the root of planning’s recognized failures such as mid-twentieth century urban renewal.

A present-day reckoning with this incommensurability in valuation of land would require planners to confront how even well-meaning regulatory frameworks of “inclusion” maintain structures of colonial dispossession. Without a fundamental remaking of planning’s operating system, attempts to integrate indigenous peoples and meanings into cities may fracture and founder. A critique of the mandatory use of Hawaiian words for Honolulu street names posited that the practice “silences the Other by allowing her to ‘talk’ without allowing her to ‘speak,’ to control meaning” (Herman 1999, 79). I argue that decolonial planning is a theoretical and practical imperative for urban planners. Decolonial planning is not simply a metaphor nor should it be used as a “move to innocence” that disavows past harms without addressing current injustices (Tuck & Yang 2015).

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Key Words: indigenous, epistemology, land

TRACK 13 – ROUNDTABLES

ROUNDTABLE - INSTITUTIONAL APPROACHES TO COMPARATIVE PLANNING RESEARCH

Abstract ID: 157

Roundtable

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What makes different planning approaches and systems comparable, and the comparisons meaningful? Comparative planning research requires methodological and conceptual depth. Yet much comparative research relies primarily on technical and methodical considerations, such as the determination of similar case studies. Explicit methodological-conceptual frameworks can give analytical depth and enrich comparability of empirical investigation. A growing conversation over the last decade of urban and planning research has called for more robust lenses for comparative work – across time, place, geography and North/South positions (e.g. Carmin et al 2012; Robinson 2016; Watson 2016).

Building on these debates, this roundtable will interrogate a series of possibilities of theoretical-methodological lenses for comparison, with a focus on the institutional tradition. In particular, we probe (i) the potential of an institutional lens to rigorously examine seemingly disparate planning experiences (see Sorensen 2015), (ii) the spaces for comparative work to build more ‘inwardly’ cohesive theoretical and methodological robustness, and (iii) unpacking how a focus on active institutions engages with comparative research.

The goal is to encourage hard reflection on and discussion of the strengths and drawbacks of recent comparative and empirical work by planning theorists, that draw on the traditions of historical institutionalism, public/rational choice institutionalism, and sociological institutionalism.

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Key Words: Comparison, institutionalism, ontology

ROUNDTABLE - RADICAL AND INSURGENT PLANNING: REFLECTING ON CONCEPTS, STORIES, GEOGRAPHIES, AND FUTURES

Abstract ID: 348

Roundtable

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In recent years, planners committed to social justice and emerging reflections on planning challenges from the Global South have widened the theoretical discussion as well as the geographical focus of the contemporary planning debate. Drawing from other fields, such as critical development, decolonial studies and feminist studies, critics note the failure of dominant planning theories to not only address urban problems in southern contexts (Roy 2003, Yiftachel 2006, Watson 2012), but also to address our contemporary crisis in Western democracy, where racialized and impoverished subjects cannot access the same basic expectations for city services, design, participation, and governance (Fanon 1967, Said 1984, Holston 2008). This has raised questions about the role of the state (Friedmann 2003), as well as the changing nature of civil society and its burdensome effects on residents, particularly the most marginalized populations.

Seminal and emerging planning scholars have started building the theoretical and empirical basis of an emerging subfield of urban planning to illustrate how the everyday practices of the urban poor confront inequalities and exclusions outside the margins of formal planning. Since the 1970s, radical planning theories have attempted to address the unequal power relations implicit in the Western modern planning paradigm by decentering the field from the expert knowledge of planner to the experiential knowledge of ordinary people through social action and transformation in liberal-democratic settings (Friedman 2003). Within this context, and building on the concept of insurgent citizenship (Holston 1995), insurgent planning takes the forms of counter-hegemonic urban practices derived from empirical work in the Global South (Watson 2012); theory production originating in the South (Roy 2009, Miraftab 2009); and survival and organization of racialized urban poor citymakers in the North (Roy 2017). However, questions still remain about how radical and insurgent planning can challenge established exclusionary planning practices and theoretical norms while addressing critical dilemmas confronting contemporary cities.

We suggest that now is an important time to reconsider the definitions, contributions, and limitations of radical and insurgent planning scholarship and practice within current planning contexts. This roundtable first presents findings from an ongoing literature review that maps the subfield of radical and insurgent planning, and then provides a space to develop how these theories are operationalized in different past, present and future contexts. The following questions will inspire the roundtable conversation:

- What are the big questions scholars working in radical and insurgent planning are asking themselves? Where are they drawing inspiration from?
- What constitutes “planning” in radical and insurgent planning? Within these contexts, who is the planner and what is their role?
- What is the difference between radical and insurgent planning?
- What is the state's role in redistribution? What is civil society's role? Grassroots role?
- What types of knowledge are relevant? What methodologies are useful?
- What are the differences and similarities in people's strategies and actions depending on their

institutional, political and cultural contexts? How is the success of such actions measured?

•What are the potentials and limitations of radical and insurgent planning, specifically in addressing the systemic effects of sexism, racism, colonialism, environmental degradation, neoliberalism, and anthropocentrism? What more do we need to learn?

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Key Words: radical planning, insurgent planning, Global South, knowledge production, grassroots action

ROUNDTABLE - THE SCHOLAR-PRACTITIONER INTERFACE IN THE PLANNING ACADEMIC JOURNAL

Abstract ID: 505

Roundtable

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The ideal of the planning field is of an interface between scholars and professionals, with research and practice in a reciprocal relationship that furthers both. Yet, this relationship can be fraught--with professional planners finding academic research esoteric or detached from real practice, and scholars frustrated by the focus on technocratic activities over pushing the field to new areas of thinking. The academic journals sponsored by planning professional associations are meant to advance theory and method in research and to influence policy and ultimately cities themselves. How are the academic journals of planning addressing the challenge of speaking to the dual audience of scholars and practitioners as well as responding to the sponsoring professional association and the academic publisher? This roundtable will address the issues facing planning's academic journals seeking relevance, rigor, and real-world impact.

Citations

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Key Words: research, publishing, practice

ROUNDTABLE - ELYSIUM DREAMS: SPECULATIVE FICTION, PLANNING, AND THE ART OF IMAGINING THE FUTURE

Abstract ID: 736

Roundtable

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Navigating urban space can feel unreal. Our phones know where we are, and apps target advertising with uncanny accuracy. Facial recognition is becoming routine. The skyline is full of empty luxury condominiums while the population of the unsheltered skyrockets. Public space is surveilled remotely; drones buzz above our heads; tolls are collected by robots. Ride the New York City subway and you will be surrounded by a thousand strangers, all in the private bubble of their own device. Is this a dream? A world predicted (created?) by *Her*, by *Minority Report*, by *Blade Runner*, *Elysium*, *Silent Green*, and a library of other cautionary tales?

The line between city and myth has always been blurry. De Certeau argued that the meaning of urban space is constituted by stories, memories and dreams (Certeau, 1984). But the production of space itself—not just the production of meaning—is also influenced by stories. As Ed Soja theorized, urban imaginaries create an “interpretive grid” that shapes how we act on urban space (Soja, 1996).

Every generation produces an array of such urban imaginaries, crafted from the hopes and anxieties of the moment. Since Fritz Lang’s 1923 film *Metropolis*, and Aldous Huxley’s *A Brave New World* (1934), among many others, science and speculative fiction genres have voiced critiques of power, technology, industrialization, and capitalism within carefully imagined urban settings. Contemporary portrayals of urban futures, from zombie films to traditional science fiction, emphasize ecological destruction, extreme and gendered oppression, tyrannical technology, corporatized government, and masses of not-quite-humans swarming cities. In this context, perhaps it is not surprising that planners’ current engagement with a prospective imagination is through the exercise of “future-proofing.”

Urban imaginaries are not, of course, always dystopian. Dreamers like Ebenezer Howard and Le Corbusier beheld technology as a liberatory force when combined with political transformation. Currently, however, optimistic future visions are increasingly produced and curated by corporations: AIG frames resilience through the lens of insurance products targeted to governments; Exxon Mobile promises a clean world powered by algae and brilliant female scientists. These branded imaginaries are almost the only popular counterpoint to a phantasmagoria of tyranny, ecological chaos, and mass extinction—if indeed they actually represent an alternative.

Embedded in this dynamic between dystopian fiction and utopian advertising, one can sense evidence of the key contemporary critiques of planning: neoliberal retractions of the state have reduced the scope, power, and radical potential of public urban actors (Peck, Theodore, & Brenner, 2012), while planning’s communicative turn shifted emphasis from visioning to deliberating—a justified shift that nevertheless

may have cost important skills (Campanella, 2011; Healey, 1992). In both lines of argument, we see a future-oriented profession that seems to have lost the capacity to imagine the world in its own terms.

In this context, a roundtable of heterogeneous planning scholars who work in urban design, infrastructure, the environment, race, and technology will explore the potentially generative dynamics between our professional future-orientation and fictional portrayals of urban futures. We will ask how we have, as scholars and practitioners, actively, critically, or subconsciously assimilated corporate fiction and dystopian visions into our assumptions, questions, or agendas. How are our own hopes, fears, and sense of what's possible being shaped by the imaginative work of others? Through this conversation, we will also explore how public urban priorities may be being influenced by these visions, and what that means for planners.

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Key Words: Futures, speculative fiction, urban imagination

TRACK 13 – INDIVIDUAL ABSTRACTS

SHAPING THE PRODUCTIVE CITIZEN: EMBODIED EXPERIENCES OF YOUNG ADULT AND GENDER CONSTRUCTIONS IN SANTO DOMINGO, DOMINICAN REPUBLIC

Abstract ID: 56

Individual Paper Submission

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While cities across the ‘Global North’ and ‘Global South’ have seen tremendous urbanization in the last century, planning systems that currently exist in the ‘Global South’ have largely been transferred from the north to the south, resulting in a ‘mismatch’ between the planning system and the particular issues that southern cities face (Todes, 2011; Watson 2009). Rapid population growth in combination with neoliberal economic policies have led to poverty and inequality, as well as lack of substantive work, adequate shelter and infrastructure provision for poorer populations. These issues are often exacerbated by environmental risks, as poorer populations tend to live in environmentally vulnerable areas of the city (Watson 2009).

Relatedly, over the last two decades, scholarship on young people has increased greatly in planning and related fields such as geography, anthropology, sociology, and mobility studies. Within this context, several authors (Langevang, 2008; Nilan, 2011; Ortiz et al., 2016) note that the social constructions of ‘child,’ ‘adolescent,’ and ‘youth’ are largely informed by scholarship emerging from the Global North,

and inadequately and dangerously conceptualizes the lived experiences of ‘Global South’ young people, who are navigating completely different socio-cultural contexts and societal expectations than their northern counterparts. As a result, scholars (Roy, 2003; Watson, 2012; Yiftachel, 2006) who are increasingly recognizing the inappropriateness of planning theories emerging from the ‘Global North’ to describe and explain social movements and social phenomena elsewhere ask that we re-center the ‘peripheries’ (hooks, 2000) in our theory-building and methodologies.

In this article, I draw on a long history of decolonial thinking emerging from Latin American and Caribbean scholars to frame a different understanding of geo-spatial politics and planning in Santo Domingo, Dominican Republic. Specifically, building on María Lugones’ (2010) position that decoloniality needs to better connect women-of-color’s work on intersectionality (Crenshaw, 1989) with Quijano’s ‘coloniality of power’ (2007), I posit that a feminist decolonial approach might move us towards a more nuanced understanding of how a city functions and who it serves. I draw from one year of ethnographic fieldwork in La Zurza, Santo Domingo, Dominican Republic, a consolidated informal settlement characterized by ad-hoc housing and environmental and economic precarity. In my work, I examine the lived experiences of young adults aged 18-27, focusing on the ways in which the co-production of ‘young adult’ and ‘gender’ constructs reinforces neoliberal citizenship in the (post)colonial capital/capitalist city of Santo Domingo.

First, I propose that the construction of the at-risk joven (‘youth’) type is created in dialectical opposition to the productive adult ciudadano (‘citizen’) type in order for rights-based citizenship discourses—which emphasize personal responsibility in personal and neighborhood improvement (Sletto & Nygren, 2016)—to function more effectively. Second, I reflect on the ways in which gender scripts are constantly reproduced and/or resisted by young adults in La Zurza, re-centering the embodied experience as a site of inequality where race, gender and class identities are negotiated as they inhabit and move through their neighborhood and their city. I conclude with a discussion of how a feminist decolonial approach might reveal alternative questions about cities in the ‘Global South’, including the types of methodologies that might be useful to engage in this type of planning research.

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Key Words: Global South, decolonial, young adults, embody, citizenship

THEORIZING NATIONALISM, PLACE, AND PLANNING IN POSTCOLONIAL SRI LANKA

Abstract ID: 97

Individual Paper Submission

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This study examines how nationalist thinking during the late-colonial period shaped urban-planning in postcolonial Ceylon (Sri Lanka since 1972). It explores the development of the first town plan made in postcolonial Ceylon in the context of Sinhalese Buddhist nationalists' idea of spatial identity in the late nineteenth century. It also contributes to the scholarship of nationalism but from the standpoint of social space.

Certain approaches to modern political theory study the influence and historical context of nationalism. This scholarship privileges the 'nation-state' as the sole spatial representation of national belonging. However, fields like urban studies critically articulate the limits of the spatiality of state. For example, they see the state as the key spatial device of nationalism (Agnew, 2017; Brenner, 2004). Yet both fields have not effectively addressed the spatial engagement of nationalism in planning and making of places. In other words, the importance of 'place' in the spatialization of nationalist thoughts is overlooked (see Güvenç, 2011).

In order to understand a nationalist conceptualization of place, this study will examine the plan for new Anuradhapura, which was the first planned community in independent Ceylon in 1949. The new plan reflects the Sinhala-nationalists' belief in their authority to protect Buddhist sacred spaces by removing incompatible practices –including secular ones-- from the site. It also marks the location where Sinhala-Buddhist nationalist ideologies met the postcolonial spatial expression. Although Anuradhapura has become a subject of interest for many scholars, there is no substantive knowledge about the making of the planning project and its impact on the Sinhala-Buddhist spatial organization (geography). This study investigates how the new-town project negotiated different tensions within nationalist politics and the needs of the emerging nation. In so doing, the study delves into the contours of 'postcolonial spatial thinking' in Sri Lanka and how the new town planning project shaped it.

Methodologically the study involves a case study and survey of the literature. Along with the textual analyses, the research will be carried out through participant observations and in-depth interviews with the inhabitants of Anuradhapura and the professionals conversant with the project.

By generating a stimulating discussion on the nationalist influence on the first planned town in independent Ceylon, the study will contribute to the broader scholarship of postcolonial geographies (Jazeel, 2019; Perera, 2016). The findings will articulate that planning in postcolonial nations is a complex process, sometimes manipulated by dynamic socio-political processes, which have not been significantly studied in contemporary urban studies. By exploring the intersections of historical, cultural, religious, and national politics in shaping the modern planning and spatial thinking in Sri Lanka, this research will (draw on and) contribute to the established field of postcolonial social space.

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Key Words: Nationalism, Spatial thinking, Place, Postcolonial, Sri Lanka

ARE PLANNING VALUES AND PLANNING GOALS USED RANDOMLY AND OPPORTUNISTICALLY?

Abstract ID: 133

Individual Paper Submission

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L'Allegoria ed Effetti del Buono e del Cattivo Governo – the Allegory of Good and Bad Government – is a series of three fresco panels painted by Ambrogio Lorenzetti between February 1338 and May 1339. The paintings are located in Siena's Palazzo Pubblico and were supposed to remind the members of the city council to the key values of urban governance: hope, generosity, self-restraint, justice. In the 14th century, the values and goals of urban governance were clear and simple. What happened to this clarity and simplicity seven centuries later? Contemporary cities must be sustainable, resilient, carbon-free, and 'smart' (which really is a synonym for Big-Brother-friendly). Another type of narrative examines the 'just city' (Fainstein, 2010; Soja, 2010). Are these labels 'empty signifiers'? Or do they really have an impact on the practice of planning?

Robert Upton notices the 'unexposed but hugely significant clashing of values in English planning policy' (Upton, 2005: 145). But apart from few exceptions (Thomas, 1994), little is done to examine planning values. In planning practice, values and goals sometimes seem to be used randomly and opportunistically. If a desirable spatial development gets more support if we call it 'just' or 'sustainable', why not? Planners' language sometimes seem to come from 'buzzword bingo'. Take, for example this statement about food planning: 'Feeding the city in a sustainable fashion — that is to say, in [a] way that is economically efficient, socially just and ecologically sound — is one of the quintessential challenges of the twenty-first century ...' (Morgan, 2009: 347). Could this not also be said about transport planning, housing, climate action, or the siting of waste management facilities? The paper will examine a number of haphazard questions: Are many classic moral values (the good, human dignity, moderation) not complex enough to stimulate planners' attention (Nussbaum, 1994)? Is justice the only exception because it targets the distribution of spatial good and bads? Does the evaluation of spatial plans often use values and goals that are exogenous to spatial planning (Alexander, 2009)? My set of haphazard questions eventually will allow a more informed judgment on the randomness of planning values and planning goals.

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Key Words: planning value, planning goal, sustainable development, resilient city, buzzword bingo

COMPARING SELF-BUILD EXPERIENCES OF THE NORTH AND THE SOUTH

Abstract ID: 154

Individual Paper Submission

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This contribution will discuss the analytical framework and the general outcomes of an international comparative study into the meaning of self-building by low- and middle income groups in city-regions of the north and the south. The forthcoming book is entitled “The Self-Build Experience” and is edited by Willem Salet, Camila D’Ottaviano, Stan Majoor & Daniël Bossuyt (Salet et al., forthc. 2019). Comparing self-build experiences in completely different city-regions over the world requires a straight conceptual/methodological framework. Our institutional approach sought the combination of critical-economic and cultural analysis of urban regimes (Salet, 2018). The critical-economic approach - such as explained by David Harvey - investigates the differentiated but universal tendency towards accumulation of capitalist economies systems resulting in spatial displacement and social dispossession on urban housing markets (Harvey, 1989, 2008). The Lefebvrian cultural lense of regime analysis highlights the significance of moral ownership of home and city (Lefebvre, 1996; Purcell, 2003). It focuses on practices of social participation and the appropriation of urban spaces by urban inhabitants (Lefebvre, Purcell). The combination of the two lenses provides a dynamic framework of public action that enables to assess the different empirical states of self-building in internationally highly different urban contexts. The empirical findings of the case studies differ from place to place and from time to time, but always reflect the underlying struggle of economic and cultural powers. Some of the outcomes of the comparative study will be discussed.

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Key Words: self-building, urban regimes, comparing methodology, institutional research, right to city

DIGITIZED PUBLICS: DECODING THE POLITICAL NORMS OF APP-BASED URBAN MOBILITY

Abstract ID: 462

Individual Paper Submission

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This paper examines the ways that certain actors’ ideas of “the public” are encoded in and enacted by the software that mediates new forms of urban mobility. The presence of digital technologies in city inhabitants’ experiences of getting around continues to expand. Various smartphone apps provide real-time information about bus arrivals and traffic conditions and are required to hail a ride or access shared cars, bikes, and scooters. Scholarship in critical software studies has demonstrated how data and algorithms, despite their cultivated appearance of straightforward objectivity, are the inherently political reflections of their producers’ values and assumptions. These digital objects in turn mediate the behaviors of those who use them, producing spatial and social consequences in the city. The actors behind these

digital systems for urban mobility are of two types: the government agencies functioning under the dominant norms of transportation planning, and the technology and new mobility firms operating within the paradigms of software development and Silicon Valley business models. In this context, my research applies democratic theories interrogating the notion of the public—what it is, who cares for it, and how it ought to be served—to these emerging practices of digitally mediated mobility. It poses two questions: How do planners and tech companies conceptualize the city’s public(s) differently? And how are digital technologies themselves deployed as instruments for the production of a particular kind of public?

I investigate these questions in a case study of digitally mediated mobility policy, practices, and technologies in the Seattle area. This qualitative study, which is ongoing, comprises field interviews with the professionals who envision, develop, regulate, and monitor these systems; discourse analyses at national industry conferences; archival review of city and industry documents; and an examination of the digital tools themselves. I then analyze these data with reference to three types of publics described by planning theory: publics of dominance, consensus, or pluralism. In broad terms, I find that technology companies and their products favor a public of dominance in which they set clear rules, enforced digitally, for users’ behaviors. They model a city of self-interested individualism in a system that can be optimized towards prescribed ends. Planners tend more towards a consensus-based public serving an idea of a shared public interest, including ostensibly common values like equity and sustainability. Meanwhile, the inhabitants of the city implicitly resist these structures, creating a pluralistic public in simply going about their everyday lives in their own particular ways. These conflicting notions of the public are made visible in concrete disputes over right-of-way use, permit fees, financial and technological barriers to access, and the geographic distribution of vehicles, for example.

This work engages primarily with two fields of scholarship. First, it contributes to planning theory’s enduring interrogation of the idea of the public interest—questions of its existence, nature, and knowability, as well as normative theories of how the state or the market ought to serve it. More specifically, this study uses the current activities around novel transportation systems to illustrate a tension between municipal, corporate, and inhabitant control of the means of moving through the city. Second, the research highlights the role of software as an agent of politics in the city. Informed by literature in critical software studies and urban transportation, it offers one lens through which smart city scholarship and practice can view the uneasy links between designed technological systems and the messy social relations of urban inhabitants. Such a perspective is increasingly necessary as normative visions of the city are written and performed in code.

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Key Words: digital technologies, planning theory, mobility, publics, smart cities

THE PLANNER'S PENTANGLE: A 21ST-CENTURY MODEL OF PLANNING FOR SUSTAINABLE DEVELOPMENT

Abstract ID: 516

Individual Paper Submission

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At an ACSP Conference (1992) and in a subsequent 1996 JAPA article, one of this paper's authors (Campbell) proposed "the planner's triangle" of three fundamental priorities: economy, equity, and environment (the 3 Es). If successful, planners overcome the conflicts that exist inherently between each pair of priorities, and move their community toward sustainable development -- the core and overarching goal of community planning. The simplicity of the diagram -- an equilateral triangle with sustainable development appealingly in its center -- made the schematic both accessible and acceptable.

In this present paper, we suggest that it's time to move on from the triangle. We do not dispute the importance of sustainability's larger goals (especially in this era of climate change); but is sustainable development, as currently conceived, a compelling central goal of planning? Does it provide sufficient analytical substance to fuel core debates in planning theory and intellectual history? (Too many theory debates completely and blithely ignore sustainability.) We will not assert that another concept (e.g., resilience, globalization, diversity) is better suited as planning's central goal. Instead, we acknowledge that sustainability will remain a prevalent idea in planning for some time, and we therefore seek to enliven planning's engagement with it.

Our thesis: The triangular model suffers from two basic shortcomings. First, it ignores the roots of the modern-age planning profession. American community planning became institutionalized on the footsteps of two movements: the sanitary and housing reform movements, focused on public health; and the municipal art movement, concerned with the esthetic qualities of cities, reflected in the name of planning's first "paradigm," the City Beautiful. Second, the links between planning and health, on one side, and planning and art, on the other are growing stronger. A 21st century model of planning for sustainable development, inclusive of its 19th-century roots, recognizes five priorities: Wellbeing, Esthetics, Economy, Equity, and Environment (or WE⁴).

We therefore argue for converting the triangle to a pentangle on both historic and contemporary grounds. We also argue that the pentangle is better equipped to represent planning because unlike the triangle, which emphasizes conflicts, it represents overlapping connections and potential collaborations. The model suggests a simple and workable disciplinary definition. Planning is the conscious pursuit of a community's long-term sustainability: to maximize benefits in the broad realms of wellbeing (healthy cities), esthetics (arts, culture, sense of place), economic development, social equity (justice), and environmental protection (regeneration). Planning's role is to work collaboratively and strategically to overcome conflicts between these goals in the search for the maximum common ground.

We recognize that the planner's pentangle, much like the triangle, can be easily criticized. Schematic representations of complex reality are merely heuristic and unavoidably reductionist. A skeptic might well say -- why stop at just five planning priorities? -- until the diagram expands and approximates an n-sided circle, falling into Wildavsky's famous 1973 trap, "If planning is everything, maybe it's nothing."

We therefore advocate parsimoniously adding two new priorities. This revision is more than merely a numerical shift. It both more accurately represents planning's heterodox history and enriches planning's priorities. The pentangle explicitly encourages the engagement of the deep architectural/urban design and

public health traditions as equal partners in planning's origins and worldview. If we care about promoting the "good city," then the triangle and its three (somewhat austere) Es don't provide sufficiently rich and substantive guidelines, values and visual models of this city to move forward. We need the rich traditions of city design and healthy cities to round out our practice (and our theories), to highlight our profession's substantive expertise, and to expand the appeal and vision of urban planning to a larger public.

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Key Words: Planner's triangle, planner's pentangle, planning history, planning theory, sustainable development

PLANNING WITH(IN) COMPLEXITY: PATHWAYS TO EXTEND COLLABORATIVE PLANNING, INCREMENTAL PLANNING, AND BIG DATA WITH COMPLEX SYSTEMS MODELING

Abstract ID: 518

Individual Paper Submission

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Urban Planners are increasingly incorporating elements of complex systems (new kinds of data, computational tools and mathematical skills) into their discipline. But a richer engagement with complex systems should go further. Complexity provides a means to reposition and reframe planning's relationship to theory, to interactive learning, and more broadly, to the future. In this paper, we examine three pathways for expanding the influence of complex systems in planning: rethinking incrementalism, expanding the range of collaborative planning, and reframing the contemporary preoccupation with urban Big Data.

We begin by revisiting and re-articulating Rittel & Webber's "wicked problems," and demonstrate how the complex systems framework acknowledges and builds an understanding around the factors that give rise to wicked problems: interaction, heterogeneity, feedback, neighborhood effects, and collective interest traps. We emphasize "wicked complexity" as an aide-mémoire and cautionary note. We seek to steer planning away from misreading complex systems modeling as simply an unproblematic resuscitation of mid-century optimization models, super-charged with contemporary computational power and data.

We then engage three central planning practices. The first is incrementalism, a perpetual cautionary warning against large-scale planning since Lindblom's seminal 1959 essay. We argue that complex systems thinking provides a fruitful way out of the restrictive comprehensive-incremental dichotomy. Both complex systems and incrementalism assume that no individual can fully predict the future. But at that point they diverge. Lindblomian incrementalism is skeptical and defensive: it bumps up against the limitations of information access and processing in a complex world and defaults to marginal, short-term corrective actions (first-order learning). Complex systems tools help planners explore the impacts of action by tracing the consequences of individual/localized decisions on system-wide effects over time. Complexity encourages planners to consider not only how to correct planning strategies, but also whether to change or abandon the chosen pathway. Complex systems modeling enables the representation of cross-scale interactions and feedback, allowing for the continual re-examination and revision of both goals (second-order learning) and paths to realizing them (first-order learning).

The second is communicative action planning. Collaborative planning encourages groups to collectively negotiate, make deeper interests explicit, and shift from starting positions towards both compromise and creative new solutions. This scholarly focus on dialogue, debate and deliberation has spurred exploration and experimentation into new communicative practices. But what if the participants' collective knowledge and discursive problem-solving skills are not enough to address the biophysical, technical, economic, or institutional complexity of the problem? Scale, complex interactions, tacit knowledge, long-time frames and too many stakeholders often overwhelm conventional communicative action planning. Complex systems thinking does not replace communicative action, but rather enables these discursive and deliberative practices to work better in large, interactive, complex environments.

The third is the contemporary fascination with Big Data and its alluring but illusory premise that we could plan better if only we had (much) more data. We draw upon the lessons of complex systems to argue that the issue is not a lack of data, but instead the lack of coordination, collaboration, and communication. Big data alone does not enable us to understand trade-offs and how to negotiate around them. It is not data uncertainty, but structural (and social) uncertainty, that hinders our planning of wicked, complex problems. The narrow preoccupation with Big Data is distracting: it is ineffective without informed deliberation and rich context.

Overall, we do not see complex systems as a stand-alone theory or methodology that should replace existing planning paradigms. Instead, we advocate for the incorporation of complex systems thinking and tools into existing planning theories and practices, and make the efforts conceptually accessible, visually powerful, and normatively compelling to both their colleagues and publics.

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Key Words: complex systems, wicked problems, communicative action, incrementalism, Big Data

BACKFILL TO THE CITY MOVEMENT: DEMOLITION BEYOND AUSTERITY AND GENTRIFICATION IN DETROIT, MI

Abstract ID: 630

Individual Paper Submission

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In 2014, the Detroit Blight Removal Task Force (DBRTF) - an ensemble of Detroit, MI public institutions and development interests - released the findings from a study of parcel conditions in the city. The citywide survey concluded Detroit faced 80,000 residential properties in some stage of deterioration. For city leaders, the scale and ubiquity of post-subprime crisis housing abandonment thwarted the city's future developability. The DBRTF's action plan predicted the city and its partners needed \$1 billion to fund residential demolition and reset the city's property market. By the end of 2014, Mayor Mike Duggan's office teamed with the Detroit Building Authority (DBA) and the Detroit Land Bank Authority (DLBA) to establish the Detroit Demolition Program (DDP). The DDP drew on local, state, and federal sources to launch a comprehensive assault on blighted houses. Almost five years later, the DDP has allocated over \$170 million to regional contractors to demolish 16,000 structures. The DDP is the largest residential demolition program in US history.

In this paper, I analyze the consequences of contemporary residential demolition for Detroit and its evolving real estate market. Demolition is an important but understudied aspect of urban change (Weber, et al 2006). One current of critical scholars in urban studies and planning approach demolition as a form of creative destruction erasing obsolete structures to establish space for new rounds of investment and accumulation (Rosenman & Walker 2016). From this perspective, demolition serves as a vital constituent of gentrification because it can tilt the seesaw of capital towards inexpensive urban centers with the chance for high yields from speculative investments. Another current of research on demolition approaches it as an expression of austerity politics that looks to eradicate unstable neighborhoods and the responsibilities their challenges leave on city budgets (Hackworth 2016). In both instances, demolition is associated with dramatic demographic and spatial transformations. Outside of those approaches, demolition is often dismissed as a technical intervention with social consequences. My research considers whether austerity and gentrification are thorough explanations for the use of demolition in American cities. Is demolition a precondition to class restructuring or a marker of public disinvestment? What political or economic purpose has demolition served in Detroit and whose interests have these demolitions served?

I argue that existing scholarship on demolition is insufficient for understanding the geographic and political-economic contradictions of capital in declining cities like Detroit. Drawing from analysis of Detroit property records, city backfill transactions, and public demolition data, I illustrate how Detroit's demolition program may not be reducible to austerity or gentrification processes. My mixed-methods research focuses on the real estate transactions enabled by the demolition program. Demolition's relationship to value and developability is not axiomatic nor automatic. By concentrating on the spatial patterns of demolition backfill, I show how a regional network of contractors, excavators, haulers, and property owners have captured the city's demolition program and mobilized it to prioritize their own

financial interests. The DDP's efforts to find and finance millions of cubic yards of demolition backfill to fill excavated basements illustrates an accumulation strategy that conflicts with the stabilization and revitalization of Detroit. The backfill program encompasses public policies and private property arrangements that trouble categories employed to comprehend urban decline and craft solutions to decline. The geographies and geomorphologies of this material introduce markets and relationships in which sand, gravel, and dirt become money in disguise. Moreover, these relations unsettle how planners and policy practitioners understand urban change in declining cities.

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Key Words: Demolition, Political Economy, Detroit, Decline, Real Estate

SAFEGUARDING COLLECTIVE INTERESTS? HOUSING COOPERATIVES IN AMSTERDAM AND SÃO PAULO

Abstract ID: 684

Individual Paper Submission

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All over the world, urban housing markets are characterized by a growing affordability crisis. This is exacerbated by the on-going commodification and financialization of housing production. This article investigates the capacity of housing cooperatives with respect to dealing with housing affordability for lower- and middle incomes in urbanized city-regions through the cases of Amsterdam and São Paulo. This paper has two aims. Conceptually it seeks to develop a typology of housing cooperatives through dimensions of ownership. Empirically, the paper develops a comparative institutionalist analysis of the establishment of housing cooperatives in Amsterdam and São Paulo and how residents' interests are positioned vis-à-vis collective interests. The paper hypothesizes that, in order for housing cooperatives to provide enduring contributions to housing affordability, it is necessary to position income rights at the level of the organizations. However, this conflicts with existing institutional arrangements, forcing housing cooperatives to opt for individual ownership structures and compromising their capacity to provide enduring affordable housing

Housing cooperatives are understood as collective self-governed housing organizations based on principles of shared ownership and democratic control. In Amsterdam and São Paulo, housing cooperatives have risen to the fore as one way of tackling pressing housing issues. Amsterdam is one of the most unaffordable housing markets in the world, characterized by growing influx of financial capital and a declining social housing stock. Interestingly, it is in this context that cooperatives have been championed by political governing coalitions as a potential remedy for housing affordability for lower- and middle-income groups. At national and local levels, policy support has been introduced to housing cooperatives. São Paulo is marked by a lack of affordable housing and social segregation. In this context,

social movements have championed for lower income housing. These movements use both formal participation, as well as occupations of land and buildings in the city center of São Paulo. In some instances, these social movements have been able to successfully realize housing cooperatives, aided by a combination of federal funding programs and technical partnerships.

Cooperatives may provide a partially decommodified housing alternative, based on principles of democratic control and shared ownership. They are a variety of collective, self-managed housing production that is both affordable, and attuned to residents' use values. However, they are not immune to processes of marketization and bureaucratization, both from within as well as outside. These processes may threaten the capacity of housing cooperatives to provide enduring affordable housing solutions. This raises questions regarding the conditions that contribute to the long-term robustness of cooperatives. Such conditions are invariably mediated by the institutional context in which housing cooperatives are embedded. Housing cooperatives' capacity to contribute to a decommodified housing stock and affordable housing on the long-term is dependent on the way in which ownership is arranged within the organization. This concerns the question of how members' individual interests are positioned and established versus the collective interests of the housing cooperative and society. In this nexus, there exists a wide variety of options, depending on the ways in which particular tenures are embedded in national legal systems among others. Moreover, ownership and governing structures are often the outcome the processes of articulation between residents within an organization, as well as between cooperatives and other stakeholders which provide support. In both the Netherlands and Brazil, the cooperative model is not a well-established variety of tenure for housing and lacks legal recognition. This makes these contexts particularly interesting to investigate the establishment of cooperatives and how actors define ownership and governing structures. Scrutinizing this process may help identify the conditions that establish the long-term robustness of housing cooperatives with respect to housing affordability.

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Key Words: Ownership, Housing cooperatives, affordable housing, Netherlands, Brazil

THE IDEOLOGY OF TECHNOLOGY IN URBAN GOVERNANCE

Abstract ID: 690

Individual Paper Submission

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This article argues that the turn towards smart cities, emphasizing solutions, services, and infrastructures driven by digital technologies, has created a dominant ideology shaping urban decision-making, frameworks, and outcomes. Over the past decades, the information technology (IT) sector has become increasingly intertwined with city governments and influential urban actors, who promote technology to bring prosperity and economic dynamism to urban regions and address social ills. Urban leaders have advanced a “smart cities” vision of urban transformation to advance this agenda, part of the broader discursive and material deployment of digital technologies, with aims to transform society. In this article, we depict a rising ideology of technology, which, though widespread across domains, has acquired particular potency in urban governance through by advancing “smart cities” technological tools and industries.

Two core dimensions of this ideology of technology in urban governance interact to consequentially reshape urban processes:

- (1) the priority of attracting digital technology industries as engines for urban economies, and
- (2) the tendency to reframe urban problems into technological problems, to be addressed by technological solutions.

We argue that this ideology has come to define and reshape many contemporary urban regions. Together, these mechanisms privilege technological needs, capacities and priorities in urban governance, contributing to the exclusion of people and problems beyond the scope of technology. While not unprecedented, this ideology of technology has acquired renewed potency with neoliberalized urbanism, urban restructuring, and the ongoing information revolution. Furthermore, the ideological nature the emphasis on technology firms and tools builds upon the growth machine to advance a new variation of urban growth, with different implications due its pervasive spatial and social impacts.

We build our argument through two North American case studies that illustrate various configurations of the urban ideology of technology. First, San Francisco, which epitomizes the embeddedness of digital information technologies in the urban fabric and planning process –weakening other perspectives and sources of resistance. Second, Pittsburgh, an emerging technological hub characterized by a growing backlash against the ideology of technology, resulting from Uber’s use of the city as an autonomous vehicle testing ground.

economic growth, but to reimagine the city itself –leading to a much-publicized campaign to build a new district on ~800-acres of waterfront with Google’s Sidewalk Labs, whose stated goal is, tellingly, “reimagining cities from the Internet up”.

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Key Words: Ideology, Technology, Growth Machine, Economic development, Planning theory

REPEAT PHOTOGRAPHY AS A PLANNING TOOL TO INTERPRET AND EXPLORE URBAN CHANGE

Abstract ID: 716

Individual Paper Submission

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There is a growing interest in urban planning in both understanding long-term trends in cities and using visual methods to document and analyse the city. To date, few studies have combined these two approaches to provide a visual analysis of urban change. This paper examines the concept of repeat photography or rephotography, and the contributions it can make towards theoretical, methodological, empirical and policy debates about cities. Repeat photography involves an analysis of photographs taken at the same location at different moments in time (often years apart) and relies on either the photographer revisiting the same spaces, or using various forms of archival or historic photos as the starting point (Rieger, 1996; Deverteuil, 2004). With its origins in geology, its use within urban research has been limited (Metcalf, 2015), with the photographer-sociologist Camillo Vergara's work being most prevalent. He has meticulously photographed American inner-cities since the 1970s to depict the changing nature of what he calls the 'new American ghetto' (Vergara, 2016).

While much of the critical visual literature has become hostile to the potential of visual imagery itself, arguing that no image can be truly useful because every image is socially constructed, I echo Elvin Wyly's more optimistic tone, that, with a constructive critical approach, we can move beyond this disillusionment to a position where photographs can "begin conversations, not end them" (Wyly, 2010, p. 504). Urban change is a major topic of conversation among planners, policymakers, academics and the general public and visual accounts of change are often the starting point of these discussions. Repeat photography can ground these conversations within actual visual evidence that document visual manifestations of changes large and small.

In this paper, I will discuss three ongoing repeat photography projects that each analyse different aspects of urban change over different periods of time. The first involves historic images taken by streetcar or trolley enthusiasts across North America, primarily in the 1960s. Analysing these photos involves focusing not on the primary subject of these photographs – the trolleys themselves – but rather on the backgrounds and streetscapes that are captured around them. I call these photographers 'accidental archivists' because the by-product of photographing trolleys has unintentionally produced a wealth of visual data about ordinary urban spaces that would have otherwise gone unrecorded. Combining these historic images with contemporary repeat photography of the same locations helps help to interpret and situate the complexities and geographies of long-term changes such as the shifting nature of urban economies away from manufacturing.

The second is an analysis of the work of local photographers who are documenting urban change in my own community of Kitchener-Waterloo, mid-sized region in southern Ontario. Our rapidly growing region is opening a new light rail transit line, which has been the catalyst for more than C\$2 billion in investment along its route. The ways in which this capital has shaped the urban landscapes is the subject of this analysis. The final repeat photography project involves my own images of Detroit, which I have taken since 2012 and focuses on the spatially uneven nature of its recent processes of urban redevelopment and decline. In critical urban scholarship, repeat photography has the potential to contribute to 'exposing' unjust conditions, as outlined by Marcuse (see Wyly, 2010). I would also argue that it is can

play an important role in clarifying, grounding and contextualising key processes, concepts and phenomenon, thereby contributing to robust conversations about the future of cities.

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Key Words: repeat photography, urban planning, planning theory, visual theory, urban change

"RECONSTRUCTING" PLANNING: RACE, REPARATIONS, AND PLANNING HISTORY

Abstract ID: 775

Individual Paper Submission

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Within planning theory, the principle of racial justice is often thought to be subsumed within the normative content of the communicative, equity/ advocacy, Just City and, more recently, therapeutic planning traditions. But aside from the orientation of these theories toward pluralism and Left/ social democratic values, they are a long way from endorsing (or even engaging with) the principle of corrective racial justice. There has yet to be a systematic attempt at developing a normative, explicitly anti-racist, planning tradition that deals with the legitimized "appropriate baseline" of white supremacy in its material (economic), ideational, cognitive-evaluative, and deeply ontological sense (Harris, 1993; Mills, 2003). As I have argued elsewhere, this is partly the fault of our inability to recognize the transparent (doubly epistemically invisible and quite obvious) tradition of racial planning (Williams, 2018).

But though a corrective justice-centered approach has yet to receive academic articulation, it has been historically attempted in planning practice. From the 1860s through the 1870s, the United States fought intense battles to shed the country's fundamental entanglement with the system, global in its scope, of de jure white supremacy. Chief among those battles was the Civil War. But as was known then and is still know now, the repudiation of racial slavery would not alone be enough to help the former slave population participate in free society on equal educational, political, and economic terms; for that, a reparative planning was required. It is my contention that we should take stock of the efforts of Reconstruction era black theoreticians, activists, and Radical Republicans as part of the general history of planning as "the public production of space" (Yiftachel, 1998). The promised "40 acres and a mule" along with several other proposed policies, some of which passed both the House and the Senate only to be struck down via unilateral executive veto, should serve to remind us of our moral obligation to advance corrective/ rectificatory and transitional justice. We need to extend the planning historiography of spatially determinist architects and "progressives" of the settlement house movement to include the radical voices of those involved in the preceding "Reconstructing" of America spatially, socially, developmentally, and politically. That said, focusing on the Reconstruction era, I offer a radically revisionist history of planning that centers white supremacy as a sociopolitical system and articulates how reparations might have been (and now should be) one of our guiding professional principles.

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Key Words: Planning Theory, Planning History, Critical Race Theory, Race, Justice

OF TREES AND ROCKS: WHAT THEY MEAN AND WHY THEY MATTER FOR CITIES

Abstract ID: 890

Individual Paper Submission

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This paper explores the structures of meanings surrounding two kinds of natural objects found in cities: trees and rocks. Urban forestry and urban ecosystems studies focus on the ecological services urban trees provide (shade, dust and noise reduction, stormwater infiltration etc.). Studies also abound on the mental health benefits of trees (they reduce stress and blood pressure, they support healing and recovery). Yet, these analyses miss a third and essential dimension of trees: their symbolic meanings. Similarly, rock materials (cornerstones, Class of 1976-type boulders, mountaintops in the distance) amount to more than their materiality: they carry symbolic meanings urban residents care about.

Trees and rocks mean many things to different people. We can consciously choose to attribute meanings to them and care for them, as in communities across the U.S. struggling to save some Ash trees from the EAB infestation. But to a large extent, these meanings are unconscious and not transparent. They are quietly and subtly incorporated in our collective consciousness, in our knowing and thinking processes. They are built in the history of humans' attachment to trees and rocks. In the West, these attachments build on many ideas and images, from the Tree-of-Life and Tree-of-Knowledge to the Sermon on the Mount, from the olive tree of peace, the oak of wisdom and the giving apple tree to the permanence of rocks as large as megaliths and as small as the river and beach pebbles in our pockets. We argue that it is important to make the many layered meanings of trees and rocks more explicit in order to better care for them in the public domain.

Trees and rocks, as living and non-living natural objects have aesthetic and symbolic dimensions that professionals engaged in managing the urban landscape need to understand. People care about trees and rocks. This care stems from meaningful (if not explicit) relationships with these objects, and can trigger responses that shape urban decisions, e.g., to remove or treat ash trees, to build upon or preserve hillsides. Aesthetic and symbolic understandings are typically taught in art and art history education. Art education doesn't tell us much about trees and rocks per se, but it does inform us about their symbolic place in Western cultures. A reading of ancient texts (the Old and New Testament, the Quran) provide the foundational texts for understanding these deep-seated meanings.

Planning theory says nothing about the symbolic meanings of urban objects. We thus propose an understanding (or rather a way to interpret) the aesthetic and symbolic meanings of trees and rocks based on ancient texts and works on aesthetic symbolism. This paper is theoretical inasmuch as it pertains to the problems of interpreting the more-than-literal meanings of the built, planted, natural and designed outdoor urban space. It is also very practical as it provides planners a serviceable aesthetic vocabulary, especially with respect to objects that are not merely decorative or picturesque, but that are contemporary illustrative examples of urban nature.

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Key Words: Trees, Rocks, Symbols, Meanings, Urban forestry

CAN PLANNING LEARN FROM ITS MISTAKES? EXPLORING THE DIALECTICS OF FAILURE ACROSS 60 YEARS OF URBAN RENEWAL AND NEIGHBORHOOD REVITALIZATION EFFORTS ON CHICAGO'S SOUTH SIDE

Abstract ID: 938

Individual Paper Submission

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The Urban Renewal era (1949-1974) stands simultaneously as the planning profession's most glaring failure of the 20th century and the high water mark of Federal financial and political commitment to central cities (Teaford, 2000). On the one hand, billions of dollars were dedicated to "slum clearance" and infrastructure funding in an attempt to "modernize" and "rationalize" aging urban neighborhoods in order to make them more competitive locations for businesses and middle class residents. However, Urban Renewal has also been widely criticized for its top-down administration and displacement (Gans, 1968), wasteful spending (Anderson, 1964), harmful economic impacts (Jacobs, 1961) and as a design failure. Most importantly, Urban Renewal has been shown to be inherently racist in its implementation (Hirsch, 1998), with African-Americans communities disproportionately displaced and damaged economically, politically, and even psychologically (Fullilove, 2009). Because of both its high profile failures and broad impacts, the policies and practices of Urban Renewal have left a deep impression on nearly all efforts to revitalize inner-city neighborhoods in the following decades. This paper traces the legacy of Urban Renewal across four closely related cases in Chicago's South Side. The first is the well-known case of Hyde-Park Kenwood (1958) which used millions in Federal funds to "stabilize" neighborhood racial transition and promote integration while displacing over 4000 low-income families (Abrahamson, 1971). The second case in neighboring Englewood involved selective slum clearance in the early 1960s to redevelop a major commercial area at 63rd and Halsted into a suburban-style mall. The scheme ultimately failed and sparked significant community opposition which ultimately helped connect Urban Renewal with "negro removal" in local and national political spheres. In contrast to these initial uses of neighborhood Conservation Community Areas under the official Urban Renewal program, the final two cases are more contemporary. In North-Kenwood-Oakland (1990s) city planners and neighborhood residents used urban renewal era policy tools that were still on the books to promote a

market-driven residential renaissance without federal funding. And most recently, Woodlawn was designated a Choice Community by the Department of Housing and Urban Development. These case histories will document the “dialectics of failure” where the lessons learned in one neighborhood program are anticipated, incorporated and in some cases repeated or avoided in subsequent plans. Through detailed archival analysis, this paper will document how the planning profession defined key stakeholders and how the power to make decisions was passed unevenly from Federal to City and community representatives. Ultimately, the analysis of the evolution of neighborhood revitalization efforts over a sixty year period will test the claim that planning can learn from its failures.

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Key Words: Policy Learning, Urban Renewal, Planning Theory, Neighborhood Development, Problem Framing

PLANNING THE COMMONS

Abstract ID: 960

Individual Paper Submission

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What roles do planners have in governing the commons? Elinor Ostrom’s (1990) argument for the possibilities for grass-roots governance of commons resources emphasized three mechanisms for successful community management: cognitive, social, and contextual. Research by behavioral psychologists (Kahneman, 2013) has described the mechanics of individual choice. Scholars studying complex social-ecological systems have outlined the contextual factors driving the destruction of the commons (Poteete, 2010), and institutionalists have identified community capacities needed to solve collective action problems (Ostrom, 1990). Still lacking, however, is an account of how planners, acting as “external agents,” can improve commons governance.

In this paper, we argue that planners are well-positioned to engage with each thread of this interdisciplinary mix. The planning literature provides insights into changing the underlying conditions that structure resource use. Planners can elucidate the normative and social interactions that connect individual behaviors, and they can systematically affect the cognitive, social and contextual mechanisms underlying community governance (Forester, 1999).

To illustrate, we reinterpret a classic 19th century case of irrigation commons governance in the Western United States. As documented by Katharine Coman (1911), a self interested group of farmers organized to irrigate a watershed in present-day Idaho with the help of an “enthusiastic” government engineer, who was said to have helped the farmers act collectively in spite of their proclivities toward “rugged

individualism.” Elinor Ostrom (2011) re-analyzed this case a hundred years later from an institutional economic perspective. Ostrom’s account also highlighted the engineer’s role and provided more detail: he brokered trust and shared knowledge to evoke cooperation. Thus, no practical insight was offered into how the engineer evoked cooperation. Yet this is precisely what the planning literature has identified as critical to successful community and group interactions. Neither Coman’s or Ostrom’s accounts can tell us what the interactions looked like: planners have an opportunity to fill in the blanks.

Reading this case through a planning lens, we identify how planning provides a range of systematic procedures and processes for evoking cooperation. We suggest that the engineer was likely doing much more than has been noted from the classical and institutional economic perspectives, and we argue that planning offers a better understanding of how planners can be proactively and constructively involved in the design of commons governance institutions - even when acting as external agents. By incorporating planning methods and practices, we provide alternative descriptions of what the engineer may have done to evoke cooperation in Coman’s case, and in this way, we demonstrate how planning skills are vital for the design and durability of institutions for governing the commons.

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Key Words: commons, planning theory, methodology

THE TEMPORAL TURN OF CONTEMPORARY CHINA'S URBAN RENEWAL STRATEGY - A CASE STUDY OF SHANGHAI URBAN NETWORK OFFICE

Abstract ID: 1016

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In the Second Machine Age characterized by the Internet revolution, people's understanding of the concept of time and space is being completely rewritten. Under the nonlinear time narrative of the Internet era, new elements and new orders continue to flow into the original urban system, which leads to a large-scale serious decline of physical space. With the advent of the 5G era, there is no doubt that the spatial and social structure of contemporary cities will continue to be reshaped. At the end of 2017, China's Internet economy has accounted for 6.9% of GDP, and the number of Internet users reached 772 million, making it the second Internet country after the United States. The emerging network society has become a very important part of the contemporary Chinese public sphere, and it has strongly promoted

the construction of political, social and cultural fields.

Based on this, the inevitable breaks have arisen between the traditional urban renewal logic that emphasizes physical space and the new increasingly complex urban problem context. However, there are only a few studies on the transformation of this social movement in the field of urban planning. Therefore, in order to explore the new role of Chinese citizens in the participation of public affairs and also the new challenges faced by urban planners, the paper makes a theoretical discussion on how the shift of time concept reshapes modern lifestyles and modern cities. At the same time, combined with the analysis of an innovative urban renewal practice "Urban Network Office", the author also discussed the form and revival strategy of public space. The study found that by creating an electronic public space to connect online and offline public areas, a vibrant catalyst emerged and effectively connected the resources of society, government, schools and other parties. By studying the connection between virtual and real public space, the author finds that the flow space does not simply destroy the local space. Even in a highly networked metropolis, the value of information can only be truly connected to people's real life by using physical space as a hub to transform it. Therefore, by transforming itself into a public medium to participate in the interaction link, the traditional space can successfully integrate itself into the information feedback system, which may indicate a possible urban renewal paradigm in the coming digital age.

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Key Words: Second Machine Age, nonlinear time narrative, network society, Urban Renewal, China

SPECULATIVE INFRASTRUCTURES: WORLD CLASS CITY MAKING IN SOUTHEAST ASIA.

Abstract ID: 1058

Individual Paper Submission

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Urban development in Ho Chi Minh City is simultaneously a highly bureaucratic and flexible process, a paradox born out of the city's development at the nexus of state and market practice—what is now referred to as late socialism. Decentralized political-bureaucratic units and foreign investors who bring capital and infrastructural expertise to the city negotiate and implement a wide range of city making possibilities. This form of city making produces multiple and often times competing financial and spatial arrangements predicated on a diverse array of foreign investor-developers, multilateral development institutions, and government agencies, each of which deploy different interpretations over the meanings of land, market and government under late-socialism. The result is an urban landscape where each project reveals different logics of development, regulations and legal permissions that bring the material city to fruition.

Cutting across this patchwork of urban development, are large scale infrastructure projects conceived, planned and built by foreign investors and development institutions: roads, metro/subway developments, power plants, ports and industrial parks, water and flood management systems, etc. Such projects are often planned as coherent wholes, but must subsequently be disarticulated and disassembled in order to deal with the realities of the city's fragmented and decentralized geographies. Further, infrastructure projects themselves are diverse. The making of infrastructure projects are conditioned by the source and type of investment and the conditional and contingent connections they forge with government agencies. This diversity creates various kinds of infrastructure projects, each standing upon a set of "infrastructures of infrastructure" made up of the different logics of development, contingent historical developments, various and conflicting legal and regulatory frameworks and principles of planning and growth. In this paper, I examine how differences condition the material outcomes of completed projects in the city.

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Key Words: Infrastructure, Development, Finance, Southeast Asia, Vietnam

REVISING THE MODERNIST CITY: DEMOCRACY AND URBAN GOVERNANCE IN CONTEMPORARY BRASÍLIA

Abstract ID: 1142

Individual Paper Submission

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Brasília was built from scratch in the center Brazil beginning in 1956 and became inaugurated as the country's federal capital in 1960. For decades, US-based planning conversations about the city have been mostly negative. Brasília is held up to epitomize the hubris and failure of modernist over-planning: it is auto-oriented, exhibits an extreme separation of uses, has no flexibility for adjustments, and is characterized by deep inequalities.

In this paper, I examine key, influential critiques of Brasília and evaluate their continuing relevance in light of substantial changes in the city's urban structure and governance in recent decades. I first assess the evolution of critical representations of the city and its identification as the modernist city par excellence, focusing on the Anglophone literature that has informed scholarship and pedagogy in US planning circles (Epstein 1973, Holston 1989, Scott 1998, Hall 2014/1988). Thematically, these works emphasize the contradiction between utopian modernism and traditional aspects of urban politics and design in Brazil, juxtaposing the sterility of the then-recently built central district with the proliferation of unplanned and informal satellite cities. They highlight the stark spatial inequalities between these places as the unintended – but inevitable – consequence of the high-modernist urban design. Yet the empirical evidence on which these works stand dates to the late 1960s-early 80s, a period during which Brasília was still a new city and Brazil was governed by a military dictatorship. To what extent is their critique of Brasília still valid? How has democratization since 1985 shifted the dynamics of the city's urban development? Six decades after Brasília's creation, what is the legacy of its modernist design?

I address these questions through a case study of Brasília's urban development since the 1980s, drawing on planning documents, secondary literature and news articles, and ethnographic-style fieldwork. I emphasize three themes: 1) the expansion of urban services in the satellite cities, focusing on the role of democratic political institutions; 2) the evolution and adaptation of modernist design elements; and 3) innovations in social policy at the local level. I find that in recent decades, politicians have responded to democratic pressures with measures that extended formal recognition to satellite cities and expanded access to transportation services and social policy assistance. The effects of these initiatives have mitigated some of the spatial exclusions inherited from the city's early days. Further, as planning interventions have alleviated some aspects of Brasília's high modernist legacies, such as its heavily auto-oriented design, new challenges have emerged at the regional level that are completely unforeseen in the North American scholarship (Paviani 2007).

Though today's Brasília is certainly not a city without inequalities or other urban problems, I argue that the established critiques of Brasília are incomplete and misleading in light of subsequent historical developments. Many of the problems that they identify are attributable more to the authoritarianism of the era's politics than to the particularly modernist spirit of the city's design. I conclude with a appeal for a more active rejuvenation of the canons of planning pedagogy and scholarship in order to accommodate the ongoing historical evolution of cities and offer up new lessons that may be of greater contemporary relevance.

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Key Words: Brasília, modernism, politics, inclusion, history

RESILIENCE FROM BELOW: FACING UPHEAVALS IN THE LATINX COMMUNITY OF CHELSEA (MA)

Abstract ID: 1155

Individual Paper Submission

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The City of Chelsea (MA) is one of three cities in the Boston Metro Region (alongside with Lawrence and Holyoke) that is minority-majority occupied as 65.9% of the population is of Latinx heritage, primarily Salvadorian, Honduran and Puerto Rican. In the early 90s, high corruptions of public offices paralleled social tensions mainly due to ethnic conflicts, street crime, and demoralized police (Bash et al. 2000). These events culminated in the city bankruptcy, a major economic upheaval that unquestionably marked the urban history of Chelsea in 1991, when the state of Massachusetts legislature placed the City of Chelsea into receivership. Such a major event prompted the City and its community to engage in a

process of re-imagining their future while addressing pervasive conflicts “from below” (at the community level) and “from above” (at the city level). A major milestone was the achievement of the City Charter in 1993 after a long process characterized by an exacerbated ethnic and social conflict, but also unique mediation abilities (Forester 2013, Chapter 8) used to reconcile forces from “above” and “below”. Lessons learned from this turning moment – still very recent in the history of Chelsae – are still at the basis of a public civic life where non-profit organizations, citizens, and city departments try to maintain a constructive dialectical relationship to address citywide issues.

Today, increased immigration and the housing crisis are generating a new wave of upheavals: while the City and local organizations keep trying to work together, residents are struggling to have access to basic essential human needs such as food. In 2018 the Chelsea Hunger Network (CHN) Coalition established a capacity building community/university partnership (Reardon 2006) with the Urban Planning and Community Development (UPCD) Program at UMass Boston. The CHN/UPCD Partnership was born to carry out an action research project aimed at generating a community food assessment as background study for the development of community food security strategies. This research project was designed to answer the following questions: What are the structural causes of food insecurity in Chelsea? What collective efforts are currently under way to address these causes? How community-based planning can acknowledge, support, and expand those existing efforts? Findings show how the community’s demand for food security in Chelsea is strictly intertwined with current formal planning and policy decisions affecting local space, culture, economy, and governance. More specifically, findings are unveiling the more complex struggles faced by the Latinx Community to maintain its identity and what practices are currently undertaken to counteract its disruption in the face of today’s upheavals.

Reflecting on those findings, this paper contributes to two main areas of planning scholarship: (1) resiliency planning (Vale 2014) and (2) Latinx place identity construction (Irazábal and Farhat 2008). In particular, it conceptualizes a form of resilience “from below” through the exploration of Latinx collective efforts trying to re-orient Chelsea’s planning and policy dimensions. The paper concludes with a general reflection on how contingent upheavals shape community reactions and how these can substantially inform planning for resilience practices.

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Key Words: Resilience, Food Security, Community-based Planning, Latinx

PLACEMAKING, DISPLACEMENT, AND PLACELESSNESS: ARCHITECTURES OF EXCLUSION IN THE SAN FRANCISCO BAY AREA

Abstract ID: 1219

Individual Paper Submission

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This paper presents new research and pedagogical practice regarding the way we think about the material culture of place, and argues that thinking hard about the meaning(s) of place is essential for community-engaged scholarship and addressing social inequality in our cities. An everyday sort of word, place is nonetheless thick, fraught, and still contentiously defined and employed in urban studies. While exhaustively explored in human and humanistic geography (Relph 1976, Tuan 1977), and social theory (Lefebvre 2009 [1979]; Massey 2005), the concept is also an essential one for how we think about – and do – urban planning, development, and civic life. Drawing on new empirical research – ethnographic observation, photography, and interviews – in the varied landscapes of the San Francisco Bay Area, as well as lessons from two experimental graduate-level urban planning courses – an urban design studio and a qualitative research practicum – this paper works to interrogate the prominent trend of “placemaking” in urban planning, development, and design (e.g. Markusen & Gadwa 2010). It argues that placemaking is intellectually incoherent and frequently elitist and exclusionary in practice, often ignoring existing places while portending a real possibility of both displacement and placelessness (see also e.g. Meek 2018). Displacement through the destruction of existing places and their replacement with architectures of exclusion; placelessness through the reproduction of generic, anonymizing aesthetics (Relph 1976). The paper then applies these concerns to the question of whether planners can, in close collaboration with local stakeholders and everyday community members, possibly design and construct “new places” that are locally meaningful, legitimate, and welcome. Several specific cases from the Bay Area are considered, including a community-driven (and wholly unauthorized) religious and cultural space on an Oakland street corner and a student-facilitated tactical urbanism effort in central San José. The paper concludes by addressing the irony of the new informal places being made every day by the most displaced – the unhoused – and positing a reclaiming of the term placemaking to elevate the importance of these emerging architectures of marginalization for planners and policymakers.

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Key Words: Placemaking, Displacement, Participatory Planning, Homelessness, Placelessness

IN SEARCH OF RADICAL REINTERPRETATION: BEYOND SETTLER STATE REASONABLENESS IN PLANNING

Abstract ID: 1225

Individual Paper Submission

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Much of the history of Indigenous-state relations in Chile has been shaped by planning practices grounded in western understandings of law, and by Indigenous engagement with and opposition to such understandings. Spanish colonial law was used to justify settler presence and land dispossession. Independence was supported by the imposition of Chile's newly created legal system upon pre-existing Indigenous nations, legitimating territorial annexation from the state's standpoint. Today, state planning interacts with Indigenous peoples through the lens of Indigenous rights and recognition following recent developments in international law.

Building on extensive qualitative fieldwork, this paper explores how planning has intertwined with western law to facilitate institutionalized Indigenous dispossession over time and how that relationship unfolds today, using the implementation of the duty to consult as an entry point. First, I trace the evolution of state planning since early colonial times, suggesting that contemporary planning practice is inseparable from this colonial genealogy. Then, adopting an institutional ethnographic approach, I examine the creation of a controversial national consultation regulation through the voices of government and Indigenous representatives involved in the process, as well as Indigenous peoples who refused to participate.

The analysis suggests that marginal improvements in state planning are taking place, especially regarding methodological innovations in participatory planning. However, at a more substantial level, consultation policy serves to proceduralize and restrict the scope of Indigenous rights and the exercise of self-determination under the veils of reasonableness and compatibility with Chilean legal frameworks. Consultation legislation largely serves to create spheres of jurisdiction that limit the scope and spirit of Indigenous rights, produce legal categories amenable to state operations, and attempt to monopolize legal meaning making and interpretation.

When discussing the tensions that characterize planning contact zones (Barry and Porter, 2011) at the intersection of Indigenous and state interests, the planning literature has tended to portray them as emerging from different planning traditions (Jojola, 2008) or planning cultures (Porter, 2010). More deeply, these frictions have been understood as differences that emerge from worldviews colliding (Little Bear, 2009; Matunga, 2013). In other words, as the manifestation of particular ontologies and epistemologies which, in turn, are expressed in ways of planning that differ substantially. More recently, some authors have brought these discussions to the realm of Indigenous sovereignty and jurisdiction (Dorries, 2012; Porter and Barry, 2016). This research expands these debates, suggesting that what is really at play in Chile's planning contact zone is a clash of normative systems. In other words, tensions arising from multiple contrasting interpretations and narratives about what is considered acceptable or unacceptable, allowed or forbidden, legitimate or invalid regarding Indigenous and non-Indigenous coexistence in shared space.

The paper argues that bringing the discussion to the realm of legal orders might push the boundaries of the conversation and make it more productive than keeping it in the realm of culture or worldview. Framing this clash in terms of legal orders foregrounds the normative dimension that is constitutive of planning practice in a way that discussions about culture and worldview do not. Foregrounding legal orders brings a concern for the ways in which planning helps to "constantly create and maintain a world" (Cover, 1983, p. 4) that dictates "what should be done" (Flyvbjerg, 2002) in ways that might offer more robust grounding to challenge existing planning practices and systems. I conclude by discussing how and why understanding the tensions in the contact zone in terms of conflicting legal orders in action might present new ways of thinking about and practicing planning in settler colonial contexts – planning practices that are grounded in legal pluralism rather than in domination by imposition of Chilean law.

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Key Words: State-led planning, Law, Indigenous dispossession, Normative systems, Colonization

INFORMALITY AND EVERYDAY PRACTICES AS CIVIL DISOBEDIENCE IN THE NEOLIBERAL AGE

Abstract ID: 1259

Individual Paper Submission

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This paper explores the relationship between the coinciding rise of neoliberal ideology, so-called informal urban socio-spatial practices, and forms of civil disobedience embedded in everyday practices of marginalized social groups. In lieu of the Keynesian and Fordist politics of welfare and discipline, Post-Fordist neoliberal regimes rely on politics of neglect and criminalization of the poor that result in the growth of socio-spatial “informal” practices and “gray spaces” that are both necessary and illegal. Neoliberal regimes depend on such socio-spatial practices to externalize costs of social reproduction, criminalize poverty, justify regressive policies, reserve a pool of subjugated labor, and sustain its urban regime while at the same time outlawing such practices, declaring them illegal, and regularly punishing them. In order to outmaneuver such restrictions, marginalized social groups develop tactics to reconstitute and reclaim their right to the city. Contrary to de jure rights sought after by organized social movements, everyday practices of dissent achieve a de facto right to the city that remains under-theorized. While recognizing the importance of organized and formal social movements, the paper argues that important and too often overlooked forms of urban resistance in the 21st century take place outside the institutionalized political realms. These least recognized forms of resistance are quite diverse in nature and scope but share some common characteristics such as they reject mainstream politics, are counterhegemonic (in a broad sense as they, explicitly or implicitly, violate state authority), and are local. The argument in this paper merges two lines of inquiry. The first highlights key junctures in the evolution of social movements in the US from the progressive era, the civil rights movements, and up to the contemporary neoliberal era. The various forms of social movements and political resistance are examined along three main dimensions: a) their relationship with the state; b) the scale and scope of political action; and c) the political economic regime in which they were embedded. The second line of inquiry situates everyday practices of marginalized social groups in the context of a political economy discourse on informality and political activism in the 21st century. Everyday practices of marginalized social groups carry characteristics of social movements, from political consciousness to organization, cooperation, resistance, and mutual aid. They also present the potential and basis for radical disruptions as witnessed in the last decades in cities across the world – from both the left and the right end of the political spectrum. The merging of the two lines of inquiry suggests that everyday practices of marginalized social groups constitute a form of social movement that corresponds to the current political economic regime and positions them at the center of contemporary political activism. Drawing on critical contributions from the literature on (new) social movements, political economy of urbanization, and urban informality, the paper provides a framework for exploring social movements in the 21st century,

their potential, and their limitations. The paper concludes with cautionary optimism about possible trajectories and denouements that can emerge from them.

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Key Words: Social movements, Urban resistance, Everyday practices, Marginalized social groups, Neoliberalism

STATISTICS, FORECASTING, POPULATION: THE CALCULATIVE PRACTICES IN URBAN TRANSPORTATION PLANNING

Abstract ID: 1260

Individual Paper Submission

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Technologies and practices of calculation hold a central position in urban transportation planning, and are characterised by a concern for the geographic distribution and movement through space and between places of urban populations. Techniques such as travel demand forecasting imagine urban space as counts of origins, destinations, trips, and modes, and their outputs filter into the policy arena and into the general discourse, with new subways ostensibly easing network pressures and new highways purportedly providing travel time savings for busy commuters.

The core aim of this paper is to begin to characterise the role of the calculative practices in urban transportation planning. I focus on transport planning between 2000 and 2015 in the Toronto (Canada) and Melbourne (Australia) urban regions, using a framework developed from the post-Foucauldian governmentalities literature. I draw upon core and ancillary planning documents, and storytelling interviews with key planning actors from each of the urban regions.

The findings support and develop the notion of the importance of calculative technologies to transport planning. The outputs of the calculative technologies foreclose the thoughts and actions available to planning actors, regardless of their precision or accuracy. Other important technologies, including communication and politics, are rendered in the terms of the models, supporting and reinforcing the primacy of calculation and limiting the available courses of communicative and political action. This amalgam of technologies forms a core feature of the art of government of urban transport planning.

This research offers a novel approach to understanding how the urban transport planning discussion is constituted, and hopefully enables critical self-reflection about the primacy of calculative practices. By destabilising current understandings of transport planning can, I hope to create the space for new approaches to the socio-ecological challenges of the future.

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Key Words: governmentality, transport planning, technologies of planning, Toronto, Melbourne

TRACK 13 – POSTERS

AN EMPIRICAL ANALYSIS OF ECONOMIC FACTORS ASSOCIATED WITH SHRINKING CITIES IN SOUTH KOREA

Abstract ID: 362

Poster

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According to the statistics of the National Statistical Office (NSO) in 2017, the total population of Korea is expected to decline starting from 2031, but it is calculated on the assumption that the total fertility rate will rise. If the total fertility rate (1.05) of 2017, which is the lowest level ever recorded, is reflected, it is predicted that the total population will begin to decrease in 2021. Compared with metropolitan and non-metropolitan areas, the percentage of population in the non-metropolitan areas decreased over the past 20 years, among which the proportion of young people in the 20s - 30s has declined most rapidly. In addition, "declining birthrate" and "population outflow in metropolitan areas" was displayed together and raised the issue of shrinkage cities.

The definition of a shrinking city has been discussed in social, economic and physical aspects. Research identifying shrinking cities using quantitative data, however, mainly focuses on social "depopulation", which makes a gap between the concept and the identification of shrinking cities. There are certain regions whose population declines, but economy flourishes. Therefore, researchers should consider its economic aspect as well. This is why this research focuses on economic indicators for the definition of shrinking cities.

In this context, the purpose of this study is to analyze the economic characteristics of shrinking cities and to identify effective economic indicators.

For this purpose, this study divides the cities in Korea into shrinking cities and unshrinking cities based on existing studies. In order to analyze the difference of economic characteristics between the groups, ANOVA (Analysis of Variance) was employed and economic indicators were identified.

So-called global cities are now experiencing an unprecedented level of decline in population. 370 cities

around the world, which once had a population of more than 100,000 within the past 50 years, are now shrinking by at least 10%. Academics and practitioners have begun to seek out creative and innovative ways to cope with this crisis and to successfully shrink the city by re-conceptualizing the shrinking city phenomenon. This study tries to detect the economic characteristics of the shrinking city phenomenon. The results are expected to be able to give implications for regeneration and balanced development policies for both local and regional governments.

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Key Words: Shrinking City, Urban Shrinkage, Economic indicator, Urban Regeneration

THE SANCTUARY MOVEMENT IN ORANGE COUNTY

Abstract ID: 1140

Poster

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Shortly after the election of Donald Trump, Santa Ana, Orange County’s second largest city and the county seat, declared itself a sanctuary city. This may not have been as big a surprise to many, as over three quarters (77.3%) of Santa Ana’s population are Hispanic or Latino and nearly half (45.2%) are foreign-born (Census QuickFacts). The city has had an all-Latino city council since 2006 and the current mayor Miguel Pulido has held office since he was first elected in 1994. However, Santa Ana is also the county seat of a historically republican stronghold with a notoriously anti-immigrant legacy – from the election of multiple Klu Klux Klan members to Anaheim’s city council to the home of the author of prop 187 and the founder of the Minuteman Project (Avila, Escobosa Helzer, & Lai, 2019). More recently, county law enforcement agencies have been criticized for high levels of collusion with Immigration and Customs Enforcement (ICE) officials, leading to the arrest and deportation of numerous residents (Avila et al., 2019). And finally, when California became a sanctuary state in 2017, there was widespread backlash across Orange County – county and city officials sued the state in opposition or passed local ordinances exempting themselves from the law.

How then, did Santa Ana become a sanctuary city in such a hostile political environment so quickly after the November 2016 elections? After all, just 6 years prior to that, Mayor Pulido had said he “disagrees with the Arizona law (SB1070) but also disagrees with some protesters who want Santa Ana to declare itself a so-called sanctuary city for illegal immigrants” (Carcamo & Irving, 2010). Since California

became a sanctuary state, what is the state of the sanctuary or immigrant rights movement in Orange County? How is the sanctuary movement adapting its tactics and framing in a mixed political environment? That is, multiple levels of government have conflicting positions or policies – a mix of pro- and anti-sanctuary at the local level, anti-sanctuary at the county level, pro-sanctuary at the state level, and finally anti-sanctuary at the federal level. In this study, I will explore these questions in the framework of social movements theories and by conducting in-depth interviews with immigrant rights activists, as well as ethnographic observations of events organized by movement actors. The case of the immigrant rights movement in Orange County could have important implications for other parts of the country that are (or will be) experiencing demographic changes in a historically anti-immigrant political climate, particularly in the suburbs and other new immigrant communities.

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Key Words: immigrant rights, sanctuary, social movements

TRACK 14 – REGIONAL PLANNING

TRACK 14 – INDIVIDUAL ABSTRACTS

THE INTERJURISDICTIONAL POLITICS OF TRANSPORTATION INVESTMENT: HOW LIMITED-POWER MUNICIPALITIES ASSERT THEMSELVES IN THE CONTEXT OF METROPOLITAN PROJECTS

Abstract ID: 195

Individual Paper Submission

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Metropolitan regions are investing heavily in transportation infrastructure to address travel demand and create new land-development opportunities. Due to fragmented local governance, new transportation lines often run through multiple municipalities, each with their own leaders and political priorities. But the role of local governments—often suburban—in determining how these projects come to be and how they are designed has been remarkably overlooked in the planning and urban-politics scholarship. Infrastructure is understood to be largely planned by higher-level governments, and scholars interested in municipalities focus primarily on central-city intervention (Altshuler and Luberoff, 2003; Ekers et al., 2012; Savini et al., 2015). Suburbs, if considered at all, are evaluated primarily in terms of how they address economic growth through land-use choices—not in terms of their role in metropolitan infrastructure (Phelps and Wood, 2011). Even those who extol the value of suburban cooperation (Orfield, 2002) are not specific about how local governments act together.

This paper offers a new theory for the role that local governments play in infrastructure planning. Using a case-study approach, I ask whether, and how, municipalities can influence project design. I specifically identify how local elected officials use their “soft power” to alter higher-level government decisions. My findings bring new light to the significant municipal role. I also show that the multi-jurisdictional context of metropolitan-scale projects is a determinative element of their planning.

I consider three in-development, French transportation projects: Métro 15 Sud, a circumferential subway south of Paris; Tramway T9, a light-rail line from Paris southeast into its suburbs; and Aerospace Express, a subway from Toulouse’s center to municipalities outside. I selected these projects because of the large number of municipalities affected (Métro 15 Sud, for example, will link 22 suburbs). Each project may have significant impacts on the municipalities through which it runs, especially regarding new mobility options and land redevelopment.

For each project, I interview involved elected officials, appointees, and public servants at the national, regional, and local governments. Interviews focused on mechanisms by which municipal officials express power even when decisions are technically made by higher-level actors. I sought to understand how actors perceived their role in planning. I also examine documents, meeting materials, and news stories for a rounded view. I evaluate project alignments, station locations, and the design of surrounding construction.

I identify two key findings about municipal roles. First, while transportation projects are largely planned by higher-level governments, their design is dependent on decisions made by local-government leadership. Mayors and councilors are influential in approving projects and in orienting features such as

station location; this is surprising given the long-standing view that small cities (particularly suburbs) are largely concerned with real-estate development alone and have little influence on metropolitan-scale projects. Second, the incorporation of local-government influence, especially through multi-jurisdictional coalitions, is essential for projects' completion.

Why do municipalities play such influential roles if they have no official authority to oversee such projects? I find four explanations for this. One, if higher-level government sponsors successfully make the case for project benefits, localities come to see projects as useful and therefore deserving of support on the specific grounds that they allow municipalities to accomplish their own goals, such as redevelopment. Two, municipalities are understood by all as legitimate because of the perceived importance of local democratic accountability; higher-level actors are reluctant to undermine them, in particular, when they create coalitions of multiple municipalities working together. Three, mayors harness intra-party connections to articulate their needs to higher levels. Four, elected officials hold multiple posts, such as board memberships for housing agencies, that provide them opportunities to tie local interests to metropolitan needs.

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Key Words: Metropolitan planning, Transportation investment, Multi-jurisdictional cooperation, Multi-level governance, Local government

WHEN TRANSPORTATION AGENCIES PROVIDE FUNDS FOR LOCAL LAND USE PLANNING

Abstract ID: 324

Individual Paper Submission

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We have all heard countless times that land use planning is the exclusive purview of local governments exercising zoning powers. Therefore, the role of MPOs and state departments of transportation is just satisfying travel demands created by local land-use decisions, or so the argument goes.

The obvious rebuttal is that highway investments affect development patterns, sometimes referred to as highway-induced development or sprawl (Ewing 2008; Gunasekera et al. 2008). Transit investments do

so as well, but in a much more benign way. Transportation agencies may not always plan for future land use patterns (increasingly they do), but their actions affect future land use patterns.

About five years ago, our regional MPO, the Wasatch Regional Front Council, became aware of the fact that MPOs in California were setting aside small amounts of highway money for grants to local governments to do smart growth land use planning, all in an effort to maximize the value of investment in public infrastructure in the future. What is now called the Transportation and Land Use Connection (TLC) program was born. It has grown into a million-dollar program (still peanuts for the MPO). It is wildly popular among local governments, many of which are represented by elected officials on the MPO board and RGC. From 2014 through 2018, 65 projects have been awarded. With funding from UTA, UDOT, and Salt Lake County, it is now a \$1.3 million dollar program. The total investment has been \$5.99 million including the local matches.

It turns out that we are part of a movement in metropolitan transportation planning to set aside funds for just such purposes. This conclusion is based on a national survey of 404 MPOs on whether they have transportation-land use connection programs like ours. This trend has only been touched upon briefly in the literature (FHWA/FTA, 2010; Sabouri et al. 2019). These programs funnel federal transportation funds or local sales tax funds toward local governments in support of smart growth-oriented, local land use planning within the region. They tend to provide municipalities funding to align their planning and land use with long-range regional plans. The first programs started in the late 90s and were called “livability programs” (Haas & Fabish, 2013). Since then, the survey finds there has been a steady rise of programs across the U.S., reaching 19 today. The goals of each program are all tailored to address the most pressing issues of their region, but generally aim to maximize value of public investments in infrastructure, increase travel options and accessibility, create vibrant places, and reduce the extent of suburban sprawl and associated need for highway building in the future.

The survey also found that the majority of programs support planning and technical assistance, while the more seasoned and larger programs also provide local government funding for infrastructure like bike paths or sidewalks. The majority of funding comes from federal pools of money such as the Surface Transportation Program. Finally, the survey aimed to understand how these programs measure their impact, if at all. This research is important to practitioners working in MPOs, municipalities, and other budget impacting agencies that may be interested in starting a program like this in their region. It can also be used by MPOs with programs that are looking for information on expanding or improving their work.

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Key Words: MPOs, livability, grants, smart growth, sustainability

RESEARCH ON THE REGIONAL FUNCTION SYSTEM AND COORDINATED DEVELOPMENT OF THE WESTERN COASTAL CITIES ON THE WEST TAIWAN STRAIT CITY BELT

Abstract ID: 356

Individual Paper Submission

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The development of West Taiwan Strait City Belt(WTSCB) is an important fulcrum to promote the coordinated development of the two sides of the Taiwan Strait. An analysis of the functional systems of the major cities in the region is conducive to the rational allocation and coordinated development of regional limited resources, and the acquisition of Taiwan resources for coastal cities and further development provide the foundation for inland radiation. This paper selects 10 major cities along the coast of the WTSCB and uses the analysis method of the value-added hierarchy to determine the urban labor division pattern of the 10 cities based on the value-added hierarchy, and then uses the location entropy to determine the strong functions and advantageous functions of the city in the region combining the Boston matrix. The Boston matrix makes judgments on the nature of various types of industries within the city to define the specific division of functions of the city in the region, and finally determines the functional system of regional cities based on value-added hierarchy. Finally, this paper draws four main conclusions: ①During the period from 2010 to 2015, the characteristics of the vertical division of labor based on the value-added hierarchy in regional cities have become more prominent, forming the cores of "Xiamen and Cangzhou" in the south and "Wenzhou, Fuzhou and Ningde" in the north as the overall development pattern; ②The region finally forms the urban functional system in each value segment with Xiamen, Ningde, and Jieyang as the cores; ③And several questions existing in the current regional development: Many cities have similar functions and high-value-added hierarchy cities didn't show much radiation driving effect to low-value-added hierarchy cities. Moreover, part of the industries in the region are not strong enough.

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Key Words: West Taiwan Strait City Belt, Value Section, Location Entropy, Regional Function System, Coordinated Development

IS SPATIAL MISMATCH REALLY SPATIAL AT ALL? EMPLOYMENT OUTCOMES FOR MINORITIES IN US CITIES AND SUBURBS

Abstract ID: 380

Individual Paper Submission

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Since its introduction by John Kain in 1968, the “spatial mismatch” hypothesis has generated a tremendous amount of scholarly examination and debate. Kain’s hypothesizes that the suburbanization of jobs has not been matched by a concomitant suburbanization of minorities’ due to housing market discrimination, leading to high rates of unemployment and low wages for minorities left behind in center cities (Kain, 1968). If true, Kain’s hypothesis would support programs to move minorities to the suburbs, move jobs to center-city areas, or improve transportation links between center cities and suburbs (Fan, 2012). Scholars testing spatial mismatch, however, have identified “modal mismatch” – the tendency of inner-city minorities to lack cars and rely on transit – as a stronger determinant of employment outcomes (Taylor & Ong, 1995).

This paper investigates spatial mismatch in the form of labor market participation, household income, commute times, and employment by sector using new data sources and more contemporary evidence than is considered by the bulk of the spatial mismatch literature. Using data from the American Time Use Survey, collected by the Census Bureau and Bureau of Labor Statistics, we test employment outcomes for minorities who live in principal cities and suburbs of large U.S. metropolitan areas (with populations of roughly 500,000 or more) in the period from 2003-2017 (n = 68,000).

First, using multinomial probit modeling, we find a higher probability of unemployment for minorities (pooling African Americans and Hispanics) living in the central city compared to those living in the suburbs, while we find no statistically significant relationship for non-Hispanic whites (holding other demographic characteristics such as age, education, and sex constant). Second, using OLS regression, we determine that for minorities, central-city dwellers’ household incomes are roughly 5.8% lower than the wages of suburbanites, all else equal. In contrast, we find that non-Hispanic white workers’ household incomes are 1.6% higher for city residents, all else equal.

Third, probit modeling does not suggest that the types of jobs which are held by central-city minorities meaningfully differ from those of suburbanites, holding all else constant. Further, OLS models show that, for minorities, central-city residence is not associated with longer commute times when not controlling for travel mode. In fact, when we control for the percent of the commute undertaken by transit and walking (as central-city residents disproportionately use these slower, non-automobile modes), commutes for inner-city minorities are 8.3% shorter than for suburban minorities.

In sum, our findings do suggest “mismatch” continues to be a problem, but that this problem is likely not “spatial” at all, at least in the sense of geographic proximity to jobs. Our results on household income and employment suggest that there may be an employment penalty associated with central-city residence for minorities. However, our commute time findings suggest that geographic distance to jobs does not cause this penalty alone; in fact, holding mode constant, central-city residents reside temporally closer to work, lending credibility to the modal mismatch hypothesis. Taken together, the findings suggest that rather than physical distance, other problems associated with inner-city living, such as less rich social networks and social capital, may be responsible for the poorer employment outcomes for inner-city minorities. Another possible cause of our results may be residential self-selection; employed minorities making higher wages may have the means to move to the suburbs. The mismatch between the outcomes for city and suburban minorities may be a product of transportation handicaps, social and cultural issues, information about the labor market, and/or the appeal of suburban living for those with the economic means to enjoy it.

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Key Words: spatial mismatch, spatial inequality, employment, transportation access

CHANGES IN SHANGHAI PUBLIC CENTER SYSTEM-A REGIONAL PERSPECTIVE

Abstract ID: 472

Individual Paper Submission

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As large cities' hinterlands keep expanding, Shanghai and its neighboring regions are important regions of coordination for Shanghai to realize the goal of becoming a global city. Like other metropolises, Shanghai would inevitably move towards a development path featuring polycentric urban region. Over the years, the planning of Shanghai's city center system has been based on central place theory and it is a service level-oriented hierarchical system. From a regional perspective, this paper will explore changes that have taken place in the service client and service scope in city center system from 2011 to 2018.

First, mobile phone signaling data collected in 2011 and 2018 are used to identify residence- recreation behaviors. Mobile phone users' data in terms of length of stay and activity time are used to distinguish short-stay visitors from local residents. Moreover, the number of repetitions at the same location at a specific time is used to calculate local resident users' place of residence, work place, and all users' location of daily recreation. It is identified through mobile phone signaling data that users who stay for over 30 minutes per day in the center scope are visiting the center for recreation and business purposes. Second, the numbers of local residents' visit to the center and to different levels of centers within two months are calculated. Then the actual service scope is identified based on the local residence of 70% of the residents who pay visits to different levels of centers and a comparison would be made as to the change of actual service scope between 2011 and 2018. In the end, calculation would be made as to how recreation behaviors relate to business behaviors by short-stay visitors to the city center. The results show that the service client of city centers at all levels have clearly differentiated. 12%-32% short-stay visitors go to Shanghai's high-level city centers on weekends, and the figure rises to 24%-50% on holidays and festivals. More than half of the short-stay visitors come from Jiangsu, Zhejiang and Anhui provinces. Currently, Shanghai has already assumed the Yangtze River Delta and even the whole world's service functions. Looking forward, it will represent the main image of Shanghai and assume the core functions of a global city. Meanwhile, the proportion of the number of visits made by local residents to the three centers at the same time has dropped from 21% to 4%. Local residents' hierarchical demand for center is shrinking and flattening. The changes in the actual service scope of the sub-centers and different centers of regional centers tend to converge, and there are less differentiated service features provided by different levels of centers, which means the service levels have the propensity to be identical.

It follows that from a regional perspective, as China's megacity, Shanghai's city centers do not completely conform to the features of a center system described in the original central place theory. Therefore, it is proposed to transform Shanghai civic center system from service level orientation to service client orientation and construct a service client oriented civic center system. Among them, the service client of the second level center should mainly focus on the Shanghai metropolitan area, and when it comes to function, the employment function of producer services and business service functions must

be combined so that Shanghai metropolitan areas are able to develop harmoniously with mutual coordination.

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Key Words: city centers, Global City Region, Metropolitan Area, Shanghai, Mobile Phone Signaling Data

PUTTING THE BRAKES ON GHG EMISSIONS FROM DRIVING: PLANNER PERSPECTIVES ON CALIFORNIA’S SB 375 AND OREGON’S SB 1059

Abstract ID: 494

Individual Paper Submission

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California’s Sustainable Communities & Climate Protection Act (SB 375) and the Oregon Sustainable Transportation Initiative (SB 1059) passed with great fanfare a decade ago. The pioneering laws are the first in the country promising to reduce greenhouse gas (GHG) emissions from the transportation sector by encouraging better regional planning. But are they able to put the brakes on driving?

Recent progress reports prepared by the California Air Resources Board and the Oregon Department of Transportation show that overall GHG emissions from driving have actually risen slightly in both states since the passage of SB 375 and SB 1059 (CARB, 2018; ODOT, 2018). But this study takes a long-term view, exploring planners’ perspectives on how the laws have influenced decision-making at MPOs in California and Oregon. A cross-case comparison based on in-depth interviews with 17 individuals at nine MPOs in both states shows that many critiques of MPOs as “toothless” (Nelles, 2014) are well-founded. But the insider perspective provided by planners also reveals promising pathways for making long-term progress on mitigating climate change. Population-growth rates and development pressure, as well as MPO size and technical planning capacity, are key determinants of regional commitment to climate change mitigation goals.

Both SB 375 and SB 1059 require metropolitan planning agencies (MPOs) – the federally mandated, quasi-governmental agencies tasked with coordinating regional transportation planning and investments across U.S. metropolitan areas – to prepare scenarios for future development that reduce per capita demand for driving and associated emissions. The laws task state agencies with setting GHG emissions-reduction targets for each metro – in coordination with MPOs and local governments – that help states meet their overall goals for mitigating climate change (Barbour & Deakin, 2012). Both state laws call for

increasingly larger cuts over time to contribute to statewide reduction targets (CARB, 2017; Oregon Department of Land Conservation and Development, 2017). However, neither state's law grants MPOs any additional authority over land use, which is almost always the exclusive domain of municipal governments in the United States (Sciara & Strand, 2017).

As a result, many questions remain regarding the ability of these landmark pieces of legislation to achieve their ultimate goal. The main area of uncertainty is whether SB 375 and SB 1059's planning mandates sufficiently incentivize local governments and metropolitan planning organizations (MPOs) to implement land-use decisions and transportation investments that actually reduce demand for driving and associated GHG emissions. Translating state goals into local action requires coordinating land-use and transportation planning, something that historically has been difficult in the United States. Yet talking to planners can provide insight on how to implement this elusive goal.

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Key Words: state planning mandates, climate change, transportation planning, California, Oregon

WHITHER REGIONALISM: THE SALIENCE OF MEGAREGIONAL GEOGRAPHIES FOR INTER-REGIONAL TRANSPORTATION PLANNING AND POLICY MAKING

Abstract ID: 536

Individual Paper Submission

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Regionalism in the form of new rationales and models for planning across boundaries at metropolitan or larger regional scales has waxed and waned over the past two decades. A more recent trend identifies “megaregions” as a particularly crucial spatial scale for organizing cross-jurisdictional collaboration, planning and policy interventions. Concern with larger clusters or agglomerations of metro regions has a long history dating from the work of Mumford and fellow travelers in the 1920 and 1930s, to Jean Gottmann's study of the agglomerated urban centers of the northeastern U.S under the term “megalopolis.” These earlier works were animated in part by the search for a spatial “fix;” identifying the most logical and effective spatial scales to address environmental, social and physical processes and matching governance and policy institutions to the appropriate territorial geometry. The core animating argument for spatial fixes involving larger-scale territorial configurations has been consistent over time - as human settlements grow and evolve the spatial scale of externalities, network effects, and

economic/residential integration become mismatched to the territorial reach of government or governance institutions.

Spatial fix arguments for the megaregional scale require demonstrating that matrices of human, environmental, socioeconomic and infrastructural interaction are significantly concentrated in a megaregional spatial geometry. This has proven to be a difficult stretch in numerous domains. As the megaregional discourse progressed, analysts homed in on a relatively discrete set of relationships including infrastructure systems, economic linkages, settlement patterns and land use.

This paper will evaluate the definitional issues and policy salience of megaregional planning in the US by focusing on Metropolitan Planning Organizations (MPOs). It will be first be argued that MPOs are the most significant and durable institutions operating at the metro-regional scale and have specific planning and implementation powers designated by federal and state governments. In addition, they have specific resources, and influence over other resources that they can, in theory, use to shape larger scale transportation and land use policies. Hence, if megaregional planning promises to be more than just a new construct, its meaning and potential should be recognized by MPO managers.

To evaluate the current significance and potential for megaregional planning, this paper will analyze the results of a summer, 2018 survey of 377 designated MPOs. This survey is complete and garnered a nearly 57 percent response rate. Based upon the survey results the paper will address three critical questions:

1. Do MPO directors view collaboration and planning at the megaregional level as a meaningful framework and important means to address interregional transportation and land use challenges?
2. In what ways do MPOs actively collaborate with other MPOs in their state or at larger regional scales?
3. What are the legal, regulatory or institutional barriers to greater collaboration or joint project planning and implementation between MPOs at the state or megaregional scale?

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Key Words: Megaregion, MPO, Inter-regional Planning, Inter-regional Collaboration

TRENDS OF SPATIAL INEQUALITY IN THE US MEGAREGIONS

Abstract ID: 577

Individual Paper Submission

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Spatial inequality (SI) denotes the unequal geographical distribution of public resources, services, and opportunities, for example, jobs, education, and health services. Serious spatial inequality may lead to increased environmental injustice and social instability. While SI has long been a subject of academic inquiry and public policy debates, it has gained particular new interest lately concerning the local and regional consequences of economic globalization. This study explores the trends of SI in megaregions in the United States. A megaregion consists of two or more interconnected metropolitan areas and their integrated hinterlands. It has been reported widely that global competitions are taking place increasingly at the megaregional scale. Megaregion SI deserves a focal attention but has not yet been studied adequately.

The interest in megaregions can be traced back to mid-20th century when French geographer Jean Gottmann (1957) observed the Northeastern Corridor of continuous metropolitan areas from Boston to Washington, D.C. Additional mega-agglomerations were also observed in areas from Chicago to Pittsburg, northern California and southern California. At the beginning of twenty-first century, megaregions re-discovered (RPA, 2004; Lang, 2005; Florida, 2008). Although different scholars and institutes have different definition of the megaregion, the idea became widely accepted and promoted from a geographic phenomenon to a governance and policy-level thinking. Previous studies have focused on the economic performance, transportation infrastructure, regional connectivity and multi-jurisdictional initiatives. (Dewar and Epstein, 2007)

While the megaregion has multiple benefits for the regional development such as capital concentration, knowledge spillover and decreasing marginal effect for industries, one challenge against megaregion is that it may aggravate the regional inequality with metropolitan cores booming and other places left behind. Several studies paid attention to the less developed areas and measures the regional disparity and divergence. However, few have examined changes in regional inequality over time at the megaregional scale. This study attempts to fill the gap of longitudinal analysis of SI in US megaregions.

Under the topic of spatial inequality, previous researches have emphasized both intra-regional and inter-regional inequality. In this paper, intra-megaregional comparison shows the urban-rural differentials within each megaregion, which reflect how resources and capital are absorbed in the core metropolitans within a megaregion, leaving those excluded in Metropolitan Statistical Area (MSA) lagged behind. This inequality may aggregate population loss in rural area. Inter-megaregion inequality compares the income inequality across megaregions due to the regional growth.

This study assesses spatial inequality at the county level for the years of 1990, 2000, 2010 and 2016 for the eleven megaregions defined by Regional Planning Association (RPA). The study combines multiple data sets covering the demographic features and economic performances with employment, income and GDP including census data of American Community Survey (ACS), National Household Travel Survey (NHTS) from Census Bureau and Gross Domestic Product (GDP) from Bureau of Economic Analysis (BEA). The paper applied Gini coefficient, Coefficient Variance and Theil's Index to evaluate regional inequality within and among eleven megaregions, which reveal different aspects of inequality. The article also applies rank-size function to describe intra-megaregion inequality based on population size and income, which reveals the level of concentration in megaregional urban system.

The preliminary results show the Cascadia area has the least regional inequality based on Gini Coefficient and Theil's Index while its average income stays high among the eleven megaregions. The economic

performance of the Front Range and Gulf Coast are lagged behind by other megaregions. Gini Coefficient and Theil's Index shows that Piedmont Atlantic and Gulf Coast have highest inequality respectively. The study findings of megaregion inequality are expected to inform federal and state initiatives on housing transportation infrastructure investments and policies to mitigate regional and local development disparities.

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Key Words: Regional Inequality, Megaregion, Longitudinal data analysis, economic development

ANALYSIS ON THE CITY SYSTEM EVOLUTION OF MID YANGTZE RIVER CITY CLUSTER – UNDER THE DUAL PERSPECTIVE OF THE ENTERPRISE NETWORK AND THE VALUE CHAIN

Abstract ID: 586

Individual Paper Submission

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In 1996, In the "Rise of the Network Society", M. Castells claimed that capital flow, information flow, and technology flow constitute a "society of information". "Flow of space" and "place of space" jointly support the theoretical system of modern regional study.

The enterprise network reflects enterprise behaviors in the city cluster, which illustrates flows as functional features in the city cluster. The value chain not only reveals the industrial labor division of each city in the cluster, but also illustrates the node system hierarchy under the perspective of economic efficiency. Based on identifying the evolution characteristics on the two aspects, the author tries to combine two dimensions as "flow of space" and "place of space" in a diachronic comparative study in a same region.

The mid Yangtze River city cluster include 3 provinces as Hubei, Hunan and Jiangxi, including 36 prefecture-level cities in total. Its spatial location is close to the geometric center of China's geographical space and is also an important part of the national "Yangtze River Economic Belt strategy". With the promotion of the national strategy, the mid Yangtze River city cluster has ushered in great opportunities.

This paper compares the features of the enterprise network in 2010 and 2014 as well as the value chain in 2010 and 2014 in the mid Yangtze River city cluster. It mainly looks into: (1) the spatial evolution of the enterprise network and changes in space of different value chain over the four years; (2) the interaction

mechanism between the enterprise network and the value chain in the case of the mid Yangtze River city cluster. The data source for 2014 analysis is the Registered Enterprise Database of the State Administration for Industry and Commerce and 36 City Statistical Yearbooks. The 2010 data source refers to the research data published by scholar Li Tao in 2014.

There are three major conclusions of this research:

- (1) The enterprise network pattern has changed from the “inter-provincial multi-core connection” to “inner-province radial connection”.
- (2) Compared to the highly globalized Yangtze River Delta region on the east coast, the mid Yangtze River city cluster is still in its initial stage. The initially globalized local region has also shown a hierarchy structure in accordance with the global industrial value chain, and presents spatial agglomeration of service industry and diffusion of manufacturing industry.
- (3) The diversification of industries and homogeneous agglomeration within provinces have increased inner province city networks. This led to inner-provincial linkages have been strengthened, while the inter-provincial linkages have been relatively weakened.

The evidence above shows that the mid Yangtze River city cluster is still in a very embryonic stage. Structure evolution of the enterprise network and the value chain illustrates that there is still a clear separation in the three provinces. Capital cities in the provinces are still play an important role of “growth poles”, leading the economic development in provincial scopes.

In recent years, with the promotion of the National Yangtze River Economic Belt Development Strategy, the mid Yangtze River region has ushered in great opportunities. From the domestic perspective, it is important to review the development pattern of the mid Yangtze River in the past, in order to gain more reflects and historical references of domestic regional development feature.

From the global perspective, regional network structure is not necessarily a unidirectional trend. In some region of early globalized stage, due to its internal economic evolution and restructuring, network structure may turn into regional hierarchy in a certain time span as the case of mid Yangtze River city cluster in this paper.

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Key Words: City System, City Cluster, Enterprise Network, Value Chain

SPATIAL ANALYSIS OF CHENGDU-CHONGQING METROPOLITAN AREA BASED ON THE CONCEPT OF NETWORK CITY

Abstract ID: 596

Individual Paper Submission

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Within the economical globalization and the informationization, nowadays the study on metropolitan area has attracted more and more attention from scholars from around the world. The Chengdu-Chongqing metropolitan area, the combination of the original Chengdu Plain metropolitan area and the Chongqing city region, is a typical regional unit which is capable of participating in the global competition and international division of labor.

However, compared with the development of China's Yangtze River Delta, Pearl River Delta, Beijing-Tianjin-Hebei region, the development of Chengdu-Chongqing metropolitan area is relatively lagging behind, and there is less relevant literature on the spatial analysis. The author believes that the study on the spatial analysis of Chengdu-Chongqing metropolitan area is conducive to promoting the optimal allocation of resources in the future, and it is an important way to achieve regional integration in southwestern China.

This paper summarizes the the spatial analysis of Chengdu-Chongqing metropolitan area and analyzes the internal influentials based on the comparative analysis of economic gravity model and inter-city population flow data. The quantitative research in this study mainly focuses on the description and measurement of the economic spatial level of Chengdu-Chongqing metropolitan area. Besides, considering Chinese people`s strong dependence on social networking tools, we also used the crawler program to collect the Weibo's sign-in data to measure regional population movement.

After the comprehensive analysis, the final research results finally show that: The horizontal connection between cities in Chengdu-Chongqing metropolitan area is increasing, and the network structure of spatial pattern is increasingly obvious; The economic structure of Chengdu-Chongqing metropolitan area has evolved from a single-core drive to a dual-core network and Weibo`s sign-in data further verified the development characteristics of its dual-core driver and peripheral coordination; The level of economic development and the intensity of population mobility remain relatively consistent in terms of spatial characteristics , the higher the level of urban economic development, the stronger the population movement; The scale of the Chengdu-Chongqing urban system has not yet matured, and the secondary cities still need to be developed.

Compared with the previous study of the spatial pattern of metropolitan areas merely based on one type of data, economic data and population flow data can more convincingly reflect the intensity of urban connections between regions. We conclude the spatial analysis characteristics of Chengdu-Chongqing metropolitan area and hope to provide a basic theoretic basis for the future development in the southwest of China.

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Key Words: Chengdu-Chongqing metropolitan area, Spatial analysis, Regional economic development, Population movement

STUDY ON THE REGIONAL ROLE AND DEVELOPMENT PATH OF PORT CITIES UNDER THE BACKGROUND OF “THE BELT AND ROAD” INITIATIVE: TAKING RIZHAO CITY, CHINA AS AN EXAMPLE

Abstract ID: 599

Individual Paper Submission

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“The Belt and Road” Initiative has become the focus of current national strategy in China. As key nodes for China's opening-up, port cities are important pivots for the construction of “the Belt and Road”, and the in-depth promotion of “the Belt and Road” Initiative has also provided opportunities and challenges for the development of port cities. China is currently in the midst of economic transformation, and regional coordinated development has become a hot topic of government and researchers. However, there are few researches focusing on the regional organizational structure characteristics of port cities. With the in-depth promotion of “the Belt and Road” Initiative, the regional role and development path of port cities need further analysis and adjustment.

Rizhao city, located at the junction of Shandong province and Jiangsu province, has grown up with the construction and development of Rizhao Port since 1982 and is an important gateway of the “the Belt and Road”. In 2018, Rizhao Port completed a cargo throughput of 380 million tons, ranking seventh in the coastal ports in China. Due to historical and location reasons, the development of Rizhao City has been greatly affected by the regional pattern, and it is quite representative in many cities in China that are "born from port".

This paper takes "static distribution" and "dynamic connection" as the dual research perspective, describes the static distribution characteristics of Rizhao City in the region through census data such as population, economy and port development, and builds city connection network based on logistics data, automobile passenger transportation data and information data (Baidu Index) to explore the external dynamic connection characteristics of Rizhao City. Accordingly, the macroscopic role of Rizhao City in the adjacent regions is examined. The research shows that: (1) The dual-core leading feature in the region is prominent. The status of provincial capital city Jinan and the sub-provincial city Qingdao is prominent while Rizhao is currently in the depression of regional population, economy scale, foreign trade and industrial value. (2) Rizhao's regional radiation and leading capacity is insufficient, but its characteristic of receiving radiation from Qingdao is significant. (3) The integration characteristic around Rizhao area is not obvious, and the functional connection network and the exchange of people and information flow are still immature. (4) Rizhao Port has competition in the process of integration into “the Belt and Road” with

neighboring port cities. Although it plays an obvious role as an internal gateway, its external output does not reach adjacent Qingdao port, Yantai Port and Lianyungang Port. On these bases, this paper makes some discussions on the regional development path of Rizhao's integration into “the Belt and Road” Initiative, in order to make Rizhao City play a more important role in the construction of “the Belt and Road”.

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Key Words: “the Belt and Road”, Port City, Regional Development Path, Rizhao City, China

RESEARCH ON THE FORMATION MECHANISM OF NETWORKED SPATIAL SPILLOVER OF INDUSTRIAL PARKS UNDER THE TRANSFORMATION IN CHINA: TAKING SHANGHAI CAOHEJING HI-TECH PARK AS THE CASE

Abstract ID: 605

Individual Paper Submission

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Industrial parks are important spatial and policy carriers of economic growth and industrial development. It is an emerging phenomenon that the spatial spillover, which indicates a series of decisions of selecting new growth spaces, is becoming the general way to expand the area of industrial park, paralleling the process of economic development and urbanization transformation in China. What are the characteristics of networking process of the spatial spillover? How does the networked spatial spillover of industrial parks affect the urban functional and spatial structure? We argue that the spatial spillover of industrial parks is the result of the combination of market force and government intervention. It has an impact on the functional structure of urban space, and then affects the urban spatial structure.

This research focus on the analysis of “site spillover”, “local networked spillover” and “regional networked spillover” of industrial parks, the explanation of site selection basis on spatial spillover decision, the reveal of influence mechanism between networked spillover space of industrial parks and urban spatial pattern, by taking Shanghai Caohejing Hi-Tech park as an example. It visually analyzes the spatial spillover process to present the spatial pattern characteristics by using ArcGIS software and Ucinet software, based on the spatial relationships between the town-authority administrative unit areas and the branch areas of Shanghai Caohejing Hi-Tech park. Meanwhile, it reveals the mechanism of socio-economic motivation and local government initiation in the process of spatial spillover networking,

through exploring the policy background, economic status, government-enterprise relationships and other factors, based on statistical data analysis and policy analysis. Furthermore, it analyzes the site space and surrounding areas of “local spillover” and “regional spillover”, pointing out the important impacts of “spatial spillover” and “networked spatial spillover” areas on the distribution of urban functional districts, the characteristic of population and the development of mass transit network. Finally, it argues that the networked spatial spillover of industrial parks, not only results from the market force of industrial cluster and economic development, but also depends on the administrative intervention of government.

Essentially, the policy dividend is the internal cause of spatial spillover and networking of industrial park. For the prospects of this research, besides the traditional factor of location, such as the conditions of natural resources, convenience of facilities and communication, it raises the discussion of “Neo-theory of Industrial Location”, which aims to reveal the important "location factor" of industrial parks for the reason of policy dividends, and the spatial effects on the urban spatial structure and enterprise behavior in contemporary China.

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Key Words: Industrial parks, Spatial spillover, Networked, Policy dividends, Neo-theory of Industrial Location

IMPLEMENTING REGIONALISM AT THE LOCAL LEVEL: AN ANALYSIS OF PROJECTS IN NORTHEAST OHIO

Abstract ID: 639

Individual Paper Submission

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Regional planning tools and strategies offer the potential to mitigate the unsustainable environmental and fiscal impacts of urban sprawl. However, political scientists have argued that local decision-makers will eschew regionalism, continuing instead to prioritize local needs in order to satisfy their political constituents (Nelson & Dawkins, 2004; Barbour & Deakin, 2012). In Northeast Ohio’s context of regional population decline, this tension is illustrated by local governments’ pursuit of growth to increase local tax revenues, despite the presence of a regional planning framework that emphasizes the dire

environmental, social and fiscal consequences of continued greenfield expansion. The regional framework – Vibrant NEO 2040, funded by a 2012 Sustainable Communities Regional Planning Grant – concluded that without collaborative regional action, the trend of ongoing suburban development without regional population growth will cause another 174,000 homes in core communities and inner ring suburbs to be abandoned by 2040. Compounding such abandonment, the region’s development patterns threaten to further degrade natural resources and create fiscal challenges for all localities.

In light of this framework to further regionalism – and the opposing assertion that local goals must come first – a question emerges: Is it time for planners to acknowledge that local leaders will not engage in regionalism for its normative value? Alternatively stated, what are the conditions or mechanisms that support the engagement of local leaders in projects that prioritize regional planning goals? To begin investigating these questions, we evaluate recent local projects in Northeast Ohio that have been implemented or initiated since the Vibrant NEO 2040 planning process.

We first perform a descriptive overview of over 200 local projects identified by the NEO Planning Initiatives Library as promoting various regional goals in Northeast Ohio. We develop project typologies to identify how variations in project objectives, outcomes, sponsoring organizations, geographic context, funding sources, and other factors relate to their tangible regional benefits. We then analyze three exemplary local projects selected from among the 2018 Vibrant NEO Regionalism Award Winners as in-depth case studies. Building on Margerum’s (2002) evaluation protocol and utilizing semi-structured interviews with project stakeholders, we assess the Cuyahoga Greenways project, the Mahoning River Corridor Restoration, and the Western Reserve Land Conservancy’s Thriving Communities Program. This qualitative analysis provides further detail regarding the conditions that support the most successful regional outcomes, including motivating factors, implementation mechanisms, available resources, levels of public participation, and approaches to building collaborative partnerships.

We find that some projects do produce outcomes aligned with regional goals, and that contextual and procedural factors influence the strength of this alignment. These projects are often environmentally oriented and, despite regional benefits, are still driven by leaders from municipalities with the strongest direct benefits. These findings lead us to conclude that in order to achieve meaningful regional results, local projects should be strategically designed and implemented to provide clear local benefits while complementing broader regional values.

This research holds strong implications for planning scholarship and practice. First, the work helps to resolve the discrepancies of regionalism between the planning and political science literature, and promotes stronger integration between the two perspectives in practice. This latter contribution, applied in NE Ohio, promises to assist local leaders in identifying project opportunities that are both politically attractive at the local scale and beneficial to reversing unsustainable regional development patterns. Additionally, this work holds significant implications for broader application in shrinking regional contexts including U.S. Legacy Cities.

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Key Words: Regionalism, Sustainability, Decision-making, Local Government, Shrinking Cities

ESTIMATING TRADE-RELATED GREENHOUSE GAS EMISSIONS FROM INTER-STATE FREIGHT TRANSPORTATION

Abstract ID: 650

Individual Paper Submission

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Current research on trade-related Greenhouse Gas (GHG) emissions tends to focus on the emissions coming from the production of traded goods and services, and thus, overlooks freight transportation. But, transportation is one of the largest sources of GHG emissions in the U.S. About 10% of the emissions are generated by freight transportation (EPA, 2017). Moreover, emissions from transportation are growing much faster than overall U.S. emissions and have more fluctuations. My research will examine the magnitude of trade-related GHG emissions from inter-state freight transportation.

Although emissions from U.S. domestic freight transport are included in national GHG inventories, there are few research linked emissions from freight transportation to trade flows, especially domestic trade. While many factors contribute to the rapid growth of GHG emissions from freight transport (such as fuel efficiency, mode share, just-in-time delivery, etc.), the core contributor has been an increase in both international and domestic trade. Issues of studying domestic freight transport arise via data. That is, while there is plenty of information on import/export flows, little data exists on intra-regional shipments within the U.S.; while some data are available on domestic port and airport inflows/outflows, little data available on truck or rail interstate inflows/outflows (Giuliano et al., 2010).

In my research, I will use multi-regional input-output (MRIO) models to estimate inter-state trade flow first. The strength of MRIO is that it depicts inter-industry supply and demand relationships while accounting for the heterogeneity of production patterns among states. This model will capture the inter-state trade flow more accurately. Next step is to convert monetary trade flow to inter-state freight transportation requirements (ton-mile by mode) using each industry's weight value ratio and network distances between states of origins and destinations. I will use a multinomial logit model to estimate freight mode share. Commodity flow survey data will be used to calibrate the logit model. The final step is to obtain GHG emissions from inter-state freight transportation using emission-intensity (emission per ton-mile) of each transportation mode. My research will fill the gap by linking domestic freight transport with domestic trade flows. This helps reveal state economic structure's impacts on freight transportation and the detailed magnitude (by demanding sector and by state) of freight transportation's contribution to GHG emissions.

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Key Words: Greenhouse Gas Emissions, Multi-Regional Input-Output, Freight Transportation, Inter-State Trade Flow

MULTI-REGIONAL INPUT-OUTPUT ANALYSIS OF THE ECONOMIC IMPACTS FOR PROPOSED HIGH SPEED RAILWAYS IN TEXAS

Abstract ID: 719

Individual Paper Submission

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Investing in high-speed rail (HSR) network is a strategic infrastructure development approach to support broad regional or (multi)national development goals. One exemplar case is the ongoing Trans-European Transport Network (TEN-T) projects that can be traced back to the initiative European Spatial Development Perspectives started in early 1990's. Other notable examples include the High-Speed Two (HS2) project in the United Kingdom and the HSR network expansion in China to support its national City-Cluster Regions plan. Justifications of these HSR investments often cite their direct and broader socioeconomic and environmental impacts, while identifying empirically these impacts has been challenging and controversial in many cases. In the United States, no single HSR system is in operation yet despite decades of discussions and debates on HSR options. Most critical concerns lie in the high cost of the HSR projects and even more on the lack of public knowledge and confidence in the potential broad and long-term impacts that the HSR may generate.

This study aims to contribute to the knowledge base on HSR's broader impacts through the case study of the Texas Triangle megaregion, a geography encompassed by the metropolitan areas of Houston, Austin/San Antonio, and Dallas/Fort Worth, with a total land size of nearly 60,000 square miles and a total population of approximately 18 million. There have been a number of HSR plans proposed for Texas in the past; all failed to proceed. The most recent proposals that have reached the Environmental Impact Statements (EIS) stage include two lines: the eastern line along interstate highway I-45 and the western line along I-35. The eastern HSR line connects Dallas to Houston in a length of 234 miles, encompassing ten counties between the two terminus cities. This line adapts the Japanese Shinkansen bullet train technology operating at the design speed of 200 mph. The construction of the line is estimated to cost \$15 billion with private funds and possible federal loans. The western line within Texas Triangle is the central section of a proposed 850-mile rail project from Edmond/Oklahoma City, Oklahoma to Brownsville at the Texas-Mexico border. The central section connects Dallas-Ft. Worth to San Antonio through Austin in a

length of 247 miles, encompassing 15 counties and three of four largest metropolitan areas in Texas. This line has a mixed rail operation of higher-speed (up to 125 mph) and high-speed (220-250 mph).

The study will apply input-output (I-O) modeling to estimate the economic impacts of the two proposed HSR lines in Texas. The main analysis tool and datasets come from Implan, a software package that provides industry and commodity balance sheets and technical coefficients for 440 industries at the county level. This study will design a modeling scheme based on the two HSR lines and perform the following analyses using the 2016 I-O tables: 1) the total direct, indirect, and induced effects of the HSR constructions; 2) the industrial distributions of the effects; 3) the geographical distributions of the effects in counties along the HSR alignments and in Texas. The study results are expected to better inform the public debate on HSR in Texas and to shed lights on HSR broader impacts in general.

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Key Words: High-Speed Rail impact, Input-Output Model

SPATIAL-TEMPORAL PATTERN AND INFLUENCING FACTORS OF REGIONAL URBANIZATION IN THE CONTEXT OF CHINA'S NEW URBANIZATION TRANSITION: A STUDY OF THE PEARL RIVER DELTA AND ITS HINTERLAND

Abstract ID: 724

Individual Paper Submission

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Since the reform and opening up 40 years ago, China has experienced unprecedented urbanization in the world. The urbanization rate has increased from 17.92% in 1978 to 59.58% in 2018, with an average annual increase of 1.04 percentage points. In recent years, as China's economy has entered a transition period of medium and low-speed growth, the New Urbanization policy has been put forward. The policy pays more attention to the overall consideration of urban space, economy, society and ecological environment, whose core is people-oriented and goal is to promote harmonious and sustainable development.

In this paper, 21 cities in the global city-region Pearl River Delta and its adjacent hinterland are taken as the research objects, and the time evolution span is 2005-2015. With the help of ArcGIS spatial analysis method (spatial autocorrelation test, spatial interpolation simulation, etc.) and SPSS statistical analysis model (correlation analysis, regression analysis, principal component analysis, etc.), the analysis is

mainly based on statistical yearbook data.

Firstly, the evolution of spatial pattern of regional urbanization in 2005-2015 will be analyzed to reveal the evolution characteristics of regional urbanization pattern in the last decade.

Then, the types of urbanization evolution will be classified and summarized.

Secondly, based on relevant research and data availability, the impact factors evaluation model of regional urbanization will be constructed, which will cover four different dimensions: the level of economic development, the level of social development, the level of infrastructure and the level of environmental governance. Preliminary indicators include per capita GDP, population density, the proportion of unemployment registered persons in the total population, the proportion of secondary industry output value in GDP, the proportion of tertiary industry output value in GDP, the proportion of R&D expenditure in GDP, the proportion of immigrants in the permanent population, the number of medical beds per 10,000 people, and the growth rate of energy consumption per unit GDP. Finally, the multivariate statistical analysis model based on SPSS platform will be used to explore the main factors affecting the spatial differentiation of regional urbanization.

The preliminary results are summed up as follows:

- (1) From 2005 to 2015, the regional urbanization rate has been maintained at more than 60% and continued to grow, but the level of regional pattern development in the province is extremely unbalanced and there are great differences.
- (2) The overall spatial correlation is significant and gradually strengthened, and the local spatial correlation and differentiation pattern tends to be stable. The hot spots are concentrated in the Pearl River Delta region and the cold spots are concentrated in the western wing region.
- (3) Overall, the rate of urbanization pattern evolution shows the characteristics of catching-up and convergence, with an average annual increase of 0.80 percentage points. The polarization of the Pearl River Delta is prominent, and the urbanization level in the eastern and northern mountainous areas has gradually increased, while that in the western areas is still at a low level.
- (4) Comparing several indicators comprehensively, the types of urbanization development level are summarized into seven categories: low-level-low-speed development type, low-level-medium-speed development type, low-level-high-speed development type, medium-level-medium-speed development type, medium-level-high-speed development type, high-level-low-speed development type and high-level-high-speed development type.
- (5) Through principal component analysis, the nine factors of new-type urbanization development originally selected are summarized and extracted into three main components: development intensity factor, development guarantee factor and development resilience factor. At the same time, some planning suggestions are put forward according to the relevant policy background.

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Key Words: Regional Urbanization, Evolution of Spatial Pattern, Influencing Factors, China's New Urbanization Transition

INTER-MUNICIPAL COMPETITION: FACTORS THAT INFLUENCE DEVELOPER THREATS TO MOVE PROJECTS

Abstract ID: 822

Individual Paper Submission

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The economic development process is considered very competitive (Bowman, 1988). While some companies, such as Amazon, engender national competition, most simply shop around to find the best tax or amenity deals within a specific region. This interaction between private developers and local governments is important for regional growth, but many relationships involve power imbalances. A common worry of communities is that development projects and their potential for jobs and property tax revenue will play one municipality off of another in order to get the best deal. In these cases, local officials, especially elected leaders, can feel that they might lose out on property tax dollars when a developer threatens to take a proposed project to a neighboring municipality (Homsy, Mendelson, Warner, & Qian, 2014). Facing such a threat of losing a project, cities may simply approve what was suggested by developers (Gerlach, 2015), because municipalities want to minimize the overall changes of those threats being acted upon.

This study explores the factors that correlate to the likelihood that local governments get threatened or not. Using the binary logistic regression ($n=298$), this study provides to understand if there are particular kinds of communities that are threatened more than others? A national survey of planners and elected officials was conducted to help understand the regional dynamics around issues of economic development and the interactions with developers. Sixty-five percent of local governments mentioned that they have lost a proposed development project to another municipality and 32% of places indicated that they were threatened by the developers for the project to move it to another community. Of the communities facing threats, one-third reported that the threats pushed local decision makers to support the project and 48% said the project was built in their municipality after the threat. From the model of this study, I find that more cooperative inter-municipal relations regarding development projects and property taxes decrease the chances of developers threatening to take projects elsewhere. Municipalities with higher citizen engagement in development projects are less likely to face developers' threats. However, none of the economic development related variables (staff, topics, and plan) were significant.

We often see in the news about power imbalances in the relationships between developers and municipalities such as a recent Amazon case but there is a lack of empirical study in the literature. This study will help local officials, especially planners, understand the extent to which other places face similar threats and help them understand what are some important factors to resolve development threat cases.

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Key Words: developer threat, regional cooperation, citizen engagement, economic development

DYNAMIC FRAMEWORKS OF SMALL TOWN DEVELOPMENT: IMPROVING URBAN-RURAL LINKAGES

Abstract ID: 832

Individual Paper Submission

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The prosperity, potential, and sustainability of cities are inextricably linked to the rural areas surrounding them. Scholars and policy makers alike have explored how to construct a mutually beneficial relationship between urban and rural areas from a variety of economic, social and spatial perspectives (Scott and Carter, 2013). The sustainability of urban systems depends on natural resources and untapped potentials in stimulating regional economic opportunities; and the healthiness of rural regions thrives on robust production and consumption systems as well as land stewardship and social and economic networks that facilitate the success of their integration with the larger regional system. Given that small cities and towns are situated within the middle landscapes between rural and urban and also play essential roles to rural hinterland development (Hinderink and Titus, 2002), the focus of this paper is to construct and highlight the relationship between potential economic anchors of a small town and its spatial structures in forming a coherent urban-rural linkage in the process of rural revitalization.

Within the last two decades, several countries have shifted their urbanization focus from large cities to the development of small town and rural areas. Meanwhile, a recurrent critical argument in urban studies calls for a broader diversity of urban experiences and contexts and an expanded focus on urbanization from large cities to the inclusive development of small towns and rural areas (Qian and Tang, 2018). Without argument, small town development faces universal challenges, such as how to attract residents and establish permanent communities providing secure employment and stable income sources, how to provide access to affordable housing and dynamic community interactions, and how to facilitate lifestyles for populations of different age groups. Indeed, existing literature indicates the inadequacy of small towns in establishing the required economies of scale and critical thresholds in long-term business operations (Hardoy and Satterthwaite, 1986), leading to social and economic stagnation and fragmented spatial organizations of neighborhoods (Daniels, 1989). This paper contributes to the field by developing an analytical model of the different types of emerging economic drivers as well as spatial structures of small towns. It uses local and regional differences in geographic locations, production and consumption conditions, and land use policy capacity as the main variables to explain four spatial frameworks – specifically, the Nodal Network, the Corridor Structure, the Strata, and the Isle – and elaborates on how these spatial frameworks strengthen and facilitate the formation and sustainability of vital economic anchors in these small towns. Six case studies are selected and analyzed, and a matrix of explanatory factors, including city size, location with respect to metropolitan areas, work structure, urban amenities, the range of the towns’ service facilities and their competitive relations, is highlighted.

The paper first addresses the role of small town development in the context of the urban-rural linkage and its controversial positions in the process of promoting rural revitalization. It then critically evaluates the existing literature on the economic anchors in relation to the corresponding urban fabrics and indicates the

contributions of this paper by identifying the potentials of economic drivers accompanying the formation of spatial structures of small towns. Next, it examines the six case studies through both qualitative and quantitative analyses based on GIS mapping, data interpretation, site visits, and interviews with government officials and citizens to identify four distinctive types of urban frameworks in small town development and highlight their relations to the improvements of urban-rural linkages. The identified prototypes of the urban frameworks for the small towns are not to compress or simplify the diverse city life, but to show how a common underlying urban process brings them into generalizable relationships between economic drivers and urban forms that occur with varying combinations and intensities.

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Key Words: Small Town Development, Rural–Urban Linkages, Regional Planning, Spatial Frameworks, Economic Development

MEDIA NARRATIVE OF REGIONAL PLANNING AND RESILIENCE IN POST-KATRINA MISSISSIPPI

Abstract ID: 955

Individual Paper Submission

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The public's perceptions of planning and planners is shaped and amplified by press representation (Clifford, 2006). Planning discourse is based on the underlying predispositions of a group (Healey, 1996). The study of media narratives offers an avenue for understanding the public framing of both the prospect for and policies of regional planning. Neutral knowledge does not ground the narrative. Both the historically constituted and the imagined heritage of a place form the public's attitude towards planning (Holman, 2014). The rhetorical frames constructed by the media can drive narratives in the act of policy setting (Schön, 1979), and the future of regional planning hinges on the acceptance of narratives describing intra-regional cooperation.

The importance of framing policy for the multiple publics is well established. However, without the public's ability to imagine a regional entity, planning for a region is outside the possible (Neuman & Hull, 2009). Local media can powerfully influence public perception. Furthermore, the power of the media to disseminate specific stories that marshal support for regional planning is crucial. Local media has the power to form a contextualized language and an imagined cohesion out of disparate places (Anderson, 1983). Conversely, the media's role hinders free and open debate because the role of local news is often more a source of civic boosterism, rather than that of the "watchdog" (Shumow & Gutsche, 2015).

The Mississippi Gulf Coast represents a polycentric region that struggles to find a shared vision of the future despite a shared history and tragedy. Following Hurricane Katrina, The Mississippi Renewal Forum and the Congress for the New Urbanism presented regional development as a substantive part of recovery. More recently, the Gulf Regional Planning Commission (2013), the Mississippi Bureau of Marine Resources (2011), and the Mississippi Alabama Sea Grant Consortium have been active in developing plans for greater resiliency through regional cooperation.

However, public support for regional planning remains low, implementation remains sporadic, and resiliency is ill-defined in the local context. Building on the interrelated concepts of the strategic, cultural, and functional identities of polycentric regions (van Houtum, & Lagendijk, 2001), and through narrative analysis of local media reports, this project specifically answers the following questions:

1. How is strategic identity narrated on a regional scale?
2. How is regional cultural identity narrated on a regional scale?
3. How is functional identity narrated on a regional scale?
4. What is the overall level of discourse surrounding intra-regional cooperation in planning and development?
5. At what level do the narratives combine to communicate an idea of resilience?

Based on the results of the five interrelated questions, the findings emerge from the narrative analysis of news reports filed between 2005 and 2018 by two regional newspapers and two regional television newscasts. Grounded in the narrative analysis of the language contained within the media reports, the findings uncover the prevailing narratives and frames of reference concerning greater resiliency through regional cooperation.

Local media can offer a unified regional frame of reference, so it is crucial for planners to consider how local media builds frames of reference regarding regional cooperation and resiliency.

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Key Words: Regional Planning, Resilience, Media Narratives, Polycentric Regions, Community Identity

MAKING A CENTRIFUGAL CITY: DETROIT AS REGIONAL PLANNING PIONEER

Abstract ID: 1013

Individual Paper Submission

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The problems of climate change and growing inequality have fostered growing attention to metropolitan planning for equity and sustainability. Most histories of regional planning institutions in the United States focus on the federal policies that gradually came to mandate “metropolitan planning organizations” (MPOs) across the nation over the course of the 1960s, primarily for purposes of transportation planning (Sciara 2017). Although these metropolitan planning organizations were intended to promote comprehensive regional planning, scholars have observed that many of these MPOs have instead promoted sprawl and decentralization (Grenns 2005; Basmajian 2013), failed to provide proportionate representation (Sanchez 2006), and been ineffective in achieving metropolitan equity goals (Lowe 2014). However, there are few detailed case studies of the political economy of metropolitan planning over the course of the 20th century as a whole. The history of early efforts in metropolitan planning in Detroit, a history that precedes federal mandates, can help to explain why MPOs have so often continued to further sprawl and decentralization, with little attention to equity and environmental concerns.

The history of metropolitan planning in greater Detroit began fifty years before the term “MPO” was coined, well before the Second World War. Starting in the 1920s, Detroit’s economic and political leadership directed massive public investments into regional highway planning across city and county lines. Archival research indicates that theirs was a consciously metropolitan effort, a partnership between the city and surrounding suburban governments. Inter-county “superhighway committees” paved the way for the region’s growth as a sprawling, low-density metropolis, or what might be termed a “centrifugal city.” The World War Two military buildup brought new institutions for metropolitan coordination of federal investment in industry and housing. In the postwar years, a new Regional Planning Commission and other inter-county agencies sought to encourage the orderly decentralization of the metropolitan region.

The case of Detroit indicates that regional planning and inter-governmental arrangements in the United States actually have a very long history, one that predates federal mandates for MPOs. It also highlights the fact that regional planning was driven in large part by regional business elites. Notably, however, Detroit’s growth-oriented regional planning efforts failed to address segregation and inequality in the metropolis. In 1967, just months after the Southeast Michigan Council of Governments (SEMCOG) held its first meeting as the MPO for greater Detroit, Detroit’s Twelfth Street neighborhood erupted as its black residents protested police brutality and lack of opportunity. Sadly, past regional planning in Detroit had done little to alleviate metropolitan inequality and indeed, much to facilitate it.

The history of the metropolitan planning institutions that preceded SEMCOG contains important lessons for planners and policymakers today. First is that metropolitan planning operates in a larger political and economic context, and has generally been oriented towards serving the needs of various development interests. Second is that suburban development both before and after the Second World War was an intended outcome of metropolitan planning. In light of this history, metropolitan planning should not be viewed as an elusive dream but as a longstanding practice, even in Detroit and other metropolitan areas known for extensive sprawl. Indeed, Detroit’s outward sprawl as a “centrifugal city” is the result of nearly a century of metropolitan planning. The challenge for advocates of sustainability and equity is how to build political will for new directions in metropolitan planning.

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Key Words: Metropolitan planning organizations, Political economy, Detroit, Suburbanization, Regional planning

MEGAREGIONS: CONVERGENCE OR DIVERGENCE

Abstract ID: 1044

Individual Paper Submission

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Megaregions are recognized globally as an increasingly important spatial unit. More than 70% of US population, employment and related economic activity is forecast to be concentrated within existing megaregions (U. S. Department of Transportation, 2017). The advancing integration of transportation and information technology make planning even more effective at the scale of the megaregion enhancing our ability to support regional growth, reduce inequality and foster a more sustainable quality of life. However, there are "challenges to enhancing economic development, environmental preservation, and societal equity" (Ross ET. AL. , 2016).

The reduction of regional disparities and the assurance of continued global competitiveness requires an improved understanding of the relationship of regional growth within megaregions, between megaregions and their impact on the national economy. It is important to improve regional productivity (CBI, 2016) and reduce regional disparities. A megaregion approach is suggested as a way to promote sustainable development (Ross ET. AL. 2016). However, whether the megaregions induces or reduces disparities is not clear as there has been little empirical research. As a result, infrastructure and other investments may be made without adequate understanding of the internal characteristics of megaregions and how they affect the areas they influence. (Woo ET. AL.) examined convergence and divergence among megaregions between 2000 and 2010 and found "a process of conditional beta, B, convergence at the national level but divergence among some megaregions (Woo e\ET. AL., 2015)". Convergence occurred in some megaregions, where core areas contributed to the reduction of regional inequalities, while divergence occurred among others. The existence of regional convergence and divergence within megaregions in the United States has significant implications for the national economy, policy development, infrastructure investment and preservation of environmental resources (Chen, Z. and Haynes, K. E., 2015).

This study investigates the economic growth in 10 U.S. megaregions, focusing on the change in economic inequality between and within megaregions at the county and national level after 2010. We compare the results of the previous study by Woo ET. AL. (2015). According to the CBI, the United Kingdom's premier business organization, "understanding the differences between and within regions and nations is critical to inform future policy making (CBI, 2016)." We examine this phenomenon through the lens of regional convergence and divergence using the Theil-Index and beta convergence for comparative

analysis. The results have policy implications for megaregion planning that can contribute to sustainable development through improved regional economic growth policy and investment decisions and enhanced multi-jurisdictional planning and governance. The relevance for regional planning education and scholarship is extensive. In addition, the impacts associated with of multi-jurisdictional planning are examined at the national, regional and county levels. This relevance is significant within the academy and for planning practice

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Key Words: Megaregions, Regional Inequality, Global Competitiveness, Economic Growth, Multi-Jurisdictional Planning

POLYCENTRICITY AND SCENARIO PLANNING OUTCOMES—A META-ANALYSIS

Abstract ID: 1197

Individual Paper Submission

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Every city has its centers, and some large cities have many centers—one central business district (CBD) and many subcenters. As cities grow, how centers arise and affect urban growth has been one of the key debates among urban planners since the 1990s. After earlier studies on methodological approaches to defining and identifying urban centers (Giuliano and Small 1991), the notion of the term “polycentricity” has been used not only to describe spatial patterns of urban landscape at both the intra-urban and inter-urban levels but also to examine impacts on job clustering, land use consumption, energy consumption, travel behaviors, pollutant emission, and so on (Meeteren et al 2016; Davoudi 2003; Sevtsuk and Amindarbari 2012). Particularly, as various scenario-based planning support systems were developed and used in planning practices, understanding impacts of polycentric urban structures on social, economic, and environmental outcomes in scenarios is now critical to help both planners and citizens guide towards desirable future urban development and growth.

This study aims at addressing the question of how the degree of polycentric urban structure affects variations in predicted outcomes and overall performances of each scenario. The 2004 survey research on scenario planning projects implemented in the U.S. examined the impacts of predicted vehicle travel

outcomes on land use consumption through a meta-analysis of 23 different scenario plans (Bartholomew and Ewing 2008). As an updated study, this study will focus on the impacts of polycentric and monocentric urban development patterns visualized in each scenario on physical, social, environmental, economic scenario outcomes. To achieve the research goal, this study first revisited existing 103 scenario plans between 2000 and 2010 to check whether there are any contents about defining and designating centers in scenario planning. To obtain scenario plans implemented after the year 2010, the Internet search was conducted, and scenario planning documents for additional 26 scenario planning projects were collected before analysis. To measure the degree of centeredness, this study relies on narrative and visual description of centers in scenario planning documents, and narrative and visual descriptions of centers are quantified as dichotomous dummy variables to model the relationship between the degree of centeredness and other predicted scenario planning outcomes. Among 129 scenario plans, 176 scenarios for the 34 scenario planning projects were selected for analysis after applying the selection criteria, and percentage differences in scenario planning outcomes from the baseline scenario are calculated for comparison of scenario planning outcomes across scenario planning projects.

Based on the percentage difference from the trend scenario, this study first compared the percentage difference in regional daily vehicle miles traveled (VMT) for each alternative scenario. As we expect, compared to the trend scenario in each scenario planning document, percentage difference in the median regional daily VMT across scenario planning projects shows that reduction in the average daily VMT is largest in the monocentric and compact development scenario, but the maximum reduction in the average daily VMT occurs in the polycentric and compact development scenario. As with the previous meta-analysis study by Bartholomew and Ewing (2008), the negative relationship between development density and VMT is still valid across alternative scenarios in both monocentric and polycentric patterns. Percentage difference in the total amount of the annual CO₂ emission estimates between base and target years shows that polycentric systems with high-density development patterns can lead to increase in CO₂ emission, which also cause heat island effects compared to monocentric systems. From these results, this study contributes to expanding understandings of impacts of polycentric and monocentric urban development patterns on different future planning outcomes as well as current built environment conditions.

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Key Words: polycentricity, urban center hierarchy, scenario planning, meta-analysis, urban structure

COLLABORATIVE GOVERNANCE OR PRIVATE SECTOR POWER GRAB? AN ANALYSIS OF THE CHANGED GOVERNANCE OF REGIONAL DEVELOPMENT PLANNING IN THREE U.S. STATES

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In the past few years, several U.S. states have undertaken efforts to reform and reinvigorate integrated regional development planning by creating or incentivizing the creation of new regional organizations. At the same time, older regional planning organizations such as Regional Planning Councils continue to work on similar issues across similar geographies. The new organizations are part of the larger trend toward collaborative governance (Ansell and Gash 2008). They differ from older ones in many ways including their use of distributive and redistributive policies in planning and in their relationship to the private sector. This paper measures and clarifies one of those differences, namely the composition of the governing board.

Because they were created in different states under unrelated programs (for example the voluntary Regional Cities Initiative in Indiana and the Governor's Regional Economic Development Councils in New York), one would expect some variation by state. However, recent trends in regional governance have heavily favored private sector leadership. In the U.S., proponents of private sector leadership argue that it is less beholden to political boundaries and therefore well suited to regional efforts (Hamilton 2004). In Europe, scholars have interpreted the trend toward private sector regional governance as a conscious strategy of state and federal leaders to empower the private sector broadly (Galland 2012). This paper attempts to measure and describe the increased role for the private sector in these regional development planning organizations in the U.S.

The analysis includes 25 new regional development planning organizations in three states. Board membership data from them and earlier organizations are gathered from public websites. Board members are characterized as public, private, or non-profit, and then by a more detailed scheme. Part one of the analysis looks at similarities in board composition across all of the 25 organizations. Part two looks for significant differences between the states. Part three compares the makeup of the new organizations with the older ones, and the degree of overlap between the two. The results are presented as summary tables with chi square tests for significance where appropriate.

Preliminary findings suggest that the new organizations have much larger private sector representation even though they were created under different programs. The new programs also have only moderate board overlap with older programs despite working on the same issues in the same locales. The findings are significant for regional planning in the U.S. because they provide the first rigorous attempt to quantify the differences between older and newer regional development planning organizations, and because they suggest important future research questions about the nature and effectiveness of private sector led regional development planning.

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Key Words: Regional planning, Neoliberal governance, Regional development

TRACK 14 – POSTERS

OPERATION REGIONAL HARMONY: A STUDY OF DEFENSE COMMUNITIES IMPLEMENTING JOINT LAND USE STUDIES

Abstract ID: 84

Poster

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During the 20th century, many domestic U.S. military installations were positioned in rural regions to ensure mission sustainment (Appel & Smith, 2011). Despite these progressive efforts, population growth, sprawling regional development, technological advancement, and economic dependency are just a few variables fostering a rise of incompatibilities between military installations and what can now be described as defense communities (Santicola, 2006; Lachman et al., 2013). While the significance and depth of this phenomenon is vast, this study centered on the federal government's policy response commonly recognized as the Joint Land Use Study (JLUS) program. The goal JLUS program is to mitigate deteriorating national security and public interests in defense communities largely attributable to inadequate regional planning (Davenport, 2007). The JLUS program was an ideal policy response for study since: (1) it is implemented both nationally and universally; (2) it applies cooperative regional planning strategies; and (3) empirical literature on the program's influence prior to this study was nonexistent.

To enhance our understanding of how this program performs and to fulfill a notable gap within the discourse, the following research question posed was: how do experienced stakeholders (i.e. those responsible for or invested in the implementation of JLUS recommendations) assess the program's ability to progress a region's (a) democratic participation, (b) intergovernmental cooperation, (c) military readiness, and (d) civilian development? Since this policy arena is an amalgamation of planning, intergovernmental, and security policy issues, the four response variables were strategically chosen to reflect these characteristics to enhance overall generalizability and validity. In addition, these variables echo the core objectives of the JLUS program. The study also recognized the potential for participant characteristics to influence their assessment of the program, especially when examining from a national context (Mazmanian & Sabatier, 1989). As a result, the study posed supplementary research questions aimed at determining if military status, military service department, or geography exhibited any significant differences within the data.

To address the research questions, this study applied a two-round policy Delphi complemented by a comprehensive review of preceding literature. Surveys were disseminated to all defense communities which completed a JLUS between 2013 and 2017. Round one measured the extent to which military stakeholders perceived positive changes in the response variables. Round two applied the findings from round one offering a means to gauge any variability by civilian stakeholders. Along with traditional hypothesis testing of population proportions and tests of homogeneity, the study also evaluates round convergence and stability.

The study reveals policies and methods which foster inadequate regional planning are considerable mechanisms contributing to the rise of incompatibilities in defense communities. To demonstrate this, the

study proposes a triaxial policy spectrum. The spectrum offers a means to measure and compare policy alternatives related to domestic defense policy and land use. Ultimately, the study applies this framework and the findings from the policy Delphi to verify the extent to which the JLUS program falls within the spectrum of participatory planning, relations defined by concordance, and a political philosophy driven by devolution.

Collectively, the study seeks to fulfill a visible gap within the discourse while providing inferences that are not only relevant for local governments, the federal government, and the military, but to the broader field of planning. Findings from this study will encourage both military and civilian planners to reflect on the effectiveness of their own regional planning strategies or recognize the need for improving their own regional planning methods. Finally, by introducing this topic to the academic discourse, it may foster future research which can extend beyond the goals and objectives pursued in this study.

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Key Words: regional planning, federal planning, defense communities, land use, policy analysis

RESEARCH ON THE CITY NETWORK OF GUANGDONG PROVINCE FROM THE PERSPECTIVE OF ROAD FREIGHT: AN ANALYSIS BASED ON THE DATA OF "CAINIAO NETWORK"

Abstract ID: 663

Poster

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In the era of "Internet of Things", the flow of goods among cities has become an indispensable factor affecting the regional spatial pattern. In China, researches about regional spatial structure based on logistic statistics have been widely carried out, however, most of them use the traditional model in the field of economic geography such as "gravity model", so they still belong to the realm of static pattern judgment to some extent. With the improvement of the theory of "space of flow" and the further development of logistics informatization, it is possible to study regional logistics network using "flow elements" among cities. Some researchers use the air cargo data of different airports, or the layout of logistics enterprises to study the characteristics of regional city network from the perspective of freight

transportation. Based on the freight order quantity from "Cainiao Network", which is the largest integrated logistics information Internet platform in China, this paper analyzes the city network among cities in Guangdong Province-largest province in economy in China, and tries to explore its relationship with urban statistical data. The main conclusions are as follows: (1) Highway freight-based city network in Guangdong is centered on the two metropolitan areas which composed of Guangzhou-Foshan and Shenzhen-Dongguan in the Pearl River Delta, and the coastal cities have strong links with each other, while the inland cities are relatively weak. (2) Based on the direction of departure and arrival of goods, Guangdong cities can be divided into "hub type", "equilibrium type", "place of origin" and "hinterland", reflecting the status and characteristics of each city in the regional freight network. According to the actual situation, it can also analyze the reasons why some cities rank higher or lower in the city network. (3) The city network based on the actual freight orders can reflect the reality of regional logistics more truly than the "gravity model" network, so this study can give a new perspective to regional research.

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Key Words: Road Freight, City Network, Guangdong

LESSONS LEARNT FROM THE BALANCED NATIONAL DEVELOPMENT POLICIES WITH A CASE STUDY ON THE INNOVATION CITY PROJECT IN KOREA

Abstract ID: 771

Poster

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The Seoul Metropolitan Area (SMA) used to be home to approximately a half of the national population, 90% of the top 100 companies and 85% of the public sectors in 2003. The heavy concentration of the population and economic activities in the region called for balanced national development policies. One of the major efforts to promote balanced growth in the country is the Innovation-City(Inno-city) project, which is to relocate 115 public institutions from SMA to 10 other cities outside of SMA in Korea, so-called Innovation City. As of 2019, more than 90% of the Inno-city project is completed, but the migration ratio of the public institution employees turns out to be lower than expected and there are discrepancies in the relocation ratio across the cities. Korean government is currently planning to extend and strengthen the Inno-city project. Since the major objective of the Inno-city project is relocation of people and public institutions from SMA, it is important to evaluate the impact of the Inno-city project on population relocation and identify influential factors affecting the relocation. In this paper, we will classify the Inno-cities based on their locational and development characteristics and carry out a comparative analysis, in order to identify major factors influencing relocation.

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Key Words: People migration, balanced national development, Innovation City

EVALUATING PM2.5 CONCENTRATION IN SOUTHERN CALIFORNIA: AN INTERSECTION OF REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY AND ENVIRONMENTAL JUSTICE

Abstract ID: 969

Poster

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This study measures the impacts of particulate matter (PM) 2.5 in environmental justice (EJ) areas by using the estimated results from a robust air quality dispersion model based on different planning scenarios identified in Southern California Association of Governments (SCAG)'s adopted 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

Southern California has about half the entire state's population, is home to roughly 19 million people, and has 15 million licensed drivers. According to United States Department of Transportation (USDOT), motor vehicles, particularly those used for freight, are a leading source of air pollutants and fine particular matter that affect human health. The research conducted by the American Thoracic Society and New York University's Marron Institute of Urban Management found that in southern California, about 1,341 people estimated in Los Angeles-Long Beach-Glendale area, 808 people estimated in Riverside-San Bernardino-Ontario area, and 64 people estimated in Santa Ana-Irvine area to die annually due to air pollution. According the California Air Resource Board (CARB), the concentration of air pollution in EJ areas has been decreasing in the last several decades due to regulations and improvement in technology; however, it is important that we continue to keep improving air quality, especially in EJ concentrated areas. The particulate matter is extremely small particles and liquid droplets associated with dust, soot and combustion products that linked to significant health problems, such as asthma, adverse respiratory problems, chronic bronchitis, decreased lung function and premature death.

As the largest designated Metropolitan Planning Organization (MPO), SCAG is required with assessing the impacts from regional transportation planning and policies; not only for conformity but, perhaps, more importantly for public health and EJ determinations¹. Current efforts to examine these issues rely upon emissions from combustion engines. However, wind transport and turbulent mixing of those emissions are the mechanisms that distribute the emissions throughout the region. The resulting ambient air concentrations and population exposure are the metrics of interest and should be directly addressed. The

state and national air quality standards are expressed in terms of concentration. As the result, SCAG is continuing in its development of an accurate method for investigating air pollutant concentrations as part of the RTP/SCS and its EJ Report.

This study utilizes SCAG's Transportation Analysis Zone (TAZ) Roadway Emission Estimator Tool (TREET) to estimate existing and projecting air pollutants (e.g. PM 2.5, PM 10, etc.) by using TAZ as unit of analysis in the region. TREET is an application that can translate SCAG's travel demand model (TDM) outputs into TAZ-level direct exhaust emissions from on-road activities for the Regional Emissions Dispersion Model (REDM). REDM provides an estimation of road-based pollutant concentration levels and identifies any TAZ with exposures of pollutants that could be adverse or disproportionately high. The concentration levels of emission can be spatially analyzed within EJ areas for different regional planning scenarios per SCAG's adopted 2016 RTP/SCS—these scenarios are known as base year, baseline, and plan. The plan is the preferred scenario by SCAG to sustainably and efficiently allocate future population, household, and employment within the High-Quality Transit Area (HQTa). In addition to the adopted 2016 RTP/SCS, this study will measure the impacts of PM 2.5 with the assumption that all passenger vehicles are electric.

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Key Words: particulate matter 2.5, regional transportation plan/sustainable communities strategy, environmental justice, dispersion model, electric vehicle

TRACK 15 – TRANSPORTATION & INFRASTRUCTURE PLANNING

TRACK 15 - ROUNDTABLES

ROUNDTABLE - TRANSPORT JUSTICE IN THEORY AND PRACTICE: HOW HAVE THEY EVOLVED DURING THE PAST DECADES?

Abstract ID: 270

Roundtable

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For more than four decades scholars have explored the role of transportation systems in entrenching or combating urban inequality for low-income and marginalized populations. After Kain proposed what is known as the spatial mismatch hypothesis in 1968, substantial research emerged, growing into an influential body of literature. Publications in the 90s and early 2000s examined the role of access to transportation in reducing this so-called ‘spatial mismatch’ (Blumenberg and Manville, 2004). A related literature documented the injustices caused during the deployment of urban highways to mitigate traffic congestion (e.g. Bullard et al., 2004). Other scholars have considered transport exclusion and the inherent effects of gender, race, immigrant status, physical ability, and their intersections, on the effectiveness and relevance of given transport modes (Lucas, 2012).

The number of academic studies concerned with equity and social or distributive justice in transportation has dramatically increased in recent decades. During just the past five years there have been more than 16,000 papers and books published about transportation and mobility justice, and a number of recent books have further offered ambitious and effective analysis and, particularly, theorization of questions around transportation and mobility justice, rights, and equity. Scholarship on transportation justice has elucidated the burdens and challenges disproportionately faced by low-income and minority population in moving around urban areas, around the world, and the role of transport investments and infrastructures in deepening these inequalities (e.g. Bullard et al., 2004).

At the same time, different metrics and concepts have emerged, foremost amongst them “accessibility”, to assess transportation-related urban inequalities, yet there is no consensus on how it should be measured. Moreover, evidence of the impact of increasing access for those who most need it on mobility patterns, income, and health remains mixed and contested. In addition, and despite the increasing number of publications concerned with transportation justice, most coming from the Global North, only a few cities properly consider the distribution of transportation benefits and burdens in their plans.

This roundtable gathers together a group of distinguished junior and senior scholars working on questions of social justice in relation to transportation policy and planning to generate a critical and constructive discussion around the following questions:

- How has transportation planning evolved over many generations of both academic research and practice in regards to social justice, in both the Global North and South, and what comes next in the research agenda?
- How can we better integrate this scholarship into planning practice?
- How can accessibility be used as a performance measure for transport inequality?
- What are the impacts of planning with accessibility in mind on the mobility patterns, income and health of marginalized groups?

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Key Words: Transport Justice, Equity, Accessibility, Mobility Justice, Social Exclusion

TRACK 15 – INDIVIDUAL ABSTRACTS

A GEOSPATIAL MODEL TO ASSESS ALTERNATIVE TRANSPORTATION SERVICE ACCESSIBILITY

Abstract ID: 5

Individual Paper Submission

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Background:

Many studies have recognized transportation accessibility as a crucial need to ensure mobility of citizens, especially those that have to rely on transportation services other than private automobile. Previous studies have been primarily focused on individual aspects of transportation accessibility or in determination of services gaps at large geographic scope. For planning and policy interventions, it is necessary to consider all available alternative transportation options and at a much finer geographic level. The purpose of this study is to determine gaps in spatial transportation coverage by considering all available alternative transportation services and identify poor accessibility areas at a fine geographic level.

Study Design:

This study develops a modular geospatial model for calculating a comprehensive measure of transportation accessibility that considers three transportation modes by route type: fixed route services (e.g. transit services), flexible route services (e.g., paratransit), and Door-to-Door services (e.g., TNCs, taxi), at the census block group level. The model is organized in 4 modules: service area, opportunity, impedance, and accessibility module. The model creates layers of service accessibility for each transportation service provider category using a gravity model, an Origin-Destination (OD) matrix and network travel distances. For fixed route service, the model uses transit stops as origin and destination and the route distance between stops as impedance. For flexible routes and Door-to-Door service, the model uses census block group centroids as origin and property parcels as destination. Each service category layer is normalized using standardized scores, and the three resulting accessibility layers are combined into a single layer that represents the overall transportation accessibility. Finally, the model uses the categorized accessibility scores to determine areas with poor accessibility. The model was applied to Orange County in Florida, selected as a high priority planning area due to its limited alternative transportation options.

Results:

The model was able to determine 117 areas with low transportation accessibility, representing 46.9% (563,025 people) of the total 1,200,241 people in Orange County. The general assumption prior to this study was that the low accessibility would be expected mostly in the large unincorporated part of the study area. However, the model found 21 low accessibility areas located within cities, including the city of Orlando, or adjacent to it. Those areas include 12.3% (147,953 people) of the county total population.

Conclusion/Contribution:

The findings demonstrate that the model was successful in determining areas that lack accessibility to alternative transportation services. The contribution of this research are twofold: a) methodological – it proposes a method of calculating accessibility that comprehensively considers all alternative transportation options, and b) The model can be used as a tool to assist planners and policy makers in their efforts to reduce spatial gaps in transportation services, especially for populations unable to travel by private automobile.

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Key Words: Transportation accessibility, Alternative transportation service, Transit, Paratransit, GIS modeling

CAUSES OF TRAFFIC CONGESTION IN DEVELOPING COUNTRIES: A CASE OF CAIRO

Abstract ID: 14

Individual Paper Submission

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Traffic congestion is experienced in many cities around the world. However, traffic congestion issue is not well-defined as to the degree of congestion and its causes, particularly, in developing countries. As a result, traffic congestion has become a more and more complex issue. Cairo is one of the mega-cities that are struggling with the traffic congestion issue and its negative impacts. The traditional approach used in the city is unable to realistically represent the problem. This study reviews the problem and uses a theoretical framework to analyze traffic congestion in Cairo to answer the questions: What is the extent of traffic congestion in the city of Cairo? What are its types, causes, and impacts? The theoretical framework presents the different focuses for defining the issue and its causes in the developing world. This study addresses eight corridors carrying traffic to and within Cairo. These corridors are the main urban expressway and the urban primary arterial streets. The adopted approach is a mixed approach to understand the traffic congestion issue across Cairo with reference to specific locations. Data have been obtained from reports and previous studies on congestion in the city. The study found that traffic congestion issue is still growing as the issue and its causes are incorrectly defined. Several initiatives and actions have been undertaken to reduce the impacts of traffic congestion in Cairo and many studies have addressed the issue, but the desired outcomes have not yet been achieved. The author argues that the issue is still growing because of the gaps in traffic policies and wrong definition of the causes. Traffic is a hindrance to mobility in Cairo as the demand for mobility rises significantly. There is a serious lack of traffic management and regulation, and a lack of the provision of public transport.

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Key Words: traffic congestion, causes of congestion, developing cities, Cairo, traffic management

WALKING AND CYCLING IN THE UNITED STATES, 2001-2017: TRENDS IN PHYSICAL ACTIVITY FROM DAILY TRAVEL

Abstract ID: 18

Individual Paper Submission

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The objective of this paper is to assess changes in walking and cycling in the United States between 2001, 2009, and 2017—at both the trip and person level for persons five years and older. First, we compute the frequency and duration of walking and cycling per capita using NHTS 2001, 2009, and 2017. In order to do so, we adjust ‘trips’ in the NHTS 2017 to account for the changed definition of ‘loop trips’ (compared to the 2001 and 2009 surveys). For the trip-based analysis, the daily frequency and duration of walking and cycling per capita are calculated by dividing the daily totals for trips by the number of persons, yielding average rates. Second, we assess the prevalence of walking and cycling using two different measures: (1) any walking or cycling on the assigned travel day and (2) 30 minutes or more of walking and cycling per day. Both thresholds of physical activity have important implications for health benefits. For the person-based analysis, trip duration information for walk and bike trips is aggregated for each trip maker, and then merged with the person data set. The person data set includes individuals who did not make any trips during the travel day (i.e., stayed at home). To include individuals who stayed at home in the walking and cycling prevalence estimates, we assign them to the “no walk trip” and “no bike trip” categories. For both, the trip-based and person-based analysis, statistical significance is determined by calculating differences in weighted proportions or means between independent samples ($p < .05$). To control for the effects of covariates and possible confounders, logistic regression is used to calculate the likelihood of walking and cycling in 2017 compared with 2009 and 2001, after adjusting for the impacts of other variables. Results show that in 2017 the average American made 13 more walk trips than in 2009 and 30 more walk trips than in 2001. In 2017, Americans walked for 37 hours per year (+4hrs since 2001). There was no difference in the average number of bike trips and time cycled in 2001 and 2017. At the population level, the prevalence of “any walking” was 18% in 2001, but then declined to 16% in 2009 and 2017; whereas walking at least 30 minutes per day increased from 7.2% in 2001 to 8.0% in 2009 and 2017. The prevalence of “any cycling” per day was stable between 2001 and 2009 (1.7%) and then declined to 1.5% in 2017. The prevalence of “30 minutes of cycling” remained unchanged and was 0.9% in 2001, 2009, and 2017. Aggregate trends hide variability by age group—particularly declining trends for children and teenagers 15 years and younger. For example, between 2009 and 2017 the prevalence of “any cycling” increased slightly for those 16 and older (1.2% to 1.3%, not significant at $p < .05$) while it fell significantly ($p < .05$) from 4.1% to 2.3% for those 15 and younger. Similarly, between 2009 and 2017, the prevalence of “30 minutes of cycling” increased slightly from 0.8% to 0.9% (not significant at $p < .05$) for those 16 and older, while it declined significantly ($p < .05$) among those 15 and younger 1.5% to 0.9%. The analysis for “any walking,” shows a similar trend with a statistically significant ($p < .05$) decline in the prevalence of “any walking” for children and teenagers 15 years and younger between 2009 and 2017 (19.8% to 16.5%).

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Key Words: active travel, physical activity, walking, cycling, trends 2001-2017

SHORT DISTANCE COMMUTING TRAVEL IN SHANGHAI

Abstract ID: 44

Individual Paper Submission

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This research focuses on how to promote non-motorized or e-two wheel for short distance travel in Shanghai. Based on the survey of 27 residential areas in different location in Shanghai, we analyzed the travel characteristics for commuting, shopping and recreation, in terms of travel distance and modes. Spatial distribution of long and short distance travel was also identified and analyzed. The survey shows that 52.2% people commuting distance are less than 5 kms. And average daily shopping travel distance is 2.97 km. There is quite higher proportion of short distance commuting travel in central city area. While in the periphery area where people were relocated or chose to stay, their travel distance will be longer. With the strategy of population decentralization, the expectation of mitigating congestion will be difficult to realize. Because of the vibrancy of city center and higher property value, the car ownership in city center is also higher. But if people in city center travel in short distance by car, the congestion problem will be worse more.

In general for all the people surveyed, 24.4% of them commute by car. For short distance commuter, 15% of them will take car. The two reasons for them to choose car are comfortable and fast to travel. Statistic models were also applied to find the impact on location, built environment, social demographic characteristics and the availability of transport service on mode choice for short distance travel in this paper. It shows that wider road , car ownership , commuting subsidy and provision of free parking in company will encourage people to commute by car in short distance . The availability of metro station has no significant impact on reducing car travel. While average width of side walkway , road network density , density of bus stop , number of kindergarten and the ownership of bicycle and e-two wheel will reduce the possibility of car commuting .

Then some recommendations were proposed to different band area in Shanghai in built environment improvement and transport strategy during urban regeneration. Within the inner ring band area, more efforts should be put on pedestrian and non-motorized environment, increasing bus stop service coverage rate. For the area between inner ring and middle ring, car was widely used in short distance shopping travel, due to the preference of big shopping mall development in this area. So we need to encourage land use mixture of more local shop/service. E-two wheels are very popular in the area, transport policy should pay great attention to regulate this mode in speeding, parking, as well as the safety at road crossing. As there is no enough employment opportunity outside of out ring for people staying there, their commuting distance will be longer. Public transport priority policy, such as metro service should be provide before people moving in

Citations

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Key Words: short distance city, built environment, travel mode, non-motorized transport

WHEN DRIVING IS NO LONGER AN OPTION: HOW AMERICANS PLAN TO COPE WITH AGE-RELATED DRIVING CESSATION

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At last count, there were 49.2M adults aged 65 or older living in the United States (Census, 2010). This represents 15.2% of the population. By 2035, that number will grow to 78.0M older Americans and 94.7M by 2060. This is nearly double the current number. Moreover, they will represent 23.5% of the population, with the largest growth estimated to be in the 85 and older group. Although mobility barriers might make walking difficult for some, researchers project that better health care, nutrition, education, and income will mean that most of these older Americans “will be in good health and not seriously disabled” (Rosenbloom, 2003). They will also be more racially and ethnically diverse than ever before.

This demographic shift will have far-reaching implications for the country, few as critical as those related to transportation and the ability of our older populations to access friends, family, goods, services, and healthcare. More so than any generation before, aging Americans desire to “age in place” (Farber et al., 2011; Wiles et al., 2012). Indeed, quality of life and clinical outcomes for all aging individuals are better the longer they can remain in the community and age in place (Wang et al., 2012), but doing so presents unique transportation challenges. One of the inevitable consequences of getting older is that the ability to drive a car is diminished and can eventually disappear. Without suitable transportation, it becomes increasingly difficult for these populations to participate in their community. Despite increasing desire among aging Americans to live in more walkable places, such places either do not exist or are unaffordable for most people (Talen, 2013). For the foreseeable future, the ever-increasing number of Americans choosing to age in place will be doing so in communities that require a car for most (or all) daily activities.

This research aims to add to our understanding of issues around aging in place by considering how people may be planning (or hoping) to address the fact that eventually most of us will reach a point at which we are no longer able to drive. This research is divided into two parts. The first aims to understand how individuals plan to address driving cessation – the point at which individuals are no longer able to drive – and if an individual’s demographic characteristics, current travel behaviors, future travel behavior preferences, and current built environment influence such plans. The second area of inquiry examines expectations of autonomous vehicle technology as a potential solution to age-related driving cessation. In a statistical analysis of a survey of 349 Americans we find that age, gender, current travel behavior, and the built environment each significantly impact willingness to move to a more walkable place, and support for walkable-community policies. Additionally, results indicate that only demographics and travel behavior variables significantly impact willingness to use autonomous vehicles upon cessation of driving. This work has implications for policy and planning to foster more age-friendly communities, as well as the role new technologies may play in the lives of aging Americans.

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Key Words: driving cessation, age-friendly communities, autonomous vehicles

THE CHARACTERISTICS OF FIRST AND LAST-MILE TRIPS TO/FROM BUS STOPS IN SUBURBAN ENVIRONMENT

Abstract ID: 51

Individual Paper Submission

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First and last-mile trips, the first and last part of a multimodal trip, especially become an important transportation mode for accessing public transit (Boarnet et al., 2017). Since many first and last-mile trips to/from transit stops are made by walking, the catchment area of a first and last mile connection to public transit has been defined by walking distance. Although the catchment area varies by a variety of socioeconomic and land-use characteristics, trip purpose, and transit quality (Chia et al., 2016; Daniels and Mulley, 2013), the standard of 0.25 and 0.50 mile for bus and rail users is widely accepted, respectively. However, the catchment definition is mostly based on much research focusing on urban areas, especially metropolitan areas, while first and last-mile trip in suburban environment has been underestimated. Since a broad range of environmental factors such as land use and street network influences pedestrian perceptions and how far they are willing to walk to transit stops (Guerra, et al., 2012), it is reasonable to hypothesize that the characteristics of first and last-mile trips in suburban areas are different from ones of the trips in urban areas.

The purpose of this paper is to identify the characteristics of first and last-mile trips to/from bus stops in suburban environment. For the purpose, this paper analyzes the customer survey conducted by OminTrans, a transit authority mainly providing bus services in San Bernardino County, one of suburban counties of the Los Angeles Metropolitan area. Mapping and connecting 2,658 bus riders' trip origin, boarding bus stop, alighting bus stop, and trip destination, this paper measures the distances of the riders' first and last-mile trips. Furthermore, this paper constructs a regression tree model in order to identify the characteristics of bus riders who make longer first and last-mile trips by associating their first and last-mile trips with their socio, demographic, and economic characteristics as well as travel behavior. The outputs of the model suggest that younger student riders as well as frequent users tend to walk further from/to bus stop. The findings from this paper allow having a better understanding on the complete multimodal trip by bus in suburban areas and supporting decision making on public transit planning including location decision of bus stops and routes.

Citations

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Key Words: First and last mile trip, Bus transit, Suburban environment, Bust rider survey

HOW TODS HAVE INFLUENCED URBAN CHARACTERISTICS OF SEOUL

Abstract ID: 52

Individual Paper Submission

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This project will study Transit Oriented Development in Seoul and explain how TODs have been conceptually and practically defined in the specific context of Seoul. Because the TOD term was not defined by planners and scholars until the late 1980s in U.S., many dimensions of this transit integrated urban development model were not explicit when the first TOD project in Seoul was built in the 1960s. Recent TODs are integrated with various urban typologies, such as new towns, offices, and cultural spaces, thus becoming a mega transit hub in the city. This research will also investigate how TODs have changed in specific locations, as well as trends in the city closely related to changes in demographics, transportation planning policy, housing, and infrastructure, and lifestyle throughout Seoul's recent history.

Seoul has a great history of urban development in terms of transportation, infrastructure, mega-scale projects, and rapid urbanization. Urban rail and bus transit developments have played a major role in the evolution of Seoul's urban characteristics. In particular, the urban characteristics of transit influence areas (0.5 mile radius from each station) have been rapidly changed in the last five years due to the introduction of mega transit hubs, construction of the new subway line 9, extensions for existing subway lines, opening of new stations, and urban regeneration housing projects adjacent to stations. Due to the increasing number of subway lines, more stations operate to connect multiple lines. In consequence, the size of some stations becomes larger and their use becomes more diverse. Multipurpose/mixed-use urban-scale station typologies have appeared in the city and greatly influence urban factors, such as land-use, accessibility, housing, residence, employment, traffic congestion, and bus connection within transit influence area.

This research seeks to investigate Seoul urban transit developments and their urban impact on subway ridership through understanding development history and using the empirical method, such as a cross-sectional study. Ridership generates revenue for transit operations and increased floating populations around station areas represent successful transit development. The research will evaluate various conditions of subway station areas in Seoul (331 stations in total) by examining the relationships between urban factors and subway ridership. The hypotheses for the research are (1) the new multi-use mega station typology will increase ridership as well as floating population around the transit impact areas (2) lower income populations are more likely to use urban rail transits than those who are higher income populations (3) improving attractiveness of public transportation will increase ridership (4) multimodal connection will lead to improved transit ridership.

Seoul consists of dense, developed areas that limit potential for introducing new urban structures in the city, but the city continues to develop through redevelopment projects, such as new towns, shopping malls, business districts, and parks closely associated with subway developments. Transit development benefits low and middle-income people for their daily life and commute. For these reasons, this study will contribute to defining an effective role for future TOD practices and implementation in Seoul through both qualitative and quantitative research approaches. Finally, the research aims to investigate TOD success through the sustainable ridership growth, its impacts on local and regional TODs of Seoul as well as their design.

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Key Words: Transit Oriented Development, Mega Transit Station Design, Mixed Use Development, Sustainable Development

CAN TODNESS IMPROVE (EXPECTED) PERFORMANCES OF TODS? AN EXPLORATION FACILITATED BY NON-TRADITIONAL DATA

Abstract ID: 64

Individual Paper Submission

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Transit-oriented developments (TODs) in general and TODness, i.e., the extent to which the existing conditions of TOD sites meet agreed-upon TOD standards (e.g., density, diversity and design) in particular often require concerted, conscious and continuous investment and efforts. Given this, it is legitimate and understandable that decision-makers, scholars and the public expect as many positive outcomes from TODs and TODness as possible. Non-traditional data (NTD) has provided opportunities for us to develop (new) indicators for TODness and expected outcomes that we have for TODs or TODness. We could, for instance, formulate indicators across more spatiotemporal resolutions and samples and measure new dimensions of the expected outcomes.

This paper introduces and operationalizes indicators (partially) based on NTD such as smartcard data, population heatmaps and Point of Interest data and social media checkins for TODness and the expected outcomes in the context of Shenzhen, China. Based on the resultant indicators and with the help of (spatial) regression models, it identifies the aspects or the combination of TODness that have/has the most impacts on the expected outcome.

It shows that it is feasible to redefine TODness and expected (positive) outcomes and formulate (new) indicators for them based on NTD, alone, or its combination with traditional data. Facilitated by those indicators, we can also conduct extra/empirical studies on the relationship between TODness and

expected outcomes, which would not only generate new knowledge about the relationship but also shed lights on the new relationships between TODness and expected outcomes.

In Shenzhen, it is not TODness that influence the expected outcomes (measured by the numbers of smartphone users and transit riders and the ratio of transit riders) the most. Rather, it is factors such as CBD, Interchange Station and Urban Village that influence the expected outcomes the most. In terms of TODness impacts on expected outcomes, Density and Diversity' impacts are always positive whereas Design's impacts are mixed. This means that enhancing several selected aspects of TODness can probably produce more expected (positive) outcomes than enhancing many aspects of TODness simultaneously. In addition, there could be cases of oversupplying of certain TODness, which could lead to negative impacts on expected outcomes. Taking advantage of NTD, it also differentiates the magnitude of impacts of different TODness indicators across days of a week. All the above can provide useful references for TOD-related plan formulation and decision-making.

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Key Words: Transit-oriented developments, TODness, Outcome, Relationship, non-traditional data

PREPARING FOR PROGRESS: ESTABLISHING GUIDELINES FOR THE REGULATION, SAFE INTEGRATION, AND EQUITABLE USAGE OF DOCK-LESS ELECTRIC SCOOTERS IN AMERICAN CITIES

Abstract ID: 67

Individual Paper Submission

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Personal electric scooters (also called e-scooters) have quickly gained attention in Western cities as a novel means of transportation. As community leaders seek a new generation of mobility options, e-scooters represent great promise but also considerable complexity. These privately-funded vehicles operate generally without much regulation, and many of the platforms require no fixed charging stations. Also, e-scooters can be parked wherever a user wishes to leave it. This has the potential to create obstacles on sidewalks or in the public right-of-way, a problem compounded by a general lack of enforceable regulation in cities. In addition, these motorized devices are often operated in cities without designated travel paths, leaving riders to use bike lanes or the sidewalk. Cities must therefore find a way to ensure safe ridership and sensible integration of this mode into the broader transportation network. At the same time, equity concerns around e-scooters have simmered in media and political circles. It remains

unclear whether e-scooter providers are making conscious or structured efforts to attract lower-income or elderly riders to their services, despite the e-scooter's potential to give these populations a much-needed new option for personal mobility. These challenges, and the lack of scholarly investigation into how cities and e-scooter providers might be addressing them, are the core focus of this study. This project investigates how e-scooters are impacting the regulatory, planning, and infrastructure processes in American cities, as well as the ways in which cities and providers are (or are not) partnering to advance shared goals of safety and equity. Relying on stakeholder interviews and content analysis of relevant materials, this project proposes a set of practice-ready reforms that will aid cities in establishing a baseline for effective management of e-scooters. In addition, the project provides a guidebook on equity and social empowerment geared toward helping e-scooter providers supplement their plans in order to more effectively attract and retain customers from the broadest possible spectrum of age, ability level, and socioeconomic status. By documenting how American cities are managing e-scooters, this project contributes to a newborn literature on e-scooters. And by providing both public officials and private-sector interests with the tools to work toward a more equitable, safe, and durable network for e-scooters, this project adds practical solutions to a new and growing urban problem.

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Key Words: E-Scooters, Regulation, Personal Mobility, Bike-Ped Infrastructure, Public Private Partnerships

MOBILITY-ON-DEMAND VERSUS FIXED-ROUTE TRANSIT SYSTEMS: AN EVALUATION OF TRAVELER PREFERENCES IN LOW-INCOME COMMUNITIES

Abstract ID: 80

Individual Paper Submission

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Emerging transportation technologies, such as ride-hailing and autonomous vehicles, are disrupting the transportation sector and transforming public transit (Buehler, 2018; Hensher, 2017). Some transit observers envision future public transit to be integrated transit systems with fixed-route services running along major corridors and on-demand ridesharing services covering lower-density areas (Maheo et al., 2017). An integrated mobility-on-demand transit system brings the promise of improving operational efficiency and providing affordable and convenient public transit services to areas that were previously unreachable (Yan et al., 2018). While this type of transit system is conceptually appealing, the existing

knowledge regarding the traveler preferences for it is limited. This paper aims to advance research in this area by investigating public preferences for a MOD transit system versus a fixed-route transit system, with a particular focus on disadvantaged travelers.

We seek to answer three questions: Do travelers, particularly the disadvantaged ones, prefer a MOD transit system over a fixed-route system? What factors can help explain their preferences? What are the potential benefits associated with MOD transit services that individuals perceive, and what concerns do they have? Answering these questions can help transit agencies assess overall community support for MOD, identify the primary customer base for it and the benefits they receive, identify potential geographic areas for pilot deployment, and learn who might be left out by MOD transit services and the obstacles that they face.

We conducted a survey in two low-resource communities in the United States, namely, Detroit and Ypsilanti, Michigan. The survey solicited the following information from the respondents: their use and perception of local public transit and ride-hailing services (Uber/Lyft), their demographic and socioeconomic characteristics and home address, and their preference for a proposed MOD transit system (which was named RITMO) versus the current fixed-route system. In addition, respondents were asked if they own a cellphone or a smartphone, if they have internet access at home, and if they have a bank account. The main attitudinal question asks: "Compared to a fixed-route bus system, do you prefer the RITMO system [the proposed integrated mobility-on-demand system]?"

We obtained a total of 497 and 534 completed responses from Ypsilanti and Detroit, respectively. We conducted descriptive analysis on the survey data, and also fit ordered logit models to examine the factors that shape individuals' preference for mobility-on-demand versus fixed-route transit. The key findings include:

- 1) A majority of survey respondents from both cities preferred a mobility-on-demand transit system over a fixed-route one.
- 2) There is a stronger preference for mobility-on-demand transit among males, college graduates, individuals who have used ride-hailing before, and individuals who currently receive inferior transit services. However, preferences varied little by age, income, race, or disability status.
- 3) Somewhat surprisingly, we found that lacking access to a bank account, a smartphone, or internet at home or having a disability was not negatively associated with a stronger preference for Mobility-on-Demand transit compared to fixed-route, but lacking access to a mobile data plan was.
- 4) The most important benefit of a mobility-on-demand transit system perceived by the survey respondents is enhanced transit accessibility to different destinations. The most critical concerns expressed include the need to actively request rides, possible transit-fare increases, and potential technological failures.

These findings suggest that transit agencies that are considering mobility-on-demand initiatives should include addressing female rider safety concerns and accommodating the needs of less technology-proficient individuals. Moreover, it appears that low technology self-efficacy and unwillingness to adopt new technologies could be a more serious barrier than the lack of access to infrastructure such as bank accounts, smartphones, or Internet for the adoption of Mobility-on-Demand transit among many individuals.

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Key Words: mobility-on-demand, public transit, traveler preferences, disadvantaged travelers, low-income communities

BALLIN’ ON A BUDGET: PREMIUM RIDEHAIL USE IN AUSTIN

Abstract ID: 112

Individual Paper Submission

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Since the introduction of UberX and Lyft in 2012, ridehailing has proliferated across geography and socioeconomic status, beyond coastal megacities to Midwestern midsize regions. From early-adopting Millennials and an avoidance of drinking and driving (Rayle et al, 2016) to disadvantaged communities accessing opportunity. From Los Angeles (Brown, 2018) to Boston (Gehrke et al, 2018) to New York City (Schaller, 2018) disadvantaged communities have been found to use ridehailing more frequently than their more affluent regional peers.

But does the proliferation of regular ridehailing extend to high-priced premium ridehail trips? What can be learned from studying the neighborhood characteristics where premium ridehail trips originate and terminate? Where are premium ridehail travelers going? This paper asks and answers: What explains the use of premium ridehailing? I use GIS software and trip-level data from RideAustin, an Austin nonprofit ridehail company, combined with land use, U.S. Census Bureau, EPA, and parking data to make inferences about the relationships between neighborhood characteristics and premium ridehail use.

I argue that current premium ridehail use by neighborhood count and per capita somewhat resembles the typical early-adopting regular ridehail user, before proliferation; specifically, skewed toward the top income quintile. However, I find that residents from neighborhoods in the bottom income quintile took the greatest share of premium ridehail trips. Travelers who one premium ridehail driver called the “ballin’ on a budget crowd” (Perea, 2015). Residents of the top income neighborhoods took the second greatest share of trips. The result is a bimodal distribution of use skewed to the top and bottom income quintiles. I find the strongest predictors of use are having no car in a household and being aged 18-34. While a greater proportion of non-White residents is negatively associated with premium trips per capita, race/ethnicity is not associated with trip counts per neighborhood. And trip share exhibits a normal distribution across race/ethnicity. A greater proportion of non-White residents increases the probability of taking a civic/social services trip. Being young and having at least a bachelor’s degree both increase the odds of making an office trip. In about 75% of trips, both premium riders and drivers express great satisfaction - rating each other 5-stars. Nearly 65% of users tried it only once, and the top 10% of users took 35.3% of all premium trips.

Findings have implications for curb space management with 71.6% of all premium trips based in a commercial or office zone. Of which about 75% were made in either an SUV or minivan - large vehicles that carry up to 7 passengers, and get poor gas mileage. Policymakers could increase revenue and manage curb space by tapping into this market through a luxury tax or permitting fee. Further, luxury automakers continue entering the premium ridehail market, indicating future growth.

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Key Words: Ridehail, Premium, Travel Behavior, Socioeconomics, Built Environment

THE IMPACT OF SHARED MOBILITY ON PEOPLE'S TRIP GENERATION BEHAVIOR IN THE US: FINDINGS FROM THE 2017 NATIONAL HOUSEHOLD TRAVEL SURVEY

Abstract ID: 117

Individual Paper Submission

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Shared mobility services such as ride-hailing services, bikesharing services, and carsharing services are relatively new forms of transportation where users gain access to a specific type of transportation for a short period of time, usually using a mobile phone-based application (app). As such, shared mobility services, per se, are nothing new as public transport, taxis etc. have long been part of the overall transportation networks of cities. However, in recent years cities have seen the rapid proliferation of new forms of shared mobility services (Roberts, 2017). Examples include bikesharing, ride-hailing, carsharing, e-scooters etc. Many have argued that these services have the potential to fundamentally reshape urban mobility (Clewlow, 2018; Murphy & Feigon, 2016). Proponents of these services believe that they enhance public transit, lead to people owning fewer cars and spending less on transportation overall, and even enhance the delivery of healthcare by helping people save money on ambulances (Frakt, 2018; Murphy & Feigon, 2016; Steinmetz, 2018). However, critics claim that these services are likely to go bankrupt soon, are making traffic worse, exploit their workers, and in the case of shared dockless electric scooters and bikes systems, create litter in the built environment (Berger, Chen, & Frey, 2018; CBS News, 2018; Hiltzik, 2015; Schaller, 2018). So far much has been written about whether these services are fundamentally transforming urban transportation systems or if they are simply the latest fad. However, little empirical research has been done on the effects of these services on people's travel behavior.

This paper uses the 2017 National Household Travel Survey (NHTS) to assess the impacts of shared mobility services on individual's trip generation behavior. We fit negative binomial regression models to

NHTS data to assess the impact of the shared mobility services on the number of trips people make on weekdays and weekends. We then perform hypothesis testing to confirm the significance of our results. We find that ride-hailing app usage does have a significant impact on the number of trips per day on both weekends and weekdays, although the impact appears to be more significant on weekdays than weekends. Bikes sharing and car sharing do not appear to have an impact on individual daily trip generation behavior. This finding implies that ride-hailing services may be causing people to make more trips than they otherwise would if they did not have access to such services, but bikes sharing and car sharing do not.

We found that more frequent usage of a rideshare app like Uber or Lyft was associated with a statistically significant increase in the number of trips that a person might make on a given day. There may be multiple reasons for this. First, ride-hailing services are very convenient and comfortable services, which may encourage people to take trips they otherwise wouldn't. Second, these services may be encouraging people who do not have cars to take trips they would not have otherwise taken. Third, evidence suggests that TNCs are mostly used at nights and for social/recreational trips and not for commuting trips (Gururaja et al., 2018). Thus, TNCs maybe encouraging people to make more social trips than they otherwise would.

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Key Words: Shared Mobility, Transportation Network Company, Trip Generation , Bike Sharing , NHTS

URBAN FORM AND COMMUTING BEHAVIOR OF THE WORKING POOR: A COMPARISON BETWEEN THE US AND MEXICO

Abstract ID: 142

Individual Paper Submission

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Income inequality is a pervasive and global phenomenon that has important implications for where people live and how they travel. In the United States, the poorest fifth of households had just 4.4% of total income (Jarosz & Mather, 2018). Meanwhile in Mexico, the richest one percent has half of the country's total wealth. With a Gini coefficient of 0.46, Mexico has the second highest income inequality among the OECD countries (World Politics Review, 2017).

For poor households, access to affordable housing and transportation are often critical components of access to employment and social opportunities. In the transportation literature, a number of previous studies have explored the urban structure on the travel behavior among the working poor (Guerra, 2017; Hu & Wang, 2017). However, the studies regarding the working poor are dominated by those conducted within one metropolitan area. Few consider how the urban form and transportation networks relate to poor workers' travel patterns across cities. Additionally, the international comparison research remains rare.

The study aims to fill up the two research gaps discussed above by examining the urban form determinants of commuting mode choice for low income workers using micro data from the United States ACS and Mexico Intercensus. These two datasets are both nation-level datasets with detailed individual-level data that we have matched to measures of urban form and transportation supply at the metropolitan. In this study, we examine what combinations of urban form and transportation supply are associated with more affordable and shorter commutes for the working poor in the 100 largest cities in the US and Mexico. We define working poor in three primary ways: (1) based on national poverty lines, (2) based being in the bottom income quintile of households with one or more worker, and (3) based on being in the bottom income quintile of each metropolitan area. Travel mode and travel time can help reveal how the working poor make trade-offs between job opportunities, housing costs, and transportation costs (Suárez, Murata, & Delgado Campos, 2016).

We will start by summarizing the travel mode and travel time of the working poor in two countries, and how their travel behavior correlates to the urban form variables. We will also compare the differences of the travel behavior and the correlates with the urban form variables for different measurements of working poor. We will then conduct regression models to understand better the impact of city-level urban form characteristics on commuting behavior. The model includes two sets of variables: (1) city-level urban form variables, such as population density, job density, compactness, jobs-housing balance, road density. (2) Individual and household-level socio-economic and demographic variables, such as income, education attainment, age as control variables. The independent variables in the samples of two datasets are transformed into the comparable measurements for the comparison purpose.

This study expects to present the transportation strategies of the working poor in different geographies to cope with job access problems in US and Mexico, and derive public policies aiming to help the working poor to access to job opportunities in a more affordable way with shorter commuting time. The results from the US and Mexico will also be compared to address commonalities and differences of transportation obstacles that working poor in two countries have and imply at the global level how to make more inclusive transportation and urban growth policies to tackle the commute problem of the working poor.

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Market Insiders or Outsiders? A Cross-National Examination of Redistributive Preferences of the Working Poor. *Societies*, 8(3), 72. *World Politics Review*. (2017). As Inequality Grows in Mexico, So Does Social Polarization. Retrieved from <https://www.worldpoliticsreview.com/trend-lines/20957/as-inequality-grows-in-mexico-so-does-social-polarization>

Key Words: urban form, travel behavior, working poor, US, Mexico

OUT OF SERVICE: IDENTIFYING ROUTE-LEVEL DETERMINANTS OF BUS RIDERSHIP OVER TIME IN MONTREAL, QUEBEC, CANADA

Abstract ID: 172

Individual Paper Submission

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In line with the broader North American trend, Montreal has seen public transport ridership growth stagnate through the second decade of the twenty-first century. For the Societe de transport de Montreal (STM), this is largely due to an almost 14% decline in bus ridership between 2012 and 2017. While recent studies have considered the broader causes for ridership decline at the metropolitan level, none have considered ridership at the route level. As service adjustments take place at the route level and are felt by riders at this level, our study explores the determinants of STM bus route ridership between 2012 and 2017 using a longitudinal multilevel mixed-effect regression approach. Our study finds that increasing the number of daily trips, reducing headways, and increasing the average route speed all increase bus ridership, while increasing a route's stop spacing, travel time, and fare price decrease bus ridership. In the case of the STM between 2012 and 2017, the decline in bus ridership is largely due to service adjustment decisions made by the agency itself. These decisions are shown to be regressive in nature, as the STM chose to reallocate bus service from high-ridership routes serving socially vulnerable areas towards low-ridership routes serving wealthier populations. Our model also demonstrates the impact of external variables, finding that higher median incomes along a route and lower gas prices in the region reduce bus ridership. Lastly, BIXI (the Montreal bicycle sharing system) is found to significantly reduce ridership for bus routes operating within its service area, suggesting that these routes as they currently exist are not competitive with the sharing service. This research adds to the literature's consensus that increased bus service leads to increased ridership while also contributing to the debate around bicycle sharing and bus service operations. The study is of use to planners, policy-makers, and network planners who are striving to increase bus ridership.

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Key Words: Transit, Ridership, Overtime, Route

WHO BENEFITS? ASSESSING THE SOCIAL SUSTAINABILITY OF TRANSIT-LED REVITALIZATION IN KANSAS CITY, MO

Abstract ID: 175

Individual Paper Submission

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In an era of devolving transport policy, local actors are developing and deploying new strategies to facilitate concentrated development and urban revitalization near transit investments. These strategies have physical impacts but they also influence who benefits from the integration of land use and transport planning. In this paper, I use a mixed methods protocol to examine the outcomes of local strategies for transit-led urban revitalization in Kansas City, MO. Relying on demographic data and semi-structured interviews conducted with stakeholders during the implementation of a modern streetcar project and follow-up interviews conducted three years later, this paper shows how local strategies to facilitate development were impacted by regional and local perspectives that devalue affordable housing policies and support urban transit as an amenity, rather than a public service. As a result, the initial benefits of revitalization accrued primarily to a small group of affluent and white residents in near downtown neighborhoods. Two years after the streetcar began operations, however, evidence suggests that the consequences of initial implementation strategies, including backlash to high end luxury development, have finally started to change regional and local perspectives on the value of income and racial integration goals in urban planning. I use the concept of social sustainability to evaluate how the streetcar planning process and its outcomes (including policy feedback loops) impact the city's ability to function as a viable long-term setting for high quality human interactions and cultural development for a wide range of residents. Although Kansas City's streetcar makes considerable headway toward 'bringing back the city' it exacerbates inequity in the control of urban resources and enhances the isolation of certain social groups, jeopardizing the long-term social sustainability of the city and the region that it anchors. The paper concludes with a discussion of how existing implementation strategies can be reformed for more inclusive ends.

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Key Words: Social Sustainability , Urban Revitalization , Transport Planning , Segregation

HOW, TO WHAT EXTENT, AND WHY DO TRAVEL BEHAVIORS OF RIDEHAILING USERS DIFFER FROM THOSE OF NON USERS? MOBILITY PATTERNS IN THE 2017 NATIONAL HOUSEHOLD TRANSPORTATION SURVEY

Abstract ID: 191

Individual Paper Submission

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The market of ridehailing, on-demand door-to-door transportation services enabled by advanced information and communication technologies and based on the concept of the sharing economy, has grown rapidly in many countries including the United States. According to the Pew Research Center (2019), Americans who have used these services doubled from 15% to 36% in the last three years, and people under all categories of age, educational attainment, and incomes have undergone substantial increases. In this context, scholars and planners attempted to understand their causal effects and to develop effective ways to evaluate their impacts on traffic congestion and the environment (e.g., due to deadheading miles) while promoting their potential for sustainable transportation.

Studies found that, on average, ridehailing users are younger, well-educated individuals, who predominantly reside in dense parts of cities, and live in households with fewer private vehicles than the rest of the population (Alemi et al., 2018, Conway, Salon, & King, 2018, Rayle et al., 2016, Young & Farber, 2019). As for their effects, studies and reports claim that these services contribute to congestion, especially during peak hours (Schaller, 2018), but help households live with fewer vehicles, at least among certain population segments (Hampshire et al., 2017). Further, studies have found that under certain circumstances ridehailing substitute for other modes, including the use of public transit, but might also be a complement to that (Alemi & Circella, 2019, Boisjoly et al., 2018, Clewlow & Mishra, 2017, Deka & Fei, 2019, Hall, Palsson, & Price, 2018).

In this study, we examine how and to what extent travel behaviors differ between ridehailing users and non-users in the 2017 National Household Travel Survey (NHTS). We take a close look at several key travel outcomes at an individual level (e.g., use of private vehicles, public transit, and active modes), and for various time horizons (i.e. daily, weekly, monthly, and yearly). We also compare users and non-users in terms of their longer-term choices such as household vehicles and residential locations.

One key challenge is that users and non-users differ systematically in terms of both observed and unobserved characteristics (e.g., socioeconomics and demographics). Thus, a naïve comparison of the two groups (i.e., all users vs. non-users in the 2017 NHTS) does not help us understand possible effects of ridehailing use on a wide set of travel outcomes of individuals. For this reason, we employ propensity score matching, which identifies the most equivalent non-user(s) for each user in the sample. We even further divide users into three groups, occasional, moderate, and frequent users, by their reported frequency of ridehailing use in the last 30 days. Next, we estimate statistical models on three “matched” subsamples: occasional users and their matched non-users, moderate users and their matched non-users, and frequent users and their matched non-users. For modeling, we employ (1) zero-inflated Poisson or negative binomial on the frequency of trips by public transit, walking, and biking, (2) ordinary least square with left censored (e.g., Tobit) on daily or annual vehicle miles driven, and (3) multinomial logit on household vehicles and chosen residential neighborhood types.

In sum, transportation scholars and planners just started to understand the increasing adoption of ridehailing and their effects on a broader set of travel outcomes under varying time horizons. This study will present a nationwide overview of such effects at the individual level. This study will also help inform effective plans and policies on issues including investments on public transit, walkable/complete streets, curbside access and parking regulations at a time in which shared mobility has become a fundamental part of transportation.

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Key Words: Ridehailing, Travel behavior, Mobility choice , Propensity score matching, Pseudo experimental design

THE RELATIONSHIP BETWEEN TRANSPORTATION AND ATTAINMENT OF PREVENTIVE HEALTHCARE FOR OLDER ADULTS

Abstract ID: 203

Individual Paper Submission

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Central Research Theme: With the Census reporting that 1 in 5 Americans will be over the age of 65 years by 2030, it is critical that we plan adequately for this population cohort. This includes planning for transportation services specifically for Older Adults. In a time when older adults would benefit more from “door-through-door” service, rather than curb-to-curb service that most transit agencies provide, using the existing transit service is often stressful for them. One of the areas that the provision (or lack) of transportation affects is healthcare and visits to the doctor’s offices for regular and preventive healthcare screening. Moreover, health-specific data is hard to obtain for research within the social sciences, and more so for geographic areas smaller than the City level, and standard/common to studies in Urban and Regional Planning, such as census tracts. This study delves into the unique “500 Cities” database to see if there is a significant relationship between the attainment of preventive healthcare services and the provision (and aspects related to the provision) of specialized transportation services specifically for Older Adults in selected cities within the State of Michigan.

Methodology: Secondary data from the 500 Cities database and primary data regarding transportation services within 16 Michigan cities has been compiled and analyzed through OLS Regressions to get at significant factors affecting preventive healthcare attainment for Older Adults.

Findings: The results of the quantitative analysis show that transportation services do in fact have a significant impact on the attainment of preventive healthcare services for Older Adults. Not only that, but socio-demographic factors are also significant contributors to the health outcomes for Older Adults.

Relevance to planning scholarship: Research on the aging population has suggested that although they increasingly prefer to age-in-place, they are physically, mentally and socially isolated when they are advised to stop driving. This is due to the fact that typical suburban built environments in most U.S. cities are automobile dependent and therefore the loss of the freedom of mobility, due to the inability to drive themselves, leads to increased dependence on friends and family for transportation needs. Results indicate the need to provide consistent, specialized transportation services specifically to older adults so that they may successfully age-in-place and remain physically, mentally, and socially active.

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Key Words: Older Adults, Preventive Healthcare, Transportation, Michigan

DO TOD RESIDENTS MEET THE RECOMMENDED PHYSICAL ACTIVITY? ASSESSMENT OF TRANSPORTATION AND RECREATION PHYSICAL ACTIVITY IN ABU DHABI

Abstract ID: 214

Individual Paper Submission

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The World Health Organization (WHO) recommends that adults aged between 18 and 64 years should perform a minimum of 150 minutes of moderate-intensity physical activity in a week or a minimum of 75 minutes of vigorous-intensity PA (1). In a study conducted in 2013, 66% of men and 60% of women were reported to be obese or overweight in the United Arab Emirates (UAE) (2). Several planning strategies have been proposed in the last two decades to mitigate the effect of urban environment and transportation on community behavior. One such strategy is the Transit-Oriented Developments (TOD), which are compact, medium-to-high density, mixed-use, diverse, pedestrian-friendly and well-connected neighborhoods surrounding major transit hubs (3). TOD can mitigate various urban issues such as automobile-dependency, traffic congestion, greenhouse gas emissions, urban sprawl, and eventually enhance physical activity levels.

This study assesses the built environment and physical activity levels within major TODs in Abu Dhabi Main Island to understand whether TOD residents achieve adequate levels of physical activity and what variables affect their transportation and recreational PA levels. Survey responses from 438 users of 14 TOD stations in Abu Dhabi reported achieving more than twice of the recommended total physical activity by WHO (4). While WHO devotes considerable attention to leisure PA (moderate and vigorous), fewer studies assess the PA attainment through transportation and recreational activities, and even fewer in TODs (5), lest in the middle-eastern cities.

Self-reported activity levels for transportation and recreational purpose were grouped as individuals who attained the recommended PA (RPA) (coded as 1) through transportation and recreational activity respectively or not (coded as 0). Physical, perceptive, behavioral and environmental determinants were examined for their role on individuals in TOD meeting the RPA. Household income ($p < 0.10$) reported a negative association with meeting the minimum transportation RPA. Contrary to expectation, the availability of other people on the street within the neighborhood reported a negative association ($p < 0.05$) with the TRPA. Access to work-related destinations (Eg: work, school, bus stop, etc.) and availability of work destinations within 1km of the study area reported a positive association with TRPA. Demographic and built-environment variables reported a positive association with the attainment of recommended physical activity through recreational activity while the land use accessibility and traffic in nearby streets are reporting a negative association with the attainment of RPA through recreational activities.

The total physical activity was aggregated to include the leisure time moderate and vigorous physical activity with both transportation and recreational PA. Bivariate regression results indicate the females, the weight of the respondent, seeing other people walking in the neighborhood, and use of public taxi reported a negative association with meeting the total RPA. Conversely, respondents living in both low-rise and high-rise housing, number of transportation and recreational destinations within the neighborhood reached by walking or biking, and those with access to a religious destination within a distance of 1km reported a positive association with meeting the minimum RPA of 150 minutes a week. Implications for enhancing transportation and recreational activity levels are discussed with design and policy recommendation to meet the Abu Dhabi Plan 2030 goals of sustainable transportation and healthy emirates are discussed. The implications are directed to assist cities, especially in the GCC, to achieve their sustainability and health goals.

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Key Words: Transit-Oriented Development, Physical Activity, Transit Use, Abu Dhabi, United Arab Emirates

ATTITUDES TOWARD PRIVATELY-OWNED AND SHARED AUTONOMOUS VEHICLES

Abstract ID: 222

Individual Paper Submission

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The current literature on perceptions and attitudes towards autonomous vehicles (AVs) has been found to vary with gender, age, and socio-economic factors (Bansal and Kockelman, 2018; Menon et al., 2018). While previous research has sought to estimate potential interest in the features of AVs, little is known about how both privately-owned and shared autonomous vehicles will be accepted by the public, including differences between these approaches to AV operations in cities. Evidence indicates that the public is concerned about the operational safety and lack of control of AVs, despite expert claims that they will lead to a dramatic reduction in crashes. Why do people overestimate or misperceive the safety risk of AV technologies? Is there a reluctance to relinquish control to an automated system? How do perceptions and attitudes towards risk affect people's choice of purchasing AV services? What is the association between attitudes toward AVs and general technology-acceptance behavior? Will car enthusiasts or those who love driving be reluctant to adopt autonomous vehicles? Overall, how do these attitudinal factors vary between private- and shared-AV concepts? We investigate and disentangle these questions based on a psychometric framework of technology risk and benefit perception (Slovic, 1987).

Based on an on-line panel of 830 participants, balanced to be representative of the US population, we examine these issues. An exploratory factor analysis establishes four psychometric dimensions related to people's perceptions and attitudes: technology acceptance, risk-taking, traffic regulation, and driving enjoyment. We estimate multinomial logistic regression models to examine the impact of these four factors on attitudes toward AVs, willingness to purchase AVs, willingness to use AVs as a taxi service, and willingness to share AV taxis with strangers. Control variables include demographic, socioeconomic, and travel characteristics as well as commute trip duration and mode to work. We also analyze unstructured text comments provided by respondents, which contain additional insights into their concerns about perceived risks and loss of control associated with the use of AVs.

Our results reveal the complexity of the relationship between psychological factors and AV attitudes. Respondents who tended to be early adopters of technology or supported rigid traffic regulations were more likely to have a positive attitude about AVs, whereas those who avoid risk behavior were more likely to have a negative attitude instead of a neutral attitude. Similar patterns were found in the other three dependent variables. Our results imply that people who supported rigid traffic regulations may perceive AVs as a safer transport mode than human-driven cars, while those who avoid risk-taking behavior may perceive AVs to be more dangerous. We find that a large fraction of the population is not yet ready to use an AV with no driver and also reluctant to share a ride in an AV taxi.

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Key Words: autonomous vehicles, risk perception, attitudes, technology acceptance

RIDE-SHARING TRIP GENERATION IN CHENGDU, CHINA

Abstract ID: 224

Individual Paper Submission

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The emerging “shared economy” and “shared mobility” are drawing public attention and sparking widespread debate. With the expansion of Transportation Network Companies (TNCs) such as Uber, Lyft, DiDi, and Juno, the number of rideshare users is booming. Evidence suggests that the use of for-hire vehicles is also increasing. However, little is known about the features of shared mobility and its association with complex urban dynamics. In this study, we develop spatiotemporal models that examined the mechanism of trip generation using ridesharing in Chengdu, a major Chinese city with a population of 14 million. We also investigate associations between rideshare trips with the spatial pattern and other activities in the city, including economic development, special events, and weather conditions.

We incorporate multiple large-scale structured and unstructured data and integrate these data sources via geospatial techniques. We used 30-day ride trajectory data (from November 1 to November 30, 2016) for DiDi Chuxing trips in Chengdu. The total number of observed trips is 7,065,937. For each trip, we obtained information on the order ID, driver ID, the x-y coordinates of pick-up and drop-off, and the timestamps for placing the order, pick-up, and drop-off. In addition, route data for all trips with the x-y coordinates for every 2-4 seconds were downloaded. We also skimmed the locations of 13 categories of Points of Interest (POIs) via the Application Programming Interface (API) of AMAP, a navigation service provider. These POIs included transportation infrastructure (e.g., subway stations, bus stops, and parking facilities), lodging, recreation and sports facilities, business establishments, healthcare providers, residential areas, government and administration services, personal and office services (e.g., barbershops, printing stores, laundry and dry cleaning services, massage spas, auto repair, mobile carrier stores, etc.), education and culture, retail, financial, sightseeing and tourism, and restaurant locations.

Using this POI data, we examine the origin-destination trips by purpose and time of day. A spatial analysis is used to model the relationship between different land uses and the cluster of origins and destinations during weekday peak hours, weekday off-peak hours, and weekends. In addition, we examine how the proximity of public transit (e.g., subway stations and bus stops) and parking facilities influences trip generation. To better understand the interaction between shared mobility and urban dynamics, we also collected hourly weather data (e.g., temperature, precipitation, wind, and air quality) and special event

data (e.g., concerts and sports games). With these data, we analyze the associations between the variation in rideshare trips and weather conditions and special events. The various computational and data-driven analytic methods in this study allow us to understand how urban travel patterns are influenced by the spatial structure of the city and various exogenous events.

The findings will help to better understand the effect of emerging shared mobility on complex urban dynamics and the patterns associated with travel behavior. We also shed light on improving the efficiency and quality of rideshare services in multimodal urban transportation systems. In addition, results have policy implications for urban planning and the regulation of the for-hire vehicle industry within the context of hyper-urbanization and the sharing economy.

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Key Words: ride-sharing, land use, trip generation

URBAN RENEWAL PLANNING AND DESIGN OF THE SURROUNDING BLOCKS AROUND THE ORIGIN-TERMINAL METRO STATION IN SUBURB OF THE LARGE CITY --TAKE SHANGHAI METRO LINE 10, XINJIANGWANCHENG STATION AS AN EXAMPLE

Abstract ID: 227

Individual Paper Submission

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Theme: Planning and design strategy for the Origin-Terminal metro stations of metropolitan suburbs.

The Origin-Terminal metro station is an important part of the rail transit system. Its reasonable setting and layout can improve the convenience and comfort of rail transit, thus attracting more people to ride and develop into competitive rail transit and public transportation system. As the special station of rail transit, the Origin-Terminal metro stations are located at the edge of the city relative to the intermediate station. They have the characteristics of small site density, no continuity of rail transit lines, large radiation range and large probability of transfer. At the same time, due to the stimulating effect of the site on urban renewal and the high-intensity characteristics of space activities, it also gave the status of the Origin-Terminal stations of the rail transit as the activity center of the peripheral area.

In the context of TOD, this paper studies and discusses the development mode of the Origin-Terminal metro stations of rail transit, and finally selects the Xinjiangwancheng Line Station of Shanghai Metro Line 10 as the research object, and establishes the dual role of the gateway of urban and rural areas and the center of the suburbs. Through literature review and accumulation of TOD, multi-modal transportation system and other theories, the field survey records the use of traffic patterns and passenger flow, as well as the questionnaire survey to investigate the characteristics of the connection and the functional requirements for the surrounding areas of the plot. Finally, the author determines the radiation range of the Origin-Terminal stations, and studies and combs them through three levels: sorting out within 2 km, adjusting within 1 km and urban renewal design at the level of near-rail transit. The urban renewal design is carried out from the two levels of optimizing the connection system of multi-mode transportation system and improving the functional facilities.

This research involves three aspects of exploration:

- (1) The particularity of the Origin-Terminal metro stations of rail transit.
- (2) Traffic strategy and application based on multi-modal transportation system.
- (3) Land use strategy and application based on the intensity of incentive activity.

The research shows that the flow of people in the Origin-Terminal stations of the rail transit is the "last 2-3km" problem. Unlike the "last 1km" in the central city, the simple slow traffic system cannot meet its TOD needs, and a perfect multi-modal transportation system should be established to connect with each other and there should be a smooth and convenient connection system. At the same time, the high-intensity and high-performance mixed urban design of the Origin-Terminal stations can improve the flow of people in the peripheral areas of the work, consumption and leisure, and stimulate their influence as the activity center of the peripheral area; it can alleviate the tidal traffic caused by the imbalance of occupations and housing to a certain extent, and can promote a virtuous circle with the construction of multi-modal transportation system. Therefore, it should be combined with the multi-mode transportation system network with the largest radiation range, the cooperation of the land function of 1km range and the layout of the high-intensive functional facilities around the Origin-Terminal stations, which together promote the role of the portal and the peripheral center.

This research provides a basic research guide for the author's study of urban transportation planning. For the "urban transportation and infrastructure" team, it also contributed to the theoretical framework of the TOD of the rail transit station.

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Key Words: TOD(Transit—oriented Development), Origin-Terminal metro station, urban renewal, multi-mode transport system

TRANSIT (R)EVOLUTION? EXAMINING HOW INFORMAL TRANSIT ADAPTS TO BOGOTÁ'S FIRST AERIAL CABLE-CAR LINE

Abstract ID: 271

Individual Paper Submission

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The urban poor frequently bears a disproportionately high mobility burden. In the Global South, rapid urbanization and rising land costs often relegate lower-income households to difficult-to-access peripheral zones far away from urban centers. Such neighborhoods are generally served by an intricate patchwork of informal and formal transit services. These informal systems can be characterized by dated, privately-owned small passenger vehicles while the formal system includes licensed buses and minibuses. Combined, these services carry hundreds of passengers through congested, narrow, and dangerously steep roads prevalent in peripheral areas of informal origins. Recognizing the risk and needs of this population, several Latin American cities, including Medellín, La Paz, and Mexico City, have implemented aerial cable-cars to better connect peripheral neighborhoods with mass transit. Joining its peers, Bogotá opened its first aerial cable-propelled line, locally known as TransMiCable, in December 2018 in Ciudad Bolívar – one of the largest districts of the city.

While aerial cable-cars enjoy political popularity as a transport solution for low-income populations living in the urban fringe, there is no evidence on the effects of these urban interventions on pre-existing informal transit services. Research on aerial cable-cars has primarily focused on their effects on commute times, job-accessibility, crime, and sense of social integration (e.g., Brand and Dávila, 2011; Bocarejo et. al., 2014; Cerda et al., 2011); yet these studies overlook the effects of cable-propelled technologies on unauthorized transit services. At the same time, while some scholars have documented the importance of informal transit for some socially marginalized communities (e.g. Oviedo Hernandez and Titheridge, 2015), these services are perceived as inferior and are typically seen to be associated with congestion, pollution, and poor safety records. These negative effects are some of the reasons that motivate the deployment of other transport alternatives and stricter enforcement on informal transport modes. Using Bogotá's first aerial cable-car line, TransMiCable, as a case study, this research contributes to the academic literature and policy debates on transport reforms and plans by answering: How do informal transit services adapt to cable-propelled transit in peripheral neighborhoods?

To examine the impact of TransMiCable on informal transit services that serve Bogotá's urban fringe, I combine information collected via unobtrusive observation of transit operations; semi-structured interviews with community leaders, informal and formal transit providers; and spatial analyses. Pre- and post-cable car data on informal transport routes was collected via a smartphone app, and then analyzed using TGIS tools. Contrary to what most academic literature suggests, informal transport services in the area of study are highly organized. Many of the routes offer high-frequencies in peak hours, distance-based fares, and enforce internal plate-restrictions schemes to balance competition. Also, preliminary results suggest that while some services operate the same routes as before the aerial cable-car, competing with formal transit in some segments, other services have transformed to become a 'first- and last-mile'

solution to cable-car stations. This complex and symbiotic relationship between informal and formal transit in Ciudad Bolívar challenges the popular expectation that as better and more sustainable transit options are deployed, informal transit services dwindle.

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Key Words: Informal Transport, Paratransit, Aerial Cable-Car, Latin America, Bogotá

IMPROVING TRANSPORTATION SAFETY: STATISTICAL METHODS FOR DEVELOPING ROADWAY CURVE SAFETY PERFORMANCE FUNCTIONS

Abstract ID: 286

Individual Paper Submission

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Background and Central Theme:

While concerns for traffic safety improvements have been an ongoing focus of the transportation planning research community, it is important to recognize an upwards shift in traffic crashes trends in the recent two years in United States with about 37,000 people killed annually. More specifically, crashes on horizontal roadway curves present serious safety concerns. According to the Federal Highway Administration (FHWA), 27% of highway fatalities occur on curves. Some states report that lane departure crashes, mainly run-off-the-road and head-on traffic crashes account for more than 80 percent of all fatal crashes on curves.

Systemic safety analysis is a common method used to identify and prioritize system-wide safety improvements. Systemic safety analysis utilizes safety performance functions (SPF) to predict crashes based on contributing factors and identify the most severe hazardous locations. The traditional method for developing SPFs is the negative binomial regression in the family of the generalized linear models (NBGLM). While this method is easy to interpret because of its linearity assumption, its performance falls short when more variables are included in the SPF calculation. Therefore, it is necessary to explore alternative methods that can handle more variables that may contribute to crash predictions on roadway curves.

Approach and methodology:

This study analyzed the contributing factors for curve crashes and explored several statistical methods for developing SPFs including the best subset selection method, the shrinkage method, the generalized additive model (GAM) method, and the tree-based method. These methods have capabilities to handle more variables in SPFs than the negative binomial method. Using curve crashes in Florida as a case study, this research examined the impact of different variables including traffic volume, demographics, roadway characteristics, curve characteristics, and the spatial relation of curves to intersections. The study developed the SPFs for curves via each method and compared the contributing factors and the model performance of each SPF.

Findings:

In general, traffic volume, curve length, curve radius, speed limit and the number of lanes were the variables selected by most of the methods for estimating the number of crashes on curves. The results showed that these complex statistical methods achieved better SPFs than the traditional method and that the traditional negative binomial method could be substituted.

Relevance of your work to planning scholarship, practice, or education:

Federal Highway Administration suggests traditional NBGLM for developing SPFs, which are only capable of handling a few contributing factors and can only interpret the linear relationships between the numbers of crashes with those factors. This study demonstrated more effective statistical methods for transportation planners for analyzing the street networks using SPFs to determine the most high-risk locations for transportation safety improvements. Application of this study would contribute to better understanding of curve safety issues and inform planners to select suitable countermeasures to reduce injuries and save lives.

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Key Words: transportation safety, safety performance functions, statistical methods, curve, systemic analysis

URBAN FORM, TRANSPORTATION SUPPLY, AND THE COMMUTE TO WORK: A COMPARATIVE ASSESSMENT OF THE US AND MEXICO.

Abstract ID: 291

Individual Paper Submission

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Although empirical research tends to emphasize the identification of generalizable relationships, the effects of transportation and land use policies vary across people, places, and time. Geographic, social, and economic context shapes the outcomes of transportation policies and influences the relationships between urban form, transportation infrastructure, and travel behavior. While aggregate comparisons across cities and countries are common (Newman and Kenworthy 1989; Ingram and Liu 1999; Pucher, Dill, and Handy 2010), studies comparing travel behavior across national contexts using household level data are rare (Giuliano and Dargay 2006). Building on an analysis of commuters in Mexico's hundred largest urban areas (Guerra et al. 2018), this paper models the relationship between commuter mode choice, transportation supply, urban form, and socioeconomic attributes of over five million commuters in the hundred largest urban areas in the United States and Mexico.

Better understanding the relationship between land use, socioeconomic, and commute behavior across multiple regions in multiple countries can help shed light on not just on the strength and relative importance of different relationships, but also their consistency and the role of regional and social context. Of particular interest are questions about the relative importance of transportation supply, household income, and the built environment in determining the radically different commute patterns seen on each side of the border. Figure 1 plots the percent of commutes to work by transit, car, and non-motorized modes (walking/biking) in the hundred largest metropolitan areas in Mexico and the United States in 2015.

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Key Words: urban form, travel behavior , transportation supply

DOES GENTRIFICATION REDUCE TRANSIT USE? LONGITUDINAL TRENDS IN THE UNITED STATES, 1990-2017

Abstract ID: 309

Individual Paper Submission

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In the last several years, ridership has declined in most public transit systems in the United States. This decline is puzzling given investment in and expansions of many systems in the preceding decade. Scholars and planners have investigated factors behind the trend. Among those factors, neighborhood change, or gentrification, has been less studied in part because most available datasets contain limited information one way or another. Thus, researchers need to integrate results from related analytical setups to holistically examine causal paths from gentrification to reduced transit use.

In this study, we examine the relationship between gentrification and transit use at both the neighborhood and individual levels. First, we document historical changes in the socioeconomic status (SES) and the share of transit commuters of residents in transit catchment areas in the US from 1990 to 2017. By doing so, we determine whether and under what circumstances these areas underwent gentrification and/or associated loss in transit commuters. To measure gentrification, we compute an SES index for the consistent-boundary census tracts in large Urbanized Areas based on the percentage of non-Hispanic Whites and college graduates, and log-transformed median household incomes (Baum-Snow & Hartley, 2016). For this task, we analyze the 1990 and 2000 Decennial US Census and 2006-2010 and 2013-2017 American Community Survey 5-year estimates.

Second, we investigate the trends in the joint choices of residential location, vehicle ownership, and travel modes over the last two decades. Based on analysis from part I, we select four metropolitan areas to provide the material for a natural experiment: two that experienced substantial gentrification between 1990 and 2017 (treated metros) and two that did not (control metros). By estimating nested logit models at three points in time, we examine longitudinal changes in the ways in which individual, household, and built-environment attributes are associated with each of the joint choices. We analyze the restricted-use National Household Travel Survey (NHTS) data in 2001, 2009, and 2017, which contain detailed geographies for home and work/school neighborhoods. We focus on two groups of individuals: (1) those who made any trip by transit, on the survey day, in the last week, or in the last month (regardless of their residential location), and (2) those who lived in transit-rich areas (regardless of transit use).

Finally, we examine the relocation patterns and mobility decisions of households that moved into or out of transit-catchment areas in the last two decades. The restricted-use Panel Study of Income Dynamics (PSID), especially their biennial waves from 1999 to 2017, provides the most disaggregate geographies of residential locations as well as vehicle ownership and expenses on public transit. The data allow us to identify individual/household covariates as well as (previous/current) built-environment attributes, which account for their joint choices of whether to move and where to move. We focus on two groups of households: those that moved into gentrifying transit-rich neighborhoods, and those that moved out of such neighborhoods. We also analyze longitudinal changes in vehicle ownership and expenditures on public transit and determine (1) whether new movers to gentrifying transit-rich areas reduced spending on automobiles and made more frequent transit trips, and (2) whether low-income households from such areas moved into transit-poor neighborhoods, increased spending on automobiles, and made fewer transit trips.

In brief, this study integrates three analytical setups and determines whether and to what extent gentrification contributes to declining transit use. We discuss policy implications based on the integration of main findings.

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Key Words: Neighborhood change, Gentrification, Public transit, Transit catchment areas, Recent movers

IMPACT OF TRANSIT ON MULTIFAMILY PROPERTY VALUES: A META-ANALYSIS

Abstract ID: 318

Individual Paper Submission

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As many cities continue to grow, they face housing shortages, witness increased automobile congestion, and subsequent air pollution. Promoting transit-oriented development and multifamily housing is one way municipalities are combating the challenges associated with growth and in turn, promoting healthier places to live (Cervero, 2004). As this kind of development has expanded, so has the research investigating the link between real estate values and transit proximity. However, the results of those inquiries have been mixed and no general conclusion has been drawn about the effect size and impact areas of transit stations on multifamily property values.

In an earlier study, we found that the average transit premium for single-family housing is 2.3% and single-family housing is not the best and highest use near transit stations (Hamidi et al., 2016). So, we would expect larger premiums for multifamily housing.

This research aims to fill a gap in the literature by conducting a meta-analysis of transit premiums for multifamily housing.

A meta-analysis is a study of studies that synthesizes empirical work for a systematic explanation of variation in findings of those studies (Debrezion et al., 2007; Ewing and Cervero, 2010; Hamidi et al., 2016; Mohammad et al., 2013). This study does so by calculating effect size and conducting meta-regression taking 51 studies from across the world from 1978 till 2018. It includes the most recent studies on this topic, which have more sophisticated methodologies, control variables, and varied transit modes, like light rail, heavy rail, commuter rail, bus rapid transit, and streetcar. We calculated the effect size using weighted average premium in different distance bands (e.g. 0-400 meter, 400-800 meter, 800-1200 meter) from transit stations. Then, we conducted a meta-regression and modeled the premium percentage in different proximities from transit stations controlling for different factors (location, mode, modeling methodology used, nature of data, sample size etc.).

We found that the highest number of multifamily transit premium studies have been conducted in Asia. In North America, transit's impact on multifamily housing is understudied, especially compared to single-family and commercial property. The meta-analysis results indicate that rail transit stations had a bigger effect on multifamily property values (up to 3200 meter) than bus rapid transit stations (up to 1500 meter). The average transit premium for multifamily properties can be up to 13% when it is within 200 to 300 meter of rail transit stations. The premiums follow a quadratic equation line. Initially, the premium is lower in the distance bands closest to the station and then increases in the following distance bands. After a certain distance, the premium drops off. We think this may be because of the nuisance of being in close vicinity to stations, which is offset by accessibility benefits in proximity of stations.

This study provides insight about how transit investment is valued by multifamily property buyers or renters. To our knowledge, this meta-analysis covers the most studies focusing on multifamily transit premiums to date. The findings of the meta-analysis can help local governments consider how and where they may get the highest economic yields on investments near transit stations.

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Key Words: transit premium, multifamily housing, transit-oriented development, real estate premium, hedonic price model

WALKING SENSITIVITY TO THERMAL STRESS IN THE PEDESTRIAN ONLY-URBAN STREET DURING HEAT WAVES : FOCUSED ON THE COMPARISON OF THE DIFFERENT TYPES OF THERMAL INDEX

Abstract ID: 358

Individual Paper Submission

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Designing thermally comfortable urban public spaces has become an important issue as the heat stress intensified by climate change has caused detriment to the quality of urban citizens' living and safety (Fang et al., 2015). However, at the street scale - the basic component of the urban structure - there is a lack of knowledge about how the extreme outdoor thermal conditions caused by heat waves and urban heat islands (UHI) impact pedestrian behavior. While numerous attempts have been made to assess the thermal status of urban street canyon in terms of energy balance associated with street geometry, built

material, and vegetation (Pearlmutter et al., 2007; Kong et al., 2017; Lee & Mayer, 2018), its effects on the pedestrian walking activity have not been investigated.

This study examines the relationship between the outdoor thermal comfort and walking volume at a pedestrian-only street during heat waves. The two study sites are the ‘Seoul-lo’ and ‘Kwanghwa-moon’ in Seoul, South Korea. These are each elevated pedestrian bridge and plaza walkway designed for promoting walking in the city center as a part of an urban renewal project. Therefore, the impact of physiological thermal comfort on walking frequency will be investigated in terms of energy flux. Particular emphasis will be given to the degree of thermal effects on the walking volume as well as the point of threshold that triggers the behavioral change. In addition, three different types of thermal index, which are the index of single weather, empirical, and energy balance, will be tested to reveal the relative performance in explaining walking frequency.

This longitudinal study uses secondary data provided by the Seoul metropolitan government. For pedestrian volume, multiple surveillance cameras at the major entrances of the street and plaza are used to collect hourly observations over three summer months in 2018. The weather and microclimate data are obtained from the nearby automated weather sensor system. To measure the level of physiological thermal comfort, five thermal indexes belong to the three different types are adopted, which are AT (single weather); Humidex (empirical); COMFA, PET, and UTCI (energy balance). And then their outcomes compared using the ‘ENVI-met’ and ‘Bio-Klima’. Multiple log-linear regression is employed to investigate the degree of fluctuation in walking volume against the different level of thermal comfort.

The pilot study result indicates that pedestrian volume and thermal comfort have a parabolic relationship at the threshold of between 25 and 26° C. Depending on the place and the intensity of heat waves, the point of the threshold is almost identical. However, its statistical relationship including explanatory power and degree of impact are considerably different. Among the three types of thermal index, the energy budget index shows great association with the pedestrian frequency. The moderate improvement in the explanatory power of the models is observed slightly higher than the other two types of index. Interestingly, at the occurrence of heat waves, all types of the thermal index’s association and performance in walking prediction greatly increase compared to the typical summer days.

It is expected that the thermal comfort level will affect pedestrian volume with more people using the street that is thermally comfortable. Future studies will investigate the effects of microclimate conditions on how people use the pedestrian-only walkway designed for favorable leisure walking. The result of this study would provide urban and landscape practitioners with the implications for designing thermally comfortable streets based on a better understanding of pedestrian behavior.

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Key Words: Walking sensitivity, Thermal Stress, Heat Index, COMFA, Pedestrian-only Street

TRANSIT RIDERSHIP IN SMALL URBANIZED AREAS: WHERE IS IT GROWING, AND WHY?

Abstract ID: 360

Individual Paper Submission

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Transit ridership has declined and recovered in recent decades, but the trend in recent years has been a nationwide decline in transit use (Driscoll et. al 2018). Transit associations like the American Public Transportation Association have tended to wish away the decline in use by downplaying it or by highlighting individual cases that depart from the national pattern, while transportation scholars have sought to better understand its underlying causes. Scholars have investigated the factors associated with transit use for many decades and a large body of scholarship has emerged that has tied transit use to external factors that are beyond the control of transit service providers (such as population and employment density, population and employment change, levels of automobile ownership, and fuel prices) and internal factors over which providers can exercise control (such as service coverage, service frequency, and service quality) (Chavis & Gayah 2017, Graehler et. al., 2019, Taylor et. al., 2019). More recent scholarship has also explored the potential roles played by the proliferation of shared mobility options offered by TNCs which might lure former transit users to their services as well as the interplay between these services, new technologies, and the preferences of the Millennial generation that might have different attitudes toward traditional transit services. However, much of our understanding of the impacts of these factors on transit use has been obtained through studies of larger cities and metropolitan areas. Smaller sized urban areas have largely escaped the deep scrutiny of scholarly work. This study aims to fill this gap in knowledge by identifying the smaller urbanized areas where transit ridership is increasing and seeking to understand the reasons for this increased ridership.

This study examines transit ridership (measured as passenger miles per capita) in smaller urbanized areas (UZAs with populations under 200,000 that do not fall within Level A metropolitan areas) between 2005 and 2015 through a two-part investigation. In part one, the authors identified ridership trends between 2005 and 2015 in the 59 UZAs that had complete data available for transit use during this time period. In part two, the authors selected 11 high performing UZAs (UZAs with increases in transit ridership between 2005 and 2015 that were above the median change in ridership for the original 59 cases) for in depth case study analysis. The authors acquired data for the study from publicly available data sources (the National Transit Database, U.S Census Bureau), transit agency websites, and, for the 11 case studies, from phone interviews with transit planners and administrators. The interview questions focused on ridership trends, rider markets, service changes, funding sources and budget stability, and other factors that might help to explain the ridership trends.

The findings from the study add to the limited body of public transportation research that examines smaller urban areas, enhancing our understanding of how successful transit agencies in these locations structure, strategize, market, partner, and deliver service in ways that have led to increased use by local populations. The discussion particularly considers how different service delivery strategies can keep up with the needs of the day, the necessary steps to incorporate real time information and trip making applications in small communities, and how the presence of university or large employment campuses can influence transit use. The findings of the study can also help transit providers in similar communities all over the nation be better prepared to function well in terms of transit service provision and ridership.

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Key Words: Public transit, Transit ridership, Ridership trends, Transit Planning

TACTICAL URBANISM FOR THE SMART STREET: THE EFFECTS OF AUTOMATION AND INFORMATION TECHNOLOGIES ON CONTEXT-SENSITIVE STREET PLANNING

Abstract ID: 368

Individual Paper Submission

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In the 21st century, cities have increasingly adopted context-sensitive street planning in order to plan, build, and manage more flexible, community-responsive urban streets (National Association of City Transportation Officials, 2013). Communities themselves increasingly understand streets and transportation systems as sites for bottom-up planning and intervention, often termed “tactical urbanism” (Lydon & Garcia, 2015). While localities privilege context-sensitive, bottom-up transportation planning, automation and information technologies (AITs) are bearing down, threatening to upend longstanding associations between travel behavior and the urban fabric (Harb, Xiao, Circella, Mokhtarian, & Walker, 2018). AITs will systematize transportation more than ever, offloading travel decision-making from humans to algorithms that maximize benefits at the system-level (Mondschein & Moga, 2018). While system-level objectives – such as efficiency or safety – are worthwhile, the local control of streets may become subordinate or ignored in such systems. The example of Waze, an app-based navigation system that has frustrated cities by routing traffic along streets without sensitivity to local context, suggests that the issue has already arrived, prior to widespread automation. Given the contemporaneous clash of bottom-up, context-sensitive planning and technology-driven management, we ask whether and how cities are managing the intersection of these two major transportation planning movements? Do preparations for AITs account for responsive, bottom-up processes and policies, and conversely, how is the context-sensitive street movement incorporating AITs, if at all? Broadly, can these two trends in transportation planning become productively compatible?

We research these questions through a case-study based approach, examining efforts to allow for flexibility and local control in streets in three cities investing in transportation technologies—Seattle, Los Angeles, and Barcelona—as well as more broadly by the National Association of City Transportation Officials. The examination begins with the development of a policy framework based on the literature,

identifying linkages and conflicts among context-sensitive street planning, tactical urbanism, and AIT deployment. Across these cases, we assess how these policies have been deployed, and whether they contain manifest or latent conflicts in their objectives, methods, or infrastructures. We find that cities remain focused on regulating AITs at the system level, despite the fact that they simultaneously seek to deploy technology for hyperlocal, dense data collection on streets. Furthermore, cities generally do not connect bottom-up, community-based initiatives with their “smart streets” policies. Despite the lack of coherence between policies, we find that AITs are not inherently incompatible with context-sensitive planning at the level of infrastructure, and could in fact be used to further local street planning. Ultimately, cities and planners must consider how community-based democracy on public rights-of-way will manifest during the era of smart cities. Identifying mechanisms for action, as well as weaknesses in current policies and plans, are critical initial steps in preparing for a future that is already here.

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Key Words: Transportation policy, context-sensitive streets, smart cities, tactical urbanism, automated vehicles

DELAY: THE NEXT “D” FACTOR IN TRAVEL BEHAVIOR

Abstract ID: 381

Individual Paper Submission

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Traffic congestion affects travel decision and is a major issue for traffic management. It affects not only air pollution, public health, and economic development, but also individual/household travel behavior. Despite this recognition, empirical studies of congestion’s impact on travel behavior are limited. This research aims to address this gap by developing a time-related mobility measure, or “delay score,” and analyzing its impact on VMT and commuters’ mode choices within a comprehensive framework that incorporates the built environment, demographics, and residential preference/self-selection factors. Using disaggregated household survey data of the Seattle Metropolitan Area, VMT per household and travel mode choice were examined using SEM and GSEM techniques, respectively.

This study makes two main contributions to the travel behavior literature: First, it investigates the effects of travel time delay on household vehicle miles traveled using a comprehensive framework that incorporates residential preference/self-selection factors; second, it adds new empirical data to the literature using an improved measure of travel time delay and structural equation modeling. The findings indicate that higher travel time delay is associated with lower VMT per household. Additionally, the

results present that vehicle ownership—as a mid-term indicator—is more related to socioeconomic factors, whereas daily VMT—as a short-term indicator—is more related to the built environment factors and residential self-selection.

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Key Words: Travel Time Delay, Travel Behavior , Built Environment, Congestion

THE ASSOCIATIONS BETWEEN OLDER ADULTS' DAILY TRAVEL PATTERN AND OBJECTIVE AND PERCEIVED BUILT ENVIRONMENT: A STUDY OF THREE NEIGHBORHOODS IN SINGAPORE

Abstract ID: 395

Individual Paper Submission

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Central theme and hypothesis:

nvironment have been examined in a number of empirical studies, only a few studies have explored how the effects of the two built environment measures would combine together (e.g. Jack & McCormack, 2014), and fewer studies have looked at non-active modes of travel (e.g. Ma & Cao, 2017). This study explores the travel impacts of both perceptions and objective aspects of built environment characteristics by focusing on older adults, whose daily travel patterns tend to be more sensitive to neighborhood environment. Following the ecological model (Sallis et al., 2006), our central hypothesis is that the two measures of built environment interact with each other to influence older adults' travel behavior and higher perceptions of environment features would strengthen the effects of comparable objective measures on individual travel. We also expect that the built environment correlates of travel vary among different modes.

Approach and methodology:

The study uses Singapore as an example. The main data used are drawn from our own resident survey of 1002 senior citizens (aged 55+) that were sampled from a frame of 2500 households in 3 selected neighborhoods provided by Singapore's Department of Statistics. The survey collected information on

older adults' socio-demographic characteristics, their perceptions of neighborhood environment and their daily trip-making by different modes. Data on transportation facilities and land use are obtained from Singapore's government agencies.

A disaggregate framework is developed to examine the interactive effects of perceived and objectively-measured built environment characteristics on the elderly's daily trip frequency by four types of transport modes: walking, public bus, mass rapid transit (MRT) and private vehicles. To account for the potential effects of common unobserved factors on individual trip-making among different modes, we apply a multivariate ordered probit model system, which is developed in analogous to the seemingly unrelated regression model (Bhat & Srinivasan, 2005).

Objective measures of neighborhood-scale built environment features, including residential density, street connectivity, transit accessibility, and access to various utilitarian destinations (e.g. markets, services) and recreational facilities (e.g. parks, gyms), are constructed within a 400-m buffer around each residential location. An adapted version of Neighborhood Environment Walkability Scale (NEWS-A) is used to assess individual perceptions of land-use mix, street/pedestrian infrastructure, aesthetics, and safety near residence (Cerin, Saelens, Sallis, & Frank, 2006). To test for the proposed interactive effects of two built environment measures, interaction terms between objective and relatively-matched subjective measures are included in the model. Individual and households characteristics are controlled in this study.

Key Findings:

Our results indicate that while some perceived measures (e.g. perceived access to recreational facilities) exert independent positive effects on older adults' daily walking trip frequency and enhance the effects of comparable objective measures, other perceived measures do not significantly moderate the positive effects of objective features (e.g. access to utilitarian destinations, the availability of sheltered walkways and safe pedestrian crossings near residence) on walking trip-making. We also find independent positive effects of perceived transit access and barrier-free and safe pedestrian connections on older adults' daily transit trip-making.

Relevance to planning education/practice:

This study adds to studies on the built environment-travel relationships by investigating how perceived and objective built environment characteristics moderate each other's effects on individual travel by different modes. Our findings imply that except for planning and design interventions such as the provision of comfortable and attractive pedestrian infrastructure and daily amenities, easier interventions aiming at fostering positive views of the existing physical environment and amenities within their neighborhoods (e.g. using walking maps and wayfinding signs/markings to raise residents' awareness of neighborhood facilities) may also potentially promote healthy travel for older adults.

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Key Words: Travel behavior, Older adults, Built environment, Perception, Singapore

FAR FROM ZERO: LESSONS FROM US PEDESTRIAN FATALITY TRENDS, 1977-2016

Abstract ID: 405

Individual Paper Submission

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The Road to Zero Coalition, including dozens of cities, states, and the US Department of Transportation, set a goal to reduce US traffic fatalities to zero by 2050 (Ecola et al. 2018). Pedestrian safety is important for this goal since pedestrians account for 16% of all US traffic fatalities. Further, pedestrian travel is available to nearly everyone—young and old; rich and poor—and is the gateway to most other travel modes. Safe pedestrian movement is essential for the livability of all communities.

Yet, after three decades of decreases, US pedestrian fatalities increased by 48% in eight years, from 4,109 in 2009 to 6,080 in 2016. This recent increase was the steepest among 30 OECD countries. Explanations include more driving and walking due to population growth and economic recovery, more walking at night, larger vehicles, aging pedestrians and drivers, and technological distraction (Hu and Cicchino 2018; Retting 2019). However, focusing only on the most recent trend may miss critical information about enduring problems, such as pedestrian activity along roadways with high traffic volumes (Mansfield et al. 2018), and long-term shifts within the underlying system.

This study takes a long-term perspective and asks: what are the most common temporal, demographic, behavior, and built environment characteristics associated with US pedestrian fatalities, and how have these characteristics shifted over the last 40 years? It analyzes all 231,675 pedestrian fatalities recorded between 1977 and 2016 in the Fatality Analysis Reporting System database.

Average annual pedestrian fatalities decreased steadily from 7,906 during 1977-1981 to 4,396 during 2007-2011 before increasing to 5,216 during 2012-2016. Over 40 years most pedestrian fatalities occurred on thoroughfares (non-local roadways) (81%), on roadways with speed limits of 35 mph or higher (75%), and on roadways with fewer than four lanes (75%). Most occurred at locations away from intersections (80%) and without traffic signals (90%). Most involved vehicles traveling straight (85%). Most occurred in darkness (69%). Pedestrian victims were often males (70%) and had been drinking alcohol (33%).

Between 1977 and 2016, there were several statistically-significant shifts in pedestrian fatality characteristics. Pedestrians younger than 25 accounted for 36% of fatalities during 1977-1981 but only 17% during 2012-2016. During the same period, fatalities involving pedestrians aged 25 to 64 increased from 40% to 63%. Over 40 years there were also significant increases in the proportion of pedestrian fatalities that occurred during darkness (67% to 77%), on roadways with speed limits of 35 to 50 mph (39% to 53%), on roadways with four or more lanes (23% to 32%), at signalized intersections (8% to 13%), and in crosswalks (8% to 11%). The proportion of larger vehicles involved in pedestrian fatalities

also increased (Paulozzi 2005). Some of these shifts may be due to changes in pedestrian activity by certain types of people, at certain times of day, and in certain locations.

These findings can help support stronger safety strategies, such as those used in European countries (Buehler and Pucher 2017) and recommended by the Road to Zero Coalition (Ecola et al. 2018). For example, thoroughfares with high speed limits are particularly deadly for pedestrians, especially at night. Communities should consider many options to reduce vehicle speeds, such as roadway redesign, automated speed enforcement, speed-limiting devices, and mixed-use infill development to shorten travel distances. Communities should improve roadway lighting and promote automated vehicle pedestrian detection. Education messages should emphasize the risk of alcohol use and stress that drivers watch for pedestrians at all times, including on thoroughfares and while traveling straight. Pedestrian safety education should expand beyond children. An ambitious set of strategies will be necessary to eliminate US pedestrian fatalities by 2050.

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Key Words: Pedestrian, Fatalities, Safety, Long-term trends, Vision Zero

REGULATING THE RIDE: LESSONS ON THE EVOLUTION OF DOCK-LESS BIKE-SHARE POLICY IN AMERICAN CITIES

Abstract ID: 434

Individual Paper Submission

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A growing number of dock-less bike-share programs are being launched and managed in American cities. Despite the early promise of dock-less bike-share as a solution to America’s personal mobility crisis, recent controversies over the management of these vehicles – including extensive media coverage of dock-less bikes being abandoned on sidewalks, in auto parking spaces, and even thrown into waterways and onto rail tracks – have swayed policymakers and elected officials in several American cities to revisit the issue of regulating these dock-less bicycles. But very limited number of studies investigated the

relationship between local government and private-sector bike-share companies, as well as the subsequent ways in which the relationship and its regulatory foundations might shape the bike-share program in the localities. Previous studies on such relationship mostly investigated mandatory helmet laws (Fishman, 2012; Flegenheimer, 2013) or nightly re-balancing (requiring dock-less bike-share companies to redistribute their bicycles across a given area each night) regulations in selected cities (O'Brien et al, 2014; Fishman et al, 2014). However, the literature lacks a comprehensive and comparative examination of the present state of bike-share regulations and city-provider relations in the largest American cities. This study represents an earnest attempt to explore and compare the dock-less bike-share regulations of multiple American cities, a task scarcely accomplished in the existing transportation literature. Previous studies, such as the one completed by Rodriguez and Shoked (2014), have examined local governments' regulatory systems and their respective influences on bike-share as an urban amenity, but relatively little has been written about the two-way relationship between city governments and bike-share providers as effective co-authors of regulations and public policy. In addition, little has been written about emerging platforms in shared mobility, such as dock-less bike-share, and their role in these regulatory frameworks. Therefore, this project seeks to explore these gaps through a sequence of three interrelated research questions: First, how are bike-share programs regulated in America's fifty largest cities? Second, what specific issues are covered by these regulations (for example, safety, equity, and bicycle parking restrictions)? And third, how do city bike-share regulations compare across the nation? To address these questions, this study develops an evaluation matrix based on literature, collects the current ordinances of different cities and gives score for their inclusiveness for specific issues. Then organizes those cities along a spectrum of regulation ranging from "not regulated" to "substantially/comprehensively regulated" environments, with the aim of investigating how cities come to regulate (or not regulate) these programs. This study involves interviews with stakeholders, content analysis of city ordinances and media coverage, and an exploration of the programs in each of the cities to build a narrative for how this process began and how it evolved with time and political/social pressure. Findings of this study will be useful to planners, local officials, bicycle activists, and bikes-hare providers, all of whom may seek to better understand how bike-share programs can be effectively regulated by the various invested parties in order to provide residents and visitors with a safe and reliable means of urban transportation.

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Key Words: Dock-less bike-share, ordinances, evaluation matrix, policy analysis, local government

PRICING AND PARKING: HOW UNBUNDLING AFFECTS TRAVEL BEHAVIOR

Abstract ID: 437

Individual Paper Submission

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This paper examine how pricing parking can affect travel behavior. Parking is a major component of the cost of vehicle ownership and use, and its availability affects the price of driving. Parking congestion is, by definition, caused by a lack of road space. Cruising for parking is considered a big source of congestion and a poor use of time and fuel (Shoup, 2006). Planners seek ways to mitigate congestion while also ensuring that parking will be freely available wherever people must drive to. At their disposal is a range of tools that can make parking easier, including automatic street widenings, residential parking districts, and especially off-street parking requirements.

What do all these measures have in common? They hide a major cost of vehicle ownership and use from owners and force either developers or the public to pay for them. When a driver can be assured that they will have an empty parking spot waiting for them at their trip origin and destination, they don't need to worry about circling the block in the hopes of finding a place to park. If that parking spot is unpriced, as it usually is, drivers have even less reason to change their travel behavior.

But what happens when parking isn't free? Will people cruise more for parking, or just drive less and maybe switch modes? Previous studies have found that when the cost of parking is hidden in the cost of housing, people are more likely to drive (Manville, 2017; Weinberger, 2012). This study uses a novel dataset to examine the role that priced parking plays in commuter mode choice and vehicle ownership.

The 2017 American Housing Survey is a nationwide survey that includes specific data on how much households spend in a typical week on parking, including a separate cost for work parking, and whether their residential parking is bundled (i.e. included in the cost of their housing unit). The survey contains additional questions regarding commute behavior, including the travel mode(s) a person takes to work each day of the week, and the distance of their round-trip commute. These data allow us to examine how specific costs of parking might affect travel behavior. First, after controlling for economic and demographic variables (such as vehicle ownership and income) as well as the presence of bundled parking, we can determine whether people who pay for parking at work are more or less likely to be multi-modal (i.e. use additional modes to get to work on different days of the week). We can also determine whether commuters who pay for parking at work will be more likely to carpool. Finally, we will use these data to better understand the scope and role of priced residential parking. While approximately 90% of housing units in the U.S. include off-street parking, no study that we are aware of has determined the proportion of off-street parking that is priced. We will also determine what the typical landowner charges for unbundled parking spots, and see whether vehicle ownership varies between people who pay for unbundled parking and people who do not pay and presumably park for free on the streets. Together, these questions will help planning researchers and practitioners better understand how policies such as parking requirements for developers and employer-paid parking affect travel behavior.

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Key Words: Parking, Travel behavior, Pricing

ANALYZING THE CAUSES AND DURATION OF SPELLS OF CARLESSNESS AMONG LOW-INCOME FAMILIES

Abstract ID: 442

Individual Paper Submission

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Low-income households in the US transition into and out of car ownership frequently (Klein and Smart 2017), yet most of the research on these households does not capture these fluctuations. Cross-sectional studies of car ownership typically mask these transitions by omitting relevant questions. While panel data can help reveal them, existing panel data sets may not be frequent enough to capture all the transitions, which may produce inaccurate data on both the frequency and duration of carlessness.

To address these limitations, we examine spells of car access and carlessness among low-income households in the US. We collect data using an online panel of low-income households to learn about their history of car ownership. We focus on low-income households because they are more likely to experience transitions into and out of car ownership and they stand to gain the most from increased car access. First, we will describe the characteristics of households' transitions into and out of car ownership. We focus on identifying the timing of these transitions and the duration of spells of both car ownership and carlessness. Second, we analyze the reasons why families experience transitions in car ownership. Given the benefits that car ownership confers in much of the US, this research can contribute to our understanding of how policy may help prevent unwanted loss of automobility among low-income households.

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Key Words: car ownership, poverty, retrospective survey, transportation

USING HIGH RESOLUTION ARCHIVAL TRANSPORTATION DATA TO ESTIMATE THE SHORT- AND LONG-TERM EFFECTS OF LIGHT RAIL TRANSIT AT THE CORRIDOR LEVEL: CASE STUDIES OF TWO LRT LINES IN PORTLAND, OR

Abstract ID: 448

Individual Paper Submission

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In the context of increasing daily traffic congestion and auto dependence, light rail transit (LRT) has been suggested as an effective means to reduce auto dependence and relieve traffic congestion. Between 1999 and 2017, nationwide vehicle revenue hours of LRT service has increased from 3.1 million to 7.5 million (NTD, 2000, 2018). There is a growing body of literature investigating the effects of LRT on transit ridership and traffic congestion, but so far previous research has failed to systematically evaluate the short- and long-term effects due to lack of consistent high resolution historical data. Most existing studies have to convert annual average daily traffic as approximate measurements of traffic congestion (Bhattacharjee and Goetz, 2012; Ewing et al., 2014), but such measurements cannot reveal daily or monthly variation in traffic congestion. Emerging high resolution archival transportation data provide a potential opportunity to tackle the problem (Giuliano et al., 2015).

This study utilizes transit boarding data and high resolution historical traffic information from archival databases and iPeMS to comprehensively investigate the short- and long-term effects of LRT at the corridor level with case studies of two LRT lines in Portland, OR region. Using a quasi-experiment design, we estimate the effects of LRT on transit ridership and traffic delay and reliability with high-resolution transit and travel time data over a longer time period than existing studies. For each LRT line, we first compare transit ridership and traffic condition before and after its opening and then estimate difference-in-difference regression models to examine its effects. Both LRT lines increased transit ridership in the short- and long-term, and relieved traffic congestion in the short-term, while having no significant effect on traffic congestion in the long-term due to induced traffic demand. The effects of LRT varied by LRT lines because of local land use and transportation system. In addition to contributing to the literature on the effects of transit, this study demonstrates how high-resolution archival transportation data enable analyses that were previously impossible. The growing availability of transportation data of high temporal and spatial resolution over a long time period provides a unique opportunity to evaluate the effects of transportation policies and projects like LRT and their evolution, which helps to explain the seemingly conflicting empirical results in existing studies and therefore provides an improved understanding of the effects.

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Key Words: light rail transit, traffic congestion, transit ridership, archival transportation data

DEMAND FOR ON-DEMAND: USE OF CONVENTIONAL TAXIS AND APP-BASED RIDEHAILING SERVICES BY ADULTS WITH DISABILITIES

Abstract ID: 458

Individual Paper Submission

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In this study, we examine the use among adults with disabilities of ridehailing services, including conventional taxicabs as well as app-based ridehailing services provided by transportation network companies (TNCs) like Uber and Lyft. The Americans with Disabilities Act of 1990 (ADA) guarantees people with disabilities “equal access” to public transportation systems, and requires that planners make public transit services accessible for this population as well as provide complementary paratransit services. Since 2012, TNCs have come to substantially supplement urban transportation services, with national ridership projected to surpass that of local buses by the end of 2018 (Schaller 2018). Understanding how people use ridehailing is critical for developing transportation policies and plans that ensure equitable transportation service provision across demographic groups (Circella and Alemi 2018).

“Mobility have-nots,” like people with disabilities (Brown and Taylor 2018), are a special group of concern, since ridehailing services likely compete with public transportation, potentially compromising public agencies’ ability to serve riders with disabilities—particularly those who rely on paratransit. On the other hand, people with disabilities potentially benefit more from TNC services than the general population, as they are more likely to be non-driving, and the on-demand, curb-to-curb service TNCs offer can be more convenient and accessible than public transit or paratransit. Thus, though TNCs are not subject to ADA Accessibility Guidelines, they represent a potentially important mode for people with disabilities.

Using the 2017 National Household Travel Survey (NHTS)—the first large, national travel survey with data on TNC use—we investigated whether adults with disabilities, defined as those who reported having a “medical condition” that makes it difficult to travel, use ridehailing services at a greater or lower rate than the general population; and what factors, like smartphone use, income, and location within urban areas, affect this pattern of ridehailing use. We distinguish between TNC and taxi use when possible with the data. We find that adults with disabilities have much lower monthly TNC use than the general population, while having higher daily ridehailing use (including both taxis and TNCs). People with disabilities on average use smartphones less, have lower income, and live relatively more in rural locations than others, which partially explains their lower monthly TNC use. It would appear that daily ridehailing use is higher among people with disabilities as a result of their average greater reliance on taxis, which may be currently more accommodating to people with disabilities than TNCs for various reasons, including a higher availability of wheelchair-accessible vehicles, driver familiarity with riders with disabilities, and hailing options that do not require a smartphone.

The finding that combined taxi and TNC use constitutes a larger share of daily trips for people with disabilities than people without disabilities is not new (Brumbaugh 2018; Schaller 2018). However, we find that TNC use is substantially lower among people with disabilities, even in analyses controlling for other factors that influence app-based ridehailing use—a remarkable result suggesting disability status alone affects this pattern. Latent demand for on-demand ridehailing services is likely high among people with disabilities, and there may be some impediment to their use of TNCs with implications for government policy to improve access to these services. For example, California Senate Bill 1376, the “TNC Access for All Act,” requires TNCs provide equivalent service to riders with and without disabilities. This policy model holds great potential to improve accessibility of TNCs to some people with disabilities (i.e., those who use wheelchairs), but does not address other barriers to TNC use by people with disabilities, such as those related to smartphone availability or app accessibility.

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Key Words: Disability, Ridehailing, Taxis, TNCs, NHTS

EFFECTS OF THE BUILT ENVIRONMENT ON ATTITUDES TOWARD AUTONOMOUS VEHICLES

Abstract ID: 475

Individual Paper Submission

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For many in the transportation industry, autonomous vehicles (AVs) are seen as a catalyst for safer and potentially more sustainable travel, even as urban populations and travel demand continue to increase. Recent scholarship examines public perceptions and attitudes towards AVs in order to understand future AV adoption rates and potential impacts (Bansal and Kockelman, 2018; Menon et al., 2018). However, there remains a lack of research and empirical data on the relationship between the built environment (BE) and public attitudes towards AVs, including perceived acceptance of both privately-owned and shared autonomous vehicles. Because travel behavior is significantly shaped by local and regional contexts (Handy et al., 2002), attitudes towards AVs and ultimately usage are likely to be shaped by BE as well. Exploratory spatial analysis of attitudinal variables can provide useful information about underlying behavioral processes. Do AV attitudinal differences vary across urban, suburban, and rural neighborhoods? How does localized urban form and transportation infrastructure affect attitudes? Are the patterns of attitudinal responses spatially systematic or, on the contrary, are they random? Do attitudes towards AVs reflect current attachment to private vehicles in suburban areas, or do suburbanites express a willingness to share rides in AVs?

We analyze our research questions using attitudinal data drawn from an on-line panel survey of 830 participants, across the US. We examine the spatial pattern of attitudinal variables with a spatial statistical modeling approach (Bailey & Gatrell, 1995). A spatially patterned response could be reflective of a tendency of similar individuals to cluster in space, or a process of homophily. In addition, unstructured

text comments provided by respondents are also analyzed to examine whether the additional insights of their concerns about perceived risks and benefits tend to be more spatially co-located (clustering) or would be the case under a random spatial sequence. Variables of the built environment are selected such as the “5D’s” (density, diversity, distance to transit, destination access, and design) and land use patterns (Ewing & Cervero, 2010). We quantify the impacts of the quantitative and qualitative factors of the built environment on attitudinal dimensions through a series of spatial regression models, controlling for sociodemographic factors such as gender, income, and household structure.

The analysis allows us to understand whether space matters in attitudes toward AVs, and whether the built environment modifies those attitudes. The empirical results can help shed light on where people may be more likely to purchase and/or share AVs and how their attitudes towards risk-taking vary spatially. In addition, the results help to frame planning interventions by estimating how AVs attitudes may modify adoption of AVs across different regional and land use contexts.

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Key Words: Attitudes, Spatial data analysis, Spatial association, Built environment, Travel behavior

A SCENARIO-BASED EVALUATION OF THE SPATIALLY VARYING IMPACT OF CAR-LITE POLICIES ON THE CHOICE OF HOUSING-MOBILITY BUNDLES

Abstract ID: 477

Individual Paper Submission

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Emerging transportation technologies like on-demand shared mobility and autonomous vehicles (AVs) are stimulating discussions on the future of cities. While there are several studies highlighting the benefits that AVs bring to the transportation system, the impacts of AVs on cities are more complex. An expert survey conducted by Milakis (2018) reveals that AVs might induce urban sprawl and have negative implications for social equity due to affordability constraints. In addition to these concerns, we believe that recent investments by car manufacturers and transportation network companies in the AV market merit attention from policy-makers with regard to regulation strategies and equity considerations.

Our research is motivated by the above discussion and the gap in the academic literature related to an integrated treatment of long-term impacts of AVs on urban regions. We use our integrated land use-transportation (ILUT) model SimMobility that employs embedded econometric models in an agent-based microsimulation framework to simulate both long-term and medium-term decisions. Instead of considering complete replacement of private vehicles by AVs (as is prevalent in recent literature), we maintain a more realistic outlook where the planning agency introduces a car-lite policy in a particular neighborhood as a pilot. This policy restricts the use of private vehicles and allows AV services to ply in the study region. Residential relocation and vehicle availability (VA) decisions are jointly considered in a sequential simulation approach for modeling changes in the housing-mobility bundle.

In our empirical examination of Singapore, we consider three districts as study areas in order to obtain quantifiable bounds of the policy impacts.

1. District 1: VA rate lower than Singapore
2. District 2: VA rate comparable to Singapore
3. District 3: VA rate higher than Singapore

Different market reactions to the car-lite policy are modeled as different scenarios and compared to a baseline where the policy is never implemented.

1. Baseline: The policy is never implemented.
2. Scenario 1 (No market response): Policy implementation with no market response, but VA is reconsidered for households inside the study area due to accessibility benefits.
3. Scenario 2 (Increased demand): Similar to Scenario 1, but with an increase in demand for housing units inside the study area.
4. Scenario 3 (Increased demand and price): Similar to Scenario 2, but with an additional increase in market price of units inside the study area.

Housing market transactions are modeled as a daily bidding process among active buyers and sellers. Asking prices are determined by sellers through a hedonic price model, while willingness-to-pay (WTP) of buyers are evaluated through expected utility maximization. Household vehicle availability is modeled through a two-stage framework, that includes a taxi availability model in the first stage followed by a vehicle availability model that is conditional on the first stage.

Our simulation runs of District 1 indicate that there is a net in-migration into the study area due to the increased attractiveness of being car-lite. We also find evidence of gentrification, as in-movers are richer and more prone to relinquish private vehicles than out-movers. However, the net effect on vehicle availability is less than anticipated because higher-income households remain more likely to own vehicles, because results from District 1 are conservative estimates of policy impacts. Simulations for the other districts are ongoing and are expected to be completed by May.

Overall, we hope that this research provides useful contributions to both the academic literature and planning practice by demonstrating how a technically robust ILUT simulation framework can be utilized as a policy analysis tool to anticipate the net effect of competing market forces, depending on the manner in which we introduce new technologies that improve accessibility.

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Key Words: Autonomous vehicles, Residential location choice, Vehicle ownership, Microsimulation, Integrated land use-transport model

DOES WELL-CONNECTED BICYCLE NETWORK INCREASE BICYCLE ACTIVITY? A CAUSAL INFERENCE INVESTIGATION

Abstract ID: 484

Individual Paper Submission

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Bicycling is considered to be a promising approach to improve health, environment, and economic development of urban places. While previous research focuses on how individual types of bicycle-related infrastructure can promote bicycling, emerging studies are directing the effort towards bicycle network analysis. The network component goes beyond the lanes and paths, which focuses on overall network analysis of nodes (intersections) and links (lanes). The current bicycle network research covers multiple perspectives of a network, such as topology characteristics, quality of service, such as level of traffic street (LTS) (Mekuria, et al., 2012), level of service (LOS) (Huff & Liggett, 2014), and route quality (Broach & Dill, 2017). Theoretically, bicycle network would generate greater impacts than sum of its parts, however, there are limited studies linking bicycle network with actual ridership and bicycle activity (Buehler & Dill, 2016). This research tries to address the research question: how does bicycle network, instead of individual bicycle facilities, affect bicycle activity? In particular, is there any causal relationship between the two?

To address these research questions, this study analyzes empirical relationship between bicycle network and bicycle volume based on the case of city of Portland. Bicycle network is measured through LTS approach, where the street network and roadway characteristics data are derived from OpenStreetMap and Portland RLIS (Regional Land Information System) data sources. Bicycle volume is measured by bike count, which is derived from Portland annual bike count program for over two hundreds of locations sites. I apply negative binomial regression models to evaluate the effect of bicycle network characteristics on bicycle count. To investigate the causal relationship, a difference-in-difference approach is applied. Two period of bicycle network characteristics and bike count data are collected and calculated. In addition, built environment and socio-demographic variable are controlled. This study helps to uncover the causality relationship between bicycle network and bicycle activity, which fills the gap of current literature. It sheds light on the effectiveness of bicycle network, and help the policymakers make decisions for bicycle infrastructure investment.

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Key Words: bicycle network, level of traffic stress, bicycle count, causal relationship

DOES ACCESSIBILITY VIA GREEN TRANSPORTATION MODES MATTER FOR SOCIAL INEQUALITY? AN INVESTIGATION FOR TWO MEDIUM-SIZE U.S. CITIES

Abstract ID: 486

Individual Paper Submission

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A paradigm shift from mobility-based to accessibility-based planning is extensively praised in transportation literature to address the conflicts between physical movement, people, and places. While there are efforts in exploring accessibility to support such a shift from transportation and urban planning perspectives (Bocarejo S and Oviedo H 2012; Chen and Akar 2017), the arguments of measuring and analyzing accessibility and its connection with social equity still remain. Based on the typical definition of accessibility as the ease of people to participate activities within certain space, the major challenges can be attributed to three aspects. First, there are a variety of approaches to identify the “space” to reflect people’s mobility using different transportation modes. Second, the ways that select urban opportunities (e.g., jobs, health) significantly vary to represent people’s different needs for equity. Third, people can be grouped from various perspectives to reflect the dimension of social equity. The primary goal of this study is to add new elements to these aspects through developing a community opportunity framework to evaluate transport equity by focusing on accessibility via green transportation (e.g., public transit and cycling). The achievement of this goal is based on the application of the cumulative-opportunity approach, a typical location-based accessibility measure, which is used to count the number of urban opportunities available within a certain space by using a certain transportation mode (Fan et al. 2012).

This study applies the framework to two U.S. cities, Fresno, California, and Cincinnati, Ohio, which have similar population size but represent urban growing and declining respectively in terms of population. In these two typical automobile-oriented cities, how transportation disadvantaged people (e.g., zero-vehicle ownership, the elderly, etc.) access different urban opportunities (e.g., jobs, schools, etc.) by using non-auto transportation modes has been a concern for local planners. We delineate service area based on street network datasets which are built separately for public transit and bicycle using GTFS (General Transit Feed Specification) data and OpenStreetMap data. Block group is the analysis unit as a proxy for community. The delineation of the service area is based on one-way travel time in minutes on street network with the thresholds of 10, 20, 30, 45, and 60. The resulting service area is used to count the number of urban opportunities at the block group level. This paper focuses on three groups of urban opportunities for transport equity analysis: economic opportunity (jobs by wage level); health opportunity (healthy food stores/restaurants and physical activity sites); social service opportunity (church, library, and schools). We then use statistical comparison and geographical mapping to identify the gap of

accessibility to these opportunities among transportation disadvantaged groups defined by household income, education, property value, vehicle ownership, race, and age (adolescents and elderly). We expect to find that people with different socio-economic status may suffer from different types of transport exclusion in terms of low accessibility to different opportunities. The differences in accessibility by using green transportation modes imply the importance of developing policies to satisfy various needs of different social groups which are excluded by the auto-oriented urban structure and transportation system. This community opportunity framework can contribute to evaluate transportation equity from a more comprehensive perspective by considering a variety of dimensions to group people and define urban opportunities.

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Key Words: transport equity, accessibility, public transit, bicycle, urban opportunity

HIGH TECHS AND THEIR DIFFERENT TAKES ON TRANSIT AND WALKING AMENITIES; EXPLORATIONS FROM THE U.S. SPECIALIZED HIGH-TECH ZONES

Abstract ID: 489

Individual Paper Submission

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Studies on the accessibility needs of high-tech firms tends to draw on the assumptions emerging out of agglomeration and placemaking frameworks and emphasize the expansion of transit services and enhancing walkability. However, industries impacted by the new logistic revolution, land values, easy access to the global e-economy, and rise of online workers could prefer strong highway systems. To meet their demands and grow, these businesses impose their locational needs and potentially reshape the regional development which may not be in line with sustainability goals.

Hence, further empirical studies that quantify these differences can shape more informed and evidence-based sustainable policies and decisions. This study addresses these gaps through analysis of high-tech zones in the U.S. large regions and exploring the locational differences between high-tech industries in terms of transportation infrastructures. To identify these differences, this analysis employs a series of Multinomial Logit Regressions and micro-level firm dataset from the ESRI Business Analyst Dataset (EBAD) and estimates the marginal effects of the transportation infrastructures on the location behaviors of different high tech industries. Our models thus test whether different types of high tech firms have significantly different transportation infrastructure preferences. We used WalkScore, TransitScore, network-based distance to nearest freeway ramp and the region's primary hub airports as the measures for different mobility systems.

Our findings confirm that high-tech firms have significantly different preferences for transportation infrastructures. While professional services (architecture/engineering) are most likely to locate in walkable and transit accessible areas in proximity to CBDs; IT, aerospace, and pharmaceutical sectors are found mostly in proximity to freeway entrances. These differences in location behaviors of professional services, IT and aerospace industries likely stem from their specifications. For instance, the success of high-tech professional services highly depends on their ability to attract skilled workers who are drawn to transit and walking amenities (Shearmur, 2010). Moreover, dense and walkable CBDs enhance frequent face-to-face encounters, tacit knowledge exchange, and physical access to the local market area (Hamidi & Zandiatashbar, 2017; Hamidi et al., 2018, 2018; Zandiatashbar & Hamidi, 2018; Zandiatashbar et al., 2019). On the other hand, IT industries' needs for fast distribution of products, just-in-time delivery and use of online interactions for exchanging codified knowledge instead of face-to-face meetings could justify their desire for proximity to air and road infrastructure (Appold & Kasarda, 2013; Audirac, 2005; Kasarda, 2000; Maggioni, 2002). Our findings also confirm the formation of airport-adjacent industrial clusters in response to the global and e-commerce economy. In other words, airports are anchoring employment centers and providing a spatial focus for unrelated and diverse high tech firms.

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Key Words: Location behavior, High-tech Industries, Transportation, Walkability, Transit

NEW METHODS FOR ACCESSING PEDESTRIAN AND BICYCLE EXPOSURE TO RISK, CRASH RISK, AND EQUITY

Abstract ID: 491

Individual Paper Submission

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Federal, state, and local policies support development of multimodal transportation systems that integrate facilities for vehicular, transit, non-motorized traffic. As development of multimodal systems proceeds, new issues of safety arise, especially as non-motorized modes of transportation – bicycling and walking – are integrated with motorized traffic modes. In 2016, 5,987 pedestrians were killed in traffic crashes, accounting 16% of all traffic fatalities in the year, which is the highest number of pedestrian fatalities

since 1990 (NHTSA, 2018a); 840 bicyclists were killed in the same year, accounting 2.2% of that year's all traffic deaths (NHTSA, 2018b). Protecting vulnerable road users is a priority for both transportation managers and the public.

In this paper, we explored new methods for assessing pedestrian and bicycle exposure to risk, crash risk, and equity. We illustrated these methods with an application in the City of Minneapolis. We used pedestrian and bicycle counts provided by the Minneapolis Department of Public Works (DPW) and modeled estimates of pedestrian and bicycle traffic published by Hankey and Lindsey (2016) to obtain estimates of peak hour pedestrian and bicycle traffic on street mid-blocks and intersections. While others' works focus on larger scale, such as tract level (Loukaitou-Sideris et al., 2007) or traffic analysis zone level (Lee et al., 2015), we concentrate our research on pedestrian and bicycle crash specifically in a smaller scale as street mid-blocks and intersections. Our dependent variable is the number of crashes, whose distribution is right-tailed and has many zeros, so we applied the Negative Binomial Model to construct crash models. We assessed the equity of distribution of crash risk by using our crash models to predict pedestrian and bicycle crashes as the crash risk for all intersections and mid-blocks in the city. We compared the crash risk between areas with the T-test approach to explore the related equity issue. A useful feature of our models is that, by using the same factors to predict crashes for all locations, we obtain measures of risk at locations where no crashes historically have occurred. This feature helps to address a historic problem in crash analysis, specifically, how to compare risk at locations where crashes have not occurred.

We confirmed that crashes are distributed unevenly: most intersections and mid-blocks have a small crash risk, and crash risk is concentrated at a relatively small proportion of sites. We tested for significant differences in mean predicted crashes between racially-concentrated areas of poverty (APC50s) and other areas in the city, both inclusive and exclusive of the central business district (CBD). Mean predicted pedestrian and bicycle crashes are substantially higher in APC50s than in non-APC50 areas. These differences increase substantially for pedestrian and bicycle crashes when the CBD is excluded from the analyses. These analyses of crash risk corroborate findings reported by the city based solely on locations of existing crashes and affirm efforts to address inequities in crash risk.

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Key Words: Pedestrian, Bicycle, Crash risk, Equity, Transportation planning

TRAVEL MODE CHOICE AND WELL-BEING REVISITED: TACKLING MODE SELF-SELECTION ATTITUDE AND SATISFACTION WITH TRAVEL AND ACTIVITIES USING A SMARTPHONE SURVEY

Abstract ID: 492

Individual Paper Submission

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A growing literature on travel well-being has focused on the link from mode choice to satisfaction (De Vos, 2019); only a few studies have explored the opposite link that satisfaction with or preference towards a specific mode may affect mode choice (Singleton, 2017; Le et al., 2018). De Vos (2019) argued for the need to develop better measurement of satisfaction in order to explore the dominant causal link among satisfaction, attitude, and mode choice. He proposed a method for measuring mode consonance – when the mode used for trips is the preferred mode, which has rarely been tested in empirical studies. On the other hand, Mokhtarian & Salomon (2001) and Singleton (2017) noted the need to measure the travel experience itself separately from activity experience (at destinations). Few studies have investigated these aspects of travel well-being. As such, our study aims to (1) measure travel satisfaction during the trip while examining the effects of travel environment, attitude, activities during and after trips, and (2) investigate travel mode consonance as a potential moderator of mode choice to satisfaction.

We used a smartphone app to track 247 travelers in Washington, DC and Blacksburg, VA for 1-2 weeks and prompted them with a survey after each trip. Respondents reported their satisfaction with travel and activity at destinations, as well as other trip characteristics in the trip surveys. They also reported their travel attitude, travel patterns, and socio-demographics in an entry survey. We modeled the satisfaction with travel using a multilevel ordered logit model. We found that when controlling for mode consonance, bus riders and pedestrians were more satisfied with their trips than car users. Travelers whose mode of travel were consonant with their preferred modes were more satisfied with their trips. Additionally, experience or expected satisfaction with activities at the destinations was positively associated with travel satisfaction, suggesting a spill-over effect of activities to travel when measuring travel satisfaction. We also found that much of travel satisfaction was influenced by the travel liking attitude (i.e., enjoying the process of traveling). Life satisfaction and eudaimonic well-being were not significant in the models. Further, trip duration had a non-linear effect on travel satisfaction. Travelers were more satisfied with trips if they were involved in certain activities during trips, such as talking or viewing the landscape and people watching. Finally, traveling with friends or dogs led to higher satisfaction as compared to traveling with a family member.

Our study has several implications for research and practice. The results imply that researchers need to improve satisfaction measurement to separate the effects of activities during travel and activities at destinations (i.e., willingness to participate in out-of-home activities), of travel environment, companionship, and satisfaction with travel (as an activity itself). This is also one of the few studies that measure the link among mode choice, attitude, and travel satisfaction through mode consonance, as suggested by De Vos (2019). Our results suggest it is likely that mode consonance played a role in satisfaction, not just the mode itself – especially in the case of car driving. As such, studies of travel satisfaction may have inflated the satisfaction for certain modes if they did not consider mode self-selection attitude. In practice, most US cities are very car-oriented and driving is often the only viable option, which provides dissonance for people who prefer other modes. Creating a multi-modal transport environment in which transport user can choose their preferred modes can be the key to increasing travel satisfaction and overall well-being.

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Key Words: mode choice, travel satisfaction, well-being, attitude, positive utility of travel

FROM “SMALL TOWN” TO “BIG CITY”: RESIDENT EXPERIENCES OF GENTRIFICATION AND NEIGHBOURHOOD CHANGE ALONG THE LRT CORRIDOR OF A MID-SIZED URBAN AREA

Abstract ID: 507

Individual Paper Submission

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Cities and urban regions in North America and beyond are increasingly investing in higher-order transit systems such as light rail transit (LRT), streetcars and bus rapid transit (BRT). Much of the literature suggests local governments do so with explicit aims to increase property values, encourage redevelopment, and spur new investment as part of broader revitalization projects and intensification policies, raising concerns of gentrification along these transit corridors (e.g. Hess, 2018; Immergluck, 2009; Jones & Ley, 2016). This paper seeks to address two gaps in existing research on the relationship between LRT projects and processes of gentrification and neighbourhood change. The first is an examination of this relationship in smaller- and mid-sized cities; most studies to date have examined larger centres, such as Vancouver, Seattle and Atlanta. Additionally, most of the existing literature uses census data and other quantitative datasets as indicators of the impacts of LRT projects, which emphasizes the need for residents’ lived experiences of change along LRT corridors to receive greater consideration (Baker & Lee, 2017; Moore, 2015).

In this paper, we explore the economic, social, and spatial transformations that have occurred along a new LRT corridor in a mid-sized urban area (Waterloo Region) through the eyes of residents living in a variety of neighbourhoods along the line. Waterloo Region, situated in southern Ontario, has a population of approximately 600,000 and is the smallest urban area in North America to invest in a large LRT project. Even before the line has opened, more than C\$2 billion in private-sector investment has taken place along the LRT corridor. Our paper interrogates how residents have experienced neighbourhood change in advance of the line opening, as well as how they perceive the announcement, construction, and testing of the LRT to have impacted their neighbourhoods. Using a qualitative and inductive approach, perceptions and experiences were gathered through in-depth, semi-structured interviews with over 60 diverse residents located in station areas along the line, with a particular focus on those in more central neighbourhoods.

In this mid-sized urban context, the construction of an LRT line and concurrent changes in adjacent neighbourhoods, whether associated or not, are framed by residents as a (necessary) component of Waterloo Region’s transition to a “big city”. Residents express mixed feelings about these changes, including redevelopment and the arrival of new people and amenities, which are recognized at different

spatial scales and attributed both to the LRT and external factors. While some emphasize the loss of certain landscapes and dynamics, others dismiss long-standing neighbourhood services in favour of new amenities and activities. Displacement in its different forms is also a concern, and even residents who do not position themselves as vulnerable to displacement recognize the tension in changes being both personally beneficial and broadly exclusionary. Despite recognizing challenges of decreased liveability and inclusion in certain respects, residents recognize barriers to their ability to shape the transition of their neighbourhoods through local planning processes. These findings have implications for the role of planners and decision-makers in shaping more equitable communities in the midst of large-scale transit projects, as well as for how communities are engaged around such projects connected to long-term, multi-scalar change.

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Key Words: Light rail transit, Gentrification, Neighbourhood change, Displacement, Resident experience

TRANSIT IN FLEX: EXAMINING SERVICE FRAGMENTATION OF NEW APP-BASED, ON-DEMAND TRANSIT SERVICES

Abstract ID: 510

Individual Paper Submission

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The transportation industry may be going through its largest technological revolution in a century, with new forms of on-demand transportation capitalizing on technological innovations to develop app-based, on-demand services, connecting user and driver, known alternatively as ridesourcing, ride-hailing, Transportation Network Companies (TNCs). Fixed route public transit has traditionally been hampered by political fragmentation, manifested in numerous geographical service gaps created by a failure of local transit agencies to plan for cross-jurisdictional services (Weinreich, Skuzinski, Hamidi, 2018 working paper). Fragmentation can create equity concerns for residents of transit deserts, unable to access key services across the city or county line.

As local governments consider harnessing app-based, on-demand technology to operate their public transit systems, often in partnership with private companies, it remains to be seen whether these services will be designed in such a way that they can overcome the jurisdictional fragmentation seen in previous

fixed route services (Rivasplata, et al., 2012; Miller et al., 2005). Furthermore, as local governments consider ways to incorporate on-demand transit services into their existing transit systems, they will need to know how governance structures could be designed in order to avoid cross-jurisdictional fragmentation.

This study seeks to identify how these challenges apply to app-based, on-demand services, particularly when used as a first/last mile solution. This study examines the reasons for fragmentation connected to government and funding policy. Researchers interview public officials about what they have/have not done to ensure the new services overcome jurisdictional fragmentation and cross-jurisdictional lines, and what they think can be done to make cross-jurisdictional public transportation more robust. This study provides an understanding of the governance structure underlying the development of such services, and the causes of fragmentation.

The Texas planning environment, with its high interest in using on-demand technology as a cost-saving alternative to fixed route transit service, offers an early test case for implementation of app-based, on-demand public transportation. This study surveys cities and transit agencies across the Texas, indicating their level of interest in converting fixed route services to app-based, on-demand services, and selects cases for qualitative case study analysis based on their use of this technology for public transportation. Interviews and archival analysis are used to identify fragmentation challenges and causes in app-based, on-demand services. This study finds that many of the jurisdictional challenges identified for fixed route services apply to emerging app-based, on-demand services, including physical infrastructure like stations and signage; scheduling; fare payment systems, machines, payment cards, transfer discounts; information and data sharing; and special event/emergency planning. However this new mode has created special challenges for each category, identified in the findings. This study also finds that a new category—integration of apps—poses a challenge not seen before, especially when governments contract with private operators. This makes app-based, on-demand services of limited suitability for first/last mile connectivity when provided by separate agencies or companies, when formal and informal coordination is poor, and when fixed route services are infrequent. This study concludes by identifying opportunities for better coordination across services and for federal and state policy makers to incentivize coordination at the local level. The authors find that transit agency service boundaries and municipal jurisdictional boundaries had a large and negative impact on service integration across jurisdictional lines. Yet much of the funding for the myriad pilot services comes from the same sources—state and federal funds, or MPO/COG support. This study recommends stronger requirements by federal and state governments, and by MPOs, to require service integration as a condition for receiving grant funds.

Citations

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Key Words: Transportation Network Companies (TNC), transportation governance, fragmentation, interagency coordination, service integration

BRIDGE EQUAL TRANSIT ACCESS FOR PEOPLE LIVING IN AFFORDABLE HOUSING

Abstract ID: 529

Individual Paper Submission

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There are different types of affordable housing, such as Transit-Oriented Development (TOD), Integrated Connectivity Project (ICP) and Rural Innovation Project (RIP). With governmental assistance, housing affordability to low-income households may be similar, but the availability of transit greatly varies, and hence the variation in job accessibility. This paper discusses equity issues related to transit access for different types of affordable housing by comparing the spatial and temporal transit availability. Spatial availability measurements include ‘the proximity to bus stop’, ‘the street connectivity to bus stop’, and ‘service coverage area’. Time availability measurements include ‘frequency’, and ‘hours of service’. This study examines factors explaining the variation in transit access for different affordable housing units using seemingly uncorrelated regression equations (SURE) model. The results provide insights into how to jointly consider housing and transportation for the location choice of affordable housing. The results also provide evidence for how to revise transit plans to better serve low-income neighborhoods.

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Key Words: affordable housing, spatial and temporal transit availability, equity, integrated housing and transportation

THE IMPACT OF NEW TRANSIT INVESTMENT ON CONGESTION IN A TRAFFIC-CLOGGED CITY: CASE STUDY OF JAKARTA MRT, INDONESIA

Abstract ID: 531

Individual Paper Submission

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After a prolonged delay spanning over three decades associated with the issues surrounding land acquisition and funding constraints, the Jakarta Mass Rapid Transit (MRT) was officially opened and was inaugurated on March 24, 2019. One of the main goals of this project, as is common in other new transit investments, is to help reduce traffic congestion (MRT Jakarta, 2017; Rukmana, 2018). To what extent does Jakarta MRT reduce traffic congestion? In this research, we aim to address the aforementioned question using real-time traffic data generated from Google Maps and accessed via its application programming interface (API).

A survey of the literature suggests a mix impact on traffic congestion from the new transit investment. A study analyzing the effect of light rail transit (LRT) opening in Denver on highway traffic indicates that the rate of traffic increase in LRT influence zones is lower than outside of these zones (Bhattacharjee & Goetz, 2012). Along a similar line, a study evaluating the opening of the Metro Expo Line in Los Angeles suggests the system had a “modest and highly localized” influence reducing congestion (Giuliano, Chakrabarti, & Rhoads, 2016, p.207). These findings are attributed to latent travel demand for already congested corridors (Giuliano et al., 2016).

In this study, we extend the literature by analyzing the impact of Jakarta MRT on traffic congestion using a natural experiment research design. Road segments that “host” the Jakarta MRT line, either underground or elevated, are assigned into a treatment group. Road segments that run parallel and have similar road types with the treated roads are assigned into a control group. We placed “virtual” sensors in almost every intersection stretching along the roads we evaluated. Finally, we queried live traffic data starting from February 26, 2019 on these roads using the Google API to obtain travel times between intersections in two periods: morning and evening peak.

We use Difference-in-Differences (DiD) to estimate the effects of Jakarta MRT on road congestion as measured in terms of average speed and delay, or minutes required to cover 1 km (Hanna, Kreindler, & Olken, 2017). As the system had just started running in full-operation, our estimation approaches focus on investigating the impact during its trial run (March 12-24, 2019). Our preliminary results suggest a mostly positive impact of Jakarta MRT on traffic congestion within the treated roads, where a reduction in delay and increase in average speed are observed relative to the control corridors.

In sum, this study could shed a light on the potential and limitation of new transit investment in a traffic-clogged city like Jakarta. The data collection approach also points to the opportunity on leveraging Big Data for rapid policy assessment in places where traditional data such as traffic count is considerably scarce.

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Key Words: Jakarta MRT, Indonesia, Difference-in-Differences

THE CARPOOL INCENTIVE FUND PROGRAM IN SEATTLE: FACILITATING SHARED MOBILITY OPTIONS TO COMPLEMENT PUBLIC TRANSIT

Abstract ID: 542

Individual Paper Submission

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Information and communication technologies (ICT) have enabled carpooling to be arranged by smartphone apps and algorithms instead of personal networks, creating opportunities to revitalize carpooling as a major form of shared mobility. It is promising for transportation agencies to encourage such app-based, on-demand services as an affordable travel option for the population with mobility challenges, and to mitigate congestion and emissions. However, recent studies have shown that monetary incentives are necessary to make carpooling a competitive option (Créno, 2016; Griffin, 2018; van der Waerden, Lem, & Schaefer, 2015). To facilitate this form of shared mobility to complement public transit, researchers need to build a solid empirical base for supporting policy-making on app-based carpooling (Neoh, Chipulu, & Marshall, 2017). Key questions that need to be addressed include: 1) How do monetary incentives influence the use of carpooling and discourage the use of single occupancy vehicle (SOV)? 2) Do app-based carpool trips show distinctive spatial and temporal patterns? 3) Does app-based carpooling serve the mobility needs of the marginalized population groups? 4) Do app-based carpooling services compete with or complement fixed-route public transit?

The recently launched King County Metro Carpool Incentive Fund (CIF) program in the Seattle region provides an exciting opportunity to answer the above questions with empirical evidence. Through the partnership with mobility service companies from the private sector, King County Metro, which is Seattle's primary public transit agency, initiated the CIF program to offer monetary incentives for people who use app-based carpool services for commuting trips. As a part of this pilot program, King County Metro first collected a large volume of trip data from the carpool service providers, which contained information on the origin and destination census tracts, starting time, and trip length of each carpool trip that had received subsidies from the CIF program. Besides, King County Metro also distributed travel survey questionnaires to participating drivers and riders, asking questions regarding their previous travel behaviors, socio-demographic characteristics, user habits, and user preferences. Combining these two datasets, this research, which was a joint effort by researchers at the University of Washington and King County Metro, evaluated the outcomes of the CIF program and answered the research questions.

This research first used the trip data to visualize the spatial and temporal patterns of carpool trips in GIS to gain an understanding of where and when this new form of shared mobility was most frequently served. Then we examined the distribution of the monetary incentives by income, age, gender, and racial categories using the information from the survey data, and employed a series of regression models to

analyze the effects of monetary incentives on mode shift along these social dimensions. Combining trip data with survey data, we draw conclusions regarding whether the monetary incentive program has been effective in encouraging carpool, whether it has attracted previously SOV drivers, whether it has served the needs of the population groups with mobility challenges, and whether it is complementary or competitive to traditional public transit. The empirical results of this research not only help King County Metro devise its future policies, but also support similar transit agencies in designing an integrated urban transportation system in the era of shared mobility.

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Key Words: Shared mobility, Carpool, Transit agencies, Incentive fund, Travel demand management

HOW DOES YOUNG ADULT'S CHOICE OF ACTIVE TRAVEL INFLUENCE PLANNING LOW CARBON CITIES?

Abstract ID: 549

Individual Paper Submission

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Issue: Most transportation studies have only focused on young people's travel behavior itself and ignored the role of life-oriented factors in determining their travel behavior or differentiating their behaviors from other generations. In addition, studies focus on how top-down planning policies are reshaping urban forms of China's future cities. However, young generations decision-making processes related to travel mode, choice of employment, car ownership, and attitude toward quality of life (QoL), environmental degradation and economic opportunity are ignored.

Research Question: To plan and design cities of low carbon emission, it is particularly important to understand both young adult's activity-travel behavior and life choice decision making: Are they less/more interested in owning a car? Are their homeownership conditions, migration status, family backgrounds affecting their travel behavior? Do they have different/similar attitudes toward urban problems (congestion, air pollution, and environmental conservation) comparing with their older counterparts?

Methodology: We used data from Chengdu Public Environment Protection and Transportation Survey, a metropolitan area survey collected responses from 1048 participants in Chengdu in 2016. We (1) examine

the interdependent relationship between young people's active travel behavior, car ownership, and residential location using structural equation models (SEM); (2) use standardization and decomposition analysis to assess separate and joint component effects of socioeconomic characteristics and behavioral mechanisms across age groups who were 18-25, 26-30, 31-35, 36-40 in 2016.

Results and Implications: The study confirms the interdependent relationship between active travel behavior, car ownership, and residential location choice. We find that younger adults drive more than their older counterpart. Moreover, standardization and decomposition analysis reveals that a substantial portion of the driving behavior difference can be attributed to the differences in socioeconomic sources. Also, we find that active travel is limited by lower dissimilarity of the built environment, air quality concern, longer trip time, and car ownership. Therefore, we offer two implications. First, given current travel behavior of the young adults, we expect them to drive more as they age and have more social and economic resources if no integrated plans to address social, economic, and spatial aspects of travel behavior and home location choices. Here, evidence diminishes the optimistic view of the peak car trend observed in developed countries. Second, the findings suggest a coupled decision structure of travel behavior, car ownership, and residential location, and highlight the importance of accessibility-oriented planning.

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Key Words: Travel Behavior, Low Carbon City, Young Adult, Structural Equation Model, Standardization and Decomposition Analysis

DRAWING THE MAP: MOBILITY GEOFENCES, EQUITY, AND OVERSIGHT IN SAN FRANCISCO

Abstract ID: 555

Individual Paper Submission

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San Francisco is home to a wide range of emerging transportation modes, including bikesharing, carsharing, microtransit, scootersharing (both moped and kick-style), and ridehailing. Although several companies operate more than one mode, each category is governed by a different set of municipal regulations. These include permitting processes, vehicle standards, fees, as well as geographic limits on service operation and vehicle parking. This latter requirement is largely administered through defined geofences (also called boundaries or cordons) that are set separately for each mobility service, and are

visibly communicated to consumers via mobile applications and at times physical signage. As the number of operators in San Francisco grows (two kick-scooter companies were recently permitted), the need for a systematic review of mobility geofences rises, including how they overlap, enable or restrict access to different communities, and possibly supplement existing public transit. My hypothesis for this project was that mobility geofences in San Francisco were not being regulated in a coordinated fashion, which entails that they are clustered in the downtown core and absent from outlying neighborhoods.

By spatially analyzing each mobility geofence in San Francisco, this study has determined that there are significant portions of the city left out from mobility services entirely, and others with a bevy of similar and duplicative services. Critically, current regulatory processes do little to remedy these issues; the city agency charged with oversight over these services offers little guidance on drafting geofences nor does it prevent those that are functionally problematic, such as “island” geofences which do not connect to each other. On top of this, a number of community organizations and politicians apply pressure to limit the expansion of mobility services, which complicates the planning process further. In order to improve the distribution of emerging mobility, this study suggests cities would benefit from modifying regulations either by mandating broader geofences (that cover a certain percentage of the city), forcing permit applicants to address service-duplication issues, or establishing specific zones for operators to apply to cover separately.

This study is relevant to three segments of planning scholarship and practice. First, it introduces a new way to comprehensively appraise mobility geofences for a given city (including percentage overlaps), which has increased in importance given the rapid spread of bike and scooter sharing systems. This relates to research on “informational asymmetries” regarding municipalities’ ability to provide oversight over dynamic and disruptive mobility innovations. Just as the literature on carsharing and station-based bikesharing has matured (with best practices being shared), dockless systems now represent a fast-growing trend that needs fresh inquiry and solutions. Second, given many cities have ambitious climate-action goals that include a de-emphasis of personal car use, the need to encourage and expand micromobility systems in a way that reaches all citizens and neighborhoods is highly salient. Indeed, the broad work on transportation equity is directly relevant to this study, which raises the question if new mobility technologies and services will resolve current transportation inequities or simply reproduce them. Finally, the methods used here to spatially analyze multiple geofences draws strongly from the growing connection between planners and urban geographers, including important work on citizens’ perception of their own cities as well as their ability to navigate them (also known as wayfinding). The findings here of highly duplicative (but not identical) geofences indicates that many users will struggle to understand what regions are accessible by which modes (and which brands), which likely will deter use overall. The recommendations of this paper concern municipal transportation regulation in a large and growing number of U.S. cities, which would benefit from a more coordinated and proactive approach to geofence setting.

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Key Words: mobility, technology, geofence, bicycle, scooter

THE OPPORTUNITY COST OF PARKING REQUIREMENTS: THE CASE OF SILICON VALLEY

Abstract ID: 559

Individual Paper Submission

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We examine the opportunity costs of minimum parking requirements, to both housing supply and firm productivity, using Silicon Valley as a case study. We specifically examine how minimum parking requirements distort the location of firms and weaken agglomeration economies. We use parcel-level data on the seven largest cities in Santa Clara County, matched to historical data on the evolution of the county's minimum parking requirements.

Among economists, there is a growing consensus that strict zoning is a drag on not just regional but national economic growth. Hsieh and Moretti (2017), for example, estimate if three high-productivity MSAs (New York, San Francisco, and San Jose) had less stringent land use regimes for housing, US GDP growth would have been almost 14 percent larger from 1960 forward.

Our paper examines the role that land use constraints--specifically parking requirements--play in misallocating firms. Land use restrictions on commercial development could misallocate firms in two ways. First, similar to what Hsieh and Moretti say about housing, if development restrictions make it difficult to build or expand then productive regions might hold fewer firms (and/or those firms would be smaller) than they otherwise would be. Second, even if we assume that development restrictions do not make an industry smaller in a given region, they could still misallocate the existing firms, by making them more spread apart than they otherwise should be. Regional economies depend on agglomeration, and some agglomerations decay notably with distance. The effects of agglomeration are larger for service firms than manufacturing, for example, but also decline faster as firms are located further outward.

We choose to focus on parking requirements for two reasons. First, their social benefits are low, which makes them easier to manipulate in a cost-benefit framework. Second, they are a zoning mandate that varies within America's most productive urban areas. San Francisco, New York and San Jose are regularly considered the most economically dynamic regions of the US, but San Jose stands out within this select group: it lacks a strong central city, it is more auto-oriented, and far more of its land is occupied by surface parking. Silicon Valley, in short, is marked by extremely valuable land that is used at

a very low intensity. If that low intensity is in part an artifact of parking requirements, then parking requirements could artificially suppress the region's productivity.

Our empirical approach is to first document the evolution of parking requirements over time in Silicon Valley. We then test the idea that these requirements bind, by matching parking requirements to parcels. We also use our parcel data to estimate the average parcel share accounted for by parking, and the average distance between firms. Drawing on established literature and wage data, we estimate the agglomeration returns to productivity in the Valley. Finally, we create a counterfactual scenario where parking requirements were reduced 20 years ago, and estimate the agglomeration differential that would result if more land was used more intensively, rather than for vehicle storage.

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Key Words: Parking, Zoning, Agglomeration

SIDEWALKS TO NOWHERE? RELATIONSHIPS AMONG WALKABILITY METRICS

Abstract ID: 563

Individual Paper Submission

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Motivation and research question: Utilitarian walking has a wide variety of social, economic, and environmental benefits, relative to other modes of urban transportation (Jaśkiewicz and Besta 2014). Planners have championed “walkability” as a means of achieving these benefits, and measures of walkability are needed to evaluate the success of efforts to create walkable places. There is no shortage of possible measures of walkability, but the search for a single walkability measure is frustrated by the multi-dimensional character of the decision walk. Planners have described walkability in terms of the variety of destinations within walking distance (Carr, Dunsiger, and Marcus 2010); the presence of infrastructure to separate pedestrians from traffic (Transportation Research Board 2016); and street connectivity (Barrington-Leigh and Millard-Ball 2015). Each of these measures is theoretically unrelated to the other two: it is possible for a location to have a high degree of street connectivity, but to lack pedestrian infrastructure and destinations within walking distance. In practice however, it is possible that a location that rates as highly walkable based on one dimension is also highly walkable by other definitions. The purpose of this study is compare three different types of walkability measures for a variety of street segments to determine the relationships among them.

Methodology: Our sample includes segments with recorded motorized traffic volumes at the 85th, 50th, and 15th percentiles in each of 17 communities in San Luis Obispo County, California. For each street segment in our sample, we calculated the pedestrian level of service based on the multimodal level of service methodologies recommended in the sixth edition of the Highway Capacity Manual (Transportation Research Board 2016) and the average nodal degree of intersections within a one-mile radius (which is a measure of street network connectivity). We also obtained the Walk Score® for each location. Walk Score® is a commercial product that rates neighborhoods on a scale from 1-100 of walkability, from “car-dependent” to “walker’s paradise,” based primarily on proximity to destinations (these data were provided by Redfin Real Estate, <https://www.redfin.com>).

Findings: We find moderate correlations, ranging from 0.31 to 0.52, among these three walkability metrics for the street segments in our sample. The strongest relationship is between Walk Score® and average nodal degree: without controlling for other factors, average nodal degree predicts Walk Score® with an R^2 value of 0.27. Several street segments in the sample are noteworthy for their deviations from this relationship. For example, of the two segments with the highest Walk Score® of 77, one also ranked highest in terms of average nodal degree and 15th in terms of pedestrian LOS; the other street segment with the same Walk Score® ranked 25th (out of 51) in terms of average nodal degree and 43rd in terms of pedestrian level of service.

Relevance to planning practice: The overall relationships among these three types of walkability metrics can guide planners towards selecting a single, easily measurable measure of walkability that can serve as a proxy for other dimensions of walkability. The exceptions to the overall relationships among walkability metrics represents an opportunity to identify locations where improvements to the pedestrian environment can have a particularly high impact.

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Key Words: Walkability, Active travel, Performance measurement

US SENIORS AND THE SHARED ECONOMY; A SOLUTION FOR DECLINING MOBILITY?

Abstract ID: 583

Individual Paper Submission

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The US population is rapidly aging; by 2030 more than one in five Americans will be over 65 and 5% of the total population will be over 80. The overwhelming majority of those seniors will live in suburban or

rural places with limited alternatives to the car, a 40 year trend that has only intensified as most seniors age-in-place. Almost all men and over 90% of women today reach their 65th birthday as experienced auto drivers which permits them to meet all their needs in the low density places in which they live. Seniors are generally safe drivers who self-regulate their behavior; yet eventually most seniors will decide to or be forced to stop driving

There has been extensive discussion, but little published research, on the potential of important facets of the so-called “shared economy” to meet the needs of suburban seniors who are reducing their driving or who cease to drive (or to induce them to do so). We attempted to evaluate the extent to which seniors currently a) knew about, b) used, or c) thought they would use the following elements in the shared economy:

- Local grocery delivery
- Other local product deliveries (pet food, prescriptions)
- Local restaurant/prepared food deliveries
- TNC services (Lyft, Uber)
- Meal kit services
- On-line clothing shopping
- On-line shopping for staples, craft supplies
- Local chore/task services

We conducted thirteen focus groups in the Austin (TX) metro area with diverse seniors from different economic, social, racial and ethnic, and religious backgrounds; in total we spoke with 103 respondents whose age ranged from 67 to 97. We found it useful to ask respondents to fill out a small survey at the beginning of the focus group, to “prime the pump” since most respondents knew so little about these services that they often would not speak at all. We taped and transcribed the sessions with respondent permission; we use simplified content analysis techniques since the discussions across focus groups were so uniform.

We found that few of the respondents had heard of, let alone used, any of the services although almost all were widely advertised on local TV and radio. We pushed, asking if these services would be useful if respondents had to decrease driving; there was little interest even in that circumstance (although most research shows that seniors generally refuse to consider the eventual need to stop driving). When pushed respondents were silent (the most common “response”) or said they would receive help from volunteer driver services or the city’s ADA paratransit provider (even though being unable to drive does not qualify a person for such services).

We concluded that these responses were the result of two overarching phenomena. The first was the combination of unfamiliarity with apps on smart phones (although many of these services can also be accessed on personal computers which most respondents had or had access to)—this concern has been mentioned in the literature—AND unwillingness to give any personal let alone credit card information over the phone/online. Second, the use of these kinds of services simply seems foreign and not appealing to most respondents regardless of income or education; they worried about delivery delays, quality, choices, and the difficulty of returns for things bought/delivered in these ways (although these responses seemed more like afterthoughts when pushed). We attribute these reactions to three forces:

- Age effects: fear of traveling alone or inviting strangers (drivers, delivery people) to or in their homes, unwillingness to try/consider different ways to do common things (shopping or food preparation, etc)
- Cohort effects: post-WW II suburbanization and related automobility

- Period effects: concerns about using new technology or providing credit card information on-line.

Citations

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Key Words: seniors, shared economy, TNCs

STUDY ON THE DIFFERENCES OF WALKING BEHAVIOR OF COMMUNITY RESIDENTS IN HANGZHOU, CHINA FROM THE PERSPECTIVE OF SOCIAL SPACE DIFFERENTIATION

Abstract ID: 597

Individual Paper Submission

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Encouraging walking is conducive to improving traffic congestion, improving the health of residents and promoting community exchanges. However, at present, China's rapid urbanization process has brought many urban problems which are affecting the residents' willingness to walk. Such as the number of car ownership continues to rise, the large-scale shared bicycles occupy a large amount of space in the city, as well as environmental problems such as smog. How to adapt to the new situation and promote walking is an important direction for conducting research related to walking behavior.

China's economic and social transformation is accompanied by the differentiation of social strata and the reconstruction of social space. The main feature of urban spatial transformation, especially in large cities, is the enhancement of social spatial differentiation. The two tendencies of homogenization within the community and heterogeneity between communities are occurring at the same time (Li et al., 2004). This trend affects the walking behavior of urban residents. Understanding the existence of differences is important for studying walking behavior. Most of the current research on walking behavior focuses on the study of walkability in the physical space level, ignoring the interaction between social attributes and physical space, which makes the research results deviate from the actual needs of different social attribute groups and affect community equity.

In this study, the PRECEDE-PROCEED model was used to divide the influencing factors of walking behavior into three factors: propensity factor (social attributes), strengthening factor (social environment) and contributing factors (walking environment) to form a complete intervention system(Lu,2014,Doyle et al.,2006). Four types of communities were obtained through the interaction of social attributes (social economic status) and physical space (walking environment) (Neville et al.,2007). A typical community was selected for each type along the Hangzhou Metro Line 1 in China. In-depth investigations were conducted on the walking behavior, social attributes, social environment and walking environment of each community, and preliminary descriptive statistical analysis was carried out for each survey result, and the differences and characteristics of various factors among different types of communities were summarized. At the same time, the two-level model of “individual-community” was constructed by generalized linear mixed models (GLMMs) (BHAT et al.,2000). Poisson regression analysis was used to compare the influence of social attributes of the community residents, the social environment and walking environment of the community on walking behavior. Then explore the differences in walking behavior of different community residents and the intrinsic influence mechanism of differences.

The results show that the differences in walking behavior of community residents are significant. Most of the differences can be explained by the social attributes, social environment and walking environment, but the interpretation ability is quite different. The influence of the walking environment is the greatest, and then the social attributes of the population. And there is are interactions between the three. At the same time, communities with similar socioeconomic status have similar travel structures, while communities with similar walking environments exhibit similar travel frequencies. On this basis, the research proposes the optimization strategy of community walking space and suggestions for promoting walking behavior based on social-spatial differentiation perspective from three aspects: caring about the social attributes of the residents, paying attention to the social environment and optimizing the walking environment.

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Key Words: Social attributes, Social environment, Walking environment, Walking behavior, Diversity and Heterogeneity

THE IMPACTS OF TRANSPORT NETWORK COMPANIES ON URBAN MOBILITY

Abstract ID: 607

Individual Paper Submission

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Transport network company (TNC) such as Uber and Lyft is an emerging mode of transport, which uses an online-enabled platform to connect passengers with drivers and provides on-demand ride services. Despite the increasing popularity of TNCs in cities worldwide, its role in the urban transport system is still under debate.

This study contributes to the literature by estimating the net effect of TNCs on urban mobility as measured by car ownership, public transportation (PT) ridership and road congestion levels across all Metropolitan Statistical Areas (MSAs) in the United States. We exploit the heterogeneity in the entry time of TNCs across MSAs as an identification strategy in our analysis and model the impact of TNC entry within a difference-in-differences modelling framework.

In the base OLS model, we regress mobility measures of MSA i at time t against a dummy variable indicating the presence of TNC in MSA i at time t and a set of MSA level control variables, such as population, GDP, household median income, etc. We also include MSA fixed effects and time fixed effects in the model to control for unobserved MSA characteristics and time trend. We further revise the base model specification to test the heterogeneity of the TNC effect in MSAs with different levels of public transit provisions, the TNC effect over time, and the impact of multiple TNC operators on urban mobility measures.

A major threat to our identification strategy is whether TNCs choose to enter a MSA based on something correlated with mobility measures. We address this concern on endogeneity by adopting an instrumental variable approach and estimating 2-stage least square (2SLS) models.

We obtain the TNC entry time at the MSA level from Uber and Lyft directly. The annual household car ownership data are from American Community Surveys (ACS), 2005-2016. The monthly PT ridership data are from the National Transit Database (NTD), 2005-2016. The monthly congestion level measures, including both Travel Time Index and Congested Hours, are from the Federal Highway Administration (FHWA) for the period from 2012 to 2016.

We find that TNCs can reduce the car ownership in PT-friendly MSAs by 0.3-1.1%, and this effect increases with the level of PT-friendliness, time, and number of TNC operators in the market. However, its impact on other MSAs is insignificant. On average, the entry of TNCs reduces PT ridership by 5.2%, and the magnitude of this effect decreases with the level of PT-friendliness. The PT ridership drops significantly in the first two years after the TNC entry and recovers slightly thereafter. In terms of road congestion, TNCs can increase Travel Time Index (TTI) but their effect on Congested Hours (CH) is insignificant. The entry of the second TNC operator leads to higher congestion level.

Our findings contribute to a better understanding of role that TNCs play in urban transport systems and provide useful insights for policy design in regulating the TNC markets and achieving sustainable transportation.

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Key Words: Transportation network companies, car ownership, public transport ridership, congestion level

ESTIMATING THE IMPACT OF URBAN RAIL TRANSIT LINES ON CAR OWNERSHIP: A TWO-DIMENSIONAL PROPENSITY SCORE MATCHING APPROACH

Abstract ID: 615

Individual Paper Submission

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An efficient and environmental-friendly urban rail transit system has become an important component of the policy package of today's cities in addressing urban transport issues. Many cities worldwide have invested intensively to build new and/or expand existing urban rail networks to improve the accessibility and connectivity of cities and reduce car dependency. However, the high construction and operation costs of urban rail transit could impose significant financial challenges to cities. Thus, assessing the impact of new rail transit infrastructure is crucial for decision makers before they commit massive amount of public money into rail transit projects.

Many existing studies have investigated the relationship between urban rail transit and household car ownership decisions. However, many methodological challenges in estimating the treatment effect of rail transit remain to be resolved. The widely used case control approach relies on cross-sectional data, which makes it difficult to address the omitted variable bias or construct causality. Panel-data-based longitudinal studies are more robust in inferring the causal effect of transport interventions than cross-sectional studies. However, acquiring panel data for transport researches remains a significant barrier to researchers.

To address the methodological weakness of cross-sectional studies and the scarcity of panel data for longitudinal studies, in this study, we use repeated cross-sectional data to estimate the impact of new urban rail lines on car ownership, using the opening of the circle line (CCL) in Singapore as a quasi-experiment. The data consists of two national travel surveys conducted before and after the CCL opening, respectively. Within a difference-in-differences modelling framework, we assign households living in the proximity of CCL stations into a treatment group and compare their car ownership change after the opening of CCL to those living farther away from the stations (control group). To account for the spatial and temporal heterogeneity of households, we adopt a two-dimensional propensity score matching approach to creating matched samples, so that we can compare car ownership rates of the same type of households living in the treatment and control zones, and before and after the opening of CCL to isolate the treatment effect of CCL. We also use whether the household head's workplace is near rail transit stations as another tier of difference to investigate the impact of work locations on car ownership.

Our preliminary results show that the number of cars owned by households within 500 meters to CCL stations decreases by 17.6% on average, relative to those who live farther away from the stations after the opening of CCL. With matched samples, the reduction in car ownership increases from 17.6% to 18.6%, which indicates that, if households are randomly allocated to the treatment and control zones and they do

not move after the opening of CCL, the effect of CCL in reducing car ownership would be more profound. The CCL effect mainly occurs in households with household heads working in locations close to rail transit stations, while its impact on other households is insignificant. Our research findings could withstand a series of robustness tests by changing the delineation of the treatment and control zones.

This study provides new evidence that supports the argument that investment in urban rail transit infrastructure could contribute to a car-lite society and more sustainable transport systems.

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Key Words: urban rail transit, car ownership, difference-in-differences, propensity score matching

MEANINGFUL PUBLIC INVOLVEMENT FOR ADDRESSING TRANSPORTATION EQUITY: CASE STUDIES IN THE UNITED STATES

Abstract ID: 629

Individual Paper Submission

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This paper argues that meaningful public involvement in conjunction with quantitative analyses is key to achieving comprehensive transportation equity and successful outcomes (Karner & Marcantonio, 2018). While previous literature has focused on quantitative approaches, this work aims to identify a diversity of qualitative approaches for transit agencies to implement. There is little research regarding qualitative equity practices in different contexts, and this work helps fill that gap. Public involvement helps agencies understand the values and needs of community members while also improving relationships between the groups. Transit agencies in the United States are using innovative practices to better engage with the public about the future of their transit system, including equity advisory committees, board champions, and through collaboration with advocacy groups. We highlight case studies from agencies around the country that are viewed as successful by participants and are worth replicating in the future to achieve equitable outcomes. This paper contributes to the transportation equity literature by addressing the significance of meaningful public involvement for transportation planning and by describing innovative practices as a diverse toolbox for agencies to deploy.

Transportation equity can be broadly defined as the fair distribution of benefits and burdens across population groups and locations (Litman, 2002). Public transit agencies serve the public interest by providing equitable and affordable mobility to populations within their service area, but public transit

investments entail different benefits and burdens for populations based on factors including location, service level, travel mode, and urban form. Planners must critically evaluate transit agency service changes to ensure equitable outcomes for all populations.

Quantitative analyses are used to identify the effects of service changes on population groups and to evaluate the distribution of benefits and burdens. However, the specific analyses vary by agency and result in a wide range of planning practices (Karner & Golub, 2015). Data availability, technical capacity, scope, scale, and analysis choice are all variables that limit the results of quantitative analyses. The Federal Transit Administration requires agencies to perform equity analyses on proposed fare or service changes if the agency receives federal funding. The purpose of this analysis is to mitigate potential disparate impacts on low-income and minority populations in the service area. Equity analyses aim to spread the benefits and burdens of transit changes fairly throughout the service area. Agencies typically perform quantitative analyses, in the form of spatial analyses focused on demographic data, to satisfy this requirement (Karner & Niemeier, 2013). This paper argues that quantitative analyses must be accompanied by meaningful public involvement for agencies to achieve transportation equity.

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Key Words: transportation equity, public involvement, public transit

ARE NEIGHBORHOOD CHOICES TRANSPORTATION CHOICES? USING QUALITATIVE INQUIRY TO DEMYSTIFY THE RELATIONSHIP BETWEEN ATTITUDES, BUILT ENVIRONMENT, AND TRAVEL BEHAVIOR

Abstract ID: 636

Individual Paper Submission

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Much research has associated dense, mixed use neighborhoods with less auto use and more walking (Cervero & Kockelman, 1997). But these studies largely leave out attitudes and preferences, which are factors that might help explain this correlation. For example, people who like to walk might simply choose neighborhoods where they can walk (residential self-selection). In response to this omission, others have controlled for attitudes, finding that attitudes explain much of the variance, with the built environment making up a smaller but persistent effect (Kitamura, Mokhtarian, & Laidet, 1997). Yet even these efforts suffer several pitfalls, three of which motivate this project.

First, they assume that transportation significantly motivates residential location selection, but do not typically assess the extent that this is true. Second, they usually treat preferences and built environment variables as having separate effects, when it is likely that they interact (Chatman, 2014). Finally, they often treat attitudes and preferences as static, when they may very well change over time (Boarnet, 2011). These problems directly motivate two research questions:

1) To what extent do transportation considerations motivate residential choices?

2) Does the built environment affect travel preferences once people live in it?

This project works to answer these questions by engaging in semi-structured qualitative interviews with residents of recently completed transit-oriented developments in Harrison, New Jersey. Located just outside New York City, Harrison represents an ideal location to investigate the above questions. A substantial cluster of dense, mixed-use buildings have emerged in recent years around Harrison's PATH train station, which provides rapid, regular service to New York and Jersey City, among other locations. The residents of these developments therefore represent a population all of whom have relocated to the same, new built environment in recent years, and who benefit from a walkable, mixed use neighborhood with excellent transit access. Thus, Harrison presents itself as a well-suited location to assess whether its residents chose to live there due to its transportation facilities as well as if their attitudes toward these facilities have changed over time after living there.

Qualitative interviews allow an understanding of the formation of transportation behavior patterns among this population, as well as the relationship between their attitudes and these behaviors. The target population is composed of typical residents of Harrison TOD buildings, and participants are selected by snowball sampling. Among other things, these interviews ask people where they lived before, when and why they came to Harrison, how different these areas are, and how this change influenced their transportation behavior. Respondents are also asked if their travel attitudes have changed since arriving. While not truly longitudinal, this approach will move beyond extant cross-sectional studies, providing an understanding of change and causality, both of which are currently lacking.

This project represents a step forward in understanding the relationship between built environment, attitudes, and transportation. First, understanding the reasons that people come to live in transit-oriented developments will help make such developments more successful. Second, findings about transportation's influence on residential choice improve understanding of the effect of built environment on transportation behavior. Finally, information about the effect that the built environment has on transportation attitudes over time tempers the often-held, though sometimes implicit assumption that such attitudes are static. Overall, this research contributes to the understanding of the interplay between neighborhood development patterns, attitudes and travel behavior. This understanding informs a policy goal of promoting sustainable travel behavior, in turn contributing to improved health and quality of life, reduced carbon emissions, and improved access to opportunities for populations with limited car access.

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Key Words: travel behavior, land use, residential self-selection, transportation, qualitative

MOVE ON SCOOTERS: UNDERSTAND HOW SOCIAL & BUILT ENVIRONMENTS IMPACT SCOOTER SHARE USAGE IN WASHINGTON D.C.

Abstract ID: 644

Individual Paper Submission

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The District of Columbia launched the first large-scale city bikeshare in the U.S. (Capital Bikeshare) nine years ago. Since then, Washington D.C. has been an active player in new transportation technology, in hope that shared mobility (carsharing, ridesharing, bikeshare, etc.) can provide sustainable, equitable, and affordable mobility to new riders and neighborhoods. According to DC Mayor Bowser’s Sustainable DC Plan, the District targets at increasing biking and walking trips to 25 percent of all commuter trips (Sustainable DC, 2018). As in 2017, biking (5%) and walking (12.7%) consisted of 18 percent of all commuter trips. As part of the efforts towards meeting the sustainability goals, the DC government embarked on a demonstration program of dockless bikeshare and scooter-share in September 2017. During the first phase of the demonstration program, the District Department of Transportation (DDOT) worked with eight different dockless bikeshare and scooter-share vendors, finishing 625,000 trips (Government of the District of Columbia, 2018). While evaluating the impacts of this new type of mobility on transportation system efficiency and social welfare, DDOT decided to expand the demonstration program into the second phase in early 2019, allowing each vendor to operate 600 vehicles on road, 200 more than the previous cap.

In transportation planning community, scooter share is a newcomer in the shared mobility arena. Prior to the emergence of dockless bikeshare/scooter-share, researchers and planners have been engaged in research and policy analysis on docked bikeshare systems in the U.S. and internationally. For instance, Faghih-Imani et al. (2014) links land use and urban form to bikeshare bicycle flows in Chicago, IL. There are two main factors that explain why few research papers and reports came out discussing about dockless bikeshare and scooter-share (e.g. Mooney, et al. 2019): The first factor is its novelty. Unlike current docked bikeshare systems that have been in operation for a few years, most dockless bikeshare/scooter-share systems were established in the past year or two. The second and the determining factor, is that dockless bikeshare/scooter-share systems are operated by private vendors. The hurdle to request access data is oftentimes a deal-breaker for researchers and policymakers to study the new mobility.

To go around the issue of data availability, we collected real-time scooter location data using the general bike feed specification (GBFS) information provided by vendors operated in the Washington D.C. area. Available bike location data were queried at a one-minute interval to capture a scooter trip’s origin, stops, and destination. We also adopted a series of selection criteria (Khatri et al., 2016) to account for GPS measurement errors. We are interested in understanding the popular scooter trip origins and destinations through trip aggregations and associate dockless scooter trip patterns with underlying sociodemographic and built environment characteristics at the meaningful census tract level. Average income, age, education level, and race are considered important factors to explain scooter share popularity. In addition,

population and employment density, accessibility to public transit, biking facilities, accessibility to amenities (parks, schools, stores, etc.) and historical landmarks also significantly impact scooter popularity and scooter trip purposes.

Preliminary GIS analysis and regression results show that the spatial distribution of dockless scooter trips heavily concentrate at downtown and National Mall areas in Washington D.C. In addition, access to Metrorail (subway) station can explain peak hour scooter usage. While dockless scooters are required to cover low income neighborhoods in Southeast D.C. (Anacostia and Benning Road), activity level remains low in these neighborhoods. With the results from this study, we hope to provide insights to DDOT policymakers, who are evaluating the dockless bikeshare/scooter-share program, especially on its equity impacts on mobility.

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Key Words: scooter share, dockless bikeshare, GIS, Equity

BENEFICIARIES EXPERIENCES WITH THE NCDOT BICYCLE AND PEDESTRIAN PLANNING GRANT INITIATIVE PROCESS

Abstract ID: 658

Individual Paper Submission

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RESEARCH QUESTION

In 2004, the NCDOT launched an ongoing grant program aimed at encouraging the creation of bike and/or pedestrian plans by municipal governments within the state. Such plans create an opportunity for local governments to formally identify a set of policies and practices aimed at improving non-motorized travel within their jurisdictions. Since implementation of the program, 193 municipal plans have been selected and funded through the annual matching grant. Previous research has looked at the adoption of bike and pedestrian plans in North Carolina, along with the NCDOT's program influence on their development. This paper seeks a deeper understanding of beneficiaries experiences with the North Carolina Department of Transportation's (NCDOT) Bicycle and Pedestrian Planning Grant Initiative program through qualitative interviews. The overarching research question is "How do program beneficiaries experience the process associated with the grant initiative?"

RESEARCH METHOD

In order to obtain a more comprehensive assessment of the degree to which the NCDOT program has influenced bike and pedestrian planning, we conducted a series of interviews with municipal employees directly involved in creating or implementing a bike or pedestrian plan. Interview requests were accepted by representatives from 11 randomly selected municipalities that had received funding from the NCDOT grant program to implement a bike or pedestrian plan. Interviews were structured around a fixed set of questions focusing on the beneficiaries experiences with the grant process, as well as their experiences developing their plans. Through these interviews we seek to gain an understanding for which part of the program works well and where improvements could be made.

PRELIMINARY FINDINGS

Preliminary findings show an overall positive attitude towards the program where the application process was described as easy, streamlined, and very smooth by six of eleven grantee respondents. Three (3) said that the application process was average, okay, or “fairly smooth.” The remaining two (2) respondents were not personally involved in the process, and said that they could not comment. The grant was described as “crucial” and “vital” to ten (10) of the eleven (11) granted communities, who all stated that their municipalities would not have developed their bike/pedestrian plans had they not been awarded the grant. Two main areas for improvement included increased flexibility from NCDOT (1 respondent), and more assistance with implementation (3 respondents). One respondent reported that they would have, “in hindsight, made the plan less ambitious in its scope. This would again help bridge the gap between planning and implementation, by making projects more feasible and affordable.”

RELEVANCE

Program evaluation help assess how effective a specific program is in meeting the goals of the organization administering the program, but for the purpose of this study, it allows the researchers to gain an understanding for how effective the program is in meeting the goals and needs of the beneficiaries. The findings from this study could be used to further encourage bike and pedestrian planning by unveiling areas beyond financial assistance that could provide valuable guidance in the creation of bike and pedestrian plans. Providing assistance beyond monetary aid might result in an increased adoption of municipal bicycle and pedestrian plans.

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Key Words: bike plans, pedestrian plans, intergovernmental grants

MORE FREIGHT VEHICLE CRASHES ON CITY STREETS IN RESIDENTIAL AREAS: WHY AND TO WHAT EXTENT? A CASE STUDY IN THE DALLAS-FORT WORTH REGION

Abstract ID: 667

Individual Paper Submission

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Over the last decade, the spatial distribution of freight activity has changed substantially. At the global level, freight and logistics practices have been restructured in terms of how goods are produced, distributed, and stored through globalized supply chains. At the metropolitan level, freight vehicles make significant volumes of online shopping delivery to residential locations. Online shopping sales have increased by 15% annually over the past years. USPS delivered 5.1 billion packages nationwide in 2016, an extensive increase from 3.1 billion in 2010. Freight activity generates disproportionate negative externalities in urban areas. Trucks constitute 7% of urban traffic but generate 17% of congestion costs in terms of delays and fuel consumption. Truck-involved vehicle crashes tend to have higher fatality/severity. The cost of vehicle crashes exceeded that of congestion in urban areas. With the changes in logistics and shopping behavior, we expect more freight activity and negative externalities (i.e., vehicle crashes) in residential areas. Hence, this is a transportation-planning problem worthy of in-depth research.

Factors (user, vehicle, network, devices/road design, flow, and the built environment) associated with vehicle crashes have been examined rigorously. To be specific, the association between the built environment and the vehicle crash patterns has been theoretically and empirically tested. The built environment influences passenger travel behaviors (mode, speed, frequency, and distance), and the travel behaviors influence crash frequency and severity. Contrarily, there is no established theory behind the connections between the built environment, freight travel patterns, and freight crashes. The scarcity of research is partly due to the proprietary nature of freight activity. Primarily, commercial shippers/carriers fulfill freight shipment, and they treat vehicle activity data as a trade secret. Rather, scholars in engineering and operations research have examined the operation/optimization aspects of freight activity. In planning, one paper by Giuliano et al. (2018) proposed the “freight landscape” framework to explain freight activity (zone-level VMT) using the proxies for freight supply (access to transport infrastructure) and demand (land use characteristics).

In this paper, I use the freight landscape framework to examine the factors that explain the changes in the spatial distribution of freight (trucks and vans) crashes from 2010 to 2016 in the Dallas-Fort Worth (DFW) region. I focus on the crashes that occurred on city streets and exclude all highway crashes. The DFW region is one of the largest and rapidly growing US metro areas (+7.7% population and +14.9% employment from 2010-2016) and has a diverse, dynamic, and polycentric urban form. Its characteristics make the region an appropriate place to examine the factors for the changes in the spatial distribution of freight crashes over time. I use the TXDOT Crash Records Information System (CRIS) for the detailed information of vehicle crash records at the person, vehicle, and crash level. I test two models: 1) 2016 cross-section using hierarchical linear modeling and 2) 2010-2016 time-series using random effects panel model. I use two dependent variables (crash frequency and severity as the number of people killed/injured) and multiple explanatory factors (the combination of population and employment density quartiles, distance to the nearest airport, intermodal terminals, and highways, categorical variables for rapidly growing logistics industry zones, median household income, and the relative sector diversity measure). The unit of analysis is a one-square-mile hexagon (N=2,262).

Preliminary findings are 1) the frequency and the number of people killed/injured in freight crashes are increasing but spatially disproportionately, 2) spatial/temporal patterns of truck crashes differ from those of van crashes, and 3) changes in van crashes are associated with rapid residential/employment

development; truck crashes with logistics development. Further research is required to understand the factors that contribute to more freight crashes in residential areas.

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Key Words: Traffic safety, Built environment, Truck-involved crash, Hierarchical linear modeling, Random effects panel model

TRANSPORTATION NETWORK COMPANIES IN TRANSIT DESERTS: IS RIDE-HAILING SERVICES A SUPPORTIVE SOLUTION?

Abstract ID: 670

Individual Paper Submission

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The applications of ICT in transportation facilitates the availability of vehicles in anytime and anywhere for people by using an online interface, without the necessity of owning a private vehicle (Circella and Mokhtarian, 2017). Transportation network companies (TNCs) offer modes of shared mobility that enable passengers to access transportation in short-time using smartphone applications to book a ride directly from the private car owners (Shaheen et al., 2016). Although there has been growing research on ride-hailing travel behaviors in literature, there is no empirical evidence on travel patterns resulted by on demand ride services in transit desert areas where no other transit option is available (Jiao, 2017).

The main goal of this study is identifying whether ridesourcing services have the potential to address the demand of transit-dependent residents in transit desert areas. To fulfill this, we explore ride-hailing behavior of residents in Arlington, Texas as the largest city across U.S. without a mass transit system. To explore ride-hailing decision making, we conduct an intercept survey (n = 350) and collect a vast range of data on various factors influencing individuals' ride-hailing trip frequency. We examine the frequency of on-demand ride services through two different transportation network companies (TNC's) including Uber/Lyft as ridesourcing and Via as ridesplitting services. Via is an app-based, on-demand rideshare service which has been implemented in Arlington through a subsidized pilot program since 2017.

Our conceptual framework accounts for all major determinants of ridehailing trip frequencies including the technology adoption, attitudes, ridesourcing attributes, the most frequent travel mode, residential

attributes, land use characteristics at most frequent trip pickups and drop offs and socio-economic attributes. Using ArcGIS, we derive land use measures including population and employment density, land use diversity and destination accessibility in frequent origins and destinations for ride-hailing trips. Residential attributes are also explored as a proxy for the built environment. Utilizing Structural Equation Models (SEM), this study counts for direct and indirect interrelations of key variables and total effects on ride-hailing trip frequencies.

Our findings confirm the significant role of built environment features on ride-hailing demand. We find that unlike ridesplitting trips by Via that usually begin in downtown areas, ride-hailing trips by Uber/Lyft are often originated from outlying suburban neighborhoods with lower densities. The results also support the robust effects of attitudes on demand for ride-hailing trips.

These findings suggest that on-demand ride services, if planned adequately through public-private partnerships, have the potential to be a feasible and cost efficient substitute to traditional fixed route transit options particularly in low density suburbanized areas (Jin et al., 2018). Our results can provide new insights for policy makers and local governments considering whether transit desert cities could shed the high cost and unprofitability of running fixed route transit services such as bus and subway through conversion to app-based, on-demand shared systems. This study is one of the first comprehensive investigations on determinants of ride-hailing services in a transit desert area which controls for both subjective and objective set of determinants.

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Key Words: Transit desert areas, Ridesourcing, Ridesplitting, Built environment, Attitudes

DEVELOPMENT OF A LATENT CLASS VEHICLE OWNERSHIP MODEL FOR THE STATE OF GEORGIA

Abstract ID: 671

Individual Paper Submission

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Central theme:

Vehicle Ownership (VO) has continued to increase in the US over the past few decades, with the latest national data indicating that the rate of increase in VO is outpacing that of the number of drivers in the adult population by 50% (McGuckin & Fucci, 2018). This trend provides a compelling case to examine the factors associated with VO as it has wide-ranging implications that include traffic congestion,

environmental impacts, and road safety. Investigating VO is also of critical importance as household vehicle ownership (and vehicle availability for household members) plays a central role in affecting travel demand patterns and travel mode choices. As a result, travel demand modelers have sought to incorporate a VO component in most recent travel demand forecasting modeling frameworks (e.g., four-step or activity-based models). The Georgia Statewide Travel Demand Model (GSTDM), to date, does not incorporate such an important element in its trip generation step. Our aim in this study is to estimate a practical, yet state-of-the-art, VO model to be incorporated into the statewide TDM.

Method:

We use the latest National Household Travel Survey (NHTS 2017) to estimate factors associated with VO at the household level in Georgia. Previous studies in the literature show that the most common approaches to estimate vehicle ownership include count models (e.g., Poisson/Negative Binomial regression), discrete choice models (e.g. Multinomial Logit/Probit), and ordered regressions (ordered Logit/Probit) (Anowar, Eluru, & Miranda-Moreno, 2014; Zegras & Hannan, 2012). Few of such studies, however, actively account for the heterogeneity inherent in VO ownership. Accounting for such heterogeneity not only helps explain a greater portion of the variance in the data, but it also allows better estimate how various factors influence VO among various groups of travelers. In this study, we apply a latent-class approach to simultaneously account for heterogeneity in the households and investigate the factors explaining household VO for each probabilistic class. The advantage of such approach over other deterministic segmentation methods (e.g. Cluster analysis) lies in the probabilistic (soft) assignment of households to classes in addition to the simultaneous estimation of the class membership and their associated regression models, effectively diminishing the estimation error when compared to the alternative two-step estimation methods.

Findings:

The Georgia portion of the NHTS data contains roughly 8,600 households (including the add-one portion of the dataset funded by the Georgia DOT), with a weighted average vehicle ownership of 1.97 per household. Our preliminary analysis shows that socio-demographic variables such as household income, household life cycle, household size, composition, and race, in addition to built environment indicators are all significantly predictors of household VO. Moreover, probabilistically clustering the sample into two groups improves the goodness of fit of the model by more than twofold. The results also indicate that the estimated effects of the explanatory variables significantly differ across classes. We further plan to detail and examine the classes and conduct a cross-validation on the final model. In addition, this study will develop a sensitivity analysis with respect to key demographic and built environment variables.

Relevance:

This study offers a practical, yet state-of-the-art, approach that may inform planners and policy makers on the factors affecting vehicle ownership and help assess the impact of relevant policies on vehicle ownership across the state of Georgia.

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Key Words: Travel demand forecasting model, vehicle ownership, heterogeneity, latent class models

VARYING INFLUENCES OF THE BUILT ENVIRONMENT ON HOUSEHOLD TRAVEL – A FOLLOW-UP STUDY OF 35 DIVERSE REGIONS IN THE UNITED STATES

Abstract ID: 672

Individual Paper Submission

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Intervention in the built environment can potentially moderate travel demand. Five D variables have been identified as critical factors that explain how built environment impacts travel choices— density, design, destination, distance to transit, and destination accessibility. With increasing values of Ds (except distance to transit), the cost of traveling by alternative modes decreases and thus mode shift happens. The travel outcomes of supportive built environments are vehicle miles traveled (VMT), transit use, walking, and biking (Ewing & Cervero, 2010).

Existing literature lacks external validity due to the limited study area and inconsistency in models and metrics. This research addresses the problem by pooling household travel survey and built environment data from 35 diverse US regions. It is a follow-up study of a previously study with some major updates (Ewing et al., 2015). First, this study increases regions from 15 to 35, which will make the results more generalizable and improve the external validity of the results. Second, this study updates a few previous regions and all of data are within last 10 years now. Third, the individual trips increase from 650,000 to over 1 million, which allow us to model bike trip generation, heretofore precluded by small samples of bike trips in individual regional household travel surveys.

Built environment variables are computed for three buffer width for each household— 0.25, 0.5, and 1 mile. Since regions may generate different travel pattern, we employed multilevel modeling (MLM) to isolate variance associates with data level (Raudenbush et al, 2010). MLM explains the variance of D variables at both household/neighborhood level (level 1) and regional level (level 2). We use a two-stage hurdle model to handle the problem of zero value for households with no VMT, transit use, walking, or biking (Greene, 2012).

Consistent with the previous study, D variables are expected to influence household trips, however, at different proportions. The model will also explain factors that influence decision to use alternative modes as well as those that effect the frequency of use. Using results from different buffer zone, we will identify the buffer width with most predictive power for travel analysis. Additionally, with larger sample of regions in this study, we will expect to see the improvement from the previous study by having more

significant variables at regional level. We also have much more bike trips which will result to find more built environment variables that affect bike choice.

Some planning application of the resulting models are climate change action, health impact assessment, and traffic impact analysis. Analysts can plan project low-carbon future by estimating VMT, increase active transportation by change D variables, and assess trip generation with regard to the density and environmental attributes.

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Key Words: household travel, D variables, trip generation, multilevel modeling

‘STICKY FLOWS’ AND ‘PRODUCTIVE FRICTIONS’: HO CHI MINH CITY’S STREET LIFE EXPLAINED BY MOTORBIKE MOBILITY

Abstract ID: 686

Individual Paper Submission

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The normative idea that streets should be ‘for the people,’ and not ‘for cars,’ is at the core of western-based discourses on street design and urbanism, sustainable mobility and accessibility, and integrative public spaces. Such premise has crystallized an antagonism between traffic flows and street life. Habermas himself, in a side note of his seminal work on the public sphere, observed that the “technical requirements of traffic flows” impede “public contacts (...) that could bring private people together” (1991). Indeed, the conventional approach considers that motorized mobility prevents the formation of streets as active and inclusive public spaces.

In a context where motorized scooters and small motorbikes meet the mobility needs of 83% of the population, the case of Ho Chi Minh City (HCMC) demonstrates that a relentless flow of private motorized vehicles is compatible with a vibrant street life. A few geographers and urban scholars have rigorously explored HCMC’s sidewalks and alleyways as true public spaces supportive of communal bonds (Drummond, 2000 ; Gibert, 2014 ; Kim, 2015). However, existing literature has overlooked the role of everyday mobility practices in explaining street life. How does the prevalence of motorbike mobility relates to HCMC’s vibrant street activity? What are the mechanisms explaining this relationship? What are the implications for transportation planning?

In answering these questions, this central dissertation chapter builds on evidence collected in fall 2018 during five months of fieldwork. In addition to participant observations of street life, in-depth interviews were conducted with 32 urbanites of all walks of life about their mobility practices, 36 complementary

interviews with informal street vendors and conventional retailers, and 200 video recordings of both street activity and traffic flows on 20 different street segments.

The relationship between mobility and street activity is made evident by street vendors and conventional retailers' tactics to intercept the motorbike flow. The way they use sidewalks and the outside lanes closest to the curb make it possible for motorbike drivers to stop on a whim and buy something on the go, or to park and sit down while enjoying a meal on the spot. Such interactions are permitted by the small size and light weight of the vehicle they use. Furthermore, vendors and retailers' livelihood depends on the ease with which street users perceive their presence in the built environment, where the motorbike is conducive to an unmediated experience of the street environment, without a windshield to tamper the sounds, smells, and visual perceptions of its affordances.

Two mechanisms have been identified to articulate traffic flows and street life. First of all, motorbike traffic in HCMC is qualified as a sticky flow, characterized by a rather low speed, a certain thickness (or density of street users on the move), and a propensity to seep through the banks of the road bed, in and out of the sidewalk space. Beyond motorbike mobility, pedestrian mobility can be seen as the stickiest type of flow and car mobility the least sticky. Second, productive frictions occur as sticky flows traverse the built environment, thus participating in the social production of street spaces. Productive frictions enable social interactions and economic transactions constitutive of street life. They support a network of mutual connections, a sense of community, thus explaining the quintessentially public character of the street. Finally, as transportation policies support a massive shift from motorbike- to car-mobility, i.e. from highly sticky to least sticky flows, thinking in terms of productive frictions outcomes can help anticipate the social and spatial implications of such mobility transition.

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Key Words: Mobility, Public space, Ho Chi Minh City

THE IMPACTS OF BUILT ENVIRONMENT AND SOCIO-DEMOGRAPHIC CHARACTERISTICS ON RIDE-SOURCING SERVICES

Abstract ID: 689

Individual Paper Submission

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Transportation planning is reaching a point where transformative innovations change the way we look at the future, in some ways making it less predictable than any time since the proliferation of the automobile. Imminent technological advances such as driverless vehicles have transportation researchers postulating how the current paradigm will adapt to the implementation of these new technologies within

the context of existing infrastructure. Even new innovations that have already been implemented are just starting to be understood. Ride-sourcing services or transportation network companies (TNCs) have made significant changes to the transportation system, essentially creating a new mode of transport with its own relative utility compared to the other standard modes.

It has been almost a decade since these services launched in the U.S. cities, and they have had huge impacts on the travel behavior of citizens. Recent studies have explored the impacts of socio-demographic characteristics of households and individuals such as income, level of education, and household size on ride-sourcing demand (Lavieri et al., 2018). However, little attention has been paid to the impact of built environment variables on these ride-sourcing services.

As with just about every other aspect of transportation planning, the use of ride-sourcing services is inextricably linked with the built environment. The “D variables” have now been well established in their ability to moderate travel demand, with Ewing and Cervero (2010) concluding that the combined effects of density, land use diversity, street network design, distance to transit, and destination accessibility are quite large on travel outcomes. The introduction of a new mode, ride-sourcing, creates a need to understand how the built environment interacts with this mode. To our knowledge, only one study (i.e., Yu & Peng, 2019) has investigated this relationship, and the authors used RideAustin data – the only available TNC in Austin, TX, during the 2016-2017 period.

In this study, we investigate the relationships between various dimensions of built environment and ride-sourcing demand with an emphasis on examining the spatial varying patterns of such relationships. The analysis is based on the first and most comprehensive estimates of Uber and Lyft activity in San Francisco, CA, provided by the San Francisco County Transportation Authority. We acquired the most recent socio-demographic information of households from the American Community Survey (ACS) and Longitudinal Employer-Household Dynamics. We then computed all of the D variables using raw data from multiple sources.

The unit of analysis in this study is the traffic analysis zone (TAZ). Since there is a great spatial heterogeneity in the TNCs demand at the TAZ level, these data are likely to violate the basic assumption of regression models that residuals are independent of each other and randomly distributed (i.e., homoscedastic), resulting in biased inference of regression coefficients. We, therefore, use spatial autocorrelation models including Geographically Weighted Poisson Regression and spatial error model.

The findings of this study suggest strong relationships between ride-sourcing demand and built environment variables, especially in terms of activity density and intersection design variables. Also, the results demonstrate significant spatial variations of the effects of both built environment and socio-demographic variables and geographic trends from one TAZ in the central business district of the city to another TAZ in a suburban neighborhood. Overall, these findings suggest that built environment factors have significant impacts on ride-sourcing demand.

This study provides useful insights for understanding ride-sourcing use as a function of built environment and has important implications in the policy and planning practices for transportation planning, demand modeling, and urban governance. For the urban planning and design practices, this study suggests that higher TNCs demand occurs as built environments become more dense, connected, and transit-served.

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Key Words: Ride-sourcing Services, Transportation Network Companies, Built Environment, Travel Behavior, Spatial Autocorrelation

THE EFFECT OF HIGH-SPEED RAILWAY IN URBAN SHRINKAGE

Abstract ID: 692

Individual Paper Submission

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Sixty percent of China citizens live in urban areas, but most of China's population is concentrated in coastal regions. Chinese megacities have all undergone extensive physical expansion over the past four decades. However, some Chinese cities have witnessed a loss of urban population. The government has been well argued that transportation improvement can produce real effects on the regional economy. Therefore, the extensive expansion of the Chinese High-Speed Railway (HSR) network, the government want to has greatly increased the mobility of people across cities, thus affecting the spatial redistribution of the urban population in China. Nevertheless, the development potential of each city depends on its many kind of basic conditions. Some midsize cities differ from their larger counterparts, some time HSR connection does not promote population growth. Some scholars used DID for analysis before, but the DID analysis mothod has a problem "Sampling bias" that sample of a population in which all participants are not equally balanced or objectively represented. It is systematic error due to a non-random sample. As explained earlier, the focus is on reducing the error caused by all participants are not equally balanced or objectively represented problem by Inverse-probability-of-treatment weighted(IPTW). In this paper, population and industries data are obtained from the survey of labor dynamics in census figures of China, and the relationship between the cities beside High-speed Rail and industrial population is evaluated by using Inverse-probability-of-treatment weighted(IPTW). The intended results is that the opening of HSR is a key factor causing further population loss in midsize cities by Inverse-probability-of-treatment weighted(IPTW).

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Key Words: Urban shrinkage, High-Speed Railway, IPTW

SHEDDING NHTS LIGHT ON THE RENAISSANCE OF SHORT DISTANCE URBAN TRANSPORT

Abstract ID: 699

Individual Paper Submission

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City leaders are increasingly challenged to reconcile many and emerging demands being placed on public streets. The demands from private cars, bikes and traditional public transit are now being met with micro-mobility options (bicycles, bike-share options, electric scooters (Lime/Bird), segways), and ride-sharing vehicles. These modes—largely not welcome on the sidewalks nor on city streets with cars—involve wheeled transport that is low-speed and used primarily for short trips. They have commonalities in the demographics of the users and the infrastructure needs to accommodate them.

The emerging modes, mainly bikes and scooters, are serving travel distances considered by many travelers to be too far for walking but shorter than having to “deal with” using transit or an automobile. Less than half of walking trips in American cities are more than one-half mile. On the other hand, nearly half of all trips by car (private or personal vehicles) in the largest metro areas in the US are less than 4 miles in length (the 50th percentile is 3.8 mile). Trips in this distance range—1/2 to 4 miles in length—have many options for mode of travel, including new offerings such as electric scooter, segway, and bike-share. These options may be used alone or in conjunction with other modes such as transit or private vehicle.

This investigation lies in uncovering salient characteristics of travel in urban areas for trips in this distance range using available data from the 2017 NHTS. Given that 90 percent of bike trips are between ½ mile and 4, their focus in this pursuit deserves attention. The 2017 NHTS captured 8,034 bicycle trips and another 257 trips coded as ‘scooter/skateboard’. To increase the sample for this analysis we combine bike + scooter, fully recognizing that only 3 percent are scooter. We explore the demographics of travelers, the characteristics of trips, and some of the available data on the context (such as density) in the largest US urban areas with populations greater than 3 million—as these are the environments with the bulk of adult bike trips and also scooter trips. The NHTS data allows limited but important differences in the characteristics of users and types of trips by bike to be identified.

Preliminary findings suggest that young men are twice as likely as other demographic groups to use bike/scooters (significant at the 90% confidence interval) and that while the majority of bike/scooter trips are for recreation and social purposes, a substantial portion are utilitarian (e.g., roughly one quarter of bike/scooter trips are for shopping and another quarter are for work). Increased density increases the per capita trip rate of bike/scooter travel. We reflect on the findings by commenting on their ability to address

salient dimensions related to short distance travel and other characteristics. We point to the value of policy solutions (e.g., providing increased roadway space) for modes that address this evolving phenomenon and are not accommodated well on sidewalks with pedestrians or in streets with cars.

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Key Words: short distance transport, bicycle, ride-share, micro-transit, accessibility

EVALUATING THE IMPACT OF BIKE AND PEDESTRIAN PLANS ON COMMUTING BEHAVIOR

Abstract ID: 706

Individual Paper Submission

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Central Theme:

This paper will examine the degree to which the adoption of stand-alone bike and pedestrian plans by municipal governments across the US influences bike and pedestrian activity within the adopting jurisdictions. More specifically, I seek to measure whether the share of workers commuting by biking or walking systematically increases after the adoption of a bike or pedestrian plan.

Approach:

Panel regression models will be estimated where the unit of analysis will be a municipal government repeated for each available year in the American Community Survey (ACS), which currently ranges from 2005 through 2017. The analysis will incorporate all US cities for which the one-year ACS data are available (those with population over 65,000). The dependent variable will be the percentage of workers that commute by walking or biking (separate models will be estimated for these two modes of travel) as provided in the ACS. The key independent variable will be whether or not the city has adopted a bike/pedestrian plan, and how long it has been since the plan was adopted. Case studies will also be conducted for outliers (those cases with high model residuals) to explore whether there are common elements among the plans that over- or under-perform the outcomes that the model would otherwise predict

Findings:

Data is currently being collected and compiled. Findings are expected to show how the percentage of bike and walk commutes increases (on average) during each year after the adoption of a bike or pedestrian plan.

Relevance:

Biking and walking are sustainable forms of transportation. They do not directly generate any carbon dioxide or other harmful emissions, they are inexpensive (both from the perspective of an individual traveler and in terms of the infrastructure costs), and they promote public health by engendering physical activity. Given the various benefits, it behooves planners to figure out ways to make non-motorized travel more feasible and more attractive. The creation and adoption of comprehensive bike/pedestrian plans ostensibly would serve this purpose. This research seeks to verify whether this plans can have a measurable impact on behavior.

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Key Words: bike plans, pedestrian plans, commuting

EQUITABLE ACCESSIBILITY AND NEIGHBORHOOD TRANSFORMATION THROUGH URBAN RAIL TRANSIT: A CASE OF PORTLAND, OREGON

Abstract ID: 717

Individual Paper Submission

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Access to good public transit for low-socioeconomic communities has been an important concern in transportation planning and urban studies research. In Portland, Oregon, USA, the rapid growth of housing prices and rents in the urban core has caused displacement of low-income residents to peripheral and suburban neighborhoods where housing is more affordable. Because public transit is generally more limited in the urban periphery and suburbs, there is concern that the low-income suburban residents may have more limited access to Portland's light rail transit service than more affluent residents do. This study examines the relationships between the light rail transit accessibility and socioeconomic status—income, race and ethnicity—in the Portland metro area. Light rail transit accessibility is compared for all income and racial/ethnic groups across four access zones. Multinomial logistic econometric models were used to measure likelihood differences of being in different access zones between each demographic group. The results show that there is no significant barrier for low-income and racial and ethnic minority residents to access urban rail transit in Portland. The results suggest that despite low-income residents' movement to the suburbs, Portland's urban rail transit system continues to serve all residents by providing cohesive connections between the urban core, periphery and suburbs.

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Key Words: Urban rail transit, Accessibility , Equity, Urban regeneration, Socioeconomic status

WILL MILLENNIALS DRIVE LESS AS THE ECONOMY RECOVERS: A NATIONWIDE LONGITUDINAL STUDY

Abstract ID: 720

Individual Paper Submission

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The term “Millennials” broadly refers to those born in the last two decades of the 20th century (Pew Research Center, 2018). Since 2015, Millennials have been the nation’s largest living age cohort as well as the largest generation in American history (Myers, 2016). The declining automobility among Millennials has become a great hope for the realization of our vision of sustainable mobility (Pew Research Center, 2018). Recent studies offer two competing but not mutually exclusive explanations as to why Millennials may be driving less (McDonald, 2015; Delbosc & Ralph, 2017). The first explanation views this driving downturn as a result of the shifts in American attitudes and values, especially moving away from the “car culture” to “multimodality”. The second explanation emphasizes the effects of economic and situational factors. The Great Recession lasted from 2008 to 2009, and had a much stronger influence on Millennials than other age cohorts.

This study contributes to the literature by analyzing the determinants of young adults’ driving distances based on four types of trip purposes: work-related, shopping, running errands, and social and recreational trips. We use the travel diary data from the three most recent nationwide travel surveys in the United States: 2001, 2009, and 2017 National Household Travel Surveys (NHTS). We adopt seemingly unrelated censor models to explore the determinants of young adults’ driving distances by four types of trips purposes, accounting for travel budget constraints of the survey day. We shed light on the generational differences by adding interaction terms created by the survey years and our factors of interest. These factors are: (a) household income, (b) household vehicle ownership, (c) residential location choice, (d) household structure, and (e) presence of children. We adjust household income and vehicle ownership data by household size. We conduct scenario-based simulations to explore the extent to which our factors of interest affect Millennials and Gen Xer differently based on the regression estimates.

We find that as the economy recovers, the driving distances of young adults for social and recreational journeys eventually returned to the 2001 level in 2017. However, Millennials do drive fewer miles for work, shopping, and errand trips as compared to the preceding generation. The analysis results reveal that as personal wealth increases, Millennials will not drive as much as Gen Xers do. Although Millennials are more sensitive to the changes in the number of household vehicles per person and residential density, they tend to have shorter driving distances in any condition *ceteris paribus*. The results also suggest that after certain lifecycle milestones (e.g., living independently and having children), the observed gap in driving distances for shopping and errand trips between Millennials and Gen Xers may decrease slightly. Still, Millennials will drive much shorter distances for both travel purposes than Gen Xers. In sum, we infer that a steady car culture shift should largely explain the declining automobility among Millennials.

The research results are crucial as we plan for the future. This study identifies the changing relationships between economic and life-cycle conditions and younger generation's travel behaviors under social and cultural changes. The findings of this study can serve as a baseline for comparison to track changes in the future generations' mobility patterns.

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Key Words: Millennials, Driving Distances, Economy Recovers, Car Culture Shift

ALL ABOARD? BUS RAPID TRANSIT AS SPECTACLE AND SECURITY IN CLEVELAND, OHIO

Abstract ID: 729

Individual Paper Submission

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This study deepens understandings of infrastructure by highlighting the ways certain extra-technical dynamics are affixed to public projects in ways that reproduce injustice. Through an ethnographic and semiotic examination of the promotion, implementation, and current administration of bus-rapid transit (BRT) in Cleveland, Ohio, I develop the notion of “infrastructural excess” to better conceptualize aspects spectacle-creation and security practices which enable BRT to function as an economic development strategy. Specifically, I argue that rather than an urban mobility improvement, the primary goal of the project was to catalyze urban revitalization of the city's most economically and symbolically important street. What this analysis illustrates is not simply that the project privileges economic development interests at the expense of poor residents and transit riders, but rather, through its excess dynamics, the deployment of BRT infrastructure allows this privileging to occur in specific, unjust ways.

Infrastructures have long been understood to produce effects outside their primary technical, engineered purpose. In an influential study, Graham and Marvin (2001) consider infrastructures as facilitators of

social and economic development, with access to them (or lack thereof) functioning as a key marker of modern citizenship (Graham & Marvin, 2001). Recent scholarship has provided an even more expansive and nuanced portrait of infrastructure (Larkin, 2013). Such studies demonstrate the ways infrastructures exceed their primary form in purpose (they are political interventions as much as technical), meaning (they represent circulation and movement as much as they circulate and move things) and effect (they enhance and constrain opportunities for human action).

These understandings remain useful and important. However, my analysis seeks to further deepen understandings of infrastructure by highlighting the ways supplemental practices attach themselves to such projects, engendering effects which, in this case, reduce the utility of public transit for those who need it most. Examining the excess dynamics of spectacle and security operative in Cleveland's deployment of BRT highlights how public transportation infrastructure is used primarily as a strategy of economic development, and only secondarily as a mobility improvement.

By tying the project via spectacle creation to a desire for urban transformation, the BRT enables the securing and management of low-income residents and transit riders. But crucially, this happens not through increased law enforcement in communities of color constructed as 'risky' but by establishing new norms of everyday life in which essential mobility becomes monitored and policed. Crucially, this new norm ignores what Massey (1994) famously termed "power geometries" of the situation – i.e. that low-income residents and communities of color experience this monitoring and policing differently than whiter, wealthier and abler residents. By considering the deployment of BRT in Cleveland through the dynamics of spectacle and security I attempt to articulate ways that injustice is reproduced not only through the lack of infrastructure (Bullard, Johnson, & Torres, 2004) or too much infrastructure (Davis, 2003), but also through its excess.

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Key Words: Bus Rapid Transit, Policing, Infrastructure, Economic Development

RETIRED AND HEALTHY: LINKS BETWEEN WALKING TRIPS, RETIREMENT AND HEALTH.

Abstract ID: 732

Individual Paper Submission

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The increase in life expectancy and early retirement has led to the rising interest in the notion of aging well. The key to aging well is the maintenance of good health conditions, and continuing social interaction. However, the effects of retirement on health outcomes remain inconclusive because of the

variations in retirement experiences and daily lifestyles, such as food consumption and physical activity (Gallo, 2013). For instance, a research study from Norway reports retirement's positive impacts on health outcomes due to increasing physical activity and decreasing work-related stress (Syse, Veenstra, Furunes, Mykletun, & Solem, 2017). Researchers from US show the negative impacts of retirement, blaming the decreases in physical activity and social interaction levels (Dave, Rashad, & Spasojevic, 2006). While the findings on the resulting associations between retirement and health outcomes seem contradictory, their underlying determinants are consistent. Earlier research states walking can be a feasible alternative to provide mobility, and increase the physical activity levels of retirees (Langlois, Wasfi, Ross, & El-Geneidy, 2016). Within this consideration, we explore the effects of retirement on individual health outcomes accounting for one's socio-demographics characteristics, physical activity levels, built environment, and walking trips.

This paper uses the California Household Travel Survey (CHTS) data of 2017. This statewide travel survey includes extensive information on individual and household characteristics, and daily travel patterns. The analysis sample of this research consists of about 13,000 adults aged between 50 and 75. The respondents were asked to report their self-assessment of own health. They answered various questions on their socio-economic characteristics and participation in physical activities. The respondents also completed a single-day travel diary with detailed trip information. These data enable us to control for lifestyle and other factors while estimating the effects of retirement and physical mobility on health (Lee & Buchner, 2008).

We use a binary logit model to relate our variables of interest to self-assessed health status. We include three groups of independent variables: socio-economic characteristics, physical activity participation, and the frequency and duration of walking and bicycling (active travel) trips. The socio-economic factors cover variables such as income, education, age, and employment status. The physical activity participation related variables include level of physical activity (no activity, light, vigorous) in the past week and the types of physical activity (recreational, shopping, etc.) Lastly, the variables on active travel include the self-reported frequency of walking and bicycling trips in a week, and measured duration on the travel diary day. We also create interaction terms with our hypothesized variables and the retirement status.

The sample statistics show that retirees are more likely to self-report lower health scores, while having more frequent and longer walking trips as compared to full-time workers. The results of the multivariate analyses are consistent with previous studies in general. We find that socioeconomic factors, such as gender, education, and household income are significant determinants, and active travel is positively associated with health (Lee & Buchner, 2008), but age is not statistically significant. We find that outdoor recreational activities are positively associated with health. Importantly, the results show that the true effect of retirement on health depends on the self-reported number of walking trips in a week. Our results provide a better understanding of the effects of retirement and individual behaviors on health, and indicate the complex transitional characteristic of retirement.

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Key Words: Walking, Retirement, Health status, Household Travel Survey, Interaction effect

EMPLOYMENT CENTERS, WORKER RESIDENTIAL LOCATIONS, AND TRANSIT SUPPLY IN THE SAN FRANCISCO BAY AREA

Abstract ID: 756

Individual Paper Submission

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In California, per capita transit ridership has declined in recent years despite continued economic growth (Storper, et al., 2015) and increased public expenditures on transit (Manville, Taylor, & Blumenberg, 2018). Factors contributing to this ridership decline include rising vehicle ownership and the changing demographics of immigrants (ibid.). Ultimately, however, falling per capita transit ridership stems from transit's inability to provide convenient, safe access to destinations and services in dispersed, auto-oriented urban areas. Research interested in differential access across travel modes typically calculates and compares workers' spatial access to potential workplaces by car and by transit, with results almost universally pointing to the automobile's ability to provide superior access (Giuliano, 2005). This discrepancy between access provided by automobiles and access provided by transit is likely only to widen as jobs and households continue to suburbanize (Hu, 2015).

In this project, we explore the spatial relationship between places where workers live and work and areas of high-quality transit supply in the San Francisco Bay region of California. We first use Longitudinal Employer-Household Dynamics (LEHD) LODS data from the Bureau of the Census to identify major employment centers and worker residential locations in the San Francisco Bay area in 2002 and 2015. We separately examine the employment and residential locations of low-wage and high-wage workers. This process allows us to identify neighborhoods with significant numbers of workers, to determine the residential location of these workers, and to understand how both of these changed from 2002 to 2015. We then use data on transit service provision in the Bay area to identify areas of high-quality transit service. By comparing employment locations, worker residential location decisions, and transit service, we are able to examine relationships between potential transit demand and actual transit supply in the Bay region. We are also able to compare transit access between workers who work in employment centers and workers who do not.

Most workers have the choice to access their workplace by private automobile. To instead choose to use transit to access their workplace, workers demand quality transit access at both their home and workplace. By linking transit access to changing workplace and worker residential locations, we empirically demonstrate that most workers do not live AND work near high-quality transit. We also demonstrate that workers in some parts of the San Francisco Bay region- particularly portions in the west bay- are better able to access their workplaces using transit than workers in other locations. This in turn helps us explain transit's falling mode share in recent years. We thus demonstrate how insufficient transit access drives observed travel behavior; more broadly, we demonstrate a fundamental mismatch between California's fixed-route transit systems and its dispersed urban environments. By comparing areas of quality transit service with major workplace and worker residential locations, we identify promising areas for transit

service expansion. Finally, by providing additional evidence of the inability of transit to serve most workers' commute trips, we provide further justification for public subsidies aimed at improving the ability of low-income households to access automobiles.

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Key Words: commute, transit, employment, GIS

WHO IS THIS INFRASTRUCTURE FOR? IDENTIFYING MUNICIPAL STRATEGIES FOR CAV-READINESS THROUGH A TRANSPORTATION JUSTICE LENS

Abstract ID: 765

Individual Paper Submission

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With the long-promised transition to connected and automated vehicles (CAVs) accelerating and the public now joining technologists, planners, and officials in the debate on their value and impacts, intermediary measures likely will appear to address emerging needs in the transportation landscape. Cities, with their complex and adaptable systems and creative capacity, surely will adapt to these changes, but in doing so, run the risk of further limiting freedom of movement for users of non-car modes.

Innovation diffusion research suggests that, absent established guidance or best practices for critical or transformational processes, a minority of cities will emerge as leaders, experimenting with a diverse array of internally driven strategies. This exploratory research identifies and describes municipal CAV-readiness strategies of a set of leader cities. This is the first step in a multi-phase mixed-methods study that seeks to understand and eventually inform municipal CAV readiness strategies relating to physical design and use of urban infrastructure through a transportation justice lens. We focus particularly on intersections and the impacts of CAV-supportive design on the safety and mobility of non-CAV roadway users across spatial and sociodemographic contexts.

Central theme

With CAVs now widely predicted to become more prevalent on public roadways in the near future, shortcomings in current technology—particularly CAVs' interactions with pedestrians and bicyclists—may raise pressure on city and state DOTs to implement stop-gap or permanent infrastructure interventions to ensure the safety of all road users. Ensuring those adaptations protect both the safety and freedom of movement of non-CAV road users remains a critical concern. Rapid technological innovation coupled with weak communication from industry regarding the safety and performance of CAV

technology leaves the public sector with no empirically based guidance or best practices for supporting CAVs and non-CAV modes.

This research begins to address this gap by identifying and typologizing infrastructure interventions most likely to be implemented. Specifically, we ask: What sorts of design and/or policy changes to the urban transportation system are being considered or implemented in the interest of CAV-readiness by ‘leader’ cities? We focus on changes driven by municipal-level decision making at urban intersections.

Research approach

We use thematic analysis of key informant interviews, publicly available policies, and white and gray literature to identify a set of common strategies with implications for how intersection infrastructure will be designed, regulated, and used across modes. Drawing from previous research on how innovations diffuse across planning contexts in the absence of established guidance, we anticipate identifying a set of 25-30 study cities with active programs to support CAV testing and deployment through literature and media scans, snowball sampling, and querying attendees at relevant conferences (e.g., Safe Systems Summit, Automated Vehicles Symposium) about known or potential initiatives at the municipal level.

Implications for planning and scholarship

Our findings will address articulated and potential emerging concerns of local governments as they attempt to anticipate and prepare for changing transportation technology, travel demand, and state or federal mandates regarding CAV-readiness while maintaining safety and freedom of movement for users of non-car modes. This research will vet and catalog ideas and proposals put forth by cities at varying levels of CAV-readiness, and lay the groundwork for future work, such as:

- categorizing and describing how types of CAV-readiness correlate with urban characteristics,
- translating CAV-readiness strategies tested or proposed into hypothetical intersection redesigns, and
- rendering those intersection redesigns in formats appropriate for eliciting public input, in order to improve engagement and collaboration with the public on transportation system design during this critical transformational period.

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Key Words: connected and automated vehicles, innovation diffusion, transportation justice, infrastructure design, non-car modes

A MULTI-MODAL AND MULTI-FACETED ANALYSIS OF THE TRANSPORTATION POLICIES FOR THE ELDERLY: THE CASE STUDIES OF THE SELECTED U.S. AND INTERNATIONAL CITIES

Abstract ID: 769

Individual Paper Submission

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Population aging is the worldwide phenomenon. Different countries have different situations and thus have adopted different policies to cope with the elderly transportation issues.

In the U.S., the current interests in elderly transportation are on the rise due to economic, political, psycho-social, ethical-philosophical, and many other factors. Due to the diversity of elderly lifestyles, transportation modes, governmental transportation policies, and geographic settings of elderly residential locations and their socioeconomic characteristics, the elderly transportation issues and policies are extremely complicated, thus demanding multi-modal and multi-faceted approaches.

This paper conducts a social, economic, political, and technical analysis of the transportation policies for the elderly with an emphasis on the following issues:

First, how to provide paratransit services to the elderly in a more cost-effective way? This requires a thorough legal and economic analysis.

Second, how to improve coordination among specialized transportation service suppliers? This involves a political and institutional analysis.

Third, how to design and implement appropriate transportation policies fitting the diverse needs of different lifestyle groups of a metropolitan region? Local government needs to adequately identify local lifestyle groups, inventory the existing transportation services provided for these groups, and conduct deficiency analysis to address the unmet needs. Several methods will be used: socio-economic analysis, community survey, statistical clustering analysis, and travel demand forecasting and transportation technology analysis.

Several cities will serve as empirical cases for this study, including Richmond (Virginia) and Los Angeles (California) of the U.S., Suzhou and Shanghai of China, and selected cities in Asia and the Pacific Rim countries. Census data and other published data will be utilized in this study.

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Key Words: Transportation Policies for the Elderly, elderly lifestyles, paratransit services , specialized transportation , U.S.

CONVERTING ONE-WAY STREETS TO TWO-WAY STREETS TO IMPROVE TRANSPORTATION NETWORK EFFICIENCY AND REDUCE EMISSIONS

Abstract ID: 793

Individual Paper Submission

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Urban planning researchers have recently documented the benefits of converting one-way streets to two-way streets. Research indicates that two-way streets can improve network function (Gayah & Daganzo, 2012) and be safer and more livable than one-way corridors (Riggs & Gilderbloom, 2016). Urban designers have amplified this work to discuss the place-making value of slower and safer streets that support multimodal travel. However, it is less-understood how these conversions could impact vehicle kilometers traveled (VKT), fuel consumption, and greenhouse gas emissions (GHG). Given what is known about network performance, all of these factors could theoretically decrease as two-way streets allow for more direct routing.

We argue that a better understanding of one-way to two-way street conversions’ impacts on transportation network efficiency, travel, and pollution could provide a broader political and engineering argument for these projects beyond recent public health and economic development arguments. This research paper takes preliminary steps in this direction by estimating these impacts in a case study of San Francisco. We construct two models of the city of San Francisco’s drivable street network. The first (“as-is”) model preserves real-world one-way driving constraints, while the second (“as-proposed”) model treats every street as bi-directional. Next, we use CHTS home/workplace coordinates to produce a distribution of commute origins and destinations. We then simulate the 1.1 million daily trips that both begin and end in San Francisco on each of the two networks, and then compare the resulting trips.

The average trip in the directed network (with one-way streets) is about 1.25% longer than that of the undirected network (with all bi-directional streets). This difference is statistically significant at the $p < 0.001$ threshold. It is also practically significant: given the current real-world daily VKT patterns of trips that begin and end within the city, we estimate that the presence of one-way streets increases daily VKT by 56,000 km and in turn increases annual VKT by over 20 million km. This excess consumption of travel to accommodate one-way driving restrictions burns an extra 2 million liters of fuel per year, in turn releasing an extra 10.3 million pounds of CO₂ into the atmosphere—just for trips taken entirely within the city of San Francisco alone.

What does this mean to planning research and practice? First and foremost, these models provide a clearer, more holistic understanding of trade-offs planners face in roadway design (e.g. the cost of safer and more livable street design versus VKT, fuel consumption, and GHG emission reductions). A predominant assumption in roadway design over the past half-century has been that one-way streets offer more efficient traffic flow. While there are many theoretical models to account for driver routing, these findings demonstrate a fundamental inherent network inefficiency (with VKT/GHG ramifications) to one-way streets. One-way streets force cars to drive additional blocks, consume excess fossil fuel, and emit extra GHGs. While conversions have financial and political costs, they can provide small but quick wins for cities fighting climate change—a straightforward local policy and engineering shift with a climate-oriented benefit.

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Key Words: Climate Change, Network Analysis, Transportation Network, Two-Way Conversion, Urban Design

BUILT ENVIRONMENT EFFECTS ON THE ACTIVITY PARTICIPATION OF LOW-INCOME RESIDENTS WITH DIFFERENT SPACE-TIME CONSTRAINTS: A CASE OF GUANGZHOU, CHINA

Abstract ID: 795

Individual Paper Submission

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Suburban low-income residents' poor accessibility to services has evoked policies and planning to increase service provision in deprived areas. An examination of built environment effects on activity-travel behavior is necessary to assess whether the increase of service opportunities does enhance people's service access. Recent studies argue that the correlation between built environment and activity-travel behavior may differ by social groups (e.g., socio-economically advantaged and disadvantaged people) (Wang and Cao, 2017; Yang et al., 2017).

In this study, we hypothesize that the built environment-travel behavior correlation is moderated by the residents' different experience of space-time constraints, and certain subgroups may not benefit from the

service facility planning due to their rigid space-time constraints. As a construct developed from time-geography (Hägerstrand, 1970), space-time constraint is subjected to rigid space-time of daily activities (e.g., work and household duty) and travel mobility (Kwan, 2012; Ta et al., 2016). Based on the activity diary data collected in 2018 in Guangzhou, China, with 428 low-income respondents, we perform a quasi-experiment and compare a set of activity-travel behavior attributes (such as activity time use, trip count, and average distance of activity sites from home) of suburban and central-city low-income residents to model the effects of service density improvement on residents' actual activity participation, under different settings of space-time constraints. A propensity score matching approach is adopted to minimize the selection bias in the quasi-experiment.

Results show that, for those who originally experience few space-time constraints, their actual access to services and activities can be increased by improving neighborhood service density. However, for those who originally experience large space-time constraints, increasing proximity does not lead to better access to services and activities. This suggests that the built environment effects on activity-travel behavior are moderated by the space-time constraints of different social groups. Several disadvantaged social groups (e.g., low-income females and private-sector factory workers) have to utilize limited daily time to coordinate work and household responsibilities in various places and thus experience more space-time constraints. Such rigid space-time constraints on the disadvantaged respondents make them unable to visit the facilities during the opening hours, even if the facilities are very proximate to the respondents' residences. The moderator effect of space-time constraints in the built environment-travel behaviour association is further robustly evidenced by a moderated regression model.

These findings pose challenges on the conventional neighborhood planning that endeavors to enhance service accessibility in deprived areas. Many planning practices do not consider the diverse space-time constraints among low-income residents, and thereby overestimate the effectiveness of service density improvement while ignore that certain subgroups remain excluded from the increased services given their rigid space-time constraints. Therefore, conventional facility planning that treats the low-income residents as a homogeneous group may not lead to equitable outcomes. Rather, it may privilege the advantaged residents while reinforce the social exclusion of the disadvantaged ones in terms of accessibility.

This study has potential to inform planning scholarship and practices. Facility planning should address residents' unequal experience of space-time constraints. This may require adjustment of facilities' opening hours to make them available for these disadvantaged residents. Also, reducing the duration of working activities (at the workplaces) and home-based household duty can increase residents' maximum activity time at the service facilities. Therefore, policies that alleviating the burden of commute and work time are also applicable, such as encouraging flexible work hours, telecommuting and compressed workweeks. This study recommends that policy-makers apply these policies to enhance the space-time accessibility of the disadvantaged residents (e.g., low-income females) in the short term, and implement physical planning to increase facilities and promote self-containment of services in the suburban neighborhoods in the long run.

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Key Words: space-time accessibility, activity participation, propensity score matching, facility planning, urban China

INVESTIGATING TOOLS FOR EVALUATING BICYCLING COMFORT AND SAFETY

Abstract ID: 814

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Over the past two decades, transportation planners have been increasingly interested in utilizing bicycling performance measures to capture the effects of roadway infrastructure on bicyclists' comfort levels. Although the literature offers ample evidence on the environmental correlates of quality-of-service for bicyclists (Park and Akar, 2019; Wang and Akar, 2018), there is no consensus on how we should measure bicycle quality-of-service for roadways and intersections. There is also no consensus on what factors (roadway and land-use characteristics) to take into account as well as the relative importance of these factors in determining the final comfort levels. This study presents the advantages and limitations of various measures, such as Bicycle Level of Service (BLOS), Bicycle Compatibility Index (BCI) and Bicycle Level of Stress (LTS), using a robust framework, and develops a useful tool that will be applicable for evaluating current service levels as well as improvement opportunities on case applications in Ohio.

We begin with reviewing a variety of existing models at the national and local scales. After reviewing the existing academic literature and practice reports, we conduct interviews with various Ohio agencies in terms of their needs, access to model-specific required data and use cases. We found that most reported challenges were due to lack of data when it comes to critical model assessment characteristics. Based on our data assessment results and agency interviews, we find bicycle Level of Traffic Stress (LTS) has advantages over other methods in terms of manageability, data requirements, and customizability for case specific applications (Furth et al., 2018; Furth et al., 2016).

We extend the original bicycle LTS framework by formulating effective methods to deal with missing data. We design these methods based on Ohio's functional classification system and existing data on speed limits, traffic volumes and bicycle facility widths. Although these methods provide promising solutions and enable agencies conduct bicycle LTS analysis when critical data elements are missing (such as posted speed limits, traffic volumes, bicycle facility widths), we note that this approach may produce partially inaccurate assignments. For instance, our analyses based on the Mid-Ohio region show that in the case of missing road traffic volumes, as compared to analyses outputs with full data, our approach replicates the results with a 18.1 % mismatch in bicycle LTS score assignments overall. The mismatch percentage breaks down to a 9.5 % in urban areas and a 27.1 % in rural areas. Our approach to handling

missing data can help when collecting accurate data is not feasible due to time and cost considerations, and in cases where interim and temporary results may prove useful while acquiring these data.

Missing data when it comes to roadway and land-use characteristics is a critical issue at transportation planning agencies nationwide, and constrains system-wide thinking especially at the metropolitan and state levels. This study assesses the data requirements of various bicycle comfort measures, and develops detailed criteria for dealing with missing data issues and testing their validity through detailed sensitivity analysis. Although the applications and discussions are based on Ohio specific case studies, the methodology can be applied elsewhere.

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Key Words: bicycle level of service, bicycle level of traffic stress, bicycle comfort, safety

INFILL TRANSIT STATIONS: CASES AND LESSONS FOR THE FUTURE

Abstract ID: 817

Individual Paper Submission

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Infill rail transit stations are added along a rail line or set of lines between existing stations. Unlike new rail lines or extensions, they use existing railway infrastructure and services; only the station itself is added to the rail network, although in a few cases sidings may be installed. Infill stations have been built in several US cities and are increasingly proposed to fill service gaps and shape urban growth.

Infill stations can grow ridership in the short term by increasing rail accessibility (Brons et al., 2009). This can reduce vehicle miles of travel (VMT) and related impacts that might otherwise occur. Infill stations also may support and shape growth in the form of increased economic activity, infill development, or redevelopment and revitalization in the station area (Calthorpe, 1993; Cervero, 1998), further increasing access and ridership and reducing VMT. The increased ridership may require higher levels of service (larger trainsets, more frequent service) on the lines served, whose deployment can have positive effects elsewhere in the network.

Infill stations may be located in a core urban area, an area where land uses are transitioning, a low-density suburb, or a greenfield area between development nodes. Location strongly shapes the issues that an infill station will raise. These issues overlap, but include some issues are distinct from, those raised by transit construction and transit-oriented development projects along new lines. Costs of adding an infill station

vary widely. Existing activity centers and neighborhoods may be strengthened by the increased accessibility an infill station provides, but station-generated impacts such as traffic, noise, and light pollution can be negatives (Jones et al., 2014; Schlickman et al., 2015; Brons et al., 2019). New housing and economic development opportunities as – transit-oriented development -- can be substantial if there is a market for such uses in the location chosen, local government policies and community members support growth, and existing owners can expand or developers can secure suitable sites for new construction (Kockelman, 1997; Ratner and Getz, 2013.) On the other hand, economic opportunities can be limited if there is community opposition to growth (Frick, 2018), local policies are impediments, or there is limited interest in investing in the area from the business and development community (Deakin, 2019.) Unwanted neighborhood changes including displacement due to rising property values may be an issue (Bowes and Ihlanfeldt, 2001; Zuk et al., 2003.) Transportation level of service plays a role; lines with limited service will offer lower development potential than lines with high levels of service. Also, because adding a station involves added deceleration, dwell time, and acceleration time to existing trips, there is negative impact on existing riders due to the added stop; the magnitude of this impact depends on the infill station location and the ridership at that point along the line.

In this paper we assess the experience with infill transit stations in the Boston, Chicago, Washington, and San Francisco Bay Area metropolitan areas. Through document review, examination of news coverage, site visits, and interviews with key stakeholders, we review four infill stations: one built as part of a central city redevelopment plan, the second added to improve service to a low income urban neighborhood, the third in a former industrial zone of an inner suburb that is rapidly redeveloping, and the fourth in a greenfield area between suburban stations. We summarize station costs and ridership results and discuss the broader economic development, social impacts, and community and environmental impacts of each case. We also discuss the politics of infill stations. Based on our findings, we identify key issues that future infill station planning efforts need to consider.

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Key Words: infill transit stations, transit oriented development, social impact, environmental impact , politics

GOALS, DECISIONS, AND OUTCOMES: THE TENSION BETWEEN TRANSPORTATION AND ECONOMIC DEVELOPMENT WITHIN STREETCAR PLANNING EFFORTS IN FOUR U.S CITIES

Abstract ID: 821

Individual Paper Submission

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The streetcar has experienced a remarkable renaissance in the United States. The experience of Portland, Oregon has been a source of inspiration to many streetcar promoters. Portland's streetcar story is a complicated one, which combines transportation, land development policies, financial incentives, and a strong local real estate market, yet streetcar promoters in many cities have taken away a less complex understanding of this story which focuses largely on the purported ability of the streetcar to stimulate redevelopment. This paper considers how a city's perspective on the streetcar's role as an economic development tool, a transportation alternative, or a little of both, influences decision-making and thence performance. Using the experiences of four recent U.S. streetcar cities, all of which were inspired to varying degrees by Portland, the authors draw on the results of interviews with key local actors to find that cities that emphasized economic development but neglected the streetcar's transportation function made decisions that resulted in poor use of the streetcar and obtained less clear economic development results compared to cities that also emphasized its transportation role in their decisions.

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Key Words: Streetcar, Transportation, Economic Development, Policy, Planning

PLANNING TRANSPORTATION FOR SOCIAL INCLUSION: QUANTIFYING THE ACCESSIBILITY-ACTIVITY PARTICIPATION RELATIONSHIP FOR LOW-INCOME HOUSEHOLDS

Abstract ID: 823

Individual Paper Submission

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A basic function of urban transportation is to enable participation in daily activities. Nevertheless, transportation planning has historically focused on increasing mobility, reducing environmental impacts and improving traffic congestion, in lieu of policies that directly foster widespread and equitable participation in the broad range of daily activities. As a result, recent qualitative evidence from the Greater Toronto and Hamilton Area (GTHA) suggests that poor transit accessibility is responsible for reduced satisfaction and participation in essential daily activities such as employment, medical appointments, and leisure. This is especially concerning given that income distributions are increasingly polarized, and many socioeconomically deprived neighbourhoods are now within suburbs with low levels of transit provision, putting more than a million people at risk of transport poverty

This research, couched in the transport and social exclusion framework and making use of travel behaviour modelling, explores the relationship between transit accessibility and out-of-home activity participation in the GTHA. The paper consists of novel spatial analyses of a large-sample travel diary dataset, and presents new transport-geography concepts such as participation deserts and empirical rates of substitution between transport accessibility and activity participation, differentiated by socioeconomic profile.

Focusing on low-income and carless populations, we seek to improve our ability to predict and value the activity participation gains that may occur with improvements made to public transit. We find that the participation gains among marginalized groups are far greater than among the affluent. Furthermore, we find that these participation gains are far more valuable than traditional measures of project benefits, such as the value of travel time savings. In turn, this supports a reformulation of business-case appraisals of transport projects that can explicitly value the benefits of increased accessibility through measures of social inclusion.

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Key Words: accessibility, participation, trip generation, justice, social exclusion

EXPLORING THE STRUCTURAL RELATIONSHIP BETWEEN MOBILITY, URBAN FORM, AND COMMUTING OUTCOMES: APPLICATION OF THE GOOGLE MAP API IN U.S. METROPOLITAN AREAS

Abstract ID: 836

Individual Paper Submission

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During recent decades, the relationship between urban form and commuting outcomes such as commuting distance, time, or mode choice has been extensively examined by several studies (Ewing & Hamidi, 2015). Although Stevens (2017) recently reported that compact development may not actually reduce driving, most studies agree that people residing in sprawled urban areas are more likely to commute by driving longer distances. Meanwhile, transportation mobility has been also regarded as one of the main determinants of commuting behaviors, while Camagni et al. (2002) referred to a “mobility impact.” However, the impact of transportation mobility on commuting outcomes has been overlooked by researchers largely based on the notion that urban form and transportation mobility levels are intertwined (Newman & Kenworthy, 2015; Ewing et al., 2018). Although it is true that urban form and transportation mobility levels are intimately associated, it is still unavoidable to examine the relationship between mobility levels and commuting outcomes.

The objective of this study is to explore the structural relationship between mobility levels by transportation modes, urban form, and commuting outcomes in 206 U.S. metropolitan areas. Followings

are the research questions of our study. First, in which degree is the urban form and mobility levels by transportation modes associated? By answering this question, we expect to understand, for example, whether higher transit mobility is unattainable in sprawled areas. Second, while controlling the impact of urban form, in which degree is the mobility levels by transportation modes associated with commuting outcomes? Through this research question, we explain whether additional transit investments in sprawled areas can modify people's commuting behavior. Finally, how does mobility levels and urban form associate with the commuting mode, time, and distance? Referring to the question, we exposit the commuting outcomes of the U.S. metropolitan areas in the aspects of both local and regional scale.

Data and methodologies are as follows. First, we employ the 2016 Census Transportation Planning Package (CTPP) dataset, which is recently released. Based on the data, we compute the average commuting outcomes for our study area for both the local (census-tract) and regional (metropolitan statistical area) scale. Second, we measure the local and regional urban form by applying the relevant index provided and applied in previous literature. The rationale for using the index from previous studies is to avoid any biased results which can occur by using unverified measures. Third, we compute the mobility levels, in terms of travel time and cost, for both driving and transit in commuting peak-hours by using the Google Map API service. Finally, we construct a structural equation model which can account the interrelationship between mobility, urban form, and commuting outcomes. Based on the regression results, we identify and answer to our research questions.

Main findings derived from our study are as follows. Urban form and mobility levels by transportation modes showed robust relationship regardless of scale. Based on this result, it seems that urban form and transportation mobility are intertwined, further making it difficult to change people's commuting behavior without altering the urban form attributes. However, referring to our structural equation model, the results suggest that enhancing the transportation mobility for local areas can still contribute to changing the commuting behaviors. Besides, the results reveal that urban form and transportation policies for changing people's commuting outcomes may work independently on a certain degree. This finding indicates that planners should not overlook the fact that policies relevant to transportation mobility are also a significant option for reducing driving and commuting distance as well as time. Furthermore, our study suggests future works in terms of analyzing whether the changes in mobility levels alters people's commuting outcomes.

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Key Words: transportation mobility, urban form, commuting outcomes, Google Map API, structural relationship

NEW TECHNOLOGIES AND PARATRANSIT SERVICES: IMPLEMENTATION ISSUES

Abstract ID: 859

Individual Paper Submission

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The ability to perform daily activities such as going to work, going shopping and to appointments, participating in community meetings, and seeing friends and family requires that we be able to "get around." For those who cannot or choose not to drive, public transportation often provides mobility. However, for a variety of reasons, some members of the public are unable to use transit – for example, they may have difficulty navigating the system or they may have difficulty getting access to it. Paratransit services and taxicabs have long been an important source of transportation for these individuals (Kirby et al., 1974; Roos and Altshuler, 1975; Wilson, 1976; Lave and Mathias, 2000). These services come in a variety of forms, many designed for a specific submarket. They include specialized paratransit vehicles and services for individuals certified as meeting criteria established in the Americans with Disabilities Act (ADA), vouchers for the use of wheelchair-accessible taxis and vans for rides that are beyond the scope of services provided by paratransit, subsidies for taxicab rides returning from health-related appointments, rides to school and after-school activities for preschool, elementary and middle school children, demand-responsive services in areas with a thin market for transit, employer-sponsored journey-to-work services, transit access services, shopper shuttles, and specialized services for older adults. Eligibility for these supplementary services varies widely, especially for those targeting particular age or income groups or trip purposes or those intended to transport particular users.

Today, widespread ownership of computers and smart phones, the rise of transportation network companies and the field testing of driverless vehicles is raising many new possibilities for future transportation (Deakin et al., 2010; Anderson et al. 2014), although the operational details remain largely speculative or are still at the field testing stage (Meyer et al., 2017; Masoud and Jayakrishnan, 2017). Among the many options being proposed are new options for paratransit (Harper et al., 2016). For example, there is interest in including transportation network companies such as Uber and Lyft in paratransit programs for older people and people with disabilities, but vehicles and drivers are not necessarily capable of providing needed assistance (Koffman, 2016), and a user-side barrier is that some clients lack smart phones and don't have a credit or debit card. Likewise, there is interest in using driverless (automated) vehicles for shopper shuttles, as campus circulator systems, and for first and last mile services connecting employment centers to transit stations, but there also are concerns about vehicle safety, exposure to crime, and potential for vandalism (Salonen, 2018). Transportation for children raises additional opportunities and additional concerns (Rosenbloom, 1987; McDonald et al., 2010). While planners are working to overcome barriers, e.g., through concierge services that handle the transactions for paratransit users, or through sensors and monitoring programs (De La Torre et al., 2016), relatively little is known about consumer acceptance or costs.

This paper examines the implementation issues that arise in introducing emerging technologies into paratransit services. The paper is based on our review of the scholarly and professional literature, interviews with experts, service providers, and transportation decisionmakers, and two stated preference experiments we have carried out with potential users of the services. One stated preference experiment focuses on travel of people with disabilities and the other focuses on children's travel. The analyses

explore such issues as access to needed technology, willingness and ability to use new technology or permit others in one's care to do so, and concerns about safety and security.

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Key Words: paratransit services, new technologies, transportation network companies, driverless vehicles, implementation

TRANSIT ACCESS EFFECTS ON EMPLOYMENT AND POVERTY IN LEGACY CITIES

Abstract ID: 874

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Legacy cities were once economic powerhouses, fueling urban growth across the Midwest and Great Lakes region. Built around streetcar lines these cities required a high level of population density to function. However, in the 21st Century these places have suffered significant decline and a socioeconomic hollowing out of downtowns, leaving high levels of poverty and low levels of employment in city centers. Transit has been demonstrated to have an effect on the development and the socioeconomic makeup of neighborhoods, however it has primarily been studied in the context of uniquely large cities, such as New York (e.g., Glaeser et al., 2008), and more recently growing cities such as Atlanta (e.g., Pathak et al., 2017). In the New York case, transit access was found to be a causal factor in the location of low-income households in the central city (Glaeser et al., 2008), as well as a driver of employment (Tyndall, 2017). In Atlanta, the expanding transit footprint was found to have a significantly positive relationship with the location of low-income populations (Pathak et al., 2017), but no effect on employment (Bollinger and Ihlanfeldt, 1997). These cases point to the heterogeneity of transit effects between cities. In the literature addressing the effects of transit on socioeconomic neighborhood change, the Pathak et al. (2017) Atlanta study is almost unique in its focus on the socioeconomic neighborhood effects of the bus. The vast majority of neighborhood transit effects literature is focused on rail transit infrastructure, which differs significantly from bus transit in a number of ways, not least of which is the significant difference in infrastructure required. The public rail infrastructure investment is capitalized in real estate values, causing increased housing prices, and potentially leading to gentrification. Since bus transit utilizes existing roads, only requires minimal additional infrastructure, and in the U.S. context buses are primarily

utilized by lower income groups compared to rail transit, bus transit may produce neighborhood effects that differ from rail transit. Thus, there may be heterogeneity in the effects of transit on neighborhoods by city and region, and transit mode.

Here, we tackle the effects of changes in public transit access on the Greater Cleveland region, exploiting the variation in the provision of transit service – both expansion and retraction of service - in the Cleveland region since the 1970s. Following the Pathak et al. (2017) Atlanta study, we utilize a fixed effects model and several matching strategies. We augment these models with a spatial analysis, which addresses potential spatial endogeneity. We find evidence of a positive effect of bus transit access on poverty and property values, in contradiction with previous findings in the literature. Our results meaningfully add to the literature in at least two ways. First, the transit literature is focused on rail transit, and the effect of bus transit on neighborhoods presents a large gap in the literature. We help to begin to fill that void. Secondly, we point to the heterogeneity between growing and legacy cities, and add to the urban comparative literature on urban planning and policy, and economic development. Bus transit is a potential solution to urban mobility issues and increased equitability of access, but planners and policy makers should utilize it with caution, as the effects may be heterogeneous by city type and location.

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Key Words: Legacy city, Bus transportation, Poverty, Employment

TRANSPORTATION BARRIERS TO CARE: SUCCESSES AND CHALLENGES OF A FREE BUS PASS PROGRAM IN DURHAM, NC

Abstract ID: 878

Individual Paper Submission

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Background: While there are many demonstrated barriers to healthcare access including socioeconomic constraints and health literacy limitations, transportation barriers continue to challenge communities. Transportation access to healthcare refers to the physical ability of people to travel to health-promoting institutions like doctors' offices and pharmacies. Beyond inhibiting a patient's ability to travel to their medical appointments, transportation barriers can prevent people from seeking care at all, which can exacerbate chronic disease worsen health status over time (CDC, 2012). The number of Americans who delay medical care because they did not have transportation has grown over time, from 4.8 million in 1997 to 5.8 million in 2017 (author's own analysis). People most commonly affected by transport barriers to care are those with lower incomes, those without access to a vehicle, or those who are under/uninsured (Syed, Gerber, & Sharp, 2013). This study examines a pilot program in which free bus passes were given to transit-dependent patients of five health clinics in Durham, North Carolina in an attempt to abate cost-prohibitive travel by bus to medical appointments.

Methods: This research first examines the current state of access to healthcare in Durham. Semi-structured interviews with care managers from five health clinics inform this work and the following areas are investigated: current modes of access to care, key barriers, and existing financial support for healthcare transportation. Next, the effectiveness of a transportation “intervention” is evaluated. From July to November of 2018, the regional transit authority in Durham, NC issued 500 31-day passes to five behavioral health providers to be given to patients with no restrictions on use. We examine overall administration of passes across clinics; use of passes over the five-month period; and association of pass usage with appointment attendance for patients who utilized passes.

Findings: We find a surprisingly low level of use of overall bus pass utilization. Of 500 passes allocated for the program, only 27 were used. However, for those passes that were used, utilization was high. Nearly 900 trips were made collectively across 27 passes in 5 months. Further analysis will examine access destinations along routes that were taken as well successes and challenges of administering a free bus pass program to address transport barriers to care.

Relevance: Like in many metropolitan regions, transportation access to healthcare destinations in Durham is spatially uneven with low-income and uninsured or underinsured residents often unable to access appointments due to inability to afford transportation. Regions often experiment with interventions to provide modal options for this transportation-disadvantaged group, in many cases with transportation officials and public health agencies collaborating on these projects. This research documents the successes and challenges of one such intervention so that lessons may be learned in Durham as well as in other regions grappling with this important issue.

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Key Words: access to healthcare, transportation disadvantaged, transit, nonemergency medical transportation, social determinants of health

AUTONOMOUS VEHICLES IN THE CITY: IMPLICATIONS FOR PILOT PROGRAMS, LAND USE, AND PUBLIC TRANSIT

Abstract ID: 882

Individual Paper Submission

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Autonomous vehicles (AVs) are being tested on public roads in a large and growing number of U.S. cities, and have the potential over time to transform daily travel patterns. How should municipalities respond to this technology? Municipalities are beginning to regulate AV testing and pilots, as well as address longer-term issues including land-use and zoning, taxation, right of way and curb management,

and the relationship of AVs to public transit. We investigated emerging municipal policies for autonomous vehicles in the United States with interviews across the country with city planning departments, transportation agencies, metropolitan planning organizations, and AV companies. We also conducted a document review of federal, state, and local policies for autonomous vehicles to understand issues of pre-emption and policy diffusion.

Our findings are fourfold. First, municipalities in the United States range broadly in terms of current regulation of AV testing and longer-term policy adoption, from an intentional avoidance of regulation to complex testing requirements and land-use incentives (Guerra, 2016). Second, many cities view AVs as a lever to accomplish other long-standing goals, such as adopting congestion pricing, increasing development density, boosting transit ridership, spurring economic development, generating revenue for the city, and increasing pedestrian safety (Fagnant & Kockelman, 2015; Fraedrich et al., 2018). Cities differ from each other in terms of which of these goals they emphasize. Third, regulators and municipalities are uncertain about their ability to set policy for AVs, while AV companies are uncertain about when and where to test and deploy vehicles given the policy uncertainty. Little information is shared between AV companies and municipalities; some cities with relatively extensive AV testing complain about a lack of basic disclosure, such as size of AV vehicle fleets. Fourth and finally, many cities are approaching AVs as an evolution of transportation network companies (TNCs), such as Uber and Lyft, in that they are assuming these vehicles will operate in private fleets and provide on-demand rides as opposed to a personal-ownership model. This conceptualization of TNCs as “AVs 1.0” has led many cities to build on existing TNC regulations rather than craft AV policies from scratch (Bahamonde-Birke, 2018).

In addition to these findings we discuss how AV pilots relate to a growing literature on municipal responses to disruptive technologies such as TNCs, dockless bicycles and scooters, and the broader “sharing economy.” We identify a new type of informational asymmetry between regulators and private AV companies, as most cities do not have the capacity to test or validate AV performance, and are also operating without adequate figures regarding AV pilots. Finally, the paper addresses how municipal regulation of AVs relates to broader municipal and regional efforts to reduce auto use and car ownership, including changes to right of way design to encourage active modes, curb management, decreases in parking requirements, and prioritization of transit.

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Key Words: autonomous vehicles, sustainability, TNCs, curb management, public transportation

CAN TRANSIT-ORIENTED DEVELOPMENT SLOW GENTRIFICATION? EVIDENCE FROM DISCRETIONARY INCOMES

Abstract ID: 889

Individual Paper Submission

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The connection between transit-induced gentrification and the implementation of transit-oriented development (TOD) is not clear. Supporters of TOD have suggested that transit-induced gentrification will not happen because transportation costs will go down and incomes will rise thanks to the features of TODs. (Dawkins and Moeckel 2016; Renne and Ewing 2013) Nonetheless, there have been concerns that low-income residents could be excluded from the benefits of TOD due to transit-induced gentrification. “Low-income households which would benefit from additional accessibility provided by upgraded transit are forced to move by rising rents and housing costs” (Dong 2017). Dong suggested that because low-income residents cannot adjust their consumption behavior, they are forced to relocate.

Previous research implies that changes in income after transportation and residential costs, so-called discretionary income, can explain how TOD can affect low-income residents since it can be an indirect measure of the quality of life (Crouch et al. 2007). The question is whether the discretionary income of low-income residents decreases after TOD implementation, meaning that low-income households are worse off in TOD neighborhoods even though they are not displaced.

Our study, therefore, investigates the effect of TOD implementation on the discretionary incomes of low-income households. We use a Conditional Difference-in-Difference Repeated Cross-Section estimator to examine how the discretionary incomes of low-income residents in TOD neighborhoods are different from those in other neighborhoods after TOD implementation. We limit the study area to neighborhoods with TOD stations opened between 2000 and 2010 in the US. We use the consumption data from the Bureau of Labor Statistics. Results suggest that the discretionary incomes of low-income households in TOD neighborhoods decrease more than those in other neighborhoods.

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Key Words: transit-oriented development, discretionary income, equity, quasi-experimental design

A CENTURY OF EVOLUTION OF THE ACCESSIBILITY CONCEPT

Abstract ID: 896

Individual Paper Submission

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The accessibility concept is the product of over a century of thought in urban planning and social science. Since its introduction at the turn of the twentieth century, the idea has been shaped by conceptual turns in two notable dimensions: its proper use, and its relationship to urban form.

Accessibility can be used both as a positive descriptor of the world and as a normative guide to land-use and transport planning. Its positive dimension is expressed in predictive or descriptive models of spatial phenomena including residential-location choice, travel behavior, and real-estate values. Accessibility is used normatively when it becomes an input to decision making or after-the-fact evaluation in land-use regulation or transportation investment.

Accessibility analysts have been mixed on the appropriateness of normative application of the concept. While its early appearances were naively normative, the midcentury foundations of the modern concept hewed to the positive side. In fact, Stewart, on whose work Hansen's seminal paper built, emphatically rejected normative application. Subsequent researchers of the 1950s and 60s, while less explicitly ideological, generally ignored accessibility's normative potential.

This stance partly shifted in the 1970s with growing recognition that measured accessibility could properly serve as a guide to planning practice. Actual deployment of accessibility-based planning was rare, however, and by the time the concept had re-emerged in the 1990s, it had, in many circles, taken on a different cast. Where accessibility's earlier definitions rested on speed and proximity and were indifferent to urban form, late-20th century writers began equating accessibility with urban compactness, mixed land uses, and a pedestrian orientation.

This definition undermines the accessibility concept, subverting its capacity to transform planning practice. The paper argues for an emphasis on normative accessibility that is capable of recognizing accessibility improvement over a full range of urban forms and transportation modes.

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Key Words: accessibility, land use, urban form, positive vs normative accessibility

DID SAFE ROUTE TO SCHOOL PROGRAMS REDUCE VEHICLE TO BICYCLIST OR PEDESTRIAN COLLISIONS NEAR SCHOOLS IN NEW YORK?

Abstract ID: 901

Individual Paper Submission

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As a federally funded transportation program, Safe Routes to School (SRTS) aims to promote walking and bicycling to/from school among school-age children and improve traffic safety around schools through infrastructure improvements, enforcement, incentives, and safety education. A few studies have confirmed the effectiveness of SRTS to increase walking and biking rates to/from schools among children (DiMaggio & Li, 2013; McDonald et al., 2014; Stewart, Moudon, & Claybrooke, 2014). However, it has been less studied whether SRTS programs reduced vehicle-to-bicyclist or -pedestrian collisions (referred to as “collisions” hereafter) near schools (Rothman, Macarthur, To, Buliung, & Howard, 2014). Only a few studies compared collision rates before and after SRTS programs or between schools with and without SRTS interventions (Ragland, Pande, Bigham, & Cooper, 2014; Stewart et al., 2014), and it still remained unclear if any observed reduction in collisions were due to SRTS programs or something else, such as a national trend in decreasing collision rates or neighborhood income factor. Previous studies fail to control for changes in traffic volume in a longitudinal study which is an important measure of exposure. In addition, very little is known about the impact of various SRTS project types (e.g. infrastructure, non-infrastructure, or combination of both) in reducing collisions around schools. This study aims to evaluate the effectiveness of SRTS programs in preventing collisions in New York with a case-control study design using pre-post intervention collision data. Two dependent variables are: (1) the count of collisions occurred within the 1-mile buffer around each SRTS eligible school and (2) risk for collision (defined as collision count divided by traffic volume estimated from annual average daily traffic (AADT)). We analyzed two groups of schools, 2008 sample and 2013 sample (the years when SRTS awards were announced in New York State), each consisting of case (schools receiving a SRTS award in that year) and control schools. Using collision data (2004 - 2017), school-level demographic data, and American Community Survey 5-year estimates for neighborhood-level characteristics, we employed paired t-tests and multivariate regression models to investigate: (1) whether collisions near case schools had reduced more significantly after SRTS projects than control schools and (2) which type of SRTS projects contributed more significantly to reducing collisions around schools. The multivariate regression results showed that collision counts and risk for collision reduced significantly near schools that received a SRTS award than those of control schools in 2013, but not in 2008. It is noteworthy that non-infrastructure SRTS projects were associated with the reduction in collision counts and risk for collision in 2013. After controlling for variation of traffic volume, the effectiveness of SRTS program on collision reduction is modest but still statistically significant. Higher population density, longer length of roads within a mile buffer, and higher school enrollment are positively associated with both collisions and risks for collision, which is consistent with previous findings (Rothman et al., 2014).

This study has implications for educators, planners, and policy makers, as it is now important to comprehensively evaluate the state-level SRTS programs to allocate and distribute continued finding for state- or city-run SRTS programs.

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Key Words: Safe Route to School (SRTS), program evaluation, pedestrian safety, School age children

BUILT ENVIRONMENTS, BUS ROUTES AND BUS RIDERSHIP: AN EMPIRICAL ANALYSIS OF THE BUFFALO AREA USING MULTILEVEL REGRESSION ANALYSIS

Abstract ID: 904

Individual Paper Submission

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Prioritizing public transits and optimizing public transit users have been considered by planners and transit authorities as a major countermeasure of managing urban growth. Especially, bus service has been considered to support commuting for low-income residents as a fundamental transit mode (Taylor & Fink, 2003). A comprehensive understanding of bus ridership influential factors enables transit authorities to efficiently allocate the limited resources for the deployment of transit service and allows planners and decision-makers to advance additional targeted policies for pricing and investments. Also, because bus routes include various built environments, understanding of the influence of built environments on the trip mode choice of individual should be considered to account for bus ridership (Ryan & Frank, 2009). While there has been a growing body of studies demonstrating factors that influence transit ridership (Chakour & Eluru, 2016; Ma, Zhang, Ding, & Wang, 2018; Zhao, Deng, Song, & Zhu, 2013), they are usually determined by both various individual and environmental factors. Ordinary least squares (OLS) regressions are traditionally applied to unravel the complex relationship between built environments and transit ridership, yet they have been criticized by the neglect of spatial variation which assumes stationarity and independence of observations in space. Some studies applied a geographically weighted regression (GWR) model to deal with spatial variations. The essence of the GWR model is, however, to design a weight matrix for each observation based on the distance between the locations of observations (e.g. bus stops). Therefore, GWR is more useful to understand spatial interaction among transit stops instead of bus ridership itself. Unfortunately, transit ridership data usually fail to either hold the OLS assumptions due to environmental factors nor follow the GWR weight matrix simply defined by the distance between bus stops. It should adopt different levels of factors affecting bus ridership, both bus-related and built environment characteristics, simultaneously. This study analyzed daily ridership at the bus station level for both weekdays and weekends from the first Quarter in 2018 as a function of bus-stop-

level characteristics and characteristics of two types of upper levels. Upper levels include route-level and Transportation Analysis Zone (TAZ)-level in Erie County of New York State. The findings show that bus operating is positively correlated with bus ridership, while total route stops are negatively correlated in the study area. Controlling of group effect using bus route level can explain the variance of bus ridership, but that of the TAZ level cannot. This is because bus stops are highly associated with bus routes, directly interacting with bus riders; external characteristics (e.g. social-economic factors within 0.25-mile buffer of bus stops) and internal characteristics (e.g. bus stop and route design, service quality, etc.) are highly influencing the ridership volume for the whole transit system. The findings suggest as follows: 1) the effectiveness of multi-level design in a regression model in capturing route effects on bus ridership; and 2) more significant group effects of bus routes than TAZ. Some limitations and implications for the transit agency and transportation planners needed to adjust their design of bus routes or selection of bus stop are also discussed based on our findings.

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Key Words: Multilevel analysis, Bus ridership, Built environment

THE ECOLOGY OF INJURIES AND FATAL CRASHES CAUSED BY DISTRACTED DRIVING: A COMPARATIVE STUDY OF DISTRACTION-AFFECTED AND NON-DISTRACTED DRIVING CRASHES IN CENTRAL OHIO

Abstract ID: 905

Individual Paper Submission

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Along with the increased use of cell phones behind the wheel, distraction-affected vehicle crashes are on the rise and safety concerns for distracted driving are gaining broader attention. A newly published report by the National Highway Traffic Safety Administration (NHTSA) reveals that distracted driving induces 9 percent of the fatal crashes in the United States, accounting for 3,450 casualties in 2016. Distracted driving is problematic and dangerous since it interrupts the primary task of drivers by taking their attention away from safe driving and often results in severe injuries or fatalities, which entail substantial private and public costs. A proper understanding of distraction-affected crashes is essential to help develop better policies for improving public safety.

This paper investigates the unique features of distraction-affected vehicle crashes as compared to their non-distraction-affected counterparts focusing on the influences of the surrounding environments and the identification of the spatial locations where crashes involving injuries and fatalities are more likely to

occur, using small area data. Little attention has been given to understanding distracted driving in terms of spatial context and variability of the relative risk at the small area level.

In particular, this study asks whether the spatial context and the influence of the environment differ between distracted and non-distracted vehicle accidents. Lym (2019) reveals the significant impacts of space and spatial components in identifying areas of higher relative risks of crashes caused by distracted driving. However, a difference in spatial contexts of crash risks between distracted driving and non-distracted driving is yet to be explored. The influence of the built, socio-economic, and socio-demographic environments is hypothesized to vary with the two types of driving. For example, findings in Chen and Lym (2018) and Lym (2019) suggest that specific age-cohorts such as 15-19, 20-24, and 25-29 appear to be more likely to drive distractedly than other age cohorts, while this is less likely in non-distracted driving cases. This clearly differentiates and reflects the unique characteristics of distracted driving as compared to the non-distracted counterpart.

We select the Mid-Ohio Regional Planning Commission (MORPC) Metropolitan Planning Organization (MPO) area, consisting of 1,056 census block groups, as the study region. For each census block group, five years (2013-2017) of vehicle crashes with different severity levels for both distraction-affected and non-distraction-affected are geocoded and aggregated. In line with our focus of this study, we reclassify the frequency crash data by combining three severity categories involving injuries (evident injury, severe injury and fatality). The aggregated distraction-affected crash frequency data show excessive zeros in which 368 out of 1056 census block groups (34.84%) reported zero accidents during the study period. To account for this, we adopt a zero-inflated over-dispersed count model, together with a Bayesian hierarchical (Intrinsic Conditional Autoregressive) spatial random-effects framework (Agarwal et al., 2002). The model is estimated by the Integrated Nested Laplace Approximation (INLA) approach (Blangiardo et al., 2013) and is crosschecked by Markov Chain Monte Carlo (MCMC) methods.

The outcomes reveal that 1) accounting for the unobserved heterogeneity contributes to a significant increase on the explanatory power of the model; 2) the relative risks and the influential factors (i.e. commercial land use, age-cohorts, and education levels) of crash frequencies for distracted driving are distinguishable from those of non-distracted driving; 3) areas of higher relative risks can be identified. These findings allow us to advise planners and decision-makers on where and how they should concentrate their efforts in order to mitigate negative consequences of distracted driving.

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Key Words: Distracted Driving, Zero-Inflated Count Data, Integrated Nested Laplace Approximation (INLA), Bayesian Hierarchical Spatial Approach, Traffic Safety

DO RAPID TRANSIT LINES INDUCE GENTRIFICATION AMONG THE U.S. METROPOLITAN AREAS?

Abstract ID: 908

Individual Paper Submission

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Problem: Gentrification is a term used to describe the process and changes that commonly occur in lower-income and/or minority neighborhoods with the influx of more affluent residents who are more likely to be white, increases in property values, the renovation of housing, the upscaling of local commercial and retail properties, and potentially, the displacement of current residents. Some studies in the past two decades have found that the sustained growth of the high-quality public transit systems – both rails and buses – may have triggered or accelerated gentrification in some U.S. metropolitan areas. Some studies define that phenomenon as the “Transit-Induced Gentrification” (TIG). Until now, only a few studies have focused on the TIG in North American, including 13 empirical studies that have examined the TIG in one or several cities. In those empirical studies, description or regression models are used most to examine the before-and-after changes in the transit-served neighborhoods or the distance-decay of gentrification indicators around the transit stations, based on their operational definitions and corresponding measures of TIG (e.g. Dong, 2017; Baker & Lee, 2019). Qualitative evidence of rent appreciation and residential displacement is found as well (Jones & Ley, 2016). All those cross-sectional or cohort evidences have demonstrated the significance of TIG in some cities, but also have found insignificance in some other cities. Those inconsistent conclusions could be caused by the regional and local characteristics, but could also be the results of the inconsistent definitions and indicators of gentrification. This study is designed to use consistent gentrification definitions and indicators to examine the pervasiveness of Transit-Induced Gentrification among the large MSAs that has rapid transit stations opened during 2000 to 2010. Based on the results of whether Transit-Induced Gentrification is significant or not, the study will further explore what factors affect the presence of Transit-Induced Gentrification.

Approach and methodology: To examine the pervasiveness of Transit-Induced Gentrification within the station areas, paired t-test is used to do the pretest-posttest comparisons between the clearly defined rapid-transit-served census tracts and the selected control groups based on the non-parametric propensity score matching (Ho et al., 2007) between the beginning and end of the decade. The gentrification indicators include housing, demographic and economic variables, indicating the socio-economic changes in the rapid-transit-served areas and the control groups. A composed gentrification index based on these gentrification indicators is generated. The gentrification index is used as the dependent variable for the examination the impact of regional (metropolitan-level) and local (tract-level) characteristics on the level of gentrification during the decades.

Findings and take away for practice: The paired t-test results have confirmed that the open of rapid transit lines could but not always bring gentrification, and around half of the rapid-transit served census tracts have experienced the upgrading system during 2000 – 2010. Rail-served station areas are more likely to experience gentrification than the BRT-served station areas, and the upgrading scales are similar between the gentrifiable and non-gentrifiable tracts. These conclusions are important to the growing investment on high-end rapid transit systems among the U.S. metropolitan areas. They remind the policy makers and transit planners to consider the anti-displacement policies together with the transit planning in the areas with higher risks to experience Transit-Induced Gentrification in order to prevent the potential gentrification-induced displacement among the disadvantaged residents living in station areas prior to the opening of rapid transit lines.

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Key Words: Transit, Gentrification, Displacement, Social Equity

URBAN SLOW TRANSPORTATION SERVICE SYSTEM DESIGN BASED ON DRIVERLESS VEHICLES - A CASE OF INDUSTRIAL PARKS IN SHANGHAI, CHINA

Abstract ID: 912

Individual Paper Submission

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Urban slow transportation, is also called non-motorized transportation, refers to a means of transportation with a line speed of no more than 15km/h [1], primarily including walking, non-motorized transportation and a limited number of vehicles with low-speed. Such as Industrial parks, campuses, residential communities are all representatives of slow transportation environments. Slow transportation is of high significance with occupying more than 50% of the whole urban traffic volume in many Chinese metropolises, while in lack of specific transportation system design and sufficient attention, the experience of slow transportation need to be improved. [2]. Meanwhile driverless vehicles are increasingly believed to be the main form of the future mobility, and it was also reported that driverless vehicles may have better performances on service providing at slow transportation environments, based on the characteristics of both driverless vehicles and the surroundings [3]. However, transportation system is a complicated network encompassing multiple physical aspects and invisible aspects, and what we focus on is the transportation service rather than the transportation tool, so an effective designing method is in need to organize the whole and allocate the key, service system design is the one.

In this paper, I will take the industrial park in Shanghai as an example, to explore whether a slow transportation service system based on driverless vehicles can improve the quality and efficiency of the transportation experience, and how to build up the service system.

We firstly use the Kano-demand model to get some possible transportation demands in industrial parks, based on the feedbacks of nearly 200 visitors. Then 20 interviews to the operators and management teams of the industrial park have been conduct, and some requirements and needs different from the visitors' are explored. We have used some approaches of service system design to balance the interests of multiple stakeholders, to allocate the numbers and locations of the designing aspects throughout the whole service process, eventually we got a preliminary service framework and procedure. In order to better clarify some service details, we have observed the interaction between the observers and the service providers in our testing environments.

We found that the expected transportation requirements of visitors based on Kano-demand model are somewhat large different. To satisfy the user's needs and improve the operation efficiency, a transportation service architecture in industrial parks are formulated. Also, the situation of human-car interaction changes a lot in driverless vehicle, the current HMI (Human Machine Interaction) designing method has not solved it. We just intend to make some natural interaction between users and the driverless vehicles from the perspective of HRI (Human-Robot Interaction), supporting to provide some services in slow transportation environments. Finally, how to build trust in the relationship between people and the driverless vehicles, and how to establish the communication mechanism and trust between passengers and driverless vehicles, between pedestrians and driverless vehicles, and between driverless vehicles and the external environment. It can also be explored from the perspective of service design in this research.

This research can improve the transportation experience of the industrial park and activate many existing resources. At the same time, it also provides a new transportation service designing method for other urban slow transportation environments.

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Key Words: Slow transportation, service system design , Human-Robot Interaction

IMPROVING TRANSPORTATION ACCESSIBILITY FOR THE TRANSPORTATION DISADVANTAGED: COLLABORATION BETWEEN TRANSIT AGENCIES AND TNCS

Abstract ID: 913

Individual Paper Submission

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Background and Research Purposes:

The ability to access personal or public transportation is fundamental for everyone to connect with health care, employment opportunities, education, shopping, and the community at large. However, certain groups of people lack the ability to provide their own transportation or have difficulty accessing available public transportation. Transportation Disadvantaged (TD) populations, defined by Florida Statutes, are those who because of physical or mental disability, income status, or age are unable to transport themselves or purchase transportation and are dependent on others to obtain access to life-sustaining and social activities. Although public transportation has been playing a critical role in providing fixed route and paratransit services for the vulnerable groups, the transportation needs of those populations are far from being adequately met. Under this context, public transit agencies are increasingly seeking

cooperation with private sectors, especially with shared mobility providers, among which transportation network companies (TNCs) such as Uber and Lyft, have got more and more attention.

Although TNCs have been partnering with communities to provide specialized services to specific populations, such as older adults, the coordination between other existing services and TNCs is still less well understood. The purpose of this study is to develop an understanding of the TNCs partnerships with transit agencies to serve TD populations, and to develop scenarios for both opportunities for collaboration and areas that may be vulnerable if transit service is reduced based on a geospatial model. The results may inspire and guide public transit agencies to improve transportation accessibility for the vulnerable populations through public-private partnerships.

Approach and Methodology:

This research selects Orlando Metropolitan Area in the State of Florida as the case study area. The demographic characteristics offer unique conditions that are important to examine. Rapid population growth and increasing elderly, disabled and impoverished populations affect the delivery and availability of transportation disadvantaged services. Firstly, we develop an understanding of the connection between TNC and paratransit, and the TNCs partnerships with transit agencies to serve the vulnerable populations based on a comprehensive literature and practice review. Then we analyze the spatial characteristics of public transit services and TNC services within Orlando Metropolitan Area. Finally, scenarios of possible reductions in transit service and their impact on TD populations are set up based on a geospatial model. The model has been developed to identify gaps in transportation services for the TD populations using a supply-demand matrix. Transportation supply is measured by quantifying the transportation accessibility based on the gravity model, and transportation demand is computed by calculating the volume of the TD populations.

Expected Findings:

As for the impact of possible reductions in transit services on TD populations, the general assumption is that the deficiencies would be mostly in the large unincorporated part of the Orlando Metropolitan area. However, by using the transportation accessibility and TD demand model, we are expecting to identify the locations of possible service gaps that otherwise were not captured by simply observing the data. These findings would further help us to develop opportunities for collaboration between transit agencies and TNCs to support transportation needs of the TD populations.

Contributions:

This study adds knowledge to current understanding of the partnership between transit agencies and TNCs to better serve the vulnerable populations. The analysis model that we developed can be applied to the diverse circumstances outside our case study area where paratransit services are provided. We will also share our finding with the Florida Department of Transportation Mobility for Life Program and other similar state programs to improve their services for the TD populations.

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Key Words: Transportation Disadvantaged, Transportation Accessibility, TNCs, Transit Agencies

INSTITUTIONAL RESPONSE TO TRANSIT ORIENTED DEVELOPMENT IN THE LOS ANGELES METROPOLITAN AREA: UNDERSTANDING LOCAL DIFFERENCES THROUGH THE PRISM OF DENSITY, DIVERSITY, AND DESIGN

Abstract ID: 914

Individual Paper Submission

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Los Angeles County is a fragmented metropolis, comprising a crazy quilt of some 88 incorporated communities. As the transit system expands, lines begin to traverse multiple local jurisdictions with unique blends of land use and population characteristics. The line alignment and station location consequently respond to the local initiatives and institutional responses to promote transit-oriented development (TOD). The primary objective of this study is to understand the extent and circumstances of municipality level responses to achieve the TOD vision. Whereas most studies measure TOD outcomes in terms of market responses, the supply side story seems underrepresented in literature. This project attempts to address such lacuna and asks this fundamental question: What are the institutional responses to transit development and what policies or policy combinations facilitate development around transit? What are the circumstances for such policy responses and how effective are they? The study documents and examines inferences that can be drawn about the opportunities for design and planning of TODs, their relative success, and future outlook. The project scope includes all of the 22 incorporated cities and communities where at least one Los Angeles Metro station currently operates. The effects of local policies on station areas' TOD performance are measured through the prism of the 3-D (Density, Diversity, and Design) framework proposed by Cervero and Kockelman (1997), considered to be the three key antecedents for successful TOD. The qualitative analysis draws on in-depth structured interviews of senior planners from seven case study cities. Finally, the quantitative analysis examines variables related to policy landscapes encompassing 93 stations. Factor and Guttman scalogram analyses rank the likely application of various policy tools identified by Los Angeles Metro. The paper presents five key findings: First the primacy of local policies and plans in TOD implementation. The matrix of local policies creates the foundation for density, diversity, and design – key performance criteria for TODs. Citywide policies become instrumental in ensuring consistency, effectiveness in implementation, and flexibility in context-based planning. Second, over time there is increased sophistication in the application of TOD policies. Over time, municipalities start applying the full palette of TOD-supportive tools, policies, and best practices at their disposal. With more experience, and by learning from doing, their decision-making process becomes less ad hoc and more systematic. Third, while TOD-supportive policies are necessary for development, they are not always sufficient. Fourth, fewer Guttman errors for downtown locations and older stations suggest a multi-faceted approach to TOD promotion. Lastly, the relative success or failure of TOD seemingly is the byproduct of a proactive city and market demand, coupled with community engagement.

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Key Words: transit-oriented development , institutional policy response, performance criteria, density, diversity, and design

ROAD INVESTMENT AND ECONOMIC DEVELOPMENT IN RURAL AREAS: LESSONS FROM INDIA'S PMGSY

Abstract ID: 918

Individual Paper Submission

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Road connectivity is critical for socioeconomic development in rural areas. Literature suggests that road improvements and construction of new road links help promote access to economic opportunities and social services in rural areas, and thereby enhance quality of rural life (Jacoby, 2000). There is a large body of research investigating impacts of rural road investments on farm productivity and agricultural income, industrial and service sector employment, school enrollment and educational achievement, poverty, and health outcomes especially among women and young children in rural areas (Qin and Zhang, 2016). Empirical evidence of positive effects on society and the economy has resulted in ambitious rural road-building programs across the developing world.

The Indian government recognized the importance of rural roads in guaranteeing rural prosperity at the turn of the new millennium. The multi-year Pradhan Mantri Gram Sadak Yojana (PMGSY) – the Prime Minister's Village Road Scheme – was launched in the year 2000 with the objective of providing all-weather road connectivity to over 1,60,000 eligible habitations across the country. Under the PMGSY, road construction is primarily funded by the central government, executed by various state governments, and monitored by the Ministry of Rural Development, specifically the National Rural Roads Development Agency. Since the scheme's inception, till date, over 200,000 km of roads have been upgraded and over 440,000 km of new roads have been constructed at a total expenditure of approximately INR 1,500 billion (official government figures, available at omms.nic.in; accessed on March 26, 2019). Given the scale of the program and the magnitude of government spending, it is useful to analyze the impact of the PMGSY on rural development in India.

Past studies have analyzed impacts of the PMGSY on the agriculture sector, employment, health, education, and poverty alleviation. Healthcare access effects have been investigated most exhaustively. Economic and employment effects remain understudied. Asher and Novosad (2014) found evidence that new paved roads have lowered rural unemployment, particularly in smaller villages. The current research is expected to add specifically to the PMGSY evaluation literature and more broadly to literature on the economic implications of road projects in India (Chakrabarti, 2018).

In this paper, I analyze the relationship of the magnitude of PMGSY road construction (including new links and upgrades to existing links) measured in terms of both per-capita expenditure and length, with economic growth measured in terms of both per-capita GDP (by industry sector) and organized sector employment (both agricultural and non-agricultural) across India's districts (640 districts per Census-2011) over the 2001-2011 period. The analysis is grounded in theory on the role of public capital investment in regional economic development and output growth (Aschauer, 1989). I estimate a series of regression models using data from the Census of India 2001 and 2011, the PMGSY public data portal (omms.nic.in), [Indiastat \(indiastat.com\)](http://indiastat.com), and other government sources. I control for district level sociodemographic and environmental factors that determine aggregate economic growth, and additionally test how the variables moderate the rural road investment – economic development relationship. I also analyze state level and regional differences in investments and impacts. In addition to informing transport and economic development policy in India, the study informs policymakers in other countries that are experiencing comparable economic growth and that have similar road construction programs.

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Key Words: Road investments, Economic development, Transportation infrastructure, Rural development

DOES TRANSIT SCHEDULES REFLECT ACTUAL TRAVEL TIMES ACCURATELY? A COMPARISON USING TRANSIT VEHICLE REAL TIME GPS DATA

Abstract ID: 921

Individual Paper Submission

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Improving on-time performance and reliability of transit systems is challenging for transit planners and agencies due to various uncertainties such as weather, major events, congestion levels, and constructions. Providing the real time prediction of vehicles' arrival time in different travel conditions on a specific trip is necessary for passenger information. However, passengers still rely on transit schedules to plan for their transfers, estimate departure times, and estimate trip durations before the trip begins. Therefore, the

accuracy and consistency of transit schedules are crucial for passengers.

The adherence to the scheduled arrival time and predicting vehicle arrival times has been thoroughly studied. Lin and Zeng (1999) used bus GPS data and schedule data to develop four estimation methods to predict the arrival time of a vehicle. Similarly, Gurmu and Fan (2014) applied neural networks and only bus GPS data to improve the accuracy and robustness of arrival time predictions. Travel time variability was studied by Mazloumi, Currie, and Rose (2009). They used bus GPS data from Melbourne suburbs to examine factors that caused travel time variability, such as time of day and traffic signals. Adherence to the scheduled arrival time is also monitored by dispatchers in transit agencies, in order to have greater control over their services.

However, the accuracy and consistency of scheduled travel times compared to the actual travel times has not been adequately examined. One reason is a lack of comprehensive datasets. Even though transit agencies utilise Intelligent Transportation Systems to help monitor their entire fleet, the knowledge regarding how to store and utilise the data generated from these systems to improve their services is very limited. Another reason is that not many factors will affect transit schedules other than time of day and day of the week, since they only reflect general travel conditions and do not change based on factors like weather or construction.

The objective of this study is to develop a novel approach to improve the planning of transit schedules using real time travel time data. More than 195 million distinct real time bus GPS tracking records were collected from Central Ohio Transit Authority between March 2018 and March 2019. In total, over 1 million trips in the system during this period were recorded. These data points are then matched to the bus routes, and the actual travel times are calculated. This study uses statistical tests and data visualizations to examine and illustrate whether the scheduled trip durations reflect actual travel duration accurately and consistently.

The results suggest that the difference between the schedule and actual travel time data varies both temporally and spatially. This study reveals that transit schedules do not accurately reflect the actual variation in travel time at different times of the day for certain sections. There are also a few route sections where the actual travel time is either behind or ahead of schedule for all trips during the week. The research findings will provide new insights and implications for transit planners to improve the reliability and consistency of scheduled travel times. For instance, transit agencies will be able to optimize scheduled travel time based on the route sections where real travel time is significantly different from its existing schedule. In addition, the methodology developed in this study may also help traffic engineers improve the effectiveness of traffic light settings in order to facilitate more consistent transit operations. Although this study is based solely on the data from Columbus, OH, this methodology can be applied to other transit systems.

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Key Words: Transit Reliability, Transit Scheduling, Travel time, Data Analysis

DOES EQUITABLE TOD IMPROVE ACCESS FOR LOW-INCOME HOUSEHOLDS? EXAMINING TRAVEL BEHAVIOR IN THE SAN FRANCISCO BAY AREA

Abstract ID: 924

Individual Paper Submission

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In response to a substantial housing affordability crisis in California, lawmakers have moved to pass legislation that makes it easier to build housing in transit-oriented developments (TOD). At the same time, several transit agencies have implemented policies that require a minimum number of those housing units to be affordable for low-income households. The San Francisco Bay Area Rapid Transit District (BART), for example, has set a systemwide goal that 35 percent of newly-constructed units be affordable. These policies increase the supply of housing near transit for low-income households, which improves their transportation options relative to other locations and may reduce the access gap between cars and transit (Welch 2013; Boarnet, Giuliano, Hou, and Shin 2017). They also mitigate the price premium that comes with increased accessibility (Chapple and Loukaitou-Sideris 2019). But will affordable housing residents living in TODs use transit in the same ways as market-rate households, or in the same ways as low-income households living elsewhere?

This study asks how travel differs between households, characterizing by housing affordability and distance to transit using a mixed-methods design. We build on two earlier studies of San Francisco Bay Area TODs (Cervero 1993; Lund, Cervero, and Willson 2004) to develop a repeated cross-sectional study of travel trends over time. All households in 62 large multifamily housing developments across the San Francisco Bay Area, about half of which lived in subsidized units, were eligible for the study. Developments were selected based on whether they were located within one-quarter mile of a BART rail station or within a radius of one-to-two miles away from a station to allow us to distinguish between the travel characteristics of TOD and non-TOD residents.

We first conducted mixed-mode surveys in two rounds. In the first round, we mailed a paper survey to all eligible households and followed up with a postcard reminder about three weeks later, allowing recipients to respond by mail or online. We supplemented the mail distribution with intercept surveys at six properties. In the second round, we sent out another paper survey to all households in affordable housing developments and a postcard with the web link to all households in market-rate developments. We supplemented this round of surveys by conducting additional on-site survey events at three housing developments. These events were coordinated by BART staff, who has long-standing relationships with housing managers and extensive experience in survey outreach. These events were held in conjunction with community activity nights to ensure high rates of participation. Questionnaires asked about car access, commute mode, reasons for selecting the current residence, use of transit, and characteristics of the three most-recent trips made. In the qualitative research phase, we will conduct six to eight focus groups with interested survey respondents to gather information on transportation and housing affordability and on accessibility to daily activities.

Preliminary evidence from 465 responses to date suggests that the travel behavior among the respondents, cross-classifying by residential location and housing affordability, is different in meaningful ways. We expect to be able to share these findings in more detail at the conclusion of the project in August 2019. The results of this study will allow planners to understand the impact of equitable TOD on transit demand and on access to regional opportunity.

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Key Words: Travel behavior, Transportation equity, Transit-oriented development, Affordable housing

URBAN FREIGHT AND ROAD SAFETY IN THE ERA OF E-COMMERCE

Abstract ID: 932

Individual Paper Submission

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Central theme or hypothesis: what research question are you trying to address?

E-Commerce has increased freight volumes and shifted freight vehicles to local streets and arterials. The frequent freight movement has caused increasing concern over traffic safety in urban areas. But there has been limited investigation of the road safety impacts of these trends. The purpose of this study is to examine recent trends in urban freight vehicle-related safety in the U.S. and characteristics of urban freight-related crashes to increase the knowledge base on this issue.

Approach and methodology: how will you address that question?

We define freight vehicles based on available data in the nationwide traffic safety surveillance systems and collected data in 2005-2015 from the National Highway Traffic Safety Administration's (NHTSA) Fatal Analysis Reporting System (FARS) and the NHTSA's National Automotive Sampling System (NASS) General Estimates System (GES). We focus on urban areas and non-interstate-highway roads when calculating annual rates of fatal and non-fatal injuries involving freight vehicles. For reference, we also analyze annual fatal and nonfatal injury rates for 1) all crashes irrespective of vehicle type and location and 2) freight vehicles irrespective of location. Finally, we examine specific crash and injury characteristics associated with urban freight crashes for the most recent year of data analyzed, 2015.

Findings

Using the longitudinal data, we found that fatalities and, particularly, nonfatal injuries from freight-involved crashes in urban areas are rising more rapidly than overall road traffic-related rates during 2010-2015. Since 2010, VMT-adjusted fatality rates have increased 3% for all vehicles; increases have been

higher for all freight-involved fatalities in urban areas (17%) and non-interstate urban areas (15%). Freight-involved injuries are increasingly occurring on local roads and arterials as opposed to interstates. Of injuries in urban areas, the share occurring off the interstate has increased from 58% in 2005 to 71% in 2015. Freight-related crashes are more likely to occur during the day compared to all crashes. Fatalities per crash are approximately 20% higher for freight-involved crashes compared to all crashes. Nonfatal injuries per crash are comparable for all crashes and those involving freight vehicles in urban areas. We also found that existing surveillance systems are poorly suited to monitoring freight-involved safety threats.

Relevance of your work to planning scholarship, practice, or education

These findings support the hypothesis that freight vehicles pose increasing safety threats in urban areas with implications for injury surveillance systems and urban planning. Existing surveillance systems such as FARS and GES/NASS do not readily identify freight-involved crashes and have therefore limited attention to the role goods movement plays in urban traffic safety particularly off the interstate system. The research work can help transportation planners and engineers better understand the changing patterns of freight related safety issues. As freight volumes increase in commercial and residential areas of our communities, planners must increasingly consider freight needs and ensure that space is allocated to this function.

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Key Words: Urban freight, road crashes, fatalities and injuries, longitudinal

URBAN FREIGHT DELIVERY AND LOADING SPACES

Abstract ID: 933

Individual Paper Submission

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Central theme or hypothesis: what research question are you trying to address?

The lack of freight infrastructure in the city centers has led to increased illegal urban freight loading behaviors such as double parking and loading, making local streets more congested and unsafe. Such traffic violations have caused growing concern among urban planners and managers, but the research on

freight loading spaces is very limited. The purpose of this study is to examine the supply and demand of loading spaces in the era of e-commerce when urban freight deliveries become increasingly frequent in the urban cores.

Approach and methodology: how will you address that question?

We reviewed the literature on how the provision of loading spaces affects the efficiency of urban delivery. Based on the literature review results, we focused on both off-street and on-street loading spaces in the qualitative analysis. We studied the off-street loading requirements in the zoning codes of the ten largest cities in the US and evaluated the variations in the required provision of off-street loading spaces across cities. On the other hand, we interviewed professionals in selected major cities about the regulations and enforcement of on-street loading spaces. Finally, we considered a case of a few blocks in the downtown areas of Los Angeles and Chicago respectively, and examined how much the required off-street loadings spaces and existing on-street loading spaces can accommodate freight delivery demand.

Findings

According to the qualitative data we collected and analyzed, we discovered significant variations in off-street loading requirements across the top ten cities; in some of them like Los Angeles and Houston, the requirements are so low that most small businesses in city centers are exempt from any required loading space provision. While on-street loading spaces are currently an important supplement to off-street ones, the interviews with transport planners revealed that the provision of on-street loading spaces, in many cases, is ad-hoc and upon request by businesses. The planners also talked about the spatial mismatch of freight delivery demand and on-street loading provision. In the examination of the two case studies, we found a much larger gap between freight delivery demand, i.e. freight trip generation, and available off-street and on-street loading spaces in Los Angeles than Chicago, largely due to the lower loading requirements in the Southern California city.

Relevance of your work to planning scholarship, practice, or education

The findings can help transportation planners and engineers better understand how the accommodation of urban freight delivery demand is subject to loading space provision. The empirical results suggest a localized spatial mismatch between freight loading demand and overall loading supply given the current zoning systems. Such mismatch, which can contribute to chaos on the urban roads and delay in freight movement, calls for special attention from the policy makers.

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Key Words: Urban freight delivery, off-street loading requirements, on-street loading spaces, supply and demand

NEW MOBILITY FOR OLDER ADULTS: RIDEHAILING USE BY SENIORS IN GEORGIA

Abstract ID: 936

Individual Paper Submission

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This mixed-methods study examines age-related immobility and the potential for ridehailing services such as Uber and Lyft to improve the mobility of older adults. The study focuses on seniors in the state of Georgia. Part I analyzes National Household Travel Survey (NHTS) data to establish existing patterns of immobility and ridehailing usage among Georgia seniors. Part II analyzes ride-along interviews conducted with older adults as they try out Uber or Lyft; the findings illuminate the specific barriers and frustrations that may inspire seniors to avoid trying ridehailing or to discontinue use.

While some older adults continue to lead active lives, others experience steep declines in their mobility. These trends are especially pronounced among seniors who limit or stop driving, regardless of the availability of transit (Loukaitou-Sideris and Wachs, 2018). The resulting isolation can adversely affect physical and mental health; female, low-income, and older seniors are disproportionately affected (Decker 2006).

Part I of this study finds that while younger seniors (ages 65-79) remain relatively mobile, immobility among Georgia's elderly population (ages 80+) is widespread. On any given day, 45% of elderly Georgians will not leave the house, and 15% will not have left their homes within the past three days. In contrast, on a typical day, 97% of adults aged 18-64 and 93% of younger seniors leave the house. Logistic regression is used to examine how gender, age, and other sociodemographic factors influence the likelihood that a senior will suffer from immobility

Ridehailing services such as Uber and Lyft are potentially valuable tools for improving seniors' mobility. However, use among seniors is low compared to younger adults (Conway et al, 2018). Cost, access to technology, and difficulty using apps can all pose barriers to ridehailing use among the most vulnerable seniors, but research on overcoming these obstacles is scarce (Leistner and Steiner, 2017; Loukaitou-Sideris and Wachs, 2018).

Part II of this study analyzes ride-along interviews with older adults as they try using Uber or Lyft (the two major ridehailing services available in Georgia). A whole journey approach adapted from security research (Natarajan et al, 2017) is used to understand the obstacles encountered by elderly would-be users of Uber and Lyft at every stage of the trip. Before getting into the vehicle, successfully hailing a ride requires installing the app, setting up a profile, identifying the address of the desired location, requesting a ride, and finding the vehicle that will pick them up using the map or by contacting the driver. A difficulty with any of these steps can derail a senior's attempt to use a ridehailing service.

Ride-along interview participants are observed attempting to hail a ride from start to finish, describing their difficulties and requesting help from the interviewer if desired. After the ride is complete,

participants reflect on the obstacles encountered, the role of any assistance given by the interviewer or driver, whether they believe ridehailing could be useful to them in the future, and what support they might need to use ridehailing independently. Comparative analysis of interviews with participants of multiple ages, genders, and races is used to identify common barriers and avenues for policy intervention.

As planners examine the promises of new mobility, it is vital to make sure vulnerable populations such as older adults are not left behind. The benefits of ridehailing for seniors are currently largely theoretical, both in the sense that most seniors are not yet using ridehailing and that few empirical studies are available. By analyzing the actual experiences of senior would-be users of ridehailing services, this study provides actionable insight into policies for promoting ridehailing use among older adults.

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Key Words: transportation, ridehailing, aging, shared mobility, new mobility

MEASURING WHEN UBER BEHAVES AS A SUBSTITUTE OR COMPLEMENT TO TRANSIT: AN EXAMINATION OF TRAVEL-TIME DIFFERENCES IN TORONTO

Abstract ID: 961

Individual Paper Submission

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It remains to be seen whether ride-hailing services (e.g. Uber) behave as a substitute or complement to transit. Some (Rayle et al., 2016; Clewlow and Mishra, 2017) argue that their unparalleled level of convenience and comfort is bound to take riders away from transit and to likely cannibalize a share of transit agency's fare revenues. Others (Murphy and Feigon, 2017; Komanduri et al. 2018), however, believe that by also offering to serve as the first/last mile of transit trips, as well as in areas, or at times, when transit is less frequent, ride-hailing may be filling a gap in transit service. The impact of ride-hailing upon transit depends on the particular type of transit trip that ride-hailing services are allegedly said to replace. In this paper, we seek to add to this discussion by exploring the proportion and composition of ride-hailing trips that may substitute or complement transit.

Using data from the 2016 Transportation Tomorrow Survey in Toronto, we examine the difference in travel-time between ride-hailing trips and their fastest transit alternative. Our results indicate that ride-hailing does compete directly with transit and likely reduces its ridership. Indeed, 38.7% of ride-hailing trips in our sample are shown to have viable transit alternatives and to take less than 15 minutes longer by transit. However, we also find evidence to support ride-hailing's gap-filling potential, as 15.4% of ride-hailing trips occur in areas, or at times, where an equivalent transit trip would have taken over 30 minutes longer to complete.

In light of these findings, we propose three different policy structures to reduce the occurrence of trips that compete directly with transit and encourage the occurrence of those that complement transit operations by filling a gap in services. Specifically, we recommend imposing an additional fee upon ride-hailing trips that have viable transit alternatives, and suggest using the revenues from this fee to provide subsidies to those where no reasonable transit alternative is present. We also endorse limiting the access to these subsidies to low-income users or transit pass holders to ensure equitable outcomes and minimize the impact upon transit agency's revenues.

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Key Words: ride-hailing, Uber, public transit, transport policy, travel behaviour

DO SHARED MOBILITY SERVICES ENCOURAGE MORE CARPOOLING?

Abstract ID: 966

Individual Paper Submission

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Shared mobility options such as carsharing and ride-hailing have become popular in cities, yet no consensus has been reached on its impact on traffic and travel pattern. While some studies have found evidence suggesting that shared mobility options have reduced private car ownership and the net total VMT, others have shown that shared mobility trips are incidental, which adds to the total trips. In a review of past literature, one important aspect that is currently underexplored is whether shared mobility options encourage more carpooling (aka “ride sharing”) compared to other traditional travel options using

individual vehicles. Shared mobility options offer new possibilities for carpooling, which could help increase the occupancy of small vehicles and reduce individual level VMT. Further, looking into the expansion of carpooling as applied to carsharing and ride-hailing may offer some insights into the future business model of autonomous vehicles.

This paper explores the 2017 Puget Sound Regional Travel Survey, which collected detailed trip information along with social economic characteristics from 6,254 individuals in the central Puget Sound region. Based on the survey data, the paper examines the travel patterns of people who use shared mobility options, including carsharing services, such as Zipcar and Car2Go, and ride-hailing services, such as Lyft and Uber, and compares them with patterns of individuals using other vehicle travel options. Two research questions are investigated in this study. First, do shared mobility services lead to more carpooling trips compared to the other travel options? Second, under what conditions are travelers more likely to use shared mobility for carpooling? The analysis distinguishes inter-household carpooling, which consists of trips shared by passengers from different households, from intra-household carpooling.

To answer the first question, a series of descriptive analyses are performed. The results show that carsharing trips have both higher percentages of inter- and intra-household carpooling than ride-hailing trips. In other words, compared to users of carsharing services, users of ride-hailing services are less likely to share rides with others. When compared to other travel options, carsharing and ride-hailing facilitate higher percentages of total carpooling trips than household owned vehicles, but lower percentages of carpooling than friend's and colleague's car and car from work. However, compared with share mobility options, travel by household owned vehicle has a higher percentage of intra-household carpooling trips. The trips are further stratified by travelers' social and demographic features to explore the potential sources of these observed differences.

To answer the second research question, a set of Logit regression models are estimated at the trip level. The dependent variable is a binary variable with zero denoting a trip with only a single passenger. Two groups of independent variables are examined. The first group includes trip-level attributes, such as time of a day, the day of a week, trip purpose, and built environment characteristics at a trip's origin and destination. The second group includes person and household level variables, such as education, age, gender, household size, and average household income per person.

This paper can offer three implications for planning and policymaking aimed to integrate new mobility options into transportation infrastructure development and traffic management. First, this paper reemphasizes the carpooling aspect of shared mobility, which is the key determinant of its environmental impact. By distinguishing between inter- and intra-household carpooling, it shows that different travel options are used for different types of carpooling depending on the social context. Secondly, the paper provides empirical evidence on factors affecting travelers' choice of carpooling. Thirdly, through the analysis, the paper demonstrates how publicly available travel surveys can help answer research questions related to emerging travel patterns in the era of shared mobility.

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Key Words: Share Mobility, Carsharing, Ride-hailing, Carpooling, Social and Demographic Features

EXPLORING APP-BASED, ON-DEMAND RIDE-SOURCING'S RELATIONSHIP WITH PARKING, TRANSIT ACCESS AND CONGESTION: EMPIRICAL EVIDENCE FROM DIDI CHUXING IN SHANGHAI

Abstract ID: 977

Individual Paper Submission

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The rapid emergence and growth of transportation network companies (TNCs) such as Uber, Lyft, and Didi Chuxing, operating app-based on-demand ride-sourcing services, has led to a debate over their role in the urban transport system. Ride-sourcing supporters argue that it is a convenient and efficient mode of travel, with the potential to reduce private auto use, decrease the need for parking and solve the first/last mile problem of public transit (Rayle et al. 2016; Shaheen et al. 2016). Others are less sanguine, concerned that the growing popularity of ride-sourcing might undermine congestion mitigation and replace public transportation, eventually resulting in negative environmental and social consequences (Rayle et al. 2016, SFCTA 2017, Schaller 2018).

The growth of the ride-sourcing business has brought significant challenges for planners, engineers, and policy makers, due to the magnitude and uncertainty of its impacts. For example, the number of full- and part-time TNC drivers in Shanghai exceeded 287,700 in August 2016, a mere two years after ride-sourcing was introduced (Didi Chuxing 2016). In 2017 it was estimated that more than 15% of trips and 20% of vehicle mileage in San Francisco was produced by TNCs (SFCTA 2017).

Despite the exponential growth of ride-sourcing worldwide, information about its relationship with parking, public transit, and congestion is still very limited. Parking supply, transit service, and road congestion are measures of the relative ease of driving and using transit, and might serve to predict lower or higher use of ride-sourcing as an alternative. Thus one might expect that ride-sourcing demand would be higher in places with restricted parking, at least for auto owners. One might also expect that demand would be higher in places with lower levels of transit access because of the significant time advantages it could offer there, despite ride-sourcing being more expensive than transit. Finally, we hypothesized that ride-sourcing may be positively associated with congestion because it may relieve travelers from driving on congested roads, or because it may in fact cause congestion.

This study investigates three related research questions: (1) To what extent is more parking associated with lower ride-sourcing demand? (2) Does better transit access reduce or increase the use of ride-sourcing? and (3) Does higher road congestion increase ride-sourcing demand?

Using a large GPS-based travel dataset from 2015 in Shanghai provided by Didi Chuxing, we model ride-sourcing's nonlinear relationship with parking, transit access, and congestion while controlling for other factors, using a generalized additive mixed regression model. We find that first, ride-sourcing demand grows as parking supply increases, but is negatively associated with parking supply at higher levels. Second, ride-sourcing and bus accessibility tended to negatively correlate with each other when the density of bus stops is high, and positively correlate with each other when there are fewer bus stops. Third, ride-sourcing demand is positively correlated with congestion, except at the highest congestion levels. These findings suggest that in Shanghai in 2015, ride-sourcing provided an alternative to driving in many situations, but also contributed to congestion, while being used much less in places that had the

densest transit service. Our methods enable us to find these varying results because we use a nonlinear fitted GAMM model; we show that a conventional linear model yields erroneous results.

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Key Words: on-demand ride-sourcing, transportation network company, parking, transit, congestion

EXAMINING THE RELATIONSHIP BETWEEN TRANSPORTATION GRANT RECIPIENTS AND RESIDENTIAL DISPLACEMENT: A DIFFERENCE-IN-DIFFERENCES APPROACH

Abstract ID: 986

Individual Paper Submission

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In this study, we explore whether rapid transit projects funded with federal discretionary transportation grants from 2009 to 2012 shape neighborhoods. We explore the effect these improvements have on a number of indicators, with the main variable being residential eviction rates. This newly available data from the Eviction Lab provides one of the clearest insights into residential displacement, and coupled with this sample of transportation projects, provides the first empirical look at the relationship between public transit and evictions. Additionally, we examine publicly available Census data to provide a more detailed look into how these projects are changing neighborhoods. Our sample includes 12 projects funded over the four-year period, in urban and rural areas across 10 states, accounting for over \$4.2B in national public transit investments. We use a difference-in-differences estimator to look at how characteristics of neighborhood change differ for projects that received federal monies, versus those who applied but were not funded. Our control group includes 40 unfunded projects. Based on existing literature, we hypothesize that homes in neighborhoods surrounding these projects will see an increase in property values, but little to no change in racial makeup, income, and eviction rates in the short run.

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Key Words: public transit, eviction, displacement, public investment, federal

TRANSIT RIDERSHIP IN AMERICA, 2002-2018: INTERACTIONS BETWEEN ECONOMIC FACTORS, TRANSIT SERVICE LEVELS, AND URBAN FORM VIA A MACHINE LEARNING APPROACH

Abstract ID: 987

Individual Paper Submission

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Despite substantial investment in public transit systems in the United States in recent years, most American cities, with only a few exceptions such as Seattle and Houston, have witnessed flat or declining transit ridership in the 2010s. While economic (and income) recovery since the last recession certainly led to rebounding vehicle miles traveled (VMT) and accompanied reduction in transit use, the declining transit customer base across the board is still puzzling given the continuing political and financial support for public transit systems. In response, researchers and analysts started to examine the effects of various factors behind the trend. Those factors include teleworking, increasing vehicle ownership among low-income and immigrant households (Manville, Taylor, and Blumenberg, 2018; Chakrabarti & Painter, 2019), adaption of emerging technologies in transportation (e.g., ridehailing services and bike sharing systems) (Hall, Palsson, & Price, 2018, Graehler, Mucci, & Erhardt, 2019), gentrification of transit-rich neighborhoods, aging Millennials, and transit service cuts (especially of bus operation) (Boisjoly, et al., 2018).

Solving the puzzle of transit downturn requires finding the determinants of transit ridership. We believe the recent decline in transit ridership cannot be simply attributed to one or two factors. The internal and external factors critically affecting transit use may have changed over time and the ways how these factors impact travel decisions of various demographic groups may also have changed over time. Thus, to fully analyze the reasons behind the transit downturn, we should understand the dynamic relationships between various factors, including demographic changes, economic factors, urban form and transit service levels, and their changes over time. Unfortunately, traditional econometric models do not provide the best tools to analyze the non-linear relationships and interactions between these key variables.

We employ Gradient Boosting Decision Trees (GBDT) on a continuous dependent variable (i.e., log-transformed monthly unlinked trips). GBDT is an ensemble machine learning model, which develops a stronger predictive model (i.e., a model producing more accurate prediction) from a weaker model at each iteration. It has several merits and limitations. GBDT is best poised to examine non-linear relationships of individual explanatory variables with the dependent variable of models, and interaction effects among

explanatory variables. Researchers can visually examine patterns of non-linearity and interactions in models, which helps identify windows of opportunity or differentiate approaches based on local contexts. However, GBDT does neither produce confidence intervals for statistical inference nor control for correlated error structures from clustering. Thus, we will also estimate conventional panel models with fixed/random effects to check the consistency of our findings.

This study analyzes the non-linear effects of and interactions between key determinants of transit ridership in top fifty urbanized areas (UZA) in the U.S. from 2002 to 2018. Interactions between economic factors, urban form, demographic changes, and transit service levels will be the focus of this study. The dependent variables of interest are monthly unlinked passenger trips (UPT) by UZA, agency, and mode from the National Transit Database (NTD). The NTD also provides transit supply metrics including vehicle revenue miles and capital/operating funding and expenses. We also collect explanatory variables from both conventional and less-utilized sources, including the Bureau of Labor Statistics (e.g., Consumer Price Indices for local gas prices), the U.S. Census American Community Survey (e.g., local median household incomes and unemployment rates), the Google Trends historic search (e.g., the introduction of ridehailing services and their monthly supply at individual cities), and the National Cancer Institute (e.g., urban sprawl index).

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Key Words: transit ridership, machine learning, economic factor, urban form, ridehailing

HOW CAN WE SYSTEMATICALLY IDENTIFY AND MEASURE TRANSPORT PROBLEMS? LESSONS FROM A PILOT SURVEY IN THE TEL AVIV METROPOLITAN AREA

Abstract ID: 992

Individual Paper Submission

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Over the past decades, transport researchers have developed a myriad of ways to observe, measure and analyze travel behavior. In contrast, very few approaches have been developed to systematically identify the transport problems and difficulties people may experience (with some notable exceptions: Delbosc and Currie 2011). This is strange, as one might expect that a good understanding of people's transport

problems is a key input for effective and efficient transport planning and policy (Nutley 1996; Martens 2017).

Against this background, we will present an experimental survey to directly identify people's transport problems and difficulties. The survey was designed in such a way that it can be conducted and repeated against relatively low cost across an entire population. For this reason, the questionnaire consists of a limited set of questions that aim to elicit the range of transport problems and difficulties as they may occur across a population. The questionnaire deliberately refrains from obtaining a detailed understanding of respondent's travel patterns in terms of travel purpose, travel destinations or mode choice, as is common in widely used household travel surveys. The focus is instead on the scale, scope and depth of the experienced transport problems.

The survey has been administered for the first time in four areas in the Tel Aviv metropolitan area, Israel. The areas differed in terms of the level of accessibility by car and public transport and encompassed a neighborhood close to the city center of Tel Aviv, a neighborhood on the edge of the Tel Aviv, a suburban town with a strong urban center, and a set of small suburban communities.

The preliminary results of the survey are largely in line with expectations (Martens 2018). For instance, a clear connection was found between, on the one hand, respondents' income and, on the other hand, respondents' general satisfaction with travel and their problems related to affordability of transport. Likewise, respondents without access to a private car were more dependent on others for their trips and indicated to have given up on trips more often than respondents who reported to have easy access to a private vehicle. Perhaps against expectations, car-owners indicated to experience more transport problems related to excessive travel times than people without a car.

Further analyses of the survey results are currently being conducted. The analyses focus on the interrelationships between respondents' key characteristics such as income, car-ownership, gender, ethnicity, and residential location and the range and intensity of the transport problems and difficulties they experience. The purpose of the analyses is not only to gain an understanding of the patterns of transport problems, but as much to determine the validity and reliability of the survey instrument.

The overarching question guiding the research project is whether it is possible to develop a reliable survey instrument that can meaningfully inform transport planning and policy. Currently, transport planning is based on only indirect evidence of transport problems. A systematic account of the range, scope and depth of transport problems and difficulties may provide valuable information on the level-of-service provided by the transport system to differently positioned people, information that is dearly missing in current approaches to transport planning. Clearly, much more trial and error is needed before a reliable survey tool has been developed. Yet, if successful, such a tool may substantially alter the current perspectives on what constitutes a transport problem and what not. This, in turn, may fundamentally change the type of interventions proposed by transport planners across the world.

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Key Words: transport problems, survey instrument, Israel

CAN HIGH-SPEED RAIL STATION SUPPORT A NEW TOWN? EMPIRICAL EVIDENCE FROM CHINA

Abstract ID: 996

Individual Paper Submission

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Regional transportation networks increase inter-city connectivity and reshape the geographical distribution of economic activity across and within cities. In this context, many Chinese city leaders are competing for high-speed rail (HSR) to promote local economic growth. In 2008, China built its first HSR line (Beijing-Tianjin), while by the end of 2016 - only eight years after - China has 22,000 kilometers of HSR lines, accounting for two-thirds of the world's total. A distinct feature of those HSR stations is that they were always newly-built (rather than using the existing old railway stations) and located far away from the existing city center. City leaders then built “new towns” around those new HSR stations as an opportunity to expand their cities. However, while some of those HSR new towns have gained economic activities, others have kept vacant for many years and even become “ghost towns”.

This study explores the determinants of this heterogeneity in the urban vibrancy of HSR new towns. Our empirical strategy is twofold. First, at city (metropolitan area) level, we use the difference-in-difference estimator to assess the impact of market integration induced by the establishment of HSR connection on the local economy of the metropolitan area (the closest one to which the HSR station is). We employ HSR traffic flow data and network measurements to construct better measures of the impact intensity of HSR station. Second, at HSR new town level, using satellite imagery and online archives of government documents, we identify over 200 HSR new towns with urban land use around, and construct urban vibrancy measures with extensive data on firm formalization and consumer amenities at high spatial resolutions. The firm dataset documents the information of all registered firms in China. We geocode the address attribute into coordinates with map geocoding API. The consumer amenity dataset is built from points-of-interest (POI) on Dianping.com, the largest the largest online ratings and deals service platform for restaurants in China. We also collect county-level statistics, such as urban population, GDP, and fiscal revenue. These granular datasets help us measure the urban vibrancy performance of these HSR new towns and local fundamentals.

Our empirical results show that both city-level and HSR-new-town-level fundamentals matter for a HSR new town's urban vibrancy. A HSR new town is more likely to survive if the HSR connection brings strong positive gains to the whole metropolitan area and if the station is closer to the old city center. The study provides new insights into the role of market integration through the HSR network and the synergy between HSR's regional and local impacts.

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Key Words: High speed rail, New town

DOCKLESS BIKE-SHARING ALLEVIATES ROAD CONGESTION THROUGH COMPLEMENTING SUBWAY TRAVEL: EVIDENCE FROM BEIJING

Abstract ID: 997

Individual Paper Submission

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Dockless bike-sharing provides a convenient alternative for urbanites to access subway stations, which may encourage more travelers to use subway and thus reduce road congestion. This research evaluates to what extent the dockless shared bikes complement the existing subway system in Beijing, and how these two green transportation modes work together to alleviate the road congestion in the areas with subway lines. Using two years' daily ridership records for 14 subway lines, and 3.2 million bike-sharing trips in two weeks of May 2017, we employ a Difference-in-Difference identification strategy to find that the introduction of dockless bike-sharing significantly increased subway ridership, especially for those subway lines exposed to higher bike-sharing treatment intensity. All else equal, the rush hour road congestion level around subway stations will drop by about 6% if moving from the lowest to the highest quantile along the distribution of bike-sharing activity intensity. This congestion alleviation effect is larger around the subway stations farther away from the city center, indicating a larger complementarity effect in the urban areas with poorer public transit accessibility. Our study illustrates the synergy between subway and bike-sharing helps to achieve a greener and healthier city.

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Key Words: Bike-sharing, road congestion, subway

STEPPING IT UP FOR HEALTH EQUITY: DISPARITIES IN ENVIRONMENTAL BARRIERS TO MORE WALKING AMONG CURRENT PEDESTRIANS IN THE U.S.

Abstract ID: 1021

Individual Paper Submission

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Walking is the most common form of physical activity among adults (Frank and Engelke 2005) and is associated with multiple health benefits, leading planners to consider how walkable built environments might facilitate physical activity as part of daily travel routines. The socio-spatial distribution of walkable built environments has implications for health equity, as low-income communities of color tend to have lower levels of physical activity and a higher burden of chronic disease. Moreover, recent research suggests that socioeconomically disadvantaged populations tend to walk more in unsupportive built environments compared to their more advantaged counterparts (Adkins et al. 2017). Understanding the environmental barriers to walking that disadvantaged populations face is therefore an important direction for equitable planning and public health integration.

While a large body of research has examined associations between the built environment and walking (Ewing and Cervero 2010), relatively few studies have examined how walkable built environments are distributed across communities of varying sociodemographic composition. Among those that have, the results have been mixed: while some have found that disadvantaged populations tend to live in places that are objectively more “walkable” based on measures of density and connectivity (King and Clarke 2015), others have found that disadvantaged populations tend to perceive their neighborhoods as less walkable (Sallis et al. 2011). These differences could reflect the limitations of large-scale walkability measures in capturing finer-grained details of the built environment that could be inequitably distributed, such as infrastructure and safety conditions.

To provide insight into these differences, I examine the prevalence, distribution, and implications of environmental barriers to walking in a nationally representative sample of pedestrians in the U.S. The research questions are as follows:

- Prevalence: To what extent do pedestrians report environmental barriers that keep them from walking more frequently?
- Distribution: Does the reporting of environmental barriers vary by individual- and area-level sociodemographic characteristics?
- Implications: How are environmental barriers associated with levels of walking, and does this association vary by individual- and area-level sociodemographic characteristics?

I address these questions using data from 221,566 adults in the National Household Travel Survey. Respondents were asked to report the number of walking trips they took within the past 30 days; those who took at least one walking trip were then asked to report the presence of any infrastructure barriers (e.g., lack of paths, trails, sidewalks, parks) or safety barriers (e.g., unsafe crossings, heavy vehicle traffic, insufficient lighting) that kept them from walking more frequently. I use descriptive and regression analyses to assess how the reporting of these barriers is associated with individual- and area-level measures of race, ethnicity, educational attainment, income, and poverty. I then use regression models with interaction terms to assess how the reporting of barriers is associated with the number of walking trips taken, and whether these associations vary by individual- and area-level sociodemographic characteristics.

Across all pedestrians in the sample, 33% reported one or more environmental barriers that kept them from walking more frequently. Preliminary findings suggest that barriers were significantly more likely to be reported by racial and ethnic minorities (40%), those with low income (37%), and those below the poverty line (40%). Pedestrians who reported barriers took fewer walking trips; this relationship was not

moderated by individual-level sociodemographic characteristics, although low-income respondents and those below the poverty line tended to take more walking trips than their advantaged counterparts in the face of environmental barriers. Additional analyses will examine associations with area-level sociodemographic characteristics at the census tract level. The findings of this research will provide insight into potential disparities in access to walking-supportive environments, informing the development of planning approaches that promote equitable active transportation and health.

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Key Words: walking, equity, built environment, disparities, health

BRIDGING THE RESEARCH-PRACTICE GAP IN TRANSPORTATION PLANNING

Abstract ID: 1022

Individual Paper Submission

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This talk presents the lessons learned from a practice-oriented sabbatical in which I embedded myself in the transportation planning culture of Anchorage, Alaska. My goal was simple: to learn how transportation planning is actually practiced (Flyvbjerg, 1998) in order to become a better scholar and educator.

Central to my motivation, was an all too common interaction with my students. After taking a deep dive into the technical details of some transportation concept a student would ask with a tone of dismay, "Why isn't every city doing this?" My answer was always frustratingly cursory. Sure, I could outline the broad contours of implementation challenges and I could share my personal experiences, but ultimately, I didn't have much to draw on. After all, I've never been a practicing planner. By taking a deep dive into the messy world of practice, I hoped to become a better teacher for my students.

I was also motivated by a desire to address social problems more effectively. I took to heart Campbell's (2012) concern that defining planning scholarship too narrowly, "severely constrains the intellectual tools available to tackle society's grand challenges." (p. 351) In diagnosing this problem, Phibbs (2016) notes that, "academics often have limited understanding of the policy process." Similar sentiments are shared by Button (2015) and Levinson and King (2019).

While Anchorage is not the subject of much planning scholarship, it offers a useful window into the practice of transportation planning in a mid-size American city. Anchorage is home to just under 300,000 people, roughly half the state population. It serves as the commercial center of Alaska and, while it is not the capital city, it is home to many state government services. As a research site, Anchorage is geographically and administratively straightforward because it has historically been the only game in town. That being said, Anchorage is 45 miles away from two rapidly growing cities (Palmer and Wasilla) and efforts are underway for them to establish their own Metropolitan Planning Organization.

During my fieldwork, Anchorage engaged in considerably planning activity. The Assembly commissioned and adopted a Climate Action Plan. The local transit agency followed up a 2017 network redesign with an intensive, community-driven short-range planning process. The MPO updated the bicycle and pedestrian plans into a single plan for non-motorized travel. Meanwhile, the Department of Transportation drafted a Statewide Active Transportation Plan. The DOT also carried out a “Midtown Congestion Relief” study for a new elevated freeway that would bisect Anchorage. The mix of ongoing projects was similarly incongruent. Road diets took place just blocks from road widenings.

To make sense of all this I attended roughly 50 public meetings, conducted interviews with scores of stakeholders, and poured over planning documents. In an effort to gain a historical perspective, I examined transcripts of past meetings, reviewed both successful and thwarted projects, and discussed the history of planning efforts with key informants.

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Key Words: transportation planning process, Research-practice gap

ASSESSMENT OF THE SUSTAINABILITY OF TRANSPORTATION IN URBAN DEVELOPMENT PROJECTS

Abstract ID: 1024

Individual Paper Submission

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The rapid growth of megacities in the world has created many problems, such as traffic, air quality, and urban transportation system disorders. Common patterns in transportation lead to massive environmental, social and economic costs, including increases in levels of energy consumption, pollution, and greenhouse gas emissions. When these problems, most notably traffic congestion occur at the same time, “Sustainable transportation” is considered as a possible solution. Sustainable transportation is an approach to transportation that supports environmental, economic and social sustainability. Shiraz, Iran, has a population of 1,600,000, an area of over 240 square kilometers, and daily travel trips for business,

education, and leisure by many different modes of transportation. Since development plans have a significant impact on the spatial patterns and they are one of the most potent intervention tools in achieving sustainable transportation.

In this study, we assessed the sustainability of transportation incorporated into the Shiraz urban development plan (Master Plan 2007). Assessment of development plans is an integral and essential part of the strategic planning process. This study formed to identify sustainable transportation factors and the impact of urban development plans on transportation sustainability. The assessment of transportation sustainability of the Shiraz development plan was undertaken through several successive steps. The first step was to select the variables and transport sustainability indicators to identify the concepts and components of sustainable transport. Data collection was done in this step in the form of documentary studies and social survey (questionnaires and interviews with specialists using the Delphi method) For the analysis of mixed method research data, first we did validation and theoretical valuation with the intent to identify strategic indicators of sustainable transport, based on the repeatability of indicators in different texts. The list of valid indicators was then refined from the viewpoint of native experts and international theoretical literature based on the availability of data. The output of this step led to the sustainability criteria checklist ("Indicator Checklist") and transport indexes. The second step was to identify and categorize the concepts and components of planning in urban and transportation development projects. (especially master and comprehensive transportation plans)

In the third step, the confrontation, and meta-analysis of the concepts and components of urban planning with the sustainable transport indicators were discussed with the intention of identifying the areas of urban development projects affecting the sustainable urban transport situation. In this step, effective areas were identified through analysis of matrix cross-reference cells ("Goals Achievement Matrix"). The output of this step is the assessment of transport sustainability of urban development projects. In order to measure the effectiveness of urban development programs components on the sustainability of transport, in this step, methods such as time series analysis and correlation analysis with the intention to identify causal relationships, interview and questionnaire were used.

This research resulted in an objective model for determining the sustainability of transportation incorporated into the development plan of a large metropolitan city.

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Key Words: Assessment, Sustainable Transportation, Comprehensive plan, Urban Development project, Master Plan

ASSESSMENT OF RECEPTIVITY ON AUTONOMOUS VEHICLES AMONG PEOPLE WITH DISABILITIES

Abstract ID: 1034

Individual Paper Submission

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According to the 2010 U.S. Census data, about 56.7 million Americans, approximately one in every five or 19% Americans, have a disability. Mobility is a prerequisite for equal participation in social life and satisfaction of basic human needs, however, is often under served for people with disabilities by current transportation providers. The emerging of Autonomous Vehicles (AV) holds promises for filling the mobility gaps. Understanding and quantifying the mobility needs from AV for different types of disability population would not only help transportation service providers but also urban planners.

This study analyzed the current mobility gaps, Autonomous Vehicles receptivity and its influencing factors among disability population types. An online survey was conducted through various disability advocacy groups in Michigan. 100 participants (27 males and 73 females, age 18 and above) responded to the online survey. The participants are evenly distributed among six disability types, namely vision difficulty (VD), hearing difficulty (HD), cognitive difficulty (CD), ambulatory difficulty (AD), self-care difficulty (SCD), and independent living difficulty (ILD), with the exception of hearing difficulty (about one third of other types). Among the participants, about three quarter of them are either full time or part time employed, or self-employed, or student, only a quarter are unemployed. The results found many commonalities across all disability types: lack of public and paratransit services, never or rarely take ride hailing services like Uber or Lyft, rate transportation as one of the biggest challenges facing daily, and their mobility limits affecting their independence. However, different disability types view their challenges in transportation differently, and therefore, have different level of receptivity for AV. Among the six types, VD and ILD have the highest the receptivity for AV, followed by SCD, CD, AD and HD. In addition, their receptivity changes with cost for taking AV. VD has the most consistent receptivity regardless of AV vehicle type or cost, while other types change their receptivity with cost. Although other studies found that social inclusion has been one of the challenges facing people with disabilities, it is interesting to find out that personalized AV service like Uber or Lyft, however, with cost like public transportation is preferred across all types. The findings indicate that people with disabilities view their transportation as a necessity or tool rather than a place or venue for socialization.

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Key Words: Autonomous Vehicles, People with disabilities, mobility needs, social equity, paratransit

RHETORIC, RACIAL THREAT, AND RESISTANCE TO REGIONAL TRANSIT IN METROPOLITAN DETROIT

Abstract ID: 1038

Individual Paper Submission

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In highly segregated metropolitan regions like Detroit, there is a risk within electoral politics of producing and reinforcing policies that have socially inequitable outcomes. In particular, referenda and legislative attempts to expand public transportation, often associated with greater regional accessibility for low-income and minority residents, are frequently very unpopular at the polls, and gain little traction from community support. Deemed to have the worst public transportation system of any major city in the country, Detroit has attempted numerous times to integrate and expand regional transit through ballot initiatives. However, despite the linkage between efficient and comprehensive mass transportation and economic development, Detroit's regional transit referenda have often faced fierce rhetorical opposition by a variety of interest groups, particularly suburban community officials who have claimed that transit development represents an incursion that threatens the character of the area. Perceiving themselves as having interests that differed or conflicted with those of transit-dependent urban residents, the language discouraging regional transit expansion used by prominent community members in the past was often explicitly racial, and played on the fears and hostility of the suburban electorate. Recent times have brought a shift towards more benign language about community character, density, and property values. However, the opposition to public transportation's expanded reach into Detroit's northern metro counties reflects an antipathy that continues to contribute to the persistent failure of regional transit initiatives. In this paper, I examine the evolution of anti-public transportation rhetoric that has historically been used to frame the debate around metropolitan Detroit's regional transit expansion, and discuss the ways in which this language continues to racialize the issue. I argue that the seemingly race-neutral language currently chosen by community leaders to stir hostility to public transportation among suburban voters, whether deliberate or not, invokes racial and class imagery that appeals to the same fears as in the past. While the voting public in metro Detroit's counties has become more receptive to transit over the past 50 years, I contend that much of the resistance is due to the slow pace of demographic change in those communities, ensuring the continued presence of an audience that is receptive to race-infused rhetoric. This analysis discusses the invoking of 'racial threat', its effects on political behavior within the majority population enclaves of segregated regions, and the concept of racial and class 'dog whistles' to garner support based on perceptions of threat. Through archival research of media sources, official political correspondence, and public meeting transcripts beginning with the establishment of regional transportation governance in the late 1960s, I examine the means through which transit opponents used language provoking localism, distrust of the motives of Detroit's leadership, and fear of the consequences of allowing urban Black incursion into suburban communities. Content analysis of recent media and political speech by Detroit region leadership provides a study of the trajectory of anti-transit rhetoric, and demographic analysis informs us about which sections of the metro population may be amenable to this rhetoric. Lastly, an engagement with the literatures of both Group Threat and Critical Race Theories provides a framework through which to understand why majority residents of segregated regions can be so receptive to implicit and explicit racial language, as well as why transit expansion serves as a useful proxy for racial threat. This analysis is intended to inform the techniques that transit advocates use to promote regional transit at the community level, providing an illustration of how skilled political actors can harness the fear of change, rather than simply making anti-transit or economic appeals, to mobilize voter antipathy for equitable transportation access.

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Key Words: Rhetoric, Transit, Regional, Race, Detroit

FORECASTING LONG-TERM REDUCTION TRAJECTORIES OF PARKING DEMAND TOWARD A SHARED AND AUTOMATED FUTURE

Abstract ID: 1041

Individual Paper Submission

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The coming of automated vehicles (AVs) and Mobility-on-Demand (MoD services) is expected to reduce urban parking demand and correspondingly alter the urban parking landscape (Zhang et al., 2015). Multiple modeling efforts have already demonstrated that Shared AVs (SAVs), if widely adopted, are promising to decrease urban parking demand (Fagnant and Kockelman, 2014; Zhang and Guhathakurta, 2017). However, previous studies have only examined SAV parking demand at one point in time, with various market penetrations. It remains unclear what the demand reduction trajectory will be like during the transition period when there is a mix of SAVs, Privately-Owned AVs (PAVs), Shared Conventional Vehicles (SCVs), and Privately-Owned Conventional Vehicles (PCVs). This study fills this gap by developing an agent-based simulation model to examine the spatially and temporally explicit parking reduction trends in the City of Atlanta with mixed travel modes from 2020 to 2040. First, we estimated the market share of AVs and MoD based on literature review and previous studies. Second, we extended the existing SAV simulation model (Zhang and Guhathakurta, 2017) by incorporating the operation of PAVs, SCVs, and PCVs to simulate the urban parking demand from 2020 to 2040. Finally, we examined the spatial and temporal distribution of parking demand and recommended short-term and long-term parking policy adjustments.

The simulation results suggest that in the most optimal AV and MoD adoption scenario, there will be dramatic variations in the spatial and temporal distributions of parking demand. The total parking demand may decrease by over 20% after 2030. The reduction is positively and almost linearly correlated with the market share of MoD and is not sensitive to the uptake of PAVs. Therefore, market penetration of car-sharing rather than vehicle automation is the key to reducing parking demand. The results also suggest that the AV and MoD parking demand are likely to shift from areas with high land value and dense economic activities to disadvantaged communities to reduce parking costs. This results in 75% of reduction in parking demand in the Central Business District (CBD) by 2040, while doubling the parking demand density in low-income neighborhoods, which may lead to transportation equity concerns.

Additionally, parking relocation may also induce environmental issues by generating a considerable amount of empty Vehicle Miles Traveled (VMT). The temporal analysis results suggest empty VMT generation peaks during midday and is negatively correlated with empty travel penalty fee and positively correlated with the parking price.

To reap the benefits brought by AVs and MoD and to mitigate the accompanying social and environmental issues, our results suggest that proactive policymakers will need to modify short-term and long-term land use and transportation policies. In the near-term, cities may consider converting existing, static parking infrastructure to flex parking spaces to meet the loading and unloading demand of MoD. Over time, cities need to remove minimum parking requirements for new development and update parking building codes for more economically efficient redevelopment in the future. Similarly, land redevelopment and infill policies also need to be modified to encourage sustainable conversions of parking spaces, and to introduce dynamic and equitable parking price schemes to compensate the use of parking spaces in residential and mixed-use zones. There is also a need to examine the possible erosion of existing parking revenue and how to effectively charge for loading and unloading vehicles. From the travel demand management perspective, the public sector needs to bundle travel demand management policies, such as road pricing and congestion fees, with land use policies to curb empty VMT generation and to promote the use of more sustainable travel modes, such as active travel, public transit, and high-occupancy vehicle sharing.

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Key Words: Autonomous Vehicles, Mobility-on-Demand, Parking Policy, Reduction Trajectory

ASSESSING THE RELATIONSHIP BETWEEN COMMUTE MODE AND OCCUPATION

Abstract ID: 1042

Individual Paper Submission

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Commuter use of a particular travel mode exhibit spatial characteristics. The distribution of occupations across a region also has spatial characteristics. Jobs are not created equally—wages are obviously different, and there are high degrees of clustering for some occupational categories while others follow the sprawl of a region. We hypothesize that due to characteristics of different types of occupations, such as wages, expected work tasks and spatial clustering, the occupation of commuters will influence their travel mode choice. We test this hypothesis using the Maricopa Association of Governments Trip Reduction Survey (TRP) from the Phoenix, Arizona region. The TRP is an annual survey of firms with

five employees or more. Within the survey, eight occupational categories are currently included. Data collected include respondents' home and work zip code, mode of commute, travel time, time of day and frequency of travel. These data allow for a zip code to zip code analysis of commuting. The results suggest that there are modal differences for commuting based on occupational type. The results are strongest across occupations, meaning the largest differences, for transit use and telecommuting. Transit obviously has strong spatial explanations for associations as you can only take transit where transit exists, but telecommuting has occupational explanations, as only certain types of jobs facilitate working from anywhere. This research has implications for transport and economic development policies, as both spatial and occupational characteristics matter for commuting.

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Key Words: Accessibility, Occupation, Commute, Mode Share, Phoenix

REAL-TIME AIR POLLUTION EXPOSURE TO PEDESTRIANS: THE CASE OF DOWNTOWN SEATTLE

Abstract ID: 1046

Individual Paper Submission

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Near road air pollution from mobile sources threatens human health through conditions such as asthma, cardiovascular disease, deteriorating cognitive ability for the elderly, and other detrimental pulmonary effects. Although the goals of compact city and mixed-use planning promote non-motorized transportation in order to reduce air pollution and traffic congestion and encourage physical activities, the irony is that pedestrians are exposed to higher level of pollution on sidewalks. Bae and Sinha (2016) demonstrate that pedestrians' higher exposure to air pollution is due to vehicle traffic, construction and smoking activities in Seattle's International District. The pedestrian activities and the built environment of downtown Seattle are more complex because of taller buildings, mixed land uses, active construction sites, higher pedestrian volumes than any other part of Seattle.

The exposure levels need to be measured at the micro-environmental level on sidewalks. We use AirBeam2, AirCasting, and GoPro. AirBeam2 is a portable sensor based on light scattering technology to measure real-time PM2.5 levels; AirCasting is an Android app to read and map the data; GoPro is a camera to record the surrounding built and road environment of the pedestrians. We monitored the near-road particulate matters (PM2.5) that are exposed to pedestrians in Downtown Seattle -- South Lake Union, Pike Place Market, and Pioneer Square areas-- for multiple sessions in summer 2018. We explored factors that may contribute to higher PM2.5 levels.

Results showed that pedestrians were exposed to higher levels of PM2.5 than the pollution levels of the nearest official fixed monitoring sites of the Puget Sound Clean Air Agency. Some human activities and a certain type of land use related to cooking and construction activities elevated PM2.5 levels on sidewalks. Moreover, outdoor smoking was not a traditional urban planning issue, but this activity on the sidewalk raised PM2.5 levels and harms public health. The paper concludes with planning/policy implications on how to reduce air pollution exposure to pedestrians on sidewalks.

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Key Words: AIR POLLUTION, PM2.5, PEDESTRIAN EXPOSURE, SIDEWALK

BICYCLING RENAISSANCE: A DISTRIBUTIONAL EQUITY INQUIRY OF BIKEWAY INVESTMENT

Abstract ID: 1049

Individual Paper Submission

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Increasing concerns about congestion, physical inactivity, and climate change have led to an increasing interest in developing infrastructure and programs, including bikeways, to support bicycling in the United States. Bicycling also plays an important role in supporting life for transportation disadvantages; the majority of bicyclists for utilitarian purposes are non-white and low-income people in the U.S. (Noyes et al., 2017). Thus, planners and advocates are particularly concerned whether transportation disadvantaged groups would be marginalized again in the new planning efforts and could not enjoy the potential benefits cycling could bring. However, empirical studies (e.g. Fan et al., 2010) have largely focused on inequality in accessing activities by transit and motorized infrastructure and limited research has examined the distributional equity of bikeway investment and outcomes. Moreover, it is challenging to assess inequity, as there is no clear definition of what bicycling equity is in practices or theory.

To address these gaps, we engage with Sen's Capability Approach and introduce the core concept, capability into the bicycling inequity analyses. Capability is a notion that lies between resources and behavioral outcomes and refers to what people are able to do with the provision of resources (Sen, 1980). When applied within the context of bicycling, the capability refers to the real practical opportunities of bicycling for people to fulfill needs (transportation and physical activity needs). The capability approach extends the evaluative focus of bicycling equity from public transport infrastructure (e.g., availability of

bikeways) or behavioral outcomes (e.g. bicycling frequency), to capabilities (e.g. the real opportunities people have to use bicycling to fulfill their needs).

Besides, we use Sen's Capability Approach as a guiding framework to investigate how inequity in bikeway investment could be alleviated in Twin Cities. We establish spatial multi-dimensional measures that can support the identification and evaluation of bikeway investment inequity at the community level. Considering the data availability, we develop four types of measures at the census tract level to represent four elements in the Capability Approach, including transport resource and services, personal factors, environmental factors and behavioral outcomes. These measures include (1) bikeway lengths, (2) socio-demographic characteristics, (3) accessibility via bikeway, (4) bicycling commuting rate. All these measures are developed from American Community Survey Data and Local Land Use Data. The results of each measure complement each other, and a combination of these measures provides a better understanding of bicycling inequity. Furthermore, the multi-dimensional approach to account for bikeway investment inequity could help support planning and policy decisions at the community level.

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Key Words: the Capability Approach, Bikeways, Equity, Social Justice

COMPARING TRANSPORTATION SUSTAINABILITY AND REGIONAL SUSTAINABILITY OF MSAS IN THE US USING ARTIFICIAL NEURAL NETWORK CLUSTERING TECHNIQUES

Abstract ID: 1051

Individual Paper Submission

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Improving the sustainability of a transportation system has been recognized as an important goal to achieve sustainability of cities and regions. While there is a consensus that sustainability should be measured from the environmental, economic and social aspects (Mihyeon Jeon, C., & Amekudzi, A., 2005; Litman, T., 2007), there is a lack of studies to compare the relationship between transportation sustainability and regional sustainability. To fill in this gap, our study compares these two sets of sustainability measures using data collected for the metropolitan statistical areas (MSAs) in the US. We will first use artificial neural network clustering techniques to classify MSAs based on the measured indicators for transportation sustainability and regional sustainability separately. Besides, the method will also be used to examine the relationships between indicators in the same set. Then we will use geographical mapping to investigate the spatial distribution pattern of the two sets of sustainability clusters. The outcomes are expected to demonstrate the extent to which transportation sustainability matches regional sustainability.

There are 383 MSAs according to the 2010 census in the U.S. Data are primarily retrieved from two publicly available data sources – the US Census Bureau’s 2013-2017 American Community Survey 5-Year Estimates and the 2017 National Household Travel Survey data from the Bureau of Transportation Statistics. Other data sources, such as National Emission Inventory from the Environmental Protection Agency and Fatality Analysis Reporting System from National Highway Traffic Safety Administration, are also used for additional variables and spatial data.

Artificial neural network clustering techniques are used to explore the relationships and patterns of the sustainability indicators. The self-organizing map (SOM) method is used to visualize the results of similarity or dissimilarity between MSAs in terms of those indicators measured for sustainability (Arribas-Bel & Schmidt, 2013). A two-dimensional “map” made by hexagons is created showing different clusters of MSAs based on all of the indicators. For each indicator, a weight plane, which is a rectangular arrangement of colored hexagons, will be generated by the SOM method, which would help us discover complex relationships between indicators. The indicators that are highly correlated will be represented as similar weight planes while dissimilar weight planes indicate that the indicators are independent. The MSAs share similar features on sustainability would fall into the same cluster. Dissimilarity between observations is translated into distance on the neighboring distance map. The larger the distance is, the more dissimilar of the two MSAs. The clustering and dispersing patterns of MSAs based on transportation sustainability and regional sustainability are mapped and presented in ArcGIS for comparison statistically and graphically. The variation of information, which is a measure of distance between clusters, will be used to compare the clustering results derived from the two sets of indicators.

This study is a part of long-term research project which aims to explore and understand the connections between transportation and regional sustainability and resilience. The project is expected to provide a solid foundation for developing strategies to make cities connected, accessible, resilient, and sustainable.

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Key Words: Regional sustainability, Transportation sustainability , US metropolitan areas, Self-organizing map

UNIVERSITY TOWNS AS CATALYSTS FOR LIGHT RAIL TRANSIT

Abstract ID: 1066

Individual Paper Submission

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In recent years, light rail transit has emerged as a viable, alternative transportation option in the United States. Urban areas are investing in light rail and transit-oriented development that marries public transit investments with larger urban infrastructural developments around light rail train stations. The core idea behind transit-oriented development has always been to allow walkability within the community and to let transit aid travel outside the community (connecting multiple communities and services). However, now

that the idea of public transit is commonplace, it is important to investigate the ways of bringing public transit to life in urban areas that could benefit from it.

Central Theme and Research Question

This doctoral research places university towns at the center of light rail planning to determine whether they can be catalysts for the development of light rail transit projects on their campuses. Universities are unique in their setup. They can either add riders to an existing light rail system or create the need for a new system because they possess the ridership that can be captured. This research will use University of Georgia as a case study. Universities are unique in their setup in many ways:

- - There are already transit riders ready to be captured
- - Centralized decision-making
- - Most university campuses are multimodal in nature that includes pedestrian and bike infrastructure along with public transit

Research Question

Can university towns with captive ridership serve as catalysts for light rail transit systems?

Methodology

Universities are the primary generators of transit ridership in college towns. The mode of transportation selected for this research is light rail due to its multiple advantages over other modes of transit. These advantages include but are not limited to higher speeds, fixed guideways separate from other roads, higher intake of passengers per trip and environmental benefits. The research will use case study approach and identify newer light rail projects within the United States. Thereafter, the selected case studies will be used to develop evaluative criteria, which will be tested on the university town of Athens, Georgia. Once tested, these criteria can also be applied to other university towns thinking about developing light rail transit in the future.

Relevance of Research

The main deliverable of this research is a set of criteria for setting up light rail transit in college towns with captive ridership. Increasingly, transit (bus or rail) is becoming a partnership effort between various stakeholders and agencies and those in need for it should be able to set up a system that works for them and keep light rail transit a viable option. This research will position college towns with captive ridership at the center of public transportation planning to establish the need and feasibility for light rail transit in towns that require it. It will create a framework that can be generalized for other college towns that are keen to promote light rail public transit for their community members. At its core, this doctoral research will provide college towns with the framework required to be the catalysts for light rail transit, in case there is a captive ridership already available (or in the process of generating it).

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Key Words: Light Rail Transit, Public Transit, University Towns, Transportation Planning

SWAPPING LOS FOR VMT IN PROJECT-LEVEL ENVIRONMENTAL REVIEW: IMPLEMENTATION CHALLENGES, OPPORTUNITIES, AND TRADEOFFS ACCORDING TO LOCAL PLANNING DEPARTMENTS IN CALIFORNIA

Abstract ID: 1070

Individual Paper Submission

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Automobile level-of-service (LOS) is the most enduring performance metric in transportation. And local governments throughout the United States have for decades used LOS to analyze the transportation impacts of land developments, and to condition development approvals. In that role, LOS has often encouraged sprawl, made urban development harder, and increased vehicle miles traveled (VMT). But those outcomes conflict with changing policy priorities that often favor multi-modal accessibility, climate change resiliency, and affordable housing over automobility. So some jurisdictions are turning to transportation impact metrics other than LOS. California’s recent state-level changes are the most sweeping thus far.

California enacted Senate Bill (SB) 743 in 2013, which directed the Governor’s Office of Planning and Research to revise the guidelines that dictate how transportation impacts are assessed under the state’s project-level environmental review law. The goal was to “promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses” (SB 743, section 5). In December 2018, the state officially replaced LOS with VMT as the principal measure of transportation impacts under the California Environmental Quality Act (CEQA). Local governments must adopt a VMT-based standard by July 1, 2020.

Judging solely from the media and punditry, the switch from LOS to VMT could be onerous and ineffective, with cries of high costs, increasing congestion, inconsistent application, and usurpation of local land use control. Despite the rhetoric, however, not much empirical research exists regarding the feasibility and impacts of implementing the shift from LOS to VMT. This study helps fill that research gap.

In the summer of 2018, we surveyed city and county planning departments in California regarding their familiarity with SB 743, their current use of LOS and VMT in their planning and development approval processes, the propriety of using one versus the other, the challenges of implementing SB 743, and the continued role of LOS after they implement SB 743. We emailed surveys to 499 jurisdictions (>90% of California’s cities and counties), and received usable responses from 87 (17% response rate). The 87 responding jurisdictions house over 40 percent of California’s population.

Our results indicate that most local governments are aware of the mandated LOS-to-VMT switch for CEQA analyses, but most had not yet determined how best to implement it. Our results also indicate that

LOS may not be as engrained in planning practice as previously thought, though some jurisdictions will continue to use LOS for non-CEQA purposes after SB 743 implementation. We also found that the most commonly reported impediment to implementation was a lack of either funding, personnel, or knowledge. Other frequently cited obstacles included inadequate training (in VMT estimation methods), lack of community or political acceptance, and the burden of applying a VMT standard in rural areas. However, our survey results do not support claims of exorbitant VMT analysis costs.

Our results illustrate the types of difficulties, opportunities, and tradeoffs that local governments across the United States could experience in swapping LOS for a transportation impact metric based on travel demand, like VMT.

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Key Words: Level of service, Vehicle miles traveled, Environmental impact analysis, Transportation impact analysis, Development streamlining

EXAMINING PUBLIC TRANSPORT ACCESS AND USE AMONG WOMEN IN INDIA: CASE OF A MEDIUM SIZED CITY, PANCHKULA

Abstract ID: 1074

Individual Paper Submission

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Transportation enables access to a wide range of essential activities, but access to transport is in no way equal by gender. Scholars have long critiqued mainstream transport planning for its gender neutral, and ‘techno—managerial’ focus, i.e., for being largely obsessed with men’s travel needs and economic efficiency of systems, rather than considering more thoroughly the human aspects of mobility of all genders. Despite this long standing recognition, transport planning in India continues to follow a gender neutral approach; the implications of which are most prominently seen in the form of transport system inefficiencies and poor safety and security levels related to mobility of women in cities in India.

This paper aims to understand and analyze women’s mobility characteristics and issues in a medium sized city in India – Panchkula, with the key intent of mainstreaming women transport needs and concerns in urban transport planning and policy making processes. Special attention to women needs is warranted

based on the premise that ‘planning a safe transit system for women eventually benefits all’. The specific questions this paper aims to address are: (1) How do women negotiate mobility on a daily basis, across different subgroups by age, income, marital status and occupation? (2) What are the key challenges women face, in relation to accessing and using transport in the city? The paper concludes with a discussion on how can women needs be better integrated into urban transport planning and policy making, in special context to Indian cities.

The study adopts a mixed methods approach, relying primarily on detailed travel diaries of working women and female students, semi-structured interviews and focused group discussions in the city of Panchkula. Extensive safety audits were conducted prior to the surveys to identify transport deserted areas and the unsafe areas in the city, which involved crowd sourcing safety and security information from citizens in the city. Identification of the survey locations was based on the findings from these safety audits. Data collection for the study was carried out over summer 2018.

The preliminary study findings indicate that the routes served by available public transport modes were also the most safe areas in the city. However, access and use of public transport involved constant fear of sexual harassment and abuse, particularly amongst young and single women, and women from low income households. In absence of a city level, government provided transport system, women used public transport (para transit and/or informal transport systems) only when they had absolutely no other option available to them. In absence of safe and adequate public transport system, women often spent long hours commuting to work either using multiple transport modes or by walking long distances.

The study findings would be of particular interest to planners and policy makers interested in gender sensitive planning and policy making in general and in special context to India. Given that Panchkula is planning to build and invest in its city transport system, this research presents a unique opportunity in terms of better informing planners and policy makers about women’s travel needs and concerns, and help them integrate them more effectively in city’s transport system and planning approaches.

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Key Words: Urban transport planning, Gender sensitive transport, Women's mobility, Mobility barriers, India

THE ROLE OF URBAN FORM ON THE PERFORMANCE OF SHARED AND AUTOMATED VEHICLES (SAVS)

Abstract ID: 1078

Individual Paper Submission

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Technology companies, automobile manufacturers, as well as Transportation Network Companies (TNC), such as Waymo, Ford, General Motor, and Uber have signaled their intent to deploy self-driving fleets of shared vehicles. Thus, we may anticipate an increase in the adoption of shared and automated vehicles (SAVs) in the near future. Simulation studies using data from several different cities, such as Atlanta, Austin, Singapore, and Lisbon, suggest that the promising SAV system hold great potential in reducing vehicle ownership, curbing urban parking demand, and altering the spatial distribution of parking infrastructures. Meanwhile, SAVs can also result in negative externalities such as extra Vehicle Miles Traveled (VMT) and larger transportation energy consumption and Greenhouse Gas (GhG) emissions if not powered by electricity. Prior studies have also identified tradeoffs between the performance of SAV system and the environmental impacts of the system using data from one city (Zhang et al., 2015). However, it remains unclear how the performance of SAVs, especially the required fleet size of the system, average waiting time of the clients, ride-sharing potential, etc., and the environmental impacts of the system may vary across cities with heterogeneous travel pattern, land use structure, and road network. Therefore, the objective of this study is to investigate the role of urban forms in the performance and environmental impacts of the SAV system. This study is the first research effort that simulates and compares the feasibility, performance, and environmental impacts of SAV systems across U.S. cities with significantly different urban structures and travel demand patterns.

The research methodology is threefold. First, we will collect travel demand, road network graph, and parking inventory data for the 50 most populated metropolitan areas in the U.S., according to 2015 American Community Survey data. To date, we have collected travel demand data and detailed street network data from 17 cities. The data will be subsequently input into the agent-based SAV model built by Zhang and Guhathakurta (2017) to determine the performance of SAV system, including SAV fleet size to serve 0-100% travel demand, the average waiting time, and the percent of trips that can share rides (assuming 0-100% willingness to share), and the environmental impacts of the system, including empty VMT generation, spatial and temporal distributions of parking demand, energy consumption (by fuel type) and GhG emissions. Second, we will develop and apply urban form evaluation metrics to the study areas. Specifically, we will collect the metropolitan-level urban sprawl index (Ewing and Shima, 2014) and develop variables associated with land use pattern (e.g., density, diversity, design [Cervero and Kockelman, 1997]) and street network structure (e.g., travel demand centrality, street network betweenness, average node degree, etc. [Boeing, 2019]). Finally, the correlation between SAV system performance and environmental impacts will be examined using a linear regression model or ANOVA analysis (by clustering cities using urban form metrics). The hypothesis is that less sprawl cities or cities with compact urban form and more connected street network will lead to better SAV system performance, i.e., smaller fleet size per traveler, shorter waiting time, etc., and smaller environmental footprint, i.e., less energy consumption, parking demand generation, etc.

The study informs the policymakers about the influence of city forms on the performance and environmental externalities of SAV system to prepare cities for the coming of this promising new transportation mode. The results will provide insights on not only the benefits of the SAV system but also the accompanying side effects so that policymakers can proactively devise interventions from both travel demand management and land use perspectives to curb the negative impacts of the technology.

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Key Words: Urban form, SAVs performance, Environmental impacts, Multiple city comparison

WHAT DOES 'SMART' IN SMART MOBILITY MEAN FOR INDIA'S SMART CITY MISSION

Abstract ID: 1080

Individual Paper Submission

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Recently, the concept of a Smart City (SC) as a means to enhance the quality of life for citizens gained increasing importance in the agendas of policymakers in both developed and developing nation's context. A number of developing countries such as China and India, are investing intensively in various projects to transform cities into smart cities. Most of these initiatives focus on developing smart transportation and smart environments (Gupta and Hall, 2017). However, the current understanding of what 'smartness' means, remains ambiguous and is mostly reflective of how developed nations perceive a 'smart' city (Kitchin, 2015). In developed nations, 'smartness' is more often seen as employing Information and Communication Technology (ICT) to advance urban system, however, in the developing world, this does not have to be the case. Planners must examine what 'smartness' means for cities in the global south. Smart Cities and Communities (2013) indicated that more than two-thirds of smart projects remained in the pilot stage for their lack of viability in the city. It is therefore important, to find ways to evaluate prior to implementation, the potential viability of a 'smart' city project through a definition of what smartness means for each individual city. The Indian Smart City Mission (SCM) launched in 2015 provides a unique opportunity to understand what does 'smartness' mean for the proposed smart cities in its implementation phase. Through this research, we explored the perspective of 'smart mobility' in the Indian context by focusing on two research questions: 1) what are the kind of mobility projects being proposed/implemented in the proposed Indian smart cities and 2) why are these considered 'smart'?

This research examined the mobility projects for top 60 cities listed on the mission's website using thematic analysis to develop four key themes under which these projects were categorized. This was followed by interviewing city officials of two proposed smart cities, Kanpur and Kakinada that are implementing smart mobility projects to understand why these mobility projects were considered smart. These interviews were then analyzed using the grounded theory approach to strengthen the earlier identified key themes in defining smart mobility. The key themes identified are: a) optimizing logistics and transportation in urban areas, b) providing users with dynamic and multi-modal information for traffic and transport efficiency, c) assuring sustainable public transportation, and d) using technology infrastructure. The study found that the occurrence of these key themes varied across the 60 cities with respect to population sizes. The analysis further highlighted the emphasis on creating sustainable forms of mass transit in smart mobility projects. Furthermore, the analysis informed that 'smart' mobility for the city officials is more about providing greater access to public transportation while attending to environmental concerns than simply employing intelligent, ICT-based solutions. This study suggests

‘smart mobility’ in India -based on the analysis of the smart mobility projects and interviews- is understood in a slightly different manner than in a developed nation’s context. This difference can be explained by the state of infrastructure and pressing urban challenges in India when compared to cities in a developed nation. This slightly different connotation of ‘smart mobility’ reinforces the need to contextualize ‘smartness’ than standardizing the term.

With a growing interest in SC development, this research will cater to various audiences from researchers working in the area of smart cities to traditional transportation-related fields. The results from this study may also benefit city leaders, managers, and other smart city implementers interested in advancing similar smart city programs focusing on mobility by providing an appropriate frame of reference to define what smart mobility could mean for their respective cities.

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Key Words: Smart Cities, Smart Mobility, Smart Cities Mission, Transportation

CLIMATE JUSTICE IN ROAD NETWORK’S VULNERABILITY TOWARDS SEA LEVEL RISE INDUCED FLOODING

Abstract ID: 1090

Individual Paper Submission

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Many coastal cities are facing increasing flooding risks due to sea level rise (SLR). In an effort to establish corresponding adaptation plans, researchers and local agencies have assessed road network systems’ vulnerability towards SLR-induced coastal flooding (hereafter referred to as “transportation vulnerability”). However, few empirical studies have incorporated climate justice in these assessments. Climate justice is a concept derived from environmental justice that can refer to a wide range of inequities associated with climate change (Schlosberg, D., & Collins, L. B., 2014). Since President Clinton issued Executive Order 12898 in 1994, Federal Highway Administration is required to develop environmental justice strategies to identify and address disproportionate environmental effects of their programs, policies and activities on vulnerable population.

Previously, the discussion of climate justice was mostly on global and regional level, while climate variability and changes were encountered at local level (Barrett, 2013; Moser & Ekstrom, 2010). Fortunately, there is a growing discussion on examining and integrating climate justice in local plans (Steele, MacCallum, Byrne, & Houston, 2012). Aiming to contribute to this conversation from the perspective of transportation planning, this paper examines the accessibility-based distributive justice of transportation vulnerability in Tampa Bay Region, FL. More specifically, it will address the following research questions: 1) How to define and measure climate justice in the context of transportation

vulnerability analysis? 2) Does climate injustice exist in Tampa Bay Region? If so, who are the most vulnerable groups?

This study identifies potentially climate-vulnerable groups as minority population, low-income population and population in areas with lower levels of transportation service. To mimic future transportation network and travel demands, this study adopts 2040 cost affordable network alternative scenario in Tampa Bay Regional Planning Model v8.2 (TBRPM v8.2), which is consistent with Tampa's long-range transportation plan and comprehensive plan. Based on National Oceanic and Atmospheric Administration (NOAA)'s adjusted local SLR scenarios at the closest tide gauge (in St. Petersburg) and the recommendations from NOAA Technical Report NOS CO-OPS 083, 1ft and 2ft SLR scenarios are adopted as baselines for short-term planning and long-term planning respectively. This paper then measures climate justice using a revised vulnerability index, buffer comparison index and area comparison index.

The results show great accessibility losses in Tampa Bay even under 1 ft SLR scenario, and the burden of accessibility losses is disproportionately put on communities in areas with low road network densities. Socioeconomically vulnerable population do not necessarily suffer more accessibility losses due to SLR induced flooding, but this study does not consider their abilities to cope with accessibility losses or transit mode. The results in Tampa Bay Region is also not proof that socioeconomically vulnerable population do not bear more accessibility losses in other areas.

In sum, this study (1) confirms the importance of network redundancy in improving resiliency; (2) identifies suburban communities highly reliant on coastal cities as the most climate-vulnerable group in Tampa Bay Region, and suggests other studies add this group to the list of climate-vulnerable groups; (3) demonstrates the importance and method to evaluate climate justice in transportation vulnerability analysis.

The results of this study can facilitate Florida Department of Transportation (FDOT)'s decision making on future allocation of adaptation resources in Tampa Bay Region, while the method can be adopted by any other regions.

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Key Words: transportation vulnerability, sea level rise, climate justice

THE IMPACTS OF LIGHT RAIL EXPANSION ON RESIDENTIAL PROPERTY VALUES: A CASE STUDY ON THE HOUSTON'S LIGHT RAIL SYSTEM

Abstract ID: 1100

Individual Paper Submission

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Houston's light rail transit line, or the so-called METRORail, has been expanded in recent years from a single 7.5-mile line to a 22.7-mile light rail system with multiple lines. Previous studies of the author employed regression models to examine the effects of the single line light rail on residential property values in different time spans. However, they have not controlled spatial dependence or autocorrelation and heterogeneity. Spatial regression models improve the model fit but they have not completely ruled out spatial autocorrelation. It is also unclear if the expansion of the light rail system has strengthened or weakened their effects on residential property values. This research extends the studies to examine the impacts of the Houston's METRORail expansion with the most recent 2018 household data. It adopts the difference-in-differences (DID) method to avoid the bias in the estimated coefficients from the omitted variables and treat the problem of spatial autocorrelation explicitly. It also compares the results with those in the previous studies and tests if DID improves model fit and eliminates spatial autocorrelation. It intends to find out if the expanded light rail system has further increased the attraction of the neighborhoods and generated the value uplift for residential properties in the light rail corridor.

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Key Words: Light Rail, Residential Property Values, ordinary linear regression, spatial regression, difference-in-differences (DID) method

ANALYZING PUBLIC TRANSIT ACCESSIBILITY AND LAND USE IMPACTS IN A MID-SIZED U.S. METROPOLITAN REGION: THE CASE OF COLUMBIA, SOUTH CAROLINA

Abstract ID: 1110

Individual Paper Submission

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Many small to medium sized U.S. regions are characterized by continued low-density and sprawling urban development with most of the people that depend on public transit continuing to live in core sections of these metropolitan regions (Glaeser, Kahn and Rappaport 2008; Grengs 2001). This, thus, presents unique challenges for public transit systems in such regions. Primarily, with low-density and sprawling land use, the challenge arises in how to provide or maintain regional public transit accessibility

– especially with standard bus service as the only mode of public transit. Also, as employment and regional opportunities (i.e., entertainment, grocery stores, public amenities, etc.) become more spread out, accessibility and mobility become more limited for transit-dependent riders and especially neighborhoods in core areas which may not experience increased employment or regional opportunities – necessitating the use of a personal auto-mobile. The challenge arises, then, in maintaining or enhancing accessibility and mobility for transit dependent riders and neighborhoods (Wu and Murray 2005). Accordingly, providing or enhancing public transit accessibility is important because it helps: a) sustain transit systems by maintaining core transit ridership (Boarnet, et al. 2017); and b) enhance overall regional economic growth by providing residents with new employment opportunities.

However, while existing studies focus on transit equity (i.e., the extent to which people that need transit have access to it) and equity in service provision (i.e., extent of service provision, different transit mode fares) in larger regions (Golub, Marcantonio and Sanchez 2013; Grengs, 2010), residents of smaller regions may also experience a lack of accessibility – and potentially greater inequity compared to larger regions given their limited transit mode options. This study thus analyzes how Columbia, South Carolina’s standard bus public transit system relates to land use change (i.e., the rate, location, and impact of population and employment growth on the built and natural environment) and accessibility (i.e., the ease of reaching destinations) – especially for transit-dependent riders and neighborhoods. This research has two underlying research questions: 1) how are bus routing decisions and service related to land use changes?; and 2) how does Columbia regional bus service provide regional accessibility for transit-dependent riders and neighborhoods?

I use mixed-methods to answer these questions, respectively: interviews with transportation officials and planners to identify the region’s goals and gravity models to determine (primarily) employment accessibility over the past decade. Preliminary results suggest that planners’ transit goals focus on providing mobility for dependent riders – but with limited interrelated land use goals. However, regional accessibility has steadily decreased for transit dependent neighborhoods. Despite the goals of planners to maintain ridership for transit dependent riders, results suggest the need for increased combined regional transit and land use goals.

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Key Words: Accessibility, Bus Service, Transit Dependency

DO BICYCLE INFRASTRUCTURES HELP TO INCREASE RIDERSHIP? – A CASE OF THE CITY OF NEW ORLEANS

Abstract ID: 1118

Individual Paper Submission

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The supportive role of the built environment for public health is a growing area of interdisciplinary research. It has made planners and the public health professionals digging into finding the motivators and deterrents of active living (Wang & Wen, 2017). Building bicycle facilities is known as one strategy that helps individuals incorporate physical activity into daily life. Bike lanes improve accessibility by enlarging catchment area for disadvantaged groups, who do not have access to automobile. As a transportation mode, cycling accounts for a small share of commuting trips in the United States. Despite nearly 80% of urban trips in the United States are shorter than two miles, cycling shares is only about one percent of all commuter trips (Moudon et al., 2005).

In this study, we investigate the effect of building bicycle infrastructures on bicycle ridership in New Orleans. Since Hurricane Katrina, bicycle infrastructure network in New Orleans has tremendously grown from 12 miles before 2005 to approximately 120 miles in 2017. Simultaneously with the expansion of bicycle network, Regional Planning Commission (the Metropolitan Planning Organization for New Orleans) along with Pedestrian Bicycle Resource Initiative began to count track long-range trends annually (Tolford, 2017). In this study, we select 59 count locations across the city of New Orleans to explore the impact of building bicycle infrastructure on bicycle ridership. These sites were monitored up to seven years between 2010 and 2017. Several statistical techniques are employed to analyze the data including descriptive statistics, t-test, and multilevel Poisson regression (Raudenbush, 2002).

Multilevel Poisson regression with controlling for the spatial autocorrelation shows that bicycle count increases with the income, decreases with the percentage of black residents, and increase with the percentage of nonwhite/nonblack residents of the surrounding neighborhood. There are six built environment variables that are statistically significant. Designating a portion of streets to the any type of bike lane is the most significant contributor to the increased bicycle ridership. In addition, bicycle ridership increases with land use mix and percentage of commercial land. The more diverse of land uses, the more destinations are accessible by cycling. The bicycle ridership also increases with the average daily traffic on the street. It seems surprising but can be reasonable because the bicycle counts were conducted at local and neighborhood streets, not highways. Traffic congestion on these streets makes people feel safer to bike due to the lower speed of motor vehicles. Bicycle ridership also decreases with walk score because when the destination is accessible by foot, walking is preferred rather than biking.

Cycling has the potential to address the last-mile issue in passenger multimodal transportation and combat decline in individual's physical activity, understanding influential factors on cycling behavior is critical for urban and transportation planning.

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Key Words: bike count, ridership, bicycle infrastructure, bike lane

ANOTHER LOOK AT LOCATION AFFORDABILITY: UNDERSTANDING THE EFFECTS ACROSS URBAN FORM AND INCOME GROUPS

Abstract ID: 1123

Individual Paper Submission

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Interactions between location and transportation costs have been observed since at least von Thunen's agricultural land price analysis in 1826. More recently, the concepts of location efficiency and location affordability (LA) have been embraced by researchers and policy makers in local, regional, and federal government. Concepts of LA have driven a movement to reconsider housing affordability by looking at both housing and transportation costs (H+T).

These concepts have come under scrutiny by researchers who find fault with methods for measuring LA and the potential to overstate its impacts on household transportation expenditures. Several recent papers have taken up this issue using new data sources and methods to find weak or inconsistent relationships, especially when compared to household factors. Most recently, Smart & Klein (2018) employed the Panel Survey of Income Dynamics (PSID) to test whether households in transit accessible locations have lower transportation costs and whether households that move into more transit accessible locations realize transportation cost savings. Their findings showed little to no association between transit-accessibility and transportation cost savings and, unsurprisingly, a far stronger influence of household characteristics.

We use the same data set to further test the location affordability hypothesis and explore implications for planning practice. Our analysis differs in several key ways. We use a more complete set of location efficiency characteristics, which include multiple measures of transit accessibility and quality and urban form at the block group level. In addition to a multivariate OLS regression model, we explored relationships between accessibility and transportation for five income groups and in several different urban form typologies.

Findings from our analysis of PSID households (N = 8,407) generally support the claim that households living in more accessible locations tend to have lower transportation costs, controlling for household income, size, number of workers, and children. We tested models with and without car ownership to show that about half of the savings from living in an accessible place is due to differences in car ownership. Unsurprisingly, cost savings were more substantial for those households who took advantage of their proximity to transit by using it at least occasionally. These patterns held up across income and urban form groups. Our income groups range from households earning less than 30% of their region's area median income (AMI) to those earning more than 150% of the AMI. We show both statistically significant and meaningful cost savings, which are explored in detail for each of our urban form and income groups.

When looking at different types of places and households, we see that reduced transportation costs can help to offset higher housing costs. But in the most urban places, premiums paid for central, accessible locations can surpass even substantial transportation cost savings. In light of the housing affordability crises in major cities across the country, this finding is not surprising. But it does emphasize the need to preserve and create affordable housing in ways that take into account a household's transportation costs, given the accessibility of a given location and household characteristics. With the observed potential for transportation cost savings and documented individual and population-level health benefits in accessible places, planners should continue their efforts to improve accessibility in different neighborhood types—not just the most urban ones—and continue to preserve and create affordable housing in location efficient places.

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Key Words: location affordability, transportation expenditures, accessibility, housing affordability, urban form

TRENDING URBAN: THE PRACTICAL RAMIFICATIONS OF URBANIZATION FOR TRANSIT PLANNING AFTER THE 2020 CENSUS

Abstract ID: 1124

Individual Paper Submission

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Federal transit support in the United States is split between § 5311 (non-urbanized areas or rural) and § 5307 (urbanized areas), and these categorizations have management and funding implications. Whether an area is urbanized or non-urbanized is determined by the U.S. Census Bureau every ten years. Suburban sprawl means that after 2020 many rural areas will become urbanized, and their transit systems will transition to serve urban areas, and those transitioning from rural to large urban areas may face temporary funding gaps under current regulations. Planners need to identify transit agencies that will be absorbed into larger urban areas and work with the agencies' Metropolitan Planning Organizations and State Department of Transportation to plan for programmatic and funding changes.

The main difference between the § 5311 and § 5307 formulas is in the way funds are apportioned to the transit agency. For the § 5311 formula, funds from FTA are apportioned to the state government according to the state's national portion of the non-urbanized population and land area. Similarly, to § 5311 funds, small urban § 5307 funds are also apportioned to state governors based on urbanized population, population density, and low-income population. Large urban § 5307 funds are apportioned to either the Metropolitan Planning Organization (MPO) for the region (who then allocates the funding to transit agencies) or to the transit operators directly, and the apportionment is based on urbanized population and density, as well as NTD performance metrics.

The § 5311 & § 5307 funding formulas also differ based on permitted expenses and reporting requirements. Under the § 5311 formula, rural transit operators are permitted to use up to 100% of the FTA funding on operating expenses (with a match). Under the § 5307 formula, recipients are not permitted to use FTA funds for operating expenses except for under the stipulations set forth by the "100 bus rule". This rule, introduced under MAP-21 legislation in 2010, states that if a § 5307 transit operator can finance operating expenses if the system operates between 75 and 100 buses, but these funds are limited by a system's percentage of regional passenger miles (49 CFR 5307). We posit that the ramifications of federal urban categories are significant for transit operators, who operate on small margins and should be considered as an integral part of the planning process.

Current transit operators whose service areas are reclassified from rural to urban after the 2020 census will face operational and planning challenges. In this paper, we use logistic regression models and GIS methods to predict those areas in Georgia that are trending urban and show how the rapid low-density urbanization of places that were previously designated as rural is not fully contemplated in current transportation planning regulations. As part of our analysis, we use Georgia as a case study and present national estimates for areas that will likely see changes in FTA operating assistance after the 2020 census. We present accessible methods that planners can use to predict urbanization scenarios, and also highlight the need for a greater focus on trending urban areas as a grey space between traditional urban and rural transit paradigms.

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Key Words: Rural Transit, Urbanization, Federal Transit Administration, Transportation, Census

DRIVERS PERCEPTION TOWARDS BIKESHARE USERS IN MEXICO CITY.

Abstract ID: 1130

Individual Paper Submission

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Over the past 15 years, bikeshare systems (BSS) have developed from being interesting experiments in urban mobility to the fastest growing public transportation in history (Midgley, 2011). Fifteen years ago, five BSS were operating. Today, there are more than a thousand BSS operating in more than 80 countries (Bike-sharing Blog, 2017). In recent years, bikeshare safety has gained a lot of attention among scholars due to the reduced number of accidents in the systems. Data comparing bikeshare accidents and fatalities suggest that, across the world, it is safer to ride a bikeshare bicycle than a private bicycle (Angus, 2016; Martin E. , Cohen, Botha, & Shaheen, 2016).

This research focuses on drivers' perception towards bikeshare users in Mexico City. We examine the hypothesis that drivers have a more positive perception towards bikeshare users compared to private cyclists. This assumption is based on empirical evidence that shows drivers exhibit behavioral sensitivity to a different aspect of cyclists' appearance during an encounter (Walker, 2006). Although this research does not rely only on appearance, it gives underline empirical support on how drivers may change their attitude when interacting with bikeshare users.

To gather information about drivers' perception towards cyclists we employed a self-reported cross-sectional survey distributed by email and social media in Mexico City. The online survey was launched on October 24, 2018, and remained open until January 16, 2019 (84 days). Participants aged 18 years or older and people with a driver license were eligible to partake in this voluntary study. The survey included nearly 55 questions and took 12-14 minutes to complete. The sample was unrestricted, meaning that anyone who had access to the link could complete the survey and there was no compensation to respondents. The final number of completed surveys was 700.

The findings from this research can be used to better plan for cyclists in general and to help transportation planners, city officials, policymakers, bicycle advocacy groups in the evaluation of the prospect of bikeshare programs acting as a catalyst for the takeoff of private riding. The information derived from this research can generate data to promote or justify the implementation of new bikeshare systems in other cities that seek to promote the use of the bicycle but are unsure about bicycle safety, or even to justify the expansion of existing systems to support bicycle takeoff at different cities.

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Key Words: Bikehsaring, Cyclist, Drivers, Perception

EXAMINING THE BUILDING USES OF TODS IN TERMS OF SOUND IMPLICATIONS?

Abstract ID: 1148

Individual Paper Submission

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In last decades, Transit Oriented Developments (TOD) have stimulated heated debates in various aspects of planning including land use, transportation, property values and so on (Curtis et al., 2009; Diao et al., 2016). TODs combine living in higher density settings with the opportunities, mixed-use and pedestrian pockets and easy access to transit stations (Curtis et al., 2009). TODs include several essential characteristics. Proximity to transit encourages people to use transit, not to drive, and to increase walking and biking, all of which lower congestion (Calthorpe 1993). Another feature of TODs is multi-modal transit opportunities (Calthorpe 1993). With the effects of characteristics, TODs promise vibrant economies and active life that promote social interactions and environmental sustainability (Curtis et al., 2009). However, TODs are also associated with disamenities including congestion and noise (Diao et al., 2016). Researchers have examined TODs' amenities and non-amenities, but they have not yet investigated acoustics of building uses as a part of a healthy life component. Therefore, this paper sets out to understand the implications of sounds on TODs by assessing the TODs in the Dallas-Fort Worth metropolitan area. The research probes whether TODs generate versatile sounds that could affect residents' health. So, the research question of the study is what are the implications of TODs on sounds of building uses?

In order to answer the research question, this research relies on quantitative data. The quantitative data includes both sound pressure level (SPL) and sound sources (SS) measured through grid sampling method (King et al., 2012; Morillas et al., 2011). After a series of suitability analysis including TOD criteria and sound availability, the study areas include TODs with a half-mile buffer zone.

The results of the study provide a richer understanding of the sounds in TODs. Since the role of sound in the urban environment is still under-explored in planning, we would like to provide an insight into the relationship between sound, health, and TODs.

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Key Words: Noise, Sound, Transit-oriented developments (TODs), Health, Quality of Life (QoL)

CHANGES IN TRANSPORTATION COST AND ITS EFFECT IN LOW-INCOME HOUSEHOLD'S BUDGET

Abstract ID: 1151

Individual Paper Submission

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The U.S. BLS Consumer Expenditure Survey estimates that the average household spends 27 percent of their income on housing, 10 percent on food and 13 percent on transportation, but this might not always hold true for lower income households with smaller budgets and different priorities. Rational choice theory states that individuals, while subject to budgetary constraints dependent on their income, will seek to make rational utility-maximizing decisions. Using discrete choice models helps understand the effect that changes in the price of basic goods and services have in low-income household's ability to acquire certain goods and chose over others. Evidence suggests that transportation is one of the areas in which low-income households' expenditures are higher as a share of total income compared to middle to high-income households. Further, there is evidence in shrinking cities that job suburbanization is reducing job accessibility for central city residents. Together, these factors change the dynamic of how low-income households budget their money. Existing research does not explain the impact that higher transportation costs have on low-income households' ability to save, pay debt or spend on other goods and services. This research explores the budgetary constraints and trade-offs that lower-income households face that could be attributable to higher transportation expenditures than in years past and in comparison to higher income households. Using data from the U.S. CPI for the Cleveland-Akron MSA from 2007-2017, I expect to find that over time, the cost of transportation has increased over other goods and services, forcing low-income households to allocate a higher share of their household budget on transportation and reduce consumption in other areas. The impacts on shifting consumption patterns—for example, away from investing in businesses, education, etc—are analyzed to understand their long-term impacts on households and society.

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Key Words: Transportation, Budget, Expenditure, Low-income, Equity

TRANSIT OPERATORS IN METROPOLITAN TRANSPORTATION DECISIONMAKING: THE CASE FOR ANAYLZING PLANNING INSTITUTIONS

Abstract ID: 1152

Individual Paper Submission

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This study examines the potential for regional transportation planning and investment decision-making conducted by MPOs to support an intermodal transportation system. The new federal requirement for a transit seat on MPO boards represents a significant institutional innovation. We ask whether this change reverberates through MPO investment outcomes.

Planning scholars interested in institutions argue increasingly for traditionally sought more to identify solutions to urban challenges

We approach this study from an interest in the role that institutions and governance structures play in shaping potential planning outcomes (Salet, 2018).

This research examines the impact of regional governance structures on investment outcomes for public transit. Specifically, we study whether a new federal mandate for transit agency representation on MPO boards is yielding more transit-focused regional investment decisions.

Since the early 1970s, federal transportation law has required urbanized areas to have a state-designated metropolitan planning organization (MPO) to coordinate regional transportation planning and spending. All MPOs are governed by a policy board, most members of which are appointed by virtue of their role as local elected (city or county) officials. To receive federal transportation dollars, the MPO board must approve a short-range Transportation Improvement Plan (TIP), akin to a capital program identifying all regional projects supported by federal money.

Concerns that public transit interests have been under-represented in this process are longstanding. Traditionally, most transit operators having either had a nonvoting board seat or no seat at all. Moreover, MPO board and voting structures often over-represent suburban counties or cities at the expense of central city communities where transit users are more concentrated (Nelson, Sanchez, Wolf, & Farquhar, 2004; Sanchez, 2006).

In a notable departure from its history of allowing MPOs and state governments latitude in constituting MPO governing boards, the U.S. Congress moved in the 2012 transportation authorization law, MAP-21, to require that MPOs include transit agency officials on their voting boards (Sciara, 2017). This research explores the impact of this change.

We use original data collection and qualitative and quantitative methods to assess our research questions. First, our work analyzes the debate surrounding the proposed transit membership requirement that unfolded in public responses to the federal rulemaking process. Next, it characterizes transit agency representation across MPOs, reporting on the first complete inventory of MPO governance structures. Finally, it models the relationship between transit representation on the MPO board and MPO-approved transit investment, measured as the share of available flexible funding dollars transferred by the MPO from highway to transit projects.

Findings to date suggest that extreme heterogeneity among MPOs has been an obstacle to implementation of requirements for transit representation and that the share of MPOs with direct seats for transit representatives is smaller than previous, more limited, survey-based results suggest. Study of investment outcomes is underway and will be of significant interest to policymakers, planners (particularly at transit agencies and MPOs), and planning scholars with an interest in institutional design. These stakeholders share a direct interest in understanding how regional transportation governance structures condition participation in decisionmaking and impacts planning and investment outcomes.

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Key Words: transit, metropolitan planning, MPO, flexible spending, voting

NEIGHBORHOOD IMPACTS ON SUBJECTIVE WELL-BEING (SWB): TESTING A NEIGHBORHOOD-BEHAVIOR-SWB FRAMEWORK USING DATA FROM THE TWIN CITIES METRO AREA

Abstract ID: 1156

Individual Paper Submission

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Well-being has long been considered key to the creation and maintenance of healthy, productive societies, and current research utilizes objective measures of well-being, such as income, literacy, and life expectancy, as well as subjective measures, such as how life is perceived and experienced by an individual (Durand, 2015). The subjective dimension of well-being is of interest to urban planners as they are responsible for influencing environments through policy, development, or other means to promote the well-being of residents. Subjective well-being (SWB) has been defined as “the fact that the person subjectively believes his or her life is desirable, pleasant, and good” (Diener, 2009). There is consensus that SWB has two distinct yet equally important components: a cognitive component referring to how people evaluate their life and an affective component related to the emotions they experience.

The focus on SWB in urban planning is recent and limited. This is concerning, as an understanding of SWB and its determinants is critical for planners and policymakers to know what elements of infrastructure, environment, and policy influence residents’ SWB. Through this paper we hope to address three specific issues with the current literature. First, the research is limited at lower levels of spatial disaggregation such as the neighborhood level. This poses a significant challenge for planners who typically design and intervene at smaller geographical scales. Second, studies typically focus on objective attributes of the neighborhood, such as street connectivity, density or safety, and resident evaluations of these attributes (Ettema & Schekkerman, 2016) while overlooking the ability of neighborhoods to induce travel and activity behaviors that influence SWB. These behaviors have been found to influence leisure time activities, physical activity, travel choices, and social contact (Handy, Boarnet, Ewing, & Killingsworth, 2002), all of which impact SWB. Finally, most studies only focus on cognitive aspects of SWB and do not incorporate its affective dimension. This is particularly worrisome as some suggest (e.g., Morrison, 2007) that place of residence can influence judgements of affective SWB more than of cognitive SWB. Looking only at one or the other may overestimate or underestimate the effects of different SWB determinants. Therefore, we propose a neighborhood-behavior-SWB framework to test

the influence of various neighborhood attributes, resident perceptions, and neighborhood induced activity and trip behavior on cognitive and affective SWB.

For the study, 400 respondents were randomly selected from six neighborhoods in the Twin Cities Metro Area with varying neighborhood environments. Data were collected in three stages: an entry survey, seven days of episode-level data collection, and an exit survey. The entry and exit surveys were used to collect information on cognitive SWB, socio-demographic characteristics, neighborhood perceptions, and other variables known to influence SWB. Episode-level data were collected over seven days from each respondent using the Daynamica™ smartphone application, which tracks and automatically breaks down the respondents' day into a series of trips and activities for which they provide additional information such as affective response.

Using a combination of spatial analysis and regression modelling, initial findings indicate a hierarchy of happiness associated with various activity and trip types, varied levels of engagement in them across neighborhoods, and differences in SWB while engaging in similar activities and trips across neighborhoods, suggesting that the neighborhood environment does impact SWB by influencing certain behaviors. We also find that affective and cognitive SWB are influenced by perceptions related to different neighborhood attributes. For example, active transportation infrastructure and neighborhood safety were only found to influence affective SWB, while access to public transportation and public highways only influenced cognitive SWB. Contributions to existing research in the field and policy implications will be discussed.

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Key Words: subjective well-being, neighborhood planning, travel behavior, activity participation, built environment

CAN E-SCOOTER SHARING BRIDGE THE MRT NETWORK GAP IN SINGAPORE CENTRAL AREA? FINDINGS FROM STATED-PREFERENCE SURVEY AND REALIZED E-SCOOTER TRIP DATA ANALYSIS

Abstract ID: 1170

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Singapore reached 67% in public transport mode share in 2018, with MRT (Mass Rapid Transit) as the major railway network. However, the convoluted network design of five MRT lines in central area leads to much inconvenience for short-distance travelers due to weak network connectivity. For many origin and destination pairs, the travelling distance on MRT network turns out to be very long, although close to each other geographically. The break in route directness results in MRT network gap, and is embodied in excessive detour, transfer, and walking. Moreover, it may aggregate MRT congestion burdens during peak hours. E-scooter sharing has become a promising personal mobility for short-distance travelers when it is more customized than public transit, more sustainable and affordable than private cars, and more comfortable than bikes and walking. E-scooter may become a possible solution to bridge the gap and relieve MRT congestion in Singapore central area when it provides direct connection within its advantaged range.

We propose the idea of bridging MRT network gap in Singapore central area by E-scooter sharing. Firstly, we conduct stated-preference survey from 758 respondents and multinomial logit model to examine users' preference for E-scooter and MRT, identifies the key factors impacting users' preferences, compares the opportunity gap point for choosing E-scooter, and evaluate how many MRT trips can be replaced by E-scooter. Secondly, we analyze 23,319 realized E-scooter trips in November 2018 to explore E-scooter deployment strategies on station level according to station classification based on realized E-scooter trip number and potential E-scooter probability calculated in survey model. The strategy is validated by E-scooter supply experiment. Finally, during the E-scooter operation for gap bridging process, we compare the different objectives of public transportation authority who seek E-scooter probability maximization and private E-scooter company who seek E-scooter revenue maximization. We look into the overlap and discrepancy between two objectives through classifying all realized trips into different phases based on the interaction between E-scooter probability and revenue, and compare the outcomes of E-scooter probability maximization strategy and revenue maximization strategy. The findings are as followed:

The survey result shows that respondents have a significantly positive preference for E-scooter than MRT. Walking distance to MRT station exerts three times of negative impact than MRT transfer and fare in determining respondents' mode choice. But the impact of MRT stop and past E-scooter experience is insignificant. It suggests that E-scooter can bridge the gap of MRT trips of greater transfers and longer walking distance. The appropriate location for E-scooter supply is either in-between two MRT stations of longest walking distance or around MRT station of more transfers to other stations.

We identify four E-scooter station clusters: (1) medium in both probability and trip number, (2) high in probability but low in trip number, (3) high in trip number but low in probability, (4) low in both probability and trip number. We suggest diverting E-scooter supply from cluster (4) to cluster (1), increasing the probability for cluster (3) by providing higher E-scooter speed level or shortcut navigation, and increasing the demand for cluster (2).

We classify E-scooter trips into 3 phases: (a) both E-scooter probability and revenue keep growing, (b) probability grows significantly at small cost of revenue decrease, (c) probability grows slowly at huge cost of revenue decrease. It is better for public transport authority and private E-scooter companies to cooperate to increase probability and revenue for phase (a) trips, seek trade-off for phase (b) trips, and leave the phase (c) trips untouched. The revenue maximization strategy brings about higher percentage of revenue increase at the cost of lower probability percentage drop when compared to probability maximization strategy.

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Key Words: E-scooter sharing, Transit network gap, Stated preference survey, Spatial-temporal analysis, Singapore central area

ACCOUNTING FOR DECLINES IN TRANSIT RIDERSHIP: A VIEW FROM CALIFORNIA

Abstract ID: 1179

Individual Paper Submission

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Public transit use in the U.S. has fallen in the 2010s, and is down especially in California. Nationwide, absolute transit ridership has declined since 2014, while per capita ridership is down since 2012 (and mostly down since 2009) (Manville et al., 2018). The situation is even bleaker in California, which is especially worrisome given the state's substantial financial commitment to expanding and improving transit, particularly rail transit.

There is no shortage of theories as to why transit ridership is falling, including: (1) changes in the number and/or location of likely transit riders; (2) economic changes in the nature and location of employment; and (3) changes in transit service and the rise of new service competitors; among others. Under each of these broad categories are more specific explanations, such as rising housing prices in many cities driving former transit riders to outlying, auto-oriented areas; transit service increasingly mismatched with new employment clusters; and new transportation services (e.g. Lyft, Uber, scooters, and private transit services) luring away former riders. These explanations are not, of course, mutually exclusive, and may well interact with one another. Moreover, the relevance of these explanations likely varies from place to place.

In this paper we build on earlier work on transit use in Los Angeles to analyze the possible causes of transit patronage declines across California in order to identify the factors most likely behind waning ridership. To do this we draw on data from the California oversample of the 2009 and 2017 National Household Travel Surveys. The confidential versions of these data allow us to marry each respondent with the characteristics of the neighborhoods in which they live, including the relative supply of public transit.

We first present data on changes in transit use, which declined notably between 2009 and 2017. We then isolate change over time in the traditional determinants of transit use using two different statistical approaches—logistic and negative binomial regression—to predict (a) the likelihood of transit use and (b) the number of transit trips on the survey day for both 2009 and 2017. Finally, we conduct a decomposition analysis to determine the contributions of changes in the propensity to use public transit (the rate effect) relative to changes in the distribution of likely transit users (the composition effect). With respect to the latter, we focus on changes in the number of: recent immigrants, immigrants from Latin America, adults living in low-income and 0-vehicle households, and adults living in transit-rich neighborhoods.

The results suggest a role for both factors—rate and compositional effects—in explaining declining transit use. The relative importance of these explanations is important for policy makers, planners, and transit operators, and we conclude by offering recommendations on policies to arrest ridership losses and add riders.

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Key Words: transit ridership, travel behavior, demographic change

MOBILITY IN THE AGE OF SHARING ECONOMY: ARE RIDESOURCING AND PUBLIC TRANSIT SUBSTITUTES OR COMPLEMENTS?

Abstract ID: 1180

Individual Paper Submission

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With the development of advanced technologies and the introduction of the sharing economy, the transportation sector is experiencing a disruption. To be specific, the emergence and rapid growth of transportation network companies (TNCs), such as Uber and Lyft, is challenging the transportation industry by offering a new mode of transport such as bikesharing, carsharing, and on-demand ridesourcing. Despite the substantial growth in shared services, its impact on the transportation sector is ambiguous. While these shared services are an alternative mode of travel, they can also create an integrated and multimodal network of mobility and help greater use of transit. Thus, this study aims to examine the relationship of ridesourcing to public transit in an innovative way whether ridesourcing is an alternative mode of travel or it complements the reach and flexibility of public transit’s fixed-route and fixed-schedule service. To quantify the relationship between ridesourcing and fixed-route public transit,

we categorized ridesourcing trips into three distinct types—transit-substituting, transit-complementing, and transit-extending trips—by examining the spatial relationship of ridesourcing trips’ origins and destinations using NHTS 2017 add-on dataset for Atlanta, GA. We also use location information of public transit stations and fixed-route to categorize ridesourcing trips. Then, this study employs a binary logit model to examine the characteristics of the three types of ridesourcing trips with socio-economic and built environment factors associated with trip origins and destinations. The categorized three types of ridesourcing trips show distinct characteristics and reflect different market segmentations that TNCs serve and the substituting, complementing, and supporting nature of the relationship between the ridesourcing and public transit.

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Key Words: Shared mobility, Ride-sourcing, Transportation network companies, Public transit, multimodal network

CONNECTING THE NODES: A BETTER RELATIONSHIP BETWEEN TOD AND PEDESTRIAN CONNECTIVITY

Abstract ID: 1181

Individual Paper Submission

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India’s growing economy and major advancements in vehicle affordability have caused a significant increase in the private ownership of vehicles. The demand for vehicular transport is significantly higher than the existing capacity of the roads in Mumbai, India leading to severe congestion. Transit-oriented development is one of the effective tools which can bring a shift from the use of private vehicles to public transport.

The paper explores the relationship between TOD and pedestrian connectivity at neighbourhood scale in the Mumbai metropolitan area. TOD is a straightforward concept: concentrate a mix of moderately dense and pedestrian-friendly development around transit stations to promote transit riding, increased walk and bicycle travel, and other alternatives to the use of private cars (Shirke, C., Joshi, G. J., Kandala, V., & Arkatkar, S.S.,2017). This research investigates the relationship between TOD and pedestrian connectivity. This study addresses two research questions:1) What is the level of urban pedestrian connectivity that is related to TOD? 2) How do we implement successful TOD strategies for urban pedestrian connectivity in Mumbai, India? Observation method will be used as a methodology to answer the research questions. The selected nodes are observed at different times of the day and analysis is conducted using the street design guidelines for India. The results for the analysis of the existing metro lines provides guidelines that can be considered for the proposed metro line. The paper looks after the TOD nodes that include both existing and proposed Mumbai Metro Railway Station. The target population is the commuters of the Mumbai Metro Railway System and to observe the residents affected

by the Mumbai Metro Railway Station. Since Metro System is a new concept in Mumbai, this case study provides future recommendations for TOD in Mumbai, India. The paper provides street design and policy recommendations that will be a standard for TOD in India.

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Key Words: Transit-Oriented Design, Urban Design, Street Design

IS CONGESTION PRICING FAIR? -- EXPANDING CORTRIGHT'S INCOME ANALYSIS APPROACH

Abstract ID: 1182

Individual Paper Submission

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Critics of congestion pricing often cite equity concerns--that higher tolls during rush hour unfairly impact lower-income drivers. However, a recent study by Joe Cortright in City Observatory shows that the peak hour drivers who are most likely to be affected by the policy have 20 to 50 percent higher income than other types of commuters in Portland, Oregon. We use the data from American Community Survey 2012-2016 5-year sample to examine the income variations across drivers, transit commuters, and people who walk/bike to work, peak-hour drivers, and non-peak hour drivers in 83 US metropolitan areas. We conclude that Cortright's findings can be generalized to the majority of our sample areas, and our finding is robust after the commuter groups were stratified by household income. Finally, we discuss the limitations of income model and possible factors through which to investigate the fairness of congestion pricing for lower-income commuters. Our research supports Cortright's contention that congestion pricing is a progressive system for traffic flow maximization and infrastructure funding. Because those who would be most impacted by congestion pricing tend to have higher incomes, a congestion pricing system that directs funds to transit and pedestrian-bicyclist infrastructure is more equitable than funding these improvements through a broad gas tax or through a city or region's general funds.

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Key Words: Congestion, Transportation equity, Social equity, Travel mode, Congestion Pricing

DOES FORGED DMS INFORMATION UNDERMINE COMMON PLANNING PRACTICES?

Abstract ID: 1184

Individual Paper Submission

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Dynamic Message Signs (DMS) are electronic traffic devices operated to convey traffic-related information to road users in transportation networks. Although DMS have been found beneficial for both transportation system users and operators, a compromised DMS could adversely impact the stability of the transportation system operation (Bakhsh Kelarestaghi et al., 2018). DMS, unlike other Intelligent Transportation System (ITS) infrastructures, have the ability to directly communicate with transportation system users. This has the potential to reduce security, safety, and system resilience during an adversarial attack. We argue that fabricated en-route information could provoke drivers to divert from their planned route and even stimulate them in changing their planned destination. This research explores: (1) how and to what extent drivers comply with the fabricated information provided by a compromised DMS and (2) whether a malicious adversary can alter the DMS message content to affect route and destination choice of transportation system users.

To analyze the traveler behavior of transportation system users during the hacked messages sign, we conducted an online stated preference survey. The survey was distributed among 10 States including CA, FL, IA, MD, MS, NC, NJ, NY, TX, and VA along with District of Columbia. We collected 4,706 completed online responses from residents with driver's license. The questionnaire encompasses three distinct sections to collect: (1) socioeconomic and demographic characteristics, (2) attitudes, perceptions, and psychological norms, and (3) the behavioral response of road system users to forged DMS information in different scenarios. To fulfill the objectives of the research, we developed a Latent-based Ordered Probit Logistic Regression model, which examines the direct and indirect impact of socioeconomic and demographic characteristics of system users along with their attitudes, perceptions, and psychological norms on their decisions of complying with fabricated en-route information.

The results indicate more than 60% of system users are likely to change their choice of route and destination under malicious information. This change is more probable among female, young, and less educated participants. Interestingly, technology-friendly drivers are more likely to change their planned route and destination. African-American drivers are least likely to divert from their original routes, while white participants are more responsive to the compromised information. We also found a compromised message is more likely to influence drivers with angry and anxious driving behaviors than reckless and patient drivers.

Overall, the results provide substantial support for recommendations in transportation security issues, an emerging topic in transportation planning practices, as part of the Metropolitan Transportation Planning (Dornan and Maier, 2005; Polzin et al., 2003). The outcome of this research offers significant policy implications to city planners and transportation system operators. We emphasize that compromised DMS not only undermines the reliability of the ITS system, but it also biases the decision of drivers by coaxing them with forged information. A compromised DMS adds uncertainty to the behavior of drivers and

weakens the common planning practices including, but not limited to, security, safety, congestion management, and operation.

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Key Words: Security, Planning, Route choice, Destination choice

THE IMPACT OF TEMPORAL DIMENSION ON EQUITY OF ACCESSIBILITY TO JOBS BY PUBLIC TRANSIT

Abstract ID: 1192

Individual Paper Submission

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As public resource, public transportation infrastructure can have different benefit impacts on various social groups. However, the benefits are not always distributed in a way that each group receives the equal share. To date, there are no guidelines or generally recognized best practices to consider how to perform social equity analysis for transportation system.

The accessibility has been proven to be an effective measure to evaluate the spatial distribution of transportation benefits. In recent years, scholars have examined the effect of temporal dimension on public transportation job accessibility by employing GTFS data into accessibility measures. However, the impact of temporal dimension on equity of job accessibility by public transit hasn't been fully investigated. Besides, the aggregated measure of job accessibility adopted by most studies doesn't distinguish jobs accessible to workers with different socio-economic status.

To fill the research gaps, this study develops a new methodology to evaluate the impacts of temporal dimension on equity of accessibility to jobs in Orlando Urban Area, FL. By using GTFS, LEHD, and U.S. census data, we examine the equity of accessibility to jobs by public transportation for low-, middle-, and high-income workers from 6 am to 7 pm on a working day. Both horizontal and vertical equity are investigated. The results show that high-income workers have better accessibility to jobs by public transit than low- and middle-income groups from 6am to 7pm on a working day. Although the transit job accessibility for individual worker groups fluctuates throughout a day, the relative distributions of transit job accessibility among low-, middle-, and high-income workers remain the same patterns. The findings suggest that the temporal dimension has little impact on equity of accessibility to jobs among worker groups with different income level by public transit in Orlando Urban Area. FL.

The research contributes to the better understanding on the usage of GTFS data in public transportation accessibility analysis. Our findings will help the local transit agency to improve the service of public transit and achieve the goal of overall equity.

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Key Words: Public Transportation, social equity, job accessibility

BUILDING VIRTUOUS CYCLES FOR BUS PRIORITY

Abstract ID: 1194

Individual Paper Submission

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US transit systems are, for the most part, losing riders. At the same time, cities are waking up to the need for transit, whether for reasons of sustainability, economic development, or justice. The majority of US transit systems are bus only, which has led to renewed interest in bus network redesigns and bus priority measures. Even cities with rail transit are focusing on their buses as a way to quickly expand service or improve transit quality to win back riders.

But what does good bus priority look like? While there exists considerable research on bus rapid transit (e.g. Hensher, Li, and Mulley, 2014), there are only two reports on the European model of incremental bus priority (Mundy et. al, 2017 and Agarwal et. 2012). This research seeks to address that gap with a comparative analysis of bus priority programs in London and Paris, specifically the London Bus Priority Network and the Mobiliën program. The cases differ in important respects, including London's traditionally higher public support for buses and its institution of the congestion charge in 2003. Both also underwent governance transitions during the period of bus priority. As a result, the cases provide the opportunity to see bus priority in relation to different governance systems and different discourses about road space. Perhaps most importantly, unlike US cities, London and Paris have been implementing bus priority for nearly 30 years, so it is possible to observe structures that help to sustain bus priority through changes in government.

Methodologically, the research consists of interviews with planners, policymakers, and activists in London and Paris, as well as reviews of the engineering reports on the before-and-after of interventions and archival documents such as the minutes of the London Bus Priority Network. Conceptually, it uses sociological institutional analysis as a way to focus on the formal and informal rules that guide decisions about road space reallocation even as programs transition (Vigar, 2002). This research finds that

London's bus priority model of ongoing monitoring and spot interventions in an institutionalized program of priority creates a virtuous cycle of ongoing improvement and that in comparison with Paris, three aspects stand out: mechanisms of ongoing coordination between the transit provider and road owner, development of evaluation metrics, and the role of the contract environment. Successful bus priority is strongly linked to clear governance processes and institutionalizing priority as an ongoing program rather than a one-off project. These findings suggest that greater attention needs to be paid not only to the technical specifics of bus priority projects but also to the institutions of transport governance, as bus priority is as much a political decision as a technical one.

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Key Words: bus priority, governance, institutional analysis

SAFETY AND NONOPTIMAL USAGE OF A PROTECTED BICYCLE INTERSECTION: A BEFORE-AND-AFTER CASE STUDY IN SALT LAKE CITY, UT

Abstract ID: 1200

Individual Paper Submission

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In the past few decades in the US, bicycle trips have more than doubled through the addition of new infrastructure and a general increase in attention given to active transportation (Pucher, Dill, & Handy, 2010; Pucher et al., 1999). While this represents a terrific realization of the efforts of planners to enhance the environment for active transportation, it also presents a new opportunity for increased conflicts between bicyclists, pedestrians, and motor vehicles. Protected intersections have incorporated many attributes of successful European designs that physically separate rights of way, make pedestrians and bicyclists more visible to drivers, provide shorter crossing distances for active transportation users, and prioritize active modes through signalization. These intersection treatments are relatively new to North American cities, and their effects have been minimally studied (Weigand, 2008).

This study utilizes before-and-after video analysis to examine the effects of the implementation of a protected intersection on safety and usage by pedestrians and cyclists. The study site is the signalized intersection at 200 West 300 South of Salt Lake City in Utah, which was completed in 2016. Out of the handful of protected intersections that currently exist in North America, Salt Lake City's is the best

example of an intersection that incorporates the most aspects of the adapted North American typology (Falbo, 2014). With this premier example and video data of the intersection taken in 2015, 2016, and 2018, we focus on two quantitative changes-- changes in volume and changes in behaviors. First, we identified how many people use the intersection and how the numbers have changed since the new intersection was introduced. Second, we investigated the proportion of people who do not comply with the traffic requirements at the intersection and examined whether the non-optimal behavior rates have changed since the new intersection was introduced. For the second analysis, a preliminary study was carried out, in which we identified a total of 21 non-optimal behaviors at the intersection -- five for pedestrians, six for bicyclists, four for automobiles, six for others. Examples include walking on bikeways, riding a bike in the opposite direction on bikeways, and disobeying signals. While three investigators participated in the video analysis, inter-rater reliability tests were checked to verify the data reliability. In addition to descriptive statistics, charts, and video screenshots summarizing our collected data, we used a t-test to see if the differences in behaviors were statistically significant.

This study is the first of its kind for a US protected intersection, and its insights will help to guide active transportation infrastructure design and implementation in the future. Leading researchers in bicycle and pedestrian planning have written at length about the lessons that can be learned from European traffic designs, and practitioners adapted those designs to conform to an American context. We know a fair amount about the effects of these traffic configurations from studies that have examined them empirically, however, it cannot necessarily be assumed that the findings are generalizable to North American context. Our in-depth case study on a protected intersection will bring critical insights that help researchers and practitioners to better understand the effects of intersection design changes in the US context.

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Key Words: Protected Bicycle Intersection, Active Transportation, Safety

THE IMPACT OF ANNOUNCING A NEW TRANSIT LINE A CASE STUDY OF PURPLE IN MARYLAND

Abstract ID: 1203

Individual Paper Submission

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US cities have been spending billions of dollars on new transit construction, even though transit ridership has been declining, still construction of new transit continues to show in US cities. In 2019, three light rail projects in the US will start operating in the Bay area, Denver, and Phoenix. Alone, the Bay area Central Subway construction of 1.7 miles, cost \$1.6 billion. While the most expensive projects were in Honolulu

with a cost of \$13.2 billion, New York and Los Angeles \$10.8 billion each, and Seattle with a cost of \$8.3 billion.

Despite the classification of transit stations, they have shown significant impact on property value, quality of life, jobs, housing, commuting time, and rent for an office, retail, and apartments (Nelson, et al., 2015). According to many researchers, public transit projects especially TOD's are causing gentrification, which mostly impacts minorities, even though public transit projects increases transportation affordability. The increase of property value and development within half-mile of transit stations encourages higher income groups to move near transit stations. This makes housing affordability difficult for low-income groups, especially near the TOD stations (Kahn, 2007).

A research analyzed the announcement impact of the Green Line LRT project on real estate development activity in St. Paul, Minnesota and used the before-after method to find if the LRT project announcement caused an impact on building activity. The results showed that LRT projects could have an impact on real estate development activities (Cao, and Porter-Nelson, 2016). Another study examined an extension of the light rail effect in Bayonne, New Jersey. It compared the impact on both property values pre and post station announcements. The study results did not find any evidence of property price change near the new transit stations. (Camins-Esakov, & Vandegrift, 2018)

However, most research is focused on examining the impact of transit after a transit project starts operating, but there are few that examine the impact before and after the announcement. Therefore, this research aims to investigate the impact of the purple line stations location announcement and construction on the community property value, and tenure. The research also will investigate if gentrification occurred after the announcement and construction of the new light rail line. The purple line is a light rail project with a length of 16 miles from east to west, which includes 21 stations in George's County and Montgomery County Maryland. The announcement of the project was May 2015, and the construction started in August 2017 after many delays.

According to many studies, the highest impact of transit stations is within a quarter mile of stations and the impact decreases to have the least impact within at least one-mile buffer. Most of these studies recommend researching the impacted area within a half-mile of the transit stations (Guerra, et al., 2012). The research will use a half-mile buffer from the proposed stations based on the recommendations of previous research.

As a method, we are using linear regression to measure the impact of the project on the surrounding communities. Our data will be collected from different resources such as; TOD Database, Census data, All transit, and Zillow.

The expectations of this research are that a change occurs slowly after the announcement of the new line and a greater change after the construction started. The study does not expect any kind of displacement of the current residents during the construction of the new light rail line, but it may occur after the operation starts.

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Key Words: Light Rail, Transit, Property Value

UNPACKING ACCESSIBILITY WHEN YOU CAN'T BUY A TRANSIT PASS—A CASE STUDY OF NORTH CAROLINA

Abstract ID: 1205

Individual Paper Submission

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Transit accessibility research focuses on what the transit user can access through their bus routes, time needed to reach their destination, or how they access the bus route (Miller 2018). Embedded in accessibility is equity. Countless studies have point to the lack of access to jobs (spatial mismatch), health care, or food as evidence of inequity (Grengs, J. 2010; Karner and Niemeier 2013). This research looks at accessibility from a different angle—physical access to transit passes. A possibly more significant barrier to transit access in North Carolina is the lack of ticket vending locations. For example, in one city transit users can only purchase multi-day and monthly passes at one location. Their only other option is by mail and requires a debit or credit card.

Research Questions and Methodology

This research focuses on three questions: (1) How prevalent is this type of transit inaccessibility in North Carolina? (2) How accessible are existing physical locations by transit, by foot, or by bike? (3) What would more accessibility look like spatially? To assess physical access to transit passes in North Carolina, we looked at five major urban areas—Winston-Salem, Raleigh, Durham, Fayetteville, and Greensboro. These areas all have large urban transit agencies. Using ArcGIS, we mapped purchase locations, types of bus passes available, bus routes to these locations or nearby, and then analyzed the socio-demographics within a ¼ to ½ -mile radius. We looked at zero car households and concentrations of poverty, in particular. From this information, we will then propose a new framework for measuring transportation equity looking at physical venues, on board ticketing options, number of bus routes within a ½ mile radius of venues, and payment options in addition to more traditional measures.

Preliminary Findings

Taking the approach above, we analyzed the City of Raleigh's accessibility. Harris Teeter, a grocery store chain, is a third-party vendor for GoRaleigh transit passes. They sell passes at over a dozen of their locations. However, each store sells different passes. In addition, when analyzing these locations spatially, we also discovered transit deserts—areas outside of a ½ mile radius of the store with no bus access. Therefore, even locations with bus passes may lack transportation to their physical locations. From these findings, we have identified additional Harris Teeter grocery store locations that could sell bus passes and may improve access. Grocery stores are not the only possible vending sites. In the city of Greensboro, public libraries sell bus passes. This could also be a way for North Carolina's transit agencies to expand

access to transit passes. Finally, looking at future regional plans GoTriangle is overseeing the Wake County Transit Plan. One of their goals is to update the ticketing system for Durham, including a smartcard system that would allow adding money to the card at third party vendors. We will identify locations for third party vendors for them to consider.

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Key Words: accessibility, equity, public transit

TRANSIT IN TRANSITION: EXAMINING THE SYMBIOTIC RELATIONSHIP BETWEEN INFORMAL BICYCLE TAXIS AND BUS REFORMS IN BOGOTÁ, COLOMBIA

Abstract ID: 1208

Individual Paper Submission

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Informal transport – or paratransit as is also referred to in the literature – has received a great deal of attention from academia during the last decade. The surge in scholarship on paratransit responds in part to unsuccessful plans of many cities in the Global South to restructure their privately provided loosely regulated or entirely unregulated paratransit sector (e.g. Salazar Ferro et al., 2013). Most cities intending to reduce or entirely replace paratransit services with more modern alternatives such as Bus Rapid Transit, or lighter bus-based interventions, end up having what Salazar Ferro et al. (2013) refers as de-facto hybrid systems, in which paratransit is still relevant for the mobility of many residents. One such city is Bogota, Colombia.

Bogotá started its paratransit restructuring process in the early 2000s by gradually deploying bus rapid transit lines on high-demand corridors. BRT deployment was followed by an ambitious restructuring of the remaining paratransit services. Bogota's Integrated Public Transit System (SITP) goal was to replace the dated, polluting, and decentralized paratransit buses that remained in the city with a more organized operation, with newer vehicles, and with full integration with the city's BRT (Kash and Hidalgo, 2014). But Bogota still struggles to fully implement its SITP (Hidalgo and King, 2014), and the city has experienced a surge of informal transport. Many of these informal transport services are provided by thousands of cycle rickshaws, locally known as bicitaxis, about which little is known in the academic literature.

Using mixed methods, this research fills the void in the academic literature by exploring [1] the consolidation and ongoing formalization process of bicitaxis in Bogotá, and [2] their symbiotic relationship with Bogota's ongoing transit restructuring process. Data comes primarily from the latest

available travel survey in the city and interviews with planners, bicitaxis operators, and residents. Survey data was processed to better understand how and where these services were used. Interviews were transcribed and then analyzed using a coding system. As previously suggested by scholars examining informal transport in the Global South (e.g., Cervero and Golub 2007), bicitaxi services fill some gaps in the transit network. These paratransit vehicles provide fixed feeder services to the city's BRT and serve short trips within some neighborhoods. Factors such as bicitaxis' association with sustainable transport ideals, and their high level of organization, has enabled them to reach agreements with the national government that, if all goes as expected, will provide them the status of formal transport. But while policymakers have worked with bicitaxistas towards government approval, high-income groups have organized to fight against bicitaxi services operating in their neighborhoods. These elite groups have advocated for more and better bus routes with the city transit authority, expecting that bicitaxis would be removed or fail to compete. The consolidation process of bicitaxis along with these elite lobbying efforts have resulted in the addition of new bus services in those wealthier areas that now compete with bicitaxi routes.

This research demonstrates [1] how different stakeholders come together to create contradictions in a transit restructuring process and [2] the symbiotic relationship that exists between informal and formal transport, using Bogota as a case study. This complex and contradictory process resulted in expanding the supply of transit and evolving the city's hybrid transport system.

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Key Words: Informal Transport , Paratransit, Bicycle taxis, BRT, Transit Reform

EFFECTS OF RAIL TRANSIT STATIONS ON POPULATION DENSITY: THE DALLAS FORT WORTH METROPOLITAN AREA CASE

Abstract ID: 1210

Individual Paper Submission

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Dependency on the automobile in the United States has been associated with many urban problems, such as urban sprawl, traffic congestion, air pollution, etc. As the use of automobiles increases, negative externalities also increase. As a result, many American cities have seen a rebound of public transportation systems—many of which have built modern rail transit systems to mitigate the negative impacts of higher dependency on automobiles, to improve mobility and accessibility for commuters, to offer alternative to drivers, to shape development patterns, and to increase economic growth. This resurgence of rail transit

systems has caused apparent shifts in economic, social, and spatial aspects of neighborhoods located in proximity to rail stations, but negative impacts may still also occur.

This study investigates the changes in population density between 2000 and 2014 in 454 block groups within a one-mile buffer around rail stations located in the Dallas-Fort Worth metropolitan area to determine if there is a correlation between proximity to rail stations and density. This study uses two approaches to analyze the data. First, a comparison of changes in density within block groups located in the study area during the study period is introduced. Next, an innovative approach is employed to select the best regression model using the data on the block groups located within the study area to understand the relationships between the selected independent variables and the changes in density during the study period in relation to the research question.

The findings demonstrate that during the study period, block groups that were closer to rail stations experienced higher changes in density compared to block groups found to be interesting. These findings are a useful addition to the existing literature and contribute to the field of urban planning to mitigate the effects on density and other important social and economic variables surrounding station areas. There was a couple of interesting finding contrary to some of the literature related to social and economic development of the station areas. In addition, planners and policymakers could use the implications from the findings to adopt some policies for furthering the success of rail transit systems in urban areas by sustaining station area development.

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Key Words: Transit Stations, Rail Transit, Population Density, Accessibility, Transit Oriented Developments (TOD)

MILLENNIALS, GENX AND SHARED MOBILITY SERVICES –A TALE OF TWO STATES – NORTH CAROLINA AND FLORIDA

Abstract ID: 1221

Individual Paper Submission

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Widespread consensus among scholars and professionals favors interventions to mitigate traffic congestion. Unfortunately, differences exist as to what strategies to implement. This project takes an innovative approach to understanding the usage of ride sourcing services of Millennials and Generation X followed by looking at the impact on congestion. Millennials are approximately a quarter of the United States population, the largest living generation in the United States numbering almost 75 million in 2015. Generation X is projected to overtake the Boomers population by 2028. Given the sheer size of these two groups, their travel behavior will shape the broader market.

This study will expand upon previous research by focusing on North Carolina and Florida, states with large suburban and rural areas. Most research on ride services has focused on traditional urban areas such as Los Angeles or New York (Shaheen et al 2016). Both Florida and North Carolina have lower density urban areas as well as large suburban and rural areas.

We will use mixed methods approach to understand shared mobility use in the Southeast Region. First, we will analyze national data--the American Time Use Survey (ATUS) from 2003-2016 and we will complement analysis with the 2017 National Household Travel Survey. This will provide a general overview of travel patterns by age cohort and region. Next, we will conduct an online survey of metropolitan regions in Florida and North Carolina (approximately 1300 respondents). We expect knowledge of these services will greatly vary between generations, with the younger generation being more aware of their presence, how to use such services, and greater frequency of use. We also expect to find fewer differences amongst ethnic/racial groups within the Millennial cohort and greater differences in use in the GenX cohort. This last finding is based on a recent millennial study conducted in North Carolina that found no significant difference amongst racial/ethnic groups. This research is expected to broaden and enhance previous research on these two generations (Smith 2016; Circella et al., 2017).

Findings will inform policy recommendations that consider the ways ridehailing and ridesharing could be better supported to reduce personal car use and reduce congestion in the Southeast. Findings from this study could also help local transportation planners in drafting their regional and local plans. Transit agencies could use this information to work with ridehailing companies to create complementary services, as Millennials and GenX are used to multi-modal travel.

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Key Words: shared mobility, ride hailing, millennials, GenerationX

ZEROING IN TRANSPORTATION SAFETY: A COMPARATIVE STUDY OF GEOSPATIAL METHODS FOR IDENTIFYING PROBLEMATIC TRAFFIC CRASH CLUSTERS

Abstract ID: 1238

Individual Paper Submission

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Background:

Traffic crashes impose a significant loss on the society. Especially crashes involving commercial motor vehicle generally present a higher risk of injury and fatality to road users. In addition, these crashes place delaying cost and productivity loss on industries. Approximately 1% of all crashes resulting in at least one fatality in the United States in the year 2015, and the cost of commercial vehicle crashes was estimated to be over \$134 billion in 2016. It is important to identify the locations where these crashes happen to reduce the loss and impacts of commercial motor vehicle crashes, and it is even more important to prioritize these locations to target limited funding and resources effectively.

Method:

This study performed a comparative study of different geospatial methods in identifying crash clusters using ten years of crash data in Florida. Three methods are applied to identify clustering of traffic crashes: crash kernel density, crash kernel density on traffic networks, and problematic intersections.

Results:

Crash kernel density produces planar density maps without considering the constraint of road networks, thus produces some unreasonable results when looking closer. This method is straightforward to process and suitable for general analysis in a large area. Crash kernel density on traffic networks method restricts the density values on the road network which is more reasonable, but it takes the longest time to process, and it requires data preprocessing on the road network and crash location data, such as the connectivity of road features, and the length of road segments. This method is suitable for analysis at the county level. The third method focused on intersection crashes using crash frequencies, crash rate, crash severity, and crash rate plus crash severity. The results are easily skewed by extremely low traffic volume and low crash frequencies. This method needs manual work to ensure the results are reasonable.

Conclusion/Contribution:

We find that not a single method is suitable to provide all the answers. Transportation planners should adopt suitable methods depending on the purpose of their studies and more than one method may need to be used for conclusive findings. This research provides pros and cons of each method from the perspective of data needs and processing effort and the practical value of the results produced by these methods. This paper includes a discussion of some of the experiences and challenges involved and provides recommendations for transportation planners.

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Key Words: Safety, GIS, Traffic crashes, Spatial analysis

ANALYZING RESIDENTIAL PARKING INTRUSIONS BY PASSENGER VEHICLES IN NEW YORK CITY

Abstract ID: 1246

Individual Paper Submission

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This paper investigates the spatial patterns of residential parking intrusions in New York City, their determinants, and an estimated number and spatial patterns of induced excessive vehicle miles traveled (VMT). The paper analyzes parking ticket data with driver registration demographic data, and determines potential residential parking intrusions of passenger vehicles. Results show that significant clusters of intrusions are mainly located in almost all of the residential areas of Manhattan, and some residential areas of The Bronx, Brooklyn, and Queens. A census tract with a larger number of elementary schools, larger number of surrounding commuter rail stations, higher percent residential areas, larger surrounding retail areas, higher vehicle density, and at least one parking garage tends to encourage higher intrusion density. In comparison, a census tract with larger surrounding office areas, higher car ownership, and the median year of built later than 1961 tends to deter intrusion density. The estimated average avoidable VMT per trip per ticketed passenger vehicle in NYC is 6.6 kilometers (4.1 miles). The origin-destination lines with high intrusion trips are mostly within its own borough and short in distance. Implications for residential parking policies like a resident parking permit (RPP) program in certain neighborhoods and the provision of additional metered parking spaces are discussed.

Citations

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Key Words: Parking, Intrusion, Neighborhood, New York

UNDERSTANDING DIFFERENCES IN GROWTH ACROSS THE CALIFORNIA ELECTRIC VEHICLE MARKET: 2010-2018

Abstract ID: 1248

Individual Paper Submission

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Transportation continues to be a major threat to global climate change and urban air quality. Mitigation strategies are needed to address the negative environmental and public health impacts of transportation. In recent years, global levelized cost of electricity generation from solar and wind has significantly reduced and all commercially-used renewables are projected to be cheaper than fossil fuels by 2020 (IRENA, 2018). With the advancement in energy storage technologies, the intermittency issue of renewables can also be addressed (Braff, Mueller, & Trancik, 2016). Since 2010, the state of California has adopted a variety of policies and programs to spur the growth of the electric vehicle market. As a result, plug-in electric vehicle (PEV) sales in California reached over 441000 in 2018, which accounts for half of the U.S. market (Alliance of Automobile Manufacturers, 2019). These positive changes in renewable electricity and transport electrification paved a clear path for a visible future of sustainable transportation.

State policymakers believe, and researchers (Li et al., 2017) have shown, that California cannot spur PEV adoptions without corollary and effective investments in electric vehicle charging stations. However, while researchers have begun to characterize the growth of PEVs in California (DeShazo et al., 2017; Sheldon et al., 2017), very little is currently known about the growth of the complementary market for electric charging stations (NREL, 2014). This study aims to characterize the temporal dynamics, spatial variability, and the correlates of growth in both PEVs and charging stations at various levels of geographic resolution from 2010 to 2018 within California. First, we analyze the regional concentration of PEVs and public accessible charging infrastructure across census tract quartiles. In addition, we conduct a Least Absolute Shrinkage and Selection Operator (LASSO) regression analysis. The analysis takes 283 potential variables (including socioeconomic, availability of high occupancy vehicle lanes, external resource flows, and local and regional environmental consciousness) and identifies variables that have the most power to predict both PEV adoption and public accessible charging infrastructure at the California census tract level. Preliminary results indicate that household income explains 40% of the variation in PEVs across census tracts and the availability of public accessible charging infrastructure is dependent on external resource flows and the availability of certain land use types within the neighborhood.

This study will benefit planning and policymaking in a number of ways. First, results from this study prepare the utilities for potential load increases and grid upgrades in certain areas. The spatial density of PEVs concentrated in various scales (for instance, neighborhoods, cities, counties, and metropolitan planning organizations) has direct impact on the regional and local electricity loads especially night-time loads. Second, a better understanding of the origins and destinations of PEV trips will inform the investment decisions for charging infrastructure deployment, especially workplace charging and public charging. Third, the need for public charging infrastructure varies by neighborhood. Understanding the concurrent growth of PEV adoption and public charging infrastructure deployment will provide insights for both investment decisions on public charging and policy incentives for residential charging. In addition, understanding of the PEV adoption gaps between neighborhoods will help explore the distributional effects of existing PEV policies and inform the design and targeting of future policy incentives and investment decisions.

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Key Words: plug-in electric vehicles, charging infrastructure, transport electrification, LASSO

CROWDSOURCING BICYCLE ROUTE SAFETY

Abstract ID: 1249

Individual Paper Submission

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Information about bicycle traffic volumes and street comfort ratings crowdsourced through smartphones show promise for addressing needs in transportation planning, yet show bias in participation. This study leveraged a new smartphone platform that algorithmically senses and tracks bicycling, which may better represent all bicycle trips than platforms that require user action at the beginning of every trip. However, the self-selected sample of participants does not represent an entire community. Cognizant of bias, this study asks whether the resulting information is associated with risk of injury and fatal crashes, and therefore useful for transportation planning.

Bicycle volume data from the crowdsourcing platform in Portland (OR) and Austin (TX) were integrated with crash data and variables spanning density, design, and diversity to test hypotheses concerning their relationships. Difference-in-means tests compared high-bicycle volume streets against lower volume streets for crash risk. Spatial error multivariate modeling incorporates contextual variables to prediction of bicycle crash risk.

Street segments with crowdsourced bicycle volumes higher than the mean were significantly associated with a lower crash risk, suggesting a partial safety-in-numbers effect. Level of traffic stress (LTS) along street segments, which is highest on high-speed roads with no bicycle lanes, is associated with an increase in crash risk, as calculated in Portland and Austin. Multivariate spatial error modeling showed a consistent relationship between bicycle LTS and crash risk. Results in Portland showed a one-unit increase in LTS was associated with an 84% increase in crash risk, versus 75% in Austin. However, this study does not suggest that findings from these cities may be generalizable to cities lacking strong bicycle infrastructure development programs, technology integration, and bicycling-supportive cultures as found in Portland and Austin.

These cases of crowdsourced information for bicycle planning show promise for identifying routes and streetscape features associated with safety. As a form of public participation, the cases demonstrate legitimacy—through the consistent association of tracked bicycle volumes with crash risk, and transparency—since the information is available to the online public in the form of a summarized map. In some contexts, planners and researchers can leverage crowdsourced information on bicycling to support safety analysis and infrastructure provision. Planning educators can include crowdsourcing methods in classwork to bridge participatory planning and data collection, and should include consideration of likely participant selection bias and geographic bias. Future studies should assess the impact of digital inequalities to communities through planning with crowdsourced information.

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Key Words: safety, bicycling, crowdsourcing, GIS

GOVERNANCE OF AUTONOMOUS VEHICLES: TYPOLOGIES OF CITY PILOT PROJECTS AND POLICIES

Abstract ID: 1255

Individual Paper Submission

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Over the last few years, new types of mobility have been introduced into cities – bike-sharing, ride-hailing, e-bikes, e-scooters – and each time cities have been caught off guard by how to manage, regulate and govern these new types of mobility. Lurking over the horizon is the prospect of automated vehicles (AVs). Researchers have extensively examined the possible impacts this new form of mobility will have on cities and peoples' lives, from more sprawl to less sprawl, more congestion or less, expanded mobility for all ages and abilities, cheaper transportation, expanded access to automobility, less demand for parking, lower demand for public transportation, and so on. The conclusion is that AVs will significantly transform not only transportation systems, but also cities in ways that are difficult to predict and even harder to plan for, particularly at this early stage. However, there is also recognition that if cities do not begin to plan at this early stage, the future of transportation will be governed more by private industry and the bottom line, rather than the public good and benefits to quality of life, sustainability, and equity.

This paper presents findings on emerging trends in AV governance in cities throughout the U.S. Pilot projects have emerged as a dominant practice in many cities seeking ways to slowly and more cautiously integrate AVs into their existing transportation systems. In the absence of AV companies operating in a city, some have developed ambitious policy initiatives that will guide the eventual deployment of AVs. We explore both policy initiatives and pilot programs, and in particular, the relationship between them. We ask a series of questions aimed at understanding how these pilots and policies contribute to a governance structure of AVs. Through document analysis and interviews with key stakeholders, we ask: who initiated the pilots? What is the extent of the partnership that exists between those involved? What are the desired outcomes of the pilot? What is the mechanism for reaching those outcomes? How will what is learned from the pilot be integrated into future policy? Or how is policy informing what pilots are allowed to operate?

What we see in these pilots and initiatives is cities attempting to plan for the future in the face of extreme uncertainty and a clear desire to minimize the negative impacts of AV technology. These range from

simply improving roadway safety to ensuring that our transportation systems are more equitable. We argue that the use of these pilots is the emergence of a new type of governance, characterized by the use of partnerships rather than direct regulation and anticipatory governance, which is characterized by anticipating potential impacts, managing them based on community needs and values, and developing the capacity for continual learning and adaptation.

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Key Words: autonomous vehicles, anticipatory governance, pilot projects, transportation planning, emerging technology

WHO DRIVE ELECTRIC VEHICLES FOR WHAT TRIPS? DEVELOPMENT OF VEHICLE CHOICE MODELS TO IDENTIFY FACTORS RELATED TO THE ADOPTION OF EVS

Abstract ID: 1267

Individual Paper Submission

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Global warming has already had substantial negative impacts on our communities in a variety of ways, including disasters and sea level rise. According to Intergovernmental Panel on Climate Change, greenhouse gases (GHGs) that humans generate are more responsible for climate change than any other factors since the mid-20th century. In the US, the transportation sector is responsible for 28.5 percent of GHG emissions in 2016, which surpasses the electricity production sector to be the largest GHG emission sector. Within the transportation sector, light-duty vehicles are responsible for 60 percent of GHG emissions, while 23 percent is attributed to medium- and heavy-duty trucks. Given this background, many consider that the conversion of internal combustion engine vehicles to alternative fuel vehicles is an essential strategy to reduce GHGs. For example, the governors of nine states in the US, including California and Maryland, signed the memorandum of understanding to adopt or consider regulations that require increasing sales of zero-emission vehicles (ZEVs). This memorandum of understanding specifies the collective targets of: (a) at least 3.3 million ZEVs by 2025, and (b) the provision of a fueling infrastructure that supports the operation of these vehicles. At the same time, the EV market sales share in the US is still very low with only 1.96 percent in 2018, with the highest share of 7.84 percent in California. This can be attributed to EVs' relatively higher retail prices and limited driving distance per battery charge, as well as lack of publicly accessible EV chargers.

This study develops models to identify factors that are associated with the ownership and leases of two types of electric vehicles, plug-in electric vehicles (PEVs) and battery-electric vehicles (BEVs), applying

logit and probit regression methods to the data collected in the 2015-2017 California Vehicle Survey (CVS) project. This CVS dataset contains a micro level data of revealed preferences and stated preferences regarding ownership of residential and commercial light duty vehicles. Although the purpose of the 2017 CVS project was to develop models to predict the existing household and commercial vehicle choice, the developed models did not fully take advantage of available variables due to the consistency with the previous models. In particular, variables related to households and individuals' demographic characteristics and trip characteristics were not included. Therefore, this study examines a more comprehensive set of available variables in the dataset, complemented by other variables, such as utility rates, the number of EV chargers, and population area density. It also develops more parsimonious models with a consideration of variables that can be collected by less extensive survey efforts than the CVS.

This study contributes to the literature of EV demand modeling, and leads to further studies of similar models in other states that seek to increase the demand of EVs (and more generally alternative fuel vehicles). In addition, as the good estimation of future EV demand by area is important for effectively matching the supply of EV facilities to the demand, this study also contributes to current efforts in planning where a number of states and organizations are aggressively working to increase the number of publicly accessible EV chargers.

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Key Words: electric vehicles, vehicle choice model

PLANNING FOR THE LAND USE IMPACTS OF AUTONOMOUS VEHICLES: SIMULATION UNDER UNCERTAINTY

Abstract ID: 1278

Individual Paper Submission

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As autonomous vehicles seem right around the corner, professionals, academics, and pundits are all offering their vision of the autonomous vehicle future. Though these visions are often presented with confidence, the range in impacts they present highlights just how uncertain we are about the potential

implications of this new technology. One arena of significant concern and uncertainty are the impacts on land use and associated environmental systems. Land use simulation holds promise as one approach to understanding such changes.

Unfortunately, traditional approaches to simulation modeling do not perform well when considering questions of deep uncertainty, when different outcomes cannot be articulated probabilistically or with relative likelihoods. Autonomous vehicles introduce this variety of deep uncertainty in many deep seeded behavioral parameters, such as how far people are willing to travel to work or their value of in-vehicle time. In approaching deep uncertainty, planners have often utilized three to five exploratory scenarios in order to determine robust actions that promote policy goals no matter the future to come. Exploratory scenarios, however, explore only a small portion of the uncertainty space and modelers have struggled to translate the results of such experiments into specific policy recommendations.

Enter scenario discovery, an approach developed from water resource planning in Europe, which explores a far greater portion of the uncertainty space and uses a data mining algorithm to determine robust and contingent policy action. This paper presents a novel application to land use modeling for autonomous vehicles. The research has both substantive and methodological ends: to determine what policies promote urban planning goals in various autonomous futures, and to determine the viability of scenario discovery within land use and transportation modeling.

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Key Words: Autonomous Vehicles, Land use modeling, Agent based modeling, regional planning

THE ROLE OF BETWEENNESS CENTRALITY MEASURES IN LONG-RANGE BICYCLE PLANNING

Abstract ID: 1279

Individual Paper Submission

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Central Theme:

The 2008 California Complete Street Act delivered a mandate to carry out long range planning for cycling, walking and transit. Two major challenges exist for implementing this mandate, including a lack of consistently collected bicycle and pedestrian data, and importantly, a lack of standardized planning tools for assessing infrastructure needs related to walking and cycling. This research seeks to define relationships between cycling demand, bicycle network indices and network quality, with a particular focus on examining the role that betweenness centrality plays in estimating cycling demand.

Approach and Methodology:

A recent review of the literature on bicycle infrastructure and cycling levels points to an increasing focus among researchers on the relationship between bicycle network characteristics and the demand for cycling (Buehler and Dill, 2016; Fagnant and Kockelman, 2016; Osama et al., 2017; Schoner and Levinson, 2014; Buehler and Pucher, 2012). The current research improves upon this literature by first, using a very large sample of average annual daily bicycle volumes (AADB) along network segments as the dependent variable, and secondly, by incorporating both whole-network and network segment quality measures as independent variables. While some whole-network measures – network size, density, connectivity, fragmentation, and directness – have been examined in previous research, one highly relevant measure, betweenness centrality, has not been examined.

The project draws upon rich cycling count data collected between 2012 and 2017 in San Diego County from automated counters, as well as from about 400 short duration manual counts conducted during the same period. AADB is the key dependent variable and is estimated using four sets of independent variables – whole-network indicators, network quality indicators, socio-economic variables, and land use measures. Model estimation techniques from recent literature will guide the analysis methods used here. In particular, the approach followed by Osama et al. (2017), where first, ordinary least square regression was used to identify the most significant variables within each of the four categories of independent variables, then a full Bayesian model was developed using these most significant independent variables, and finally, a Bayesian model accounting for spatial effects was estimated.

Findings

Findings from this research effort are forthcoming. This research is funded by a UTC grant that will be concluded in August 2019, in time to incorporate in the ACSP presentation.

Relevance of the Work to Planning Scholarship, Practice, or Education

Betweenness centrality could form the basis for powerful bicycle planning tools in the US, since a large number of our cities have very underdeveloped bicycle networks, and planners are typically overwhelmed by the pervasive need for bicycle infrastructure, as well as by the need to justify where to plan and build bicycle infrastructure. Measures of betweenness centrality can provide a prioritization metric for ranking links in the bikeable roadway network according to their relative contribution to traversing the network. This information is useful for substantiating arguments for providing bicycle facility where none currently exists, or for enhancing existing bicycle facility along these critical links.

In addition to advancing research, the current project will strengthen linkages to real-world planning with the City of San Diego and other cities across California. The 2013 Bicycle Master Plan Update for the City of San Diego used betweenness centrality, as well as broader cycling suitability measures, to prioritize the bikeable roadway network. The current research project will expand that planning effort by assessing the relationship between AADB, network centrality and quality. Solidifying the relationships between network centrality, quality and cycling demand through systematic modeling will enhance not only long-range bicycle planning in San Diego, but across the state for other cities searching for reasonable, desk-top approaches to bicycle planning.

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Key Words: Bicycle Planning, Bicycle Demand , Network Analysis

GENDER, RACE, AND THE COMMUTE BURDENS OF LOW-WAGE WORKERS

Abstract ID: 1284

Individual Paper Submission

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Our study undertakes an intersectional analysis of the commute burdens of low-wage workers across the largest 50 metropolitan regions of the U.S. Utilizing self-reported commute data from the American Community Survey, we calculate temporal commute disparities by race, gender, and employment in low-wage work. In Chicago, for example, recent commute data show that African American men and women have the longest commutes of any racial-ethnic group. This racial disparity is sharpest among the working poor. Among these low-wage workers, African American women bear the greatest commute burdens of all. Analyses that eschew an intersectional approach overlook this particular and acute inequality that defines black women's daily mobility that extends from their disadvantaged position in the labor market.

We calculate both micro-level and metro-level metrics to better illustrate the dimensions of these gender and racial inequalities. By holding wage constant, we model the additional marginal commute burdens (measured by time) experienced by different workers at the intersection of race and gender. We calculate these at the individual level allowing us to report on the micro-level lived reality of intersectional daily mobility. We further aggregate these marginal commute burdens to develop a metric at the metro-level, allowing comparison across regions for the same groups of workers to evaluate how commute burdens vary across regions. For example, if working poor African American women experience the greatest commute burdens on average, is this burden mitigated or magnified across different metropolitan areas? In sum, the paper seeks to re-situate the commute as both a powerful indicator and an intrinsic dimension of intersectional inequality.

Our study foregrounds issues of equity and inclusion in framing and assessing daily mobility for both planning scholars and practitioners. The study connects urban residents' commuting practices to a conceptual and political approach of intersectionality that highlights differential experiences of inequality shaped by race, gender, and economic positionality. Our analysis adopts inclusion as a methodological approach through a rigorous and intricate comparative analysis that models nativity, gender, race, ethnicity, and class simultaneously. Including multiple and simultaneous identities (inclusion through an intersectional approach) reveals patterns of sharp inequality that are often obscured through more standard analytic framing. This aids in better targeting planning, policy, and programmatic supports to specific, highly disenfranchised people.

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Key Words: commuting , daily mobility, low-wage work , diversity, inequality

SUPPORTING TRANSIT IN THE NEOLIBERAL CITY: THE POLITICAL ECONOMY OF THE MEMPHIS TRANSIT ACADEMY

Abstract ID: 1289

Individual Paper Submission

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An effective public transit system is increasingly coming to be recognized as an economic necessity, even in cities of moderate size, density and highway congestion. This recognition, combined with scarce federal and state funding for basic, bus system improvements, leaves cities unaccustomed to providing for non-automotive transportation seeking local funding for their transit systems. Securing such funding depends on attracting support (or at least avoiding opposition) from a diverse group of constituencies in a local political economy composed of actors with little concept of the benefits, costs or form of a functional transit system. In the context of neoliberal urban governance, in which planning initiatives undertaken for the public good commonly proceed through complex public-private partnerships (Attoh, 2012; Harvey, 2007), transit funding measures succeed and fail based on planners' ability to combine the support of such constituencies, despite the fact that they support or oppose transit funding based on widely differing material interests (Kirouac-Fram, 2012). Public engagement making the case for how transit supports those disparate interests is a crucial component of successful transit funding initiatives. This paper describes the development and conduct of a “transit academy” in Memphis, Tennessee—a 5-week set of evening courses intended to communicate the value and principles of effective transit to diverse stakeholder groups while encouraging them to explore how transit improvements align with their interests through a participatory process. Memphis is a particularly interesting city in which to explore the process of public engagement surrounding a transit funding effort for three reasons: First, the proposed program of improvements in Memphis is a clean-sheet redesign of the city's basic bus system entailing roughly a 50% annual budget increase—an approach which promises broadly shared benefits for riders and a solid foundation for future further improvements, but will not have the localized real estate market effects of a rail line. Second, this redesign, however, is being undertaken as a component of Memphis' first new comprehensive plan in nearly four decades, offering the opportunity to integrate bus system improvements with land use planning to an unusually high degree. Finally, the Memphis comprehensive planning process in general and the transit visioning process in particular are being led not by public agencies, but by a coalition of private philanthropic organizations and municipal staff integrated to a degree that the boundaries between their responsibilities are not always clear (Saija, Santo & Raciti, 2019). These conditions make Memphis an ideal case to explore the process of transit planning in the neoliberal city. Employing an interpretivist methodology focused on how participants understand their organizations' interests and how transit relates to them, I generate grounded theory based on transit academy minutes, transcripts and speakers' presentations (Schwartz-Shea & Yanow, 2012) to explore the following research question: How do stakeholders' understood material interests determine shape the process of transit planning in the neoliberal city? This question allows me to explore both who supports

transit funding and why they support it, offering crucial understanding to planners promoting transit expansions in the current political economic context. I find that transit academy content and discussion is heavily focused on building support from private business interests and the organizations representing them. This focus strongly shapes participants' sense of the purpose of transit, which is conceived primarily in instrumental, contingent terms as a useful economic development tool in certain circumstances, not as a basic public service aimed at facilitating all Memphians' functional right to the city. I argue that, though recognition of capital's interest in effective transit is critical for successful funding initiatives, planners' focus on "selling" transit's economic development potential risks undermining its liberatory public purpose.

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Key Words: Transit, Engagement, Neoliberalism, Right to the city, Economic development

TRACK 15 - POSTERS

MOBILITY ISSUES OF PEOPLE WITH DISABILITIES AND THE POTENTIAL OF AUTONOMOUS VEHICLE TRANSPORTATION: FINDINGS FROM FOCUS GROUP DISCUSSIONS

Abstract ID: 10

Poster

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People with disabilities have limited mobility because of their medical conditions and compromised options for transportation. Autonomous vehicles have been highlighted as one of the most promising alternatives that can improve the mobility of people with disabilities. Nevertheless, these people's perceptions of autonomous vehicle transportation (AVT) service has not been well discussed. Also, there is only limited information about how public transit agencies comprehend and perceive AVT. Two primary aims of this study are 1) to document the mobility issues among people with disabilities, focusing on persons with visual or mobility-related disabilities (i.e., having difficulty walking or climbing stairs) and 2) to explore how people with disabilities and transit service experts perceive AVT. During September 2018 to February 2019, researchers conducted six focus group sessions in Austin, TX and Houston, TX with three types of participants: 1) persons with visual impairments (n=13); 2) persons with

mobility-related disabilities (n=10); and 3) transit service experts (n=10). Each session was audio-recorded, and researchers analyzed the transcripts using conventional content analysis. This study identified four main themes related to the mobility issues and challenges among people with disabilities: 1) accessibility, 2) reliability, and 3) flexibility of current transit service (including regular bus and paratransit); and 4) quality of neighborhood built environments. People with disabilities expected that AVT would offer more flexibility in terms of the travel plan, improved travel efficiency, and reduced risk of crashes. However, they also expressed anxiety toward AVT regarding safety due to technological failures and the absence of human assistance. Furthermore, they listed possible barriers to accepting AVT, such as increased fares, accessibility for all levels and types of disabilities, and adverse effects of AVT (e.g., loss of driving jobs and increased traffics due to single-ride vehicles). Transit service experts echoed these concerns, recommending more targeted strategies to improve the accessibility, reliability, and safety of AVT for people with disabilities. Experts indicated cost-efficiency and flexibility as two main benefits of AVT while raising several technological and policy-related concerns, including the accuracy of wayfinding, supportive infrastructure, unclear guidelines for AV pilot projects, and liability issues. They also suggested the need for new training programs for human operators, different levels of service for all abilities, and education and outreach programs for service users. This study provides insights on shaping AVT strategies and policies relevant to the mobility of people with disabilities.

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Key Words: Autonomous Vehicle, People with Disabilities, Built Environment, Transportation, Focus Group

GENDER DIFFERENCES IN COMMUTE BEHAVIOR: IS IT SHRINKING OR PERSISTENT?

Abstract ID: 109

Poster

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The relationships between commute behavior, individual and household characteristics, daily schedules as they relate to other activities, surrounding land-uses, distribution of employment, housing prices, and

transportation infrastructure have been studied extensively in the literature (Cervero, 1996; Schwanen & Mokhtarian, 2005).

With the rapid growth of women in labor force, researchers have begun to focus on gender differences in commute patterns over the last several decades (Crane, 2007). Although there are a number of studies focusing on gender differences in commute behavior, few focus on two-earner households.

In 1967, the percentage of single and two-earner households among married-couple families were 37.3% and 43.6%, respectively. In 2011, while the percentage of single-earner households decreased to 25.9%, the percentage of two-earner households increased to 52.8% (US Bureau of Labor Statistics, 2014). Differences in commute behavior in two-earner households requires special attention because the resulting behavior is generally the outcome of interrelated decisions based on multiple work places, household responsibilities and roles (Rosenbloom, 2004).

Earlier studies report shorter commute trips for women (Gordon et al., 1989; MacDonald, 1999). However, many signs indicate that the mobility of women has changed significantly since then (e.g., increases in women's license attainment and vehicle ownership rates (Rosenbloom, 2004; Fan, 2017)). In addition, changes in how responsibilities are shared between women and men in households and workplaces may result in changes in commute behavior.

This study explores whether the findings of earlier research still hold true when it comes to gender differences in commute behavior with a focus on two-earner households. We seek answers to following questions:

- (i) How has the commute behavior of men and women in two-earner households changed over time?
- (ii) What factors affect the commute behavior of men and women in two-earner households?
- (iii) How do two-earner households compromise on their commute decisions?

While seeking answers to these questions, we focus on commute durations and distances. To understand whether gender differences are growing or shrinking when it comes to commute durations and distances nationwide, we utilize detailed individual level data from 2001, 2009 and 2017 National Household Travel Surveys (NHTS). We first analyze these differences by simply assessing the descriptive statistics and t-tests across multiple population sub-categories based on individuals' employment status (i.e., full- or part-time), household life-cycle categories (i.e., two-earners without children, two-earners with youngest children under 6 years old, two-earners with youngest child 6-15 years old, two-earners with youngest child 16-21 years old), and commute modes (i.e., walk, bicycle, car, bus, train and others).

We then employ linear regression models on pooled data (data covering all three survey years) in order to analyze the determinants of commute durations and distances across men and women. These models include spouse's characteristics (e.g., employment status (full/part time), job types, commute modes, etc.) in the models.

Some of our key findings are as follows: 1) The gender gap in commute durations and distances has narrowed over the years, however the magnitude of change is small, 2) Women continue to have shorter commutes, 3) Couples with part-time jobs experience smaller gender gaps in commute distances and durations, 4) Gender gap is likely to increase if the couple has a child between the ages of 6 to 15.

The findings of this results reveal that gender differences in commute behavior are still persistent. This study can help transportation planners and researchers better understand the commute behavior of two-earner households.

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Key Words: gender gap, commute behavior, two-earner household

DISCARDED ALTERNATIVES: PLANNING AND EQUITY IN BUS RAPID TRANSIT INVESTMENTS

Abstract ID: 257

Poster

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There is a rich academic literature that addresses issues of transit equity and justice, emphasizing the importance of accessibility as a right and developing different frameworks for measuring transportation equity (e.g. Golub & Martens, 2014; Pereira, Schwanen, & Banister, 2017). Despite this, municipalities still struggle both with integrating equity goals in transportation planning (Manaugh, Badami, & El-Geneidy, 2015) and improving accessibility for disadvantaged groups. While much research has focused on assessing the equity outcomes of transportation investments, or ex post project assessment, there has been increasing interest in understanding how equity principles factor into planning processes (Di Ciommo & Shiftan, 2017). One strategy that can provide insight into how equity is integrated in planning processes is through an assessment of the full range of considered investments, including unbuilt alternatives, rather than only built projects. Although there has been some interest in what excluded route options say about the planning process (Priemus, 2007), the implications of these for understanding transit inequity are largely unknown. This research investigates equity impacts throughout the planning process for bus rapid transit investments in Canadian cities, where unlike U.S. jurisdictions, there is no legislative or funding requirement to consider equity outcomes.

This research draws on (1) census data, (2) key informant interviews with planners, transportation engineers and political actors, and (3) information from transit agencies in three Canadian metropolitan areas (Ottawa, Winnipeg and York Region). These data allow us to display and analyze the spatial evolution of route alignments over time and in relation to socio-economic information, such as household income, level of educational attainment, and mode choice. We further identify spatial and temporal trends

in the pace, amount, and timing of shifts in demographic and built form characteristic in relation to both built and unbuilt BRT lines, thereby allowing us to evaluate the equity implications of the rollout of BRT services in the three study locations.

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Key Words: transport equity, planning process, spatial analysis, bus rapid transit

DOES SHARED MOBILITY AFFECT PUBLIC TRANSIT RIDERSHIP? EMPIRICAL FINDINGS ON THE EFFECTS OF UBER IN URBAN GROWTH AREAS OF KING COUNTY, WA

Abstract ID: 506

Poster

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Shared mobility, especially peer-to-peer ride-hailing, has been perceived in both research and practice as an effective and sustainable solution to the increasing demands for driving trips and automobiles. Despite its wide acceptance by cities worldwide, findings on its impacts on public transit uses are still inconsistent. Prior Studies have reported both complementary and substitutive effects. This study aims to provide additional empirical evidence on the impacts of this new transportation mode by using Uber service in King County as an example.

In this research, treating the launch of Uber service in King County, Washington State in 2012, as a natural experiment, we examine the impacts of shared mobility on public transit ridership for commuting in the urban growth areas of King County between 2008 and 2016. Based on American Community Survey data and the Longitudinal Tract Dataset of Brown University, we analyze the changes in the percentage increase of commuters who take public transit before and after Uber's launch at the census tract level, using panel data analysis with fixed effect. Related socio-demographic factors, public transit service, and road network connectivity are introduced as control variables. Primary findings indicate: 1) Uber does not present statistically significant impacts on the growth rate of commuters using public transit in the lowest quartile group of median income or average percentage of public transit uses. 2) In all other higher quartile groups, the growth rate of public transit ridership rises after Uber launch. The dynamic coefficient analysis is further applied to test robustness, whose result remains consistent with the above findings.

Based on the results, we conclude that, in King County, the introduction of Uber service encourages public transit use among the more active transit users and medium to the high-income population but not on less active transit users and low-income urban residents.

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Key Words: Shared Mobility, Uber, Public Transit, Panel Data Analysis

TWELFTH RIDE: A SATURDAY MORNING DRIVING FOR UBER IN CINCINNATI

Abstract ID: 623

Poster

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Twelve rides over four hours in Cincinnati are examined with the intent of contributing rich empirical qualitative evidence of ridehail travelers to a growing body of quantitative literature. Traveler data are based on observation and casual conversation between the driver (author) and the passenger. A random Saturday morning was chosen beginning in Cincinnati's CBD, and each subsequent trip was based on the location of the previous trip destination without intervention. Three passengers were not American citizens. Four were Black. Five were White Millennials. Two international passengers were destined for the University of Cincinnati, the third was a business traveller. Two Black female passengers were going to work, a Black male was picking up his toddler. One White male was going to work, the other four Whites were on social journeys. This work attempts to tell the narrative of where each traveler was going and infer why they chose ridehailing. More specifically, it analyzes these 12 travelers in the context of published ridehail literature. From the driver's perspective, \$68.32 was grossed after 4 hours of driving. Including one tip, \$2 tip on the twelfth ride. Though statistically insignificant, this sample of ridehail travelers, and ridehail driver profits, resembles the experiences published in the academic literature.

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Key Words: Ridehail, Travel Behavior, Demographics, Qualitative methods, Ridehail driver

BEFORE-AND-AFTER TRAVEL CHOICES OF UNIVERSITY STUDENTS IN NEWLY CONSTRUCTED PRIVATE OFF-CAMPUS MIXED-USED COMPLEXES

Abstract ID: 687

Poster

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Central theme: Cities—large and small—where demand for mobility and housing outstrip current and potential future supply may seek to address these challenges with greater density and compactness. Some university towns are approving higher-end private near-campus housing, with explicit expectations for reduced driving, even as the evidence remains incomplete on the potential for such measures to reduce congestion while providing accessibility. Questions of how housing location and density interact with travel behavior play out as local expressions of the vexing challenge of understanding traffic and development in rapidly growing cities.

Using a two-wave survey of university students before and after relocating to new near-campus housing complexes in two southeast US towns, we address three questions:

1. How are students' relocation decisions influenced by location, transportation supply, and the built environment?
2. How do travel patterns change from before to after relocation?
3. What are the associations between post-move travel patterns with (a) location/environment, (b) pre-move travel behavior, and (c) pre-move expectations about post-move travel?

The study sites—Boone NC and Athens GA—face rapidly changing urban form, rising housing costs, and increasing congestion in and around their respective campuses. Private student-targeted housing complexes recently completed near each university, built by the same developer with similar designs and proximity to campus, supported a natural experiment on student travel behavior in a specific context.

Our work builds on a rich body of knowledge, while our pre/post-move design addresses some long-standing limitations in the literature:

1. Traditional thinking on travel behavior suggests that increasing residential densities near employment centers may dampen auto use and encourage other modes; however, the role of self-selection remains difficult to assess (1)
2. Research suggests the best time to influence established, hard-to-change behaviors is during life transitions, e.g., changing jobs or location, although most studies are retrospective and rely on recall (2)

Approach: We conducted two-wave panel surveys assessing travel habits of student residents in the new complexes. One month before relocation, all incoming residents in each complex (N=1681) were asked to complete a survey on current travel, relocation motivations, and anticipated post-move travel patterns, as well as sociodemographic characteristics; several months later, second-wave surveys collected data on post-move travel patterns and repeated relocation questions.

We conducted the complete panel twice in Boone (upon initial opening in 2017 and on new incoming residents in 2018) and once in Athens (during the building's 2018 opening), timed to coordinate with the beginning of academic terms. We received 314 valid complete responses in wave 1, and 183 for wave 2, across the three cohorts. Multivariate statistical analyses on the full dataset are underway.

Anticipated findings: Preliminary analyses on the 2017 survey data suggested students value proximity and access; some anticipate switching from auto to non-motorized modes. Post-move, students drove less to campus but more to other destinations. Additional information provided by the two new cohorts allow for more robust statistical analysis and deeper insights into the relationships among location, relocation, sociodemographics, and travel among student populations. The analysis will also shed light on the importance students assign to location, route, and other factors in choosing housing.

Relevance: Our findings may be useful to practitioners and researchers interested in how housing supply and attributes drive residential location and travel choices among students in housing- and transportation-scarce communities. Understanding the environmental features that affect routine travel and the importance of parking cost and availability may inform effective planning in a geographically constrained university town with locally intense demand for housing and transportation.

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Key Words: built environment, university students, private off-campus housing, travel behavior

FRAMEWORK FOR EVALUATING EVACUATION RESPONSES FOR CARLESS, VULNERABLE AND SPECIAL NEEDS RESIDENTS: COMPARING FLORIDA COUNTIES EVACUATION AND PREPAREDNESS PLANS

Abstract ID: 758

Poster

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Florida has been one of the most frequently impacted states to be directly hit by hurricanes in the United States. This research measures several components found in the Comprehensive Emergency Management Plan (CEMP), Local Mitigation Strategy (LMS) Plans, and emergency management websites from the 67 counties in the State of Florida. The analysis is based on how easily and readily accessible the county

emergency evacuation information is available to the public to guide and lead them prior to a hurricane landing in any Florida county. This study categorized the available plans utilizing an Evacuation Preparedness Rating System, which includes six components, identified as best practices in evacuation planning for carless, vulnerable and special needs populations. The dimensions examined each plan with regard to: 1. Special needs registries, 2. Specialized transportation plans for individuals with specific needs, 3. Pick-up location plan, 4. Multi-hazard evacuation plan, 5. Plan for Pet Evacuation, and 6. Provision of Evacuation Maps. The findings were reported for each county within each component and also with the integrated findings for each county. The majority of the counties in the State of Florida have a strong level of preparedness related to their evacuation processes. Lessons learned from Hurricane Michael in 2018 showed that counties in northern Florida were less prepared but suffered the greatest impacts of the storm. The hurricane exposed that there is a need for localities to get serious about disaster planning, even if they are located inland and away from the coast. However, it is also important to consider that financial and operational resources in counties differ greatly even in a state like Florida. There is a need for state and federal agencies to incorporate avenues to support and assist less resourced municipalities to establish stronger emergency preparedness plans. Some oversight is needed at state and federal levels to ensure plans are established to safely provide evacuation measures to all residents, including the most vulnerable and the carless populations.

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Key Words: evacuation, emergency preparedness, vulnerable populations, hurricane, Florida

A NEW APPROACH OF ACCESSIBILITY INDEX

Abstract ID: 789

Poster

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Accessibility is one of the most important indicators in assessing land use pattern and transportation system. Accessibility reflects how easily users can navigate space in order to fulfill various social activities, including employment, shopping, services, and recreation. Although a substantial literature continues to refine the concept of accessibility (Handy & Niemeier, 1997; Lucas, et al, 2016)., the primary approach to its measurement is still limited to travel time and cost, which is most intuitive and directly related. Meanwhile, the reality has become more complex: land development patterns have shifted (especially in urban areas, which are denser and more mixed-use) and travel behavior has changed

due to public transit and shared mobility (e.g. bikeshare, carshare, Uber). Hence, the measurement of accessibility desires a more nuanced approach to accurately capture the gap between what individuals need in transport and what the current transportation systems provide (Van Wee, 2016).

This research will focus on developing a comprehensive accessibility index for Orlando metropolitan area by taking into account not only the travel cost, but also the current pattern of urban form, the nature of multi-modal transportation system, and the socioeconomic characteristics of each household (such as income, car ownership, presence of children, age, education, etc.). One or more discrete choice models (such as destination choice, travel mode choice, and travel route choice, etc.) will be used to incorporate different trip purposes. It will primarily examine whether or not the current transportation planning provided a fair distribution of accessibility (given the current land use pattern) for different groups of people, especially transportation disadvantaged ones. The findings will be shared with the Florida Department of Transportation Mobility for Life Program to improve their services.

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Key Words: accessibility index, discrete choice model, transportation equity

UNCOVERING THE PATTERN OF ON-STREET PARKING AVAILABILITY IN SEATTLE: A SURVIVAL ANALYSIS APPROACH

Abstract ID: 818

Poster

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With the open data of blockface curb parking, this study discusses the pattern and associated factors of on-street parking availability in the city of Seattle. Instead of answering what will contribute to better parking availability, the objectives of this paper are to tell how the availability durations for Seattle on-street parking were distributed, and to find out effects of relevant indicators. We extracted the occupancy rates from transactions of blockface pay stations within the city limits, for the last month of 2018, and adopted parametric hazard-based models for the exploration of distribution. To address the heterogeneity of blockface pay stations, as well as the clustering effect from census unit, we specified three models, two of which were added with random effects. Findings show that hazard rate of reaching full occupancy for on-street parking follows a lognormal distribution, which means the risk of being fully occupied will increase to a maximum and then decrease. Furthermore, variables affecting the vacant period of on-street parking will be in a linear relation to the logarithm of time. Since lognormal distribution does not satisfy the proportional hazards property, Accelerated Failure Time model is used to estimate the covariates effects on vacant time. It is found indicators of built environment are dominantly positively correlated with vacancy durations, while time-dependent variables such as weather, day types (weekday/weekend), and policy instruments are in negative correlation to vacancy duration. Finally, through the random effect models we found accounting for heterogeneity would not enhance the model fitness significantly.

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Key Words: on-street parking , open data, survival analysis, built environment

INVESTIGATING THE CHANGES IN COMMUTERS' MODE CHOICE IN U.S. URBAN AREAS: WHAT ROLE DID RIDE HAILING SERVICE PLAY BETWEEN 2010 AND 2016?

Abstract ID: 838

Poster

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In recent years, ride-hailing service companies, such as Uber or Lyft, have positioned themselves as one of the engaging travel mode options for commuters without owning cars or hiring drivers (Henao, 2017). Regarding the impact of ride-hailing service on people's travel behavior, few studies have tried to assess whether it can enhance people's efficiency in their trip while not reducing transit ridership. Hall et al. (2018) reported that Uber service is a complement for the transit agencies, increasing the transit ridership by about five percent. Young & Farber (2019) argued that ride-hailing service, although too minute to influence other modes' ridership, may reduce drunk-driving. However, on the contrary, Graehler et al. (2019) showed that every year after ride-hailing services enter a market, both rail and bus riderships are likely to decrease. Thus, the impact of ride-hailing service on people's travel behavior is yet unclarified, even it is regarded as one of the major shifts in the transportation sector.

The objective of this study is to explore the changes in commuters' mode choice in U.S. urban areas while focusing on the "role" of ride-hailing service. We try to examine the characteristics of areas where the number of ride-hailing service use has increased. Besides, we also identify the characteristics of the origin and destination pairs which showed significant changes in terms of commuters' mode choice between 2010 and 2016. Finally, we elaborate on the role of ride-hailing service by comparing the mobility levels of transit, ride-hailing service, and driving. When assuming that commuters' behaviors are based on rational decisions, we try to identify the strengths and drawbacks of ride-hailing service when compared to other modes. For instance, travelers of a certain origin-destination pair may shift from taking transit to ride-hailing service if they can travel faster at a reasonable price.

The study area of this research is the 200 urbanized area in the U.S., and we employ both the 2010 and 2016 Census Transportation Planning Package dataset. We first examine the attributes of the census tract areas where the use of ride-hailing service increased and also identify whether the increased portion come

from transit or driving. Additionally, we analyze the changes in the modal split for all of the possible origin and destination pairs. Then, we analyze the relationship between the mobility levels of three modes (transit, driving, and ride-hailing) and the changes in modal split ratio. To measure the mobility levels of each three modes, we apply the Google Map Direction API to compute the travel time and cost for all origin and destination pairs. Based on the results, we explain the role of ride-hailing services in commuting behavior.

Main findings of this study are as follows. The increase in ride-hailing service use was mostly found in the areas between the city center and the suburban areas. In detail, most of these areas turned out to lack sufficient transit infrastructure while the cost of traveling to the city center through the ride-hailing service was reasonable. Moreover, origin and destination pairs which have low transit mobility showed an increase in ride-hailing use, while the increased portion mostly came from the transit users. On the other hand, origin and destination pairs which have higher transit mobility also showed an increase in ride-hailing use. However, in this case, most of the increased portion came from driving people. This finding indicates that planners should be aware of the fact that the impact of ride-hailing service on commuters' mode choice may differ according to the mobility levels of three modes (transit, driving, and ride-hailing) for each origin and destination pair.

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Key Words: ride-hailing service, transportation mobility, mode choice, CTPP dataset

PUBLIC TRANSIT, CARS, AND CHILDREN'S ACTIVITY PATTERNS IN TORONTO: AN EXPLORATORY ANALYSIS

Abstract ID: 906

Poster

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This paper explores the relationship between transportation and children's activity participation. The literature on transport disadvantage argues that a lack of accessibility can limit individuals' participation in society, reinforcing social exclusion (Lucas, 2012). This body of work largely concerns adults' participation in employment, critical social services, food, and healthcare, with less attention paid to children's activities. Scholars of children's transportation behavior, meanwhile, have focused their attention on children's school mode choice and physical activity participation (for an extensive review see: Rothman et al., 2018). We seek to bridge these discussions by exploring the relationship between

transportation access and children's participation in both out-of-home activities and educational opportunities in Toronto, Canada.

We examine two aspects of children's activities: school enrollment choice and after school activity participation. Our data comes from the Transport Tomorrow Survey (TTS), a one-day travel survey that captures the activity patterns of 5% of households in the Greater Toronto Area (GTA). We operationalize our outcomes of interest as binary variables: first, we measure if children participated in any out-of-home after school activities. Second, we draw on Toronto District School Board (TDSB) and Toronto Catholic District School Board (TCDSB) catchment boundary data to identify whether students attended a designated local school in their district, or an alternative. The TDSB provides a range of alternative schools with specialized and themed curriculum, and both TDSB and TCDSB allow students to apply to schools outside of their neighborhood on a competitive basis. These opportunities make the city an appropriate location to examine the role of transportation in impacting children's participation in alternative educational opportunities. We limit our analysis to students in their first year of high school to account for any major household changes that may have taken place after the school enrollment decision, such as the acquisition or loss of a vehicle. We operationalize transit accessibility in multiple ways. These include measuring transit trip times to neighborhood and alternative schools, as well as measuring the number of jobs the household can access within 30 minutes by public transit, a proxy for relative transit accessibility.

The transport disadvantage literature also highlights the importance of space-time constraints in inhibiting individuals' activity participation (Farber and Páez, 2011). Longer commute times and trip distances, for example, can reduce the number and duration of activities household members can participate in. Our models thus include household level constraints such as the number of non-working and working adults with drivers' licenses, working adults average commute times, and the number of siblings attending other schools that may have needed an escort.

Our preliminary results identify a significant, positive association between household transit accessibility and the likelihood that a child participates in an after-school activity. We find a positive but insignificant effect for household vehicle ownership. Our household constraint variables are largely insignificant, except for the number of working adults, which is significantly and negatively associated with after school activity participation. We find no association between transportation accessibility and school choice, however.

Our preliminary findings suggest transportation accessibility may play a meaningful role in the ability of high school students in Toronto to participate in out-of-home after school activities. Our results also replicate findings from prior research that failed to find an association between transportation access and school choice (Yang et al., 2012). The role of public transportation and vehicle ownership as enablers of children's participation in society remains an under-researched area worthy of further study.

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Key Words: activity participation, school travel, public transportation, accessibility

CAUSAL RELATIONSHIP BETWEEN ONLINE AND IN-STORE SHOPPING FREQUENCIES USING CONDITIONAL DID REPEATED CROSS-SECTIONS (CDIDRCS)

Abstract ID: 911

Poster

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This study sheds light on the causal relationship between online and in-store shopping frequencies. There is a growing demand for online retailing around the world. In 2017, for example, approximately 1.66 billion people purchased goods online, and online commerce reached about \$2.3 trillion worldwide (www.statista.com). The increase in online shopping may affect shopping travel patterns (Lee et al. 2015). Shopping trips represent a considerable portion of daily travel (15% of annual vehicle miles traveled, based on the 2017 National Household Travel Survey [NHTS] Summary of Travel Trends).

The previous literature has long discussed the effect of online retail on shopping trip frequency, either through substitution or complementary effects. Some scholars indicate that online shopping has a substitution association with in-store shopping (Weltevreden and van Rietbergen 2009), which replaces some portion of in-store shopping trips. Others state that online shopping has a complementary association with in-store shopping (Lee et al. 2017), which can encourage in-store shopping and additional traffic with deliveries. To understand the effect of online shopping on shopping trip frequencies, it is important to accurately identify the causal relationship between online shopping and in-store shopping.

Many previous studies have not addressed self-selection bias, which comes from characteristics of individuals: socio-demographic features and other factors affecting people to use both online and in-store shoppings. For example, individuals may not actually prefer online shopping but use it because they may not be able to go to a physical store due to work schedules, household structure and location, or car ownership status. Moreover, panel data is not publicly available to allow us to estimate the causal relationship between the use of online shopping and the frequency of in-store shopping. To overcome self-selection bias and lack of panel data, this study employs the Conditional Difference-in-Difference Repeated Cross-Section estimator (CDiDRCS), which allows us to estimate the effect of online shopping reducing self-selection bias, using repeated cross-sectional data (Aerts and Schmidt 2008).

This study explores the causal relationship between the use of online shopping and in-store shopping frequencies using NHTS datasets (2009 and 2017). The NHTS datasets include nationwide personal and household characteristics, built-environment, and travel behavioral information as well as the use of online shopping. We use a quasi-experimental design and regard the use of online shopping as a treatment. That is, we define the treatment group as those people who did not use online shopping in 2009 but did use it in 2017. The control group is defined as those people who did not use online shopping in 2009 or 2017. Then, we estimate the unbiased average treatment effect of online shopping on the frequency of in-store shopping.

We conduct a t-test to determine whether the CDiDRCS estimator is statistically significant. We also compare the CDiDRCS estimator with naive estimators to evaluate the impact of self-selection. Results suggest that: 1) The CDiDRCS can reduce self-selection bias to improve the model. 2) Online shopping significantly raises the frequency of in-store shopping in rural areas but not in urban areas. 3) For Millennials, online shopping significantly reduces the frequency of in-store shopping.

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Key Words: Online shopping, Causal modeling, Selection bias, Millennials

COMPARING THE CHOICE BETWEEN BUS AND COMMUTER RAIL: TRAVEL BEHAVIOR ANALYSIS OF DHAKA'S SUBURBAN COMMUTERS

Abstract ID: 944

Poster

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This study informs debate over whether bus or rail investments would do more to improve the experiences of suburban workers commuting to central city Dhaka. It analyzes the travel behavior of the commuters who live in suburban Dhaka and regularly commute to the central city.

The high concentration of employment in the central Dhaka attracts a large number of commuters every day from its outskirts (RSTP, 2015). A great majority of the workers commuting to the central city depend on public transportation – bus and commuter rail. Although the existing bus service is insufficient to meet the demand, the number of routes connecting the central city and the suburban areas has increased in recent years including the ongoing implementation of Bus Rapid Transit (BRT) (RSTP, 2015). In contrast, commuter trains operate with limited capacity and cannot meet the desired level of performance. But studies show evidence that cities which expanded their rail systems along with bus service have significantly better performance than cities which only expanded their bus systems (Henry and Litman, 2006; Evans et al., 2007).

In this study, we assess the implications of commuters' choices and preferences for future transportation policy in Dhaka.

We surveyed 271 commuters (n=271) at random selection of sample along two different routes running from the main city to the nearby suburban areas of Dhaka. The choice between bus and rail was analyzed using binary logistic regression based on discrete choice theory. The results showed that rail commuters travel longer for first and last mile connection compared to bus commuters implying that rail has larger catchment area than bus which is consistent with the findings of other studies. Surprisingly, unlike most other metropolitan cities in the world, Dhaka's suburban commuters travel longer in egress end. The dispersion of jobs and limited transit routes within the central city and contribute to longer egress distance.

A number of patterns we observe lend support to making investments in rail a priority over bus. For instance, we find that income is the most important socio-economic variables influencing commuters' choice between bus and rail, and that lower income people are more likely to choose commuter rail than bus. This pattern is distinctive from cities in Western countries (Giuliano, 2011). We also observe that being a student increases the odds of choosing rail over bus. Among different mode specific attributes, long waiting time has strong negative impact on commuters' utility. The simulation of the model shows clear evidence that similar changes in attributes (reducing travel time by improving operating speed and reducing waiting time by increasing service frequency) will have more positive impact on rail compared to bus. Therefore, considering both equity and efficiency, the study concludes that commuter rail service improvement should get priority in Dhaka's transportation policy. We recommend renovation of old railway track and converting the section of single line into double line as immediate measures to improve the performance of commuter rail service.

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Key Words: Commuting, discrete choice models, access, egress

A MONSTER ON OUR CAMPUS: ASSESSING PARKING CHOICE AND COMMUTING BEHAVIOR

Abstract ID: 1114

Poster

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The university is a microcosm of the larger community accommodating individuals with different cultures, backgrounds, lifestyles, and decision attitudes and behaviors (Bakhsh Kelarestaghi et al., 2019). University campuses face the challenge of managing parking supply and demand, while trying to balance budget constraints and sustainability goals (Riggs, 2014). Campus growth and the expansion of automobile-oriented travel have limited parking availability, which has consequently increased time

expenditure on searching for parking. Not only does this exacerbates fuel consumption, air and noise pollution, and traffic congestion, but it also creates hazards making students late to class, missing classes, and accidents. Increasing supply, diminishing demand, and “do nothing” are three commonplace solutions to overcome the parking management challenge. As the traditional increasing supply approach is costly and an unlikely long-term solution due to the “induced demand effect,” university campuses are shifting to Transportation Demand Management (TDM) tools such as dynamic parking prices, subsidizing bus passes, and promoting shared mobility.

This study scrutinizes parking issues, a monster created at Mississippi State University, for three distinct but still related reasons. First, Mississippi State University ranked second in the list of universities where the most students bring cars to campus, with 95 percent of students having private vehicles (Friedman, 2016). Second, the university has recently experienced an unsuccessful dock-less bike-sharing program (Holloway, 2019). Third, Parking and Transit Services at Mississippi State University has deployed a flat parking rate for both faculty and students. Mississippi State University offers 4,620 commuter parking spots distributed among four parking zones strategically placed on all four sides of its campus: (1) Commuter North, (2) Commuter South, (3) Commuter West, and (4) Commuter East.

We have conducted a comprehensive online survey among students, staff, and faculty to, in particular, answer the following questions:

- (1) How are parking choice decisions explained by socioeconomic and demographic characteristics, parking preferences, parking policy and pricing, and perception and psychological norms?
- (2) How do campus programs and built environment and infrastructure latent attributes impact parking choice decisions?
- (3) How do TDM tools such as dynamic parking pricing, daily parking purchase, multiple parking pass, and subsidizing bus passes balance parking supply and demand?

The questionnaire encompasses four sections to collect (1) socioeconomic and demographic characteristics, (2) travel behavior and parking preferences, (3) perception and attitude toward parking decision, and (4) responses to pricing scenarios. We have tested a mixed logit model to capture individual taste heterogeneity in choosing a parking pass among four available parking zones. The preliminary results indicate distance to the department and availability of parking spots have a statistically significant impact on parking choice decisions. The decision, however, varies among students, staff, and faculty when taking into consideration the level of income, type and cost of vehicle, and driving behavior. We also found psychological and behavioral characteristics including, but not limited to, environmental spatial ability, psychological well-being, sense of community, and spending time versus spending money are statistically significant in identifying parking pass purchase behavior in different scenarios.

Overall, the results provide substantial support for recommendations in parking policy, pricing, and incentives for campuses. The findings are beneficial for both parking and transit services and the campus community. For parking and transit service authorities, it is an opportunity to depart from the flat rate parking policy and implement effective plans to overcome the parking management challenge on campuses. For the campus community, conquering the campus parking challenge means a reduction in fuel consumption, air and noise pollution, traffic congestion, and number of accidents.

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Key Words: Transportation infrastructure, Parking policy, Pricing, Rural areas, Commuting behavior

TRACK 16 – URBAN DESIGN

TRACK 16 – PRE-ORGANIZED SESSION SUMMARIES AND ABSTRACTS FOR THE SESSIONS

PRE-ORGANIZED SESSION - DESIGN AND THE FIGHT FOR SPACE

ID: 27

Pre-Organized Session Summary

Includes abstracts: 352, 353, 354, 560

Modernism once stood as a nearly unquestioned ideological movement promoting “good” design as a solution to vexing social problems around the world. 1960s era urban uprisings and freedom movements in the global south and north followed by a decade of economic restructuring resulted in devastating public critiques of modernist planning and its dangers. These critiques underline a complex and still unfolding debate on the need for planning reform at the local, national and international scales. A dominant tenet of this debate argues that competing publics can be reconciled through more comprehensive and participatory design strategies. But is this true? Scholars, designers, and planners chronicling the durability of neoliberal, technocratic approaches to urban development are raising new questions about what is at stake for contested landscapes, processes and institutions today. This panel explores a collection of international and U.S.-based case studies to examine how contemporary conflicts affect the development of cities and the ways in which planners can expand their cross-disciplinary analyses to foreground the power dynamics embedded in space.

Objectives:

- Participants will be introduced to a contemporary and historic debates in the fields of planning and architecture and practice-based examples of how some of these debates are being resolved on the ground.

CONTESTED SPACE IN MEXICO CITY’S PLAZA DE LAS TRES CULTURAS

Abstract ID: 352

Group Submission: Design and the Fight for Space

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This paper provides a linked overview of 500 years of contested design-politics on a single, deeply politicized site that has undergone a series of calculated urban design interventions. Taken most literally, Mexico City’s Plaza de las Tres Culturas (Plaza of the Three Cultures) was constructed to recognize and celebrate a co-located triple heritage—the ancient Mexica (Aztec) culture, the period of Spanish colonization, and the modernity of independent Mexico. Developed in the early 1960s as part of the massive mixed-income housing project (Unidad Habitacional Nonoalco-Tlateloloco) designed by Mario Pani, the Plaza itself (designed by Ricardo de Robina) borders both the archaeological ruins of Tlatelolco’s Temple Mayor (in 1521, site of the final battle during the Spanish conquest) and the Catholic church of Santiago de Tlatelolco (partially built out of the repurposed temple stones). The site is also

adjacent to another monument to the modern Mexico of the 1960s: the building constructed to house the Secretariat of Foreign Affairs. As Mexico City prepared to host the 1968 Olympic Games, boosters touted the Plaza as the symbol of a unified Mexico with an integrated history. Instead—just ten days before the Olympic opening ceremony, following months of demonstrations, Mexican government troops and police fired upon unarmed demonstrators who had gathered on the Plaza, resulting in the infamous massacre of hundreds.

The paper—drawing on diverse English and Spanish language sources and discourse from planning, urban design, anthropology, sociology and archaeology—conveys the political history of the site as a series of episodes of attempted architectural and cultural erasures coupled by efforts at new construction, with each phase intending to shape a complex mestizo identity. This commences in 1521 with the battle between Cortes (supported by his indigenous allies) and the last Mexica ruler Cuauhtémoc, followed by the subsequent destruction of Tlatelolco and its partial (but incomplete) replacement by edifices serving the new Spanish leadership and the Catholic church. By the mid-20th century, the site had become home to largely unexcavated ruins, home to train tracks and informal housing, leading to the largest slum clearance project in Mexican history and its replacement by the Nonoalco-Tlatelolco project, carried out in parallel with archaeological excavations. As in previous efforts to reform the site and replace unwanted inhabitants, the housing project and its plaza used planning to sculpt larger discourses about a changing national identity. And, as in the earliest decades of the sixteenth-century conquest, the transformation remained incomplete, with lingering resentment and contestation. With the 1968 massacre, which occurred just a few hundred feet away from the mass carnage of the 1521 seizure by the Spaniards, the reality of this persistent spatialized conflict returned. Moreover, these two cultural landscapes of death are not just spatially superimposed; they are also conjoined by design: the steep dropoff from the Plaza to the ruins below entrapped the demonstrators and made escape from gunfire especially difficult.

The paper concludes with an analysis of the discourse in the Mexico City and global press in 2018, marking the 50th anniversary of the 1968 massacre, examining ways that the spatial politics of the plaza, and the events that have unfolded within and around it, continue to be linked back to the incomplete colonial conquest of five centuries earlier. Analysis of the changing cultural role of the Plaza de las Tres Culturas thereby reveals both the ambition of 1960s high modernist urban design to transcend cultural schisms and unite multiple publics as well as the complex ways that such spaces can become stages for remembering and acting upon a polarizing history of past inequities that continues to the present day.

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Key Words: design-politics, plazas, cultural identity, urban design

MAKING MEXICO CITY "MODERN": DESIGN POLITICS IN THE TRANSFORMATION OF THE HISTORIC CENTER

Abstract ID: 353

Group Submission: Design and the Fight for Space

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Taking the case of a protracted struggle over a Rem Koolhaas designed tower that would require demolition of a historically-designated site of cultural heritage, this paper examines the ways that neighbors, developers, city authorities, and national officials contested the definition of what is historic and what is modern. In the political battles that ensued, historic preservation bureaucrats pitted themselves against pro-urban development forces in the public and private sectors. The paper accounts for the strategies and tactics used by pro and anti-redevelopment forces to transform downtown Mexico City, highlighting the role that political alliances among various state actors and agencies played in defining what design projects needed to be preserved and which needed to be jettisoned in order to accommodate competing views of social and built environmental “progress.”

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Key Words: gentrification, institutional politics, Latin America

RITUALS OF AGONISTIC ENGAGEMENTS: ZION SQUARE, JERUSALEM, AND RABIN SQUARE, TEL AVIV

Abstract ID: 354

Group Submission: Design and the Fight for Space

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A protest-event, an act of public display of particular grievances, aims to negotiate and challenge an existing social order or political power. However, though aiming to change and influence the process of political decision-making, many contemporary protest-events do not aim to violate state structure; rather, they aim to negotiate with it and thus can be perceived as agonistic engagements. Focusing on the two key spaces: Zion Square in Jerusalem and Rabin Square in Tel Aviv, this presentation excavates into the political dynamics, political narratives, and spatial history of these competing places. Analyzing public rituals and protests, and the parties associated with these places-- Zion square is more associated with the right wing parties and Rabin square with the left parties -- this presentation offers new ways to approach and conceptualize agonistic engagement with specific attention to the role of place.

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Key Words: Protest, Place, Contestation, History , Social Groups

ROOF POLITICS: THE MATERIALITY OF INTERPELLATION

Abstract ID: 560

Group Submission: Design and the Fight for Space

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In 2010, the Rwandan government rolled out a mandatory roof modernization program to replace grass thatch on every house and outbuilding in Rwanda. The initiative was partly linked to shelter amelioration but was rather more embedded in post-genocide political and symbolic work. Roof replacements erased an aesthetics of a “backwards” past, producing a new, homogeneous aesthetic that represented the country’s transition to a modern, unified future. The program was part of the country’s larger villagisation strategy, which required residents to move to newly planned, modern settlements. Both initiatives model liberal peacebuilding orthodoxy. This is an approach that insists that development projects build peace. Rwanda has made architecture and planning central to such efforts. Exploring Rwanda’s roof replacement program highlights the aesthetic and experiential dimensions of development-as-peacebuilding policies. Drawing from ethnographic research in two villages and the government ministry that administered the program, I explore the state objectives that motivated thatch eradication and its effects on rural residents. Forced removals and compliance reveal processes by which a heterogeneous rural landscape became the homogeneous territory of the state. And inside the homes covered by new roofs, I follow the spatial politics of residents who support, exploit, reinterpret, and refuse to participate in the program. I conclude by considering the persistent use of architectural aesthetics as a medium of interpellation, historically mobilized in the name of morality, medicine, economy, and most recently: peace.

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Key Words: African urbanism, spatial politics, conflict and peace studies, aesthetics, ethnography

TRACK 16 - ROUNDTABLES

ROUNDTABLE - CHALLENGES AND ASPIRATIONS OF CONTEMPORARY URBANISM: COMPARATIVE PERSPECTIVES

Abstract ID: 25

Roundtable

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This Roundtable will draw from a recently published book, *The New Companion to Urban Design: A Sequel* (Routledge 2019), edited by the organizer and moderator, to discuss from a comparative and global perspective particular contemporary conditions that are present in some cities of the Global North and the Global South. Roundtable participants have all contributed chapters to this book. Our focus will be on the role and responsibilities of urban design in responding to certain challenges and aspirations that affect contemporary urbanism. More specifically, the Roundtable will discuss the following questions and themes.

- In an era that witnesses continued and intensive population flows between cities of the Global North and the Global South, how can urban designers respond to the emerging “ethnoscapes” of diaspora that bring different religions and cultures in close spatial proximity to one another in cities? Are there good examples of neighborhoods that have successfully accommodated the integration of a diverse public of immigrants and locals?
- Some cities of both the Global North and the Global South are experiencing shrinkage, as a result of human made and natural disasters, wars, terrorist acts, or economic downturns. Such disasters often lead to displacement and homelessness, which now represents a frequent occurrence as a condition of exception in cities globally. How can urban design anticipate such damages and imagine cities that can bounce back effectively? How might urban design address issues of recovery and adaptation or manage decline? Are there design strategies that can help respond to “unsettledness” and an “urbanism of exception”?
- Access and mobility are intrinsically linked to the urban form and spatial structure of cities. Yet, in certain socio-spatial contexts, some groups (women, older adults, lower income and minority groups) enjoy less access and mobility than others. How can urban design play a central role in enhancing access and mobility for all in cities?

The influence of the “creative class” in local place-making continues to capture the imagination of many planners and policy makers in cities of the Global North. But it may also lead to gentrification and displacement of low-income populations. What role may urban design play in integrating local expressions of arts and culture in cities of the Global North and the Global South, while avoiding these negative consequences?

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Key Words: urbanism, urban design, Global North, Global South

ROUNDTABLE - W(H)ITHER URBAN DESIGN? A DISCUSSION OF URBAN DESIGN AGENCY, DEFINITION AND PROSPECTS.

Abstract ID: 826

Roundtable

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In an era of unprecedented public austerity, environmental destabilization, and demographic shifts, the definition and agency of the urban designer has increasingly come under question. Where do urban designers fit in with the increasingly recognized plurality of agents that shape our cities? Do urban designers represent a profession, a discipline, or simply a perspective on the city? This roundtable focuses specifically on these questions in North American urban and design academia – a key place where urban design is defined and professed. The roundtable will discuss the definition of urban design in academia, firstly by comparing it to the more entrenched fields of architecture and urban planning. How do urban designers emerge from the image of the ‘master builder’ bestowed by architecture schools, and the derision as ‘facadists’ in urban planning schools? Secondly, the roundtable seeks definition by discussing the agency and operations of urban designers in their own right. As the field defines its ‘independence’, what is and will be the professional and academic territory of the urban designer? Finally, the roundtable explores how research can inform the future of urban design as a professional and academic field. How is urban design scholarship emerging from its recent damnation as a ‘pseudo-science’? The roundtable is structured as a series of questions that engage discussing among leading thinkers in the field, and welcomes audience participation.

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Key Words: Urban design, Definition, Education, Agency, Research

ROUNDTABLE - URBAN DESIGN PEDAGOGY: EMERGING CHALLENGES AND OPPORTUNITIES

Abstract ID: 1271

Roundtable

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This roundtable brings together academics from Canada, the US and the UK, all of whom are engaged in teaching urban design to planners. The discussion will highlight challenges, including the integration of climate change and social justice issues into design conversations; the development of design skills for planning students with non-design backgrounds; and the delivery of design content in increasing compact planning programs. It will also address opportunities that some programs are finding in interdisciplinary education in the classroom and in studios, and in work that engages with communities.

Robert Shibley (University at Buffalo) will moderate the discussion drawing on his career working with planning and design students in both academic and professional capacities. Participants include James White (University of Glasgow) and Liz Falletta (University of Southern California), who are both facing the challenges of time-limited programs. As with many UK-based graduate programs, Glasgow's is a one-year curriculum. The University of Southern California offers an Executive Management program that only allows about 24 hours of instruction for both site planning and urban design. Both of these cases raise issues about what are the most important skill and knowledge sets that planners need to participate in urban design processes. Rachel Berney (University of Washington) will address justice and equity perspectives, views that are often overlooked when design is the focus of study. Vicente del Rio (Cal Poly San Luis Obispo) and Richard Milgrom (University of Manitoba) will discuss experiences with interdisciplinarity in studio settings. Del Rio will also highlight the importance of community/client engagement, while Milgrom will discuss how evidence-based studio process might be used to advocate for alternative design/development processes.

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Key Words: Urban Design, Planning Pedagogy, Community-engagement

TRACK 16 – INDIVIDUAL ABSTRACTS

**SPATIAL PUBLICNESS: USING A Q-METHODOLOGY TO INVESTIGATE THE
CONCEPTUALIZATION OF CONTEMPORARY PUBLICNESS ON PUBLIC OPEN SPACE**

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The essence of the concept of 'public' has the potential to overflow its somewhat limited physical dimension. Each individual's interpretation of the public and the public open space creates a distinct representation of the world. Furthermore, the notion of publicness in relation to space is not an established terminology in the existing literature (Akkar, 2005; Carmona, 2010; Németh & Schmidt, 2011; Madanipour, 2003). The mainstream of academic discourse on public open space and publicness has been mostly limited to the way of finding its new characteristics or revealing its evaluation criteria based on case studies. Thus, there has been a lack of in-depth research on the subjective perception of publicness. This study contributes to the existing research by analyzing the subjective perception of contemporary publicness in public open spaces. The research design of this study employs Q-methodology, which is a useful method to illuminate the cognitive characteristics according to the internal criteria of individuals. By doing so, this study emphasizes the importance of everyday discourse and perceptions of publicness and public spaces.

Q-methodology combines quantitative and qualitative approaches to reveal social perspectives on a particular phenomenon of interest (McKeown & Thomas, 1988). In Q-methodology, participants' opinions about the topic under investigation are collected using a sorting technique where respondents rank-order a series of statements according to their point of view (van Exel & de Graaf, 2005). Q-methodology most often follows a sequential ordering of actions: developing one's concurrence, or Q set; soliciting participants, or P-set, and directing one's participants to arrange the Q set in a particular manner or Q sort. Once data gathering is complete, the Q sort arrangements are analyzed and interpreted across participants. Whereas traditional factor analysis groups items according to shared variance to reveal underlying latent constructs, when used in Q-methodology, factor analysis clusters participants to reveal groups of individuals who share a common perspective about the phenomenon under investigation (Webler, Danielson, & Tuler, 2009).

To develop the concurrence, systemic literature review and open-ended interviews with professionals in related fields of the concept of spatial publicness were conducted and 122 statements emerged. After coding the statements and several discussions, we narrowed the concurrence to sixty items, twenty-two with accompanying images. P-set, the participant group, consisted of 36 individuals.

As a result of the study, the perception of spatial publicness was divided into five types. Type I is open condition-oriented type, Type II is a critical communication-oriented type, Type III is distribution value-oriented type, Type IV is diversity recognition-oriented type, and Type V is an instrumental discussion-oriented type. Meanwhile, the consensus among these types was that 'It is not necessarily worthwhile to be done by an authorized subject', 'Spatial publicness does not necessarily correspond to social consensus', and 'It is not the opposite of being private'. This study found that there is a wide variety of perceptions about publicness, and it is necessary to focus on the direction of open condition (Type I) and critical communication-orientation (Type II) with high factor weight.

This study provides the basis of spatial publicness research that is geared towards everyday people- the very individuals who utilize public spaces without realizing its characteristics or qualities. Understanding such everyday discourse is paramount in enhancing diversity, particularly in the urban context. This study fills in the gap in the existing research which emphasizes operationalized definitions of publicness and

public open spaces divorced from the public discourse. By highlighting and privileging the subjective perception of publicness and public open spaces by its everyday users, I further discuss this study's findings, its implications, and future directions for policy-makers of public open spaces.

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Key Words: publicness, public open space, Q-methodology, perception

THE RISE AND FALL OF EVERYDAY URBANISM: THE STORY OF ABU DHABI NEIGHBORHOOD

Abstract ID: 39

Individual Paper Submission

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The period after 1980s extending to present was an unfortunate time of neighborhood planning in the UAE. The erasures of old urban design ideals and the rebirth of new ones seem to be omniuns signs of the decay of everyday urbanism and community life. Since the late 1980s, urban designers have not emphasized human scale elements in neighborhood design. In other words, no systematic ideology has considered the "human scale." The close-knit homes, density, diversity, and pedestrian driven places have stood on the brink of demise. Urban design has mainly been considered "an architectural outgrowth" and has emphasized the construction of large transportation networks serving infinite suburban expansion. Abu Dhabi's current neighborhood planning practice raises critical issues about the ability of formal planning in creating better places for the community formation. This accentuates Jacobs (2004) critical argument of reaching a "dark age", a period of collapse in community life; our neighborhoods have become bereft of everyday urbanism. The decay of everydayness and the fall of social life in neighborhoods are not unique to the UAE; it is a widely debated topic worldwide. Planners and designers have vilified over-scaled urbanism (Berger and Kotkin 2018, p. 10) because of its negative social consequences.

Abu Dhabi's 1970s neighborhoods were designed for people and for their everyday practices. Everyday urbanism was perceptible; neighborhoods celebrated the vitality and richness of ordinary and quotidian life. After 1980s, the configuration of the built environment and land use system have completely changed. Neighborhoods lost its social content and street level spontaneity by the rise of sprawling suburbs typically served with large parcels, wide disconnected streets, single uses, and grade-separated interchanges (Figure 1). With this morphological ideology, small-scale resident-generated interventions and socializing between neighbors became a lost culture and exposure to the outside reached a serious decay (Sennett, 1974, 1992; Southworth & Owens, 2007). Abu Dhabi's post-1980s planning schemes evoked a high level of privacy and isolation; residents became strangers and prisoners in their own land

(Kelbaugh, 2001). Today one can drive through Abu Dhabi's suburban neighborhoods for miles and hours and never observe a single human being on the street or even a group of residents chatting at door fronts.

This paper studies, Baniyas, a densely aging Abu Dhabi neighborhood established in 1970s, to explore the urban design factors that enhance or attenuate everyday urbanism. We draw on the concept of everyday urbanism, people taking planning and design into their own hands, to interpret this case's significance in understating how urban form facilitates everydayness and how this facilitation contributes to community life. This study gives planners, policy makers, and designers an evidence that Abu Dhabi's current formal planning approaches grounded on overcalling the built environment did not deliver; It failed to promote everyday vibrant communities. The exploration of the case relies on morphological mapping, surveys and interviews with the residents of Baniyas as well as observations and photographs that monitor people's stories, daily actions, and perceptions of their neighborhood. The paper attempts to answer the following questions: (1) How urban form facilitates, enhances, and accommodates everyday urbanism; (2) What are the observable patterns of everyday life and behavior in Baniyas? (3) Does urban informality or resident-generated interventions provide benefits to the community, If yes to what capacity? (4) Should everyday urbanism be limited and controlled by formal planning?

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<https://doi.org/10.1080/01944369308975880>

Key Words: Everyday Urbanism, Urban Form

PROBLEM-BASED SOLUTIONS: TRANSFORMATIVE APPROACHES TO MITIGATE THE IMPACTS OF BOOM-AND-BUST IN DECLINING URBAN COMMUNITIES

Abstract ID: 42

Individual Paper Submission

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Strategic partnerships between universities and declining urban neighborhoods with limited resources have resulted in some innovative and forward-thinking approaches to land use and planning that respond to the impacts of boom-and-bust through the implementation of problem-based solutions, and have spurred development to make communities more resilient. The university-community partnerships and engagements have multiple goals. They include increasing university responsiveness to local needs, stimulating real-world change, and preparing students to effectively address complex social challenges (Dorado, 2004). However, such approaches are complicated by a variety of factors, including stakeholder expectations, power imbalances, and the conflicting goals of educators and community members (Mansuri and Rao, 2004). While the benefits of service-learning programs to universities are well documented, the benefits of such higher education partnerships to community participants are not as well known (Netshandama, 2010). Successful engagements seem to require community involvement and decision-making authority at every phase, mutual accountability, and trust (Winkler, 2013). This presentation refers to a series of case studies of community engagement and neighborhood empowerment in the development of a collective sustainable plan/vision for declining inner-city neighborhoods with

limited resources. These neighborhoods, located in Columbus, Ohio, have seen tremendous declines in population and economy over the past years due to significant loss of manufacturing jobs. The case studies demonstrate that service-learning has the potential to provide communities with place-specific guidelines and recommendations that improve the quality of life for residents, but their implementation requires a collective effort that goes beyond the classroom.

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Key Words: university-community partnership, service-learning, urban design, participatory planning, sustainable land use approaches

THE CONTRIBUTION OF ALLEYWAY SYSTEM IN STREET NETWORK EFFICIENCY: THE CASE OF DUBAI'S NEIGHBORHOODS

Abstract ID: 43

Individual Paper Submission

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The design of neighborhoods affects our ability to meet a wide range of environmental and social needs, such as walkability, access to daily needs, and reduced automobile use. In recent years, researchers have begun to understand the nature and consequences of different patterns of urban form based on street design (Wheeler, 2003, 2008). This study adds to this body of work by highlighting morphological analysis of streets as an important tool for crafting a foundation for future neighborhood planning. Urban form includes (buildings, street systems, urban blocks, lot configuration, landscape, and layout of public spaces) (Alawadi, 2017). Out of these elements, streets are a very critical one. Once they are built they cannot be changed or modified largely; therefore, a careful understanding of its efficiency is important.

Sustainable urban forms are usually associated with ideals such as diversity, density and connectivity (Condon & Yaro, 2010). Several studies have emphasized the importance of street network design in building more sustainable neighborhoods. Research has shown that the efficiencies of street network systems have been directly linked with physical activity and neighborhood quality of life (Hess, 1997; Hess, 2009; Stangl and Guinn, 2011;). Literature also shows a positive relationship between the connectivity of neighborhoods with social cohesion and environmental quality (Handy, Boarnet, Ewing & Killingsworth, 2002; Moudon et al., 2006).

Equally important to streets is alleyways or sikkak infrastructure, as named in Arabic literature. Sikkak (sing. sikka) are narrow alleyways between land parcels and are typically present in neighborhood designs. Sikkak has played a major role in shaping road networks around the world. Considered as a pedestrian network system, it has the ability of increasing connectivity and circulation efficiencies. However, studies in the field have neglected the contribution of sikkak infrastructure in improving the connectivity of neighborhoods. Typical urban design literature has focused on streets and urban blocks in understanding connectivity. For example, block size and form have been studied with respect to their effect on circulation trends within cities and neighborhoods (Siksna,1997; Owens,1993). However, although sikkak infrastructure within neighborhoods it's a critical element in the urban fabric, its contribution to network efficiency has not been clearly studied. Sikkak infrastructure decreases block face lengths, provides greater permeability, and increases intersection density which all can lead to greater network efficiency.

In an attempt to understand the contribution of alleyways in enhancing network efficiency, Dubai's neighborhoods have been taken as case studies. This paper studies 10 neighborhoods of Dubai, built and designed over a span of 50 years. The urban forms of these neighborhoods have gone through several phases of change that have reflected shifts in the planning ideologies of Dubai. Differing densities, street and sikkak layouts, and provision and distribution of land uses drove the evolution of distinctive neighborhood forms.

While sikkak have gained an important place in the city's plans for addressing connectivity, a clear understanding of their contribution to network efficiency is not evident. This paper utilizes an urban network analysis methodology to help assess the contribution of sikkak infrastructure on pedestrian circulation. A measure often used to assess pedestrian connectivity, Pedestrian Route Directness (PRD) is utilized. PRD measures distances between origins and destinations and compares it with the shortest path, namely the straight path. This measure helps to quantify the directness of the routes and network system within the neighborhood. The paper attempts to answer three major questions. How street and sikkak systems have changed with the evolution of Dubai's neighborhoods; are the street network systems designed to promote the overall network efficiency in terms of direct and straight routes; and what is the contribution of sikkak to the overall network efficiency?

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Key Words: Urban Form, Street Design

THE POLITICS OF URBAN DESIGN AND IMAGE MAKING UNDER A HYBRID REGIME: CAPITAL CITY DEVELOPMENT IN TBILISI, GEORGIA

Abstract ID: 106

Individual Paper Submission

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The latter half of the 20th century saw significant geo-political shifts as military dictatorships and single-party governments collapsed and produced a “third wave” of global democratization. Yet, overwhelmingly the switch to democracy was deemed incomplete, leading to a distinctive new category of “hybrid” regime. If today it is widely acknowledged that: hybrid regimes are unique state political structures; that they have proliferated globally; and that they are too persistent to be aberrations of democracy, then it becomes important to further investigate their internal functionings. Given that the built environment of capital cities is a reflection of the ruling regime inasmuch as it is the embodiment of national sentiment, it also becomes useful to consider urban design and image making in capital cities under hybrid regimes. How might the strategic development of a capital and the restructuring of its city spaces be working in support of hybrid regime political goals, despite their necessary concessions toward democratization?

This paper examines the impacts of hybrid regime governance on capital city development by looking at the specific case of Tbilisi, Georgia. Emerging as an independent post-Soviet country in 1991, Georgia underwent dramatic government-led physical and ideological transformations in its capital. Between 2004 and 2013, the Georgian government undertook multiple campaigns to transform Tbilisi, including constructing new parks and government buildings, and the re-development of the Old City. A series of coinciding image making campaigns aimed to re-orient Georgia away from its socialist past and Russia, and toward new geopolitical alignments with the West and Europe. In support of democracy promotion and state building, newly programmed government buildings and re-designed police stations reframed the way the public interacted with their government. At the same time, these changes took place in the absence of transparent state spending, public consultation, or due legal process, underscoring the hybrid nature of the ruling regime.

As the case of Tbilisi shows, under hybrid regimes, capital city development must fulfill a number of simultaneous and contradictory goals. Public spaces and state institutions must communicate the transparency of a democracy while also reinforcing the power of the ruling elite. These efforts result in competing government targets, but also generate unique impacts on the urban identity of capital cities. The results show that capital city change under hybrid regimes can be understood as distinct in four primary ways: (1) the impact of informal institutions; (2) the influence of extra-national actors; (3) the pressures of subnational actors and the regime’s capacity to thwart local opposition; and (4) the content of state ideology and propaganda. The results of this research are based on three years of fieldwork carried out in Tbilisi between 2016-2019. They draw from key informant interviews, focus groups with local residents, field observations, and document analysis. Overall, the paper argues that urban development and image making are crucial mediums for the production and unfolding of hybrid regime politics in capital cities—with impacts both within and beyond state boundaries. Capital city transformations under hybrid regimes therefore need to be taken seriously for their potential to effect the long-term trajectories of these countries.

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Key Words: Capital City, Tbilisi, Hybrid Regime, Urban Design, Image Making

GREEN GROWTH REIMAGINED: CAN ECO-DEVELOPMENT PROMOTE URBAN SUSTAINABILITY IN CHINESE CITIES?

Abstract ID: 116

Individual Paper Submission

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The relationship between nature and built environment is an important subject for theory and praxis of city making (McHarg, 1971; Spirn, 1985). Over the past 50 years, the environmental movement has evolved substantially with respect to normative positions on the human-environment relationship, the nature of the environmental problems it addresses, and its broader goals and tactics. With continued urbanization and rising environmental risks, the world has witnessed an unflagging enthusiasm in green approaches to city making. Evolving environmental values have been incorporated into myriad models of principles and development paradigms. Yet, current pro-environmental concepts remain elusive; their operationalization is chaotic and their implementation is widely contested.

Environmental solutions are embedded in urban structures across geopolitical scales. Countries form transnational coalition and pool tremendous resources to develop underserved areas. They experiment with the world's most acknowledged green growth strategies in the search of an optimal, scalable development model, one that would be both a motor for economic growth and a cornerstone of an environmentally responsible society (WCED, 1987). In particular, China, as one of the world's largest developing countries, is spotlighted for its high demand to continue urbanization. Some of the world's most ambitious eco-developments have been carried out in China. These places are often proclaimed as "eco" and "low-carbon" cities and envisioned as engines of green growth, instrumental in transitions toward environmentally friendly societies (Williams, 2017). They have become the manifestation of green politics and the demonstration of green approaches to city making. However, such eco-experimentation has been criticized as mere greenwash or doomed failure; the performance of these places remains poorly understood (Sze, 2015).

Is eco-development a contradiction in terms and wishful thinking? Are the eco-environmental experiments merely deceptive greenwash? How do we know if eco-development initiatives are more than hype? In spite of widely expressed skepticism, various formats of eco-environmental initiatives continue to spawn and evolve. Simply viewing these projects as total failures could overshadow the values of such progressive experiments. I regard eco-development as a chaotic issue of great complexity. This ongoing, transnational experimentation requires critical evaluation and reflection of its paradigms and a context-specific reinterpretation of eco-environmental principles.

Aspiring to understand the influences of green growth commitments on city making, I examine how state-initiated eco-development plans shape cities through transnational collaboration, local appropriation of ideas, and new forms of public-private partnership in emerging economies. My research taps into China's recent pro-environmental movement in urban development to examine the discourses about eco-concepts and to assess various formats of eco-development. I use the term "eco-development" to encompass a comprehensive process for cities to remediate existing environmental damage and to reduce environmental impact while building long-term capacities for integrated economic, social and environmental objectives. Through extensive literature and mixed-method case studies, I aim to establish a cohesive dialogue for the discussion about green city making characterized by eco-environmental principles of planning and design.

The notion of eco-development entails a comprehensive set of context-driven and evolving strategies in contrast to a one-size-fits-all model of the eco-city. This distinction views eco-development as a plural, open-ended process, rather than a singular, close-ended project. The next phase of eco-movement calls for new knowledge, new theories, and new approaches built upon lessons learned through proper assessment and reflection of existing experiments. This necessitates effective evaluation of past practices. Situated in variegated state-driven contexts, this study contributes to the larger pro-environmental dialogue by parsing the successes and failures of renowned eco-city making through performance and conformance assessment. Ultimately, it interrogates the conventional top-down, expert-driven approaches to standard-setting and city making, and challenges the fixed, uniform-rule-oriented approaches to eco-development.

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Key Words: eco-development

FROM MAIN STREET TO THE HIGH STREET? MOBILISING PLANNING AND URBAN DESIGN RESPONSES TO ADDRESS CITY CENTRE DECLINE

Abstract ID: 150

Individual Paper Submission

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The story of downtown decline in the American city has been well-versed in the literature. The suburbanisation of housing and retailing, coupled to the ascendancy of the automobile, contributed directly to the hollowing-out of downtown areas (Giusti and Maraschin 2017). Once bustling city streets slipped into decline as big department stores and other business closed their doors. Downtowns, small and large, became mono-use areas where only commercial offices, and their attendant car parks, remained truly viable.

Various planning and urban design strategies to revitalise the declining American downtown have been trialled by city planners since the late 1970s. These have included public realm enhancements, like the creation of pedestrian malls; mega-projects, such as new stadia or music venues; smaller-scale historic preservation initiatives; and, the encouragement of mixed development, especially housing. While the results have been mixed (Faulk 2006), the last decade has seen a new 'downtown paradigm' (Birch 2009) emerge in cities across the United States characterised by an emphasis on 'urban living' and the creation of dense and walkable central city neighbourhoods with more diverse land uses.

Until now, cities in the UK have largely avoided the dramatic decline experienced in American downtown areas. Despite similar suburbanization trends, most UK city centres have retained a sense of vibrancy

buoyed, in part, by a strong retailing sector that has attracted significant pedestrian footfall. Since the 2007-08 Global Financial Crisis, however, these vital places have dramatically faltered (Wrigley and Dolega 2011; Peel and Parker 2017). Falling consumer spending precipitated by a government austerity programme and anxiety about BREXIT, as well as the growing dominance of online retailers and changing operational costs, has seen a litany of major retailers, including some major department stores, close their doors. Many UK urban centres have subsequently fallen into decline leaving planners and urban designers struggling for solutions and actions.

In this paper we will share land use, typology and other diversity and vitality metrics from the mid-sized UK cities of Liverpool, Nottingham and Hull to argue that their experience appears analogous to that faced by American downtowns some forty years before. There is a pressing need for city centre stakeholders to understand the scale of the problem and find ways to diversify and adapt the existing built environment to develop greater resiliency in the face of continued city centre decline. The paper therefore identifies key similarities and difference between the UK and American experience and asks whether lessons about market intervention, planning incentivization, and typo-morphological innovation that have encouraged downtown revitalisation in America are translatable to the UK. In so doing, our broader aim is to make a theoretical contribution to the growing critical discourse on ‘comparative tactics’ (Robinson 2016) and the mobility of planning policies and design practices (e.g. McCann 2011). In particular, we question whether there is value in drawing lessons from planning and design practices that, on the surface, appear to have occurred in a similar context but took place at a different time and in a differing political and planning policy environment.

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Key Words: urban design, downtown, retail, revitalisation, policy mobilities

AN EVALUATION OF PATH SYSTEMS IN RESIDENTIAL AREAS

Abstract ID: 235

Individual Paper Submission

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Residents of single-family residential neighborhoods, like those typically found in suburbs, face challenges when they decide to make a trip on foot or on a bike. Many neighborhoods do not have sidewalks or bike lanes. The hierarchical, branching road network found in low-density sprawl, designed for reducing auto traffic in front of homes, make non-car trips longer and repetitive. These neighborhoods

can discourage walking and cycling, which are healthy and accessible means of exercise, as well as encourage the use of internal combustion engine vehicles, increasing greenhouse gas emissions.

Despite these concerns, real estate developers continue to build neighborhoods hostile to pedestrians and cyclists. Some neighborhoods, however, feature facilities that encourage walking and address the challenges of a hierarchical, “lollipops on a stick” style suburban street network (Southworth and Owens, 1993). They are residential path systems. These are similar to the off-street paths that often serve as recreational corridors or nature trails, but are designed to be compatible with the context of residential neighborhoods. They connect dead ends and cul-de-sacs and often connect to larger regional trail networks.

This research asks the questions: who uses residential path systems, how are they used, and what are the best practice in RPS design? Several methodological approaches are used to answer these questions, including a pedestrian audit, a survey of residents who live near RPSes, GIS network analysis, and archival research of path precedents. The research examines RPSes in three case study areas in the Sacramento metropolitan area. Each of these path systems conforms to the definition of an RPS, but they are located in different contexts, with design differences, to facilitate comparisons.

Results indicate that residential path systems built today are a direct descendant of the 19th century urban parks of Frederick Law Olmsted and Calvert Vaux, the English garden city designs of Barry Parker and Raymond Unwin, and the U.S. garden suburb designs of Clarence Stein and Henry Wright. Modern concerns over healthy lifestyles and climate change have made paths an attractive policy option and selling point for municipalities. The survey results indicate that most people rarely use the path systems, and those that do typically use them for outdoor recreation, not for commuting or reaching other destinations. Safety was a key theme; respondents in two case study areas used the paths to be safer from traffic, but respondents in one area did not use the paths as much for fear of crime. Respondents felt the most important design characteristics was continuity, while amenities such as high-quality landscaping, benches, and trash cans were not as important.

This research suggests that simply including paths in the design of a suburban neighborhood may not be enough to encourage people to walk and bike more, nor will contribute significantly to public health outcomes or greenhouse gas reduction. They can still serve their communities as accessible green spaces and useful short-cuts in a disjointed street network. The best RPSes will be deployed in locations where pedestrian and cyclist trips can be significantly shortened and designed in a way to be safe, well-lit, and inviting.

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Key Words: suburbs, street patterns, walkability, bikeability, public space

JUST PLACES? COMMUNITY PRESERVATION, ART, AND EQUITY

Abstract ID: 285

Individual Paper Submission

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Historic preservation is often perceived narrowly as consisting primarily of the protection of historic landmarks. A more expansive view of community preservation can capture a broader range of practices that benefit communities through stewardship of the built environment and attention to social equity (Minner, Small, Pryce, Meyer, and White 2019). This can include alliances with community economic development efforts (Ryberg-Webster & Kinahan 2014). Reconsidering the range of preservation activities can also include artistic interventions (Maher 2013) and the incorporation of social sciences-based methodologies (Wells and Stiefel 2019). This paper examines community preservation practices and creative alliances between preservation, community development, construction trades, and the arts.

In a graduate-level workshop, research was initiated with the National Trust for Historic Preservation's Preservation Green Lab (now known as Research & Policy Lab), the Preservation Rightsizing Network, and Preservation Buffalo Niagara. This engaged scholarship involved ground-truthing data from the National Trust's Atlas of ReUrbanism for Buffalo, New York (National Trust for Historic Preservation 2017). Students performed spatial analysis, interviewed community leaders, analyzed local and national preservation and community development policies, and constructed a framework for 'equity preservation.'

Two years later, this research was continued and extended into the arts. In a mixed graduate and undergraduate class called Just Places? Community Preservation, Art and Equity examined a series of research questions. These included:

- How do artistic practices and arts organizations shape, interpret, and help us remember a city's past? How do artistic practices relate to professional fields that engage with communities and shape the built environment (e.g. planning, historic preservation, architecture, and landscape architecture?) What can city planning and preservation learn from the arts? What can the arts learn from planning and preservation?
- How can the arts and practices loosely associated with "creative place-making" engage in ethical repair and sustenance of a community without, and potentially directly resisting, processes of commodification, alienation, exclusion, gentrification and displacement?
- How can the arts assist in the retention of collective memory? What are means of rendering largely invisible histories, people, and aspects of a community visible?
- Can instilling curiosity and consciousness about patterns in the built environment, social histories, and collective identities translate into both individual and community benefits? How does one 'count' or evaluate this?
- Other than counting people and dollars and having retinal sensors and brain scanners hooked up to those who tour specific environments, how do we, as a culture, substantiate the impact that places--particularly places charged by art/design/history-- have upon our psyches? How can we apply qualitative research methods associated with the humanistic aspects of the built environment to evaluate the impacts of preservation, architecture, art, and community? In what ways can 'equity' be a part of the barometers of success?

What are community preservation practices, beyond standard regulatory approaches like landmarking, that preserve intangible heritage and community?

As an engaged component of this research, students and faculty theorized the impacts of the Society for Advancement of Construction-related Arts (SACRA), led by artist and architecture professor Dennis Maher. Housed in Assembly House 150, an adaptively reused church, this workforce development program provides arts-based construction skills training. This training program incorporates patterns of history and the built environment in Buffalo. In addition, students created a plan to evaluate the impacts of Collaborative Action Grants distributed by Enterprise Community Partners for creative place-making project around the US.

This paper provides insights from this engaged scholarship, which sought to illuminate approaches to community preservation and arts-based strategies that can help communities strive toward equitable reinvestment and community development.

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Key Words: Historic Preservation, Arts, Community Development, Equity, Creative Place-making

URBAN DESIGN STRATEGIES OF URBAN WATER ENVIRONMENT ORIENTATION BASED ON THE PERSPECTIVE OF ECOLOGICAL RESILIENCE

Abstract ID: 343

Individual Paper Submission

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Global climate change has become a global concern which means that cities need to be able to cope with future irresistible disasters. Many cities have a large amount of water accumulation after heavy rain, resulting in the damage to urban system functions. Thus, improving the ecological resilience of urban water systems plays an important role in consolidating the stability of urban systems.

Firstly, this paper reviews literature to summarize the research progress of urban resilience in the world, the practical experience in water ecological management and the shortcomings of existing resilience research. Due to different urban forms, hydrological conditions, climatic conditions and economic levels in different countries, these regions and countries have theoretical research which is suitable for local conditions on water ecosystem management. For example, Low Impact Development (LID) was originally developed in the USA, which is an urban planning and design method of micro-scale

controlled, and to control generate pollution of decentralized facilities to mitigate the impact on increasing impervious surfaces (Eckart et al. 2017). On the other hand, Holling (1973) proposed the concept of “ecological resilience” from ecology perspective which was considered to be the first time. He explored the behavior of both ecological theory and natural systems and clarified that their different behaviors will yield different insights. Based on this, Jabareen Y. (2013) proposed the Resilience city Planning Framework (RPF), a resilient urban planning framework consisting of four major components: vulnerability analysis, disaster prevention, urban management, and uncertainty-oriented planning. Additionally, in order to cope with the environmental issues brought by economic development, Organization for Economic Co-operation and Development (OECD 1993) proposed a PSR model, which has been widely used in ecological security evaluation and environmental assessment research. Therefore, this paper constructs an urban water ecological resilience evaluation system based on PSR model from the perspective of ecological resilience, which evaluates changes in water ecosystems caused by human activities, the current status of water ecosystems affected by human activities, and policies developed by the government. After that, establishing urban water environment-oriented urban design technology system through organizing factors affecting water ecological resilience. Besides, combining the factor characteristics of absorption-recovery-development ability that affects resilience, and proposing a resilience urban design strategy that covers the Micro-meso-macro perspective. Finally, through the urban design approach, comprehensive consideration of the three stages of resilient cities (absorption-recovery-development), Improving the comprehensive water ecological resilience of regions, cities and block. For instance, urban design strategies for a region and its basins include protecting the overall water ecosystem of the basin and controlling the size of the urban agglomeration; Considering the urban scale, urban design strategies should improve the urban ecological network, build a high-speed and efficient green transportation system and create a soft shoreline for the waterfront landscape; From the block perspective, it is necessary to actively exert the regulation and storage capacity of the water, set up the water storage unit inside the block and select a sustainable architectural space combination type and green building.

In summary, this paper analyzed the urban water environment-oriented urban design from the perspective of resilience through literature review and comprehensive analysis, constructed the water ecological resilience evaluation index system and the urban design technology system proposed the urban design strategy which would provide suggestions for the design of the ecocity in Beijing-Tianjin-Hebei in the future.

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Key Words: urban design, water environment, ecological resilience, design strategy, environment orientation

URBAN DESIGN PARADIGM SHIFT IN A PERSPECTIVE OF SHAPING URBAN CHARACTERISTICS—BASED ON THE HISTORIC URBAN LANDSCAPE APPROACH

Abstract ID: 391

Individual Paper Submission

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In different historical periods, the urban form presents different characteristics due to the change of human's concept. Human beings continue to pursue the urban ideal models through the planning and design, so that the urban continues to development and evolution. In the past, there were only “regional cities” and no “global cities”. However, the urban spatial forms in history have their own characteristics and vitality, while many modern cities do not have. As an effective means and also a policy tool to improve environmental quality and maintain public space, one of the main tasks of current urban design is to shape urban characteristics and building urban vitality.

The paper illustrates the connotation and analyzes the uniqueness, relativity and subjectivity of urban characteristics. Combined with the comparison of some China and western cities, the author points out that nowadays urban characteristics is being demolished by convergency trend in the current global network society. The cause of urban characteristics crisis lies in the fact that the unique and identifiable urban characteristic spaces were gradually formed with the accumulation and evolution of historical elements, but contemporary urban planning and design pays more attention to the beauty of the city image than the authenticity of urban characteristics. And what's more, the subjective aesthetic gradually formed a single pattern to the image of the city.

Based on the recognition of the dynamic character of urban spaces, this paper brings in a new concept of historic urban landscape, which emphasizes the meaning of historic layers and evolution over time, and pay more attention to development. After discussing the case studies of Beijing, Tianjin, Shanghai, Hangzhou and many other cities in China, this paper clarifies the instructive of historic layering research on identifying regional characteristics, shaping urban images and maintaining community vitality.

On this basis, the article proposes that it is necessary to shift the urban design paradigm from “design a vision and achieve it by beautifying the city image” to “monitor and manage the changes in the built environment”, management of change will become one of the important issues in urban design.

Referring to the landscape strategy, design management and practical characteristics of landscape planning in Tokyo Metropolitan and London, and combining with the actual situation of urban design and management in China, this article expounds the basic idea for improving the policies and mechanisms in the urban design and landscape management, and concludes that general urban design needs to establish an assessment, monitoring and management system for historical landscapes and their background environments. The relevance, integrity and diversity of urban landscape should also be considered including the protection and utilization of landscape resources. Through effectively managing changes in the urban environmental landscape, it is possible to avoid the fragmentation of urban characteristic space and make the city more characteristic and dynamic.

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Key Words: Urban Characteristics, Urban design, Historic Urban Landscape, Landscape Management

POLITICS OF POWER: ARCHITECTURE, CULTURAL IDENTITY, AND RACE

Abstract ID: 471

Individual Paper Submission

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Architecture and design not only shape the built environment, but also can create and reinforce cultural identities of places and communities through the construction of historic and cultural heritage. Heritage and the identity it conveys are always constructed from a particular standpoint and can be manipulated to benefit certain groups with particular social, cultural, and political agendas (Lowenthal, 1998; Massey, 1995). Therefore, architecture and design regulations are often appropriated by populations with dominant social and political power to construct imagined identities that help further reinforce their power.

Such a mechanism is not uncommon in the U.S. given the persistent racial hierarchy and unequal power structures among different ethnic/racial groups. Saito (1998) observed how in Monterey Park, California the long-standing Anglo and Latino residents allied together to promote a Mediterranean architectural style to construct a whitened historic heritage and cultural identity, as a reaction to the increasing influx of Asian-American population. Are such hegemonic identities incorporated into architectural design guidelines to perpetuate racial exclusion and discrimination? More precisely, do municipalities in Los Angeles County allow expressions of minority culture in the built environment or seek through planning regulations and design guidelines to reinforce a singular hegemonic cultural identity (namely the one of the dominant culture)? This is the question that this paper seeks to answer.

To answer the above questions, we first examine which of the 88 cities of Los Angeles County that have a significant minority population (over 35%) have design guidelines or other forms of architecture regulations for the construction of new buildings within their jurisdiction. Second, we undertake a review of the design guidelines to see if they impose particular controls and regulations on the type of architectural styles allowed. Third, we explore whether there exists an association between the adoption of design guidelines that require a “Mediterranean style” and the significant presence of racial and ethnic minorities within the municipality, and if such association differs in different socio-demographic contexts.

Some preliminary findings provide evidence for the presence of such mechanisms in some cities in East Los Angeles with significant Asian-American population, including San Gabriel, San Marino, and Alhambra. The architectural design standards set out in the San Gabriel Mission District Specific Plan for the city’s commercial downtown, as well as the residential design guidelines of the cities of San Marino and Alhambra only allow a mixture of Anglo-American and Spanish Colonial architectural styles, seeking to promote the construction of a Mediterranean identity. Further research will examine more municipalities and cover not only Asian-Americans but also other racial/ethnic minority groups, which will allow us to test whether the hypothesized association exists.

Findings from this study will provide insights into the role of planning control and architectural regulation in the construction of cultural identity and public discourse. Ultimately, this is a larger question about public policy making through design regulations, urban planning, and local governance that has implications on racial equity and social justice. This study could be extended by further undertaking a closer examination of specific cities as case studies, and interviewing major actors (city planners, city council members, planning deputies) to explore the specific mechanisms of decision making and the power dynamics in local politics that affect constructions of cultural identity in the built environment.

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Key Words: urban design, heritage, place identities, racial/ethnic minorities

PLANNING FOR BALANCING DEVELOPMENT AND NATURE DURING THE TRANSITION PERIOD—A CASE OF RE-DESIGNING THE ABANDONED RAILWAY IN TIANJIN, CHINA

Abstract ID: 550

Individual Paper Submission

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Facing to the challenges of environment degradation and economic reform, the Chinese government proposes that China's development is at a pivotal stage for transforming growth model, improving economic structure, and fostering new drivers of growth, which is an urgent requirement for getting country smoothly through this critical transition. Chinese planning institutes have made some adjustments to adapt to these challenges and requirements. Their efforts in transformation planning concept are a microcosm of the government's appeal.

Similar to Atlanta Beltline, four railways in Tianjin form a ring that encloses urban-intensive areas and connected a lot of factories built from the 1880s to the 1980s. Targeting these four railways, Tianjin urban planning and design institute submitted the proposal of "Tianjin Huancheng Railway Greenway Park Planning" to the Tianjin Municipal Government in 2010. The proposal is to transform the abandoned industrial railway into the "High Line Park" in China. The proposal was supported by the government and the planning was finished in 2013. Then in the year of 2015, the planning received the first prize of the 2015 National Excellent Urban and Rural Planning and Design Award. The supporting and achievement gained by local planning institute implied that their planning ideology is in line with the needs of the government. Thus, taking the re-designing of Tianjin abandoned railway as an example, this paper

examines how the redevelopment planning ideology put forward by local planning agencies adapted to the government's policy on transition, such as environmental protection and urban beautification policies.

1. Through analysis of two important industrial transformations in Tianjin's urban history, the first transformation is the construction of large-scale industry during the colonial period in the 1880s, the second transformation is the demolition of urban factories under the policy of shifting from labor-intensive industries to service economies in the 1980s, we have established links with the historical development of the railway and find out that the emergence and abandonment of the railway and surrounding factories brought about by the two transformations is the basis of the re-designing of Tianjin abandoned railway.
2. Based on the government policy documents, media coverage and academic publications of the project from 2010 to 2017, we conducted semi-structured interviews with several government officials, planners and researchers. Questions focusing on why the re-designing Tianjin abandoned railway was favored, how the ideology changed in the process of planning, whether there are some policy reasons for making changes to the planning concept.
3. The concept of "constructing urban landscape to promote urban economic development, shaping the urban ecological green space system with the greening work, linking urban industrial cultural heritage based on railway trails", which was formed in the final planning, will be in contrast to the government requirements in transition, it proves the adaptability of the final concept of planning to contemporary policy.

The research proves that the redevelopment planning ideology doesn't mean that the idea of focusing on economic construction in China local government has changed. It still implies the government intention of economic development, but this intention is a balance between nature and development and a limited urban development concept. From the changes in planning concept, we have discovered the progress of China's planning ideology in the process of coordinating nature and development.

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Key Words: Redevelopment Planning, Economic Transition, Environmental Protection, Planning Ideology

TRENDS IN POP-UP PUBLIC SPACES– A TYPOLOGY OF CONTEMPORARY PEDESTRIANIZATION IN STREET DESIGN

Abstract ID: 627

Individual Paper Submission

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The tactical pedestrianization of Broadway and Times Square in New York City in 2009 has transformed the once automobile dominated street into an active and vibrant public space for pedestrians to enjoy. This high profile project has heightened interest in contemporary pedestrianization for public space purposes. Danish Architect Jan Gehl and former New York City Transportation Commissioner Janette Sadik-Khan are actively promoting the ideas employed for Times Square (Sadik-Khan, 2017). Other cities have noticed and also want to 'pedestrianize' their streets to create new pop-up public spaces. Since 2009, there has been a proliferation of experimentation with tactical pedestrian street designs and pedestrianization projects in cities across the developed world. In 2016, a neighborhood in Barcelona introduced the idea of the pedestrian 'superblock' to reorganize their streets (Bliss, 2018). The idea of 'pavement to parks' that was initially popularized in New York City has become common practice in San Francisco (Hess, Gregg, & Whitney, 2019). To better understand the range and types of contemporary pedestrianization strategies and projects that are being implemented, this research engages an extensive review of newspaper articles and city websites that discuss contemporary pedestrianization projects. Specifically, this research engages the questions: What types of pedestrianization strategies and projects are being implemented? How is the process of implementation undertaken? What are the primary planning and design goals behind the pedestrianization strategies and projects? While there is diversity in the types of pedestrianization strategies and projects that are being implemented, each of the strategies are unified in redistributing the use of public streets to reprioritize pedestrians and promote public space use.

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Key Words: pedestrianization, tactical urbanism, contemporary street design, pedestrian mall, pop-up public space

RAMMING ATTACKS, PEDESTRIANS, AND THE SECURITIZATION OF STREETS AND URBAN PUBLIC SPACE: PRIORITIZING PEDESTRIAN SAFETY IN THE AGE OF VEHICLE-BASED TERRORISM

Abstract ID: 638

Individual Paper Submission

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Vehicles are being used in new ways as weapons of destruction by terrorists across the world. Specifically, over the last decade ramming attacks using cars, vans, and trucks have killed and injured multitudes of pedestrians in cities including London, New York, and Berlin. These attacks signal a shift in strategies adopted by terrorist actors. A previous wave of urban securitization hardened buildings as terrorist targets, but ramming attacks challenge established ideas about relationships between pedestrians and automobility. Thus, while safety has been central to road design for decades and has taken on new

urgency with Vision Zero programs, planners and designers have never had to take in to account the use of motor vehicles to deliberately target crowded open, public spaces such as streets. In response, governments are implementing new policies and physical interventions to securitize pedestrian spaces. Within this context, this paper explores how security concerns, primarily those surrounding the security of pedestrians, are currently reshaping urban streets and public spaces. It reviews the strategies cities are using to reduce the impacts of vehicle-ramming attacks, and examines the potential trade-offs between these securitization efforts, contemporary models of street design, and the everyday use of urban public spaces.

There is little scholarly research on how ramming attacks may be changing street design and public space. To approach the topic this paper uses a comparative case study analysis of Nice, London, Barcelona, and New York, all of which have experienced severe vehicle-ramming terrorist attacks on major pedestrian streets and spaces in the past decade. First, it reviews the more general policy and planning literatures around the securitization of urban spaces for defense from crime-related and terrorism-related risks. For the case studies, local policy documents along with a review of popular and press sources are used to understand both what built form responses are being used, and to explore narratives around how they are impacting the use and experience of the redesigned streets and public spaces. A future wave of the research will follow-up with key informant interviews. Our initial findings show that there are two prominent physical responses that are used either in isolation or in combination: (1) the hardening of existing facilities with the installation of security barriers such as bollards or decorative, concrete planters along sidewalks and plazas; and (2) a spatial strategy that creates new, larger pedestrian zones around popular destinations that can be defended at their perimeters. These strategies operate at different scales, require different levels of investment, and have different implications for the design, accessibility, and use of pedestrian spaces.

The paper concludes by considering the potential ramifications of securitization strategies on streets and public spaces in terms of their everyday use, challenges to universal access, and initiatives to reduce automobility. On the one hand, cities are using urban design strategies such as Complete Streets and shared space designs to enhance walkability and promote increased pedestrianization. On the other hand, they are grappling with ways in which they can protect pedestrians by increasing the separation between pedestrians and vehicles through installing physical barriers, and controlling access. Considering the recent nature of these attacks, the paper aims to extend the existing literature on safety and street design, and place recent trends in securitization in relation to other movements shaping street design such as Vision Zero, and Complete Streets. Thus, the paper contributes to the burgeoning, but small, body of literature that engages with the challenges of protecting urban public spaces while trying to minimize the impact of security interventions on urban livability.

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Key Words: Urban Design, Public Space, Securitization, Street Design, Pedestrian Safety

IS THERE A ROLE FOR URBAN DESIGN IN INCREASING THE LIKELIHOOD OF ANCHOR INSTITUTION-LED COMMUNITY ENGAGEMENT?

Abstract ID: 646

Individual Paper Submission

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Much attention has been paid to the relationship between place-fixed art institutions and economic activity, though not enough has been paid to the relationship between these institutions and the urban design of their surrounding neighborhoods, except by a few scholars (e.g. Ashley, 2015; Birch et al, 2013; Grodach 2008, 2010). As a unique contribution to this area of scholarship, I investigate how urban design (specifically land use and physical characteristics of the built environment) may affect the community engagement and development proclivities of an anchor institution like an art museum. To answer this question, I analyzed changes in land use and physical character in the neighborhood surrounding the Portland Art Museum in Oregon between 1932 and 2010 alongside the history of the museum's programming and community engagement. In this analysis, I view change in land use and development in the neighborhood surrounding the museum as influenced by the alignment (or lack thereof) of the museum's goals and the city's urban policy agenda. My analysis reveals a strong, reciprocal relationship between the physical space around the Portland Art Museum and museum-driven community programming. The results of this research suggest that built environments sympathetic to the goals of a place-fixed institution may lead to more neighborhood engagement by the institution. While further research is needed to assess the generalizability of these results, the findings point to a role that the urban design around place-fixed arts institutions may have in encouraging more institution-led community programming and engagement.

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Key Words: arts and culture, anchor institutions, urban design, land use, downtown development

ARE NEW URBANIST COMMUNITIES RESILIENT TO ABANDONMENT?

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For urban designers, New Urbanism has been a principle approach for decades in promoting a sense of community and environmental diversity. The premise is that high density development within a walkable environment brings a vibrant urban atmosphere, fitting modern residential preferences. The principles of New Urbanism primarily deal with urban form and design aspects; however, what is typically lacking are social aspects in urban communities in regard to affordability and socioeconomic diversity. Some studies have suggested that New Urbanism may not be socially sustainable (Kim and Larsen 2016) due to a lack of racial diversity (Trudeau and Kaplan 2015) and a potential threat of increased gentrification (Markley 2017). A notable and arguable aspect of New Urbanism is the assumption of increasing population and investment activities. The myth that cities must eventually grow creates a necessity to understand how to design for less (Popper and Popper 2002), especially when higher rates of abandonment are observed or people are leaving a community. Relatedly, New Urbanism has been criticized for communities being vulnerable to potential threats such as slow recovery after housing market crises (Dong 2014) and increased disaster threats by high density development in hazard-prone areas (Masterson, Peacock et al. 2014). It is still not known if New Urbanist related principles can provide a resilient approach when growth is not guaranteed or in areas where high rates of abandonment are observed. This research asks the question, are New Urbanist communities more resilient to abandonment than other communities?

This study aims to answer these questions by examining 1) if the residential preference for the New Urbanist communities has changed through time and 2) if the New Urbanist communities are more resilient to neighborhood abandonment using national American Housing Survey (AHS) data. New Urbanist communities were operationalized by identifying a high-density area where two or more land uses are identifiable within ½ block of the survey respondents' house, as well as where public transit is accessible. To measure neighborhood level residential perception, we used a survey questionnaire that rates respondents' neighborhood elements on a scale 1 to 10. Neighborhood abandonment was identified with the questionnaire that asks if any abandoned structure is observed within ½ block. To control for other factors of residential perception, housing and neighborhood characteristics are included in the model as control variables.

The results indicate that residents living in a traditional neighborhood tend to have a slightly higher satisfaction on the neighborhood. However, when an abandoned structure is observed, these neighborhoods become more vulnerable to abandonment in terms of satisfaction than residents in New Urbanist neighborhoods. We observed a 0.2 point lower score of satisfaction drop in the New Urbanist neighborhoods. With fluctuating urban dynamics, planning that promotes community resilience to depopulation is much more in need than the past when assuming urban growth was the only choice. Neighborhood abandonment has been a chronic issue that has been yet undertaken in this regard. This study implies that the New Urbanist communities do not always promote neighborhood satisfaction.

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Key Words: New Urbanism, Abandonment, Resilience, Residential Satisfaction

DESIGNING FOR EQUITY: LATINO VENDOR MARKETS IN THE U.S. CITY LANDSCAPE

Abstract ID: 806

Individual Paper Submission

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In considering the future of the 21st century U.S. city, it is important that key components of American city culture be valued and understood. Latino vendor markets are one of the most significant city places for many Latinos. However, there is little evidence that Latino markets receive any form of protection, or fiscal support as shown through the case studies. Disparities in development focus for cities can be explained by examining investment and financial priorities, where macro economic development strategies tend to be prioritized over support for micro businesses. Planning must take hold of a central responsibility to plan for all people, to support all economic causes, perhaps particularly microbusinesses, to help daily life, and at the same time promote careful and incremental improvement of their city's amenity and fabric.

The study examines four selected markets in two geographic county contexts, border and in-land, in California and Texas, two states with the highest percentage of Latino populations in the United States, both at 37.6% (U.S. Census Bureau, 2010). The border case study of San Diego County, California is paralleled with Cameron County, Texas, and the in-land Los Angeles County, California case study to Harris County, Texas.

Qualitative and quantitative, primary and secondary, data were collected and analyzed using a mixed-methods approach. Over 200 surveys and interviews with vendors, customers, market management representatives, and city officials were collected and analyzed for the study. The market grounds and city context were analyzed using a variety of spatial analytical tools including GIS mapping, and 3D diagraming.

In addressing ways to support the markets as "places," this work proposes what might be termed building their "robustness." Robustness in planning facilitates long life, and stability of a physical environment, and in turn offers choice and flexibility (Bentley, et. al., 1985). Using the four case studies, this paper indicates strategies that could be adapted by cities in order to address the case of Latino markets in becoming an enduring and increasingly significant city place. Prescription towards the future of Latino vendor markets discusses the problems and vulnerability of the markets. This is followed by a series of propositions for potential planning and urban design improvements. The purpose of these propositions is to provide tools that a city could use to help bring Latino vendor markets into mainstream thinking for inclusion in the 21st century American city landscape.

Planning and urban design offers a set of tools through strategies, designs and regulations to show how prescriptions will become manifest in the built environment. At the city level, the study's strategy addresses the lack of multimodal transportation access to the Latino markets, and presents a possible public/private partnership to address mobility. Improvement districts are presented as a possible regulatory funding mechanism to improve public easements in recommending potential market business districts. The study then examines the implications of potential redevelopment scenarios for the sites, possible closure of the market due to competing private interests, and addresses these risks through addressing the potential of incentive zoning where developers could increase density limits if they preserve the market, as well as considerations of the city's potential use of eminent domain as a protective mechanism. Additionally, market place prescriptions address ways to improve the physical spaces of the markets without dramatically changing their integrity.

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Key Words: Latino, markets, amenity, robustness, city design

REVISITING PLACE VIBRANCY AS AN INDICATOR FOR REVITALIZATION INITIATIVES, INCLUDING CREATIVE PLACEMAKING

Abstract ID: 820

Individual Paper Submission

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Arts and culture (AC) serve multiple roles in society. Over the last 15 to 20 years, the process of using AC to achieve community development goals has been defined as creative placemaking. The full working definition of creative placemaking developed by Markusen and Gadwa (2010) is:

"In creative placemaking, partners from public, private, non-profit, and community sectors strategically shape the physical and social character of a neighborhood, town, tribe, city, or region around arts and cultural activities. Creative placemaking animates public and private spaces, rejuvenates structures and streetscapes, improves local business viability and public safety, and brings diverse people together to celebrate, inspire, and be inspired" (Markusen & Gadwa, 2010, p. 3).

Creative placemaking grantmakers originally considered the broad concepts of livability and vibrancy to be the outcomes of the programs and began developing indicators to measure them. However, the

indicators they drafted were too nebulous, targeted too broad a geographic area, but perhaps most importantly, lacked validity (Markusen & Nicodemus, 2014; Morley, Winkler, Zhang, Brash, & Collazos, 2014; Nicodemus, 2013), so efforts to develop them were halted. Other researchers have sought to measure place vibrancy in other contexts (Merlino, 2014). This study is a revival of the initial line of inquiry for operationalizing vibrancy as a measure of not just creative placemaking, but revitalization efforts in general. Here, place vibrancy is proposed as a construct that can be measured through the creation of several psychometric scales of resident attitudes toward vibrancy. For this study, we ask the question, is there such a thing as place vibrancy?

To develop the construct of place vibrancy, two methods were used: 1) a content analysis was conducted of a sample of planning literature on the use of the terms vibrancy, vitality, and creative placemaking, and 2) a series of focus groups and interviews were conducted where the general concept of place vibrancy was discussed. Three focus groups were conducted that included artists, planning experts, and residents. Two two-person interviews were conducted, of tourism experts and arts administrators, and single-person interviews were conducted of an artist and two tourists.

The results of the literature search, focus groups, and interviews were coded into seventeen themes: forward-looking governance, local ownership of media, education, infrastructure, natural beauty, social capital, well-being, arts and culture, gathering places, pedestrians, unique and historic architecture, cleanliness, strong economy, safety, diversity, buzz, and moderate tourism. We propose that these themes serve as attributes of the construct of place vibrancy. If the themes are overlayed on the definition of creative placemaking, we find that place vibrancy as we define it is indeed a potential outcome of creative placemaking interventions:

“In creative placemaking, partners from public, private, non-profit, and community sectors [forward-looking governance, local ownership of media, education] strategically shape the physical [infrastructure, natural beauty] and social character [social capital and well-being] of a neighborhood, town, city, or region around arts and cultural activities [arts and culture]. Creative placemaking animates public and private spaces [gathering places, pedestrians], rejuvenates structures and streetscapes [historic and unique architecture, cleanliness], improves local business viability [strong economy] and public safety [safety], and brings diverse people [diversity] together to celebrate, inspire, and be inspired [buzz, moderate tourism]” (Markusen & Gadwa, 2010).

The place vibrancy themes have been used to develop reliable and valid psychometric scales. The scales can be administered door-to-door in the form of paper questionnaires over small, easily defined geographic areas, such as census blocks. They are a potentially useful tool for longitudinal studies of revitalization projects, beyond creative placemaking interventions, because generic revitalization proposals often refer to vibrancy as a goal.

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Key Words: creative placemaking, psychometric scale, revitalization, vibrancy, livability

PLANNING FROM PATTERNS - THE CASE OF VANCOUVER'S FALSE CREEK SOUTH NEIGHBOURHOOD AND THE LEGACY OF CHRISTOPHER ALEXANDER'S 'PATTERN LANGUAGE'

Abstract ID: 834

Individual Paper Submission

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Christopher Alexander (et al)'s *A Pattern Language* is often cited as an influential text in urban planning and design but how has the underlying method/theory been translated into planning practice? Detailed examples of its practical application are limited but one influential example can be found in Vancouver's False Creek South neighbourhood. This paper explores the historical case of False Creek South and seeks to answer the question of how the 'pattern language' method shaped its planning and design and influenced future planning in the City (including the evolution of the city's distinctive tower/podium building type). A mixed methods case study approach is used, combining expert interviews, analysis of archival documents, and direct observation.

False Creek South, one of the first major projects within the current era of Vancouver planning and urban design, involved the redevelopment of a waterfront brownfield site into an experimental mixed-use and socially diverse neighbourhood. A key influence on its planning, taking place in the early 1970s, a pattern language was used as working model and method with the final official development plan adopting nearly 100 patterns intended to act as an open-ended operating framework in place of a highly defined end state masterplan. The influence included the employment of a former colleague of Alexander (as part of the Berkeley-based Center for Environmental Structure) and the use of illustrative patterns to inform public engagement, design and final development of the neighbourhood. Design thinking that emerged through this process led to the development of a locally-specific model of townhouse enclaves, public realm design, and social and physical relationships that would later inform the design and development of higher-density residential neighbourhoods.

False Creek South has been the focus of prior work detailing its social/political dimension, as a 'snapshot' in time of post-industrial urban reconfiguration, and as illustrative example of urban design practice. In contrast, this paper focuses on the specific application of the pattern language as an urban design method, its relationship to a cluster of emergent planning models focused on the design of a liveable built environment, and its legacy and implications beyond the neighbourhood. Further consideration is given to contemporary application as a generative method for urban planning and design.

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Key Words: Planning History, Urban Design, Planning Methods, Pattern Language, Vancouver

WHO, HOW MANY, AND DOING WHAT? AN EMPIRICAL APPROACH TO UNDERSTANDING THE EFFECT OF SOCIAL PRESENCE ON PUBLIC PLACES’ LIVABILITY?

Abstract ID: 865

Individual Paper Submission

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Research that studied the social dimension of public places had largely relied on qualitative observations and correlations. Understanding the various components related to the sociability of these places through empirical approaches is still lacking. Building on William Whyte’s Social Life Project (1980, 1988), the present study uses a four-item scale of livability to test whether two social factors he identified: 1) presence of groups vs. individuals and 2) social triangulation—increase plazas’ livability. Whyte observed that the most used plazas had higher percentages of users in total and higher percentages of people in groups (of two’s and three’s) than the least used ones (45% vs. 32%). He also discussed the effect of street performers, as an example of triangulation, on plazas’ use. Despite their long-standing tradition, Whyte’s recommendations have not been examined through experimental research. This study attempts to do so.

Using Photoshop, the study manipulates the first factor (i.e., presence of groups vs. individuals) using three conditions: 1) half of the people in groups of two’s or three’s, 2) a third of the people in groups, and 3) less than 10% in groups. The study investigates the effect of social triangulation through manipulating scenarios that commonly prompt people to talk to each other. Specifically, the study looks at the four conditions: 1) presence of a farmers market, 2) presence of community planning boards, 3) presence of an art festival, and 4) absence of community activities. Using color slides of three real plazas each manipulated to present one of the seven different conditions mentioned above, seventy-five participants indicated their ratings of the plazas on the Perceived Livability Scale (PLS). The findings shed light on understanding shared and contested spaces, territorial relationships, and diversity and interactivity of public places. The discussion highlights implications of design decisions that balance the presence of different activities and different sets of groups. The findings are presented within the context of the larger research project of this study, which aims to facilitate community interaction through accessible and interactive design.

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Key Words: social triangulation, sociability of public places, livability

INTEGRATION OF FOOD, ENERGY, AND WATER SYSTEMS IN DEVELOPING A NET ZERO NEIGHBORHOOD (NZN), A CASE STUDY IN WORCESTER MA.

Abstract ID: 928

Individual Paper Submission

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Rapid urbanization increases resource consumption and poses new environmental, social and economic challenges (Berthold & Wetterwik, 2013). Significant actions for optimizing consumption and minimizing negative impacts have been taken at the city and building scale (Ahenniemi et al., 2017, Giffinger et al., 2007). Although most policies have been instituted at the urban scale, many actions have to be delivered at the building level. Creating sustainable cities might not be achievable while individual buildings competing for resources. Designing an entire city to meet sustainability goals may not be feasible when considering every building individually, but it might be rational to evaluate a cluster of buildings together (Kallushi et al., 2012). Besides, many unpredictable circumstances such as neighborhood morphology (Merlier, 2015) and reflected solar radiations (Strømman-Andersen & Sattrup, 2011) could influence the success or failure of these efforts. Achieving a long-term transformation toward low emissions and an overall net-zero goal is more attainable if we look beyond individual structures and consider this goal at the community level (Kallushi, 2012). Some highly efficient green technologies become more financially feasible when delivering at the district and neighborhood scale.

In this project, we investigated the feasibility of achieving the goal of “net zero” with respect to Food, Energy, and Water (FEW) nexus for neighborhoods. This mid-scale approach could offer valuable opportunities for resource sharing and utilization of large-scale, sustainable technologies such as renewable energy and smart grid systems. The Net Zero Neighborhood (NZN) concept integrates FEW-systems to offset any energy requirements that cannot be met by independent strategies. A framework for the NZN was developed to investigate the various strategies for a sustainable city.

A neighborhood in Worcester MA is used as a case study to evaluate the impacts of this approach. Neighborhood systems are categorized into Food, Energy, Water models, and different synergies at the design strategies level are studied. Series of Neighborhood model is created in Green Building Studio and Design-Builder to analyze the extent of the NZN strategies on existing and new development urban project. Residential Energy Consumption Survey (RECS) 2015 data and Residential End Uses of Water (Version-2) are used to calibrate and validate the findings. In this work, we conclude that a framework for the Net Zero Neighborhood (NZN) can promote urban designers and planners efforts to meet the emission reduction goal. The NZN Interactive Platform (NZN-IP) is developed, which combines physical model and digital data/simulations outcome. The NZN-IP can be used in the early stage of the design phase and can assist users in realizing a neighborhood design project while exploring diverse sustainable strategies in achieving a net-zero goal.

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Key Words: Net-Zero Neighborhoods, Renewable energy, Energy demand modeling

THE ROLE OF PLACEMAKING IN SUSTAINABLE DEVELOPMENT

Abstract ID: 929

Individual Paper Submission

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In the 21st century, placemaking has become an established urban planning and urban design doctrine. It shows strong promise as a technique for local projects aiming to achieve progress in planning toward sustainable development as set out by the World Development Goals. Yet placemaking alone will not guarantee progress on these goals. Placemaking is the conscious act of building and rebuilding community within the spaces we occupy (Schneekloth and Sibley 1995). A space becomes a place through iterative social processes in the same location (Cresswell 2015). Places reflect local culture and become the source of relative distinctiveness. How can placemaking be improved to enable just results, increased sustainability and improved achievement on development goals?

We answer this question through an exploration of four neighborhood case studies in Kansas City: the Country Club Plaza, Hyde Park, the Glover Plan and the Historic Jazz District. Using Fainstein's (2010) policy principles toward planning a just city, we find that the quality of placemaking is influenced by political processes of power. The Country Club Plaza district is an example of top-down placemaking. It shows both that places may be imposed by developers through strong controls on property and neighborhoods. The Glover Plan area shows more typical top-down redevelopment planning results. Short-term gains were made at the cost of demolition and displacement. Recognition of placetaking processes leads to acknowledgement of the past as well as the necessity of addressing the resulting trauma from these actions (Fullilove 2004). The Hyde Park area reveals the success of slow change, affordable housing and preservation. An analysis of community capabilities enabling preservation reveals the importance of placekeeping (Dempsey and Burton 2011). Finally, placemaking in the Historic Jazz District has to account for both processes of placetaking and placekeeping.

Placemaking that connects existing cultures to place requires participatory design. Planning with little placemaking as shown in the Glover Plan case leads to a lack of sustainability. Success in placemaking then requires recognition of placetaking and an analysis of capabilities that address placekeeping. Placekeeping measures require access to regimes of local political power. Placemaking in urban design and planning improves its contribution to sustainable development by addressing placetaking and placekeeping.

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Key Words: Urban Design, Placemaking, Neighborhoods, Place

JUST DESIGN: EQUITABLE PLACEMAKING AND PLACEKEEPING

Abstract ID: 970

Individual Paper Submission

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Designers and planners seek to do equitable design and development work without necessarily having a comprehensive understanding of what that means. What justice-based approaches to community design and development are currently in use in urban planning? This paper examines contemporary planning literature to compare and contrast definitions of "just design" that help shape praxis and scholarship in community-focused urban design and planning.

The paper traces philosophical underpinnings of just design including the right to the city (Lefebvre 1968) and its continually negotiated course (Harvey 1981, 2012), the right to assemble and participate (Butler 2015), and the right to access collective resources and civic infrastructure (Berney 2019). These are impulses for communities as well as for committed community planners and designers. Within these catalytic actions, I develop the concepts of the right to public space, to mobility, and to health and wellbeing as three distinct areas shaped by planners and planning in which conditions in the built environment can be continuously directed towards more just outcomes.

In addition to creating more just outcomes, a just design approach can help us better understand the important differences between place-making versus place-keeping. This is a crucial distinction that places communities and their spaces in the driver's seat, so to speak, about what types of enhancements, edits, or changes might be needed in a community-focused design process. This approach privileges the daily processes and efforts that communities go through to steward and place keep; it ought not to be undervalued in formal planning practice, though it currently is.

This paper helps us, as planners and urban designers, to understand the range of practitioners, definitions, and approaches involved in just design. This examination of just design also engages a needed analysis of which communities, whose voices, and who's doing the work. It suggests the need to examine voice, language, and approach, including asset-focused urban design work. Through this analysis, urban designers and planners will gain a more comprehensive understanding of what "just design" is and how to engage in it more fully.

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Key Words: Community, Just design, Right to the city, Urban design, Asset based

FAMILIAR AND UNFAMILIAR PLACES: AN ASSESSMENT OF OPEN SPACES AND PEDESTRIAN CIRCULATION ON THE UNIVERSITY OF GEORGIA CAMPUS

Abstract ID: 1018

Individual Paper Submission

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DW Brooks Mall was built during the early 2000s. It was intended to replace D.W. Brooks Drive, a former vehicular roadway in the center of UGA's south campus. Previously characterized by exhaust fumes and heavy vehicular congestion, the Mall now provides a safe and pleasant greenspace for students, faculty, staff, and visitors (UGA 2019). The following departments/programs are located along DW Brooks Mall: Marine Science, Dance, Forestry, Ecology, Environmental Health Sciences, Pharmacy, and Plant Sciences. It is frequented by students, faculty, and staff of the University of Georgia. Features include wide walking paths with service vehicular access, large central turf areas, diagonal paths crossing through the turf areas, and peripheral outdoor seating. As stated by Koons Environmental Design, inc. (the primary design firm involved in the project), "the basis of the mall design is to emulate the axial park-like feeling of the original North Campus in the newer South Campus by removing intra-campus roadways and parking lots and replacing them with new structures and centralized landscape features."

This study uses a mixed-methods approach by incorporating both quantitative and qualitative research to address the question: "Are campus open spaces fully utilized, and in what function do they truly operate?". We analyzed university scheduling data to create a heat map expressing peak times and locations of population concentration for the Brooks Mall and North Campus Quad study areas. We observed the pedestrian circulation and conducted surveys and interviews to determine how the open space is utilized. We created and analyzed story maps on quantitative and qualitative data gathered based on heat maps and survey results. After completing the pilot surveys and interviews, preliminary results indicate the majority of Brooks Mall pedestrians are undergraduate students who use the open space as a passageway. After analyzing the data gathered from the research process, this paper assesses and analyzes open spaces and pedestrian circulation in a university campus setting. Research indicates how the open spaces are utilized and opportunities for pedestrian improvements.

Initial findings suggest Brooks Mall is used primarily as a passageway for students to and from class. Follow-up questions suggested most students would find the space more enjoyable if there was infrastructure designed for leisure and recreation.

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Key Words: Open Spaces, Pedestrian Circulation, University Campuses

THE GROUNDING OF LATIN@/CHICAN@ URBANISM AS A SITE OF RESISTANCE IN URBAN DESIGN THEORY

Abstract ID: 1073

Individual Paper Submission

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Urban design theories are frequently criticized for their lack of foundation in critical urban theory. The prevailing urban design theories such as new urbanism, landscape urbanism, and post-urbanism are framed on urban design intervention strategies that lack a clear theoretical articulation of their ideological principles that generate urban form (Sternberg 2000) (Sorkin 2013). In similar criticism, the emerging concept of Latino Urbanism as an emerging intervention in urban form and planning in American cities is also targeted for the absence of a theoretical foundation. The objective of this paper is to develop and forward a theoretical framework for Chican@ urban design, also described in this paper as southwest urbanism; as an operative theory of urban design in American cities placed in the geographic region of the southwest, the geography of the former territory of Mexico prior to manifest destiny and the Mexican American war that ended in 1848. Drawing from philosophy and theory from the disciplines of cultural studies, anthropology, and critical indigenous studies; this paper locates Lantin@/Chican@ urbanism as a site of counter hegemonic force contesting strategies of urban design as the agent of American cultural hegemony. The origin of Chicano urban landscapes extends centuries in the southwestern United States rooted in colonial rational urban form based in the 'laws of the indies' of the 17th and 18th centuries to the contemporary emergence of 'barrioscapes' as 're-membered' built environment of spatial resistance. This paper will draw from case studies to support the theory argued from cultural sites such as Chican@ Park in San Diego, Mariachi Plaza in Los Angeles, as well as the historic plaza of El Pueblo de Abiquiu in Northern New Mexico.

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Key Words: Latin@ Urbanism, Chican@ Urbanism, Urban Design, Theory, Resistance

RAISING CHILDREN IN HIGH-DENSITY: EXPERIENCES FROM VANCOUVER PARENTS

Abstract ID: 1081

Individual Paper Submission

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Much recent academic and popular writing declares a North American urban renaissance. This manifests in re-densification. New large luxury buildings full of studio and one-bedroom units appear downtown. Ergo, popular discourse portrays new urbanites as childless young professionals or empty nesters. Missing from this discussion are parents choosing to live in the city. To that end, this article asks: How do parents perceive urban design as influencing their quality of life and locational decisions? To answer this question, I use a theoretical framework of a spatial political economy. I highlight the role identity plays in everyday urban practices. I look to four bodies of literature: 1) the back to the city literature; 2) the right to the city literature (Harvey, 2003); 3) the everyday city literature (Chase et al., 2008); and 4) "urban policy matters literature."

Vancouver, BC stands as a critical case. In 1989 the city adopted explicit policies that target parents in densifying areas. These policies provide building and neighborhood amenities for families with children. This research investigates the impacts of these policies. To do so, I conducted semi-structured interviews with parents from 39 families. I also spent five weeks engaged in environmental observation fieldwork between 2015 and 2017. I find that many parents consider dense neighborhoods ideal for childrearing.

This research contributes to the field in two primary ways. One, it constructs a high-density childrearing ideal from the experiences of urban parents. Parents identify economic and ethno-racial diversity and densely mixed-use as beneficial to childrearing. Building off of Jane Jacobs (1961), Kevin Lynch (Lynch and Carr, 1990), and others, I call this the Educative Potential of the Dense, Diverse, Transparent City. This framing can support progressive urban policy. It also serves as an alternative to the dominant suburban detached home parenting ideal. And two, this research defines useful categories of urban parents for planners and policymakers. Some parents define their identity as urban, in direct contrast to suburban. These parents are committed urbanist parents. Other parents first came to downtown as childless young professionals. They assumed they would move out to detached homes once they started families. Yet they stayed, in large part due to the amenities provided by Vancouver's policies. Parents recounted other unforeseen benefits of childrearing in dense urban neighborhoods more generally. These are accidental urbanist parents. This suggests urban design policy can influence parents' locational choices. Cities across North America continue to revitalize. Many public spaces are now designed with Placemaking best practices. These are often surrounded by large luxury multi-unit buildings that target the childless. Planners must consider the needs of diverse parents if we wish to avoid a class and age-segregated city.

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Key Words: parenting, density, placemaking, revitalization, urban design

IMPROVING WALK-ABILITY AND CREATING BEST PRACTICE MANUAL FOR AGING POPULATION IN IOWA

Abstract ID: 1107

Individual Paper Submission

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Iowa's aging population mimics that of a national trend. The State Data Center predicts the population of those 65 year and older will grow from 491,349 estimated in 2015 to 683,251 by 2050. (Linda Davidson, 2017) This suggests that there is growing concern for providing amenities to those aged population of 65 year and older. Resource allocation will be one of key factors as it provides accessibility to amenities and services. To address this challenge, the study focuses on the concept of walk-ability to solve existing planning problems in small towns in Iowa. The research paper addresses two major research questions. First, what is the role of walk-ability for an aging population in Iowa? Second, how can we develop a best practice manual that specifically accommodates the needs of ageing population in Iowa? This study investigated urban form characteristics of 13 small towns in Iowa. These towns were identified based on the median age, population size, area and walk score. Spatial analysis of these town will be a further guide to develop the best planning practice manual. The goal is to initiate alternative design/ planning strategies to counter the problem of communities with aging population by developing a planning practice manual. Overall the paper portrays a process of understanding the current concerns in planning field and why it is important to bring in new planning reforms like form based coding and flexibility in land uses to solve today's urban problems, strengthen social fabric, improve livability and bring vibrancy in the community.

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Key Words: Aging, Livability, Manual, Small Town, Spatial Analysis

DESIGN OF COMMERCIAL BUILT ENVIRONMENTS: AN AUTOMATED INVENTORY OF THE SAN FRANCISCO BAY AREA

Abstract ID: 1137

Individual Paper Submission

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Vast amounts of information are now being collected about urban built environments, yet it remains difficult to find data describing the variation in urban design characteristics across a city or region. This article develops a typology of retail districts in the San Francisco Bay Area, and an automated process to classify buildings using standard tax assessor data (floor space, lot coverage, use). The methodology is validated using maps, aerial imagery, street-level photographs, and site visits. This produces a detailed baseline survey of retail landscapes, which vary substantially across the region. I find that about 45% of retail space is in pedestrian-oriented typologies, predominantly in areas that were originally built up before 1940. The vast majority of newer construction has been in automobile-oriented typologies, with a modest trend reversal since 2000. Mixed landscapes are common: fully 20% of retail space is in blocks that are split between pedestrian-oriented and automobile-oriented building configurations. This data can help planners better understand existing patterns of retail landscapes, the forces that have shaped them, and prospects for the future.

Cities are full of design patterns, from old row-house flats to downtown parking garages to suburban shopping malls. These typologies can be a useful way to study the built environment across time and space, allowing us to distinguish fundamental design choices from the finer variations that differentiate buildings. For example, small-scale shops can take on many different forms, but two patterns are very common: (1) a pedestrian-oriented design where narrow buildings sit adjacent to each other along a street and sidewalk, and (2) a more automobile-oriented design where buildings are set back to provide space for dedicated parking. The latter design is newer, but both coexist in the contemporary city. One pattern prioritizes walking, the other driving, and they serve as lenses through which residents conceptualize public spaces and developers think about possibilities for new ones. Understanding the distribution of design patterns over space and time is important for city planning.

There is rich scholarship on the historical forces that have produced contemporary urban landscapes, but until recently it has been difficult to map or catalog these landscapes at a large scale. This study joins a growing body of research exploring the characteristics and systematic prevalence of urban design patterns. First, I develop a high-level typology of built environments for retail commerce in the San Francisco region, drawing on design scholarship and local observation. Then I develop classification rules that link density and building scale metrics (commonly available in tax assessor data) to the subjective design patterns. Although the classifications are based on administrative records, newly available maps, aerial imagery, and street-level photos are critical: these provide comprehensive ground truth for developing and validating the classifications. Finally, I explore what we can learn from the distribution of commercial landscapes in the Bay Area: geographic variation, trends over time, and some surprising patterns.

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Key Words: built environment typologies, commercial districts, San Francisco region, history of the built environment

UNDERSTANDING NON-WESTERN AND CLASS-BASED NOTION OF PUBLIC SPACE: THE CASE OF NEW MARKET SQUARE, KOLKATA, INDIA

Abstract ID: 1154

Individual Paper Submission

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Contemporary urban societies are in a verge of constant change in the milieu of huge migration rates and globalization processes. In India, informal sectors, slums, over-population, in-migration and limited urban infrastructure create unique complexity and contestation of public life. Cities in India are rapidly globalizing and urbanizing, creating extreme polarization of society. Public space, in such context, possesses different values and meanings to various social classes and the conventional western dichotomy of public and private renders incongruent and indistinct. This study aims to understand this class-based notion of ‘public space’ from the perspective of a non-western city through an empirical and ethnographic study of New Market Square in Kolkata, India.

Kolkata is the 3rd most populous city in the nation with high concentration of slums, poverty and migrant workers. In addition to the socio-economic diversity and high population density, only 5% city area constitutes open public spaces. In the context of one such rare public space – New Market Square, the study asks – how social class relations are manifested over the use of public space and what is the meaning and value of public space to different social classes. Using documentary based social inquiry methods, the study conducts systematic on-site observations and interviews to identify user typology, their activities, spatial patterns, needs and expectations from the site. Findings demonstrate that the square supports a wide range of economic, social, cultural, and political activities maintaining a symbiotic relationship of interdependence among the different social groups. Through a story telling approach the study also presents how different social classes spend a typical day in the square exhibiting their varied notions of ‘publicness’. The findings provide insights on values of public spaces in the context of non-western cities and calls for its use in future development and policy decisions.

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Key Words: Public Space, Social Class, Kolkata, India, Global South

CHILDREN-PLAY THROUGH STREETS OF KOLKATA

Abstract ID: 1177

Individual Paper Submission

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Extreme competition in educational and employment systems, especially in the countries of Global South, have made the contemporary children utterly conscious of the type of play they would be engaged in, if at all. This, along with screen-playing options and notion of safety have created a scenario where children engage more in screen-play or organized and supervised sports, instead of in free-play. Free-play is defined as the voluntary activity of a child and their freedom of play without any compulsion. While the importance of public spaces has been a matter of concern for long in the planning policies of a city, the exclusion of children from urban planning policies is a long-accepted debate in planning for children literature.

This research investigates the play opportunities and spaces in a neighborhood of Kolkata, one of the biggest metropolitan cities of India and Asia. The study is comprised of two steps. The first step compares the statistics of available formal public spaces and open area in a residential neighborhood of East Kolkata, through a geospatial analysis using the Geographic Information Systems. This step helps to understand at a macro level the distribution of formal open areas with respect to number of children and the socio-economic status of the neighborhood. The second step delves further into the finer nuances through systematic observations of children's play activities in a residential block comprised of about 150 households. The study aims to answer three research questions –

1. Where, why and what do children engage in free-playing activities in the city?
2. What is the relationship between a child's age and distance to the play space where they play?
3. What are the features of a space where a child engages in free play?

Only 5% formal open spaces are found in the middle to low income neighborhood. The observations find informal play spaces mostly on the streets utilized for play activities. A significant relationship is observed in terms of adult supervision based on the gender, age and location of play activities. As the study was done in a residential block, the play-spaces on streets were found to be in regions of high visibility. While girls are found to mostly indulge in play activities under presence of adults, boys of the community often play without any adults present. However, in dead-end streets or streets with low connectivity girls are found to play without any adults present. The only formal play space in the study block is a community park that is mostly found to be utilized by the elder children of the community, where the elder male children have a higher tacit authority over the use of its amenities. This gives us a further insight into the gender dynamics of formal play spaces in the public domain and suggests a limited opportunity for outdoor play spaces for younger children and girls. The girls are found to be more engaged in symbolic or role-play games like catch me if you can or playing with dolls, while the boys are found to engage in competitive games like cricket, flying kites, rotating tops. Different types of props are also found to be used like plastic bottles, sticks, stones, bricks, pieces of colored cloths and soft rubber balls. Use of these props often take place to incorporate constructive play.

In broader perspective, the research indirectly informs the planners of the presence of a microscopic yet important system in a city that is generally overlooked or not planned for. This information can have policy implications at a city-wide to a country-wide planning approach through providing for the design of a multi-generational city.

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Key Words: Children in Cities of Global South, Free-play, Play on streets, Informal play areas, Planning for Children

NEIGHBORHOOD DESIGN, DEVELOPERS, AND HOUSING SEGREGATION BY INCOME.

Abstract ID: 1293

Individual Paper Submission

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This paper presents results of a mixed methods dissertation that explored the relationship between housing production modes, neighborhood design, and housing segregation by income. The bulk of housing segregation research relies on analyses of aggregated population data, for example: (Bischoff & Reardon, 2013; Jargowsky & Wheeler, 2017). But it is the housing market and housing development players who dictate where people of different incomes can live, by determining house prices (Marcuse, 2005; Slater, 2013). In the U.S. households sort into neighborhoods through the process of residential mobility. In less commodified housing markets, such as in Mexico, different processes take place: the so-called 'social mobility in-situ' where socially mobile households extend housing rather than move into higher-income neighborhoods (Maloutas, 2004; Monkkonen, 2012). This study explored how house values get inscribed through neighborhood design and platting by developers and subdividers, and how social mobility in-situ can contribute to a more diverse housing stock in neighborhoods. The study was located in south Texas with Mexican-origin population majority and where social mobility in-situ was anticipated. House value diversity levels were identified through a spatial analysis of tax appraisal data, and assessed per subdivision – the unit of housing production. 20 semi-structured interviews with local developers, planning & historic preservation officers, housing authority representative, city manager's office, and community leaders were conducted and analyzed for recurring themes and patterns for selected extreme case studies. The results revealed the level of control over the distribution of house values held by developers and subdividers, and how they use neighborhood design to orchestrate house values into buffers, gradients, and zones. Incremental construction and social mobility in-situ play a lesser role in increasing house value diversity in neighborhoods. In the absence of mandatory inclusionary zoning requirements in Texas, the results have several implications for planning policy. Cities could exert more control over the production of more integrated housing stock through neighborhood design, particularly through platting requirements. For example a requirement for trade-off platting, which would limit homogeneous platting by developers by requiring a portion of small lots in exchange for very large lots. Secondly, cities could develop design standards for the inclusion of Auxiliary Dwelling Units and extensions, which would allow for social mobility in-situ as an alternative to sorting. This could increase the diversity of housing stock, particularly in older suburbs.

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Key Words: Neighborhood design, Developer practices, Housing segregation by income, Social mobility in-situ, South Texas

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