US Total Industrial Production ended 2018 up 4.1% from the 2017 level. US Industrial Production is rising. However, US Electric and Gas Utilities Production tentatively entered a declining trend in December. US Total Manufacturing Production (up 2.7%) and US Total Mining Production (up 12.6%) are projected to transition to slowing growth trends early this year. Firms aligned with the industrial economy should be prepared to contend with the back side of the business cycle. The US industrial economy is benefiting from a strong consumer sector. US Total Retail Sales were up 5.0% from one year ago. However, the pace of rise for Retail Sales will slow through much of this year. This will contribute to slowing activity in the industrial sector. We do expect Retail Sales to avoid contraction during 2019, which will limit the severity of the recession expected in US Industrial Production. However, firms should budget for waning growth opportunities from the consumer sector in 2019.

US Exports are growing at a slowing pace, which will contribute to the slowing growth trend in the US industrial economy. The global economy is slowing in its rate of growth. As a result, foreign consumers will likely slow their rate of purchasing US consumer goods while foreign firms will likely slow their rate of purchasing US capital goods. As Exports trend on the back side of the business cycle, communicate your competitive advantages to maintain your market share and avoid competing based on price alone. Market your newer offerings to stand out from your competitors.

Firms closely aligned with US Industrial Production should plan for some contraction in the second half of 2019 and in early 2020. However, this will be mild by historic standards. Use the upcoming recessionary period to invest before valuations rise. We expect growth through much of 2020 and 2021.

MAKE YOUR MOVE™

Use the period of growth during the first half of 2019 to prepare for the upcoming recession in the industrial economy. Build up your reserves of cash and look to reduce expenses. With cash on hand during the recession, you will be better positioned to invest for the next period of growth.

INVESTOR UPDATE

The stock market rebounded in January after a few weak months at the end of 2018. Although it is too early to call the start of a rising trend, a strong January supports our expectation that this is not a bear market.

ITR ECONOMICS’ LONG-TERM VIEW

INDUSTRY ANALYSIS

Retail Sales
- Retail Sales ended 2018 up 5.0% from the 2017 level
- Retail Sales will rise throughout this year
- The Conference Board's US Consumer Confidence Index is signaling that business-cycle decline is likely during the majority of this year

Wholesale Trade
- Wholesale Trade was up 7.9% on a year-over-year basis
- Both Wholesale Trade of Durable and Wholesale Trade of Nondurable Goods are in slowing growth trends
- This sector is unlikely to enter a recession during this cycle, but the pace of growth will be slow compared to 2018

Auto Production
- North America Light Vehicle Production was down 0.4% from a year ago
- Light Vehicle Production is recovering but will not rise much above its current level during this cycle
- North America Heavy Duty Truck Production was up 24.3% but will contract in the latter half of this year

Manufacturing
- Total Manufacturing Production rose 2.7% in 2018 from the 2017 level
- Production is currently growing at an accelerating pace but will transition to a slowing growth trend early this year
- Activity will decline through much of the manufacturing sector this year

Rotary Rig
- The Rotary Rig Count was up 16.3% from the year-ago level
- The Rig Count is rising at a diminishing rate
- Both the Oil Rotary Rig Count (up 18.7%) and the US Natural Gas Rotary Rig Count (up 8.8%) are rising at slowing rates

Capital Goods New Orders
- Nondefense Capital Goods New Orders were up 6.6% on a year-over-year basis
- Business-to-business activity will decline during the latter half of this year
- Defense Capital Goods New Orders were up 19.7%
- New Orders in the defense sector will end 2019 just above the 2018 level

Total Nonresidential Construction
- Nonresidential Construction was up 4.4% from a year ago
- Much of the nonresidential sector will expand in 2019
- Warehouse Buildings Construction is an area of opportunity and will likely remain one throughout 2019

Total Residential Construction
- Residential Construction was up 4.3% from one year ago
- Construction is growing at a slowing rate
- Single Unit Housing Starts and Multi Unit Housing Starts will decline during the first half of 2019
- The nonresidential sector will likely present more growth opportunities this year

LEADING INDICATOR SNAPSHOT

<table>
<thead>
<tr>
<th>Indicator</th>
<th>3Q18</th>
<th>4Q18</th>
<th>1Q19</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITR Leading Indicator™</td>
<td>🟢</td>
<td>🟢</td>
<td>🟢</td>
</tr>
<tr>
<td>ITR Consumer Activity Leading Indicator™</td>
<td>🟢</td>
<td>🟢</td>
<td>N/A</td>
</tr>
<tr>
<td>US Leading Indicator</td>
<td>🟢</td>
<td>🟢</td>
<td>N/A</td>
</tr>
<tr>
<td>Purchasing Managers Index</td>
<td>🟢</td>
<td>🟢</td>
<td>🟢</td>
</tr>
<tr>
<td>US Total Capacity Utilization Rate</td>
<td>🟢</td>
<td>🟢</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Green denotes that the indicator signals cyclical rise for the economy in the given quarter. Red denotes the opposite.

- Most of the indicators support our expectations for Industrial Production to transition to a slowing growth trend in the near term
- Decline in the ITR Leading Indicator™ supports expectations for Production to slow through at least the third quarter of this year
- The US Leading Indicator has been declining in recent months and suggests a second-quarter peak for Production
Is an Infrastructure Bill the Magic Pill?

By: Alan Beaulieu

**What you need to know:** Both federal infrastructure spending and state and local infrastructure spending are showing slowing rates of growth on a quarterly basis.

Both federal infrastructure spending and state and local infrastructure spending are showing slowing rates of growth on a quarterly basis (the 3/12s are moving lower). A slowing in the rate of spending still means there will be work for contractors and demand for materials. The current status shows the following:

<table>
<thead>
<tr>
<th>Phase Comment</th>
<th>Phase</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Federal Infrastructure Spending</td>
<td>B</td>
<td>$8.5 billion and slowing soon</td>
</tr>
<tr>
<td>US State &amp; Local Infrastructure Spending</td>
<td>B</td>
<td>$168.0 billion and slowing soon</td>
</tr>
</tbody>
</table>

We often get asked if a major infrastructure bill out of Washington would change our forecast for 2019 and 2020. The short answer is no – it would not.

First of all, the plan floated in 2017 was not well received by either party, and right now we are without significant legislation to fund new infrastructure spending in the US.

There are two things to consider regarding any bill that might surface on this subject. One is the enormous amount of time that elapses between passing legislation, funding it, and then funding specific projects. There is really no such thing as a “shovel ready” project because each project must be evaluated and weighted. A federal bill in 2019 would not likely result in much money being disbursed until well into 2020.

The second thing to consider is the actual funding. Where would the money come from? There are a few choices, two of which would impact consumers and business in the near term. One option is to raise gasoline taxes or income taxes. The other option is increased federal borrowing, which pushes the cost (less interest payments) into the future.
ITR recommends looking to countercyclical markets when the business cycle turns downward. What do you expect will be some growth markets in 2019 as the economy loses steam?

James Giles, Economist at ITR Economics™, answers:

While we do expect business-cycle decline through much of the industrial sector in 2019, certain markets will trend in a positive direction. US Civilian Aircraft Equipment Production and US Medical Equipment and Supplies Production, which have contracted in recent quarters, are recovering and will expand in 2019. Nonresidential construction, which typically lags the industrial economy, will also grow throughout this year. Although the macroeconomic business cycle is turning downward, firms in the civilian aircraft equipment, medical equipment, and nonresidential construction sectors should lead with optimism and invest with the expectation of growth in 2019.
Executive Overview

Leading indicators largely support our expectations for US Industrial Production to transition to a slowing growth trend imminently followed by a mild contraction later this year.

The trucking sector indicators are in slowing growth trends.

The single family housing market is largely on the back side of the business cycle and will remain that way into at least the middle of this year.

Growth rates for Permits in most regions are slowing; however, a couple regions have entered recovery trends and could be areas of opportunity.

Many commodity prices are already falling, and further decline is likely in the second half of the year as the economy moves through a mild contraction.

Trends At-a-Glance

<table>
<thead>
<tr>
<th>2005-present</th>
<th>Phase</th>
<th>Current Growth Rate</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freight Industry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US Truck Tonnage Index</td>
<td>C ▲ 6.6</td>
<td>The Index has been rising at a slowing rate since mid-2018.</td>
<td></td>
</tr>
<tr>
<td>US Trucking Conditions Index</td>
<td>C ▼ N/A</td>
<td>The Index has declined in recent months.</td>
<td></td>
</tr>
<tr>
<td>US Transportation Services Freight Index</td>
<td>C ▲ 6.4</td>
<td>This Index suggests the market is rising at a slowing rate.</td>
<td></td>
</tr>
</tbody>
</table>
# National Housing Industry

<table>
<thead>
<tr>
<th>Phase</th>
<th>Current Growth Rate</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Single Family Housing</td>
<td>C ▼ 3.9</td>
<td>Starts will decline through the first half of this year.</td>
</tr>
<tr>
<td>US Multi Family Housing</td>
<td>B ▲ 5.3</td>
<td>Starts will transition to a slowing growth trend imminently.</td>
</tr>
<tr>
<td>National Remodeling Index</td>
<td>D ▼ -4.6</td>
<td>The Index suggests activity in the remodeling industry declined mildly in recent months.</td>
</tr>
</tbody>
</table>

## Regional Housing Industry

<table>
<thead>
<tr>
<th>Phase</th>
<th>Current Growth Rate</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific Housing Permits</td>
<td>C ▼ 4.7</td>
<td>Permits are below the year-ago level in several states in this region.</td>
</tr>
<tr>
<td>Midwest Housing Permits</td>
<td>A = -0.1</td>
<td>Permits in Illinois, Kansas, Minnesota, and Wisconsin were above the year-ago level.</td>
</tr>
<tr>
<td>North Central Housing Permits</td>
<td>A = -2.3</td>
<td>Indiana and West Virginia may be areas of opportunity, with Permits respectively up 12.5% and 16.0% in those states.</td>
</tr>
<tr>
<td>Northeast Housing Permits</td>
<td>D ▼ -0.3</td>
<td>Permits for the region as a whole have entered a recessionary period.</td>
</tr>
<tr>
<td>Southeast Housing Permits</td>
<td>C ▲ 8.5</td>
<td>Florida Permits and Georgia Permits are increasing at accelerating rates, up 17.6% and 10.6%, respectively.</td>
</tr>
<tr>
<td>South Central Housing Permits</td>
<td>C ▲ 6.1</td>
<td>Permits have tentatively transitioned to a slowing growth trend.</td>
</tr>
</tbody>
</table>

## Commodities

<table>
<thead>
<tr>
<th>Phase</th>
<th>Current Growth Rate</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel Prices</td>
<td>C = 15.4</td>
<td>Expect rise in Prices in the near term before decline in the remainder of this year.</td>
</tr>
<tr>
<td>Aluminum Prices</td>
<td>D ▼ -12.5</td>
<td>Decline in Prices will persist in the near term.</td>
</tr>
<tr>
<td>Plasctics Pipe, Pipe Fitting, and Unlaminated Profile Shape Prices</td>
<td>C ▲ 2.4</td>
<td>Prices are rising at a slowing rate.</td>
</tr>
<tr>
<td>Wood Prices</td>
<td>D ▼ -5.1</td>
<td>Wood Prices are declining below the year-ago level.</td>
</tr>
</tbody>
</table>

## Leading Indicator Signals

<table>
<thead>
<tr>
<th>Phase</th>
<th>Current Growth Rate</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITR Leading Indicator</td>
<td>C ▼ 0.6</td>
<td>The ITR Leading Indicator suggests slowing growth in Industrial Production through at least most of this year.</td>
</tr>
<tr>
<td>US Leading Indicator</td>
<td>C = 4.3</td>
<td>This indicator suggests the US Industrial Production rate-of-change will rise into the middle of this year.</td>
</tr>
<tr>
<td>Purchasing Managers Index</td>
<td>D ▼ -5.0</td>
<td>The PMI suggests that the US Industrial Production growth rate will decline through at least this year.</td>
</tr>
<tr>
<td>Nondefense Capital Goods New Orders</td>
<td>C ▲ 6.6</td>
<td>New Orders will rise at a slowing rate into the middle of this year before declining into early 2020.</td>
</tr>
</tbody>
</table>
ITR Terminology & Methodology

Moving Total/Moving Average

Monthly Moving Total (MMT) vs Monthly Moving Average (MMA):

Averages are used when the data cannot be compounded, such as an index, percent, price level, or interest rates. Totals are used for things where it makes sense to add the data together. For example, units sold or total dollars spent.

3MMT/A and 12MMT/A:

A 3-month or 12-month moving total/average is the total/average of the monthly data for the most recent 3 and 12 months, respectively. The 3MMT/A illustrates the seasonal changes inherent to the data series. The 12MMT/A removes seasonal variation in order to derive the underlying cyclical trend. It is also referred to as the annual total or annual average.

Rate-of-Change:

A rate-of-change figure is the ratio comparing a data series during a specified time period to the same period one year ago. Rates-of-Change are expressed in terms of the annual percent change in an MMT or MMA, 3MMT/A, and actual monthly data.

Rates-of-change reveal whether activity levels are rising or falling compared to last year. A rate-of-change trend illustrates and measures cyclical change and trends in the data.

ITR Economics’ three commonly used rates-of-change are the 1/12, 3/12, and 12/12, which represent the year-over-year percent change of a single month, 3MMT/A, and 12MMT/A (respectively).

A rate-of-change above 0 indicates the data is higher than one year prior, while a rate-of-change below 0 indicates the data is below one year earlier.

Business Cycle:
The data trends and rates-of-change identify positions in the business cycle. Those positions are:

12/12 is rising below 0 and the data trend is either heading toward a low or is in the early stages of recovery. This is the first positive phase of the business cycle.

12/12 is rising above 0, data trend is accelerating in its ascent, and growth is occurring above year-ago levels. This is the second positive phase of the business cycle.

12/12 is declining but remains above 0 and the data trend is decelerating in its ascent or has stopped its rise, but it is still above last year. This is the first negative phase of the business cycle.

12/12 is below 0 and the data trend is at levels below the year-earlier level. This is the final phase and second negative phase of the business cycle.
Phase A Management Objectives™
1. Model positive leadership (culture turns to behavior)
2. Establish tactical goals that lead to strategic achievement
3. Develop a system for measurement and accountability
4. Align compensation plans with objectives 2 and 3
5. Be keenly aware of the Break Even point and check it regularly
6. Judiciously expand credit
7. Check distributions systems for readiness to accommodate increased activity
8. Review and uncover competitive advantages
9. Invest in customer market research
10. Improve efficiencies with investment in technology and software
11. Start to phase out marginal opportunities
12. Add sales staff
13. Build inventories (consider lead time and turn rate)
14. Introduce new product lines
15. Determine capital equipment needs and place orders
16. Begin advertising and sales promotions
17. Hire "top" people
18. Implement plans for facilities expansion
19. Implement training programs

Phase B Management Objectives™
1. Accelerate training
2. Check the process flow for possible future bottlenecks
3. Continue to build inventory
4. Increase prices
5. Consider outside manufacturing sources if internal pressures are becoming tight
6. Find the answer to “What is next?”
7. Open distribution centers
8. Use improved cash flow to improve corporate governance
9. Use cash to create new competitive advantages
10. Watch your debt-to-equity ratio and ROI
11. Maintain/pursue quality; don’t let complacency set in
12. Stay in stock on A items, and be careful with C items
13. Consider selling the business in a climate of maximum “goodwill”
14. Penetrate new selected accounts
15. Develop plan for lower activity in traditional, mature markets
16. Freeze all expansion plans (unless related to “what is next”)
17. Spin off undesirable operations
18. Consider taking on subcontract work if the backside of the cycle looks recessionary
19. Stay realistic—beware of linear budgets
20. Begin missionary efforts into new markets
21. Communicate competitive advantages to maintain margins
Phase C Management Objectives™

1. Begin workforce reductions
2. Set budget reduction goals by department
3. Avoid long-term purchase commitments late in the price cycle
4. Concentrate on cash and balance sheet
5. Reduce advertising and inventories
6. De-emphasize commodity/services in anticipation of diminishing margins
7. Weed out inferior products (lose the losers)
8. Encourage distributors to decrease inventory
9. Identify and overcome any competitive disadvantages
10. Make sure you and the management team are not in denial
11. Cross train key people
12. Watch Accounts Receivable aging
13. Increase the requirements for justifying capital expenditures
14. Evaluate vendors for strength (don't get caught honoring their warranties with no one to accept returned goods)
15. Manage the backlog through pricing and delivery; try to fill the funnel

Phase D Management Objectives™

1. Continue force reduction
2. Reduce advertising – be very selective
3. Continue to avoid long-term purchase commitments
4. Review all lease agreements
5. Increase the requirements for justifying capital equipment
6. Eliminate all overtime
7. Reduce overhead labor
8. Combine departments with like capabilities and reduce management
9. Select targets of opportunity where price will get the business
10. Tighten credit policies – increase scrutiny
11. Look for opportunistic purchases
12. Grab market share as your competitor dies
13. Prepare training programs
14. Negotiate union contracts, if possible
15. Develop advertising and marketing programs
16. Enter or renegotiate long-term leases
17. Look for additional vendors
18. Consider capital expenditures and acquisitions in light of market-by-market potential
19. Make acquisitions – use pessimism to your advantage
20. Lead with optimism and “can do” attitude to mitigate employee anxiety
Appendix - Market Definitions

US ATA Truck Tonnage Index - Index of freight tonnage hauled by trucks, published by the American Trucking Association. Index, 2015 = 100, NSA. The index represents the change in tonnage actually hauled by fleets.

US Trucking Conditions Index - FTR's Trucking Conditions Index, in which a number greater than zero equals a positive environment for trucking and a number less than 0 equals a negative environment (NSA).

US Transportation Services Freight Index - The Transportation Services Index Freight Index, created by the U.S. Department of Transportation (DOT), Bureau of Transportation Statistics (BTS), measures the movement of freight. The index, which is seasonally adjusted, combines available data on freight traffic. The Transportation Services Index, or TSI, is a monthly measure of the volume of services performed by the for-hire transportation sector. The index covers the activities of for-hire freight carriers. The TSI tells us how the output of transportation services has increased or decreased from month to month. The movement of the index over time can be compared with other economic measures to understand the relationship of transportation to long-term changes in the economy. The Index consists of for-hire trucking (parcel services are not included); freight railroad services (including rail-based intermodal shipments such as containers on flat cars); inland waterway traffic; pipeline movements (including principally petroleum and petroleum products and natural gas); and air freight. The index does not include international or coastal steamship movements, private trucking, courier services, or the United States Postal Service. Index, 2000=100.

US Single Family Housing - Total number of privately owned single-family housing units started in the United States. Start of construction occurs when excavation begins for the footings or foundation of a building. Source: US Census Bureau. Measured in millions of units, not seasonally adjusted (NSA).

US Multi Family Housing Starts - Total number of privately-owned multi-family housing units started in the United States. Start of construction occurs when excavation begins for the footings or foundation of a building. Source: US Census Bureau. Measured in thousands of units, not seasonally adjusted (NSA).

National Remodeling Market Index for Current Market Conditions - Remodeling Market Index of Current Market Conditions in the United States. The Current Market Conditions Index is a weighted average of 3 components: .3 × Major Additions & Alterations +.4 × Minor Additions & Alterations + .3 × Maintenance & Repair. An index over 50 indicates higher activity than the previous quarter. (SA)


Midwest Region Permits - New privately owned housing units authorized by permit in the Midwest region of the United States, measured in thousands of units, NSA. The Midwest region includes Illinois, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin.

North Central Region Permits - New privately owned housing units authorized by permit in the North Central region of the United States, measured in thousands of units, NSA. The North Central region includes Indiana, Michigan, Ohio, West Virginia, and Western Pennsylvania.

Appendix - Market Definitions

Southeast Region Permits - New privately owned housing units authorized by permit in the Southeast region of the United States, measured in thousands of units, NSA. The Southeast region includes Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia.

South Central Region Permits - New privately owned housing units authorized by permit in the South Central region of the United States, measured in thousands of units, NSA. The South Central region includes Texas, Oklahoma, New Mexico, Colorado, Arkansas, and Louisiana.


US Plastics Pipe, Pipe Fitting, and Unlaminated Profile Shape Manufacturing Producer Price Index - Producer price index for plastics pipe, pipe fitting, and unlaminated profile shape manufacturing in the US. This industry comprises establishments primarily engaged in manufacturing plastics pipes and pipe fittings, and plastics profile shapes such as rod, tube, and sausage casings. NAICS code: 32612. Source: US Bureau of Labor Statistics (BLS). Index, Dec 2003 = 100, (NSA).


ITR Leading Indicator - The ITR Leading Indicator is a proprietary index comprised of consumer, industrial, financial, and global components. Movements in the Leading Indicator suggest the possible course of business cycle movements in US Industrial Production, a measure of the overall economy’s activity, approximately three quarters in advance. A reading of zero or lower is indicative of recession.

US Leading Indicator - Comprised of 10 components: average weekly hours, manufacturing; average weekly initial claims for unemployment insurance; manufacturers’ new orders, consumer goods and materials; ISM® new orders index; manufacturers’ new orders, nondefense capital goods excluding aircraft orders; building permits, new private housing units; stock prices, 500 common stocks; Leading Credit Index™; interest rate spread, 10-year Treasury bonds less federal funds; and average consumer expectations for business conditions. Source: The Conference Board. Expectations index, seasonally adjusted.

US Purchasing Managers Index - The Institute for Supply Management’s US manufacturing index is based on: new orders (seasonally adjusted), production (seasonally adjusted), employment (seasonally adjusted), supplier deliveries (seasonally adjusted), and inventories. Source: Institute for Supply Management. Diffusion index: a reading above 50 percent indicates that the manufacturing economy is generally expanding; below 50 percent indicates that it is generally declining.

US Nondefense Capital Goods New Orders (Excluding Aircraft) - New orders for nondefense capital goods, excluding aircraft, in the United States. Includes farm machinery and equipment, construction machinery, mining machinery, nondefense small arms and ordnance, industrial machinery, commercial and service industry equipment, other general purpose machinery, photographic equipment, metalworking machinery, turbine and generator manufacturing, power transmission equipment, pumps and compressors, material handling equipment, electronic computers, computer storage devices and peripheral equipment, communications equipment, nondefense search and navigation equipment, electrometical equipment, electrical equipment, heavy duty truck manufacturing, railroad rolling stock, nondefense ship and boat building, office and institutional furniture, and medical equipment and supplies. Source: US Census Bureau. Measured in billions of dollars, not seasonally adjusted (NSA).