Every few years a lot of discussion is generated by the release of the latest PISA scores. Typically, *The New York Times* or *The Washington Post* will lead with an eye-catching headline like, “U.S. Students Flounder on International Academic Comparisons,” or “The Failure of Market Based Education,” or “Student Test Scores Depend on Accountability.”

The Program for International Student Assessment (PISA) is a triennial international survey conducted by the OECD (Organization for Economic Co-operation and Development) that aims to evaluate education systems worldwide by testing the skills and knowledge of 15-year-old students in reading, math, and science. Around 510,000 students in 65 economies took part in PISA 2012, representing about 28 million 15-year-olds globally.

So how did America, as a whole, do on the math and science portions of the PISA in 2012? In short, there is justification for concern. In Figure 1 I have collated some of the PISA data. The bar labeled “USA, 490” is the scaled “STEM” score for all U.S. students who took the test. You can see by comparing this bar with the percentile bars on the left side of the chart that a score of 490 is just over the 50th percentile. Thus, compared with the 64 first, second, and third world countries, the United States is very average. Additionally, among the 34 OECD countries, (generally the wealthiest countries in the world) the United States ranked approximately 26th in math and 21st in science. Moreover, the United States spends more per student than most countries. For example, the Slovak Republic, which spends around $53,000 per student, performs at the same level as the United States, which spends more than $115,000 per student, by the time that student leaves the system.

For good or bad, independent schools are not immune to the influence of this powerful and often strident narrative. For example, the last two schools in which I have worked both overhauled the math curriculum, implementing programs that would yield better results on a PISA-friendly test. As the theme of this volume of SAIS *Headlines* indicates, there are also some creative ventures being tried to fortify the science, technology, and math (STEM) areas of the curriculum. But the essential questions, in my
mind, have not been answered: how would independent schools perform on the PISA – and does it matter? This FastStats will attempt to shed some empirical light on how independent schools might fare on this international assessment, specifically on the math and science (STEM) subtests.

Unfortunately, it does not seem that PISA disaggregates independent schools in its analyses and based on the methodology of selecting schools to participate, it may be that they can’t disaggregate independent schools (or it may be that independent school students did not actually take the test). However, they do provide some potential proxies that allow for some better insight on the essential question. First, PISA does disaggregate the data into a category called “USA Private”. This is a compilation of all the nonpublic schools that participated (reported to be approximately 6% of the overall sample group selected), of which independent schools may be a very small proportion. You can see that the “STEM” score for the group is 497, only marginally above the all-inclusive score. In my experience with other large-scale standardized tests that included all types of nonpublic schools (not just independent schools), this seems to be a valid number.

It was possible to cross tabulate the original PISA data based on percentage of students on “Free and Reduced Lunch” which is part of the National School Lunch Program (NSLP), a metric used in several federal funding programs for public schools. For this analysis I used the cut-off of schools with less than 10% of the student population qualifying for participation in the NSLP as a proxy for schools with populations similar to independent schools. This method creates a socioeconomic proxy and does not try to replicate an independent school’s culture or commitment to mission. However, when we look at the group with 10% or less eligibility for the NSLP, the “STEM” score is 548, well above the 75th percentile.

The final analysis rests on the following inferential leap. Another proxy for how independent schools would do on the PISA might be gleaned from examining how independent schools perform on a similar comprehensive standardized achievement test. For many years now, the Educational Records Bureau (ERB) has conducted the CTP. Many of us in the independent school world like the CTP because, along with national norms, and suburban norms, it provides nonpublic school norms. If you dig deep enough you can find even more specific nonpublic school norms – such as norms for independent schools (in this case NAIS schools) at every grade level, including 10th, which allows for a comparison to the PISA sample. These are well established rolling three-year figures, so they are statistically very reliable. On the CTP, NAIS schools score above the 90th percentile on the math subtests.

The assumption being made is that independent school student performance on the CTP math subtests is a good proxy for performance on the math subtests of the PISA because they are similar tests, measuring similar things i.e., academic achievement, on essentially identical samples. Thus, assuming independent school students would score at the 90th percentile on the PISA, like they do on the CTP, the scaled score becomes 592. In short, independent schools would easily rank in the top three places in the world.

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The take-home message for independent school administrators reading this is (confirming, I believe, what most of us knew intuitively) that there’s a seemingly large discrepancy between the cultural narrative associated with the PISA results being shouted in the national media and the actual numbers as they apply to independent schools. This may be good news for independent schools as it challenges the utility of the test and perhaps offers a talking point with stakeholders about discerning the real value of an independent school education – something that the PISA test can’t measure and something we will all continue to define.

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Notes
1 I will only focus on math and science in this FastStats because of the STEM-related theme of the issue.
2 The “STEM” score is the average of the math and science scores.
3 Technically, (for reasons that are well beyond the scope of this piece) not all comparison groups were countries. A small number were “economies.”
4 I did send an email to the folks at PISA to ask if this was possible. I did not receive a reply.
5 I take full responsibility for this line of thinking and in no way, necessarily, represents SAIS.
6 Note that the CTP-4 does not have NAIS norms for science, as yet.

From the SAIS editors: There are a host of PISA detractors who question the validity of the methodology and the validity of the results: 2013 SAIS Annual Conference keynote speaker Yong Zhao (here and here), well-known education writer and researcher at NYU Diane Ravitch (here), and the Brookings Institute (here and here) to name a few. We highly encourage you to read the entire 2012 PISA report – there are fascinating observations and correlations between student-teacher relationships and morale. Below are two paragraphs from the report (http://www.oecd.org/pisa/keyfindings/PISA-2012-results-US.pdf)

Compared with students in other countries, 15-year-olds in the United States view the relationships between students and teachers relatively positively. Still, schools in the United States with better than average performance tend to have more positive student-teacher relationships, even after accounting for the socio-economic status and demographic background of students and various other school characteristics.

Schools whose principals reported that teachers’ behaviour negatively affects learning to a great extent also tend to be those whose principals reported that teachers’ morale is low. This relationship is particularly strong in the United States. Similarly, the United Stated is not one of the countries with the strongest correlation between schools with a predominately socio-economically disadvantaged student population and a more negative disciplinary climate at school.