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U.S. News

How U.S. Students Stack Up in Math, Reading and Science

Millions of students worldwide are behind when it comes to those three core subjects.



High school students work during a health science class on Oct. 1, 2015, at Sullivan High School in Chicago.

By [Lauren Camera](#) Feb. 10, 2016, at 11:40 a.m. + More

More than 1 in 4 15-year-olds living in economically developed countries – some 13 million students – do not have a basic level of knowledge in at least one of the three core subjects: math, reading and science.

In some countries, the statistic is worse, with more than 1 in 2 students lacking such baseline proficiency. And that poor performance holds ramifications that reach far beyond just a report card.

Those are just some of the top-line findings tucked inside a [212-page report](#) from the [Organisation for Economic Co-operation and Development](#), or **OECD**, which analyzed data from the **64 countries** that participated in the latest international education assessment, known as the **Programme for International Student Assessment**, or **PISA**.

[**READ:** [Apprenticeship Efforts Still Hampered by Stereotypes](#)]

"It is urgent to get this right," said Andreas Schleicher, director for education and skills at the OECD and an author of the report. **"Students who perform poorly at age 15 face a high risk of dropping out of school altogether, and when a large share of the population lacks basic skills, a country's long-term economic growth is severely compromised."**

As the report lays out, the economic output that is lost because of high numbers of poor-performing students could leave many countries in "what amounts to a permanent state of economic recession."

So how does the U.S. stack up when it comes to low-performing students? Here are the results from the 2012 PISA exam – the most recent date it was administered:

- In math, 26 percent of students were low performers compared with the OECD average of 23 percent.
- In reading, 17 percent were low performers compared with the OECD average of 18 percent.
- In science, 18 percent were low performers compared with the OECD average of 18 percent.
- And 12 percent were low performers in all three subjects compared with the OECD average of 12 percent.

Notably, the share of low performers in **math** and in reading in the U.S. has not changed since the 2003 PISA test, but the share of low performers in **science** decreased by about 6 percentage points between 2000 and 2012.

[**ALSO:** [Higher Education Data Doesn't Reflect Majority of Students](#)]

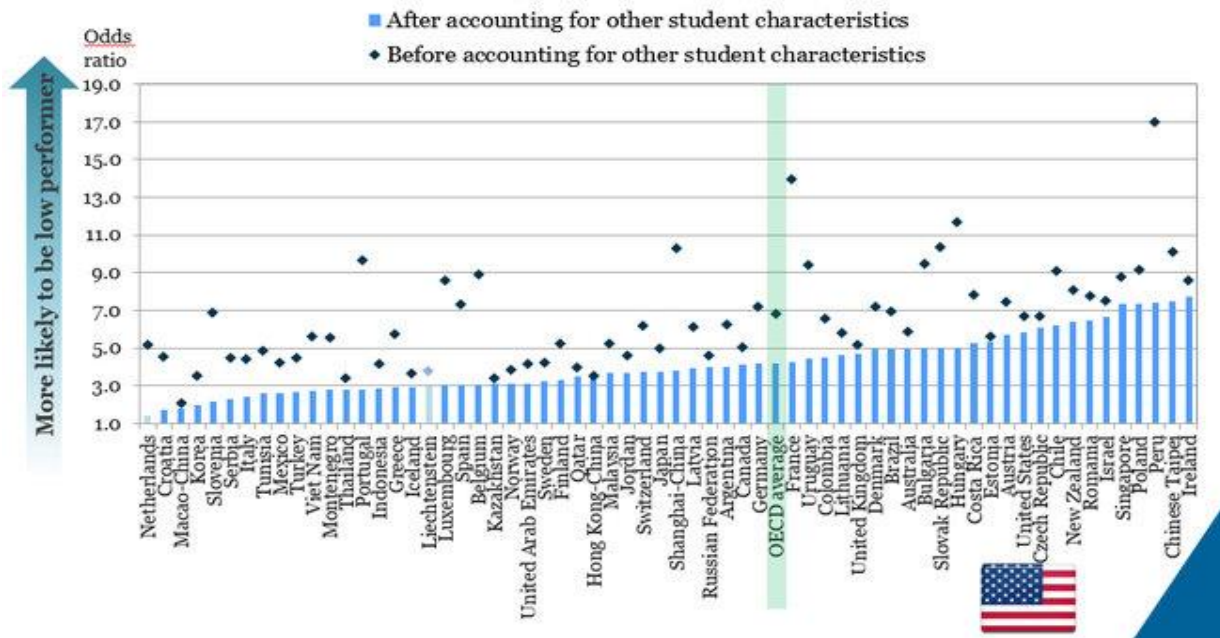
Drilling into the U.S. performance in math, the report found that about 37 percent of 15-year-old students in the country attend schools where 30 percent or more of students are low performers in math. About 12 percent attend schools where half or more of students are low performers in math.

But how do students become low-performing? And what can countries do to curb the creep of deteriorating achievement?

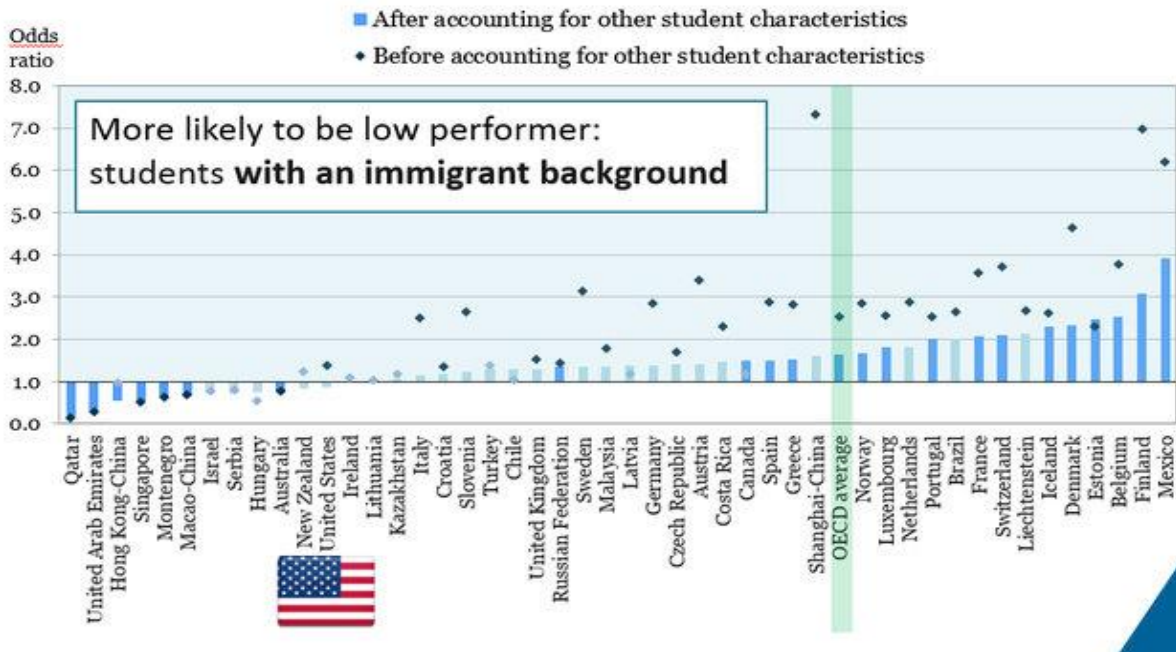
The answers appear to involve complicated webs of interconnected circumstances and policy proposals, Schleicher said.

The probability of low performance in math, for example, is higher for students if they are socioeconomically disadvantaged, female, have an immigrant background, speak a different language at home from the language of instruction, live in a single-parent family, attend school in a rural area, have not attended preschool, have repeated a grade or have enrolled in a vocational program.

Socio-economic status

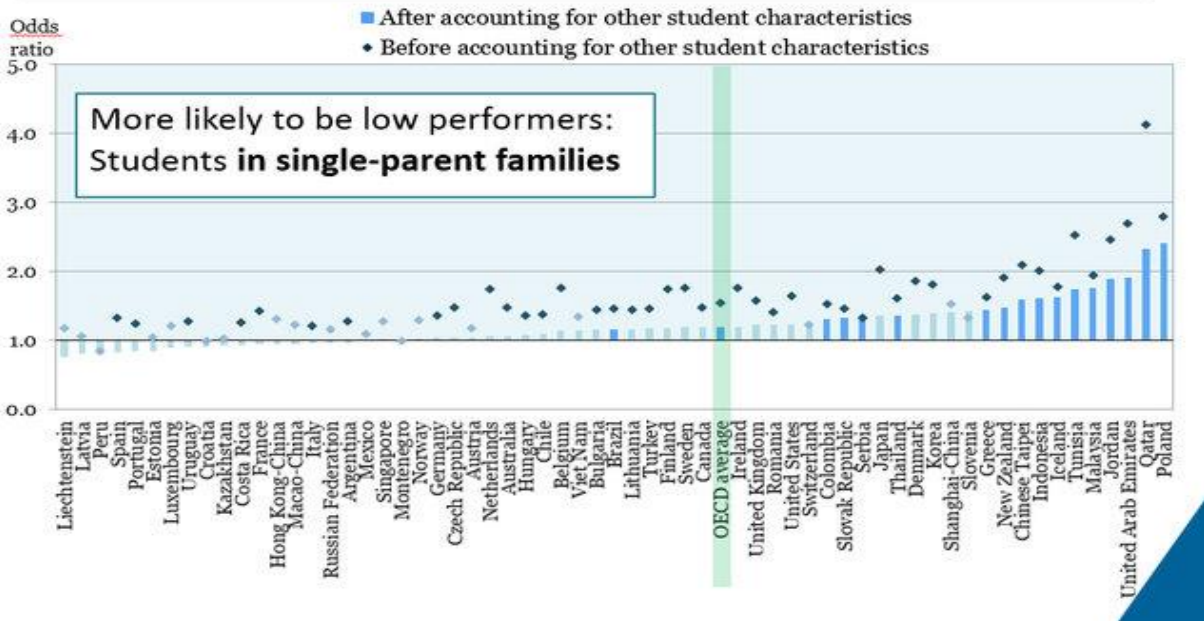


Immigrant background





Family structure



In fact, among OECD countries, a poor student is almost six times more likely to be a low performer than a more affluent student. In the U.S., some 41 percent of disadvantaged students were low performers in mathematics in 2012, while only 9 percent of advantaged students were.

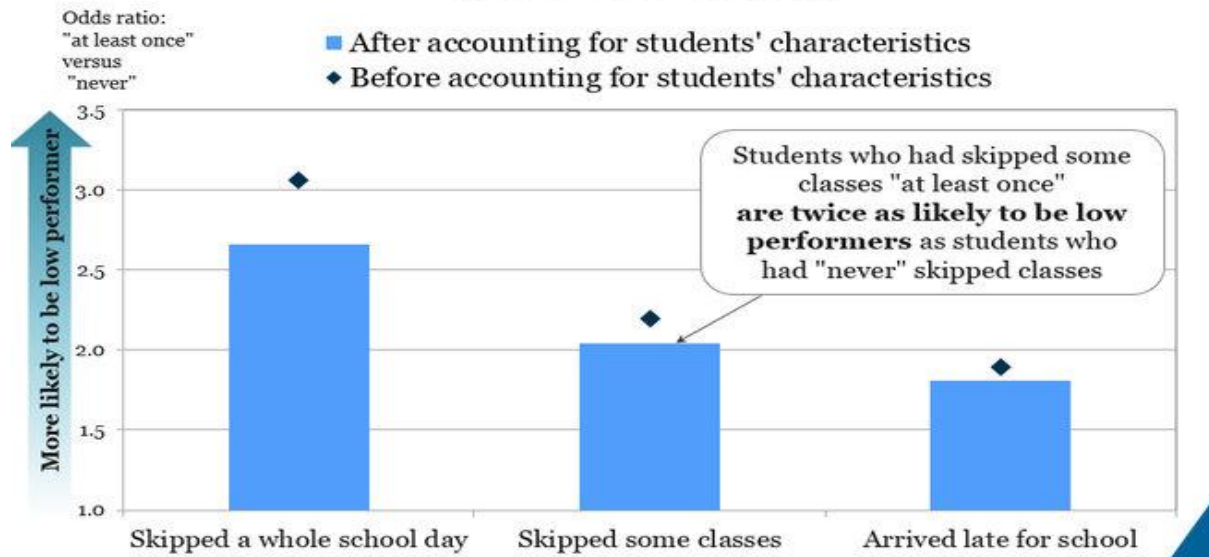
Low performers are also more likely to skip school more often and spend less time doing homework than their better performing counterparts. In addition, students are less likely to be poor performers in schools where teachers are more supportive and have higher morale.

Note: The highlights are added for attention purpose.



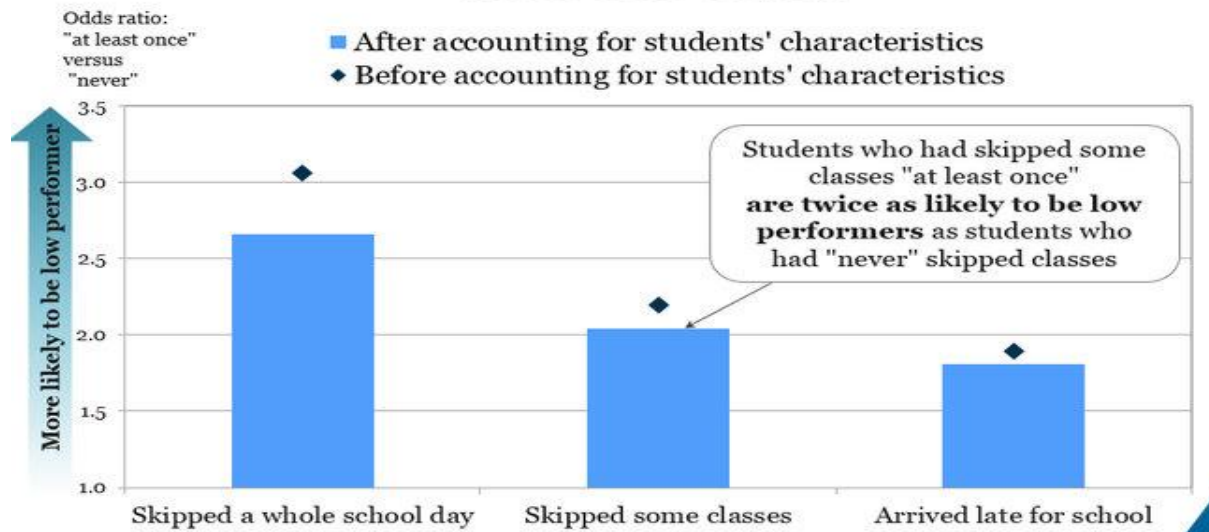
Missing learning opportunities is associated with low performance in mathematics

Across OECD countries



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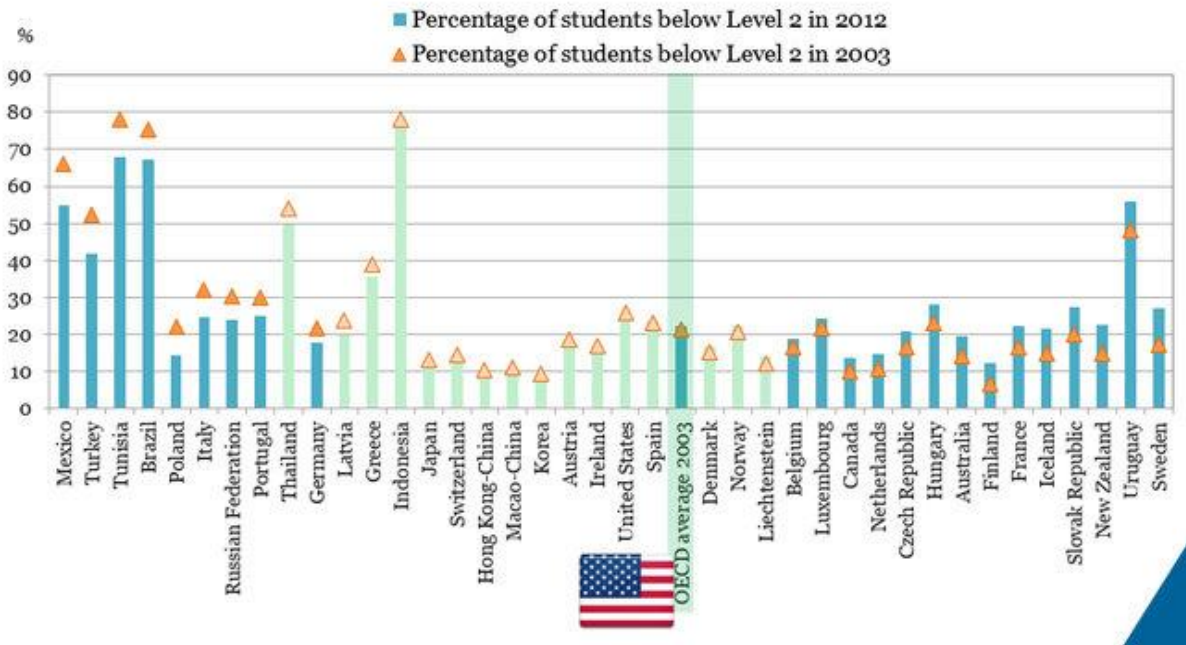


The solution is just as complicated, Schleicher noted.

For example, countries like Brazil, Germany, Italy, Mexico, Poland, Portugal, Russia, Tunisia and Turkey reduced their share of low performers in mathematics between 2003 and 2012, the report found. But they don't necessarily have much in common in terms of what education policies they've adopted to drive those changes.



Uneven progress in reducing low performance in mathematics



For that reason, the report suggests a multipronged approach for countries trying to curb their numbers of low performers.

One facet could be increasing access to early childhood education, through which "countries have been able to really make a big difference," Schleicher said. Other policies that have had a big impact on student achievement include improving training and professional development for teachers and boosting the rigor of academic standards.

"The U.S. recently adopted the [Common Core](#)," Schleicher said of the academic benchmarks being used in more than 40 states and the District of Columbia. "That has happened in many countries, and we can actually see a big impact on this."