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PISA IN FOCUS 60

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Who are the low-performing students?

- No country or economy participating in PISA 2012 can claim that all of its 15-year-old students have achieved basic proficiency skills in mathematics, reading and science. Some 28% of students score below the baseline level of proficiency in at least one of those subjects, on average across OECD countries.
- Poor performance at age 15 is not the result of any single risk factor, but rather of a combination and accumulation of various barriers and disadvantages that affect students throughout their lives.
- Students attending schools where teachers are more supportive, have better morale and have higher expectations for students are less likely to be low performers in mathematics, even after accounting for the socio-economic status of students and schools.

Far too many students around the world are trapped in a vicious cycle of poor performance and demotivation that leads only to more bad marks and further disengagement from school. Students who perform poorly at age 15 face a high risk of dropping out of school altogether. By the time they become young adults, poor proficiency in numeracy and literacy can translate into limited access to better-paying and more rewarding jobs, poorer health and less social and political participation. When a large share of the population lacks basic skills, a country's long-term economic growth and equity are severely compromised.

The newly released PISA report, *Low-performing Students: Why They Fall Behind and How to Help Them Succeed,* looks at the factors that are most strongly associated with poor student performance.

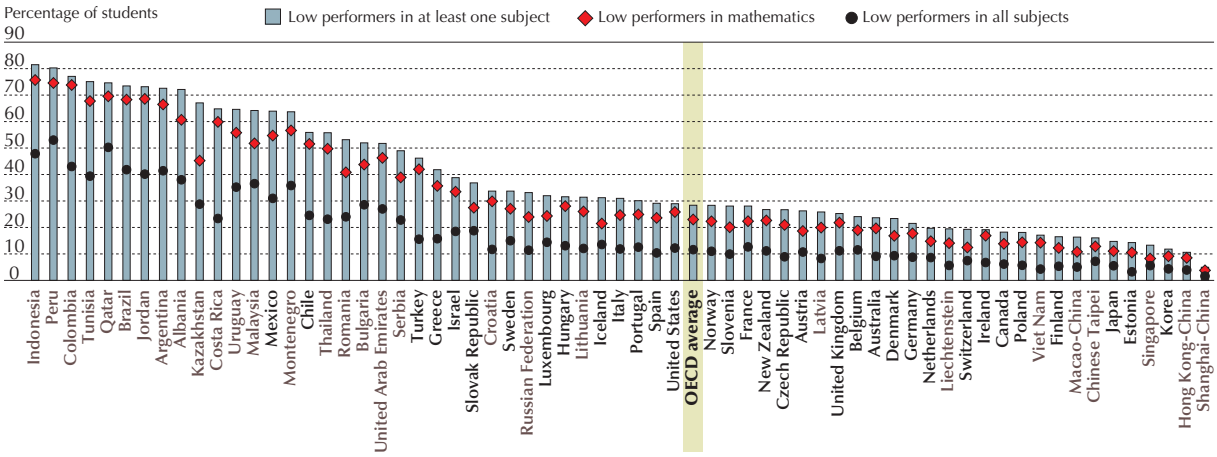
The risks associated with low performance can accumulate over time…

In PISA 2012, the share of 15-year-old students in OECD countries who did not attain a baseline level of proficiency was 23% in mathematics and 18% in reading and in science. Some 12% of students were low performers in all three subjects that year. In OECD partner countries and economies, the proportion of low-performing students can be much larger. More concretely, about 13 million 15-year-old students in the 64 countries and economies that participated in PISA 2012 were low performers in at least one subject.

There are many "risk factors" that increase the likelihood that 15-year-old students will score below the baseline level of proficiency. Across OECD countries, these include not only a socio-economically disadvantaged background, but a range of others family and student characteristics.

On average across OECD countries, a socio-economically advantaged student who is a boy living in a two-parent family, has no immigrant background and speaks the same language at home as he does at school, who lives in a city, had attended more than one year of pre-primary education, did not repeat a grade and is enrolled in a general curricular track (or school) has a 5% probability of low performance in mathematics. By contrast, a disadvantaged student who is a girl living in a single-parent family, has an immigrant background, speaks a different language at home from the one she speaks at school, lives in a rural area, had not attended pre-primary school, had repeated a grade and is enrolled in a vocational track has an 83% probability of low performance.

Percentage of low performers in PISA 2012



Countries and economies are ranked in descending order of the percentage of students who are low performers in at least one subject.

Source: OECD, PISA 2012 Database.

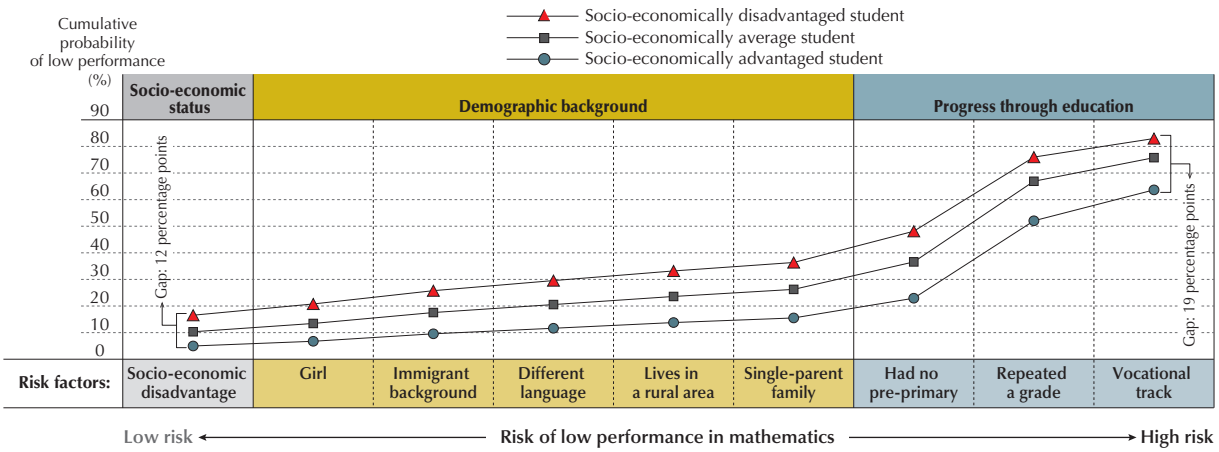
StatLink http://dx.doi.org/10.1787/888933315224

Gender is unique among the risk factors for low performance analysed in the report in that its impact is subject-specific. Boys are at greater risk than girls of low performance in reading and in science, but in many countries/economies, girls are at greater risk than boys of low performance in mathematics.

While these risk factors can affect all students, among low performers they are more detrimental to socio-economically disadvantaged students than to their advantaged peers. Indeed, all of the demographic characteristics considered in the report, as well as the lack of pre-primary education, increase the probability of low performance by a larger margin among disadvantaged than among advantaged students, on average across OECD countries.

The probability of low performance in mathematics based on a student's background and progress through education

OECD average



Notes: Risk profiles are based on students' socio-economic, demographic and education characteristics.

A student with no risk factor for low performance is a socio-economically advantaged boy who has no immigrant background, speaks the same language at home as the language of assessment, lives in a two-parent family, attends a school located in a city, had attended pre-primary education for more than one year, had not repeated a grade, and is enrolled in a general track.

A socio-economically advantaged student is a student at the top quarter of the PISA *index of economic, social and cultural status* (ESCS). A socio-economically disadvantaged is a student at the bottom quarter of ESCS, and a socio-economically average student is a student at the average of the second and third quarters of ESCS.

Coefficient estimates come from a single multivariate logistic regression with low performance in mathematics as the outcome and each of the variables in the figure as a covariate.

Source: OECD, PISA 2012 Database.

StatLink http://dx.doi.org/10.1787/888933315444

Only repeating a grade and enrolment in a vocational track have greater penalties for advantaged students. In other words, disadvantaged students tend not only to be encumbered with more risk factors, but those risk factors have a stronger impact on these students' performance.

...and can be increased – or reduced – at school.

Students' performance at school is also influenced by the schools they attend. Struggling students benefit from teachers who show an interest in every student's learning, help students when they need it, work with students until they understand the course content, and give students an opportunity to express their opinions. Teachers who hold high expectations for students, work with enthusiasm, take pride in their school and value academic achievement are also more likely to make school activities and tasks more engaging for students.

School resources and organisational practices also are related to low performance, even after accounting for students' and schools' socio-economic characteristics. Schools with higher-quality educational materials, and those that offer more extracurricular activities, have fewer low performers, on average across OECD countries. Students in schools with more ability grouping between classes are more likely to be low performers, perhaps because underachieving students miss out on learning from or being inspired by their higher-performing peers when they are not sitting in the same classroom.

Socio-economic inclusion and percentage of low performers in mathematics

Notes: The index of socio-economic inclusion shows the extent to which students' socio-economic status varies within schools, measured as a percentage of the total variation in students' socio-economic status across the school system.
The relationship is statistically significant ($p<0.01$).
Only countries and economies with available data are included.
Source: OECD, PISA 2012 Database.
StatLink http://dx.doi.org/10.1787/888933315796

Indeed, if most of a student's schoolmates are low performers and socio-economically disadvantaged, he or she will have a more difficult time learning, as not all teachers are adequately trained to handle high concentrations of such students. School systems where students from different socio-economic backgrounds tend to go to the same school have smaller shares of low performers in mathematics.

The policy implications of these findings are clear. Policy makers need to make tackling low performance a priority in their education policy agenda – and translate that priority into additional resources. Tackling low performance requires a multi-pronged approach, tailored to national and local circumstances. Countries need to organise schools and education systems so that they can provide early education opportunities for all; and education systems need to identify low-performing students and schools, and intervene with appropriate, targeted policies and practices (e.g. remedial, language or psycho-social support). Skills for teaching and managing diverse student populations might be emphasised in teacher-training and professional development programmes. Parental support and positive student attitudes and behaviours (e.g. attending school regularly and on time, completing homework assignments, and approaching learning with perseverance and motivation) are also good ways to tackle poor performance at school.

Countries as economically and culturally diverse as Brazil, Germany, Italy, Mexico, Poland, Portugal, the Russian Federation, Tunisia and Turkey reduced their share of low performers in mathematics between 2003 and 2012. What do these countries have in common? Not very much: their respective shares of low performers in 2003 differed widely, as did their economic performance during the period. But therein lies the lesson: all countries can improve their students' performance, given the right policies and the will to implement them.

The bottom line: Reducing the number of low-performing students is not only a goal in its own right but also an effective way to improve an education system's overall performance and equity. Understanding the factors that contribute to low performance, and the scale of the problem, is only the first – albeit essential – step. That step must be quickly followed by introducing the kinds of policy and good practices that give every student a real chance to succeed.

For more information

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See OECD (2016), *Low-performing Students: Why They Fall Behind and How to Help Them Succeed*, PISA. OECD Publishing, Paris.

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