Can equity in education foster social mobility?

PISA in Focus #89

OECD
BETTER POLICIES FOR BETTER LIVES

Can equity in education foster social mobility?

- The average difference in science performance between socio-economically advantaged and disadvantaged students (88 score points) is equivalent to about three years of schooling; but some 11% of disadvantaged students score in the top quarter of performance in their own countries, on average across OECD countries that participated in PISA 2015.
- In most countries, socio-economic disparities in performance appear early and widen over time. Among 10-year-olds, the gap in mathematics performance related to socio-economic status is about two-thirds the size of that observed among 25-29 year-olds, on average across 12 OECD countries with comparable data.
- High performance among disadvantaged 15-year-old students is a strong predictor of upward educational and social mobility.

Equity is a fundamental value and guiding principle of education policy and practice, but it is not necessarily actualised in schools and education systems around the world. There are large variations across PISA-participating countries and economies in the magnitude of the difference that socio-economic status makes in students' learning, well-being and post-secondary educational attainment. This suggests that policy and practice have a key role to play in reducing socio-economic inequalities in education.

Equity does not mean that all students obtain equal education outcomes, but rather that differences in students' outcomes are unrelated to their background or to economic and social circumstances over which the students have no control. Equity in education means that students of different socio-economic status achieve similar levels of academic performance, and of social and emotional well-being, and that they are equally likely to earn desirable post-secondary education credentials, such as university degrees, that will make it easier for them to succeed in the labour market and realise their goals as adult members of society. Education systems need to determine how individual students learn best and tailor learning opportunities to meet their needs.

The newly released PISA report, *Equity in Education: Breaking Down Barriers to Social Mobility*, shows that narrowing the differences related to socio-economic status in what students near the end of compulsory schooling can do with what they have learned could offer more opportunities for children and young people born into disadvantaged families to move up the socio-economic ladder.

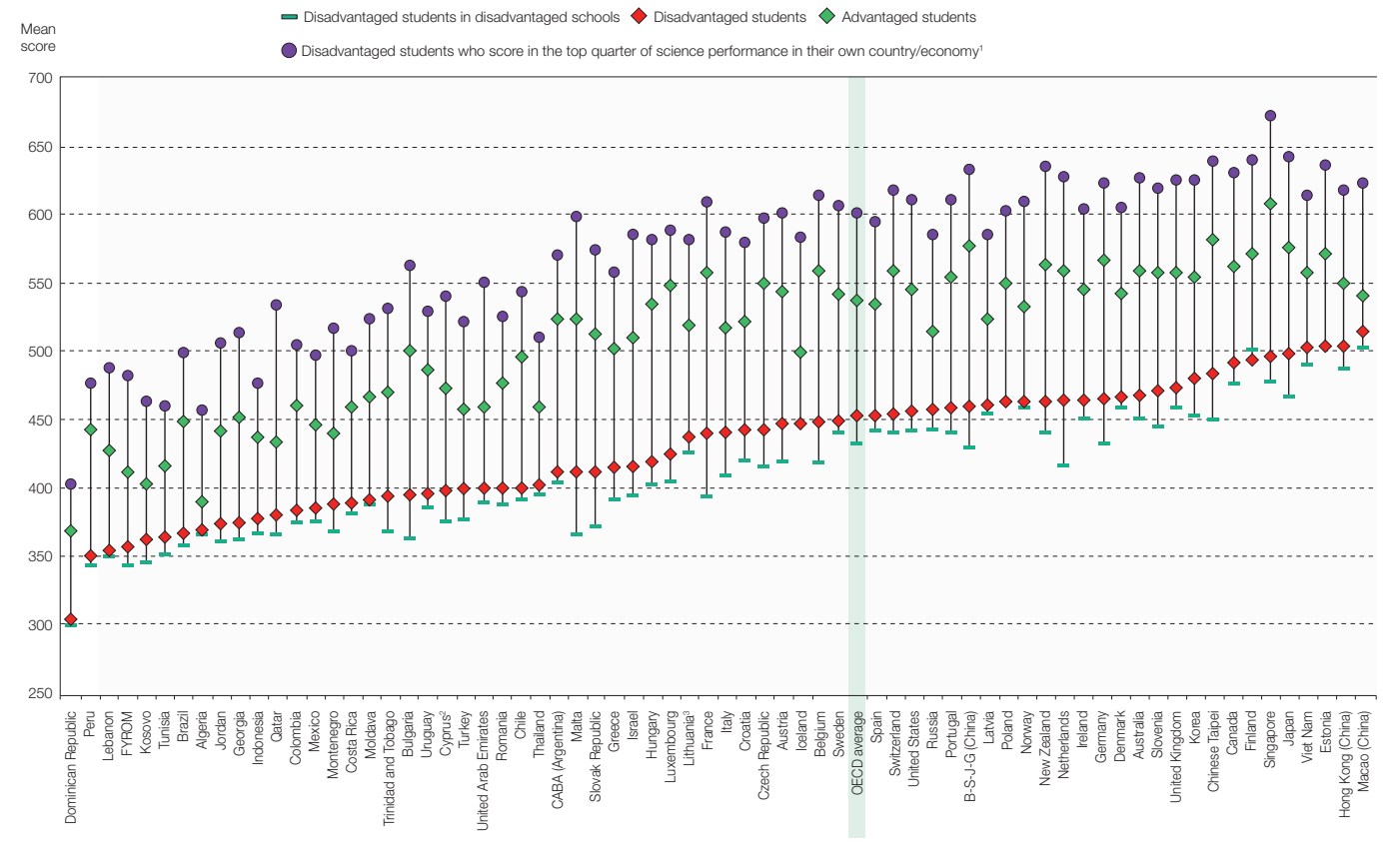
Socio-economic status has a strong influence on students' performance, but in more equitable education systems more disadvantaged students perform well.

In all countries and economies that participated in PISA 2015, socio-economic status has considerable influence on students' performance in science, reading and mathematics. On average across OECD countries, the mean PISA science score among disadvantaged students was 452 points, while among advantaged students it was 540 points. This gap of 88 points is the equivalent of about three full years of schooling.

Disadvantaged students face an additional barrier when they are enrolled in schools with a disadvantaged socio-economic profile. Schools that are more advantaged might provide a better learning environment, whether because of a more favourable disciplinary climate, pedagogical methods or available resources. On average across OECD countries, disadvantaged students attending disadvantaged schools score 19 points lower than all disadvantaged students considered together, and 78 points lower than disadvantaged students who attend advantaged schools. On average across OECD countries in 2015, 48% of disadvantaged students attended disadvantaged schools; and in most PISA-participating education systems, there has been no significant change in that average since PISA 2006.

The good news, however, is that socio-economic disadvantage is not destiny. Some 11% of disadvantaged students across OECD countries score in the top quarter of performance in their own countries. On average, these nationally resilient disadvantaged students perform better in science than advantaged students in every country and economy that participated in PISA 2015.

Socio-economic disadvantage and science performance



1. The share of disadvantaged students who score in the top quarter of science performance in their own country/economy can be found in Figure 3.3 of the report *Equity in Education: Breaking Down Barriers to Social Mobility*, OECD (2018).

2. Footnote by Turkey: The information in this document with reference to ''Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".
Footnote by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

3. Lithuania acceded to the OECD on 5 July 2018. The OECD average does not include Lithuania.

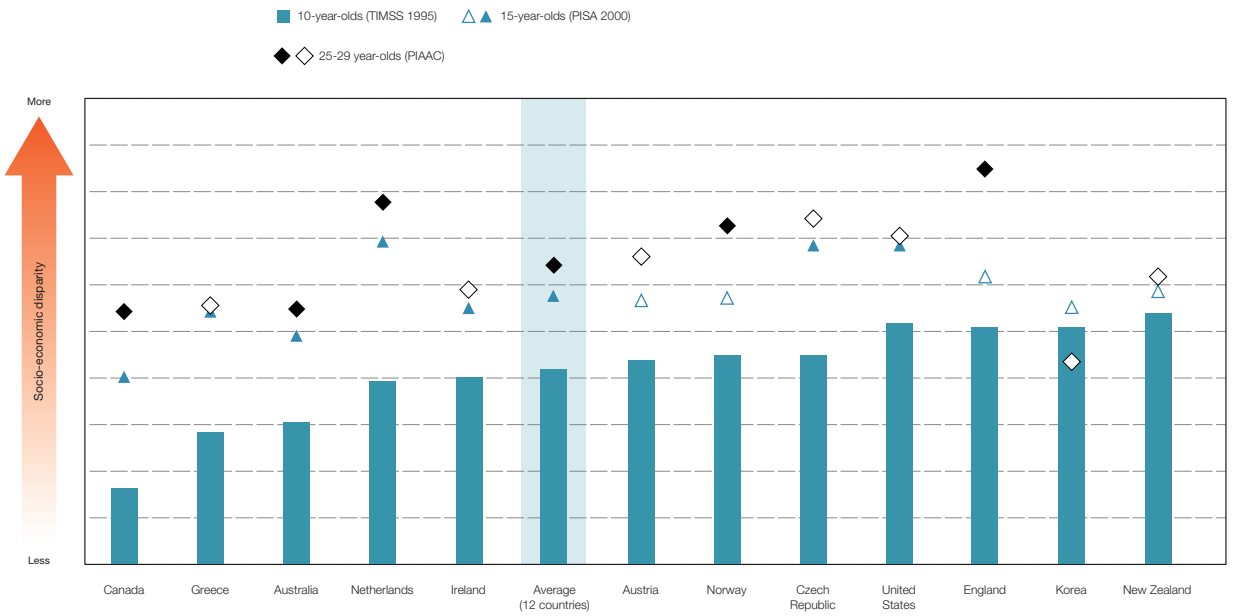
Source: OECD, PISA 2015 Database. Tables 3.1 and 4.5 in OECD (2018), *Equity in Education: Breaking Down Barriers to Social Mobility*, https://doi.org/10.1787/9789264073234-en

Disparities in performance related to socio-economic status develop early and widen throughout students' lives.

Data from the Trends in International Mathematics and Science Study (TIMSS 1995), PISA 2000 and PIAAC (the OECD Programme for the International Assessment of Adult Competencies), reveal that differences in performance related to socio-economic status are significant by the age of 10, and continue to widen over time. More than two-thirds of the gap in 15 year-olds' mathematics scores associated with socio-economic status (measured, in this instance, by the number of books at home) is observed at age 10, on average across the 12 OECD countries with comparable data; and about two-thirds of that achievement gap among 25-29 year-olds is already evident among 10-year-olds.

Socio-economic disparities in mathematics performance from childhood to early adulthood

Difference in mathematics achievement between individuals who had more and those who had fewer than 100 books in their home



Notes: This figure shows a standardised gap that refers to the difference in the mean scores of individuals with more than 100 books in the home and individuals with fewer than 100 books, divided by the pooled standard deviation.

Statistically significant differences between 15-year-olds (PISA) and 10-year-olds (TIMSS) are shown by the dark blue triangles.
Statistically significant differences between 25-29 year-olds (PIAAC) and 10-year-olds (TIMSS) are shown by the black diamonds.
There are no statistically significant differences between 25-29 year-olds (PIAAC) and 15-year-olds (PISA).
Only countries with available data are included. *Countries are ranked in ascending order of the gap in TIMSS.*

Source: IEA, TIMSS 1995 dataset. OECD, PISA 2000 database and PIAAC dataset (Rounds 1 and 2). Table 2.5 in OECD (2018), *Equity in Education: Breaking Down Barriers to Social Mobility*, https://doi.org/10.1787/9789264073234-en

The socio-economic gap in mathematics performance among 10-year-olds (as measured by TIMSS 1995), was largest in England, Korea, New Zealand and the United States; it was about average in Australia, Austria, the Czech Republic, Ireland, Norway and the Netherlands; and it was smallest in Canada and Greece.

PISA 2000 results reveal that the achievement gap had grown, relative to that observed 5 years earlier in the TIMSS assessment, in 7 out of the 12 countries considered. The gap in mathematics achievement among 15-year-old students (as measured by PISA) grew the most in Canada, the Czech Republic, Greece and the Netherlands, and it grew the least in Australia, Ireland and the United States.

By early adulthood (age 25 to 29), inequity in mathematics achievement had become even greater. The difference in numeracy proficiency, as measured by the Survey of Adult Skills (PIAAC), increased, in comparison to the gap observed among 10-year-olds in TIMSS 1995, in 5 out of the 12 countries. The performance gap widened the most in Canada, England and the Netherlands, and the least in Australia and Norway.

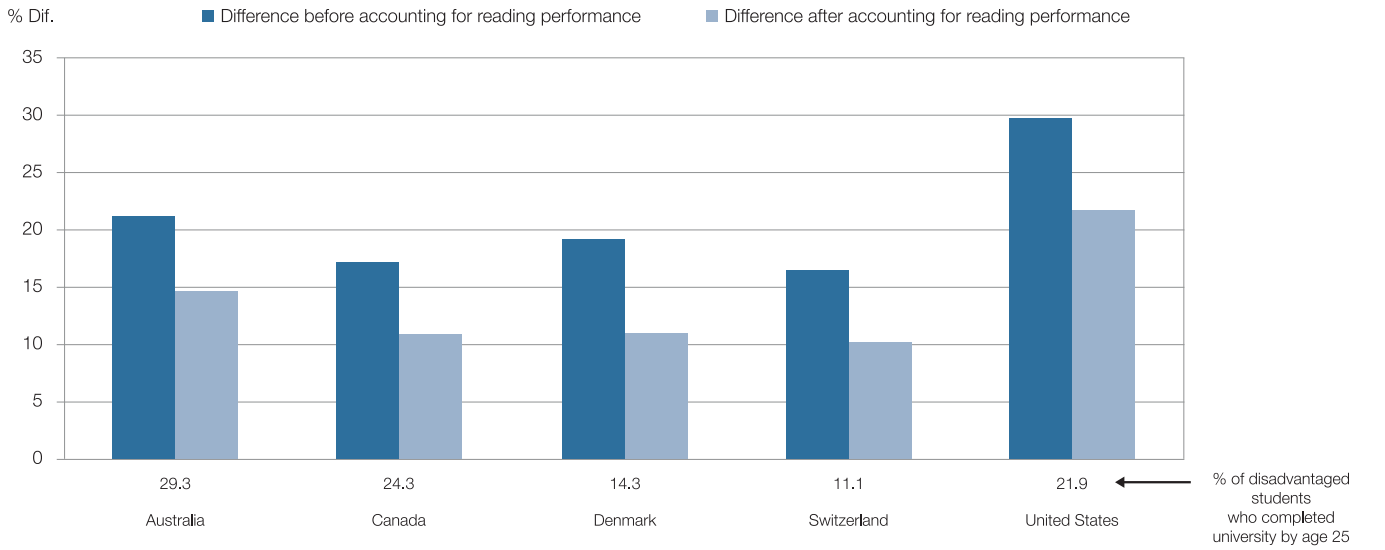
Performance at age 15 is a strong predictor of higher education and early career outcomes.

The report also finds that in five countries studied using longitudinal data (Australia, Canada, Denmark, Switzerland and the United States), student performance in PISA is strongly correlated with outcomes in early adulthood. Students who scored in the top quarter in reading were between 38 percentage points (Switzerland) and 53 percentage points (Canada) more likely to complete university than students who scored in the bottom quarter. Students with at least one tertiary-educated parent were between 17 percentage points (Canada and Switzerland) and 30 percentage points (the United States) more likely to complete university than their peers without tertiary-educated parents. But it also shows that differences in 15-year-olds' reading performance explain between 27% (the United States) and 43% (Denmark) of the difference in university completion rates between advantaged and disadvantaged students.

Tertiary education, labour market outcomes and reading performance

Completed university education by age 25, by PISA reading performance and parents' education

Percentage-point difference in university completion between advantaged and disadvantaged students

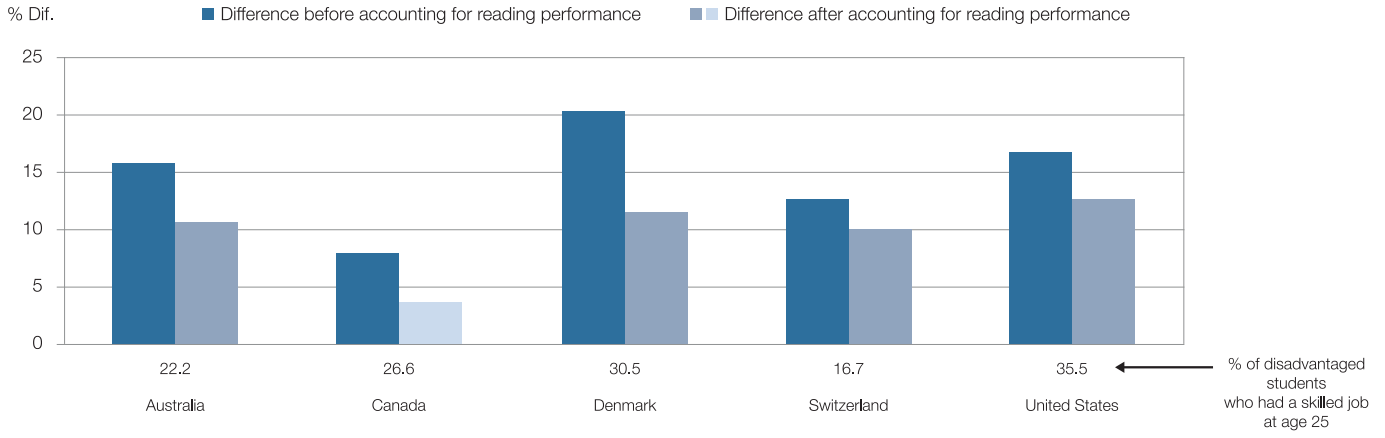


Notes: Results based on students' self-reports.
All percentage-point differences are statistically significant.
Values above the country name represent the percentage of disadvantaged students who completed university by age 25.
Advantaged students are those with at least one tertiary-educated parent; disadvantaged students are those without a tertiary-educated parent.

Source: OECD, PISA 2000 and PISA 2003 Databases. Tables 5.3 and 5.4 in OECD (2018), *Equity in Education: Breaking Down Barriers to Social Mobility*, https://doi.org/10.1787/9789264073234-en

Skilled employment, by parents' education and PISA reading performance

Percentage-point difference in skilled employment between advantaged and disadvantaged students at age 25



Notes: Results based on students' self-reports.
Statistically significant percentage-point differences after accounting for school performance are shown in a darker tone.
All percentage-point differences before accounting for school performance are statistically significant.
Values above the country name represent the percentage of disadvantaged students who worked in a skilled job at age 25. Skilled employment is defined as employment that requires tertiary education, ISCED level 5A or above.
Advantaged students are those with at least one tertiary-educated parent; disadvantaged students are those without a tertiary-educated parent.

Source: OECD, PISA 2000 and PISA 2003 Databases. Tables 5.19 and 5.20 in OECD (2018); *Equity in Education: Breaking Down Barriers to Social Mobility*, https://doi.org/10.1787/9789264073234-en

Performance at age 15 is also linked to opportunities for skilled employment. Students who scored in the top quarter of reading performance were more likely than students in the bottom quarter of performance to be working in a job that requires tertiary education by the age of 25. Across the five countries considered, students with tertiary-educated parents were between 7 percentage points (Canada) and 20 percentage points (Denmark) more likely to be employed in jobs requiring tertiary education at age 25 than students without tertiary-educated parents. Accounting for differences in PISA performance reduces this difference to between 4 percentage points (Canada) and 13 percentage points (the United States).

The bottom line

The evolution of performance inequalities related to socio-economic status, particularly between primary and secondary school, underscores the crucial role that schools, teachers, and education policies and practices can play in narrowing the gaps and equalising opportunities for all students. Performance during compulsory school matters not only for students' later educational attainment, but also for shaping young adults' prospects in the labour market. Education policies that focus on equity can be among the most effective ways to foster upward social mobility over the long term.

For more information

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See: OECD (2018), *Equity in Education: Breaking Down Barriers to Social Mobility,* PISA, OECD Publishing, Paris, https://doi.org/10.1787/9789264073234-en

Coming next month: Do science teaching practices matter?