

How does student performance vary between and within schools?

- Among OECD countries, Mexico showed the smallest overall variation in student performance
- Finland had the smallest variation in “between-school” performance.
- At the other end of the scale, there were large variations in “between-school” performance in a number of OECD countries, including Germany, the Czech Republic, Austria and Hungary.

Significance

As well as examining variations in the performance of 15-year-old students between different countries, PISA also provides an opportunity to examine variations in performance *within* countries. Such variations are important as they may reflect the impact of non-educational factors on student performance, especially the impact of students’ socio-economic background. Identifying the characteristics of students, schools and education systems that perform well despite the impact of social disadvantage can provide clues to making education policy more effective in overcoming inequalities.

Findings

The figure opposite shows the extent of variation in student performance in PISA 2006 (science competencies only). A longer bar indicates that there was a lot of variation within a country in how well students performed – some may have done very well, others poorly. A shorter bar indicates that a large number of students performed at more or less the same level. Finland, for instance, has a very short bar, indicating that – as well as achieving the highest overall performance in PISA – it had one of the lowest levels of variation in student performance. By contrast, in Australia, Germany, New Zealand, the United Kingdom and the United States the variance in student performance was between 10 and 25.2% larger than the OECD average.

Each bar is also broken into two parts: the left side represents the extent to which variations in student performance was due to differences *between* schools, and the right side represents variation *within* schools. Not surprisingly, all countries showed considerable within-school variance, reflecting the varying abilities

of students to be found in any school. What is more striking from a policy perspective were the between-school differences, which ranged from 4.7% of the OECD average in Finland to well over 60% in Germany. What explains such variations? In part they reflect the structures of education systems. Some countries adopt a comprehensive approach, requiring each school to provide for the full range of student abilities, interests and backgrounds. Other countries group students through tracking or streaming – sometimes in separate schools and sometimes in different classes within schools – based on their academic potential or interests in specific programmes. (But note that in many countries, these approaches are combined to some extent.)

Socio-economic background also plays a role. In some countries, certain schools may essentially be “blue collar” and others “white collar”. Typically, students from poorer families do less well in education than their better-off counterparts, which explains some of the between-school difference. However, these differences may also reflect certain structural features of schools and schooling systems, particularly where students are tracked by ability, as well as the policies and practices of school administrators and teachers. In effect, attending one school rather than another may make it more – or less – likely that a student will do well.

Definitions

See introduction to this section.

Going further

For additional explanation and background, see Chapters 4 and 5 of *PISA 2006: Science Competencies for Tomorrow’s World, Vol. 1: Analysis*.

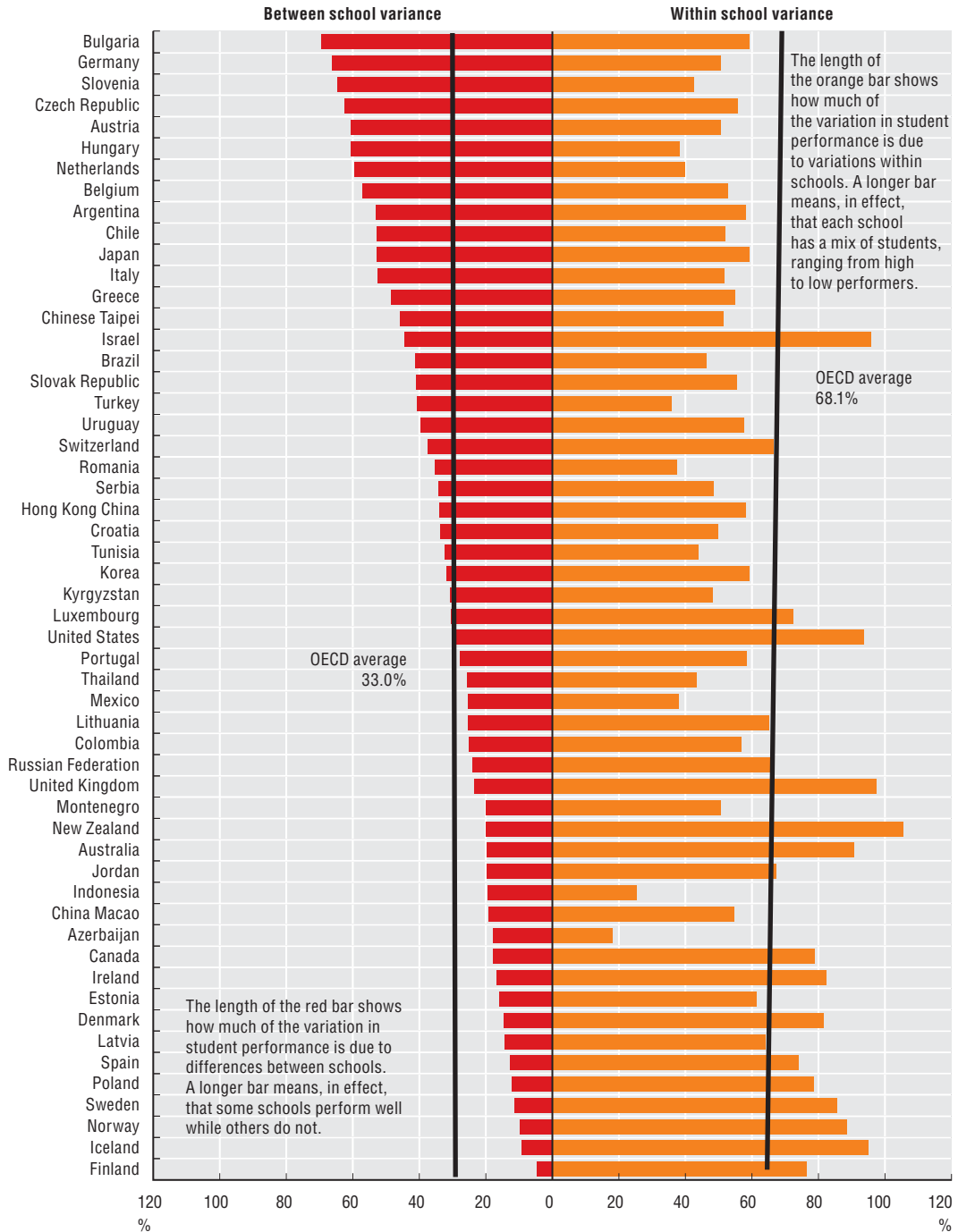
Further reading from OECD

No More Failures: Ten Steps to Equity in Education (2007).

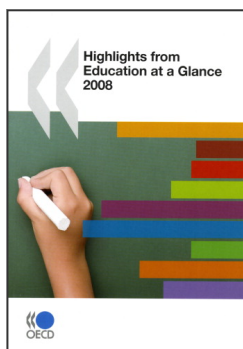
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Figure S.5. “Within-school” and “between-school” variation from the OECD average in science in PISA 2006

The figure looks at how much of the variation in students performance is attributable to the range of performances in each school (“within-school”) or to differences in performance from one school to the other (“between-school”). The total length of the bar reflects overall variation in student performance. A shorter bar indicates most students perform at about the same level; a longer bar indicates wider variations.



Source: OECD (2007), PISA 2006, Science Competencies for Tomorrow's World, Volume 1: Analysis, Table 4.1a, available at <http://dx.doi.org/10.1787/141848881750>.



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