How do girls compare to boys in mathematics skills?

– *Boys outperform girls in mathematics in 35 of the 65 countries and economies that participated in PISA 2009. In five countries, girls outperform boys, and in 25 countries there is no significant difference between the genders.*
– *On average in OECD countries, boys outperform girls in mathematics by 12 score points – a gender gap that is only one-third as large as that for reading, in which girls outperform boys.*
– *In Belgium, Chile, Switzerland, the United Kingdom, the United States, and the partner countries Colombia and Liechtenstein, boys outperform girls by more than 20 score points, close to one-third of a proficiency level.*

What it means

Mathematics is an important life skill, and the stereotyped notion that girls are "not good at numbers" has often limited girls' opportunities. But PISA results show that, in some countries, girls perform as well as boys in mathematics. That can be a signal to policy makers that skills in mathematics are not related to gender and that more can be done to raise girls' level of performance in mathematics.

Findings

Boys outperform girls in mathematics by an average of 12 points across OECD countries. This is a small gap compared to the 39 points, on average, in favour of girls in reading performance.

In 35 out of the 65 countries and economies that participated in PISA 2009, boys score significantly higher in mathematics than girls. However, in 25 countries, there is no statistically significant difference, and in 5 countries, girls have slightly higher scores.

In Belgium, Chile, Switzerland, the United Kingdom, the United States and the partner countries Colombia and Liechtenstein, boys have a substantial score advantage, of between 20 and 33 points, in mathematics performance. However, even among these countries, only in Colombia is the male advantage in mathematics greater than the female advantage in reading.

In four out of the six best-performing countries and economies overall, there is little or no gender difference in mathematics performance. Among these, in the partner country and economies Chinese Taipei; Shanghai, China and Singapore, at least 10% of girls attain proficiency Level 6 in mathematics; in no OECD country, except Switzerland, do even 10% of boys reach this level. While this shows girls' potential to perform at the very highest levels in mathematics, in OECD countries, on average, 4% of boys, but only 2% of girls, reach Level 6.

At the other end of the performance spectrum, in OECD countries, an average of 21% of boys and 23% of girls do not reach the baseline proficiency Level 2 in mathematics.

Definitions

The gender gap measures the difference between the mean performance of boys and girls in mathematics. On the PISA mathematics scale, the mean score for OECD countries was originally set at 500 points, and around two-thirds of students in OECD countries score between 400 and 600 points. One proficiency level is equivalent to 62 score points.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

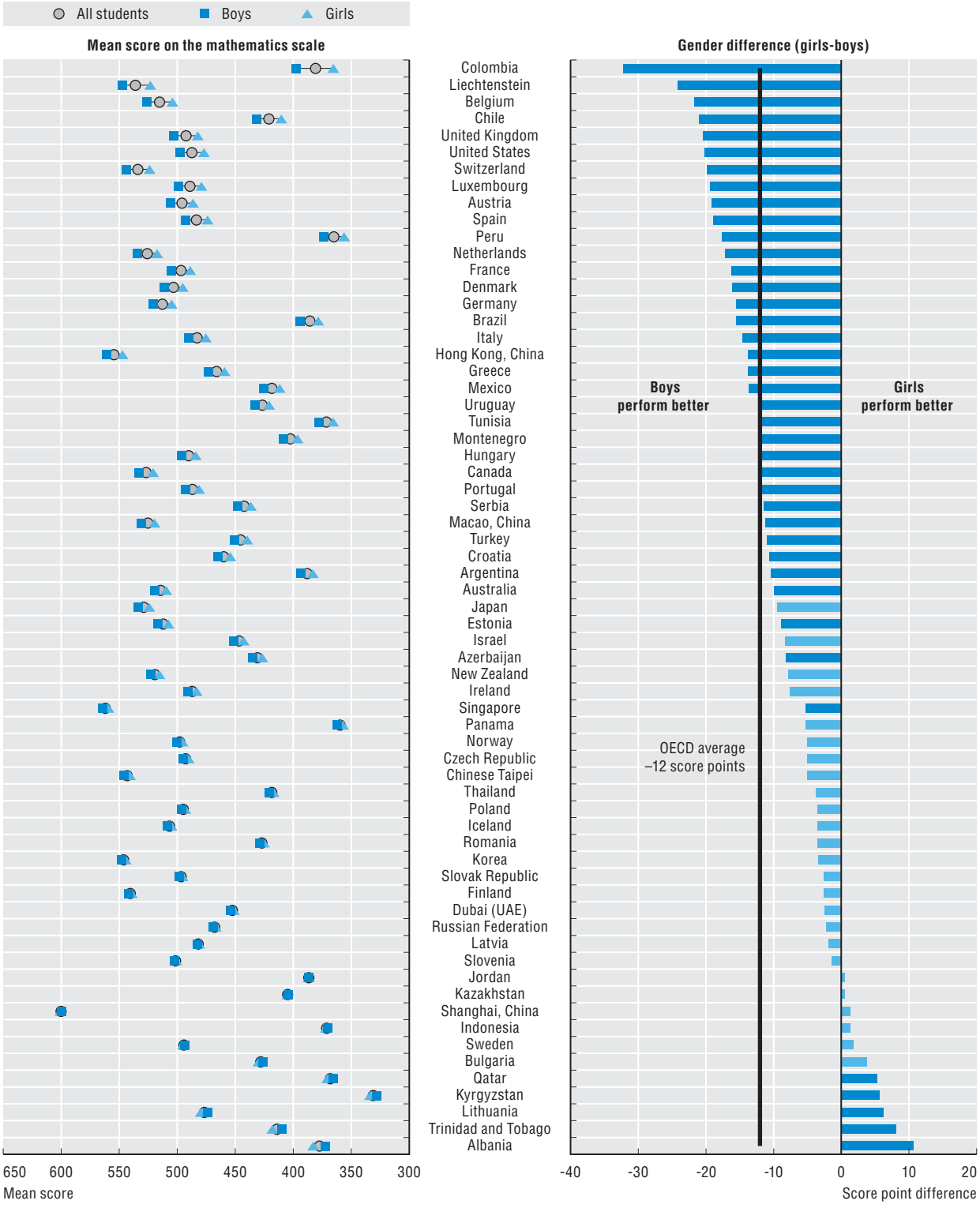
Going further

A full set of comparisons across countries, showing details of gender differences in mathematics performance, is presented in *PISA 2009 Results Volume I, What Students Know and Can Do: Student Performance in Reading, Mathematics and Science*. Full data are shown in Tables I.3.3 (mean scores) and I.3.2 (proficiency levels) at the back of that volume.

Further reading from the OECD

Mathematics performance, including gender differences in various mathematical skills, was assessed in depth in 2003, and will be again in 2012. See: *The PISA 2003 Assessment Framework* (2003) and *Learning for Tomorrow's World, First Results from PISA 2003* (2004).

Figure 1.6. **Gender differences in mathematics performance**



Note: Statistically significant gender differences are marked in a darker tone (see Annex A3). Countries are ranked in ascending order of the score point difference (girls-boys).

Source: OECD (2010), *PISA 2009 Results, Volume I, What Students Know and Can Do: Student Performance in Reading, Mathematics and Science*, Figure I.3.12, available at *http://dx.doi.org/10.1787/888932343152*.