



4

How performance in financial literacy varies within countries and across student characteristics

This chapter examines how financial literacy performance varies within countries and economies and how it is associated with the demographic and socio-economic characteristics of students and their families. In particular, the chapter looks at performance differences related to students' gender, socio-economic status, immigrant background, language spoken at home and attitudes towards learning.



The PISA financial literacy assessment provides an overall picture of 15-year-olds' ability to apply their accumulated knowledge and skills to real-life situations involving financial issues and decisions. The previous chapter discussed how average performance varies across countries and economies. This chapter looks at how performance varies within countries and economies. What is the difference in performance between higher- and lower-performing students within a country or economy? How much of the variation in performance in financial literacy is related to students' demographic and socio-economic differences? To what extent are differences in students' attitudes towards learning related to differences in financial literacy performance? This chapter analyses the variation in financial literacy performance within countries and economies related to students' gender, socio-economic status, immigrant background and attitudes towards learning.

What the data tell us

- Variation within each country/economy is wider than the variation observed between countries/economies at the mean. On average across OECD countries and economies, the gap between students scoring at the 90th percentile and those at the 10th percentile in financial literacy is 285 score points. The largest gaps are observed in Beijing-Shanghai-Jiangsu-Guangdong (China) and in the Netherlands at about 312 score points, while performance gaps are smallest in Italy and the Russian Federation.
- There is heterogeneity in gender differences in financial literacy. Only in Italy do boys perform better than girls, by 11 score points. In contrast, in Australia, Lithuania, Poland, the Slovak Republic and Spain, girls perform better than boys, and in the remaining countries and economies the difference in performance between boys and girls is not statistically significant. More boys than girls are low performers in 9 out of 15 countries and economies.
- Socio-economically advantaged students score 89 points higher than disadvantaged students, on average across OECD countries and economies, equivalent to more than one PISA proficiency level.
- In 10 countries and economies with available data, socio-economically disadvantaged students are more likely than advantaged students to be low performers, after accounting for student performance and other characteristics.
- Among countries and economies where at least 5% of students have an immigrant background, the difference in financial literacy performance related to immigrant background is larger than 15 score points in the Flemish Community of Belgium, Italy, the Netherlands and Spain, after taking into account students' socio-economic status.

VARIATIONS IN PERFORMANCE WITHIN COUNTRIES AND ECONOMIES

When looking at how performance is distributed within each country/economy, it becomes apparent that the variation observed between students from the same country/economy is, in general, much wider than the variation observed between countries/economies. This variation points to differences within countries/economies in the opportunities that students may have to acquire financial literacy.

The score-point difference across percentiles of the performance distribution provides a useful way to examine differences in the distribution of financial literacy within countries and economies. The difference in score points between the 10th percentile and the 90th percentile shows the disparity in proficiency between the lowest and the highest achievers; the difference between the median, representing the 50th percentile of students, and the 10th percentile is a measure of the achievement gap at the bottom end of the distribution; and the gap between the median and the 90th percentile, which is the score exceeded by only one in ten students, is a measure of the achievement gap at the top.

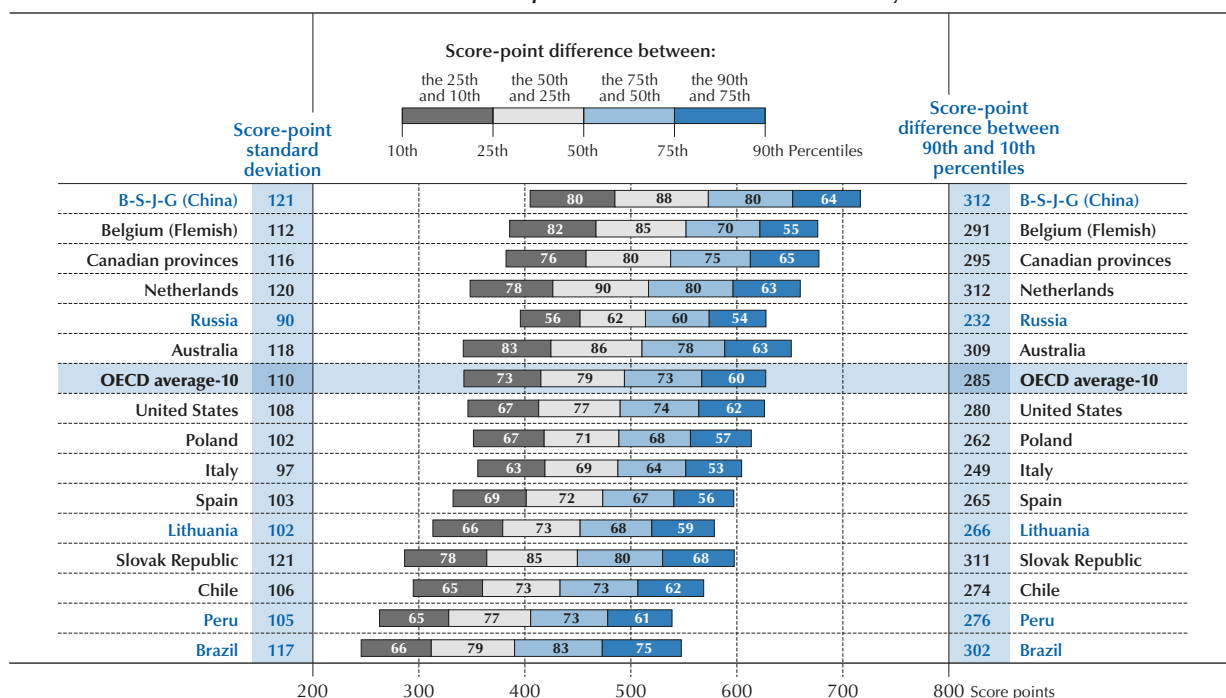
Figure IV.4.1 shows how the average scores at different percentiles vary by country and economy. As a reference, a difference of 75 score points represents one proficiency level on the PISA financial literacy scale (Box IV.3.2). For example, students performing at Level 2 are only using given information to make financial decisions in contexts that are immediately relevant to them (e.g. providing explanations regarding which option is better value for money: buying boxed or loose tomatoes) while those at Level 3 are beginning to consider the consequences of financial decisions and can make simple



financial plans in familiar contexts (e.g. comparing the financial risks of borrowing money with different interest rates and repayments). It is also useful to remember that the difference in mean performance between the highest- and the lowest-performing country/economy in PISA 2015 is equivalent to 173 score points (Table IV.3.1).

On average across the 10 participating OECD countries and economies, the within-country/-economy performance gaps between students scoring at the 90th percentile and those at the 10th percentile in financial literacy is 285 score points, which is larger than three proficiency levels (225 score points). The largest gaps are observed in Beijing-Shanghai-Jiangsu-Guangdong (China) (hereafter “B-S-J-G [China]”) and in the Netherlands at about 312 score points. By contrast, performance gaps are less than 250 score points in Italy (249 score points) and the Russian Federation (hereafter “Russia”) (232 score points), which is larger than the difference in mean performance between the highest- and the lowest-performing country/economy. Performance gaps are also reflected in the standard deviation, a measure of dispersion around the mean, which is equal to 120 score points or higher in B-S-J-G (China), the Netherlands and the Slovak Republic. By contrast, the standard deviation is less than 100 score points in Italy and Russia (Table IV.4.1).

Figure IV.4.1 ■ **Variation in financial literacy performance within countries and economies**
Standard deviation and percentiles on the financial literacy scale



Countries and economies are ranked in descending order of the median financial literacy performance.

Source: OECD, PISA 2015 Database, Table IV.4.1.

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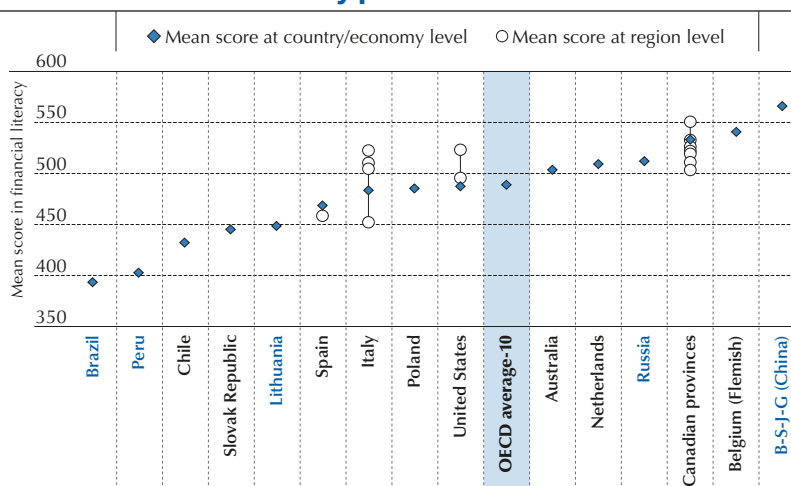
Focusing on the bottom end of the distribution, the performance gap between students scoring at the median and those at the 10th percentile in financial literacy is 151 score points, on average across the 10 OECD participating countries and economies (Table IV.4.1). The gap is larger than 150 score points, the equivalent of two proficiency levels, in Australia, the Flemish Community of Belgium, B-S-J-G (China), the participating Canadian provinces (British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario and Prince Edward Island), the Netherlands and the Slovak Republic. The gap is smallest in Russia (118 score points). At the top end of the distribution, the performance gap between students scoring at the median and those at the 90th percentile in financial literacy is 133 score points, on average across the 10 participating OECD countries and economies. The performance gap at the top is largest in Australia, Brazil, B-S-J-G (China), the Netherlands and the Slovak Republic (more than 140 score points), while it is smallest in Italy and Russia (less than 120 score points).



In 14 out of the 15 participating countries and economies, all except Brazil, there is greater variation in student performance at the bottom (the difference between the median and the 10th percentile) than at the top (the difference between the 90th percentile and the median). This suggests that in most cases, there is relatively little variation among higher achievers – either because the median score is relatively high or because the highest achievers are not being stretched to their full potential. Meanwhile, the lowest achievers score well below the median. Figure IV.4.1 also highlights large differences between the gaps at the top and bottom ends of the distribution for some countries and economies. Australia, the Flemish Community of Belgium, B-S-J-G (China) and the Netherlands, including the two highest-performing economies, have large gaps at the bottom end of the performance distribution, both in absolute terms and relative to the gaps at the top end.

Regional differences may constitute another important source of within-country/economy variation (Montanaro and Romagnoli, 2016). Canada, Italy, Spain and the United States collected enough data at the subnational level to allow for a detailed analysis of how student performance varies across different regions and geographical locations. Figure IV.4.2 shows the range of mean performance across regions compared with mean performance across countries and economies. The United States collected subnational-level data in financial literacy for two subnational entities: the performance difference between Massachusetts and North Carolina is 28 score points, with Massachusetts scoring above the national average by 36 score points (Table IV.4.4).

Figure IV.4.2 ■ Mean financial literacy performance in countries/economies and regions



Countries and economies are ranked in ascending order of mean financial literacy performance at the country/economy level.

Source: OECD, PISA 2015 Database, Tables IV.4.1 and IV.4.4.

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In Canada, only seven provinces out of ten took part in the financial literacy assessment. Across these seven provinces, only British Columbia scores above the national average (by 17 points), while New Brunswick and Manitoba score below average. The gap between the lowest-achieving (Manitoba) and the highest-achieving province (British Columbia) is 47 score points.

The dispersion across subnational entities is even wider in Italy, which oversampled students in two regions (Lombardia and Campania) and two provinces (Trento and Bolzano). Campania scores 31 points below the national average, while Lombardia, Trento and Bolzano score above average (by over 20 points). The difference between the southern region of Campania and the northern province of Bolzano is 70 score points, equivalent to almost one proficiency level.

Spain collected subnational-level data in financial literacy for only one region (Basque Country), whose mean score is not statistically different from the national average. More data and results for regions within the participating countries and economies are included in Annex B2.

Trends in variation in performance

Variations in performance within countries and economies changed to some extent in some of the eight countries and economies that participated in both assessments, including seven OECD countries and economies: Australia, the Flemish Community of Belgium, Italy, Poland, the Slovak Republic, Spain and the United States; and one partner country, Russia.

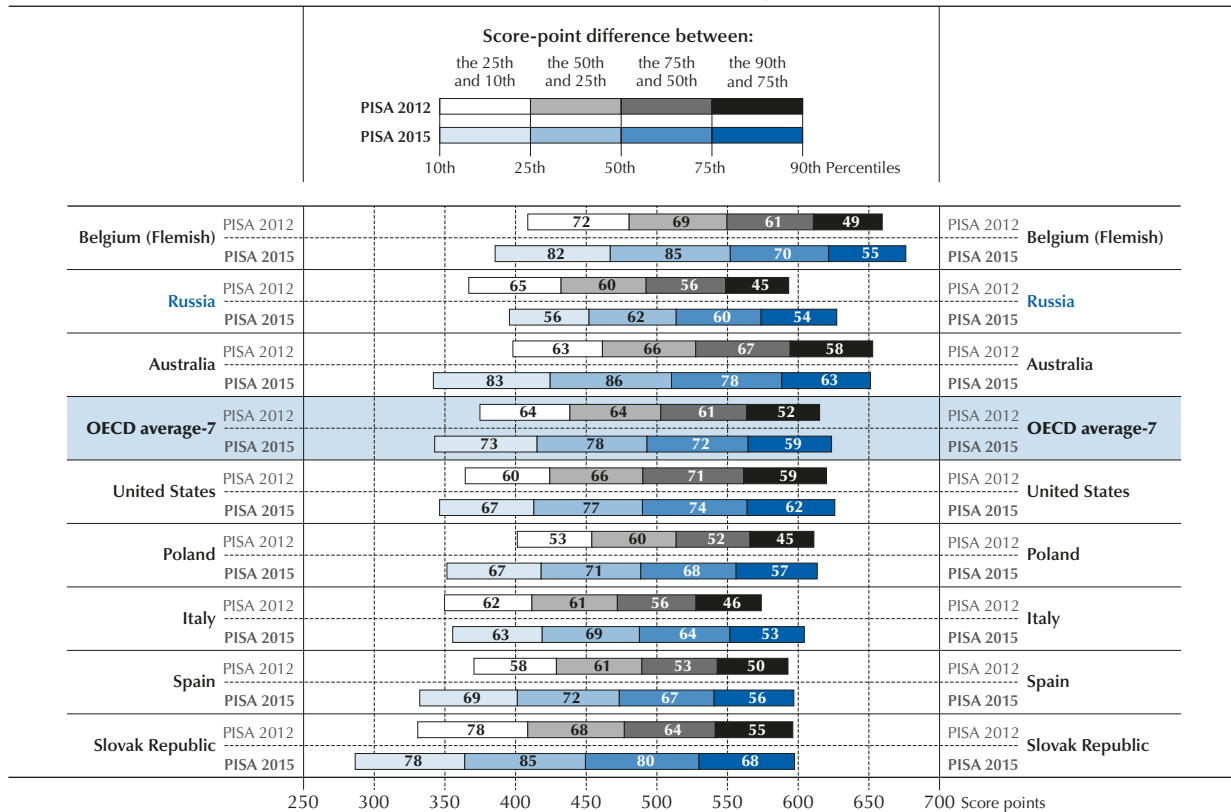


Changes in a country's/economy's average performance, described in Chapter 3, can result from changes at different levels of the performance distribution. For example, for some countries and economies, the average score may increase when high-performing students perform better. In other countries and economies, improvements in mean scores may be largely the result of improvements in performance among the lowest-achieving students, or as a result of improvements across the entire distribution.

Figure IV.4.3 shows students' scores at different percentiles across the PISA 2012 and the PISA 2015 assessments. In Russia, which improved its average performance between 2012 and 2015, the performance distribution shifted upward at all percentiles, suggesting that the average improvement is due to an improvement in performance across 15-year-old students at all levels of proficiency in financial literacy. In Italy, which also improved between 2012 and 2015, the performance distribution shifted upward in the upper part of the distribution (at the median and above), suggesting that the average improvement is due to better performance among high-performing students. By contrast, in Australia, Poland, Spain and the Slovak Republic, performance declined between 2012 and 2015 not only at the mean (Chapter 3), but also in the lower part of the distribution (at the median and below). This suggests that, in these countries, the decline in average performance is mainly related to poorer performance among low-performing students. In the Flemish Community of Belgium and the United States, the performance of 15-year-old students at different points in the distribution remained substantially unchanged between 2012 and 2015, as did average performance at the country/economy level.

Trends in the variation in performance adjusted for demographic changes (changes in the immigrant background, age and gender of the student population in each country and economy) show almost identical patterns as the unadjusted trends (Table IV.4.3). Annex A5 provides details on how these adjusted trends were calculated.

Figure IV.4.3 ■ **Change between 2012 and 2015 in the variation in financial literacy performance within countries and economies**
Percentiles on the financial literacy scale



Countries and economies are ranked in descending order of the median financial literacy performance in 2015.

Source: OECD, PISA 2015 Database, Table IV.4.2.

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GENDER DIFFERENCES IN FINANCIAL LITERACY PERFORMANCE

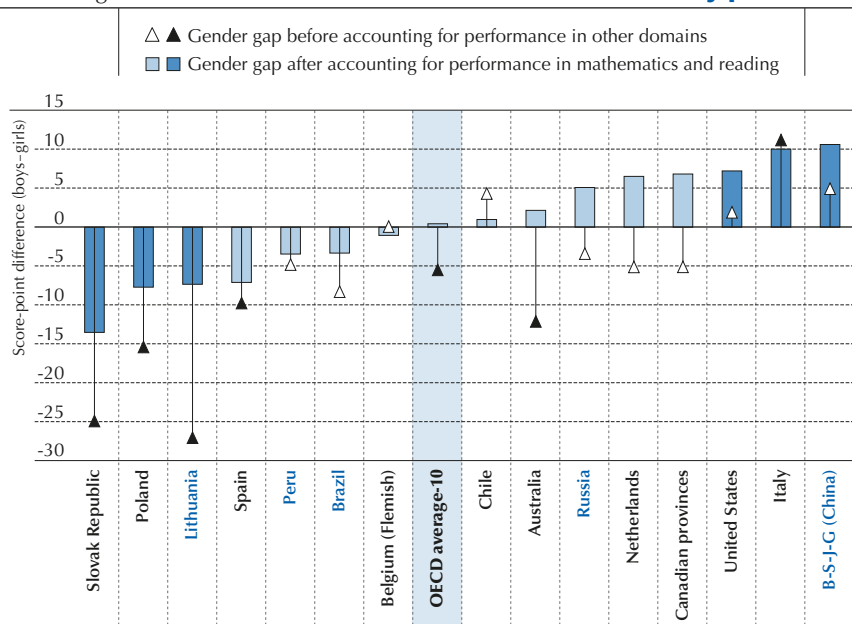
Are the gender-related differences in performance found in the core domains assessed in PISA – see *PISA 2015 Results, Volume I* (OECD, 2016a) – also observed in financial literacy performance? Are the gender differences in performance in financial literacy observed among adults also seen among 15-year-old students? Have gender differences in financial literacy changed over time?

Figure IV.4.4 shows gender differences in financial literacy among the countries and economies participating in the PISA 2015 financial literacy assessment. Only in Italy do boys perform better than girls, by 11 score points. In contrast, in Australia, Lithuania, Poland, the Slovak Republic and Spain, girls perform better than boys. In Lithuania and the Slovak Republic, the gender difference in financial literacy performance is larger than 20 score points in favour of girls. Among the countries where girls perform better than boys, in Lithuania, the Slovak Republic and Spain, average performance is below the OECD average (Table IV.4.1). In the Flemish Community of Belgium, Brazil, B-S-J-G (China), the Canadian provinces, Chile, the Netherlands, Peru, Russia and the United States, the difference in performance between boys and girls is not statistically significant.

Comparing gender differences in financial literacy performance with gender differences in performance in the core PISA subjects shows that girls perform better than boys in reading in all 15 countries and economies that participated in the financial literacy assessment, and boys perform better than girls in mathematics in 9 of those countries/economies (the Flemish Community of Belgium, Brazil, the Canadian provinces, Chile, Italy, Peru, Poland, Spain and the United States). Boys perform better than girls in science in the Flemish Community of Belgium, Brazil, B-S-J-G (China), Chile, Italy, Peru, Poland, Spain and the United States, while girls score higher in science than boys in Lithuania (Table IV.4.6).

Figure IV.4.4 also shows that there are gender differences in financial literacy even when comparing students with similar performance in mathematics and reading.¹ In B-S-J-G (China), Italy and the United States, boys perform better than girls who perform similarly in mathematics and reading. In contrast, in Lithuania, Poland and the Slovak Republic, girls perform better than boys after accounting for students' performance in mathematics and reading (but the difference is smaller than that observed before accounting for performance in the other two subjects).

Figure IV.4.4 ■ Gender differences in financial literacy performance



Note: Statistically significant differences are marked in a darker tone (see Annex A3).

Countries and economies are ranked in ascending order of the gender gap in financial literacy performance, after accounting for performance in mathematics and reading.

Source: OECD, PISA 2015 Database, Table IV.4.8.

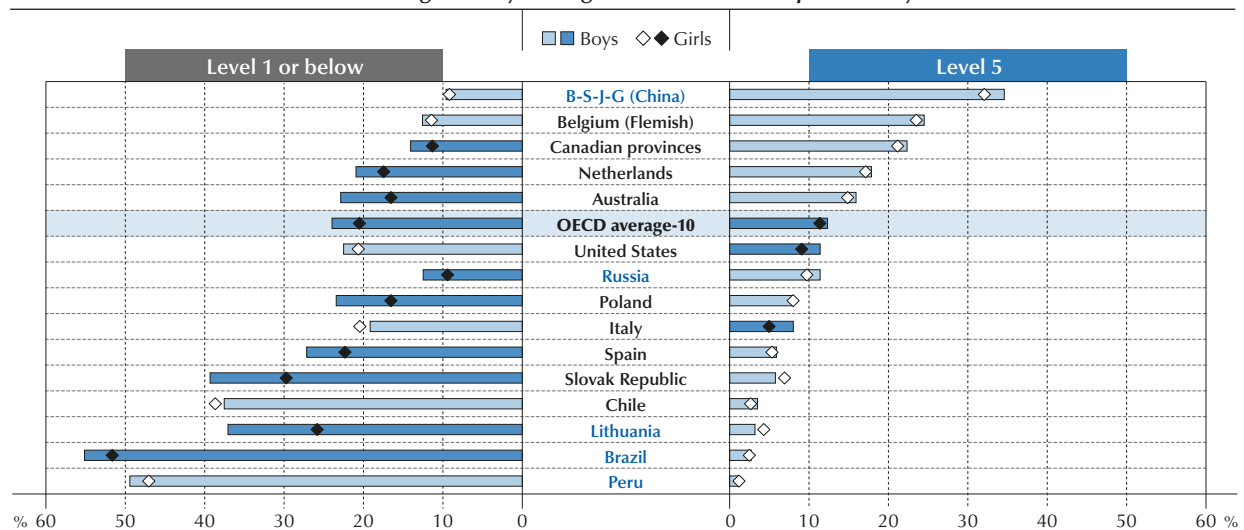
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PISA shows that in some countries and economies boys perform better than girls in financial literacy, in others girls perform better than boys, and in others there are no gender differences. Several studies consistently report gender differences in financial knowledge among adults in favour of men; in some countries, no gender differences have been found. But in no country is there evidence of women performing better than men in financial knowledge (Box IV.4.1). Gender differences in financial literacy may be related to a combination of factors, including different opportunities for learning, different contexts and different socio-economic backgrounds in which men and women grow up and live (Bottazzi and Lusardi, 2016; OECD, 2013), and to a possible variation of these factors across generations. The heterogeneity in gender differences found in PISA 2015 may suggest that boys and girls are exposed to different opportunities for learning and becoming interested in financial matters. Box IV.5.2 (in Chapter 5) explores this hypothesis further.

When looking at the performance distribution, girls and boys are not equally represented among high- and low-performing students. The distribution of financial literacy is more dispersed among boys than among girls, as indicated by a higher standard deviation of financial literacy performance for boys than for girls in 10 out of 15 countries and economies (Table IV.4.5). As shown in Figure IV.4.5, the gender difference in the distribution comes mostly from the fact that more boys than girls are low performers and to a limited extent from the fact that more boys than girls are top performers. On average across the 10 participating OECD countries and economies, there are slightly more boys than girls among students performing at Level 1 or below (24% of boys and 21% of girls) and at Level 5 (12% of boys and 11% of girls); while there are slightly more girls than boys among students performing at Level 3 (24% of boys and 26% of girls) and at Level 4 (19% of boys and 20% of girls). In Australia, Brazil, the Canadian provinces, Lithuania, the Netherlands, Poland, Russia, the Slovak Republic and Spain, more boys than girls perform at Level 1 or below. In Italy and the United States, more boys than girls perform at Level 5 (Table IV.4.7). In most countries and economies, boys also show greater variation in performance than girls in mathematics, reading and science (Table IV.4.6).

Figure IV.4.5 ■ **Proficiency in financial literacy, by gender**
Percentage of boys and girls at each level of proficiency



Note: Percentages of students performing at Level 1 or below/Level 5 are marked in a darker tone when gender differences are statistically significant (see Annex A3).

Countries and economies are ranked in descending order of the percentage of top-performing boys (performing at Level 5).

Source: OECD, PISA 2015 Database, Table IV.4.7.

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Gender differences across proficiency levels are reflected in gender differences at different points in the performance distribution (Table IV.4.5). In Italy, the higher average performance of boys compared to girls mainly reflects the better performance of boys among students scoring at the higher parts of the distribution. In the United States, too, high-performing boys perform better than high-performing girls, while there are hardly any gender differences among low performers. In Australia, Brazil, the Canadian provinces, Poland and Spain, girls perform better than boys, especially among low-performing students, while there are hardly any gender differences among high performers. In Lithuania and the Slovak Republic, where the mean difference in favour of girls is the largest, girls perform better than boys at all



(or almost all) points in the distribution, with a particularly large performance difference in favour of girls among low-performing students. Overall, these results suggest that when targeting students with poor financial literacy, it is important to keep in mind that among low-performing students, boys are likely to have a larger skills gap than girls, while girls may need targeted help to develop the skills needed to reach the highest levels of proficiency in financial literacy.

Box IV.4.1 Gender differences in financial literacy among adults

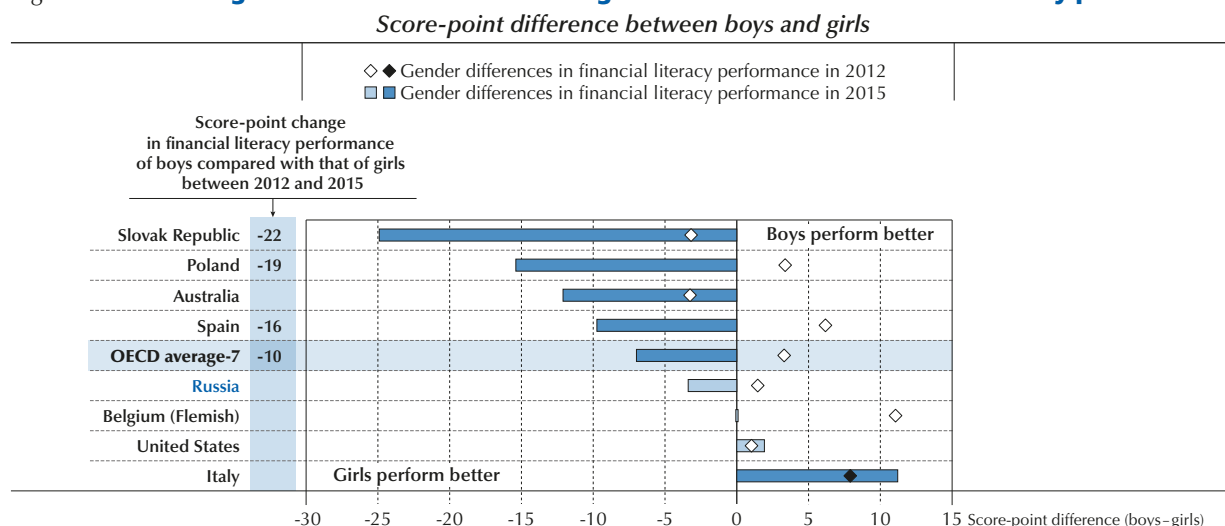
Results of the OECD/INFE International Survey of Adult Financial Literacy Competencies reveal that in 19 of the 30 participating countries and economies, men are significantly more likely than women to answer correctly 5 out of 7 financial knowledge questions about interest, inflation, diversification, risk and return, and the time value of money (OECD, 2016b). This result is consistent with a large body of literature showing that men tend to have greater financial knowledge than women (OECD, 2013).

Some of the countries and economies that participated in the OECD/INFE international survey of financial literacy among adults also participated in the PISA 2015 financial literacy assessment. The findings of the two surveys need to be interpreted carefully, as the evidence is drawn from different measurement tools. The OECD/INFE survey of adults showed that men in Brazil, Lithuania and the Netherlands have greater financial knowledge than women, and it showed no statistically significant gender differences in financial knowledge in Poland and Russia.

Trends in gender differences in financial literacy performance

Mean gender differences among 15-year-old students have remained stable in some countries and economies while they changed over time in some others, as shown in Figure IV.4.6. The PISA 2012 financial literacy assessment showed that Italy was the only country where boys performed better than girls; this result is confirmed in the 2015 assessment. In the Flemish Community of Belgium, Russia and the United States, PISA 2015 financial literacy assessment confirmed the results of the previous assessment in showing no gender differences in financial literacy, on average. In Australia, Poland, the Slovak Republic and Spain, there was no gender difference observed in the 2012 assessment, while girls performed better than boys in the 2015 assessment. In Poland, this change is related to a greater deterioration of performance among boys than among girls between 2012 and 2015; in the Slovak Republic and Spain, this change is due to a deterioration of performance only among boys but not among girls between 2012 and 2015 (Table IV.4.9). In most countries and economies with comparable data in PISA 2012 and PISA 2015, the proportion of low- and top-performing boys changed in a similar way as the proportion of low- and top-performing girls (Table IV.4.10).

Figure IV.4.6 ■ Change between 2012 and 2015 in gender differences in financial literacy performance



Note: Gender differences that are statistically significant are marked in a darker tone. Statistically significant changes in the score-point difference between boys and girls in financial literacy performance between 2012 and 2015 are shown next to the country/economy name (see Annex A3).

Countries and economies are ranked in ascending order of the score-point difference between boys and girls in 2015.

Source: OECD, PISA 2015 Database, Table IV.4.9.

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THE RELATIONSHIP BETWEEN STUDENTS' SOCIO-ECONOMIC STATUS AND FINANCIAL LITERACY PERFORMANCE

Research has shown that several aspects of students' family and home background can predict their financial literacy competencies and skills. Financial literacy among young people is associated with demographic and socio-economic factors, including parents' educational attainment and household income (Lusardi, Mitchell and Curto, 2010; Mottola, 2014; Riitsalu and Poder, 2016).

To what extent is students' performance in financial literacy related to their socio-economic status? Is the relationship between financial literacy and students' socio-economic status different from the relationship between socio-economic status and performance in the PISA core domains of mathematics and reading? The association between performance and socio-economic status provides an indication of the extent to which countries and economies are providing equitable learning opportunities, and of the level of equity in society, as a whole.

Socio-economic status is a broad concept that summarises many different aspects of a student, school or school system. In PISA, a student's socio-economic status is estimated by the PISA index of economic, social and cultural status (ESCS), which is derived from several variables related to students' family background: parents' education, parents' occupations, a number of home possessions that can be taken as proxies for material wealth, and the number of books and other educational resources available in the home. The PISA index of economic, social and cultural status is a composite score derived from these indicators via Principal Component Analysis (PCA). It is constructed to be internationally comparable. For the first time, in PISA 2015, the PCA was run across equally weighted countries, including OECD and partner countries/economies. Thus, all countries and economies contribute equally to ESCS scores. However, for the purpose of reporting, the values of the ESCS scale are standardised to have a mean of zero and a standard deviation of one for the population of students in OECD countries, with each country given equal weight.

Figure IV.4.7 ■ **Comparing countries' and economies' performance in financial literacy and socio-economic status**

	Mean performance in financial literacy	Performance difference related to socio-economic status	Strength of the relationship between financial literacy performance and socio-economic status	Performance difference across socio-economic groups
	Mean score	Score-point difference in financial literacy associated with a one-unit increase in the PISA index of economic, social and cultural status	Percentage of variance in financial literacy performance explained by socio-economic status	Score-point difference in financial literacy performance between socio-economically advantaged and disadvantaged students
OECD average-10	489	38	9.9	89
B-S-J-G (China)	566	45	16.8	132
Belgium (Flemish)	541	50	16.0	110
Canadian provinces	533	38	6.9	77
Russia	512	22	3.4	46
Netherlands	509	51	10.5	104
Australia	504	51	12.0	107
United States	487	36	11.1	97
Poland	485	34	7.8	73
Italy	483	24	5.5	60
Spain	469	26	9.1	79
Lithuania	449	31	6.7	71
Slovak Republic	445	32	6.5	80
Chile	432	35	13.3	103
Peru	403	36	17.2	117
Brazil	393	26	6.5	78

Note: Countries/economies with greater equity than the OECD average are countries/economies where the strength of the relationship between financial literacy performance and socio-economic status is below the OECD average, or where performance differences across the socio-economic spectrum are below the OECD average. Countries/economies with less equity than the OECD average are countries/economies where the strength of the relationship between financial literacy performance and socio-economic status is above the OECD average, or where performance differences across the socio-economic spectrum are above the OECD average.

Countries and economies are ranked in descending order of the mean performance in financial literacy.

Source: OECD, PISA 2015 Database, Tables IV.4.1, IV.4.11 and IV.4.12.

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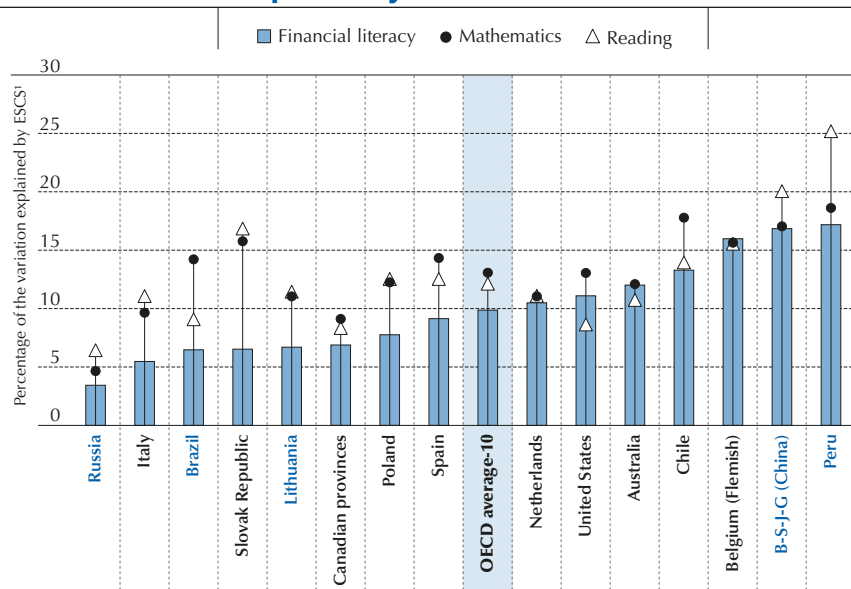
The ESCS index makes it possible to draw comparisons between students with different socio-economic profiles. In this report, students are considered socio-economically advantaged if they are among the 25% of students with the highest values on the ESCS index in their country or economy; students are classified as socio-economically disadvantaged if their values on the ESCS index are among the bottom 25% within their country or economy.

Figure IV.4.7 shows the relationship between financial literacy and socio-economic status. On average across the 10 participating OECD countries and economies, 10% of the variation in student performance in financial literacy within each country and economy is associated with socio-economic status. The Canadian provinces and Russia combine above-average performance and below-average strength of the association between performance and socio-economic status. In Brazil, Italy, Lithuania and the Slovak Republic, the percentage of variation in financial literacy performance explained by socio-economic status is also below the OECD average. In contrast, in Australia, the Flemish Community of Belgium, B-S-J-G (China), Chile and Peru, the relationship between student performance and socio-economic status is stronger than average. The strength of the relationship between financial literacy performance and socio-economic status is greatest in Peru, where 17% of the variation in financial literacy performance is explained by socio-economic status.

Another way of exploring the relationship between financial literacy and socio-economic status is to consider the performance difference between relatively advantaged students (those in the top quarter of the PISA index of economic, social and cultural status) and more disadvantaged students (those in the bottom quarter of that index). Figure IV.4.7 shows that this difference amounts to 89 score points, on average across OECD countries and economies, equivalent to more than one PISA proficiency level. The difference between advantaged and disadvantaged students is below the OECD average in Italy, Lithuania, Poland and Russia, and above the OECD average in Australia, the Flemish Community of Belgium, B-S-J-G (China), Chile and Peru.

On average across OECD countries and economies, financial literacy performance improves by 38 score points with a one-unit increase in the ESCS index. As Figure IV.4.7 shows, performance differences across socio-economic groups are smaller than the OECD average (the slope of the socio-economic gradient is relatively flat) in Brazil, Italy, Lithuania, Russia and Spain. In contrast, performance differences across socio-economic groups are larger than the OECD average (the slope of the socio-economic gradient is relatively steep) in Australia, the Flemish Community of Belgium and the Netherlands. The slope is flattest in Russia, at 22 score points.²

Figure IV.4.8 ■ Percentage of the variation in performance explained by socio-economic status



1. ESCS refers to the PISA index of economic, social and cultural status.

Countries and economies are ranked in ascending order of the percentage of the variation in students' performance in financial literacy explained by socio-economic status.

Source: OECD, PISA 2015 Database, Table IV.4.13.

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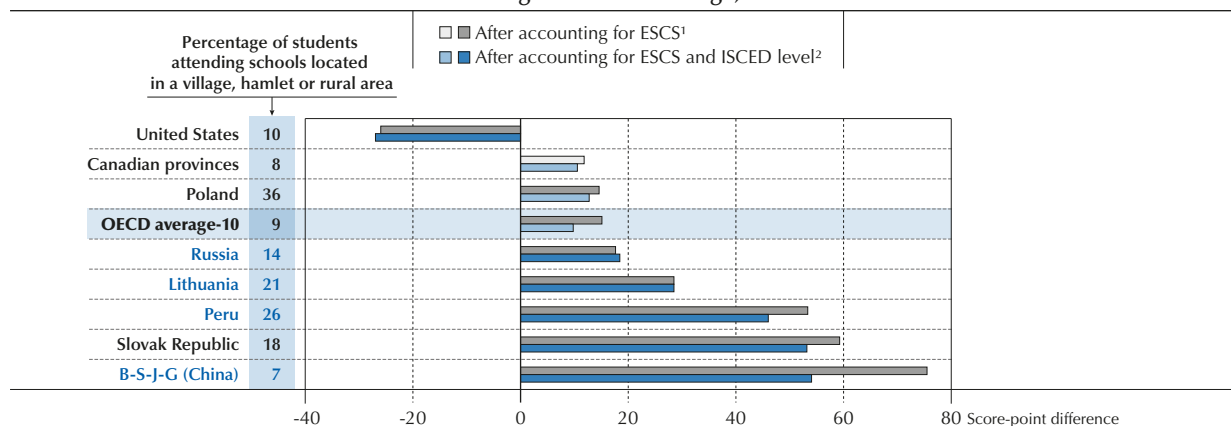
Is socio-economic status more strongly related to financial literacy than it is related to performance in mathematics and reading? Figure IV.4.8 shows that, on average across the 10 participating OECD countries and economies, socio-economic status explains variations in financial literacy performance to a lesser extent (10%) than it explains variations in mathematics (13%) and reading (12%). This is also the case across many countries and economies. The association between socio-economic status and financial literacy is significantly weaker than the association between socio-economic status and mathematics performance in eight countries and economies; in nine countries/economies, the association between socio-economic status and financial literacy is weaker than the association between socio-economic status and reading performance. Only in Australia and the United States does socio-economic status explain a larger percentage of the variation in financial literacy than that of the variation in reading performance (Table IV.4.13).

Differences in financial literacy performance associated with school location

Socio-economic status and opportunities to acquire financial skills are also related to the location of schools, which gives an approximate indication of where students live. Differences in the size and population density of communities may result in different opportunities for learning, since both school systems and opportunities for learning outside school can vary by location. Larger communities might provide students with a wider range of opportunities to be exposed to all kinds of financial products and services than smaller communities. This would give students in large communities more chances to engage directly in basic financial decisions and to shop around for products, e.g. to choose a savings account or a mobile phone plan. More familiarity with ordinary financial life and experience with a more complex financial environment can help students develop better knowledge and skills in financial literacy either directly or by boosting their motivation to learn. However, much of the difference in learning opportunities related to the size of a community may be expected to decrease progressively in a digital age (OECD, 2017a).

Figure IV.4.9 shows that, after accounting for socio-economic status, attending schools in cities (more than 100 000 people) is associated with higher scores in financial literacy than attending schools in rural areas (fewer than 3 000 people). On average across the 10 participating OECD countries and economies, even after accounting for differences in socio-economic status, students in city schools outperform students in rural schools by 15 score points. Among countries and economies where at least 5% of students attend schools in rural areas, in B-S-J-G (China), Lithuania, Peru, Poland, Russia and the Slovak Republic, students who attend schools in cities perform better in financial literacy than students of similar socio-economic status who attend schools in rural areas. This gap is largest in B-S-J-G (China), Peru and the Slovak Republic, at over 50 score points. By contrast, students in the United States who attend schools in rural areas perform better in financial literacy than students of similar socio-economic status who attend schools in cities.

Figure IV.4.9 ■ **Differences in financial literacy performance, by school location**
Score-point difference between students attending schools located in a city
and students attending schools in a village, hamlet or rural area



1. ESCS refers to the PISA index of economic, social and cultural status.

2. Accounting for whether students attend lower secondary school (ISCED level 2) or upper secondary school (ISCED level 3).

Notes: Only countries where the percentage of students attending schools located in a village, hamlet or rural area is higher than 5% are shown.

Statistically significant differences are shown in a darker tone (see Annex A3).

Countries and economies are ranked in ascending order of the difference between students attending schools located in a city and students attending schools in a village, hamlet or rural area, after accounting for socio-economic status.

Source: OECD, PISA 2015 Database, Tables IV.4.14 and IV.4.15.

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Figure IV.4.9 also shows the difference in financial literacy performance associated with school location after taking into account students' level of education. In some countries, upper secondary schools may be more likely to be located in cities than in small towns and villages. Looking at countries and economies with a relatively large proportion of students attending schools in rural areas, in B-S-J-G (China), Lithuania, Peru, Russia and the Slovak Republic, students who attend schools in cities perform better in financial literacy than students of similar socio-economic status and at the same level of education who attend schools in rural areas. After accounting for the education level, the performance gap narrows in B-S-J-G (China), Peru and the Slovak Republic.

To what extent does attending schools in larger communities offer students more opportunities to improve their financial literacy beyond the opportunity to improve their skills in mathematics and reading? Only in B-S-J-G (China) do students who attend schools in cities perform better in financial literacy than students who attend schools in rural areas and who have similar proficiency in mathematics and reading (Table IV.4.16).

DIFFERENCES IN FINANCIAL LITERACY PERFORMANCE ASSOCIATED WITH AN IMMIGRANT BACKGROUND

How well do students with an immigrant background perform in financial literacy? To what extent are performance gaps in financial literacy between immigrant and non-immigrant students related to other factors, such as socio-economic status, language spoken at home, and performance in mathematics and reading? How do immigrant students who do not speak the language of assessment at home perform in financial literacy?

PISA classifies students into several categories according to their immigrant background and that of their parents. Non-immigrant students are students whose mother or father (or both) was/were born in the country or economy where they sat the PISA test, regardless of whether the student himself or herself was born in that country or economy. In this chapter, these students are also referred to as "students without an immigrant background". Immigrant students are students whose mother and father were both born in a country/economy other than that where the student sat the PISA test. In this chapter, they are also referred to as "students with an immigrant background". Among immigrant students, a distinction is made between those born in the country/economy of assessment and those born abroad. First-generation immigrant students are foreign-born students whose parents are also both foreign-born. Second-generation immigrant students are students born in the country/economy where they sat the PISA test but whose parents are both foreign-born.

Being financially literate can help immigrants integrate more easily into their new country of residence. With this skill, immigrants are more likely to be aware of and use formal financial products and services, including remittances, and participate fully in their communities. Financially literate immigrant students might also help their families integrate and navigate the financial landscape (OECD/INFE, 2015).

About 13% of students across the OECD countries and economies that participated in the 2015 financial literacy assessment are foreign-born or have foreign-born parents. In Australia, the Canadian provinces and the United States, more than one in five students who participated in the assessment have an immigrant background, while in Brazil, B-S-J-G (China), Chile, Lithuania, Peru, Poland and the Slovak Republic, fewer than one in 20 students has an immigrant background (Table IV.4.17).

Figure IV.4.10 shows that, on average across OECD countries and economies, students without an immigrant background perform better in financial literacy, by 26 score points, than immigrant students of similar socio-economic status. Among countries and economies where at least 5% of students have an immigrant background, the difference in financial literacy performance related to immigrant background is larger than 15 score points in the Flemish Community of Belgium, Italy, the Netherlands and Spain, after taking into account students' socio-economic status.

On average across OECD countries and economies, the difference in financial literacy performance related to immigrant background is similar to the difference in mathematics and reading performance related to immigrant background (Table IV.4.19). In 9 countries/economies, the gap in financial literacy performance related to immigrant background is similar to the gap in mathematics performance related to immigrant background; in 9 countries/economies, the gap related to immigrant background is similar to that in reading performance.

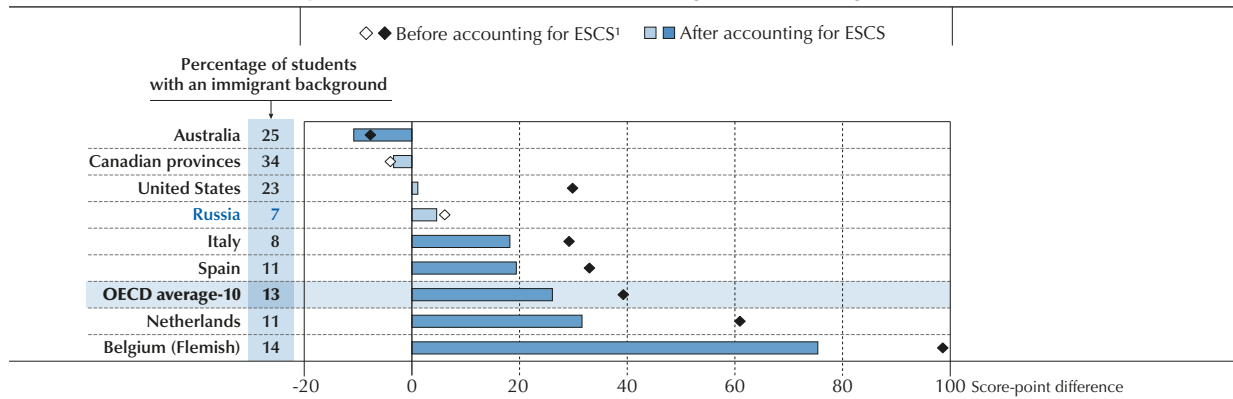
Immigrant students' ability to acquire financial literacy competencies may also depend on their skills in the core domains of mathematics and reading. On average across OECD countries and economies, after taking into account students' skills in mathematics and reading, the difference in financial literacy performance related to students' immigrant background is equivalent to seven score points (Table IV.4.20). Among countries and economies with relatively large immigrant student populations, non-immigrant students perform better in financial literacy than immigrant students, after taking



into account performance in mathematics and reading, only in the Flemish Community of Belgium (with a difference of 27 score points) and in the Canadian provinces (a difference of 11 score points).

Students who speak a different language at home from the one in which they were assessed are likely to face more difficulties in interacting with the financial landscape – including making sense of financial documents, such as bank statements or contracts written in the language of the host country – than those who speak the same language at school and at home. On average across participating OECD countries and economies, about 12% of students speak a language at home that is different from the language they use at school. Among immigrant students, about 47% speak a language at home that is different from the language of assessment, on average across OECD countries and economies (Table IV.4.21).

Figure IV.4.10 ■ **Differences in financial literacy performance, by immigrant background**
Score-point difference between non-immigrant and immigrant students



1. ESCS refers to the PISA index of economic, social and cultural status.

Note: Only countries where the percentage of immigrant students is higher than 5% are shown.

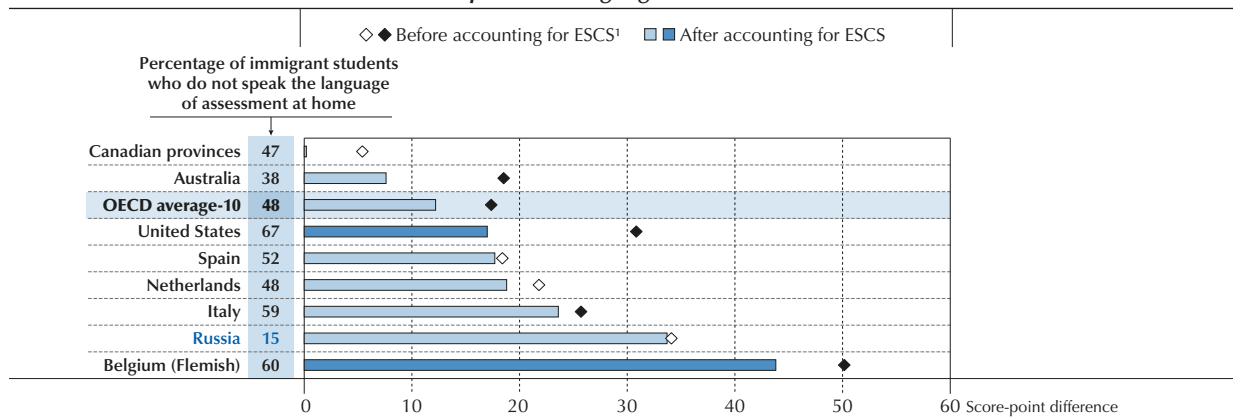
Statistically significant differences are marked in a darker tone (see Annex A3).

Countries and economies are ranked in ascending order of the difference in financial literacy performance between non-immigrant and immigrant students, after accounting for socio-economic status.

Source: OECD, PISA 2015 Database, Tables IV.4.17 and IV.4.18.

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Figure IV.4.11 ■ **Differences in financial literacy performance, by language spoken at home**
Score-point difference between immigrant students who speak and those who do not speak the language of assessment at home



1. ESCS refers to the PISA index of economic, social and cultural status.

Note: Only countries where the percentage of immigrant students is higher than 5% are shown.

Statistically significant differences are marked in a darker tone (see Annex A3).

Countries and economies are ranked in ascending order of the difference in financial literacy performance between immigrant students who speak and those who do not speak the language of assessment at home, after accounting for socio-economic status.

Source: OECD, PISA 2015 Database, Tables IV.4.17, IV.4.21 and IV.4.22.

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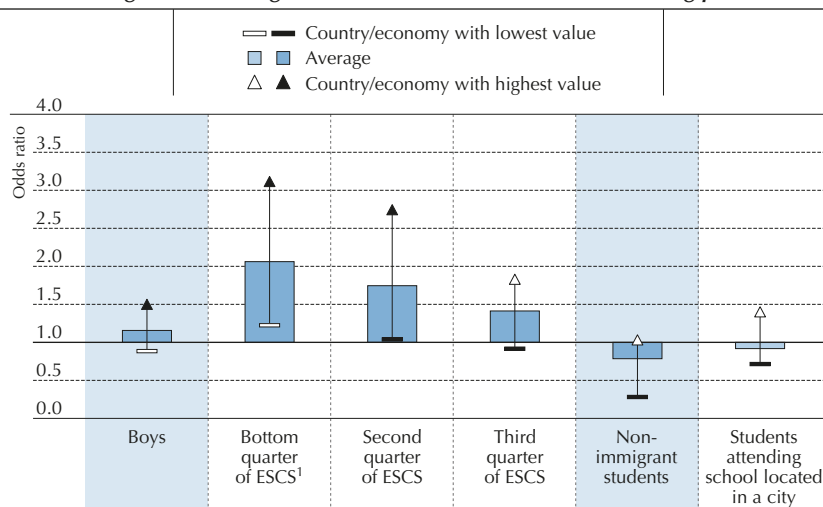
As shown in Figure IV.4.11, after accounting for their socio-economic status, immigrant students in the Flemish Community of Belgium and the United States who do not speak the assessment language at home score lower in financial literacy than immigrant students who speak the assessment language at home – by 44 points in the Flemish Community of Belgium and by 17 points in the United States.

Box IV.4.2 Socio-demographic characteristics of low performers in financial literacy

On average across OECD countries and economies, as many as 22% of students are considered low performers, as they perform below Level 2 on the PISA scale. Who are the low-performing students in financial literacy?

Figure IV.4.12 shows how students' demographic and socio-economic characteristics are related to the probability of performing at or below Level 1, after taking into account student performance in mathematics and reading. On average across OECD countries and economies, boys are 16% more likely than girls to perform at or below Level 1 in financial literacy. Socio-economically disadvantaged students are about twice as likely as advantaged students to be low performers, on average across OECD countries and economies. In 10 countries and economies with available data, disadvantaged students are more likely than advantaged students to be low performers (Table IV.4.25a). After taking into account socio-economic status and performance in core PISA subjects, in most countries and economies with available data, immigrant students and students who go to school in rural areas are about as likely as non-immigrants and students attending school in cities to be low performers.

Figure IV.4.12 ■ Likelihood of low performance in financial literacy, by student characteristics
OECD average, after taking into account mathematics and reading performance



1. ESCS refers to the PISA index of economic, social and cultural status.

Note: Odds ratios that are statistically significant are marked in a darker tone (see Annex A3).

Source: OECD, PISA 2015 Database, Table IV.4.25a.

StatLink <http://dx.doi.org/10.1787/888933485262>

DIFFERENCES IN FINANCIAL LITERACY PERFORMANCE ASSOCIATED WITH STUDENTS' ATTITUDES TOWARDS LEARNING

Do attitudes towards learning influence students' ability to apply their knowledge and skills to real-life situations? As discussed in Chapter 2, the PISA definition of financial literacy identifies motivation and the confidence to apply knowledge and understanding as key elements of effective financial decision making. In general, non-cognitive personality traits, in addition to cognitive skills, are strong predictors of economic and social outcomes (Borghans et al., 2008).

The PISA 2012 financial literacy assessment showed that students' financial literacy is associated with their perseverance and openness to problem solving (OECD, 2014). Perseverance may be important to students when confronted with certain financial situations, such as saving for long-term goals or shopping around for better financial conditions. Likewise,

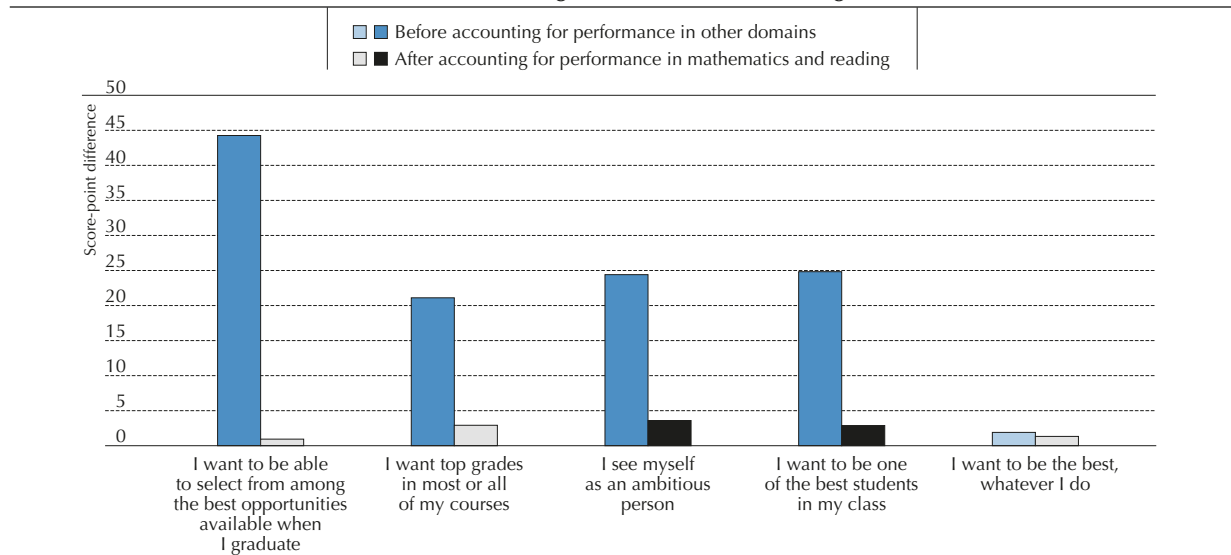


students’ openness to solve complex problems may influence their use of knowledge in making financial decisions as they grow up, when they are likely to face relatively complex financial problems, such as deciding when they can afford to leave home, or choosing a mortgage or a pension plan.

The PISA 2015 student questionnaire measures students’ motivation to achieve by asking them if they want to attain top grades, if they want to be able to select from the best opportunities after their graduation, and if they see themselves as ambitious (see also *PISA 2015 Results, Volume III: Students’ Well-Being* [OECD, 2017b]). Motivation and ambition may be useful for encouraging students to learn (Mandell and Schmid Klein, 2007) and to help them apply what they know to financial situations that require a certain determination, like saving for a particular purchase or for the long term, shopping around for financial products, asking for advice or applying their rights as financial consumers. In interpreting the following results, however, it is important to keep in mind that PISA 2015 measures achievement motivation in the school context, rather than as a more general measure of determination.

Figure IV.4.13 shows that, on average across OECD countries and economies, students who want to be able to select from among the best opportunities available when they graduate, who want to have top grades in their courses, who see themselves as ambitious, and who want to be among the best students in their class also tend to score higher in financial literacy than less-motivated students. The relationship between motivation and financial literacy becomes weaker once performance in mathematics and reading is accounted for, and is similar to that between motivation and performance in mathematics and reading (Table IV.4.24). Nevertheless, students in Australia, Peru and the Slovak Republic who want to be among the best students in their class perform slightly better in financial literacy than students who do not have such a high level of motivation, even after taking into account their performance in mathematics and reading (Table IV.4.23).

Figure IV.4.13 ■ **Differences in financial literacy performance, by students’ motivation**
Score-point difference between students who agree and those who disagree with the following statements (OECD average)



Note: Statistically significant differences are marked in a darker tone (see Annex A3).

Source: OECD, PISA 2015 Database, Table IV.4.23.

StatLink <http://dx.doi.org/10.1787/888933485273>

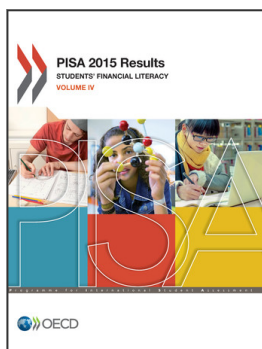


Notes

1. The relationship between financial literacy and science performance is not discussed in the text and figures because science competencies are not strictly necessary to be proficient in financial literacy and there are no links across the two assessment frameworks. The relationship between performance in financial literacy and performance in science, in addition to mathematics and reading, is nevertheless presented in the tables.
2. In some OECD partner countries and economies where the number of students who no longer attend school by the time they are 15 is large, the results presented in Figure IV.4.7 cannot necessarily be interpreted as providing evidence of an equitable distribution of education opportunities and outcomes. Volume I discusses PISA performance and inclusion in education (OECD, 2016a).

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