PISA 2018 Results

ARE STUDENTS SMART ABOUT MONEY?

VOLUME IV

Programme for International Student Assessment

OECD

PISA 2018 Results (Volume IV)

ARE STUDENTS SMART ABOUT MONEY?

BETTER POLICIES FOR BETTER LIVES

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Preface

Among its many findings, our PISA 2018 assessment shows that 15-year-old students in the four provinces of China that participated in the study – Beijing, Shanghai, Jiangsu and Zhejiang – outperformed by a large margin their peers from all of the other 78 participating education systems, in mathematics and science. Moreover, the 10% most disadvantaged students in these four provinces also showed better reading skills than those of the average student in OECD countries, as well as skills similar to the 10% most advantaged students in some of these countries. True, these four provinces in eastern China are far from representing China as a whole, but the size of each of them compares to that of a typical OECD country, and their combined populations amount to over 180 million. What makes their achievement even more remarkable is that the level of income of these four Chinese regions is well below the OECD average. The quality of their schools today will feed into the strength of their economies tomorrow.

In this context, and given the fact that expenditure per primary and secondary student rose by more than 15% across OECD countries over the past decade, it is disappointing that most OECD countries saw virtually no improvement in the performance of their students since PISA was first conducted in 2000. In fact, only seven of the 79 education systems analysed saw significant improvements in the reading, mathematics and science performance of their students throughout their participation in PISA, and only one of these, Portugal, is a member of the OECD.

During the same period, the demands placed on the reading skills of 15-year-olds have fundamentally changed. The smartphone has transformed the ways in which people read and exchange information; and digitalisation has resulted in the emergence of new forms of text, ranging from the concise, to the lengthy and unwieldy. In the past, students could find clear and singular answers to their questions in carefully curated and government-approved textbooks, and they could trust those answers to be true. Today, they will find hundreds of thousands of answers to their questions on line, and it is up to them to figure out what is true and what is false, what is right and what is wrong. Reading is no longer mainly about extracting information; it is about constructing knowledge, thinking critically and making well-founded judgements. Against this backdrop, the findings from this latest PISA round show that fewer than 1 in 10 students in OECD countries was able to distinguish between fact and opinion, based on implicit cues pertaining to the content or source of the information. In fact, only in the four provinces of China, as well as in Canada, Estonia, Finland, Singapore and the United States, did more than one in seven students demonstrate this level of reading proficiency.

There is another side to this. The kinds of things that are easy to teach are nowadays also easy to digitise and automate. In the age of artificial intelligence (AI) we need to think harder about how to develop first-class humans, and how we can pair the AI of computers with the cognitive, social and emotional skills, and values of people. AI will amplify good ideas and good practice in the same way as it amplifies bad ideas and bad practice – it is ethically neutral. However, AI is always in the hands of people who are not neutral. That is why education in the future is not just about teaching people, but also about helping them develop a reliable compass to navigate an increasingly complex, ambiguous and volatile world. Whether AI will destroy or create more jobs will very much depend on whether our imagination, our awareness, and our sense of responsibility will help us harness technology to shape the world for the better. These are issues that the OECD is currently exploring with our Education 2030 project.

PISA is also broadening the range of outcomes that it measures, including global competency in 2018, creative thinking in 2021, and learning in the digital world in 2024. The 2018 assessment asked students to express how they relate to others, what they think of their lives and their future, and whether they believe they have the capacity to grow and improve.

Measuring the well-being of 15-year-old students, the target PISA population, is particularly important, as students at this age are in a key transition phase of physical and emotional development. When it comes to those social and emotional outcomes, the top-performing Chinese provinces are among the education systems with most room for improvement.

Even across OECD countries, just about two in three students reported that they are satisfied with their lives, and that percentage shrank by five percentage points between 2015 and 2018. Some 6% of students reported always feeling sad. In almost every education system, girls expressed greater fear of failure than boys, even when they outperformed boys in reading by a large margin. Almost a quarter of students reported being bullied at least a few times a month. Perhaps most disturbingly, in one-third of countries and economies that participated in PISA 2018, including OECD countries such as Greece, Mexico and Poland, more than one in two students said that intelligence was something about them that they couldn't change very much. Those students are unlikely to make the investments in themselves that are necessary to succeed in school and in life. Importantly, having a

growth mindset seems consistently associated with students' motivation to master tasks, general self-efficacy, setting learning goals and perceiving the value of school, and negatively associated with their fear of failure. Even if the well-being indicators examined by PISA do not refer specifically to the school context, students who sat the 2018 PISA test cited three main aspects of their lives that influence how they feel: life at school, their relationships with their parents, and how satisfied they are with the way they look.

It may be tempting to conclude that performing better in school will necessarily increase anxiety about schoolwork and undermine students' well-being. But countries such as Belgium, Estonia, Finland and Germany show that high performance and a strong sense of well-being can be achieved simultaneously; they set important examples for others.

Other countries show that equity and excellence can also be jointly achieved. In Australia, Canada, Denmark, Estonia, Finland, Hong Kong (China), Japan, Korea, Macao (China), Norway and the United Kingdom, for example, average performance was higher than the OECD average while the relationship between socio-economic status and reading performance was weaker than the OECD average. Moreover, one in ten disadvantaged students was able to score in the top quarter of reading performance in their country/economy, indicating that poverty is not destiny. The data also show that the world is no longer divided between rich and well-educated nations and poor and badly educated ones. The level of economic development explains just 28% of the variation in learning outcomes across countries if a linear relationship is assumed between the two.

However, it remains necessary for many countries to promote equity with much greater urgency. While students from well-off families will often find a path to success in life, those from disadvantaged families have generally only one single chance in life, and that is a great teacher and a good school. If they miss that boat, subsequent education opportunities will tend to reinforce, rather than mitigate, initial differences in learning outcomes. Against this background, it is disappointing that in many countries a student's or school's post code remains the strongest predictor of their achievement. In Argentina, Bulgaria, the Czech Republic, Hungary, Peru, the Slovak Republic and the United Arab Emirates, a typical disadvantaged student has less than a one-in-eight chance of attending the same school as high achievers.

Furthermore, in over half of the PISA-participating countries and economies, principals of disadvantaged schools were significantly more likely than those of advantaged schools to report that their school's capacity to provide instruction is hindered by a lack or inadequacy of educational material; and in 31 countries and economies, principals of disadvantaged schools were more likely than those of advantaged ones to report that a lack of teaching staff hinders instruction. In these systems, students face a double disadvantage: one that comes from their home background and another that is created by the school system. There can be numerous reasons why some students perform better than others, but those performance differences should never be related to the social background of students and schools.

Clearly, all countries have excellent students, but too few countries have enabled all of their students to excel and fulfill their potential to do so. Achieving greater equity in education is not only a social justice imperative, it is also a way to use resources more effectively, increase the supply of skills that fuel economic growth, and promote social cohesion. For those with the right knowledge and skills, digitalisation and globalisation have been liberating and exciting; for those who are insufficiently prepared, these trends can mean vulnerable and insecure work, and a life with few prospects. Our economies are linked together by global chains of information and goods, but they are also increasingly concentrated in hubs where comparative advantage can be built and renewed. This makes the distribution of knowledge and wealth crucial, and it can only be possible through the distribution of education opportunities.

Equipping citizens with the knowledge and skills necessary to achieve their full potential, to contribute to an increasingly interconnected world, and to convert better skills into better lives needs to become a more central preoccupation of policy makers around the world. Fairness, integrity and inclusiveness in public policy thus all hinge on the skills of citizens. In working to achieve these goals, more and more countries are looking beyond their own borders for evidence of the most successful and efficient education policies and practices.

PISA is not only the world's most comprehensive and reliable indicator of students' capabilities, it is also a powerful tool that countries and economies can use to fine-tune their education policies. That is why the OECD produces this triennial report on the state of education around the globe: to share evidence of the best policies and practices, and to offer our timely and targeted support to help countries provide the best education possible for all of their students.

Angel Gurría
OECD Secretary-General

Foreword

Up to the end of the 1990s, OECD comparisons of education outcomes were mainly based on measures of years of schooling, which is not a reliable indicator of what people actually know and can do. With the Programme for International Student Assessment, PISA, we tried to change this. The transformational idea behind PISA lay in testing the knowledge and skills of students directly, through a metric that was internationally agreed upon; linking that with data from students, teachers, schools and systems to understand performance differences; and then harnessing the power of collaboration to act on the data, both by creating shared points of reference and by leveraging peer pressure.

The aim with PISA was not to create another layer of top-down accountability, but to help schools and policy makers shift from looking upwards within the bureaucracy towards looking outwards to the next teacher, the next school, the next country. In essence, PISA counts what counts, and makes that information available to educators and policy makers so they can make more informed decisions.

The OECD countries that initiated PISA tried to make PISA different from traditional assessments in other ways too. In a world that rewards individuals increasingly not just for what they know, but for what they can do with what they know, PISA goes beyond assessing whether students can reproduce what they have learned in school. To do well in PISA, students have to be able to extrapolate from what they know, think across the boundaries of subject-matter disciplines, apply their knowledge creatively in novel situations and demonstrate effective learning strategies. If all we do is teach our children what we know, they might remember enough to follow in our footsteps; but if we teach them how to learn, they can go anywhere they want.

Some people argued that the PISA tests are unfair, because they confront students with problems they have not encountered in school. But life is unfair, because the real test in life is not whether we can remember what we learned at school yesterday, but whether we will be able to solve problems that we can't possibly anticipate today.

But the greatest strength of PISA lies in its working methods. Most assessments are centrally planned and then contracted to engineers who build them. That's how tests are created that are owned by a company – but not by the people who are needed to change education. PISA turned that on its head. The idea of PISA attracted the world's best thinkers and mobilised hundreds of experts, educators and scientists from the participating countries to build a global assessment. Today, we would call that crowdsourcing; but whatever we call it, it created the ownership that was critical for success.

In a nutshell, PISA owes its success to a collaborative effort between the participating countries, the national and international experts and institutions working within the framework of the PISA Consortium, and the OECD Secretariat. Subject-matter experts, practitioners and policy makers from the participating countries worked tirelessly to build agreement on which learning outcomes are important to measure and how to measure them best; to design and validate assessment tasks that can reflect those measures adequately and accurately across countries and cultures; and to find ways to compare the results meaningfully and reliably. The OECD Secretariat co-ordinated this effort and worked with countries to make sense of the results and compile this report.

Over the past two decades, PISA has become the world's premier yardstick for evaluating the quality, equity and efficiency of school systems, and an influential force for education reform. It has helped policy makers lower the cost of political action by backing difficult decisions with evidence – but it has also raised the political cost of inaction by exposing areas where policy and practice have been unsatisfactory. Today, PISA brings together more than 90 countries, representing 80% of the world economy, in a global conversation about education.

While measurement is the means, the purpose of PISA is to help countries look outwards and incorporate the results of that learning into policy and practice. That outward-looking perspective also seems to be a common trait of many high-performing education systems: they are open to the world and ready to learn from and with the world's education leaders; they do not feel threatened by alternative ways of thinking.

In the end, the laws of physics apply. If we stop pedalling, not only will we not move forward, our bicycles will stop moving at all and will fall over – and we will fall with them. Against strong headwinds, we need to push ourselves even harder. But in the face of challenges and opportunities as great as any that have gone before, human beings need not be passive or inert. We have agency, the ability to anticipate and the power to frame our actions with purpose. The best-performing PISA countries show

us that high-quality and equitable education is an attainable goal, that it is within our means to deliver a future for millions of learners who currently do not have one, and that our task is not to make the impossible possible, but to make the possible attainable.

Andreas Schleicher
Director for Education and Skills
Special Advisor on Education Policy
to the Secretary-General

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PISA is the product of a collaborative effort between the countries and economies participating in PISA, the national and international experts and institutions working within the framework of the PISA Consortium, and the OECD Secretariat.

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To support the technical implementation of PISA, the OECD contracted an international consortium of institutions and experts, led by Irwin Kirsch at the Educational Testing Service (ETS). Overall co-ordination of the PISA 2018 assessment, the development of instruments, and scaling and analysis were managed by Claudia Tamassia at ETS. The development of the reading and questionnaire frameworks was facilitated by Pearson, led by John de Jong, Peter Foltz and Christine Rozunick. Sampling and weighting services were provided by Westat, led by Keith Rust. Linguistic quality control and the development of the French source version were the responsibility of cApStAn, led by Steve Dept. The support of BBVA for part of the costs of the PISA 2018 financial literacy assessment is acknowledged.

Jean-François Rouet chaired the expert group that guided the preparation of the reading assessment framework and instruments. This group included Paul van den Broek, Kevin Kien Hoa Chung, Dominique Lafontaine, John Sabatini, Sascha Schroeder and Sari Sulkunen. Fons J. R. van de Vijver chaired the expert group that guided the preparation of the questionnaire framework and instruments. This group included Andrew Elliot, Therese Hopfenbeck, Sarah Howie, David Kaplan and Dominique Lafontaine. Keith Rust chaired the Technical Advisory Group, whose members included John de Jong, Jean Dumais, Theo Eggen, Cees Glas, Kit-Tai Hau, David Kaplan, Irwin Kirsch, Oliver Lüdtke, Christian Monseur, Sophia Rabe-Hesketh, Thierry Rocher, Leslie A. Rutkowski, Matthias von Davier, Margaret Wu and Kentaro Yamamoto.

The development of the report was steered by the PISA Governing Board, chaired by Michelle Bruniges (Australia) with Peggy Carr (United States), Sukit Limpijumnong (Thailand) and Carmen Tovar Sánchez (Spain) as vice-chairs. Annex D of this volume lists the members of the various PISA bodies, including Governing Board members and National Project Managers in participating countries and economies, the PISA Consortium, and the individual experts and consultants who have contributed to PISA 2018.

PISA

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Executive summary

Over the past decades, both developed and developing countries have become concerned about the level of financial literacy amongst their citizens, and particularly amongst young people. This concern initially stemmed from worries about the potential impact of shrinking welfare systems and employment-related benefits, shifting demographics, and the increased sophistication and expansion of financial services. The indirect impact of the Covid-19 crisis on individuals' income and savings (both current and future) and heightened uncertainty in the economic and financial landscape make financial literacy even more crucial for ensuring that citizens are financially resilient.

Many 15-year-olds face financial decisions and are already consumers of financial services. They are likely to face growing complexity and risks in the financial marketplace as they move into adulthood. Since better knowledge and understanding of financial concepts and risks could help improve financial decision making amongst adults and young people, financial literacy is now globally recognised as an essential life skill.

A growing number of countries provide financial education in school. To minimise curriculum overload, countries typically integrate financial literacy into other subjects and existing courses, rather than introducing an additional subject into an already crowded programme of study. Students may improve their financial skills by acquiring transversal competencies, such as problem solving and critical thinking, in other subjects; at the same time, financial problems can be used as a real-life context for teaching mathematics and other subjects.

Thirteen OECD countries and economies and seven partner countries participated in the PISA 2018 assessment of financial literacy. Some 117 000 15-year-old students sat the test, representing around 13.5 million students.

ARE STUDENTS SMART ABOUT MONEY? MAIN FINDINGS

On performance in the financial literacy assessment

- Average financial literacy performance in Estonia was higher than that in every other participating country/economy, followed by performance in the Canadian provinces and Finland.
- Some 85% of students, on average across OECD countries/economies, attained at least Level 2 proficiency in financial literacy. These students can apply their knowledge of common financial products and commonly used financial terms to situations that are relevant to them, and can recognise the value of a simple budget. However, in five partner countries, more than one in three students did not attain Level 2 proficiency.
- Some 10% of students attained the highest level of proficiency in financial literacy, Level 5, on average across OECD countries and economies. These students can analyse complex financial products, and take into account features of financial documents that are not immediately obvious. Almost one in five students in Estonia and Finland displayed Level 5 proficiency.
- Boys scored a small but significant 2 points higher than girls in the PISA 2018 financial literacy assessment, on average across OECD countries/economies. After accounting for performance in mathematics and reading, boys outperformed girls by 10 points.
- Socio-economically advantaged students performed better in financial literacy than disadvantaged students – by roughly one proficiency level, on average across OECD countries/economies.
- Immigrant students scored 30 points lower than non-immigrant students, on average across OECD countries/economies. After accounting for performance in reading and mathematics, immigrant students scored only five points below non-immigrant students.

On students' behaviours and attitudes towards money matters

- Some 73% of students reported that they had bought something on line (either alone or with a family member) during the 12 months prior to the PISA assessment, and 39% of students reported that they had made a payment using a mobile phone during that period, on average across OECD countries/economies. Boys were more likely than girls, and advantaged students were more likely than disadvantaged students, to have engaged in these digital financial activities.

- Students who reported that they had bought something on line during the 12 months prior to the PISA test scored 18 points higher than students who reported that they had not done so, on average across OECD countries/economies and after accounting for student characteristics. However, students who reported that they had made a payment using a mobile phone during that period scored 18 points lower than students who reported that they had not done so.
- Confidence in using digital financial services was associated with stronger financial literacy performance. In particular, students who reported being confident in keeping track of their balance on line scored 29 points higher in the financial literacy assessment, on average across OECD countries and after accounting for student characteristics.
- Students who, during the 12 months prior to the PISA test, had checked how much money they have scored 50 points higher in the financial literacy assessment than students who had not done so, on average across OECD countries/economies and after accounting for student characteristics.

On financial education at home and in school

- Parents, guardians and other adult relations were students' most common source of information about money matters: 94% of students reported obtaining such information from their parents, on average across OECD countries/economies.
- After accounting for student characteristics, students who look to their parents as a source of information about money matters outperformed students who do not do so by 27 score points in financial literacy, on average across OECD countries and economies; students who use the Internet as a source of such information outperformed those who do not use the Internet as a source of such information by 10 score points; and students who obtain information about money matters from other sources (friends, television or radio, magazines or teachers) scored below students who do not obtain information about money matters from these sources.
- Roughly four in five students, on average across OECD countries/economies, reported that they could decide independently what to spend their money on. These students scored 27 points higher in the financial literacy assessment, on average and after accounting for student characteristics, than students who did not report so.
- In general, disadvantaged students and students in disadvantaged schools were more likely to report encountering money-related tasks in their school lessons, compared to their advantaged counterparts. But being exposed to such tasks at school was associated with lower performance, on average across OECD countries/economies and after accounting for student and school characteristics.

Table IV.1 **Snapshot of performance in financial literacy**

Mean score statistically significantly above the OECD average
Mean score not statistically significantly different from the OECD average
Mean score statistically significantly below the OECD average

	Mean score in PISA 2018	"Share of low achievers (below Level 2)"	"Share of top performers (Level 5)"	Relative score[1] after accounting for performance in mathematics and reading
	Mean score	%	%	Mean score
OECD average	505	14.7	10.5	**2**
Estonia	547	5.3	19.0	**16**
Finland	537	9.9	19.9	**14**
Canadian provinces	532	8.8	16.7	**4**
Poland	520	9.5	11.8	**-3**
Australia	511	15.6	14.1	**4**
United States	506	16.0	12.4	**5**
Portugal	505	14.0	8.3	1
Latvia	501	10.6	6.1	1
Lithuania	498	14.2	7.7	**7**
Russia	495	14.4	6.3	-1
Spain	492	15.0	5.7	m
Slovak Republic	481	21.2	7.2	**-9**
Italy	476	20.9	4.5	**-17**
Chile	451	30.2	3.0	**5**
Serbia	444	33.2	2.5	**-15**
Bulgaria	432	38.5	2.4	**-10**
Brazil	420	43.6	1.9	**12**
Peru	411	46.4	1.4	**-3**
Georgia	403	49.8	0.7	**-3**
Indonesia	388	57.4	0.3	**-3**

1. Relative scores are the residuals obtained from a pooled linear regression, across all participating countries/economies, of performance in financial literacy over performance in mathematics and/or reading. They represent performance in the aspects of the financial literacy assessment that are specific to financial literacy, as opposed to being shared with mathematics and/or reading.

Note: Values that are statistically significant are marked in bold (see Annex A3).

Countries and economies are ranked in decreasing order of mean performance in the PISA 2018 financial literacy assessment.

Source: OECD, PISA 2018 Database, Tables IV.B1.2.1, IV.B1.2.3, IV.B1.2.4 and IV.B1.2.8.

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Table IV.2 **Snapshot of disparties in financial literacy performance**

	"Gender differences in financial literacy performance (girls - boys)"	"Socio-economic differences in financial literacy performance (advantaged[1] - disadvantaged)"	Percentage of the variation in student performance in financial literacy explained by socio-eocnomic status (strength of the socio-economic gradient)	"Immigrant differences in financial literacy performance after accounting for performance in mathematics and reading (immigrant - non-immigrant)"
	Score dif.	Score dif.	%	Score dif.
OECD average	**-2**	**78**	10.2	**-5**
Indonesia	**18**	**50**	6.4	c
Estonia	-3	**55**	6.1	-4
Latvia	4	**59**	8.2	7
Spain	1	**63**	7.9	m
Canadian provinces	-6	**65**	6.4	-2
Italy	**-15**	**66**	7.9	0
Serbia	6	**71**	8.4	0
Poland	**-7**	**71**	9.4	c
Russia	-5	**75**	10.2	5
Lithuania	4	**78**	11.8	**-27**
Georgia	**12**	**79**	10.4	**-36**
Finland	6	**86**	9.4	1
Australia	-2	**89**	10.0	-4
Chile	-5	**89**	13.2	-2
Portugal	-1	**90**	12.9	3
Brazil	2	**98**	15.7	8
United States	-6	**98**	14.0	**-9**
Slovak Republic	-1	**101**	15.2	-18
Bulgaria	**19**	**108**	14.8	-4
Peru	**-10**	**118**	20.7	c

1. Advantaged students are those in the top quarter of the distribution of the PISA index of economic, social and cultural status (ESCS) in their country/economy. Disadvantaged students are those in the bottom quarter of that distribution.

Note: Values that are statistically significant are marked in bold (see Annex A3).

Countries and economies are ranked in ascending order of the difference in performance between advantaged and disadvantaged students.

Source: OECD, PISA 2018 Database, Tables IV.B1.3.4, IV.B1.3.10 and IV.B1.3.22z

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Table IV.3 **Snapshot of students' digital financial activities**

	Percentage of students who hold a(n)...		Percentage of students who, in the previous 12 months, had...		Percentage of students who, when using digital or electronic devices outside of a bank (e.g. at home or in shops), feel confident/very confident about...		
	Account with a bank, building society, post office or credit union	Payment card or debit card	Bought something on line (alone or with a family member)	Made a payment using a mobile phone	Paying with a debit card instead of using cash	Paying with a mobile device (e.g. mobile phone or tablet) instead of using cash	Ensuring the safety of sensitive information when making an electronic payment or using online banking
	%	%	%	%	%	%	%
OECD average	53.5	45.4	72.6	39.1	66.7	49.3	51.4
Finland	89.2	77.7	79.7	25.7	80.5	52.5	54.2
Australia	68.1	61.3	75.3	47.2	77.4	57.8	64.6
Canadian provinces	64.5	66.8	72.7	40.6	76.9	54.1	57.7
Latvia	59.4	53.3	76.5	46.9	66.6	47.4	52.2
Estonia	59.2	75.2	72.6	40.5	72.2	45.7	55.5
Spain	55.1	18.9	71.1	33.0	55.2	45.3	41.1
Slovak Republic	49.9	41.2	76.4	43.3	57.6	46.6	48.0
United States	46.9	36.4	78.4	45.4	68.6	51.2	53.1
Portugal	45.2	23.9	58.2	27.8	63.1	41.4	48.1
Average all countries/ economies	44.1	38.2	67.7	40.5	61.6	48.7	50.4
Lithuania	43.6	40.7	74.4	47.9	65.6	54.0	56.4
Italy	43.5	41.1	74.1	42.4	51.4	39.9	39.0
Chile	36.5	26.8	54.5	34.5	61.9	47.6	49.7
Bulgaria	36.3	31.3	71.4	47.3	52.9	47.0	49.4
Indonesia	35.8	27.0	65.9	52.2	43.2	41.4	47.7
Poland	34.5	26.2	79.3	32.6	69.6	57.6	49.1
Russia	31.6	50.2	75.8	69.0	63.0	65.0	63.0
Brazil	27.9	17.1	51.6	33.8	53.7	42.6	41.1
Georgia	22.4	24.5	56.2	45.9	54.4	54.2	54.3
Serbia	20.7	13.2	57.5	33.8	35.4	33.8	33.5
Peru	12.0	11.3	31.4	20.7	m	m	m

Countries and economies are ranked in decreasing order of the percentage of students who reported that they hold an account with a bank, building society, post office or credit union.

Source: OECD, PISA 2018 Database, Tables IV.B1.6.1, IV.B1.6.9 and IV.B1.7.1.

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Table VI.4 **Snapshot of students' financial experience, behaviour and attitudes**

	Percentage of students who agreed/strongly agreed with the following statements:			Percentage of students who obtain information about money matters (e.g. spending, saving, banking or investment) from...			Percentage of students who, when thinking about buying a new product from their allowance, sometimes or always...	
	I enjoy talking about money matters	I can decide independently what to spend my money on	I am responsible for my own money matters (e.g. for preventing theft)	Parents, guardians or other adult relations	The Internet	Teachers	Compare prices between a physical shop and an online shop	Wait until the product gets cheaper before buying it
	%	%	%	%	%	%	%	%
OECD average	51.5	80.9	81.3	94.4	76.6	50.2	69.4	59.8
Indonesia	70.3	82.3	86.6	93.0	81.5	86.5	63.7	53.5
Peru	67.3	65.4	76.4	89.0	72.5	73.8	50.7	65.3
Portugal	64.4	66.1	88.8	94.7	81.7	43.3	65.4	71.2
Russia	57.6	82.5	80.4	89.7	83.0	60.8	69.0	40.8
Lithuania	57.6	85.9	81.8	93.8	81.1	51.0	71.8	54.9
Finland	57.5	89.3	79.3	96.9	77.3	71.5	74.3	57.0
United States	52.8	85.9	82.7	96.2	65.5	46.6	74.5	65.6
Canadian provinces	52.8	87.7	85.4	95.9	66.1	57.1	75.6	73.7
Latvia	52.2	72.6	81.7	94.7	85.8	51.9	69.8	51.7
Spain	52.0	79.8	80.4	94.0	69.8	41.8	67.1	59.0
Poland	51.9	81.1	73.3	93.6	78.7	34.3	74.2	55.4
Australia	50.6	88.8	85.3	96.1	64.8	60.5	77.7	73.5
Chile	50.5	81.2	78.4	93.8	81.3	44.8	55.8	48.0
Estonia	49.8	86.9	82.2	94.5	82.4	50.8	65.2	51.0
Brazil	49.3	66.2	65.4	89.8	80.6	46.2	64.6	59.4
Georgia	42.9	76.1	71.7	90.4	73.7	38.6	47.2	36.5
Bulgaria	41.9	73.5	81.2	90.8	65.9	43.8	56.7	51.7
Slovak Republic	41.6	74.3	80.8	92.6	78.8	55.3	59.4	55.7
Serbia	39.9	79.3	81.9	92.4	59.1	31.6	55.7	52.7
Italy	36.1	71.8	77.4	90.5	82.7	44.2	71.4	60.5

Countries and economies are ranked in decreasing order of the percentage of students who agreed/strongly agreed that they enjoy talking about money matters.

Source: OECD, PISA 2018 Database, Tables IV.B1.4.1, IV.B1.4.11, IV.B1.7.17 and IV.B1.8.6.

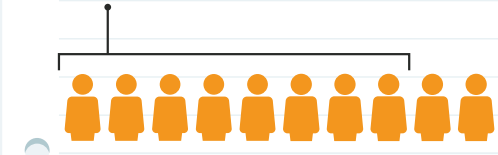
StatLink https://doi.org/10.1787/888934123216

Students and money

94% of students

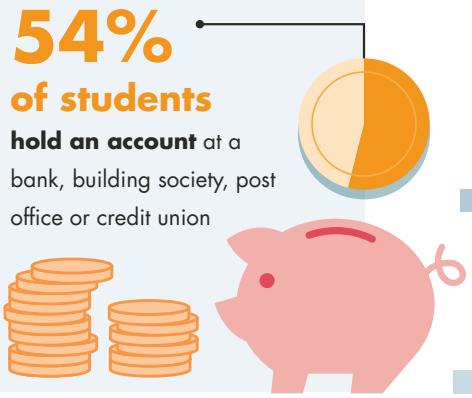
reported that they **get information about money matters from their parents**

More than **8 in 10 students** **can interpret important details in everyday financial documents**

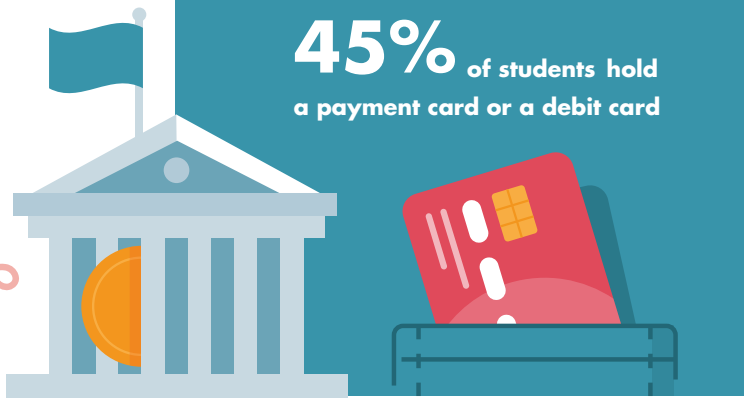


54% of students

hold an account at a bank, building society, post office or credit union



45% of students hold a payment card or a debit card



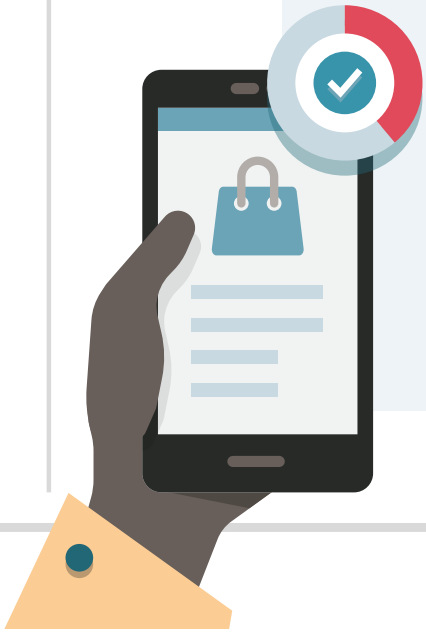
73%

of students reported that they had **bought something on line**

(either alone or with a family member) during the previous 12 months

39% of students

reported that they had **made a payment using a mobile phone** during the previous 12 months



All data are OECD average, unless otherwise indicated, and were collected in 2018; PISA students are 15 years old

PISA

Reader's guide

Data underlying the figures

The data referred to in this volume are presented in Annex B and, in greater detail, including additional tables, on the PISA website (www.oecd.org/pisa).

Five symbols are used to denote missing data:

a The category does not apply in the country concerned; data are therefore missing.

c There were too few observations to provide reliable estimates (i.e. there were fewer than 30 students or fewer than 5 schools with valid data).

m Data are not available. There was no observation in the sample; these data were not collected by the country; or these data were collected but subsequently removed from the publication for technical reasons.

w Results were withdrawn at the request of the country concerned.

x Data included in another category or column of the table, e.g. x(2) means that data are included in Column 2 of the table.

Country coverage

This publication features data on 21 countries and economies, including 14 OECD countries and 7 partner countries and economies.

The Canadian provinces refer to the seven provinces of Canada that participated in the PISA 2018 financial literacy assessment: British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario and Prince Edward Island.

Weaker students were under-represented in the Netherlands' sample for the financial literacy assessment. Results for the Netherlands may not be comparable with data from other countries/economies and are therefore not included in tables, figures and texts that report comparisons of performance with other countries or over time; however, they are included in tables in Annex B.

International averages

The OECD average corresponds to the arithmetic mean of the respective country/economy estimates. It was calculated for most indicators presented in this report.

In this publication, the OECD average is generally used when the focus is on comparing performance across education systems. In the case of some countries/economies, data may not be available for specific indicators, or specific categories may not apply. Readers should, therefore, keep in mind that the term "OECD average" refers to the OECD countries/economies included in the respective comparisons. In cases where data are not available or do not apply for all sub-categories of a given population or indicator, the "OECD average" is not necessarily computed on a consistent set of countries/economies across all columns of a table.

In analyses involving data from multiple years, the OECD average is always reported on consistent sets of OECD countries and economies, and several averages may be reported in the same table. For instance, the "OECD average - 2015" includes only those OECD countries/economies that participated in both the PISA 2015 and 2018 financial literacy assessments. This restriction allows for valid comparisons of the OECD average over time. The averages used are:

- **OECD average**: Arithmetic mean across all OECD countries/economies that participated in the PISA 2018 financial literacy assessment (Australia, the Canadian provinces, Chile, Estonia, Finland, Italy, Latvia, Lithuania, Poland, Portugal, the Slovak Republic, Spain and the United States).
- **OECD average - 2012**: Arithmetic mean across all OECD countries that participated in both the PISA 2012 and 2018 financial literacy assessments (Australia, Estonia, Italy, Latvia, Poland, the Slovak Republic, Spain and the United States).
- **OECD average - 2015**: Arithmetic mean across all OECD countries/economies that participated in both the PISA 2015 and 2018 financial literacy assessments (Australia, the Canadian provinces, Chile, Italy, Lithuania, Poland, the Slovak Republic, Spain and the United States).

Rounding figures

Because of rounding, some figures in tables may not add up exactly to the totals. Totals, differences and averages are always calculated on the basis of exact numbers and are rounded only after calculation.

All standard errors in this publication have been rounded to one or two decimal places. Where the value 0.0 or 0.00 is shown, this does not imply that the standard error is zero, but that it is smaller than 0.05 or 0.005, respectively.

Reporting student data

The report uses "15-year-olds" as shorthand for the PISA target population. PISA covers students who are aged between 15 years 3 months and 16 years 2 months at the time of assessment and who are enrolled in school and have completed at least 6 years of formal schooling, regardless of the type of institution in which they are enrolled, and whether they are in full-time or part-time education, whether they attend academic or vocational programmes, and whether they attend public or private schools or foreign schools within the country.

Reporting school data

The principals of the schools in which students were assessed provided information on their schools' characteristics by completing a school questionnaire. Where responses from school principals are presented in this publication, they are weighted so that they are proportionate to the number of 15-year-olds enrolled in the school.

Focusing on statistically significant differences

This volume discusses only statistically significant differences or changes. These are denoted in darker colours in figures and in bold font in tables. Unless otherwise specified, the significance level is set to 5%. See Annex A3 for further information.

Abbreviations used in this report

ESCS	PISA index of economic, social and cultural status
GDP	Gross domestic product
ISCED	International Standard Classification of Education
ICT	Information and communications technology
PPP	Purchasing power parity
S.D.	Standard deviation
S.E.	Standard error
Score dif.	Score-point difference
% dif.	Percentage-point difference

Further documentation

For further information on the PISA assessment instruments and the methods used in PISA, see the *PISA 2018 Technical Report* (OECD, forthcoming).

StatLink

This report has StatLink at the bottom of tables and graphs. To download the matching Excel® spreadsheet, just type the link into your Internet browser, starting with the http://dx.doi.org prefix, or click on the link from the e-book version.

What is PISA?

"What should citizens know and be able to do?" In response to that question and to the need for internationally comparable evidence on student performance, the Organisation for Economic Co-operation and Development (OECD) launched the Programme for International Student Assessment (PISA) in 2000.

PISA is a triennial survey of 15-year-old students around the world that assesses the extent to which they have acquired key knowledge and skills essential for full participation in social and economic life. PISA assessments include the core school subjects of reading, mathematics and science, and also innovative areas, such as creative problem solving (2012), collaborative problem solving (2015), global competence (2018) and creative thinking (2021). The assessments do not just ascertain whether students near the end of their compulsory education can reproduce what they have learned; they also examine how well students can extrapolate from what they have learned and apply their knowledge in unfamiliar settings, both in and outside of school. This approach reflects the fact that the modern world rewards individuals not just for what they know, but increasingly for what they can do with what they know.

WHAT IS UNIQUE ABOUT PISA?

PISA is unique because of its:

- **policy orientation**, which links data on student learning outcomes with data on students' backgrounds and attitudes towards learning, and with key factors that shape their learning, in and outside of school; by doing so, PISA can highlight differences in performance and identify the characteristics of students, schools and education systems that perform well
- **innovative concept of "literacy"**, which refers to students' capacity to apply their knowledge and skills in key areas, and to analyse, reason and communicate effectively as they identify, interpret and solve problems in a variety of situations
- **relevance to lifelong learning**, as PISA asks students to report on their motivation to learn, their beliefs about themselves, and their learning strategies
- **regularity**, which enables countries to monitor their progress in meeting key learning objectives
- **breadth of coverage**, which, in PISA 2018, encompassed all 37 OECD countries and 42 partner countries and economies.

WHICH COUNTRIES AND ECONOMIES PARTICIPATE IN PISA?

PISA is used as an assessment tool in many regions around the world. It was implemented in 43 countries and economies in the first assessment (32 in 2000 and 11 in 2002), 41 in the second assessment (2003), 57 in the third assessment (2006), 75 in the fourth assessment (65 in 2009 and 10 in 2010), 65 in the fifth assessment (2012) and 72 in the sixth assessment (2015). In 2018, 79 countries and economies participated in PISA.

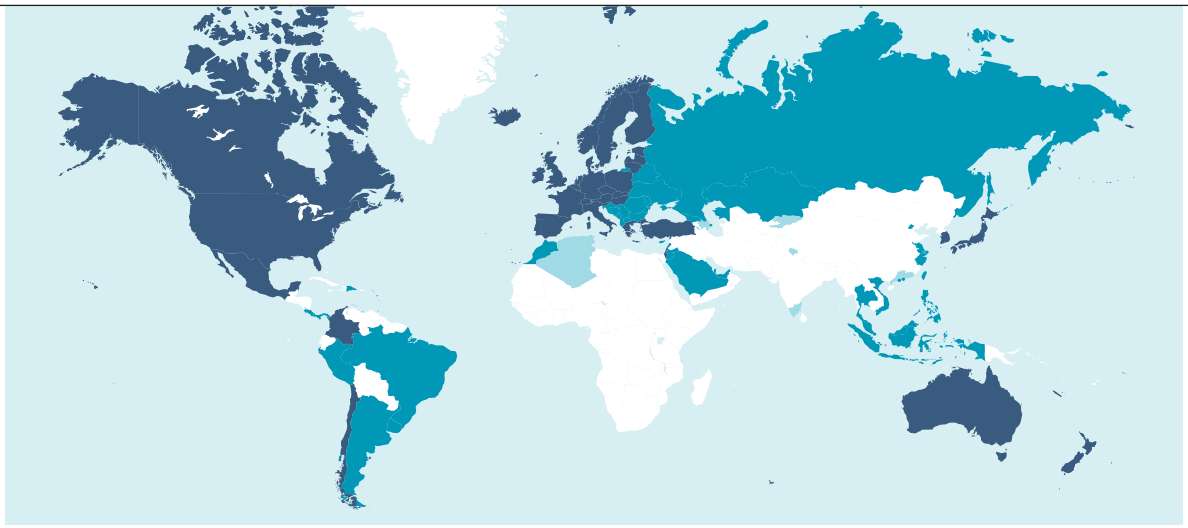
WHAT DOES THE TEST MEASURE?

In each round of PISA, one subject is tested in detail, taking up nearly half of the total testing time. The main subject in 2018 was reading, as it was in 2000 and 2009. Mathematics was the main subject in 2003 and 2012, while science was the main subject in 2006 and 2015. With this alternating schedule, a thorough analysis of achievement in each of the three core subjects is presented every nine years; an analysis of trends is offered every three years.

The *PISA 2018 Assessment and Analytical Framework* (OECD, 2019) presents definitions and more detailed descriptions of the subjects assessed in PISA 2018:

- Reading literacy is defined as students' capacity to understand, use, evaluate, reflect on and engage with texts in order to achieve one's goals, develop one's knowledge and potential, and participate in society.
- Mathematics literacy is defined as students' capacity to formulate, employ and interpret mathematics in a variety of contexts. It includes reasoning mathematically and using mathematical concepts, procedures, facts and tools to describe, explain and predict phenomena.
- Science literacy is defined as the ability to engage with science-related issues, and with the ideas of science, as a reflective citizen. A scientifically literate person is willing to engage in reasoned discourse about science and technology, which requires the competencies to explain phenomena scientifically, evaluate and design scientific enquiry, and interpret data and evidence scientifically.

Map of PISA countries and economies



OECD member countries

Australia
Austria
Belgium
Canada
Chile
Colombia
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Japan
Korea
Latvia
Lithuania
Luxembourg
Mexico
Netherlands
New Zealand
Norway
Poland
Portugal
Slovak Republic
Slovenia
Spain
Sweden
Switzerland
Turkey
United Kingdom
United States*

Partner countries and economies in PISA 2018

Albania
Argentina
Baku (Azerbaijan)
Belarus
Bosnia and Herzegovina
Brazil
Brunei Darussalam
B-S-J-Z (China)**
Bulgaria
Costa Rica
Croatia
Cyprus
Dominican Republic
Georgia
Hong Kong (China)
Indonesia
Jordan
Kazakhstan
Kosovo
Lebanon
Macao (China)
Malaysia
Malta
Republic of Moldova
Montenegro
Morocco
Republic of North Macedonia
Panama
Peru
Philippines
Qatar
Romania
Russian Federation
Saudi Arabia
Serbia
Singapore
Chinese Taipei
Thailand
Ukraine
United Arab Emirates
Uruguay
Viet Nam

Partner countries and economies in previous cycles

Algeria
Azerbaijan
Guangdong (China)
Himachal Pradesh (India)
Kyrgyzstan
Liechtenstein
Mauritius
Miranda (Venezuela)
Tamil Nadu (India)
Trinidad and Tobago
Tunisia

* Puerto Rico participated in the PISA 2015 assessment (as an unincorporated territory of the United States).

** B-S-J-Z (China) refers to four PISA 2018 participating Chinese provinces/municipalities: Beijing, Shanghai, Jiangsu and Zhejiang. In PISA 2015, the four PISA participating Chinese provinces/municipalities were: Beijing, Shanghai, Jiangsu and Guangdong.

Box A **Key features of PISA 2018**

The content

- The PISA 2018 survey focused on reading, with mathematics, science and global competence as minor areas of assessment. PISA 2018 also included an assessment of young people's financial literacy, which was optional for countries and economies.

The students

- Some 600 000 students completed the assessment in 2018, representing about 32 million 15-year-olds in the schools of the 79 participating countries and economies.

The assessment

- Computer-based tests were used in most countries, with assessments lasting a total of two hours. In reading, a multi-stage adaptive approach was applied in computer-based tests whereby students were assigned a block of test items based on their performance in preceding blocks.
- Test items were a mixture of multiple-choice questions and questions requiring students to construct their own responses. The items were organised into groups based on a passage of text describing a real-life situation. About 930 minutes of test items for reading, mathematics, science and global competence were covered, with different students taking different combinations of test items.
- Students also answered a background questionnaire, which took about 35 minutes to complete. The questionnaire sought information about the students themselves, their attitudes, dispositions and beliefs, their homes, and their school and learning experiences. School principals completed a questionnaire that covered school management and organisation, and the learning environment.
- Some countries/economies also distributed additional questionnaires to elicit more information. These included: in 19 countries/economies, a questionnaire for teachers asking about themselves and their teaching practices; and in 17 countries/economies, a questionnaire for parents asking them to provide information about their perceptions of and involvement in their child's school and learning.
- Countries/economies could also choose to distribute three other optional questionnaires for students: 52 countries and economies distributed a questionnaire about students' familiarity with computers; 32 countries/economies distributed a questionnaire about students' expectations for further education; and 9 countries/economies distributed a questionnaire, developed for PISA 2018, about students' well-being.

HOW IS THE ASSESSMENT CONDUCTED?

As was done in 2015, PISA 2018 delivered the assessment of all subjects via computer. Paper-based assessments were provided for countries that were not able to test their students by computer, but the paper-based assessment was limited to reading, mathematics and science trend items, which were originally developed for previous PISA assessments.[1] Since 2015, new items were developed for the computer-based assessment only.

The 2018 computer-based assessment was designed as a two-hour test. Each test form allocated to students comprised four 30-minute clusters of test material. For the main subject of reading, material equivalent to 15 30-minute clusters was developed. This material was organised into blocks instead of clusters, as the PISA 2018 reading assessment took a multi-stage adaptive approach. The reading assessment was composed of a core stage followed by stage 1 and stage 2. At the beginning of stages 1 and 2, students were assigned blocks of items of either greater or lesser difficulty, depending on their performance in earlier stages (see Chapter 1 in *PISA 2018 Results [Volume I]: What Students Know and Can Do*, for more detailed information on the multi-stage adaptive approach). To measure trends in the subjects of mathematics and science, six clusters were included in each subject. In addition, four clusters of global competence items were developed.[2] There were 72 different test forms.[3] Students spent one hour on the reading assessment plus one hour on one or two other subjects – mathematics, science or global competence.

Countries that used paper-based delivery for the main survey measured student performance with 30 pencil-and-paper forms containing trend items in the three core PISA subjects. The reading items in these paper-based forms were based on the 2009 reading literacy framework and did not include any items based on the new 2018 reading literacy framework.

The assessment of financial literacy was offered as an option in PISA 2018. It was based on the same framework as that developed

for PISA 2012, which was also used in PISA 2015.[4] The financial literacy assessment lasted one hour (in addition to the regular PISA assessment) and comprised two clusters distributed to a subsample of students in combination with the reading and mathematics assessments.

To gather contextual information, PISA 2018 asked students and the principal of their school to respond to questionnaires. The student questionnaire took about 35 minutes to complete; the questionnaire for principals took about 45 minutes to complete. The responses to the questionnaires were analysed with the assessment results to provide both a broader and more nuanced picture of student, school and system performance. The *PISA 2018 Assessment and Analytical Framework* (OECD, 2019) describes the genesis of the questionnaires in detail. The questionnaires from all assessments since PISA's inception are available on the PISA website: www.pisa.oecd.org.

The questionnaires seek information about:

- students and their family backgrounds, including their economic, social and cultural capital
- aspects of students' lives, such as their attitudes towards learning, their habits and life in and outside of school, and their family environment
- aspects of schools, such as the quality of the schools' human and material resources, public and private management and funding, decision-making processes, staffing practices, the school's curricular emphasis and the extracurricular activities it offers
- the context of instruction, including institutional structures and types, class size, classroom and school climate, and reading activities in class
- aspects of learning, including students' interest, motivation and engagement.

In PISA 2018, five additional questionnaires were offered as options:

- **computer familiarity questionnaire**, focusing on the availability and use of information and communications technologies (ICT), and on students' ability to carry out tasks on computers and their attitudes towards using computers
- **well-being questionnaire**, (new to PISA 2018) on students' perceptions of their health, life satisfaction, social connections and activities in and outside of school
- **educational career questionnaire**, which collects additional information on interruptions in schooling, preparation for students' future career, and support with language learning
- **parent questionnaire**, focusing on parents' perceptions of and involvement in their child's school, their support for learning at home, school choice, their child's career expectations, and their background (immigrant/non-immigrant)
- **teacher questionnaire**, which asks about teachers' initial training and professional development, their beliefs and attitudes, and their teaching practices. Separate questionnaires were developed for teachers of the test language and for other teachers in the school.

The contextual information collected through the student, school and optional questionnaires is complemented by system-level data. Indicators describing the general structure of each education system, such as expenditure on education, stratification, assessments and examinations, appraisals of teachers and school leaders, instruction time, teachers' salaries, actual teaching time and teacher training are routinely developed and analysed by the OECD. These data are extracted from the annual OECD publication, *Education at a Glance: OECD Indicators*, for the countries that participate in the annual OECD data collection administered through the OECD Indicators of Education Systems (INES) Network. For other countries and economies, a special system-level data collection was conducted in collaboration with PISA Governing Board members and National Project Managers.

WHO ARE THE PISA STUDENTS?

Differences between countries in the nature and extent of pre-primary education and care, the age at entry into formal schooling, the structure of the education system, and the prevalence of grade repetition mean that school grade levels are often not good indicators of where students are in their cognitive development. To better compare student performance internationally, PISA targets students of a specific age. PISA students are aged between 15 years 3 months and 16 years 2 months at the time of the assessment, and they have completed at least 6 years of formal schooling. They can be enrolled in any type of institution, participate in full-time or part-time education, in academic or vocational programmes, and attend public or private schools or foreign schools within the country. (For an operational definition of this target population, see Annex A2). Using this age across countries and over time allows PISA to consistently compare the knowledge and skills of individuals born in the same year who are still in school at age 15, despite the diversity of their education histories in and outside of school.

The population of PISA-participating students is defined by strict technical standards, as are the students who are excluded from participating (see Annex A2). The overall exclusion rate within a country is required to be below 5% to ensure that, under reasonable assumptions, any distortions in national mean scores would remain within plus or minus 5 score points, i.e. typically within the order of magnitude of 2 standard errors of sampling. Exclusion could take place either through the schools that participated or the students who participated within schools (see Annex A2).

There are several reasons why a school or a student could be excluded from PISA. Schools might be excluded because they are situated in remote regions and are inaccessible, because they are very small, or because of organisational or operational factors that precluded participation. Students might be excluded because of intellectual disability or limited proficiency in the language of the assessment. In 31 of the 79 countries and economies that participated in PISA 2018, the percentage of school-level exclusions amounted to less than 1%; it was 4% or less in all except five countries. When the exclusion of students who met the internationally established exclusion criteria is also taken into account, the exclusion rates increase slightly. However, in 2018, the overall exclusion rate remained below 2% in 28 participating countries and economies, below 5% in 63 participating countries and economies, and below 7% in all countries except Sweden (11.1%), Israel (10.2%), Luxembourg and Norway (both 7.9%). For more detailed information about school and student exclusion from PISA 2018, see Annex A2.

WHERE CAN YOU FIND THE RESULTS?

The initial PISA 2018 results are released in six volumes:

- ***Volume I: What Students Know and Can Do*** provides a detailed examination of student performance in reading, mathematics and science, and describes how performance has changed over time.
- ***Volume II: Where All Students Can Succeed*** examines gender differences in student performance, the link between students' socio-economic status and immigrant background, on the one hand, and their performance and other outcomes, on the other, and the relationship between all of these variables and students' well-being. Trends in these indicators over time are examined when comparable data are available.
- ***Volume III: What School Life Means for Students' Lives*** focuses on the physical and emotional health of students, the role of teachers and parents in shaping the school climate, and the social life at school. The volume also examines indicators of student well-being, and how these are related to school climate.
- ***Volume IV: Are Students Smart about Money?*** examines 15-year-old students' understanding about money matters in the 20 countries and economies that participated in this optional assessment. The volume explores how the financial literacy of 15-year-old students is associated with their competencies in reading, mathematics and science, with their socio-economic status, and with their previous experiences with money. It also offers an overview of financial education in schools in the participating countries and economies, and provides case studies.
- ***Volume V: Effective Policies, Successful Schools*** analyses schools and school systems and their relationship with education outcomes more generally. The volume covers school governance, selecting and grouping students, and the human, financial, educational and time resources allocated to teaching and learning. Trends in these indicators are examined when comparable data are available.
- ***Volume VI: Are Students Ready to Thrive in an Interconnected World?*** examines students' ability to consider local, global and intercultural issues, understand and appreciate different perspectives and world views, interact respectfully with others, and take responsible action towards sustainability and collective well-being. It does so through both an assessment completed by students and questionnaires completed by students and school principals.[5]

Volumes II and III are published at the same time as Volume I, in December 2019; Volumes IV, V and VI are published in 2020.

The frameworks for assessing reading, mathematics, science, financial literacy and global competence in 2018 are described in the *PISA 2018 Assessment and Analytical Framework* (OECD, 2019). They are also summarised in Volume I.

Technical annexes at the end of this volume describe how questionnaire indices were constructed and discuss. Many of the issues covered in the technical annexes are elaborated in greater detail in the *PISA 2018 Technical Report* (OECD, forthcoming).

A selection of key tables referred to in the analyses are included at the end of the respective volume in Annex B1, and a set of additional data tables is available on line (www.oecd.org/pisa). A Reader's Guide is also provided in each volume to aid in interpreting the tables and figures that accompany the report.

Notes

1. The paper-based form was used in nine countries/economies: Argentina, Jordan, Lebanon, the Republic of Moldova, the Republic of North Macedonia, Romania, Saudi Arabia, Ukraine and Viet Nam.
2. The global competence assessment was not available in the countries/economies that conducted the PISA 2018 assessment on paper. It was conducted in Albania, Brunei Darussalam, Canada, Chile, Colombia, Costa Rica, Croatia, Greece, Hong Kong (China), Indonesia, Israel, Kazakhstan, Korea, Latvia, Lithuania, Malta, Morocco, Panama, the Philippines, the Russian Federation, Serbia, Singapore, the Slovak Republic, Spain, Chinese Taipei, Thailand and Scotland (United Kingdom). However, the global competence module was included in the student questionnaire, which was distributed in 56 of the countries/economies that took part in PISA 2018.
3. Thirty-six test forms were prepared for countries that did not participate in the global competence assessment.
4. The financial literacy assessment was conducted in Australia, Brazil, Bulgaria, Canada, Chile, Estonia, Finland, Georgia, Indonesia, Italy, Latvia, Lithuania, the Netherlands, Peru, Poland, Portugal, the Russian Federation, Serbia, the Slovak Republic, Spain and the United States.
5. The global competence assessment was conducted in 27 countries and economies, while the global competence module was included in questionnaires distributed in 56 countries and economies.

References

OECD (forthcoming), *PISA 2018 Technical Report*, OECD Publishing, Paris.

OECD (2019), *PISA 2018 Assessment and Analytical Framework*, OECD Publishing, Paris, https://doi.org/10.1787/b25efab8-en.

PISA

1

How and why does PISA assess financial literacy?

The PISA 2018 assessment of financial literacy amongst 15-year-old students was the third of its kind. It assesses the extent to which students in 20 participating countries and economies have the knowledge and skills, acquired both in and outside of school, that are essential for making financial decisions and plans for their future. This chapter highlights the importance of financial literacy for students in their current lives and as they move into adulthood. It then describes students' exposure to financial education at school. The chapter concludes with a description of how financial literacy is defined and assessed in the 2018 assessment.

1 How and why does PISA assess financial literacy?

Over the past decades, both developed and developing countries have become increasingly concerned about the level of financial literacy amongst their citizens, and particularly amongst young people (OECD, 2014[1]). This concern initially stemmed from worries about the potential impact of shrinking public and private social benefits, shifting demographics (including population ageing in many countries), and the increased sophistication and expansion of financial services. The Covid-19 pandemic has also made evident the uncertain and precarious financial and employment situations in which many people find themselves. Financial literacy may improve citizens' financial resiliency, thereby preparing them to manage and weather such unexpected shocks. Many 15-year-olds face financial decisions and are already consumers of financial services. They are likely to face growing complexity and risks in the financial marketplace as they move into adulthood.

These challenges have led to the recognition that better knowledge and understanding of financial concepts and risks could help improve financial decision making amongst adults and young people, both now and in the future. As a result, financial literacy is now globally recognised as an essential life skill. Financial education is acknowledged as a complement to financial consumer protection, inclusion and regulation, as a way to improve individual decision making and well-being, and as essential to financial stability and development. This recognition is reflected in the 2012 G20 leaders' endorsement of the OECD/International Network on Financial Education (INFE) High-level Principles on National Strategies for Financial Education (G20, 2012[2]; OECD/INFE, 2012[3]) and in the 2013 call for a Policy Handbook on the Implementation of National Strategies for Financial Education, which provides guidance to countries wishing to implement the principles (OECD/INFE, 2015[4]).

This chapter begins by discussing the importance of financial literacy for young people. It explains why students will need to have the financial knowledge and skills to be able to conduct financial operations at work and in their everyday lives in the future. Students' exposure to financial education at school is also discussed. The chapter then describes how financial literacy is defined and assessed in the PISA 2018 financial literacy test.

THE IMPORTANCE OF FINANCIAL LITERACY FOR YOUNG PEOPLE

Policy makers are increasingly recognising that young people need to be financially literate in order to perform common tasks in their day-to-day lives, such as using a payment card or choosing amongst mobile phone plans. Furthermore, as students become increasingly independent from their families, it is likely that the number and complexity of such tasks will rapidly increase.

Current trends suggest that the importance of acquiring financial literacy skills will only grow in the future. First, young people are likely to face more challenging decisions if financial transactions continue to grow in complexity. Financial education will therefore have a role, in conjunction with financial consumer protection and regulations, in equipping people with the skills needed to understand more complex products and services, choose those most appropriate for them, and protect themselves from financial scams. Technology (e.g. investment simulators or budgeting apps) has the potential to facilitate financial decisions and calculations; but here too financial education can help ensure that citizens understand how to use such tools responsibly. Similarly, the spread of digital financial services may open up new opportunities for those who are excluded from the formal financial system to gain access to it; but those services can also expose consumers to new security threats and risks of fraud that are compounded when low financial literacy is combined with poor digital skills and limited awareness of cybersecurity (OECD, 2017[6]). The increasing availability of online credit, hidden fees associated with various service providers (such as mobile phone plans) and in-game or in-app purchases, which are often targeted to young and/or inexperienced consumers, will pose further challenges for financial consumer protection and education (OECD, 2017[6]; CCC, 2015[7]).

Second, in some countries, future generations will probably bear more financial risks during their lifetime than the current adult population, due to factors such as increased life expectancy, less welfare protection and more uncertainty in retirement income due to changing pension regimes. Variable employment prospects and the potential for economic instability as a result of digitalisation, technological change, climate change, pandemics, globalisation and changes in the nature of work may also contribute to financial uncertainty (OECD, 2019[8]).

Third, growing income and wealth inequality might mean that without strong financial literacy, socio-economically disadvantaged groups could fall further behind. Education, income and wealth have been shown to be strongly correlated with adults' financial knowledge[1] (Lusardi and Mitchell, 2014[9]; OECD, 2016[10]), and parents with less education, income or wealth have been found to be less well-equipped than other parents to transmit financial knowledge to their children (Lusardi, Mitchell and Curto, 2010[12]). Hence, if it is only parents who educate their children about money matters, inequalities not just in levels of financial literacy but also in wealth and financial well-being may be reinforced across generations. Providing youth with financial education in schools and via other programmes might help shrink disparities in financial literacy due to differences in students' current socio-economic status, and potentially reduce income and wealth inequality when these students become adults.

One of the most important financial decisions that students are likely to make as they approach the end of compulsory education is whether to continue with their studies and, if so, how to fund further education. Making this decision requires a variety of financial literacy skills (Box IV.1.1).

Box IV.1.1. **Financial literacy needs for choosing student loans**

Students nearing the end of compulsory education will soon be making decisions that will have significant consequences for their adult lives, such as deciding whether to continue their studies or whether to enter the labour market. In some countries, this decision also includes how to finance tertiary education and whether to take out a student loan. The need for a student loan depends on tuition, accommodation and cost of living fees, which vary considerably within and across countries. Indeed, the decision of whether to enrol in tertiary education and which institution to attend often depends on the loans that students can obtain. Amongst the countries that participated in the PISA 2018 financial literacy assessment, average tuition fees for national students earning a bachelor's degree at a public institution are over USD 5 000 in Australia and Canada, roughly USD 7 500 in Chile and roughly USD 8 800 in the United States (OECD, 2019[12]).

Countries differ significantly in the extent to which student loans are offered and used, and in how they are administered. Depending on national student loan characteristics, students intending to take out a loan might have to choose between public and private loans and between different repayment methods (based on fixed instalments or contingent on earnings). There are also variations in interest calculations, fees and the treatment of those who default, and the extent to which an outstanding loan affects access to other sources of credit. Students and their families also need to be aware of any special conditions on public- or state-guaranteed loans, such as reduced interest rates, favourable repayment systems or remission/forgiveness mechanisms. Proficiency in financial literacy can help students and their families make the most appropriate choice.

Amongst the countries participating in the PISA 2018 financial literacy assessment, 30% of students in Chile, 58% of students in Finland, 63% of students in the United States and 89% of students in Australia at the bachelor's or master's level had a public student loan in 2018 (OECD, 2019[12]).

As a result of taking out student loans, many students are in debt at graduation. In 2018, in the Slovak Republic, students graduated with an average debt of about USD 3 300; in Australia, graduates had a debt of about USD 10 500; and graduates in Finland had a debt of roughly USD 11 700 (OECD, 2019[12]). The extent to which this can be a problem for students who have taken out a loan mostly depends on the amount of debt, the uncertainty of graduates' earnings and employment prospects, and the conditions for repayment of the loans.

PISA data indicate the extent to which 15-year-olds are already using money and are involved in financial decisions. Figure IV.6.1 shows that, on average across the 13 OECD countries and economies that participated in the PISA 2018 financial literacy assessment,[2] just over one in two students (54%) held a bank account (or an account with another type of financial service provider), while just under one in two students (45%) held a payment or a debit card. Almost nine in ten students (89%) in Finland held a bank account, and over three in four students in Estonia (75%) and Finland (78%) held a payment or a debit card (Figure IV.6.1).

Moreover, many students already have experience with financial transactions, including digital financial transactions. Figure IV.6.3 shows that, on average across the 13 participating OECD countries and economies, almost three in four students (73%) had bought something on line (either alone or with a family member) over the previous 12 months, while around two in five students (39%) had made a payment using a mobile phone. More than three in four students in Australia, Finland, Latvia, Poland, the Russian Federation (hereafter "Russia"), the Slovak Republic and the United States had bought something on line over the previous 12 months.

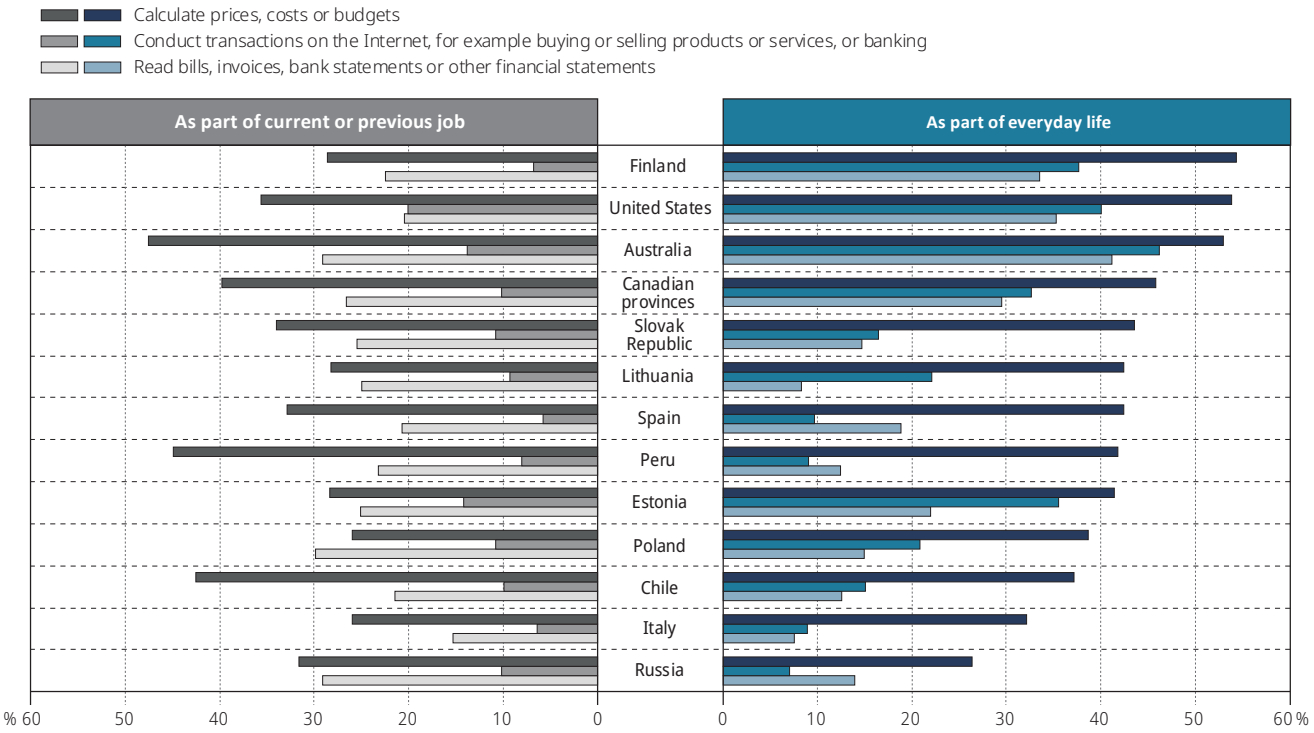
Data from the OECD Survey of Adult Skills, a product of the OECD Programme for the International Assessment of Adult Competencies, or PIAAC, show the extent to which young people and adults engage in basic financial activities (OECD, 2016[5]). The results reported in the following paragraphs focus on those countries that participated in both PIAAC (in any of its earlier rounds) and the PISA 2018 financial literacy assessment. PIAAC data were collected in different years in different countries, and the most recent data are discussed below.[3] Results should not be compared across countries as they may be confounded by global trends across time. Instead, the percentages presented should be interpreted as simply providing a context for the importance of financial activities and skills in the lives of adults and young adults in these countries.

Figure IV.1.1 shows that more than one in three 16-24 year-olds in Australia, Finland and the United States reported that they read bills, invoices, bank statements or other financial statements at least once a week in their everyday lives; and that more than one in four 16-24 year-olds in Australia, Canada, Estonia, Poland, Russia and the Slovak Republic indicated that they read such financial statements at least once a week as part of their current or previous job, if they had ever held a job.

More than one in two 16-24-year olds in Australia, Finland and the United States reported that they calculate prices, costs or budgets at least once a week in their everyday lives, and over 40% of 16-24 year-olds in Australia, Chile and Peru do/did these kinds of financial calculations at least once a week as part of their current or previous job, if they had ever held a job. Finally, at least one in three 16-24 year-olds in Australia, Estonia, Finland and the United States conduct financial transactions on the Internet, such as buying or selling products or services, or banking, at least once a week in their everyday lives; and one in five 16-24 year-olds in the United States conduct(ed) financial transactions at least once a week as part of their current or previous job, if they had ever held a job (Figure IV.1.1).

Figure IV.1.1 **Young people engaged in basic financial activities**

Percentage of 16-24 year-olds who reported that they do the following activities at least once a week



Notes: The sample for Russia does not include the population of the Moscow municipal area.

Only those who have ever held a job are considered in the percentage of 16-24 year-olds who reported that they engage in financial activities as part of their current job or their previous job; all 16-24 year-olds are considered in the percentage who reported that they engage in financial activities in their everyday life. Data come from the most recent year in which the PIAAC assessment was conducted in each country. Australia, Canada, Estonia, Finland, Italy, Poland, Russia, the Slovak Republic and Spain conducted the PIAAC assessment in its first cycle, between 2011 and 2012. Chile and Lithuania conducted the PIAAC assessment in its second cycle, between 2014 and 2015. Peru and the United States conducted the PIAAC assessment in its third cycle, in 2017.

Countries and economies are ranked in descending order of the percentage of 16-24 year-olds who reported that they calculate prices, costs or budgets at least once a week in their everyday life.

Source: OECD, Survey of Adult Skills (PIAAC) (2012, 2015, 2017), Table IV.B1.1.1

StatLink https://doi.org/10.1787/888934123235

Taking all of these factors into account, the OECD is developing a conceptual learning framework to identify the knowledge, skills, attitudes and values that young people will need to thrive in society (Box IV.1.2).

Box IV.1.2. The future of education and skills: The OECD's Education 2030 framework

As societies change, new concepts and bodies of knowledge emerge that are considered to be of key importance for students to learn in school. Today, these include the skills, attitudes and values needed to thrive in an increasingly interconnected world, financial literacy, foresight, innovation and computational thinking.

The OECD is developing a conceptual learning framework, known as *The Future of Education and Skills: Education 2030*, to outline the relevant knowledge, skills, attitudes and values that young people need to acquire in order to understand, participate in and shape a fast-changing world. This framework will address the need for new solutions to emerging problems (be they environmental, economic or social); the need to promote both individual and collective well-being; and the recognition of learners' individuality and fostering of their individual agency.

Together with a working group composed of representatives of interested countries, organisations and experts, the OECD is establishing a common grammar and language, first to underpin curricula design and then to build measurement and assessment tools and develop specific interventions. The project will initially focus on secondary school curricula, with the expectation that ultimately all stages of learning, from early education to lifelong learning activities, will be involved.

The project currently explores key curriculum issues, including curriculum overload, the time lag between today's curriculum and future needs, the quality of curriculum content, equality and equity in the curriculum, and implementation challenges. On the issue of curriculum overload, many schools, teachers and students are receiving demands for new topics, such as those discussed above. Curriculum designers have raised concerns about curriculum overload if these concepts are added as new subjects. To respond to these concerns, the working group conducted an exercise to decompose such complex concepts into aspects of knowledge, skills, attitudes and values to explore whether they are transferable across relevant subjects in existing curricula.

Source: OECD (2020), Education 2030, OECD Directorate for Education and Skills website, http://www.oecd.org/education/2030-project/.

PROVIDING FINANCIAL EDUCATION TO YOUNG PEOPLE

Recognising the importance of developing financial literacy skills amongst young people and adults, a growing number of countries have developed and implemented nationally co-ordinated approaches to financial education, usually referred to as national strategies. Box IV.1.3 describes what is meant by a national strategy for financial education.

Box IV.1.3. Improving financial literacy within a country through national strategies for financial education

Many countries have developed and are implementing national strategies for financial education. A national strategy for financial education is defined as "a nationally co-ordinated approach to financial education that consists of an adapted framework or programme that:

- recognises the importance of financial education – including possibly through legislation – and defines its meaning and scope at the national level in relation to identified national needs and gaps
- involves the co-operation of different stakeholders as well as the identification of a national leader or co-ordinating body/council
- establishes a roadmap to achieve specific and predetermined objectives within a set period of time
- provides guidance to be applied by individual programmes in order to efficiently and appropriately contribute to the national strategy" (OECD/INFE, 2012[3]).

As of 2020 and the preparation of this report, more than 70 countries at different income levels reported that they are developing or implementing a national strategy, with five more reporting that they are planning to develop such a strategy. National strategies for financial education are usually co-ordinated by one or more public authorities in finance (such as the central bank, ministry of finance or other financial regulator) and education (typically the ministry of education). Most of these strategies target both young people and adults, and often particular groups of adults, such as those on low incomes, those who do not have access to the financial system, rural residents and migrants.

National strategies often include a focus on young people (OECD/INFE, 2015[4]). Below are descriptions of the national strategies for financial education, with a focus on provisions for young people, in countries that participated in the 2018 PISA financial literacy assessment.[4] In addition to the countries discussed below, which are already implementing national strategies for financial education, **Poland** is in the process of designing such a strategy.

Australia released a National Financial Capability Strategy in 2018. Led by the Australian Securities and Investment Commission, this strategy built upon two earlier strategies and emphasises the importance of key behaviours that support financial capability: managing money day-to-day, planning for the future and making informed decisions. A priority of the national strategy is to educate youth, especially through the formal education system.

In 2014, the government of **Canada** appointed a Financial Literacy Leader for a five-year term. The Leader worked within the Financial Consumer Agency of Canada to collaborate and co-ordinate activities with stakeholders from the public, private and non-profit sectors. The national strategy in Canada aimed to strengthen the financial literacy of all Canadians and to empower them to manage money and debt wisely; to plan and save for the future; and to prevent and protect against fraud and financial abuse. A new national strategy is under preparation.

Estonia developed a financial literacy strategy for the period 2013-20; a new strategy is under development to continue work past 2020.

The first National Strategy on Financial Literacy in **Indonesia** was launched in 2013; a revised version, published in 2017, includes strategic visions, goals and priorities. The revised version also covers *sharia* financial literacy, financial inclusion, digital financial services and financial planning. Students are one of the target groups of the strategy, as are youth who are no longer in formal education.

In 2017, the government of **Italy** established a committee to plan and co-ordinate financial education activities in the country, both directly and in co-operation with public and private organisations. The committee established a national strategy targeting the entire Italian population, with a specific section that focuses on youth. It is developing the first set of national guidelines for financial education for both young people and adults.

Various public, private and non-governmental organisations in **Lithuania**, including various ministries, the State Tax Inspectorate and the Bank of Lithuania, prepared a Society Financial Education Plan for the period 2017 - 2027. This plan integrates financial and tax literacy into core curricula in schools; prepares and updates educational materials for all age groups; and provides opportunities for educators to continually improve their skills.

In 2018, **Peru** designed a National Plan for Financial Education. The plan was developed in alignment with the National Policy of Financial Inclusion, which was launched in 2019.

The National Plan for Financial Education was launched in **Portugal** in 2011 by the Banco de Portugal, the Portuguese Securities Market Commission and the Portuguese Insurance and Pension Funds Supervisory Authority. This plan targets all age groups, with a special focus on financial education in schools. It aims to increase the level of financial knowledge amongst the Portuguese population and to promote the adoption of financially responsible behaviours, thus contributing to the well-being of the population and the stability of the financial system. The plan does this through, amongst other activities, deepening knowledge and skills in using digital financial services, supporting financial inclusion and promoting the responsible use of credit.

The government of **Russia** approved a national financial literacy strategy in 2017. Developed by the Ministry of Finance, the Ministry of Education, the Bank of Russia and other stakeholders with a view to medium-term results, this strategy focuses on young people, seniors, the disabled, and low- and medium-income earners. The strategy also includes measures to provide information about financial consumer protection.

Spain developed its first Financial Education Plan in 2008. The plan has been revised twice, in accordance with OECD recommendations: first for the period 2013-17, and then for the period 2018-21.

In the **United States**, the Financial Literacy and Education Commission, chaired by the Secretary of the Treasury and comprising 23 federal government entities, released the National Strategy for Financial Literacy in 2011, which was updated in 2016. The 2016 update emphasises the need for young people to become proficient in financial literacy, as young people so equipped are more likely to become financially secure adults. The national strategy is complemented by the President's Advisory Council on Financial Capability for Young Americans, set up in 2013.

Introducing financial literacy in school

Many of the existing national strategies for financial education specifically identify young people and students amongst their main target groups and support the introduction of financial education in schools. The 2005 Recommendation of the OECD Council on Principles and Good Practices in Financial Education and Awareness advises that "financial education should start at school. People should be educated about financial matters as early as possible in their lives" (OECD, 2005[13]). The Recommendation recognises the importance of teaching young people key life skills before they start to become active financial consumers, and the relative efficiency of providing financial education in schools rather than attempting remedial actions in adulthood.

A growing number of countries teach financial education in schools, even though provision remains limited. To minimise curriculum overload, countries typically integrate financial literacy into other subjects and existing courses, rather than introducing an additional subject into an already crowded curriculum. Before formally introducing elements of financial education into the national curriculum, some countries have developed financial education pilot programmes in a selected number of schools, in order to identify the most appropriate approach. Students may improve their financial skills by acquiring transversal competencies, such as problem solving and critical thinking, in other subjects; at the same time, problems related to money matters can be used as a real-life context for teaching mathematics and other subjects (Koh and Low, 2010[14]).

More countries are teaching financial education in school, either through the curriculum or through pilot programmes, than were doing so when the first PISA financial literacy assessment was conducted in 2012. Below are details on how the countries that participated in the PISA 2018 financial literacy assessment include financial education into their schools.

Consumer and financial literacy education is embedded in the national curriculum in primary and secondary education in **Australia**, primarily in the subjects of mathematics, humanities and social sciences. Schools and teachers are encouraged to incorporate this facet of education into all learning areas, providing real-life contexts for learning. State and territory governments and individual schools have discretion in the extent to which financial literacy is taught at school. MoneySmart, an initiative developed by the Australian Securities and Investment Commission, offers a free professional development programme for teachers to improve their confidence and capability to deliver financial education in the classroom. This programme has reached over 32 000 teachers since 2012, and almost 7 000 schools (over 70% of all schools in Australia) have engaged with some aspect of this programme.

In **Canada**, topics relating to financial literacy are included in different subjects, and to different extents, in the various Canadian provinces. In most of the provinces that participated in the PISA 2018 financial literacy assessment, financial literacy is part of the high school curriculum within mathematics, career exploration/development, business studies or social studies.

Since 2010, financial literacy has been integrated into civics studies for junior high and high school students in **Estonia**. Financial literacy is also a component of economics and entrepreneurship studies, an optional subject. The Estonian education system provides teachers with a large degree of autonomy as to how and what to teach; hence, financial education may differ widely from school to school.

Financial and entrepreneurship education has been a cross-curricular theme in basic and upper secondary education in **Finland** since the 1990s. A recent curriculum revision added two hours of compulsory social studies/economics/entrepreneurship education per week to primary education (grades 4 to 6), in addition to the three hours already compulsory for students in grades 7 to 9. This subject aims to, amongst other goals, encourage students "to become independent societal and economic actors" and "to manage his or her personal finances". Topics in financial education are also included as part of "working life competence and entrepreneurship", a transversal competency that is linked to every subject in basic education (grades 1 to 9).

In 2018, the Ministry of Education, Science, Culture and Sport of **Georgia**, in collaboration with the National Bank of Georgia, approved a new national curriculum for students in grades 7, 8 and 9. This curriculum makes financial and economic education a part of civic education (in particular, in the subject "Citizenship"). However, as civic education already comprises many other thematic areas, only selected financial literacy topics could be included in the curriculum. Certain elements of financial literacy were also introduced in mathematics classes. This curriculum was first introduced for grade 7 students in 2019. An informal pilot programme was also conducted in 2017 for 232 students in 11 schools.

Various government ministries, educators and financial institutions have collaborated to develop pedagogical materials for use in schools in **Indonesia**. A financial literacy textbook for senior high school students was published in 2014 and integrated into the curriculum for economics classes by 2016. Simplified versions of this textbook were provided to elementary and junior high school students in 2014 and 2015, respectively; the version for elementary school students included a board game. Electronic versions of this material were also developed.

Financial education is not compulsory in **Italy** and is not part of the national school curriculum. However, schools can participate in several initiatives. For example, since the 2008/2009 school year, the Bank of Italy has offered a yearly financial education programme that trains primary and secondary school teachers who, in turn, provide financial education to their students. This programme has already reached 600 000 students. The Bank, in collaboration with the Italian Institute for the Supervision of Insurance, has released free educational resources for students at all levels since 2012. An impact assessment of these programmes is underway as of the writing of this report.

In **Latvia**, financial education is integrated into the general curriculum of both primary and secondary schools. Specialists from the financial sector, including the Bank of Latvia (*Latvijas Banka*), commercial banks and universities, provide training and lectures to educators. The Consumer Rights Protection Centre has also prepared material for secondary schools that aims to promote financial literacy – and hence readiness for life after secondary school – amongst students.

Schools in **Lithuania** start developing students' financial literacy from nursery and primary education. Until grade 8, financial literacy is integrated into other subjects, such as Lithuanian language and literature, mathematics, ethics and citizenship. However, in grades 9 and 10, in addition to being developed through the aforementioned subjects, financial literacy is also taught through compulsory economics and entrepreneurship classes. All of this is done in the context of the schools' own priority areas of action and local communities.

In **Peru**, financial and economic education topics were incorporated into the primary and secondary school national curriculum in 2016. In secondary schools, these topics are part of history, economics and social science class. The Peruvian Superintendence of Banking, Insurance and Private Pension Funds has also developed *Finanzas en el Cole* (Finances at School), which provides methodology, pedagogical support and training programmes for primary and secondary school teachers. Since 2007, this programme has been conducted in all 24 regions of the country and reached over 17 000 teachers.

The Core Competencies for Financial Education were established in **Portugal** in 2013. They provide guidelines for the implementation of financial education in schools and are structured according to the stages of education (kindergarten, basic [up to grade 9] and secondary [grades 10 to 12]). Students are taught about budgeting, the financial system, financial products, savings, credit, ethics, and the rights and duties of financial consumers. A teachers' training programme was launched in 2014. Workbooks that support financial education in school through a story-telling approach and practical exercises were made available to students in basic education in 2015; workbooks for secondary school students are under preparation. Financial education is taught as part of the broader subject "education for citizenship" and has been compulsory since 2018.

In **Russia**, financial literacy modules are being developed to be taught in social studies classes; mathematics classes also cover certain financial tasks. Teachers of other subjects, such as literature and geography, also have various financial literacy modules at their disposal, and new financial literacy textbooks and materials are also being developed for these purposes. At the end of 2019, a variety of educational kits, including textbooks and workbooks, were distributed to students in grades 4 to 11. A variety of teacher training centres across the country have now trained 49 000 secondary school teachers and future teachers in both general and vocational tracks.

To promote financial education in schools in **Spain**, the National Securities Market Commission, the Bank of Spain and the Ministry of Education, Culture and Sports established a Financial Education Programme. This voluntary programme has been in place since 2010 and is aimed at students between the ages of 14 and 18 (roughly corresponding to the third and fourth years of secondary education and to higher educational institutions). It provides students' and teachers' manuals in all of Spain's co-official languages and English. These manuals cover ten topics, including the content areas identified in PISA (see below). A public website, with a repository including teaching resources, games and multimedia tools, has also been developed. Every year, this programme is conducted in roughly 500 schools; it reached roughly 300 000 students in its first five years. Financial education is also included as part of social sciences in primary education, and as part of economics (an optional course) in the first year of secondary education.

Financial education in the **United States** varies at the level of the state and district. In some states, it is a district-level decision as to whether schools must offer an optional course in personal finance. In other states, personal finance content is taught within another course, often economics, mathematics or social sciences. In five other states, all schools much teach personal finance as a standalone course and students must complete a certain number of credits in this subject in order to graduate

Offering young people financial education through extracurricular and after-school initiatives

Young people can learn about financial matters from a variety of sources, including their parents, friends, schools, extracurricular activities, and through personal experiences, such as making purchases, choosing a mobile phone plan, opening a bank account, or taking out a student loan. Some public authorities, together with non-profit organisations and financial institutions, also

try to teach young people basic financial literacy skills outside of normal school hours through extracurricular activities or after-school initiatives. Extracurricular activities may be organised by the school or offered by external organisations and might include participation in events dedicated to money or saving, school visits from staff of a financial institution, stock market games, visits to a money museum, or events where students can create their own small business. After-school initiatives may be offered through organisations such as youth groups or sports clubs and often include games, comics, videos, websites, mobile apps or radio programmes. Below are a few (non-exhaustive) examples of different delivery methods and channels in the countries that participated in the PISA 2018 financial literacy assessment.

Most countries and economies that participated in the PISA 2018 financial literacy assessment organise events to raise awareness about personal finance issues as part of internationally co-ordinated events, such as Global Money Week or World Savings Day, and/or as independent events, such as Financial Literacy Month in Canada and the United States.

In **Canada**, Talk With Our Kids About Money (TWOKAM) Day is held every April. On this day, teachers give lessons about money and students can present projects in "money fairs". As of 2018, TWOKAM has reached 7 000 schools and 600 000 students over 7 years.

March has been designated as Financial Literacy Month in **Estonia**. For the past seven years, the Estonian Banking Association and its partners have provided school classes for junior high and high school students. Students can also take part in the Estonian Money Quiz and other money Olympiads.

During Financial Education Month in **Italy**, schools and universities, public authorities, local communities, consumer associations, professional associations, non-profit organisations, theatres, museums and financial institutions collaborate to create, promote and co-ordinate financial education initiatives across the country. In 2019, 602 initiatives were organised in 191 cities across the country; just over half of these events (310) were aimed at primary and secondary school students and university students. An Olympics of Economics and Finance was organised for the first time in the 2018/2019 school year, in which almost 300 secondary schools and 7 600 students across the country took part.

The Financial and Capital Market Commission in **Latvia** organises Financial Literacy Week. In 2017, students in Latvia were asked to examine their habits and see what changes might be needed for them to become more financially efficient and sustainable. A "smart piggybank" named Gudrīte, located at the National Library in Riga, was the week's mascot. It travelled across the country to meet with residents and to test their financial literacy.

Likewise, one day of Financial Education Week in **Portugal** (held every year close to World Savings Day) is specifically focussed on students. Classrooms are transformed into thematic spaces filled with financial education workshops, and the winning projects of the *Todos Contam* financial education competition are announced.

Five National Financial Literacy Weeks for Children and Youth have been organised in **Russia** since 2015, reaching over 6.6 million participants. This event has grown in size from 300 events in 2015 to over 25 000 in 2018 and includes games, lectures, masterclasses, quizzes, plays and quests. All-Russian online financial literacy contests have also been held; in 2018, over 26 000 students participated.

Students in **Spain** who participate in the Financial Education Programme conducted in schools (discussed above) can register in an annual competition that aims to raise students' awareness of the importance of financial literacy across the various stages of life. In the past, the competition has asked students to create infographics, videos and newspaper articles related to financial education. Most recently, the competition has tested students' knowledge through a question-and-answer contest with different elimination phases; this format will be continued in the future. Prizes are awarded on Financial Education Day each year.

One international extracurricular initiative is Junior Achievement, a programme that aims to provide students with financial and economic education and experience in entrepreneurship. For example, in **Lithuania**, this programme reaches approximately 20 000 students in more than 350 schools every year through its 500 trained facilitators. Junior Achievement also initiated a pilot programme in 10 Lithuanian primary schools during the 2019/2020 school year to teach children how to plan their own finances.

Several youth-led organisations in **Canada** also provide extracurricular activities and support for students. PennyDrops is a non-profit organisation active in six Canadian provinces through which university student mentors visit high schools and run courses that cover how to establish financial goals, save and invest in one's future, as essential parts of preparing for success after high school. Another non-profit organisation, FuturFund, founded the Financial Literacy Youth Network in 2018. This network, the first in Canada focussed solely on youth, enables young people to share tips and resources.

The **Bank of Estonia** operates a museum with exhibitions about the invention of money, various monetary systems throughout Estonian history, how to spot counterfeit money, and the impact of interest rates on daily life.

Similarly, the central bank of **Latvia**, *Latvijas Banka*, established a visitor centre called "Money World" and created a website called "Money School", through which students and their families can develop their financial literacy outside of school. This website also hosted a competition, while the Latvian Insurers' Association developed a test about insurance also aimed at students.

"Learning financial literacy from the mistakes and successes of literary heroes" is a contest in **Russia** in which students analyse the financial and economic behaviour of characters in famous books. Over 750 entries were submitted in 2018. The Ministry of Finance and the creators of the popular children's animated series "Smeshariki" developed a set of 20 episodes, "The ABCs of financial literacy with Smeshariki". In each episode, the Smeshariki, a group of colourful animals, find themselves in funny situations while teaching children how to assess their financial capabilities, make choices, predict the consequences of financial decisions and take responsibility for their actions. In the first episode, for example, the Smeshariki escape an unpleasant situation with the help of investments and savings. These episodes, released on YouTube, have received over 46 million views, as of the publication of this report.

In the **United States**, the Consumer Financial Protection Bureau co-ordinates the Youth Employment Success Initiative, which helps 20 municipalities across the country integrate financial knowledge and skills-building into existing youth employment and training programmes. The goals of this initiative include increasing the number of young people who can open safe accounts, have access to age-appropriate financial education, and feel empowered to plan for their financial future. The Doorways to Dreams Fund in the United States also designed several free online and mobile games that aim to improve personal financial skills, knowledge and self-confidence.

THE FINANCIAL LITERACY ASSESSMENT IN PISA 2018

The PISA 2018 assessment of financial literacy amongst 15-year-old students was the third of its kind. Results of the first assessment, which was conducted in 18 countries and economies, are available in *PISA 2012 Results: Students and Money (Volume VI)* (OECD, 2014[15]); results from the second assessment, which covered 15 countries and economies, are available in the volume *PISA 2015 Results: Students' Financial Literacy (Volume IV)* (OECD, 2017[16]). This third assessment covers 20 countries and economies including:

- 13 OECD countries and economies:[5] Australia, seven Canadian provinces (British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario and Prince Edward Island; hereafter "the Canadian provinces"), Chile, Estonia, Finland, Italy, Latvia, Lithuania, Poland, Portugal, the Slovak Republic, Spain and the United States
- 7 partner (non-OECD) countries: Brazil, Bulgaria, Georgia, Indonesia, Peru, Russia and Serbia.

Seven countries participated in all three financial literacy assessments: Australia, Italy, Poland, Russia, the Slovak Republic, Spain and the United States. Estonia and Latvia participated in both 2012 and 2018, and Brazil, the Canadian provinces,[6] Chile, Lithuania and Peru participated in both 2015 and 2018. The remaining five countries participated for the first time in the financial literacy assessment in 2018.

PISA assesses the readiness of 15-year-old students for life beyond compulsory education by collecting and analysing test and questionnaire data about students' knowledge, skills and the context in which they live and learn. It thus provides a rich set of cross-country comparative data that policy makers and other stakeholders can use to make evidence-based decisions. International comparative data on financial literacy can help answer questions such as "How experienced are 15-year-old students with digital financial services and transactions?" and "What differentiates financially literate students from those who struggle to understand financial concepts and make informed decisions?".

The financial literacy assessment focuses primarily on measuring the proficiency of 15-year-old students in applying the knowledge and skills that they have learned in and outside of school. Like other PISA domains, financial literacy is assessed using an instrument designed to provide data that are valid, reliable and interpretable. The *PISA 2018 Assessment and Analytical Framework* (OECD, 2019[17]) presents the comprehensive structure that supports the assessment of 15-year-old students' financial literacy; it is largely unchanged from the framework used in the PISA 2012 and 2015 financial literacy assessments.

Defining financial literacy

The definition of financial literacy for 15-year-olds that underpins the assessment builds on the OECD definitions of financial education and adult financial literacy. The OECD defines financial education as "the process by which financial consumers and investors improve their understanding of financial products, concepts and risks and, through information, instruction and/or objective advice, develop the skills and confidence to become more aware of financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being" (OECD, 2005[13]). This definition was endorsed by G20 leaders in 2012 (OECD/INFE, 2012[3]) and is used in a majority of countries (OECD/INFE, 2015[4]). "Understanding", "confidence", "skills" and the notion of applying understanding and skills ("effective actions") are key elements of this definition.

For the purpose of measuring financial literacy amongst adults, the OECD/INFE developed the following working definition: "Financial literacy is a combination of the awareness, knowledge, skills, attitudes and behaviours necessary to make sound financial decisions and ultimately achieve individual financial well-being" (Atkinson and Messy, 2012[18]; OECD, 2016[10]). This definition is now globally acknowledged and was also endorsed by G20 leaders in 2012 (G20, 2012[2]).

The definition of financial literacy in the PISA Financial Literacy Assessment Framework refines the definition used for adults to make it relevant for 15-year-old students. The definition also incorporates students' ability to use financial knowledge and skills to meet challenges in the future.

> *Financial literacy is knowledge and understanding of financial concepts and risks, and the skills, motivation and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life.*

This definition, like other definitions of PISA domains, has two parts. The first refers to the kinds of thinking and behaviour that characterise the domain. The second part refers to the importance of developing the particular literacy. In PISA, "literacy" refers not only to the capacity of 15-year-old students to apply knowledge and skills in key subject areas, but also to students' ability to analyse, reason and communicate effectively as they pose, solve and interpret problems in a variety of situations.

The framework for assessing financial literacy

The PISA 2018 Assessment and Analytical Framework maintains the same definition and operationalisation of financial literacy as the PISA 2012 and PISA 2015 assessment frameworks (OECD, 2013[19]; OECD, 2017[20]; OECD, 2019[17]).

When the 2012 framework was developed, it constituted the first step in constructing a financial literacy assessment of international scope. It provided an articulated plan for developing items, designing the instrument and providing a common language for discussing financial literacy. In addition to providing a working definition of financial literacy, the framework organises the domain around the content, processes and contexts that are relevant for the assessment of 15-year-old students. This conceptualisation was taken as a reference for further developing an international core-competencies framework on financial literacy for 15-18 year-olds (Box IV.1.4).

Box IV.1.4. OECD/INFE Core Competencies Framework on Financial Literacy for Youth

In 2015, the OECD/INFE developed the Core Competencies Framework on Financial Literacy for Youth (OECD, 2015[21]), based on existing financial education learning frameworks (OECD, 2014[1]) and on the conceptualisation of financial literacy developed in the PISA assessment framework (OECD, 2013[19]; OECD, 2017[20]).

This framework describes the basic level of financial literacy – in terms of knowledge, attitudes and skills – that is likely to be needed by young people between the ages of 15 and 18 to fully and safely participate in economic and financial life. The competencies are outcome-based, can be adapted to national circumstances and can be used in a flexible manner, taking into account differences in the culture and context at the national and local levels. Some competencies may be more relevant than others, depending on national social and cultural circumstances.

Content

The content categories comprise the areas of knowledge and understanding that are essential for financial literacy. The four content areas are:

- money and transactions
- planning and managing finances
- risk and reward
- the financial landscape.

The content category "money and transactions" includes awareness of the different forms and purposes of money (including digital forms of money); and handling simple monetary transactions, such as online payments, spending, value for money, bank cards, cheques, bank accounts and currencies.

The content category "planning and managing finances" covers skills such as planning and managing income and wealth over both the short term and the long term, particularly the knowledge and ability to monitor income and expenses, and to make use of income and other available resources to enhance financial well-being.

The content category "risk and reward" incorporates the ability to identify ways of managing, balancing and covering risks (including through insurance and savings products) and an understanding of the potential for financial gains or losses across a range of financial contexts and products, such as a credit agreement with a variable interest rate, online credit and investment products.

The content category "financial landscape" relates to the features of the financial world. It covers the rights and responsibilities of consumers in the financial marketplace and within the general financial environment, and the main implications of financial contracts. It also incorporates an understanding of the consequences of changes in economic conditions and public policies, such as changes in interest rates, inflation, taxation or welfare benefits, and knowledge of the precautions needed to protect oneself from data theft and identity fraud.

Processes

The process categories relate to cognitive processes. They describe students' ability to recognise and apply concepts relevant to the domain, and to understand, analyse, reason about, evaluate and suggest solutions. In PISA financial literacy, four process categories have been defined in no particular hierarchical order:

- identifying financial information
- analysing information in a financial context
- evaluating financial issues
- applying financial knowledge and understanding.

The process category "identifying financial information" is applicable when the student searches for and accesses sources of financial information and identifies or recognises their relevance.

The process category "analysing information in a financial context" covers a wide range of cognitive activities undertaken in financial contexts, including interpreting, comparing and contrasting, synthesising and extrapolating from information that is provided.

The process category "evaluating financial issues" focuses on recognising or constructing financial justifications and explanations, by applying financial knowledge and understanding to specific contexts. It also involves cognitive activities such as explaining, assessing and generalising.

The process category "apply financial knowledge and understanding" focuses on taking effective action in a financial setting by using knowledge of financial products and contexts, and by understanding financial concepts.

Context

The context categories refer to the situations in which financial knowledge, skills and understanding are applied, ranging from the personal to the global. In PISA, assessment tasks are framed in general life situations. The focus may be on the individual, the family or peer group, the community, or even the world. The contexts identified for the PISA financial literacy assessment include:

- education and work
- home and family
- individual
- societal.

The context category "education and work" highlights that students are currently in education, and that many of them will continue in education or training past the age of 15. Moreover, some students may already be engaged in casual employment outside of school hours, and some may soon leave education and move into the labour market.

The context category "home and family" includes financial issues relating to the costs involved in running a household, including the kind of shared accommodation that young people often use shortly after leaving the family home.

The context category "individual" covers most of students' financial decisions, including using products such as mobile phones or laptops, choosing personal products and services, and handling contractual issues, such as getting a loan.

The context category "societal" recognises that individuals' financial decisions and behaviours can influence and be influenced by the rest of society. It includes matters such as being informed, understanding the rights and responsibilities of financial consumers, and understanding the purpose of taxes and local government charges.

The 2018 financial literacy assessment in practice

Around 117 000 students were assessed in financial literacy in 2018, representing about 13.5 million 15-year-olds in the schools of the 20 participating countries and economies.[7]

In countries/economies that conducted the financial literacy assessment, students in sampled schools were divided into two groups. One group was assessed in financial literacy, mathematics and reading, and the other group was assessed in the core PISA subjects (reading, mathematics and science). Both groups were assessed for a total of 120 minutes.

This protocol is unlike the approach taken in the PISA 2015 financial literacy assessment, where some students who sat the core PISA assessment (in reading, mathematics and science) were selected to sit the financial literacy assessment as well, but it is similar to the approach taken in the PISA 2012 financial literacy assessment. Differences in test administration therefore add greater uncertainty to comparisons of student performance in the financial literacy assessment between 2015 and 2018.[8]

The 2018 financial literacy assessment consisted of a one-hour, computer-based test using items drawn from a set of 43 question items. Roughly two-thirds of the test items in the 2018 assessment were also used in the 2012 and 2015 assessments; the other one-third were newly developed so as to increase coverage of all aspects of the framework. As in other domains, financial literacy items were grouped in units, where one or more items shared a common stimulus. The selection included financially focussed stimulus material in diverse formats, including prose, diagrams, tables, charts and illustrations.

Students who sat the financial literacy assessment also answered the PISA student questionnaire about themselves, their homes, their school and learning experiences, and attitudes. They also answered questions about their experiences with money matters, which were included at the end of the financial literacy test booklets. School principals received a questionnaire that asked questions about school policies and the learning environment, with no particular emphasis on financial education.

As in other domains, there were two types of items: constructed-response items and selected-response (multiple-choice) items. Constructed-response items require students to generate their own answers. The format of the answer may be a single word or figure, or it may be longer (e.g. a few sentences or a worked calculation). Selected-response items require students to choose one or more alternatives from a given set of options. The common types in this category are simple multiple-choice items, which usually require the selection of one from a set of four options; and complex multiple-choice items, in which students respond to a series of Yes/No-type questions. Selected-response and very short "closed" constructed-response items do not require expert coding (marking), but all other constructed-response items were coded by trained and monitored judges.[9]

The PISA 2018 financial literacy assessment included items in the four content categories, the four processes and the four contexts described above. Some 16 of the 43 items covered the content area of "planning and managing finances"; 11 covered each of the content areas of "money and transactions" and "risk and reward"; and the remaining 5 items covered the content area of "financial landscape".

Between 11 and 14 of the 43 items covered the process areas of "analysing information in a financial context", "evaluating financial issues" and "applying financial knowledge and understanding"; the remaining 7 items covered the process area of "identifying financial information". Just under half (21) of the 43 items were set in the "individual" context, followed by 14 items in the "home and family" context; the remaining 8 items were divided between the "education and work" and "societal" contexts.

Several sample items, either used in previous financial literacy assessments or in the PISA 2018 financial literacy field trial, are presented and categorised in Annex C.

Notes

1. Financial knowledge is one component of financial literacy; this is further developed later in this chapter.
2. These countries and economies are Australia, the Canadian provinces that participated in the assessment, Chile, Estonia, Finland, Italy, Latvia, Lithuania, Poland, Portugal, the Slovak Republic, Spain and the United States.
3. More specifically, data for Australia, Canada, Estonia, Finland, Italy, the Netherlands, Poland, the Slovak Republic, Spain and Russia were collected between 2011 and 2012; data for Chile and Lithuania were collected between 2014 and 2015; and data for Peru and the United States were collected in 2017.
4. Information in this chapter regarding national strategies, financial education programmes in schools, and extracurricular financial education activities is based on information from participating countries. The absence of a country in any particular section should not be interpreted as the lack of such activities or programmes in that country, but rather the lack of information about such activities as this report was being prepared.
5. The Netherlands also participated in the PISA 2018 financial literacy assessment. However, the students in the Netherlands who sat this assessment were not representative of the entire student population in the country, and the results are hence not comparable with results from other participating countries/economies. Results from the Netherlands are reported at the bottom of all of the tables in this volume, although they are not presented in any of the figures and are not included when calculating any cross-country averages.
6. The same seven Canadian provinces participated in both the PISA 2015 and 2018 financial literacy assessments.
7. Students in the Netherlands are excluded from this count.
8. Box IV.2.2 provides further details regarding differences in how the PISA financial literacy assessment was conducted over the testing cycles, and the ensuing caveats in comparing results over time.
9. See the *PISA 2018 Assessment and Analytical Framework* (OECD, 2019[17]) for more information.

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2

How did students perform in financial literacy in PISA 2018?

This chapter compares students' mean scores in financial literacy across the countries and economies that participated in the PISA 2018 financial literacy assessment. It presents the various levels of proficiency in financial literacy that students exhibited. The chapter then discusses changes in financial literacy performance over time. It concludes by highlighting differences in the socio-economic contexts across participating education systems.

Today's youth will enter a world that is likely to be markedly different from the one in which their parents came of age. These differences will also affect their personal finances. New technologies and the increased digitalisation of a panoply of activities, including financial activities, may facilitate financial management, but they also require greater engagement on the part of citizens and may present new forms of risk. The difficulty of funding current pension schemes and greater precarity in the labour market, as exemplified by the Covid-19 crisis, may require today's youth to become more proactive with their financial decision making. It is therefore essential that young people are equipped with the skills they need to understand the financial landscape in which they live and to make responsible financial decisions. The PISA 2018 financial literacy assessment gauged whether 15-year-old students had acquired these skills and were well-prepared to handle their financial affairs.

This chapter describes student performance in the 20 countries and economies that took part in the PISA 2018 financial literacy assessment.[1] It then discusses changes in performance since the first PISA financial literacy assessment in 2012. Performance in financial literacy is compared to performance in mathematics and reading, and mean performance (at the country level) is related to various contextual factors in the participating countries/economies.

What the data tell us

- On average, students in Estonia outperformed students from all other countries/economies in financial literacy. Students in the Canadian provinces and Finland outperformed students from all other countries/economies, except Estonia.
- Some 85% of students, on average across OECD countries/economies, attained at least Level 2 proficiency in financial literacy. At a minimum, these students can apply their knowledge of common financial products and commonly used financial terms to situations that are immediately relevant to them, and can recognise the value of a simple budget. Over 90% of students in the Canadian provinces, Estonia, Finland and Poland displayed at least Level 2 proficiency. In five partner countries, more than one in three students did not attain Level 2 proficiency.
- Some 10% of students attained the highest level of proficiency in financial literacy, Level 5, on average across OECD countries/economies. These students can apply their knowledge to contexts that may only become relevant to their lives later on, can analyse complex financial products, and can take into account features of financial documents that are not immediately obvious. Almost one in five students in Estonia and Finland displayed Level 5 proficiency.
- On average across OECD countries/economies, mean performance in financial literacy did not change significantly between 2012 and 2018, although it improved by 20 score points between 2015 and 2018. Mean performance improved in Estonia between 2012 and 2018, and in five countries between 2015 and 2018.
- Some 20% of the variation in performance in financial literacy, on average across OECD countries/economies, is independent of performance in the mathematics and reading assessments, meaning that this variation is related to aspects of the assessment that are unique to financial literacy.

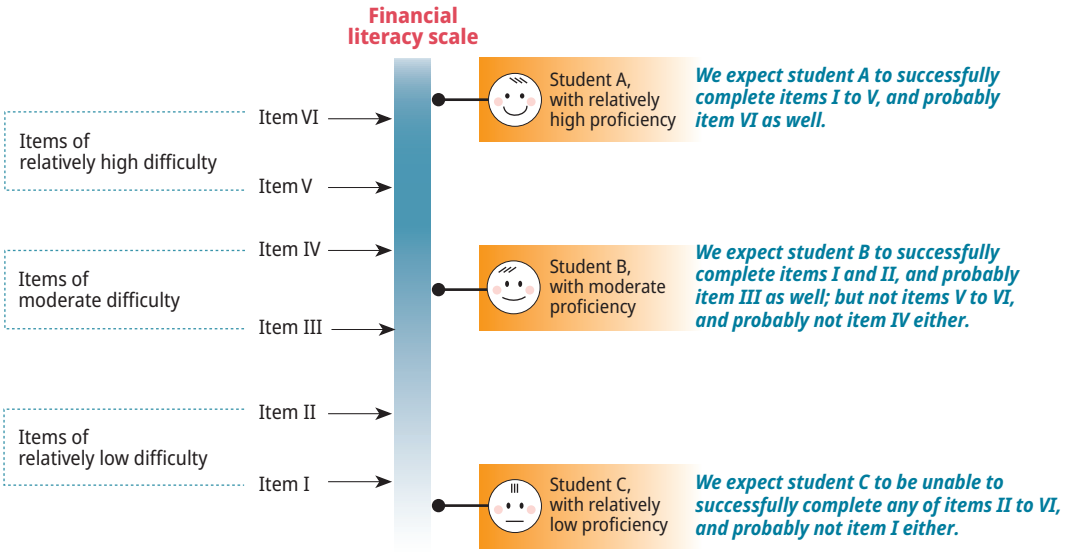
HOW THE PISA 2018 FINANCIAL LITERACY RESULTS ARE REPORTED

PISA reports both the difficulty of questions and the proficiency of test-takers on a single continuous scale (Figure IV.2.1), based on item-response theory models (see Annex A1). By showing the difficulty of each question on this scale, it is possible to locate the level of proficiency in the subject that the question demands. Showing the proficiency of test-takers on the same scale makes it possible to describe each test-taker's level of skill or literacy by the type of tasks that he or she can perform correctly most of the time.

Estimates of student proficiency are based on the kinds of tasks students are expected to perform successfully. This means that students are likely[2] to be able to successfully answer questions located at or below the level of difficulty associated with their own position on the scale. Moreover, the higher a test-taker's proficiency level is located above the difficulty of a question, the more likely he or she is to successfully complete the question.

Conversely, test-takers are unlikely to be able to successfully answer questions above the level of difficulty associated with their position on the scale. The lower their proficiency level is relative to the difficulty of a question, the less likely they are to successfully complete the question.

Figure IV.2.1 **Relationship between questions and student performance on a scale**



AVERAGE PERFORMANCE IN FINANCIAL LITERACY

In 2018, the mean financial literacy score across the 13 OECD countries and economies with valid data was 505 points, while the mean financial literacy score across the 20 participating countries and economies with valid data was 478 points. Estonia (547 points) was the highest-performing country/economy in financial literacy, scoring significantly higher than all other countries/economies that participated in the PISA 2018 financial literacy assessment. It was followed by Finland (537 points) and the Canadian provinces (532 points), which also scored significantly higher than all other countries (except Estonia). There was no significant difference in mean performance between Finland and the Canadian provinces (Table IV.2.1).

Table IV.2.1 shows each country's mean score and indicates for which pairs of countries/economies the differences between the means are statistically significant. When comparing mean performance across countries/economies, only those differences that are statistically significant should be considered. For each country/economy shown in the middle column, the countries and economies whose mean scores are not statistically significantly different are listed in the right column. For example, as mentioned above, there was no significant difference in the mean performance of students in Finland and the Canadian provinces; and the mean performance of students in Lithuania cannot be distinguished from that of students in the United States, Latvia or the Russian Federation (hereafter "Russia") with certainty.

Table IV.2.1 also divides countries/economies into three broad groups: those whose mean scores are statistically around the OECD mean (highlighted in white); those whose mean scores are above the OECD mean (highlighted in blue); and those whose mean scores are below the OECD mean (highlighted in grey).

In addition to Estonia, Finland and the Canadian provinces, two other countries – Poland and Australia – performed above the OECD average in financial literacy. The mean performance in three countries – the United States, Portugal and Latvia – was not statistically significantly different from the OECD average. Finally, 12 countries – Lithuania, Russia, Spain, the Slovak Republic, Italy, Chile, Serbia, Bulgaria, Brazil, Peru, Georgia and Indonesia – performed below the OECD average in financial literacy. It is noteworthy that all partner countries, i.e. non-OECD countries, scored below the OECD average. Box IV.2.1 offers a comparison with data on adults' financial knowledge.

Table IV.2.1 **Comparing countries'/economies' mean performance in financial literacy**

Statistically significantly **above** the OECD average
Not statistically significantly different from the OECD average
Statistically significantly **below** the OECD average

Mean score	Comparison country/economy	Countries and economies whose mean score is not statistically significantly different from the comparison country's/economy's score
547	Estonia	
537	Finland	Canadian provinces
532	Canadian provinces	Finland
520	Poland	
511	Australia	United States, Portugal
506	United States	Australia, Portugal, Latvia, Lithuania
505	Portugal	Australia, United States, Latvia
501	Latvia	United States, Portugal, Lithuania, Russia
498	Lithuania	United States, Latvia, Russia
495	Russia	Latvia, Lithuania, Spain
492	Spain	Russia
481	Slovak Republic	Italy
476	Italy	Slovak Republic
451	Chile	Serbia
444	Serbia	Chile
432	Bulgaria	
420	Brazil	
411	Peru	Georgia
403	Georgia	Peru
388	Indonesia	

Source: OECD, PISA 2018 Database, Tables IV.B1.2.1, IV.B1.3.10 and IV.B1.3.11
StatLink https://doi.org/10.1787/888934123254

The gap in financial literacy performance between the highest- and lowest-performing OECD countries/economies was 97 points, and the difference between the highest- and lowest-performing countries/economies that took part in the PISA 2018 financial literacy assessment was over 60% larger (159 points). These gaps represent marked differences in the ability of 15-year-olds to make informed financial decisions. However, only 20 countries/economies participated in this assessment and provided valid, comparable data; it is likely that these gaps would be even larger had more countries participated.

The goal of PISA is to provide useful information to educators and policy makers concerning the strengths and weaknesses of their country's education system, the progress made over time, and opportunities for improvement. When ranking countries and economies in PISA, it is important to consider the social and economic context in which education takes place. Moreover, many countries and economies score at similar levels; small differences that are not statistically significant or practically meaningful should not be emphasised.

Table IV.2.2 shows, for each country/economy, an estimate of where its mean performance ranks amongst all other countries and economies that participated in PISA as well as, for OECD countries/economies, amongst all OECD countries/economies. Because mean-score estimates are derived from samples and are thus associated with statistical uncertainty, it is often not possible to determine an exact ranking for all countries/economies. However, it is possible to identify the range of possible rankings for a country's/economy's mean performance.[3] The range of ranks can be wide, particularly for countries/economies whose mean scores are similar to those of many other countries/economies.[4]

Table IV.2.2 **Financial literacy performance at the national level**

	Financial literacy scale					
			Range of ranks			
			OECD countries/economies		All countries/economies	
	Mean score	95% confidence interval	Upper rank	Lower rank	Upper rank	Lower rank
Estonia	547	543 - 552	1	1	1	1
Finland	537	532 - 542	2	3	2	3
Canadian provinces	532	526 - 539	2	3	2	3
Poland	520	515 - 525	4	4	4	4
Australia	511	507 - 515	5	6	5	6
United States	506	499 - 512	5	8	5	8
Portugal	505	501 - 510	6	8	6	8
Latvia	501	498 - 505	7	9	7	9
Lithuania	498	495 - 502	8	9	8	10
Russia	495	489 - 501			9	11
Spain	492	488 - 497	10	10	10	11
Slovak Republic	481	477 - 486	11	12	12	13
Italy	476	472 - 481	11	12	12	13
Chile	451	445 - 457	13	13	14	14
Serbia	444	438 - 449			15	15
Bulgaria	432	424 - 440			16	16
Brazil	420	416 - 425			17	17
Peru	411	404 - 417			18	18
Georgia	403	398 - 408			19	19
Indonesia	388	382 - 395			20	20

Note: OECD countries/economies are shown in black. Partner countries are shown in blue.

Range-of-rank estimates are computed based on mean and standard-error-of-the-mean estimates for each country/economy, and take into account multiple comparisons amongst countries and economies at similar levels of performance. For an explanation of the method, see Annex A3.

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

Source: OECD, PISA 2018 Database, Table IV.B1.2.1.

StatLink https://doi.org/10.1787/888934123273

Box IV.2.1. **OECD/INFE International Survey of Adult Financial Literacy Competencies**

Addressing a call by G20 leaders to develop practical tools for financial literacy measurement, the OECD International Network on Financial Education (OECD/INFE) conducted an international data-collection exercise in 2015 to measure financial literacy and financial inclusion. Over 50 000 adults aged 18 to 79 from 30 countries and economies around the world participated in the survey. The results provide insights into aspects of financial knowledge, attitudes, behaviours and inclusion.

The OECD/INFE International Survey of Adult Financial Literacy Competencies asked a series of questions aimed at measuring financial knowledge, covering topics such as the time-value of money, interest, inflation, risk and diversification. Results of the survey show that, on average across the 17 participating OECD countries/economies, 62% of adults could correctly answer at least five out of seven financial knowledge questions. Amongst the countries/economies that also participated in the PISA 2018 financial literacy assessment, less than 50% of adults in Brazil and Russia could correctly answer at least five out of seven questions, while 73% of adults in Estonia and 70% of adults in Finland could do so. Comparisons with PISA findings should be made with caution, as the evidence is drawn from different measurement tools and on different sets of countries; but the different country rankings across adults and young people might suggest a considerable generational divide in some countries. For instance, students in Poland performed relatively well at the international level, while adults in Poland did not perform better than the average adult in other countries.

Source: OECD (2016), *OECD/INFE International Survey of Adult Financial Literacy Competencies,* OECD, http://www.oecd.org/daf/fin/financial-education/OECD-INFE-International-Survey-of-Adult-FInancial-Literacy-Competencies.pdf.

THE RANGE OF PROFICIENCY COVERED BY THE PISA FINANCIAL LITERACY ASSESSMENT

The mean scores described in the previous section allow for comparisons of proficiency in financial literacy between students in one country/economy and those in another country/economy, but they do not identify the specific types of financial tasks that students are capable of accomplishing. To do so, the financial literacy scale was divided into a range of proficiency levels: Levels 1, 2, 3, 4 and 5, in increasing order of proficiency. These levels were also used in PISA 2012 and 2015. The score cut-offs between proficiency levels did not change over successive assessments.

Proficiency scales not only describe student performance; they also describe the difficulty of the tasks presented to students in the assessment. The description of what students at each proficiency level can do and of the typical features of tasks at each level (Table IV.2.3) were obtained from an analysis of the tasks located at each proficiency level.[5] However, there is much overlap between the descriptions, and items classified in one proficiency level may also exhibit properties similar to those of items in neighbouring proficiency levels.[6]

Table IV.2.3 **Summary description of the five levels of financial literacy proficiency in PISA 2018**

Level	Lower score limit	Percentage of students able to perform tasks at each level or above (OECD average)	What students can typically do
5	625	10.5	Students can apply their understanding of a wide range of financial terms and concepts to contexts that may only become relevant to their lives in the long term. They can analyse complex financial products and can take into account features of financial documents that are significant but unstated or not immediately evident, such as transaction costs. They can work with a high level of accuracy and solve non-routine financial problems, and they can describe the potential outcomes of financial decisions, showing an understanding of the wider financial landscape, such as income tax.
4	550	33.1	Students can apply their understanding of less common financial concepts and items to contexts that will be relevant to them as they move towards adulthood, such as bank account management and compound interest in savings products. They can interpret and evaluate a range of detailed financial documents, such as bank statements, and explain the functions of less commonly used financial products. They can make financial decisions taking into account longer-term consequences, such as understanding the overall cost implication of paying back a loan over a longer period, and they can solve routine problems in less common financial contexts.
3	475	62.8	Students can apply their understanding of commonly used financial concepts, terms, and products to situations that are relevant to them. They begin to consider the consequences of financial decisions and they can make simple financial plans in familiar contexts. They can make straightforward interpretations of a range of financial documents and can apply a range of basic numerical operations, including calculating percentages. They can choose the numerical operations needed to solve routine problems in relatively common financial literacy contexts, such as budget calculations.
2	400	85.3	Students begin to apply their knowledge of common financial products and commonly used financial terms and concepts. They can use given information to make financial decisions in contexts that are immediately relevant to them. They can recognise the value of a simple budget and can interpret prominent features of everyday financial documents. They can apply single basic numerical operations, including division, to answer financial questions. They show an understanding of the relationships between different financial elements, such as the amount of use and the costs incurred.
1	326	96.3	Students can identify common financial products and terms and interpret information relating to basic financial concepts. They can recognise the difference between needs and wants and can make simple decisions on everyday spending. They can recognise the purpose of everyday financial documents, such as an invoice, and apply single and basic numerical operations (addition, subtraction or multiplication) in financial contexts that they are likely to have experienced personally.

Source: OECD, PISA 2018 Database, Table IV.B1.2.4

StatLink https://doi.org/10.1787/888934123292

Table IV.2.4 presents the difficulty level of several released items from past PISA financial literacy assessments; these items were used in either the field trial or the main study in PISA 2012, 2015 or 2018. These items are presented in full in Annex C and on line.

Table IV.2.4 **Map of selected financial literacy questions, illustrating the proficiency levels**

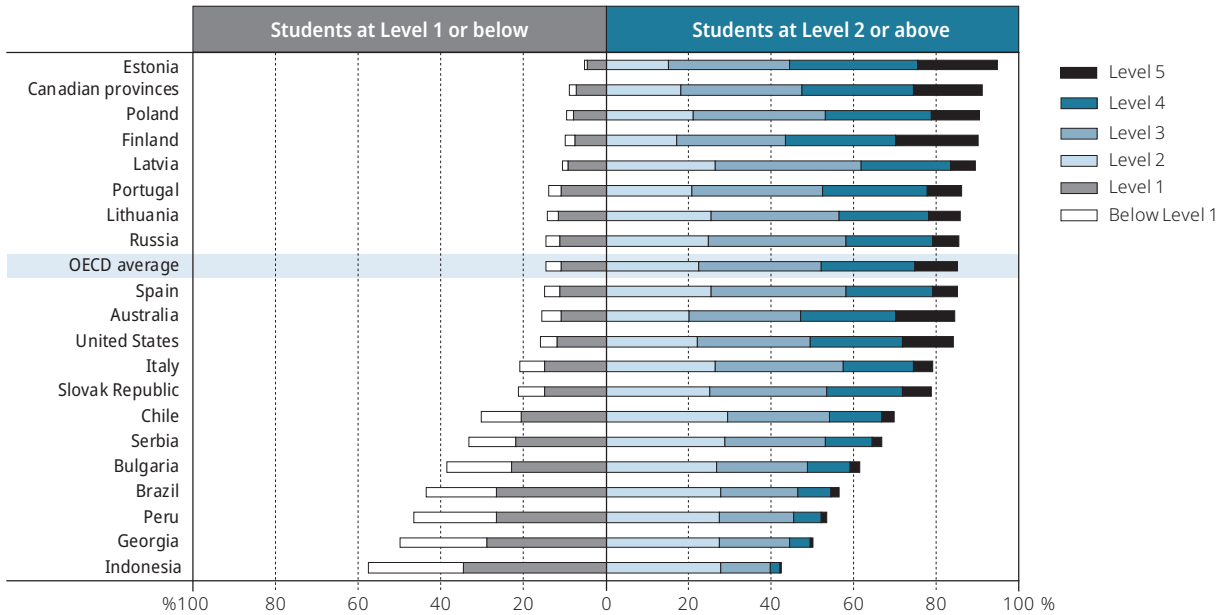
Level	Lower score limit	Question	Question difficulty (in PISA score points)
5	625	**BANK ERROR** – Question 1	797
		INVOICE – Question 3 (for full credit)	660
		BANK STATEMENT – Question 2 (for full or partial credit)	N/A
		ZCYCLE – Question 2 (for full or partial credit)	
		ZCYCLE – Question 5	
4	550	**NEW OFFER** – Question 2	582
		PAY SLIP – Question 1	551
		MUSIC SYSTEM	N/A
		BANK STATEMENT – Question 1	
		RINGTONES	
		ONLINE SHOPPING	
		ZCYCLE – Question 1	
		ZCYCLE – Question 3 (for full credit)	
3	475	**INVOICE** – Question 3 (for partial credit)	547
		MOTORBIKE INSURANCE – Question 1, Part 3	494
		COSTS OF RUNNING A CAR	N/A
		PHONE PLANS – Question 1	
		PHONE PLANS – Question 2	
		ZCYCLE – Question 3 (for partial credit)	
2	400	**INVOICE** – Question 2	461
		AT THE MARKET – Question 2	459
		MOBILE PHONE CONTRACT	N/A
		CHARITABLE GIVING	
1	326	**AT THE MARKET** – Question 3	398
		INVOICE – Question 1	360

StatLink https://doi.org/10.1787/888934123311

PERFORMANCE OF STUDENTS AT THE DIFFERENT LEVELS OF FINANCIAL LITERACY PROFICIENCY

Figure IV.2.2 presents the distribution of students across the five levels of financial literacy proficiency. The percentage of students performing at Level 1 or below is shown on the left side of the vertical axis.

Figure IV.2.2 **Percentage of students at each level of proficiency in financial literacy**



Countries and economies are ranked in descending order of the percentage of students who performed at or above Level 2.

Source: OECD, PISA 2018 Database, Table IV.B1.2.4

StatLink https://doi.org/10.1787/888934123330

Proficiency at Level 1

Students proficient at Level 1 display basic financial literacy skills. They can identify common financial products and terms, and interpret information related to basic financial concepts, such as recognising the purpose of an invoice. They can recognise the difference between needs and wants, and they can make simple decisions on everyday spending, such as recognising value by comparing prices per unit. Students at this level can also apply basic single numerical operations, such as addition, subtraction or multiplication, in financial contexts that they are likely to have personally experienced.

Question 3 from *AT THE MARKET* requires Level 1 proficiency. This question asks students to evaluate financial information to make a shopping decision – a situation familiar to many 15-year-old students. It examines whether students can recognise that buying things in bulk may be wasteful if a large amount is not needed, and whether it may be unaffordable to bear the higher absolute cost of buying in bulk in the short term. Students are required to evaluate this situation from a financial perspective and describe their conclusion in this constructed-response question. Students can provide their answers either with or without quantitative information about the price and weight. Full credit is given if students can explain why buying more tomatoes at a cheaper price may not always be a good decision for some people.

Tasks at Level 1 require students to identify and recognise basic financial concepts and knowledge. These tasks are prerequisites for applying knowledge to real-life situations, which is required for tasks at Level 2 and higher. Students performing at or below Level 1 are not yet able to apply their knowledge to real-life situations involving financial issues and decisions.

On average across the 13 OECD countries/economies that participated in the PISA 2018 financial literacy assessment, 96% of students were proficient at Level 1 or higher; on average across all 20 participating countries/economies, this percentage fell to 92%. Only 5% of students in Estonia performed at Level 1 or below in financial literacy, as was the case for less than 10% of students in the high-performing countries/economies of the Canadian provinces, Finland and Poland (Figure IV.2.2).

At the other end of the performance spectrum, over half (57%) of students in Indonesia performed at Level 1 or below in financial literacy; between 40% and 50% of students in Brazil, Georgia and Peru, and between 30% and 40% of students in Bulgaria, Chile and Serbia performed at that level or below. In Georgia and Indonesia, Level 1 was the most commonly observed proficiency level amongst 15-year-old students (Figure IV.2.2). These countries all have much to do in order to equip their students with the ability to make responsible financial decisions in unfamiliar or more complex contexts.

Proficiency at Level 2

Students at proficiency Level 2 begin to apply their knowledge to make financial decisions in contexts that are immediately relevant to them. They can recognise the value of a simple budget, and can undertake a simple assessment of value-for-money, choosing between buying tomatoes by the kilogram or by the box, for example. Students at this level can also apply basic single numerical operations to answer financial questions, and can show an understanding of the relationships between different financial elements, such as the amount of use and the costs incurred. These skills are essential for full participation in society as independent and responsible citizens. Beyond their direct relevance and relationship with basic skills in other subjects, like mathematics and reading, these financial literacy skills may also be related to other competencies that are becoming increasingly important, such as critical thinking and problem solving. Proficiency Level 2 can be considered as a minimum or "baseline" level, below which students may need support in order to answer questions in financial literacy. However, it is neither a starting point from which individuals develop their competency in this subject nor the ultimate goal.

The released item *MOBILE PHONE CONTRACT* is located within proficiency Level 2. This complex multiple-choice item, composed of three short true-or-false questions, tests students' understanding of what contracts are and the responsibilities that they entail. If they have not done so already, students will soon be able to enter contracts under their own name and will need to do so in order to take part in a variety of everyday activities, such as using mobile phones or shopping on line. It is thus essential that they understand what they commit themselves to when they sign a contract.

CHARITABLE GIVING is another released item located at proficiency Level 2. This constructed-response question asks students to discuss the dangers involved in giving one's financial information (e.g. bank details) to an unknown person. Students are likely to receive unsolicited phone calls and e-mails in the future; not all such interactions are initiated in good faith. It is thus essential that students are able to judge whether such communications are trustworthy and genuine; understand that there are risks involved with transferring financial information; and evaluate whether the risks are worth the benefits of continuing the transaction.

On average across OECD countries/economies, 85% of students, or around 6 in 7, were proficient at Level 2 or higher; this fell to 76% when considering all countries/economies that participated in the PISA 2018 financial literacy assessment. Over 90% of students in the Canadian provinces, Estonia, Finland and Poland displayed at least Level 2 proficiency. In contrast, only 43% of students in Indonesia were proficient at Level 2 or higher in financial literacy; fewer than one in two students in Indonesia have the basic skills involved in making responsible and well-informed financial decisions (Figure IV.2.2).

Some 23% of students were proficient at Level 2, on average across OECD countries/economies. This was the most common proficiency level observed in Brazil, Bulgaria, Chile, Peru and Serbia (Figure IV.2.2).

Proficiency at Level 3

Tasks at proficiency Level 3 require students to apply their knowledge of commonly used financial concepts, terms and products to situations that are relevant to them. Students at this level begin to consider the consequences of financial decisions, and they make simple financial plans in common contexts, such as comparing the financial benefits of borrowing money with different interest rates and repayment schedules. They are able to make straightforward interpretations of a range of financial documents, such as invoices and pay slips, and can apply a range of basic numerical operations, such as those involved in making budget calculations. Students at Level 3 can also choose the numerical operations needed to solve routine problems in relatively common financial literacy contexts. Therefore, they show not only a capacity to use mathematical tools but also to choose the tools that are most applicable to the financial tasks at hand.

COSTS OF RUNNING A CAR is a released item located at proficiency Level 3. This is a complex multiple-choice item that, as its name implies, asks students to evaluate factors that affect the operating costs of a car. Students have to understand the difference between fixed and variable costs, and under which category various types of expenses fall. This skill is a key part of planning and managing one's finances; students should begin to develop a clear sense of how their use of a product affects its costs, even if most 15-year-old students will not yet be managing their own budget or driving a car.

The two items in the released unit *PHONE PLANS* are also representative of items that require Level 3 proficiency. In the first item, students are presented with two potential phone plans and must evaluate their advantages and disadvantages. As in *COSTS OF RUNNING A CAR*, no numbers are given; students must instead rely on their intuition and understanding of how cost is related to the degree of use in a somewhat abstract situation. The second item of *PHONE PLANS* presents the phone plans of four phone companies and asks which is the most suitable for a customer with certain properties. Students must combine the concrete information in the phone plans – fixed monthly cost, free minutes and text allowance, and the cost per call (per minute) and per text – with the customer's use schedule to arrive at the solution. This type of budget calculation is already relevant to many 15-year-old students and will become routine for them as they enter adulthood.

On average across OECD countries/economies, 63% of students, or roughly 5 in 8, attained at least Level 3 in the PISA 2018 financial literacy assessment; on average across all participating countries/economies, 52%, or just over half, of the student population attained at least this level. Over 70% of students were able to perform at this level or above in the Canadian provinces, Estonia and Finland, as were over 50% of students in a further 10 countries. However, only 15% of students in Indonesia displayed at least Level 3 proficiency, as did less than 30% of students in Brazil, Georgia and Peru (Figure IV.2.2).

Level 3 was the most commonly observed proficiency level in more than half of the countries/economies that participated in the financial literacy assessment, namely Australia, the Canadian provinces, Italy, Latvia, Lithuania, Poland, Portugal, Russia, the Slovak Republic, Spain and the United States. Indeed, the performance of over one-third of 15-year-old students in Latvia and Russia fell into Level 3; the same was true for over 30% of students in Italy, Lithuania, Poland, Portugal and Spain (Figure IV.2.2).

Proficiency at Level 4

Students who perform at proficiency Level 4 apply their knowledge of less common financial concepts and terms to contexts that will be relevant to them as they move into adulthood. Students at this level can interpret and evaluate a range of detailed financial documents and explain the functions of less commonly used financial products. They can also make financial decisions while taking into account their longer-term consequences, and can solve routine problems in perhaps unfamiliar financial contexts.

Tasks at Level 4 require an understanding of financial concepts and terms that are likely to be less commonly known amongst students, such as bank account management and compound interest (i.e. the process of earning or paying interest on interest). Students need to show that they understand that the simple interest rate should be applied to both the original amount saved or borrowed and the interest that has been added to an account. Tasks at this level also involve contexts that are not necessarily familiar to 15-year-old students but that will become relevant to them in their near future, such as understanding pay slips. These tasks also require an ability to identify the possible consequences of financial decisions, and to choose financial products based on those consequences, such as deciding between two loan offers with different terms and conditions.

The released item *MUSIC SYSTEM* is a proficiency Level 4 item. This is a complex multiple-choice item that tests students' understanding of loan repayment schedules. More specifically, students are asked to predict the effect of changing one aspect of a loan repayment schedule (the repayment period) on other aspects of the schedule (the monthly repayments and the total interest paid). This is a qualitative question that asks students to evaluate the direction of changes; but for illustrative purposes, it also presents a repayment schedule, with concrete values for the repayment period, the monthly repayment, the total repayment

and the total interest paid. Students are not required to use these values to solve the question. Although 15-year-old students are unlikely to have already taken out loans, they may do so, and hence be required to consider such trade-offs, in the near future.

Another Level 4 released item is *RINGTONES*. This item presents students with a financial situation with concrete numbers: a subscription service for ringtones. A consumer follows the instructions in an advertisement and thereby engages in a financial transaction that is stipulated only in the small print of the advertisement. Students are provided with concrete values for the balance of the consumer's account and the values of the transactions involved in the advertisement; they need to determine the balance at the end of a given period. To solve this item, students need to apply a set of basic mathematical operations to a situation where details are not immediately evident. Ringtones may no longer be relevant to many students' lives, at least not to the same extent as they were in 2012, when this item was developed. However, the concept of budgeting and the importance of reading the small print in any transaction, as highlighted by this item, remain relevant in students' lives as they move into adulthood.

Finally, *ONLINE SHOPPING* is a Level 4 released item that asks students to reflect more deeply on the dangers associated with, as the name of the item implies, online shopping and, more generally, digital financial transactions. Increasing digitalisation means that many 15-year-old students will eventually conduct a greater proportion of their financial activity on line than did previous generations. While they may not yet have the means to do this (e.g. their own bank account or debit/credit card), they need to know how to conduct these financial activities in a safe and secure manner.

Almost one-third (33%) of all students performed at Level 4 or above, on average across OECD countries/economies, while about one-quarter (26%) of all students performed at Level 4 or above, on average across all participating countries/economies. This proportion reached 50% in Estonia, over 40% in both the Canadian provinces and Finland, and over 30% in Australia, Poland, Portugal and the United States. By contrast, in Brazil, Georgia, Indonesia and Peru, fewer than one in ten students performed at Level 4 or above (Figure IV.2.2).

Some 23% of students performed at Level 4 (as opposed to Level 4 or above), on average across OECD countries/economies. In Estonia, 31% of students performed at Level 4, making this proficiency level the one most commonly attained in this country; Level 4 was also the most commonly attained level in Finland. Over 20% of students in 11 countries/economies (in addition to Estonia, Australia, the Canadian provinces, Finland, Latvia, Lithuania, Poland, Portugal, Russia, Spain and the United States) displayed Level 4 proficiency in financial literacy (Figure IV.2.2).

Proficiency at Level 5

Students at Level 5 on the PISA financial literacy scale can successfully complete the most difficult items in this domain. Tasks at this level require students to apply their understanding of a wide range of financial terms and concepts to contexts that may only become relevant to their lives later on, such as borrowing money from loan providers. Students at this level can analyse complex financial products and take into account features of financial documents that are significant but unstated or not immediately evident, such as transaction costs. They can work with a high level of accuracy and solve non-routine financial problems, such as calculating the bank balance in a given bank statement taking into account multiple factors, such as transfer fees.

The tasks at this level are related to students' ability to look ahead and plan for the future, so as to solve financial problems or make the kinds of financial decisions that will be relevant to many of them in the future, regardless of the country or the context in which they live. Students who perform at Level 5 can describe the potential outcomes of financial decisions, showing an understanding of the wider financial landscape, such as income tax. These tasks relate to higher-order uses of knowledge and skills and can thus reinforce and are reinforced by other competencies, such as the use of a variety of mathematical operations and the ability to look ahead and plan for the future.

Item #2 of *BANK STATEMENT* is located at proficiency Level 5. This item provides students with a bank statement and two more transactions that took place after the end of the bank statement; students are then requested to provide a new balance. To gain full credit, students are required to take into account a transaction fee mentioned earlier in the unit scenario, but not in the item itself.

Two of the items in the released unit *ZCYCLE,* #2 and #4, are also located at proficiency Level 5. This unit asks students to consider a bicycle-sharing scheme. Such schemes are increasingly common in urban areas, and although many students might not yet have used such a scheme – whether because they are too young to do so or because they do not live in an area that is serviced by such a scheme – the basic idea behind a service with a (fixed) membership fee and (variable) costs that depend on the degree of use is one that students need to be familiar with as they move into adulthood. Students are provided with an interface that calculates the cost of the service from inputs including the type of membership plan, the length of the membership (if appropriate) and the number of rides taken.

Item #2 asks students to consider two possible membership plans. Students must determine the cost of each plan, and then state which plan is cheaper and by how much. Although the interface removes most of the need to calculate costs manually, students must still understand the link between the various elements of the scheme and the final cost in order to solve this problem.

Item #4 also asks students to consider which of the two possible membership plans would be cheaper for a different user of the scheme. However, there is a degree of uncertainty in the way that this user uses the bicycle-riding scheme, hence there is no clear answer as to which form would be cheaper. Students must identify this uncertainty and be able to explain how the most advantageous form of membership might change with the user's patterns of bicycle riding.

On average across OECD countries/economies, only 10% of students were proficient at Level 5 in financial literacy; these students are referred to as top performers in financial literacy. This proportion was almost twice as high in Finland (20%) and Estonia (19%), and 17% of students in the Canadian provinces were also top performers. However, less than 1% of students, or fewer than 1 in 100 students, in Georgia and Indonesia were top performers; less than 3% of students in another 5 countries were top performers. On average across all countries/economies that participated in the PISA 2018 financial literacy assessment, 8% of students were top performers (Figure IV.2.2).

TRENDS IN STUDENT PERFORMANCE IN FINANCIAL LITERACY

Financial literacy has now been assessed in PISA 2012, 2015 and 2018. Seven countries/economies participated in all three assessments; two participated in only 2012 and 2018; and five participated in only 2015 and 2018. Comparisons in this section are made between pairs of years: either between 2012 and 2018 or between 2015 and 2018. As not all countries/economies participated in all of the assessments, only those countries/economies with valid data in both years of a comparison are included when calculating trends in OECD average performance. A comparison of trends across all three PISA assessments simultaneously is not presented because of differences in how the assessment was conducted in different years (for more information, see Box IV.2.2).

Box IV.2.2. **Comparing PISA results in financial literacy over time**

In order to ensure the comparability of PISA results over time, successive assessments must include a sufficient number of common assessment items so that results can be reported on a common scale. Some 26 of the 43 financial literacy items used in PISA 2018 were also used in the PISA 2012 assessment, while 29 of the 43 financial literacy items used in PISA 2018 were also used in PISA 2015. Moreover, the financial literacy assessment framework remained unchanged across the three assessments, and the common items adequately cover the different aspects of the framework.

With each cycle, PISA aims to measure the knowledge and skills that are required to participate fully in society and the economy. This includes making sure that the assessment instruments are aligned with new developments in assessment techniques and with the latest understanding of the cognitive processes underlying proficiency in each domain. A major change that took place between the 2012 and 2015 assessments of all domains, including financial literacy, was the use of computers instead of pencils and paper to deliver the assessment.

The PISA 2015 field trial examined the equivalence of reading, mathematics and science items between paper- and computer-based tests. Items that passed the equivalence test were used to link across modes and assessment cycles. However, given the small number of countries/economies that participated in the optional financial literacy assessment, a different procedure was used to link the 2012 and 2015 financial literacy assessments. The PISA 2015 field trial included a mode-effect study comparing the performance of students who were randomly assigned to take the tests in a paper-based or a computer-based form. Linking the financial literacy scales between 2012 and 2015 was accomplished by using all available data (from the 2012 main study, the 2015 field trial and the 2015 main study), exploiting the equivalence of the two samples in the 2015 field trial. This method provided a consistent and robust linking approach, but it did not provide information on which items were directly comparable across modes. The PISA 2015 Technical Report (OECD, 2017[2]) provides more details about the scaling of the financial literacy assessment and the mode-effect study conducted in the context of the PISA 2015 field trial. As the PISA 2015 and 2018 assessments were both delivered on the computer, no mode effects confounded the comparison of results between these two years.

However, a major difference between the 2015 assessment and the other two assessments was specific to financial literacy and did not affect the assessment of the other domains. Sampling design and the scheduling of the test changed in 2015. Students assessed in financial literacy in 2012 and 2018 were tested in financial literacy – and, in addition, in

mathematics and reading – at the same time as other students sat the core assessment. By contrast, students assessed in financial literacy in 2015 sat the financial literacy test in a separate session after having been tested in mathematics, reading and science. In most participating countries/economies, the financial literacy testing session took place on the afternoon of the same day as the core PISA tests in a large majority of sampled schools. However, in Brazil, students in about one in three schools sat the financial literacy test on a different day than the day when they sat the core PISA tests. This was also the case for students in about four out of five schools in Italy and Russia. Genuine financial literacy trends might be confounded by this change in the scheduling of the assessment, especially in countries/economies where most students sat the financial literacy assessment in the afternoon, as those students might have been tired after a long day of testing.

This report thus presents changes in performance between 2012 and 2018, where the major difference in implementation was in the mode of delivery; and between 2015 and 2018, where the major difference in implementation was in scheduling. However, longer-term trends including data from all three assessment cycles simultaneously are not presented.

Changes between 2015 and 2018 were particularly marked, as illustrated by the link error, which quantifies the uncertainty around equating scales in different years. In other words, the link error measures the extent to which a score of 500 points in the PISA 2012 or 2015 financial literacy assessment is the same as a score of 500 points in the PISA 2018 assessment. (Scales are not automatically equivalent across years because different test items, calibration samples, and sometimes even statistical models are used in different assessments.) The link error between the PISA 2012 and 2018 financial literacy assessments was 5.55 score points, while that between the PISA 2015 and 2018 financial literacy assessments was 9.37 score points. This implies that, for instance, score-point differences of 15 points between 2015 and 2018 are not considered to be statistically significant.

Source: OECD (2017), *PISA 2015 Technical Report,* OECD, http://www.oecd.org/pisa/data/2015-technical-report/PISA2015_TechRep_Final.pdf.
OECD (forthcoming), *PISA 2018 Technical Report*, OECD Publishing, Paris.

Trends in mean performance

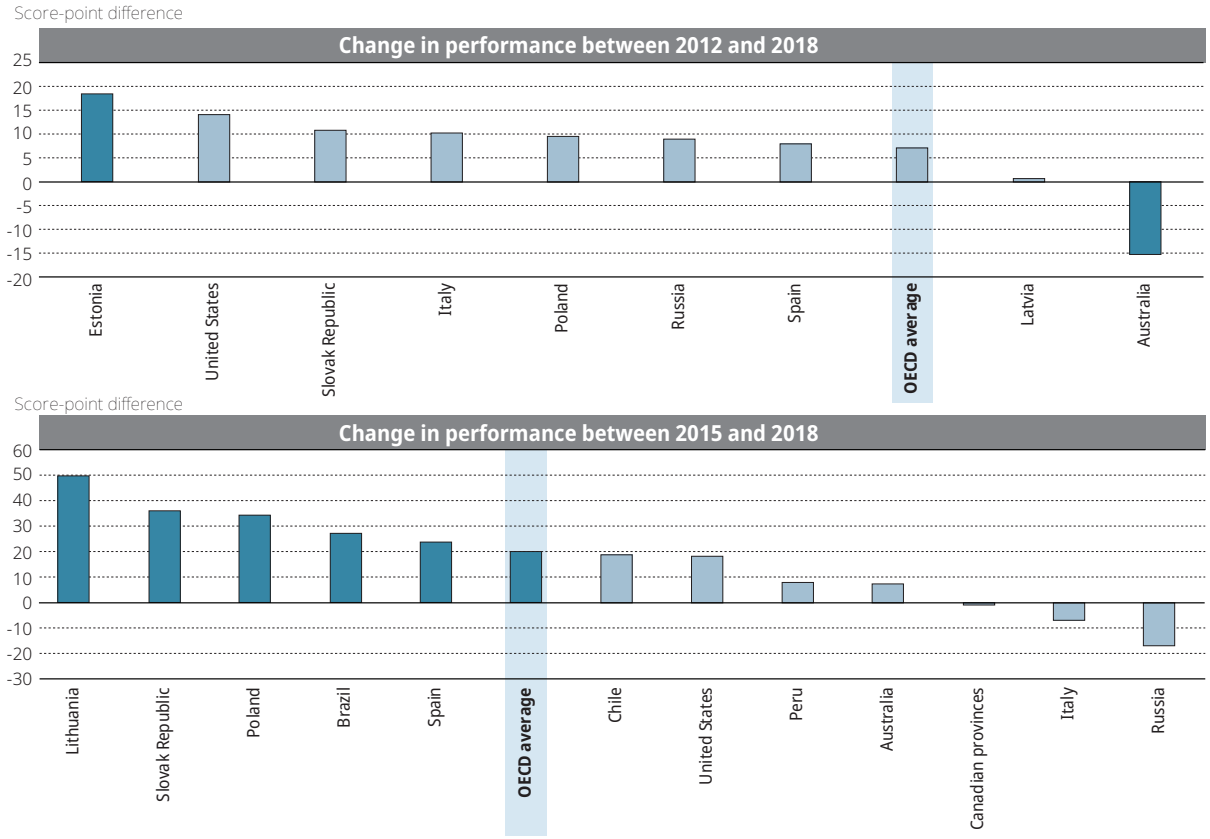
On average across OECD countries with comparable data for 2012 and 2018, performance remained stable between the two assessments. By contrast, on average across OECD countries/economies with comparable data for 2015 and 2018, mean performance improved by 20 score points (from 476 to 496 points) between 2015 and 2018 (Figure IV.2.3).

These general changes (or the absence of significant changes) in performance were also observed in the majority of participating countries/economies. There was a significant change between 2012 and 2018 in mean financial literacy performance in only two of the nine countries with data in both years: Estonia, where mean performance improved by 18 score points, and Australia, where it declined by 15 score points. However, performance in 5 of the 12 countries/economies with comparable data in 2015 and 2018 improved over time: by between roughly 25 score points in Brazil and Spain to 50 score points in Lithuania (Figure IV.2.3).

On average across OECD countries/economies, there were no significant changes in mathematics and reading performance between 2012 and 2018, nor between 2015 and 2018. However, there were some differences in individual countries. For example, mean performance in mathematics declined in Australia between 2012 and 2018, as did mean performance in reading in Australia, Italy and Latvia. The drop in mean financial literacy scores in Australia was qualitatively consistent with changes in performance in other subjects, while there may have been some relative improvement of financial literacy skills (as independent from skills in reading) in Italy and Latvia (Table IV.B1.2.5).

Between 2015 and 2018, mean mathematics performance in Peru, Poland and the Slovak Republic improved significantly, while mean reading performance in Russia declined significantly. In Poland and the Slovak Republic, these changes were in line with similar improvements in mean financial literacy performance (Table IV.B1.2.5).

Figure IV.2.3 **Changes across time in mean financial literacy performance**



Note: Statistically significant differences between PISA 2012/2015 and PISA 2018 are shown in a darker tone (see Annex A3).

Countries and economies are ranked in descending order of the change in reading performance between PISA 2012/2015 and 2018.

Source: OECD, PISA 2018 Database, Table IV.B1.2.1

StatLink https://doi.org/10.1787/888934123349

Trends in performance amongst low- and high-performing students

Changes in a country's or economy's average performance can result from changes at different levels in the performance distribution. For example, in some countries, the average score might have improved because the share of students scoring at the lowest levels on the financial literacy scale shrank (i.e. there was an improvement in performance amongst these students). In other countries, improvements in mean scores might have been the result of improvements in performance amongst the highest-achieving students and an increase in the share of students who scored at the highest levels.

Between 2012 and 2018, there was a significant increase in the proportion of students who scored at Level 5 in financial literacy in Estonia (7 percentage points), Italy (an increase of 2 percentage points) and Poland (5 percentage points). In Estonia, this increase was accompanied by a significant reduction in the proportion of students who scored at intermediate regions of the distribution (Levels 2 and 3), perhaps indicating an improvement amongst middle- and high-performing students in this country but not amongst low-performing students. By contrast, the decline in performance observed in Australia between 2012 and 2018 was reflected in the significant increase in the proportion of 15-year-old students who scored at Level 1 (by 4 percentage points) or below Level 1 (by 2 percentage points) (Table IV.B1.2.4).

The general improvement in performance observed between PISA 2015 and 2018 in many countries/economies could be attributed to a large reduction in the number of students performing at lower levels of the distribution. In particular, the proportion of students who did not attain Level 1 proficiency in financial literacy shrank significantly in Australia, the Canadian provinces, Chile, Lithuania, Poland, the Slovak Republic, Spain and the United States (by between 2 and 11 percentage points). Similarly, the proportion of students who only attained Level 1 proficiency decreased in Lithuania (by 8 percentage points) and Poland (by 6 percentage points) between 2015 and 2018. However, these reductions were generally not accompanied by similar increases in the proportion of students performing at the highest proficiency levels (Levels 4 and 5),[7] but rather by increases in the proportion of students performing at Level 3 (in Australia, the Canadian provinces, Lithuania, Poland, the Slovak Republic and Spain). In other words, between 2015 and 2018, the improvement in mean performance in many countries reflected the growth in the proportion of students who had acquired a basic or intermediate level of skills in financial literacy (Table IV.B1.2.4).

STUDENT PERFORMANCE IN FINANCIAL LITERACY COMPARED TO PERFORMANCE IN THE CORE PISA SUBJECTS

Financial literacy is closely related to a variety of other subjects and domains of knowledge. Indeed, being proficient in financial literacy, or being able to manage one's financial affairs, requires being able to understand a variety of generally written materials related to transactions and contracts. On a more practical level, the PISA test is conducted in a text-based format and students who struggle with reading are likely to struggle with understanding the material in the financial literacy assessment. Likewise, many financial decisions involve the manipulation of quantities of money, which necessarily requires a degree of mathematical literacy.

As shown in Figure IV.2.4, performance in the financial literacy, mathematics and reading assessments was highly correlated in PISA 2018. On average across OECD countries/economies, the correlation between financial literacy and mathematics performance was 0.87 and that between financial literacy and reading performance was 0.83. By comparison, the correlation between mathematics and reading performance was 0.81. These strong correlations were observed in every participating country/economy; indeed, the correlation between financial literacy and mathematics performance was at least 0.83 in every participating country/economy (Table IV.B1.2.6).[8]

Figure IV.2.4 **Correlation between performance in financial literacy, mathematics and reading**

OECD average correlation, where 0.00 signifies no relationship and 1.00 signifies the strongest positive relationship

Correlation between performance in ...		
Mathematics	Reading	... and performance in:
0.87	0.83	**Financial literacy**
	0.81	**Mathematics**

Source: OECD, PISA 2018 Database, Table IV.B1.2.6

StatLink https://doi.org/10.1787/888934123368

This correlation can also be observed in the patterns in which students were either top performers (having attained at least proficiency Level 5) or low achievers (not having attained at least proficiency Level 2) in financial literacy, mathematics and reading.[9] On average across OECD countries/economies, at least half of all top performers in financial literacy were also top performers in mathematics (60%) or reading (51%); more strikingly, only 3% of all students were top performers in financial literacy but not in one of the other two domains. Strong performance in financial literacy amongst 15-year-old students appears to be closely associated with strong performance in mathematics and/or reading (Table IV.B1.2.2).

Similarly, around three in four low performers in financial literacy were also low performers in mathematics (82%) and reading (77%), on average across OECD countries/economies. Only 1% of students were low performers in financial literacy but not low performers in both mathematics and reading. Once again, performance in the three subjects appears to be linked (Table IV.B1.2.3).

On average across OECD countries/economies, 80% of the variation in student performance in financial literacy could be explained by student performance in mathematics and reading; in other words, 20% of the differences in how students performed in financial literacy is independent of their performance in both mathematics and reading.[10] High degrees of explained variation (at least 73%) were observed in every participating country/economy. Most of this explained variation (64% of the total variation) was jointly associated with mathematics and reading performance, again indicating the tendency for students to be strong (or weak) in all three subjects simultaneously, and the potential for general interventions to improve skills in all three subjects simultaneously (Table IV.B1.2.7). However, the 20% of the unexplained variation implies that there is still a wide dispersion of student performance in financial literacy amongst students who scored at the same level in the mathematics and reading assessments. It also suggests that it is possible to develop financial literacy skills amongst low performers in mathematics and reading.

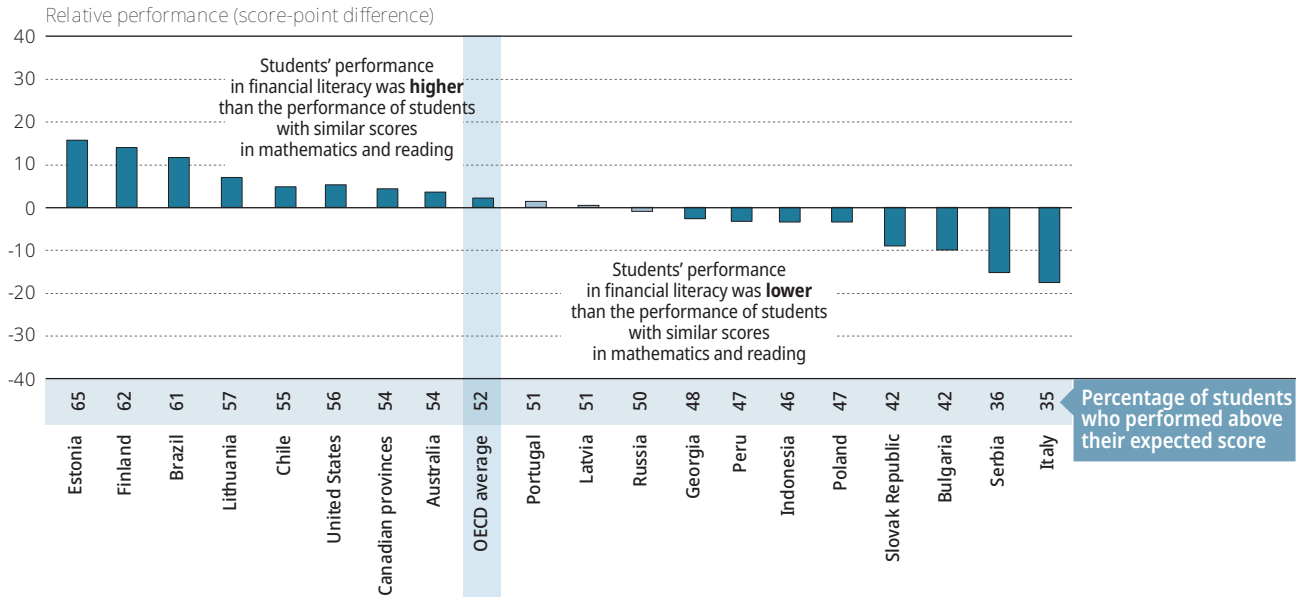
This unexplained variation in financial literacy performance might be related to the various aspects of financial literacy, such as the relationship between risk and reward, the short- and long-term dimensions of financial decisions, or the security aspects associated with certain transactions, that are unique to the domain. It is possible to estimate each student's performance in the elements of the financial literacy assessment that are unique to financial literacy by estimating the extent to which his or her performance exceeded (or fell short of) his or her expected performance, based on his or her performance in the mathematics and reading assessments.[11] This is known as the relative performance.

Figure IV.2.5 shows the average relative performance across students in each country/economy. Average relative performance was over 10 score points in Brazil, Estonia and Finland, and was significantly positive in a further five countries/economies (Australia, the Canadian provinces, Chile, Lithuania and the United States). In these countries/economies, students performed better in financial literacy than their counterparts in other countries who had similar scores in mathematics and reading. These students were relatively stronger in competencies that are uniquely related to financial literacy.

By comparison, the average relative performance in Italy and Serbia was less than -10 score points; average relative performance was also significantly negative in a further six countries (Bulgaria, Georgia, Indonesia, Peru, Poland and the Slovak Republic). Students in these countries performed below their counterparts in other countries/economies who scored similarly in mathematics and reading. In other words, students in these countries were relatively weak in competencies that relate solely to financial literacy. The average relative performance of students in Latvia, Portugal and Russia was not significantly different from zero (Figure IV.2.5).

Figure IV.2.5 **Relative performance in financial literacy**

Difference between the actual financial literacy score and the score predicted by students' performance in mathematics and reading



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

Countries and economies are ranked in descending order of the score-point difference between actual and expected performance.

Source: OECD, PISA 2018 Database, Table IV.B1.2.8

StatLink https://doi.org/10.1787/888934123387

A CONTEXT FOR COMPARING COUNTRIES' /ECONOMIES' PERFORMANCE IN FINANCIAL LITERACY

This section provides a brief overview of the context of the 19 countries that participated in the PISA 2018 assessment of financial literacy: Australia, Brazil, Bulgaria, Chile, Estonia, Finland, Georgia, Indonesia, Italy, Latvia, Lithuania, Peru, Poland, Portugal, Russia, Serbia, the Slovak Republic, Spain and the United States. These countries cover a relatively wide geographical area, including North and South America, Western, Central and Eastern Europe, Southeast Asia and Oceania, representing about 38% of the world's GDP.

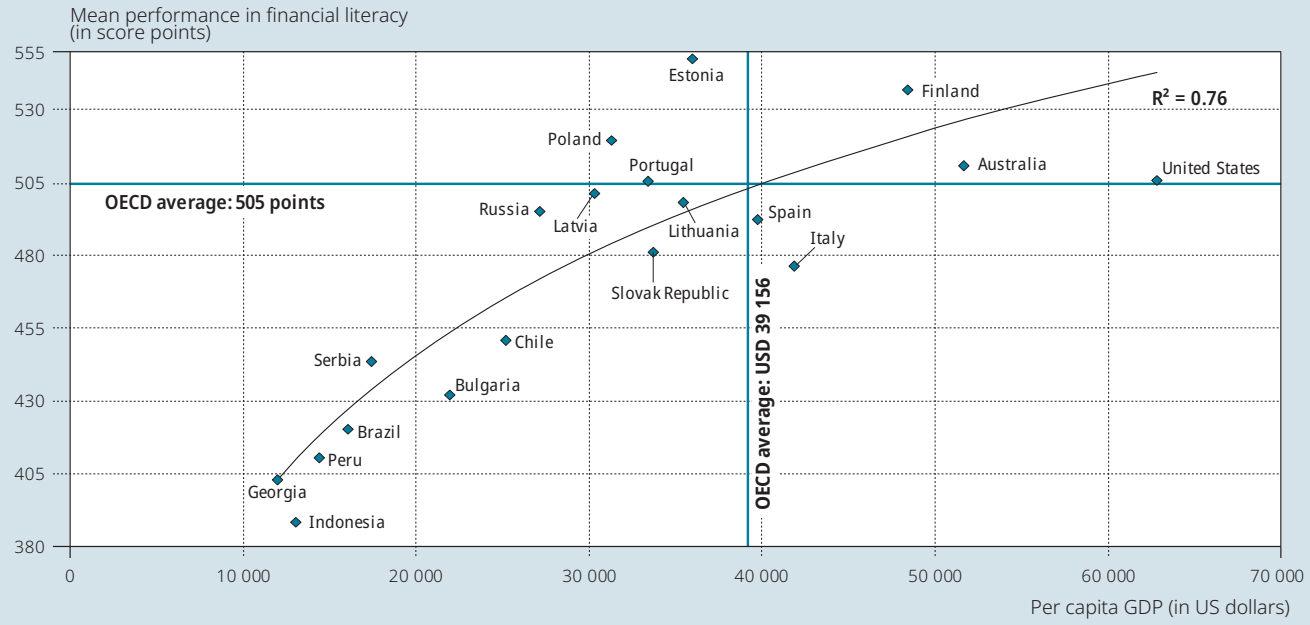
One participating economy, the Canadian provinces, is not covered in this section because it represents only certain subnational entities within Canada. The seven provinces of Canada that participated in the financial literacy assessment cover 62% of the country's total population of 15-year-olds.

The section highlights national characteristics that might shed light on the analysis of students' proficiency in financial literacy, such as national income, income distribution, the development of financial markets, expenditure on education and financial knowledge amongst adults (Table IV.B1.2.9).

There are notable differences in the size of these countries' economies and national income. GDP in 2018 (in 2018 US dollars, adjusted for PPP) varied from USD 45 billion in Georgia and USD 48 billion in Estonia to over USD 20 000 billion in the United States. The per capita GDP (in 2018 US dollars, adjusted for PPP) ranged from USD 12 005 in Georgia, USD 13 080 in Indonesia and USD 14 418 in Peru, to USD 51 663 in Australia and USD 62 795 in the United States.

Figure IV.2.6 shows the relationship between per capita GDP and students' average performance in financial literacy. The figure offers a best-fit curve to give an indication of the direction of the relationship between per capita GDP and students' mean score in financial literacy. It shows that, overall, per capita national income is positively associated with average performance in financial literacy ($R^2 = 0.76$), but some countries with lower per capita GDP performed better in financial literacy than wealthier countries. For example, the mean performance in both Estonia and Poland was significantly above that of Australia and the United States, although per capita GDP in Estonia and Poland was significantly lower than that in Australia and the United States.

Figure IV.2.6 **Mean performance in financial literacy and per capita GDP**



Source: OECD, PISA 2018 Database, Table IV.B1.2.1 and IV.B1.2.9

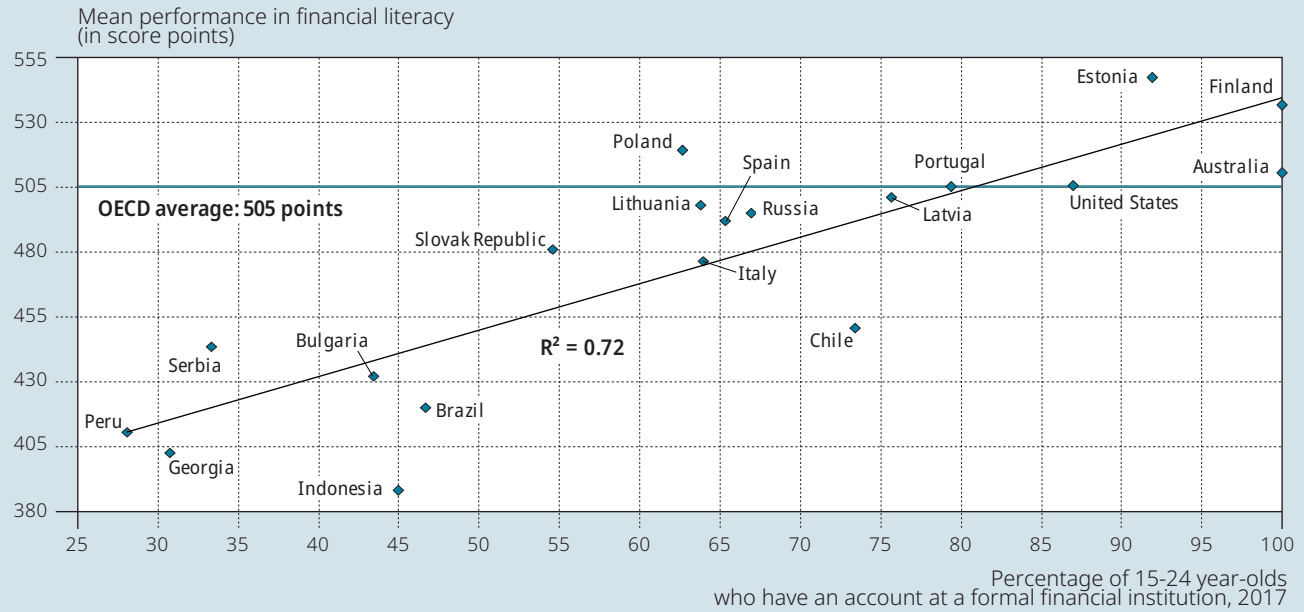
StatLink https://doi.org/10.1787/888934123406

Likewise, the distribution of income within these 19 countries is relatively diverse. The Gini coefficient measures the extent to which the income distribution amongst individuals or households within an economy deviates from a perfectly equal distribution. A Gini coefficient of 0 represents perfect equality (each person earns the same income), while a Gini coefficient of 1.0 implies perfect inequality or concentration of income (all income goes to one person and everyone else earns nothing). The degree of income inequality varies from 0.26 (the most equal) in the Slovak Republic to 0.53 in Brazil (the most unequal) (Table IV.B1.2.9).

For an idea of the development of financial markets, one can look at both the degree to which individuals can and do use financial services (financial access), as well as the size of financial institutions and markets (financial depth). The degree of access to financial products also varies across these 19 countries. The percentage of 15-24 year-olds who have an account at a formal financial institution (either on their own or with someone else) ranges from 28% in Peru, 31% in Georgia and 33% in Serbia to almost 100% in Australia and Finland. Amongst those 25 and older, more than 98% of adults in Australia, Estonia and Finland have an account at a formal financial institution (either on their own or with someone else), while fewer than 50% of adults in Indonesia and Peru hold such an account (Table IV.B1.2.9).

Figure IV.2.7 compares countries' mean score in financial literacy to the percentage of 15-24 year-olds who have an account at a formal financial institution. The scatterplot indicates that there is a positive relationship between the percentage of young people and adults holding financial products and students' mean score in financial literacy ($R^2 = 0.72$). However, access to financial products does not categorically determine average performance in financial literacy. Italy and Poland have similar percentages of young people who have an account at a formal financial institution (around 63%), but students in Poland scored more than 40 points higher in financial literacy, on average, than students in Italy. The mean financial literacy scores in Chile and Serbia were not statistically significantly different from each other, but the percentage of young people with an account was around 40 percentage points higher in Chile than in Serbia (73% versus 33%).

Figure IV.2.7 **Mean performance in financial literacy and access to basic financial products**

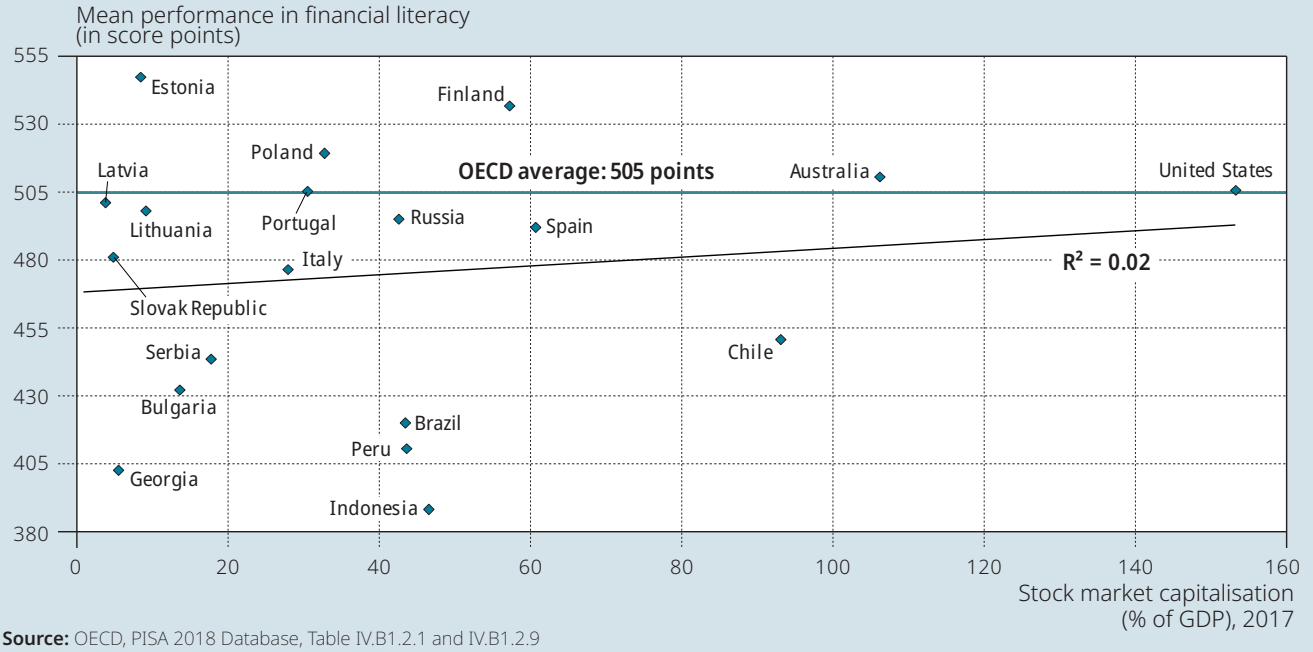


Source: OECD, PISA 2018 Database, Table IV.B1.2.1 and IV.B1.2.9

StatLink https://doi.org/10.1787/888934123425

The size of stock market capitalisation[12] as a percentage of GDP provides an indication of the depth of a country's financial market. Stock market capitalisation varies from less than 5% of GDP in Latvia and the Slovak Republic to over 100% of GDP in Australia and the United States.[13] Figure IV.2.8 shows the association between countries' mean score in financial literacy and stock market capitalisation as a percentage of GDP. The scatterplot shows that the points are dispersed, indicating no notable relationship.

Figure IV.2.8 **Mean performance in financial literacy and financial market development**



Source: OECD, PISA 2018 Database, Table IV.B1.2.1 and IV.B1.2.9
StatLink https://doi.org/10.1787/888934123444

The data on the percentage of 15-24 year-olds who have an account at a formal financial institution (collected by the World Bank) can also be compared to the percentage of 15-year-old students who have a bank account, as reported by students participating in the PISA 2018 financial literacy assessment. Data from the two sources are broadly consistent and, in most countries, the percentage of 15-year-olds who have a bank account is lower than the percentage of 15-24 year olds who have an account at a formal financial institution (either by themselves or with another person). This difference is to be expected, given the different age range and slightly different definitions of an account (Table IV.B1.2.9).

Countries also vary in the financial resources they invest in education. The cumulative expenditure in education per student from the age of 6 up to the age of 15 ranges from less than USD 15 000 in Indonesia and between USD 20 000 and 30 000 in Peru and Serbia to over USD 100 000 in Australia, Finland and the United States (Table IV.B1.2.9).

The average level of financial knowledge amongst the adult population offers another indication of the opportunities students may have to improve their financial literacy by discussing and learning from adults. The OECD/INFE International Survey of Adult Financial Literacy Competencies (see Box IV.2.1 above) shows that, amongst the few countries that participated in both the OECD/INFE financial literacy survey in 2015 and the PISA 2018 financial literacy assessment, the percentage of adults who could correctly answer at least 5 out of 7 financial knowledge questions ranged from 45% in Russia and 48% in Brazil to 70% in Finland and 73% in Estonia.

Notes

1. The Netherlands also participated in the PISA 2018 financial literacy assessment, but its results were not comparable due to errors in the selection of students. As a result, results from only 20 countries are presented in all of the figures in this report, and this report discusses only 20 participating countries/economies. However, results from the Netherlands are available in all tables in the Annexes to this volume.
2. "Likely", in this context, refers to a probability of at least 62% (see Annex A1).
3. In this report, the range of ranks is defined as the 97.5% confidence interval for the rank statistic. This means that there is at least a 97.5% probability that the interval defined by the upper and lower ranks, and computed based on PISA samples, contains the true rank of the country or economy (see Annex A3).
4. Trend comparisons are only conducted for countries/economies that took part in the PISA 2018 financial literacy assessment and at least one previous PISA financial literacy assessment. Australia, Italy, Poland, Russia, the Slovak Republic, Spain and the United States took part in both the PISA 2012 and 2015 financial literacy assessments; Estonia and Latvia took part in the PISA 2012 financial literacy assessment; and Brazil, the Canadian provinces, Chile, Lithuania and Peru took part in the PISA 2015 financial literacy assessment.
5. As mentioned in note 2, students have a 62% likelihood of correctly answering a question that is located at the same position on the PISA scale as their own performance. Students at the bottom of a proficiency level are hence expected to correctly answer roughly 62% of the test items located at the bottom of that proficiency level, but only roughly 42% of the test items located at the top of that proficiency level. Conversely, students at the top of a proficiency level are expected to correctly answer roughly 62% of the test items located at the top of that proficiency level, but roughly 78% of the items located at the bottom of that proficiency level. See the *PISA 2018 Technical Report* for more details.
6. Items were first placed on the proficiency scale based on the response patterns of test-takers. They were then classified into proficiency levels based on the cut-off thresholds of each proficiency level. The descriptions of each proficiency level were only then developed, based on the items that fell into each level. The definitions of the skills and competencies that fall under each proficiency level may be updated in the future with the addition of new test items to the assessment.
7. In Lithuania, the percentage of students performing at Level 4 increased by 9 percentage points between 2015 and 2018; there was no significant increase in any other country/economy during that period.
8. Students who sat the financial literacy assessment were also assessed in mathematics and reading but not in science; hence, no plausible values for their performance in science were calculated and no correlation with their (putative) science scores could be determined.
9. There are six proficiency levels in reading and mathematics; hence, top performers in these two domains have attained either proficiency Level 5 or 6, while top performers in financial literacy have attained proficiency Level 5.
10. This was measured through a linear regression of student performance in financial literacy over student performance in mathematics and reading.
11. In technical terms, a regression of student financial literacy performance over student mathematics and reading performance was performed; the relative performance was the residual of the financial literacy performance. This regression included all participating countries and weighted all participating countries equally.
12. Stock market capitalisation is defined as the total, across all listed domestic companies, of a company's share price multiplied by the number of shares outstanding for that company. A listed domestic company is a company incorporated within a country and listed on a stock exchange in that country.
13. Data on stock market capitalisation were presented for 2017 whenever possible. However, the most recent data from Italy are from 2014; the most recent data from the Slovak Republic are from 2013; and the most recent data from Bulgaria, Estonia, Finland, Georgia, Latvia, Lithuania and Serbia are from 2012.

References

OECD (2017), *PISA 2015 Technical Report,* OECD, http://www.oecd.org/pisa/data/2015-technical-report/PISA2015_TechRep_Final.pdf. [2]

3

How does student performance in financial literacy vary within countries?

This chapter measures equity and disparities in financial education outcomes. It discusses differences between the performance of boys and girls and the changes in those differences over time. The chapter then shows how strongly socio-economic status is associated with performance, and relates school location to performance. It concludes by examining the link between financial literacy and family background.

3

How does student performance in financial literacy vary within countries?

Chapter 2 presents a cross-country comparison of the ability of 15-year-olds to apply their knowledge and skills to real-world financial situations. This comparison was based on an overall picture of each country's/economy's performance – that is to say, on national averages. However, national averages hide the variation in performance across students in each country/economy, which is the subject of this chapter.

Students and schools were chosen (or sampled) in PISA 2018 so as to capture a representative cross-section of the 15-year-old student population. Students across the entire socio-economic spectrum and with different family backgrounds were sampled, as were schools in different locations, of different sizes, and with different funding sources (amongst other characteristics). This allows PISA to report not just on how much variation in students' scores is observed within a country/economy but how that variation is related to student and school characteristics, non-behavioural factors that cannot easily be changed. This chapter focuses on the variation related to school location and to students' gender, socio-economic status, immigrant background and language spoken at home. Results may help financial education policy makers identify specific groups of students who could benefit from targeted interventions, with the aim of improving equity and achievement in financial literacy across all students in a country/economy.

What the data tell us

- Boys scored a small but significant 2 points higher than girls in the PISA 2018 financial literacy assessment, on average across OECD countries/economies. Boys outperformed girls in Italy, Peru and Poland, while girls outperformed boys in Bulgaria, Georgia and Indonesia. On average across OECD countries/economies, boys were over-represented at both ends of the performance distribution. After accounting for performance in mathematics and reading, boys outperformed girls by 10 points.
- Socio-economically advantaged students performed better in financial literacy than disadvantaged students – by roughly one proficiency level, on average across OECD countries/economies.
- On average across OECD countries/economies, 10% of performance differences in financial literacy could be explained by socio-economic status. In the Canadian provinces and Estonia, mean performance was above the OECD average and the relationship between socio-economic status and performance was weaker than the OECD average.
- Immigrant students scored 30 points lower than non-immigrant students, on average across OECD countries/economies. After accounting for performance in mathematics and reading, immigrant students scored only five points below non-immigrant students.

VARIATION IN PERFORMANCE WITHIN COUNTRIES/ECONOMIES

As described in Chapter 2, there were large variations in mean performance across countries/economies in the PISA 2018 financial literacy assessment: students in Estonia, the highest-performing country/economy, scored 547 points, on average, while students in Indonesia, the lowest-performing country/economy, scored 388 points, on average – a gap of 159 score points (Table IV.B1.3.1). However, there were also large variations in performance between students within the same country/economy.

One way to summarise the within-country variation in performance is the standard deviation. The average standard deviation across all participating OECD countries/economies in the first PISA financial literacy assessment in 2012 was set at 100 score points.[1] In PISA 2018, the standard deviation in most countries/economies was below 100 score points. Indeed, the standard deviation was roughly 80 score points in Latvia (80 points) and Indonesia (81 points), and between 87 and 90 score points in Estonia, Lithuania, Poland, the Russian Federation (hereafter "Russia") and Spain. Estonia and Poland are particularly noteworthy as countries that have achieved both high performance and a high degree of equity. Students in these two countries are likely to be well-prepared to make financial decisions, regardless of their background or school characteristics. The largest standard deviations in performance (between 100 and 107 score points) were observed in Australia, Bulgaria, Finland and the United States (Table IV.B1.3.1).

Various interpercentile ranges can also be used to describe the distribution in student performance. For example, the interquartile range is equal to the gap between the 25th and 75th percentiles; 50%, or half, of all students score in this range.[2] The smaller the interquartile range, the smaller the gap in performance between stronger and weaker students, and the smaller the variation in student performance. Likewise, the interdecile range is equal to the gap between the 10th and 90th percentiles; 80% of students – four out of five students – score within the interdecile range.

The interquartile and interdecile ranges in Estonia, Indonesia, Latvia, Russia and Spain were below 120 points (interquartile) and 230 points (interdecile). By contrast, the interdecile range of 275 score points in Australia indicates that its strongest-performing students in financial literacy scored almost 4 proficiency levels higher than its weakest-performing students (645 points at the 90th percentile compared to 370 points at the 10th percentile) (Table IV.B1.3.1).

Trends in the variation in performance

Variations in performance within countries and economies changed, to some extent, in some of the countries/economies that participated in the PISA 2018 financial literacy assessment and in at least one earlier financial literacy assessment.[3,4] Such changes can result from shifts at different points of the performance distribution. For example, for some countries/economies, the average score may improve when high-performing students perform better. In other countries/economies, improvements in mean scores can be largely the result of improvements in performance amongst the lowest-achieving students or as a result of improvements over the entire distribution.

Between 2012 and 2018, there were no significant changes in most of the performance distribution in financial literacy, on average across OECD countries. However, students at the 90th percentile improved their scores by 13 percentage points between 2012 and 2018. Improvements amongst stronger students (as measured by the change in the 90th and 75th percentiles in the performance distribution) were also observed in Estonia, Italy and Poland. By contrast, in Australia, weaker students' decline in performance between 2012 and 2018 (as measured by the change in the 10th and 25th percentiles in the performance distribution) could account for the country's overall decline in mean performance over the period (Table IV.B1.3.2).

In the period between 2015 and 2018, mean performance improved by 20 score points, on average across OECD countries and economies (Table IV.B1.2.1). Table IV.B1.3.2 shows that this can be largely attributed to improved performance amongst weaker students in Chile, the Slovak Republic, Spain and also in Brazil; performance improved throughout most of the distribution in Lithuania and Poland.

The standard deviation in the performance distribution and the interdecile range – both measures of how differently students in a country/economy perform – increased between 2012 and 2018, but decreased between 2015 and 2018, on average across OECD countries/economies. These general trends were also observed in individual countries/economies. Indeed, there was either no significant change or an increase in the disparity of performance amongst students in each country/economy that took part in both the 2012 and 2018 PISA financial literacy assessments. There was either no significant change or a decrease in the disparity of performance amongst students in each country/economy that took part in both the 2015 and 2018 PISA financial literacy assessments (Table IV.B1.3.3).

GENDER DIFFERENCES IN PERFORMANCE IN FINANCIAL LITERACY

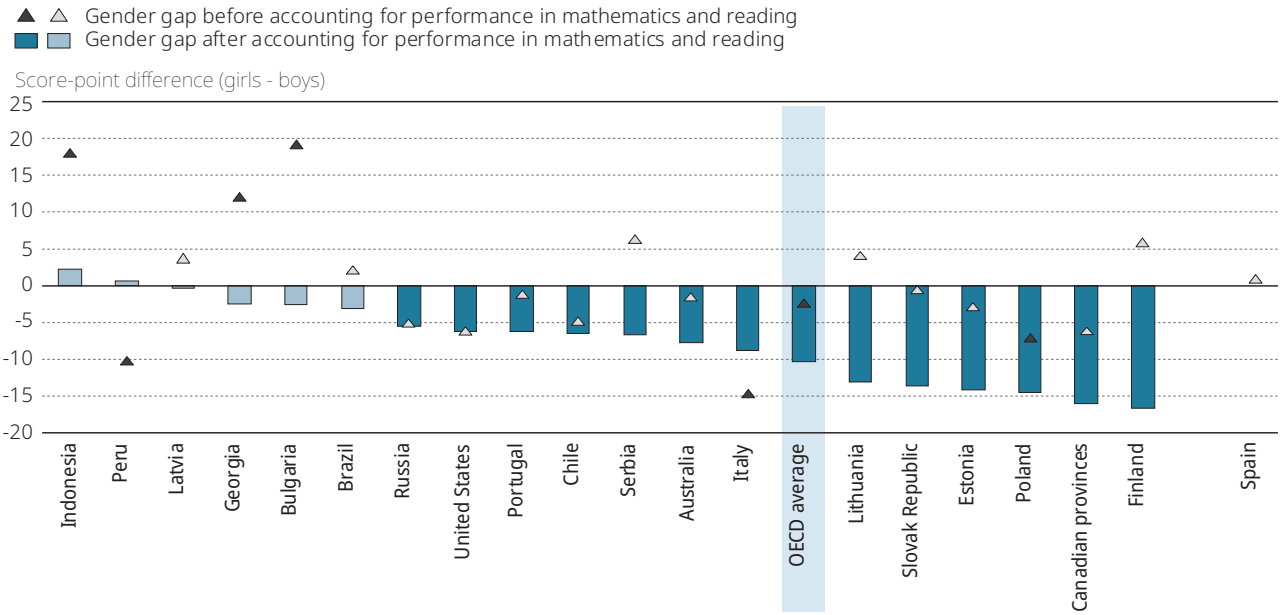
From a policy perspective, one of the most important student characteristics is gender: it neatly divides the student population into (nearly) equal halves. Gender differences in other subjects are examined and identified in *PISA 2018 Results (Volume II): Where All Students Can Succeed* (OECD, 2019[1]). To what extent do they also exist in the PISA 2018 financial literacy assessment?

On average across OECD countries/economies, boys scored two points higher than girls in the PISA 2018 financial literacy assessment; however, on average across all countries/economies that participated in the assessment, there was no significant difference in performance between the genders (i.e. the gender gap was in favour of girls in many partner economies). At the individual country level, boys performed better than girls in Italy, Peru and Poland (by between 7 and 15 score points); girls outperformed boys in Bulgaria, Georgia and Indonesia (by between 12 and 20 score points); and there was no significant difference in the other 14 participating countries/economies (Figure IV.3.1).

Although statistically significant, two score points is a small difference, and does not reflect a notable disparity in the types of tasks that boys and girls are able to do. This is especially true given the large variation in performance observed amongst both boys and girls. Despite the higher average performance of boys, there was a large overlap in the performance distribution of boys and girls, and many girls scored better than many boys in financial literacy (Figure IV.3.2).

Figure IV.3.2 also shows that the performance distribution amongst boys was wider than that amongst girls. On average across OECD countries/economies, the standard deviation of boys' performance in financial literacy (98 points) was 8 points wider than that of girls' performance (89 points). The performance distribution amongst boys was wider than that amongst girls in all of the 20 participating countries/economies, with the exception of Latvia, Peru, Portugal and the Slovak Republic, where it was not statistically significantly different (Table IV.B1.3.4).

Figure IV.3.1 **Gender differences in financial literacy performance**



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

As data for reading performance in Spain were not released, the gender gap after accounting for performance in mathematics and reading in Spain could not be calculated.

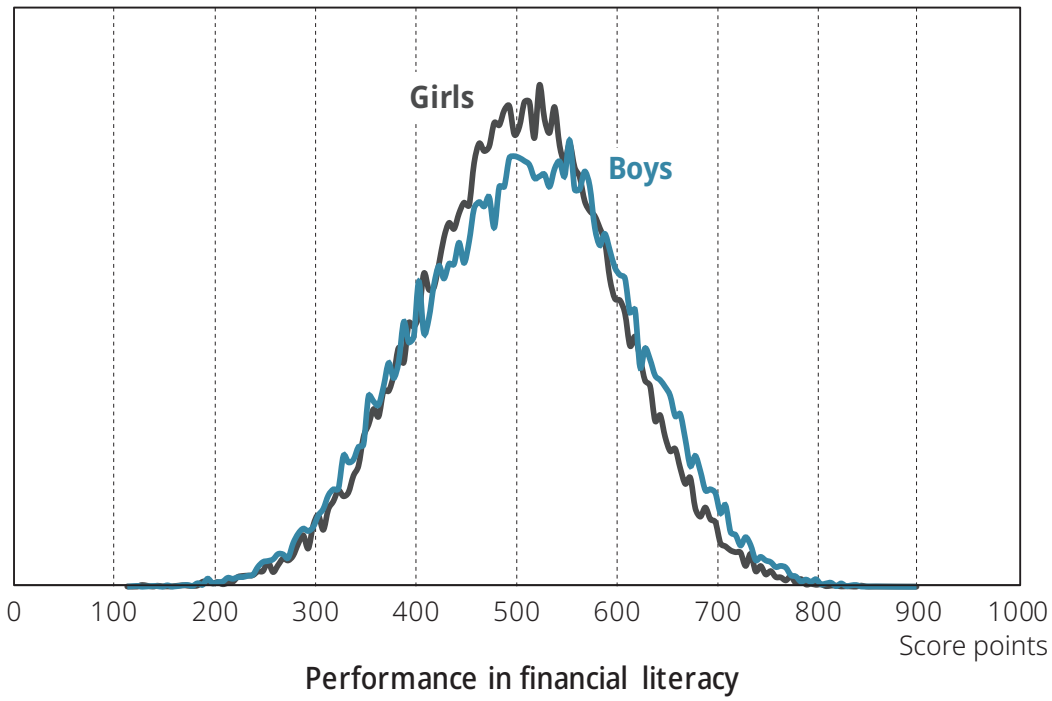
Countries and economies are ranked in descending order of the gender gap in financial literacy performance, after accounting for performance in mathematics and reading.

Source: OECD, PISA 2018 Database, Table IV.B1.3.7.

StatLink https://doi.org/10.1787/888934123463

Figure IV.3.2 **Distribution of proficiency in financial literacy, by gender**

OECD average



Note: This figure is a histogram of performance using an interval size of five score points.

Source: OECD, PISA 2018 Database.

StatLink https://doi.org/10.1787/888934123482

Compared to girls, boys were over-represented at both ends of the performance distribution. On average across OECD countries/economies, there were more top-performing boys than top-performing girls (12% compared to 9%; a gap of 3 percentage points), but also more low-achieving boys than low-achieving girls (16% compared to 14%; a gap of 2 percentage points) (Table IV.B1.3.6). Hence, although boys have a small performance advantage over girls in financial literacy, on average, there is still a need for financial education programmes and policies to improve the skills of both low-performing boys and girls.

As discussed in Chapter 2, student performance in mathematics, reading and financial literacy is closely linked. How much of the gender gap described above can be ascribed to elements related solely to financial literacy?

On average across OECD countries/economies and, indeed, in all participating countries/economies in PISA 2018, girls outperformed boys in reading. By contrast, on average across OECD countries/economies, boys outperformed girls in mathematics. This was the case in 9 of the 20 countries/economies that took part in the PISA 2018 financial literacy assessment (Australia, Brazil, Chile, Italy, Peru, Portugal, Russia, Spain and the United States), although girls outperformed boys in Indonesia. There were no significant differences between boys and girls in mathematics performance in the other countries/economies that participated in the assessment of financial literacy (Table IV.B1.3.5).[5,6]

After accounting for performance in reading, boys scored 27 points higher than girls in financial literacy, on average across OECD countries/economies. In other words, when comparing boys and girls who achieved the same score on the reading assessment, boys scored 27 points higher in financial literacy (23 points higher, on average across all participating countries/economies). However, the gender gap was inverted when accounting for mathematics literacy: girls scored three points higher in financial literacy than boys who performed equally well in the mathematics assessment, on average across OECD countries/economies (six score points higher, on average across all participating countries/economies) (Table IV.B1.3.7).

Once performance in both mathematics and reading were accounted for, boys scored 10 points higher than girls, on average across OECD countries/economies (7 points higher, on average across all participating countries/economies). These 10 score points represent the gender gap that is associated with the elements of financial literacy that are unique to that subject (as opposed to those that are shared with mathematics and/or reading). Gender gaps of over 15 points (in favour of boys) were observed in the Canadian provinces and Finland, after accounting for mathematics and reading performance. The gender gap was significant and in favour of boys in 13 of the 19 participating countries/economies with valid data; it was not statistically significant in the other 6 countries/economies (Figure I.3.1 and Table IV.B1.3.7).

On average across the OECD countries that participated in both the PISA 2012 and 2018 financial literacy assessments, there was no significant change in either boys' or girls' performance between 2012 and 2018, nor was there a significant change in the gender gap in performance during that period. However, the gender gap changed direction between 2015 and 2018; the gap was significant in favour of girls in 2015 but in favour of boys in 2018. This can be attributed to boys scoring 26 points higher in 2018 than in 2015; the comparable difference for girls was not significant, on average across OECD countries/economies (Table IV.B1.3.8).

Likewise, the proportion of both boys and girls performing at Level 5 increased by between 2 and 3 percentage points between 2012 and 2018, on average across OECD countries; there was hence no significant change in the gender gap. There were significantly smaller proportions of both boys and girls who performed below Level 2 in financial literacy in 2018 than in 2015, on average across OECD countries/economies; however, the decrease amongst boys was greater than that amongst girls, and the gender gap increased in favour of boys between 2015 and 2018 (Table IV.B1.3.9).

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

Various authors have shown how financial literacy amongst young people is associated with certain demographic and socio-economic factors, such as parents' educational attainment, household income and household possessions (Lusardi, Mitchell and Curto, 2010[2]; Riitsalu and Põder, 2016[3]; Cameron et al., 2014[4]). The size and strength of this correlation – that is, the difference in financial literacy performance between students from different backgrounds, and the extent to which financial literacy performance depends on (or can be predicted by) a student's background – are both indicative of the equity of an education system.

As a concept, the socio-economic status of a student (and his/her household) encapsulates the financial, social, cultural and human-capital resources available to students (Cowan et al., 2012[5]). PISA summarises socio-economic status through the index of economic, social and cultural status (ESCS). This index is a single value derived from several self-reported values related to the student's family background, grouped into three components – parents' education, parents' occupations, and home possessions – that can be taken as proxies for material wealth or cultural capital (e.g. a car, a quiet room in which to work, access to the

Internet and the number of books in the home). The ESCS index was standardised to have a mean of 0 and a standard deviation of 1, on average across OECD countries.[7]

The countries/economies that took part in the PISA 2018 financial literacy assessment spanned the entire socio-economic spectrum, from a high national mean value of the ESCS index of 0.47 (Canadian provinces) to a low of -1.57 (Indonesia). Different national standards can confound comparisons of students of different socio-economic status across countries/economies. Hence, this section compares students of different socio-economic status within countries/economies. Students in each country/economy were classified as advantaged (in their national context) if they fell within the top quarter (25%) of the ESCS distribution in their country/economy; they were classified as disadvantaged if they fell within the bottom quarter of the ESCS distribution in their country/economy.

In every country/economy that participated in the PISA 2018 financial literacy assessment, advantaged students performed significantly better than disadvantaged students; this was also observed in other subjects. On average across OECD countries/economies, advantaged students scored 78 score points, or roughly one proficiency level, higher than disadvantaged students. The gap between advantaged and disadvantaged students in Bulgaria, Peru and the Slovak Republic was greater than 100 score points, and the gap was also larger than the OECD average in Australia, Brazil, Portugal and the United States. However, the gap was less than 60 score points in Estonia, Indonesia and Latvia, and was also smaller than the OECD average in the Canadian provinces, Italy and Spain (Table IV.3.1).

Table IV.3.1 **Relationship between performance in financial literacy and socio-economic status**

Countries/economies with **higher** performance or **greater** equity than the OECD average
Countries/economies with values not statistically different from the OECD average
Countries/economies with **lower** performance or **less** equity than the OECD average

Country/Economy	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
Australia	511	37	10.0	89
Brazil	420	31	15.7	98
Bulgaria	432	38	14.8	108
Canadian provinces	532	30	6.4	65
Chile	451	34	13.2	89
Estonia	547	27	6.1	55
Finland	537	39	9.4	86
Georgia	403	32	10.4	79
Indonesia	388	18	6.4	50
Italy	476	29	7.9	66
Latvia	501	27	8.2	59
Lithuania	498	35	11.8	78
Peru	411	38	20.7	118
Poland	520	32	9.4	71
Portugal	505	28	12.9	90
Russia	495	37	10.2	75
Serbia	444	33	8.4	71
Slovak Republic	481	44	15.2	101
Spain	492	24	7.9	63
United States	506	36	14.0	98
OECD average	505	33	10.2	78

Notes: 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.

Sources: OECD, PISA 2018 Database, Tables IV.B1.2.1, IV.B1.3.10 and IV.B1.3.11

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Every one-unit increase in the ESCS index was associated with an increase of 33 score points in the financial literacy assessment, on average across OECD countries/economies. The improvement in performance associated with a one-unit increase in the index was 44 score points in the Slovak Republic, and was also larger than the OECD average in Australia, Finland and Peru. The smallest improvement in performance associated with a one-unit increase in the ESCS index was observed in Indonesia (18 score points), and was also smaller than the OECD average in Estonia, Italy, Latvia, Portugal and Spain (Table IV.3.1). These values represent the slope of the socio-economic gradient.

The strength of the socio-economic gradient, on the other hand, represents the extent to which a student's socio-economic status is associated with his or her performance in financial literacy. Specifically, it is the proportion of the variance in financial literacy explained by socio-economic status. A proportion of 100% means that there is a perfect correlation between socio-economic status and financial literacy score: if one knows the student's socio-economic status, one can determine his or her financial literacy score with complete certainty, as it is perfectly explained. At the other end of the spectrum, a proportion of 0% means that there is no correlation between socio-economic status and financial literacy score: one would not be able to predict a student's financial literacy score with any more certainty by knowing his/her socio-economic status.[8]

On average across OECD countries/economies, the variation in students' socio-economic status explained 10% of the variation in students' performance in financial literacy. A student's socio-economic status explained relatively little of his/her performance in financial literacy in the Canadian provinces (6%), Estonia (6%), Indonesia (6%), Italy (8%) and Spain (8%), while it explained a larger proportion of performance in Brazil (16%), Bulgaria (15%), Chile (13%), Peru (21%), Portugal (13%), the Slovak Republic (15%) and the United States (14%) (Table IV.3.1).

Socio-economic status explained a similar amount of the variation in performance in financial literacy as it did in reading (both 10%), but less than it did for mathematics (13%) (Table IV.B1.3.2).

As discussed above, there were large differences in average performance between students of different socio-economic status within a country/economy, i.e. the slope of the socio-economic gradient corresponded to substantial differences in what the average student could do at different levels of the ESCS index. However, the fact that roughly 90% of student performance remained unexplained after accounting for socio-economic status indicates that there is still much variation in financial literacy performance amongst students of the same socio-economic status. Thus, many factors beyond socio-economic status influence students' performance in financial literacy.

DIFFERENCES IN PERFORMANCE IN FINANCIAL LITERACY ASSOCIATED WITH SCHOOL LOCATION

Opportunities to acquire financial (and other) skills and performance in financial literacy (and other subjects) might be related to where students live, which can be approximated by their school's location: whether students attend school in an urban, town or rural area.

Larger communities may offer a greater opportunity to be exposed to a variety of financial products than smaller communities, simply based on their size. For example, students in cities might be more likely than students in towns or villages to pass by mobile phone stores/boutiques, and hence be more likely to sign (often with their parents) mobile phone contracts. They may also be more likely to live near a bank branch and thus have a bank account (although the digitalisation of financial services may reduce such rural-urban divides). Is the potentially greater familiarity with financial decision making amongst urban students reflected in their financial literacy performance?

On average across the 20 OECD countries/economies that took part in the PISA 2018 financial literacy assessment, some 11% of students attended schools in a village, hamlet or rural area (a place with fewer than 3 000 inhabitants); 52% of students attended schools in a town (of between 3 000 and 100 000 people); and 37% attended schools in cities or urban areas (of 100 000 inhabitants or more). Less than 2% of students in Italy, Portugal and Serbia attended schools in rural areas; indeed, in Serbia, there were too few students attending such schools to provide reliable estimates of their mean performance in PISA. By contrast, almost 30% of students in Georgia, Peru and Poland attended schools in rural areas. Less than 20% of students in Indonesia, Peru and the Slovak Republic lived in urban areas, compared to more than 60% of students in Australia and the Canadian provinces (Table IV.B1.3.13).

Students in rural areas scored 474 points in the PISA 2018 financial literacy assessment, on average across OECD countries and economies, while students in towns and urban areas scored 501 and 519 points, respectively. The urban-rural score gap was 45 points, on average across OECD countries/economies, and was 113 score points in Bulgaria. However, students in urban areas were generally of higher socio-economic status than students in rural areas. Once this was accounted for, the performance gap shrank to 26 score points, on average across OECD countries/economies (Table IV.B1.3.14).

Students in urban areas also performed better in mathematics and reading than students in rural areas. After accounting for performance in these two subjects, there was no significant difference between urban and rural students in financial literacy performance in PISA 2018. In other words, urban and rural students exhibited similar levels of competency in areas that were specific to financial literacy (and not shared with mathematics or reading). In Brazil, Georgia, Indonesia, Latvia and Peru, urban students performed better than rural students in financial literacy-specific skills, while in Estonia, rural students performed better than urban students (Table IV.B1.3.15).

THE RELATIONSHIP BETWEEN PERFORMANCE IN FINANCIAL LITERACY AND FAMILY BACKGROUND

Many of the countries/economies that participated in the PISA 2018 financial literacy assessment have long-standing and/or growing immigrant communities. Students with an immigrant background often face challenges in their progress through education, from difficulties with the language of instruction, to unfamiliarity with the education system of the host country, to lower socio-economic status and fewer opportunities for enrichment. These challenges hold as true for financial literacy as they do for other subjects. To what extent is the financial literacy of students with an immigrant background similar to that of non-immigrant students?

PISA 2018 classified students into several categories based on their and their parents' immigrant background. Non-immigrant students were those students whose father or mother (or both) was/were born in the country where the student sat the PISA test, regardless of whether the student was him/herself born in that country. Immigrant students were all other students, i.e. students whose father and mother were born in a country other than the one where the student sat the PISA test.[9] A distinction was made between two types of immigrant students:

- first-generation immigrant students were foreign-born students whose parents were both foreign-born
- second-generation immigrant students were students born in the country of assessment but whose parents were both foreign-born.

This report discusses results only for those countries/economies where, in 2018, at least 5% of students had an immigrant background. This threshold is equal to half of the average percentage of immigrant students across all OECD countries. These countries/economies are, in decreasing order of the proportion of immigrant students: the Canadian provinces, Australia, the United States, Spain, Italy, Estonia, Serbia, Portugal, Finland and Russia (Table IV.B1.3.19). However, data for all countries and economies for which results can be statistically calculated (i.e. on the basis of at least 30 immigrant students attending at least 5 different schools) are presented in tables at the end of this volume or on line.[10]

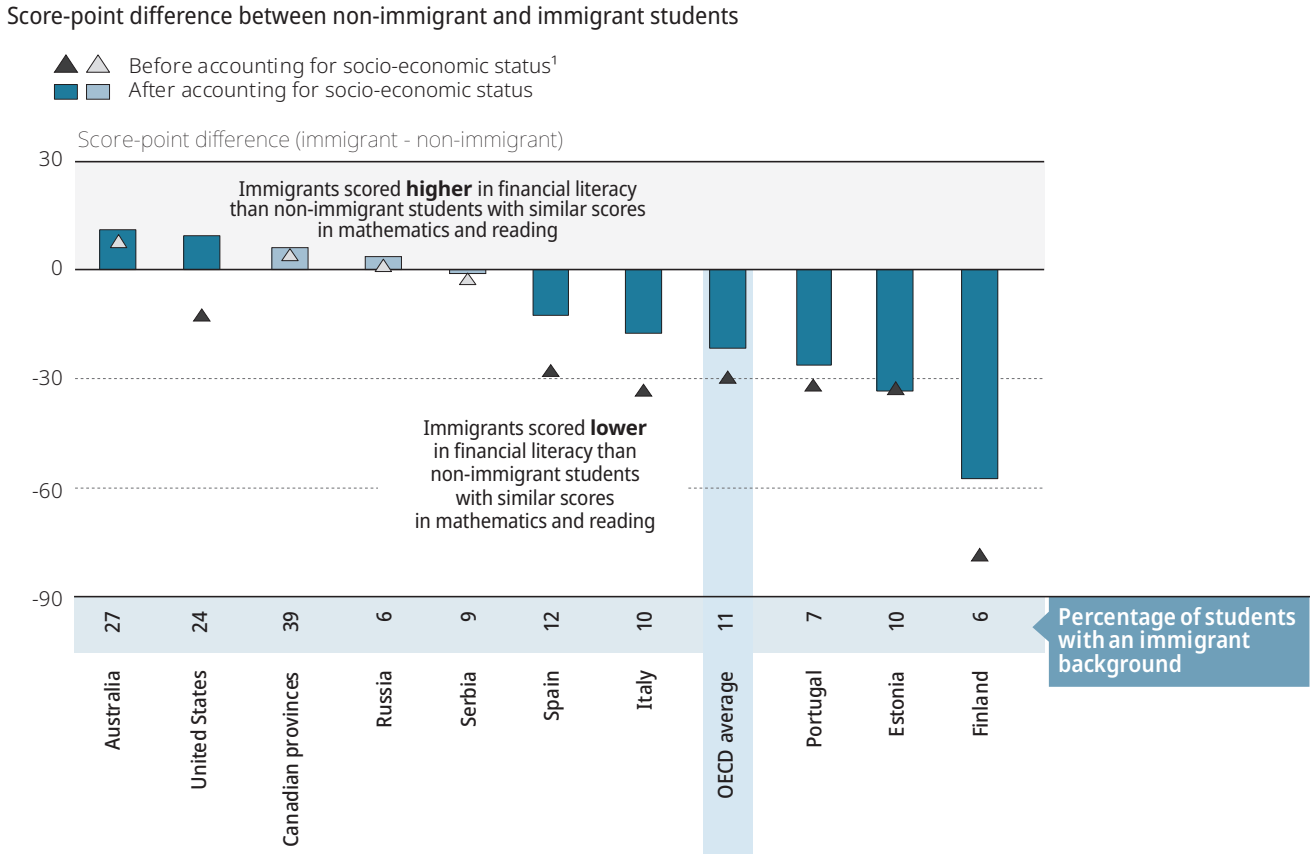
Immigration policies vary largely across countries/economies. Even within a country, immigrant populations are diverse, coming from different countries, cultures and socio-economic circumstances. For instance, the average socio-economic status of immigrants is lower than that of non-immigrants in most countries/economies; however, in the Canadian provinces, Estonia, Russia and Serbia, there were no significant differences in socio-economic status between immigrant and non-immigrant students.[11] It is important to bear this in mind when comparing gaps in performance related to immigrant background across or within countries.

On average across OECD countries/economies, immigrant students scored 30 points lower than non-immigrant students in the PISA 2018 financial literacy assessment. The gap was widest in Finland (79 points), but was not significant in four countries and economies (Australia, the Canadian provinces, Russia and Serbia) (Figure I.3.3).

As mentioned above, immigrant students in most countries/economies come from less advantaged backgrounds than non-immigrant students. Once this was accounted for through the ESCS index, immigrant students scored 22 points lower than non-immigrant students, on average across OECD countries/economies. By contrast, in the traditional settlement countries of Australia and the United States, the score gap was in favour of immigrant students; the gap was not significant in the other participating settlement economy, the Canadian provinces, nor was it significant in Russia or Serbia (Figure I.3.3).

After accounting for performance in mathematics and reading, however, immigrant students scored only five points below non-immigrant students, on average across OECD countries/economies. In other words, immigrant students displayed a slightly but still significantly lower level of competence than non-immigrant students in the skills and knowledge uniquely associated with financial literacy. This difference was significant in favour of non-immigrant students in the United States (Table IV.B1.3.22).

Figure IV.3.3 **Difference in financial literacy performance, by immigrant background**



1. Socio-economic status was measured by the PISA index of economic, social and cultural status.

Notes: 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 descending order of the difference in financial literacy performance between non-immigrant and immigrant students, after accounting for socio-economic status.

Source: OECD, PISA 2018 Database, Tables IV.B1.3.19 and IV.B1.3.20.

StatLink https://doi.org/10.1787/888934123520

In all participating countries/economies, immigrant students were significantly more likely than non-immigrant students to speak, at home, a language different from the language of instruction. On average across the 20 OECD countries/economies that participated in the PISA 2018 financial literacy assessment, 41% of immigrant students did not speak the language of instruction at home, compared to only 6% of non-immigrant students, a gap of 35 percentage points. In Finland, this gap was 70 percentage points and in the United States, it was 56 percentage points (Table IV.B1.3.23). Is having fewer opportunities to use and practice the language of instruction related to performance in the PISA financial literacy test?

Amongst all students – both immigrant and non-immigrant students – speaking the language of instruction at home was associated with higher performance in the financial literacy assessment. On average across OECD countries/economies, immigrant students who speak the language of instruction at home scored 20 points higher than those who do not (14 points higher after accounting for socio-economic status), while non-immigrant students who speak the language of instruction at home scored 38 points higher than those who do not (33 points higher after accounting for socio-economic status) (Table IV.B1.3.24).

Notes

1. More specifically, the standard deviation of a pooled sample of students from OECD countries/economies, where each national sample was equally weighted, was set at 100 score points in the PISA 2012 financial literacy assessment.
2. The 25th percentile is defined as the score attained by less than 25% of students (one in four students); the other 75% of students (three in four students) attained a score higher than this. Likewise, the 75th percentile is the score attained by less than 75% of students (three in four students); the remaining 25% of students (one in four students) attained a score higher than this.
3. Box IV.2.2 discusses the issues involved in comparing PISA results in financial literacy over time. In particular, differences in the administration of the assessment in 2015 render it impossible to calculate trends simultaneously over all three cycles to date; instead, only changes from 2012 to 2018 and from 2015 to 2018 are discussed.
4. Trend comparisons are only conducted for countries/economies that took part in the PISA 2018 financial literacy assessment and at least one previous PISA financial literacy assessment. Australia, Italy, Poland, Russia, the Slovak Republic, Spain and the United States took part in both the PISA 2012 and 2015 financial literacy assessments; Estonia and Latvia took part in the PISA 2012 financial literacy assessment; and Brazil, the Canadian provinces, Chile, Lithuania and Peru took part in the PISA 2015 financial literacy assessment.
5. Girls outperformed boys in reading in all seven of the individual participating Canadian provinces. There were no significant gender differences in mathematics performance in any of the seven participating Canadian provinces, although standard errors in the determination of significance were larger due to smaller sample sizes.
6. Gender differences shown in Table IV.B1.3.5 were calculated from students who participated in the financial literacy assessment. These results may differ from those shown in Table II.B1.7.3, which were calculated from students who participated in the core PISA assessment.
7. The ESCS index was standardised with respect to the 36 OECD countries that participated in the overall PISA 2018 assessment, not the subset of OECD countries that participated in the PISA 2018 financial literacy assessment. These 36 countries did not include Colombia, which joined the OECD after the standardisation procedure took place.
8. The strength of the socio-economic gradient is calculated as the coefficient of determination, or R^2 value, of a regression of performance over ESCS (multiplied by 100%).
9. The country of birth in the Canadian provinces was considered to be Canada as a whole, not solely the seven participating provinces. In other words, students in one of the participating Canadian provinces who had at least one parent born anywhere in Canada were considered non-immigrant students, and students in one of the participating Canadian provinces who were born anywhere in Canada but whose parents were both born outside of Canada were considered second-generation immigrant students.
10. The OECD average includes all countries for which results can be statistically calculated.
11. Immigrant/non-immigrant differences shown in Tables IV.B1.3.20, IV.B1.3.21 and IV.B1.3.22 were calculated from students who participated in the financial literacy assessment. This sample differs from the students who participated in the core PISA assessment, and hence the difference in mean socio-economic status between immigrant and non-immigrant students reported in this volume may differ from that shown in Table II.B1.9.1.

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What role do parents play in helping their children develop financial literacy?

This chapter discusses the influence of parents on students' behaviour and financial literacy. It begins by examining the sources from which students obtain information about money matters. The chapter continues by exploring the money-related topics that students discuss with their parents. It then discusses students' autonomy in handling their own money matters. Student performance in financial literacy is related to all of these topics.

4

What role do parents play in helping their children develop financial literacy?

The previous two chapters discuss the performance of 15-year-old students across the world in the PISA 2018 financial literacy assessment. However, no attempts were made to identify what factors may be related to any differences in performance, or how young people's financial literacy could be improved.

PISA is not simply an assessment of knowledge and skills; it also gathers information about students' attitudes towards learning. To that end, in addition to the financial literacy assessment, a questionnaire about financial literacy was distributed amongst students. Students' responses to these questions provide an overview of 15-year-old students' attitudes towards, behaviours regarding, and experiences and familiarity with financial matters. The questionnaire thus helps identify the factors that may be worth exploring when developing financial education programmes for youth. The rest of this report focuses on the information gathered through the questionnaire.

This chapter highlights the role of parents in helping their children develop financial literacy. Several studies have asserted that parents are an important, if not the most important, source of information when young people start learning how to manage money (Gudmunson and Danes, 2011[1]; Otto, 2013[2]; Tang, 2016[3]; Moreno-Herrero, Salas-Velasco and Sánchez-Campillo, 2018[4]). Parents transmit values, attitudes, knowledge and behaviours about money to their children, both through their example as role models and through direct teaching (Bucciol and Veronesi, 2014[5]; Nyhus and Webley, 2013[6]; Webley and Nyhus, 2006[7]). Do students learn about money matters from their parents? How much freedom do parents give their children in their financial affairs? And what topics do parents bring up when they discuss financial matters with their children? The results discussed in this chapter may provide policy makers with insights into how students differ in their exposure to financial topics and in their experience with financial decision making at home. In turn, this information could be used to design school-based programmes to meet students' needs for financial education.

What the data tell us

- Parents, guardians and other adult relations are students' most common source of information about money matters: 94% of students reported obtaining such information from their parents, on average across OECD countries/economies.
- After accounting for student characteristics, students who look to their parents as a source of information about money matters outperformed students who do not do so by 27 score points in financial literacy, on average across OECD countries/economies; students who use the Internet as a source of such information outperformed those who do not use the Internet as a source of such information by 10 score points; and students who obtain information about money matters from other sources (friends, television or radio, magazines, or teachers) scored below students who do not obtain information from these sources.
- Parents in Brazil, Bulgaria, Lithuania and Serbia were amongst the most involved in developing their children's financial literacy. On average across OECD countries/economies, 87% of students reported talking to their parents about money for things that they wanted to buy at least once a month, while roughly 3 in 4 students reported talking to their parents about their own spending decisions and saving decisions at least once a month.
- Roughly four in five students, on average across OECD countries/economies, reported that they could decide independently what to spend their money on. These students scored 27 points higher in the financial literacy assessment, on average and after accounting for student characteristics, than students who did not report so.

WHERE DO STUDENTS GET INFORMATION ABOUT MONEY MATTERS?

The PISA 2018 financial literacy questionnaire asked students where they get the information they need about money matters, such as spending, saving, banking and investments. Students were given the option to report that they obtain information from the following sources, and could state that they obtained information from multiple sources:

- parents, guardians or other adult relations
- friends
- television or radio
- the Internet
- magazines
- teachers

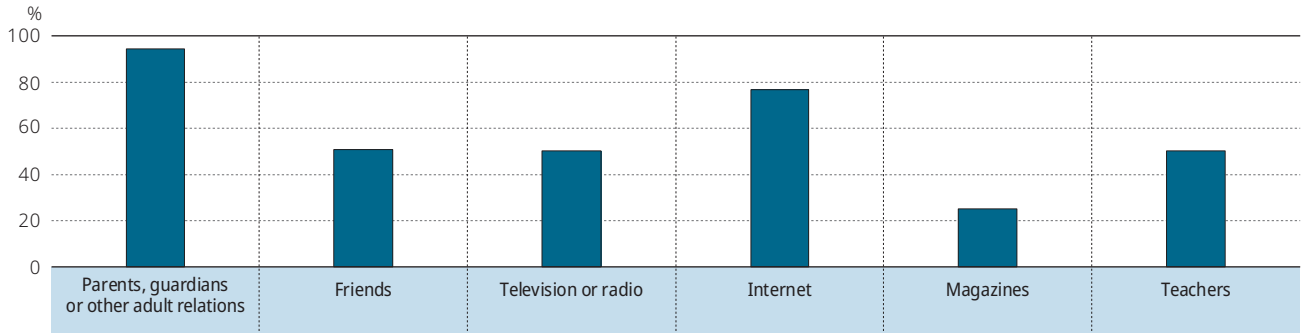
On average across OECD countries/economies, 94% of students reported that they obtain such information from parents;[1] 77% of students reported that the Internet is a source of such information; roughly half of all students reported that they obtain information about financial matters from friends (51%), television or radio (50%) or teachers (50%); and roughly a quarter of all students reported that they obtain such information from magazines (25%) (Figure IV.4.1).

In all countries/economies, at least 89% of students acquired information about money matters from their parents. However, there was much greater variation across countries/economies in whether students obtained information from other sources. Some 59% of students in Serbia, compared to 86% of students in Latvia, reported that they get information about financial matters from the Internet. Between 31% (the Canadian provinces) and 76% (Portugal) of students in participating countries and economies received information via television or radio; and between 14% (the United States) and 50% (Indonesia) of students in participating countries/economies received information via magazines. This might reflect differences in the penetration and importance of various forms of media and communications across participating countries/economies (Table IV.B1.4.1).

Students in different countries/economies also differed in their propensity to obtain information about financial affairs from people other than their parents. Some 87% of students in Indonesia reported that they obtain such information from their teachers, as did over 70% of students in Finland and Peru. But at the other end of the spectrum, less than 35% of students in Poland and Serbia reported that they get financial information from their teachers. Likewise, 75% of students in Indonesia reported that they obtain information about money matters from their friends, while only 37% of students in Peru so reported (Table IV.B1.4.1).

Figure IV.4.1 **Students' sources of information about financial matters**

Percentage of students reporting that they receive information from each source; OECD average



Source: OECD, PISA 2018 Database, Table IV.B1.4.1

StatLink https://doi.org/10.1787/888934123539

On average across OECD countries/economies, girls were 3 percentage points more likely than boys to report that they obtain information about money matters from their parents; in 18 of the 20 participating countries/economies, girls were significantly more likely than boys to do so. Boys, on the other hand, were significantly more likely than girls to report that they get information about money matters from their friends (by five percentage points) and from magazines (by three percentage points). These differences were also observed consistently across most participating countries/economies. There was either no clear pattern in the gender differences in using other sources of information about financial literacy (television or radio, the Internet, and teachers) across countries/economies, or they were generally not significant (Table IV.B1.4.2).

Immigrant students were three percentage points less likely than non-immigrant students to report that they obtain information about money matters from their parents, on average across OECD countries/economies. However, they were three percentage points more likely to get such information both from their friends and from the Internet (Table IV.B1.4.3). One hypothesis to explain these differences is that immigrant parents, especially those from countries with weaker financial institutions, are less familiar or comfortable with the financial system in their host country (Osili and Paulson, 2008[8]; Rhine and Greene, 2006[9]). These parents might be less able or willing to provide advice; as a result, their children might rely on easily accessible sources, such as friends and the Internet, for this information.

Students' sources of information about money matters were also correlated with socio-economic status. On average across OECD countries/economies, advantaged students (those students in the top 25% of their country/economy's socio-economic distribution) were 5 percentage points more likely to report that they obtain such information from their parents than disadvantaged students (those students in the bottom 25% of their country/economy's socio-economic distribution). The difference was particularly pronounced in Brazil (an 11 percentage-point gap) and Peru (a 15 percentage-point gap) (Table IV.B1.4.4).

Advantaged students were also four percentage points more likely than disadvantaged students to report that they get information about money matters from the Internet. The gap was 31 percentage points wide in Peru, and it was wider than 10 percentage points in Brazil, Bulgaria, the Canadian provinces, Georgia and Indonesia (Table IV.B1.4.4). Such differences might be related to socio-economic disparities in Internet use and access, which are particularly pronounced in lower-income countries (OECD, 2015[10]; OECD, 2017[11]).

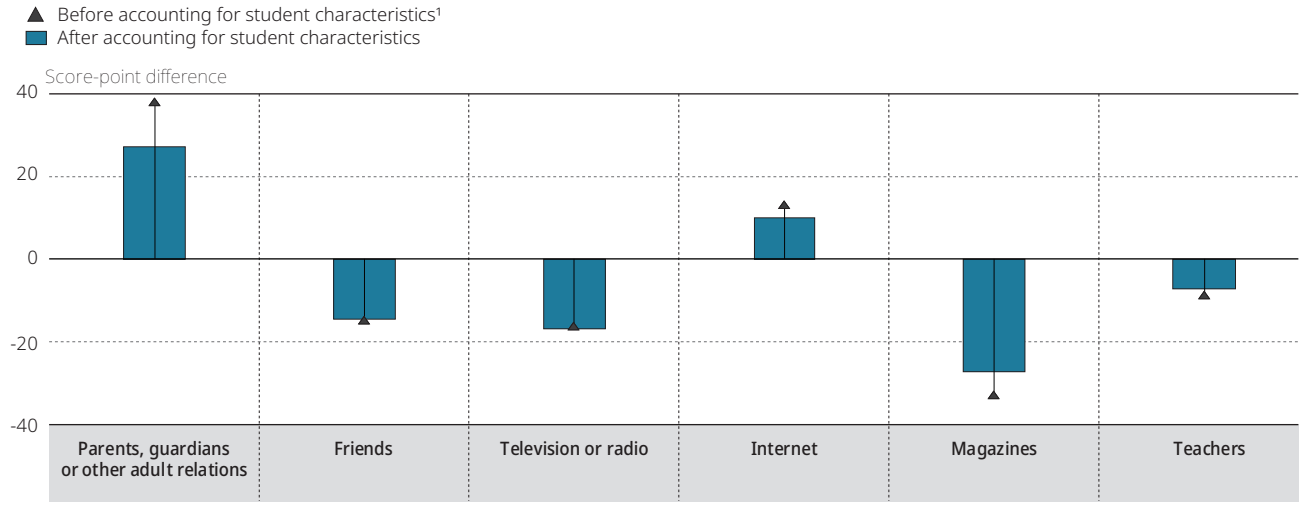
By contrast, on average across OECD countries/economies, advantaged students were five percentage points less likely than disadvantaged students to report that they obtain information about money matters from teachers. This was also observed in 10 of the 20 countries/economies that participated in the PISA 2018 financial literacy assessment (notably in Italy, Serbia and the Slovak Republic); but in Australia, Finland and Indonesia, advantaged students were significantly more likely than disadvantaged students to report that they obtain such information from teachers (Table IV.B1.4.4).

Student performance in financial literacy and sources of information about money matters

Students who obtain information about money matters from their parents scored 38 points higher in the financial literacy assessment than students who do not obtain such information from their parents, on average across OECD countries and economies. A performance gap in favour of students who reported that they obtain such information from their parents was observed in 18 of the 20 participating countries/economies, with a gap of over 50 score points in Bulgaria, Peru, Portugal and the Slovak Republic. The gap was not statistically significant in Indonesia and Latvia. However, after accounting for student characteristics that are related to whether students obtain information about money matters from their parents – gender, socio-economic status and immigrant background – the score-point difference shrank to 27 points, on average across OECD countries/economies. The gap was still significant in 16 of the 20 participating countries/economies, and was greater than 40 score points in Bulgaria, Estonia, Lithuania and Portugal (Figure IV.4.2 and Table IV.B1.4.5).

Figure IV.4.2 **Financial literacy performance, by sources of information about money matters**

Score-point difference between students who do and those who do not receive information from each source; OECD average



1. Student characteristics refer to gender, socio-economic status (as measured by the PISA index of economic, social and cultural status [ESCS]) and immigrant background.

Note: All score-point differences are significant.

Source: OECD, PISA 2018 Database, Table IV.B1.4.5

StatLink https://doi.org/10.1787/888934123558

Students who reported that they obtain information about money matters from the Internet also performed better in the PISA 2018 financial literacy assessment: the gap was 13 score points in their favour compared with students who did not so report, on average across OECD countries/economies. After accounting for student characteristics, such as gender, socio-economic status and immigrant background, the gap narrowed to 10 points. In Brazil and Indonesia, the gap after accounting for student characteristics was 24 score points, while in Australia, the Canadian provinces, Chile, Serbia and Spain, the difference was not statistically significant (Figure IV.4.2 and Table IV.B1.4.5).

However, students who reported that they get information from any of the other four sources – friends, television or radio, magazines or teachers – displayed poorer financial literacy than students who did not use those sources, both before and after accounting for student characteristics. The score gap – after accounting for student characteristics, 33 points on average across OECD countries/economies, and more than 50 score points in Australia and the Canadian provinces – was particularly large when considering students who reported that they obtain information from magazines (Figure IV.4.2 and Table IV.B1.4.5).

HOW INVOLVED ARE PARENTS IN DEVELOPING THEIR CHILDREN'S FINANCIAL LITERACY?

The previous section shows that 15-year-old students most frequently turn to their parents as a source of information about financial matters. This is consistent with previous results from PISA 2015 and from other surveys conducted in national contexts (OECD, 2017[11]; Charles Schwab & Co., 2011[12]; British Columbia Securities Commission, 2011[13]; Shim et al., 2009[14]). However, just what do parents discuss with their children and how often do they do so?

PISA 2018 asked students with what frequency (never or hardly ever, once or twice a month, once or twice a week, or almost every day) their parents talk to them about five aspects of financial decisions: their own spending decisions, their own saving decisions, the family budget, money for things they want to buy, and news related to finance and economics. Each student's responses to these questions were then combined into one scale, the index of parental involvement in matters of financial literacy, which was standardised to have a mean of 0 and standard deviation of 1, on average across OECD countries/economies.

According to this index, parents in Bulgaria were the most involved in helping their children develop financial literacy, with a mean index of 0.33 of a point. Parents in Brazil, Lithuania and Serbia were also amongst the most involved. At the other end of the scale, parents in Estonia and Finland were the least involved in helping their children develop financial literacy, with a mean index of -0.15 of a point. Parents in partner (non-OECD) countries were, on average, more involved than parents in OECD countries/economies (Table IV.B1.4.6).

Some 87% of students, on average across OECD countries/economies, reported that they talk to their parents at least once or twice a month about money for things they want to buy; this proportion was 90% in Lithuania and Portugal, and was only 71% in Georgia (its lowest value amongst the 20 countries/economies that participated in the PISA 2018 financial literacy assessment). Only 16% of students reported that they talk to their parents almost every day about money for things they want to buy, on average across OECD countries/economies. At the national level, this proportion ranged from less than 10% in Estonia and Finland to 30% in Brazil (Table IV.B1.4.6).

Roughly three in four students reported that they talk to their parents at least once or twice a month about their own spending (76%) and saving (75%) decisions. Over 80% of students in Australia, Finland, Latvia and Lithuania reported that they talk to their parents at least once or twice a month about their own spending decisions, while in Chile and Italy, less than 70% of students reported doing so. Similarly, over 80% of students in Indonesia, Lithuania and Portugal reported that they discuss their own saving decisions with their parents at least once or twice a month, while only 70% of students in Georgia so reported (Table IV.B1.4.6).

On average across OECD countries/economies, just over one in 10 students reported that they discuss their own spending (12%) or saving (11%) decisions with their parents almost every day. In Brazil, Bulgaria, Georgia and Indonesia, more than 20% of students reported discussing their spending decisions with their parents almost every day, while in Estonia, Finland and Poland, less than 10% did so. Some 21% of students in Brazil and 19% of students in Bulgaria reported that they talk to their parents almost every day about their saving decisions, compared to 5% of students in Finland and 6% of students in Estonia who so reported (Table IV.B1.4.6).

It was less common for students to talk to their parents about the family budget or news related to finance or economics, than the other three topics discussed above. On average across OECD countries/economies, 62% of students reported that they talk to their parents at least once or twice a month about the family budget, and 56% of students reported that they talk to their parents at least once or twice a month about news related to finance or economics. However, over 75% of students in Lithuania, Peru and the Russian Federation (hereafter "Russia") reported that they talk to their parents at least once or twice a month about the family budget, and more than 65% of students in Brazil, Indonesia, Lithuania and Portugal reported that they talk to their parents at least once a month about news related to finance or economics (Table IV.B1.4.6).

Only 8% of students reported that they talk to their parents almost every day about the family budget, and the same percentage reported that they talk to their parents almost every day about news related to finance or economics. Some 4% of students in Finland reported that they talk to their parents every day about the family budget, while 22% of students in Peru so reported. At the national level, between 5% (Finland) and 17% (Brazil) of students reported that they discuss news related to finance and economics with their parents almost every day (Table IV.B1.4.6).

On average across OECD countries/economies, girls reported more than boys that their parents are involved in matters of financial literacy. This was also the case in 14 of the 20 countries/economies that participated in the PISA 2018 financial literacy assessment; the gap was not significant in the other six countries/economies. This gender gap was particularly large in Australia, Brazil, Bulgaria, Estonia and Serbia (Table IV.B1.4.7).

The gender gap was widest in favour of girls when it came to discussing money for things they want to buy (five percentage points) or their own spending decisions (four percentage points). Girls in Finland were seven percentage points more likely than boys to talk with their parents at least once or twice a month about money for things they want to buy; in Serbia, they were nine percentage points more likely than boys to talk with their parents at least once or twice a month about their own spending decisions (Table IV.B1.4.7).

On average across OECD countries/economies, the gender gap was smaller, although still in favour of girls, when considering students who reported that they discuss their own saving decisions or the family budget with their parents at least once or twice a month. However, boys were significantly more likely than girls – by eight percentage points – to discuss news related to economics or finance with their parents at least once or twice a month. The gap was significant in favour of boys in 17 of the 20 participating countries/economies, and exceeded 10 percentage points in the Canadian provinces, Finland, Italy, Latvia and Poland; it was not significant in Indonesia, Portugal and Russia (Table IV.B1.4.7).

Such gender differences in how parents talk with their children about financial issues, as observed in PISA 2018, add another dimension to the existing literature. For example, Agnew and Cameron-Agnew found that boys in New Zealand were, on average, younger than girls when they had their first financial discussion with their parents; however, the content of such financial discussions was not specified, nor was whether it was the parent or child who initiated the conversation (Agnew and Cameron-Agnew, 2015[15]).

According to students' own reports, immigrant parents were four percentage points less likely than the parents of non-immigrant students to discuss their children's own spending decisions with them at least once or twice a month, on average across OECD countries/economies. Differences related to immigrant background were notable in Australia, Finland and Spain.[2] However, immigrant students were more likely than non-immigrant students to discuss with their parents, at least once or twice a month, both the family budget (by four percentage points; significant differences observed in Australia, the Canadian provinces, Estonia and Spain) and news related to finance or economics (by three percentage points; significant differences observed in Australia, the Canadian provinces and Finland) (Table IV.B1.4.8). Differences between immigrant and non-immigrant students in countries that are not mentioned were not statistically significant.

On average across OECD countries/economies, advantaged students reported greater parental involvement in financial matters than disadvantaged students; this was also true in every country/economy that participated in the PISA 2018 financial literacy assessment, except Bulgaria, Serbia and the United States, where the relationship was not statistically significant. In Brazil, the gap between advantaged and disadvantaged students in the index of parental involvement in financial literacy was 0.43 of a point, or over 40% of the standard deviation observed across OECD countries/economies (Table IV.B1.4.9).

Parents in advantaged households discussed four of the five financial topics more often with their children than parents in disadvantaged households. The difference in the percentage of students who reported that they discuss these topics with their parents at least once or twice a month was largest with regards to news related to finance and economics (a 10 percentage-point gap on average across OECD countries/economies; a difference of more than 15 percentage points in Brazil, the Canadian provinces and Finland) and students' own spending decisions (a 10 percentage-point gap on average across OECD countries/economies; a difference of more than 15 percentage points in Brazil and the Slovak Republic) (Table IV.B1.4.9). This may be because parents in more advantaged households may be more knowledgeable about and more experienced with financial content, including news related to finance and economics (Rhine and Greene, 2006[9]; Luhr, 2018[16]), and because advantaged students have more money to spend and hence perhaps more spending decisions to make.

However, advantaged students were two percentage points less likely than their disadvantaged peers to talk to their parents at least once or twice a month about the family budget, on average across OECD countries/economies. This difference varied in direction, depending on the country/economy, and, in most countries/economies, was not statistically significant (Table IV.B1.4.9).

Of course, students in different countries – indeed, students in the same country – have different relationships with their parents. The PISA questionnaire could not ascertain the quality of conversations about money matters or the accuracy of the information discussed between parents and their children. Given these constraints, caution is advised when interpreting the data.

Student performance in financial literacy and discussing money matters with parents

On average across OECD countries/economies, students whose parents are more engaged in their children's financial literacy performed slightly better in the PISA 2018 financial literacy assessment. Students scored one point higher in the assessment

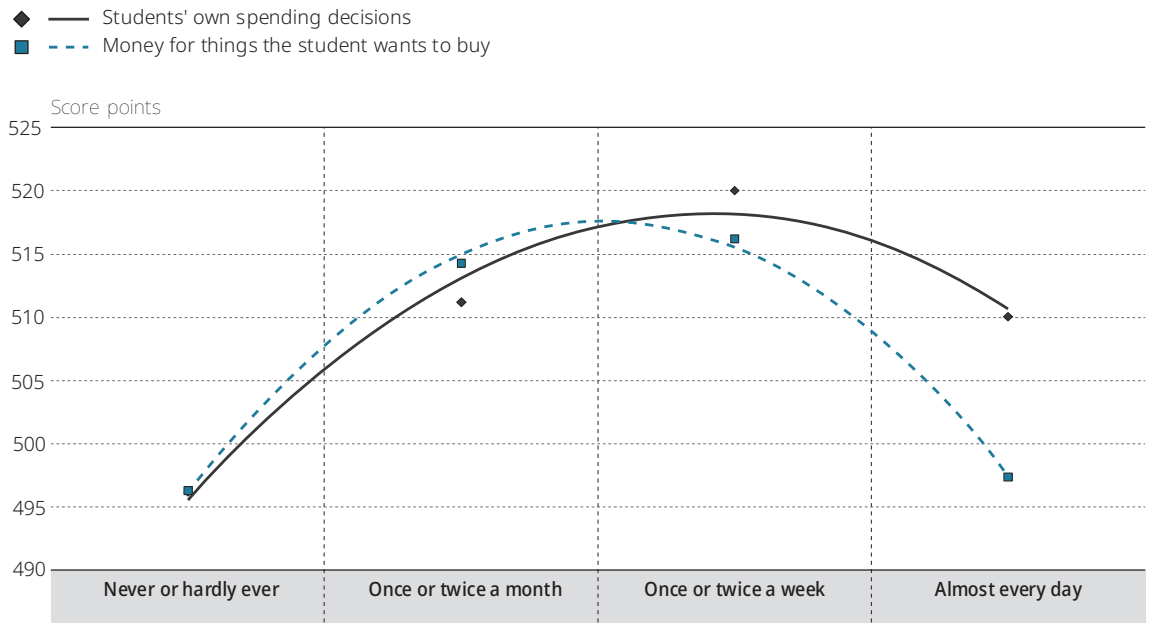
for every one-unit increase in the index of parental involvement in matters of financial literacy; however, as discussed below, the relationship is not linear. This relationship was no longer statistically significant after accounting for gender, socio-economic status and immigrant background. Students in Brazil, Bulgaria, Chile, Georgia, Italy, Peru and Portugal whose parents discuss financial matters more often with them performed better in financial literacy, after accounting for the aforementioned student characteristics, while such students in Australia, the Canadian provinces, Estonia, Latvia, Poland and the United States scored lower (Table IV.B1.4.10).

However, the relationship between the topics discussed, the frequency with which they were discussed, and performance in financial literacy was more nuanced. On average across OECD countries/economies, students who reported that they discuss their own spending decisions with their parents once or twice a week performed better than students who reported that they discuss this topic either less or more often; students who reported that they never or hardly ever discuss their own spending decisions with their parents scored lowest. At the same time, students who reported that they discuss their own saving decisions with their parents almost every day scored lower than other students (Table IV.B1.4.10 and Figure IV.4.3). This is consistent with results from the PISA 2015 assessment (OECD, 2017[11]).

Students scored lower in the financial literacy assessment the more often they discussed the family budget with their parents, on average across OECD countries/economies. This association was notable in Australia, the Canadian provinces, Estonia, Indonesia, Poland and the United States. Students who reported that their parents discuss news related to finance or economics with them every day scored lower than other students. Meanwhile, students who reported that they talk with their parents moderately frequently (once or twice a month, or once or twice a week) about money for things they want to buy performed better than both students who reported that they hardly ever, and students who reported that they almost daily, discuss this matter with their parents (Table IV.B1.4.10 and Figure IV.4.3).

Figure IV.4.3 **Financial literacy performance, by frequency of discussing money matters with parents**

OECD average



Source: OECD, PISA 2018 Database, Table IV.B1.4.10

StatLink https://doi.org/10.1787/888934123577

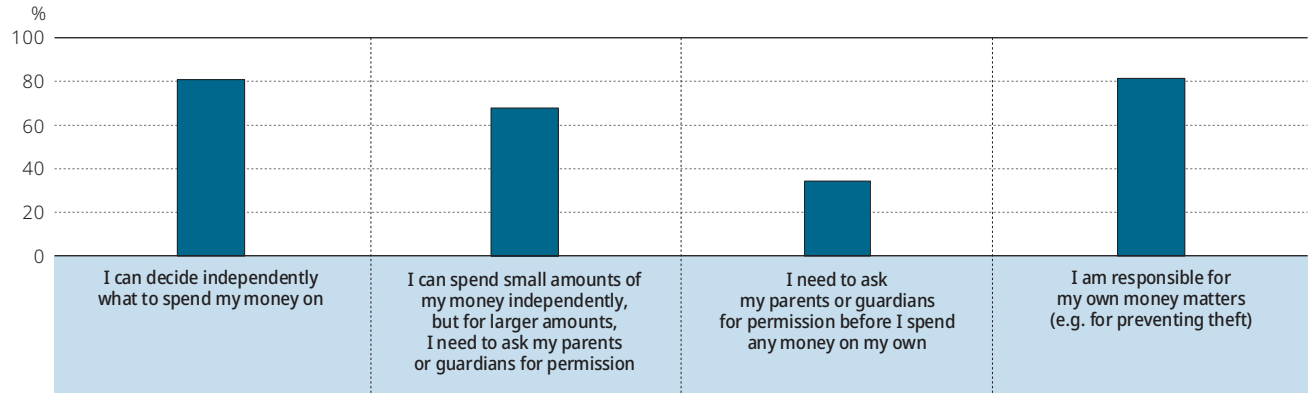
Various studies have investigated the relationship between young people's financial literacy and the financial discussions and knowledge imparted by their parents. Certain studies have found a positive relationship (Akben-Selcuk and Altiok-Yilmaz, 2014[17]; Shim et al., 2009[14]; Shim et al., 2009[18]), while other studies have found no such relationship (Jorgensen and Savla, 2010[19]). PISA 2018 goes further than many other previous studies to identify the nature of these discussions, but it is still unclear whether these talks actually affect children's financial knowledge, skills and behaviours, or whether the knowledge they gain is accurate and reliable. Indeed, one survey found that over 80% of parents who rated themselves as doing a poor or fair job of managing their own money also rated themselves as effective in providing financial advice to their children (TIAA Institute, 2001[20]). More specific research in this area may be beneficial.

HOW INDEPENDENT ARE STUDENTS IN THEIR FINANCIAL AFFAIRS?

PISA 2018 asked students to what extent they agree with various statements about their ability to handle their own money. On average across OECD countries/economies, just over four in five students (81%) agreed or strongly agreed that they could independently decide what to spend their money on. However, there was a large range across countries/economies – from less than 70% of students in Brazil, Peru and Portugal to more than 85% of students in Australia, the Canadian provinces, Estonia, Finland, Lithuania and the United States (Table IV.B1.4.11 and Figure IV.4.4).

Figure IV.4.4 **Students' autonomy in spending decisions**

Percentage of students who agreed/strongly agreed with each statement; OECD average



Source: OECD, PISA 2018 Database, Table IV.B1.4.11

StatLink https://doi.org/10.1787/888934123596

More specifically, just over two in three students (68%), on average across OECD countries/economies, agreed or strongly agreed that they could spend small amounts of money independently, but needed to ask their parents for permission for larger amounts of money. Some 83% of students in Indonesia reported that they need to ask their parents for permission to spend larger amounts of money, while 60% of students in both Finland and the Slovak Republic were autonomous in this regard (Table IV.B1.4.11 and Figure IV.4.4).

Just over one in three students (34%), on average across OECD countries/economies, agreed or strongly agreed that they need to ask their parents for permission before spending any money on their own. Some 81% of students in Indonesia so reported, compared to less than 50% of students in every other country/economy that participated in the PISA 2018 financial literacy assessment. By contrast, only 15% of students in Finland agreed or strongly agreed that they need to ask their parents for permission before spending any money on their own (Table IV.B1.4.11 and Figure IV.4.4).[3]

Some 81% of students, on average across OECD countries/economies, agreed or strongly agreed that they are responsible for their own money matters, such as for preventing theft. Over 70% of students in every participating country/economy except Brazil (65%) agreed or strongly agreed with this statement (Table IV.B1.4.11 and Figure IV.4.4).

In almost every country/economy, girls were more autonomous than boys in spending money. On average across OECD countries/economies, girls were three percentage points more likely than boys to agree or strongly agree that they could decide independently what to spend their money on, and five percentage points more likely to agree or strongly agree that they could spend small amounts of money independently but would need to ask their parents for permission to spend larger amounts. The gender gaps were particularly wide in Bulgaria, Georgia and Lithuania. Conversely, boys were more than six percentage points more likely than girls, on average across OECD countries/economies, to agree or strongly agree that they had to ask their parents for permission before spending any money on their own (Table IV.B1.4.12).

Immigrant students were, in some respects, less financially autonomous than students without an immigrant background. They were three percentage points less likely to be able to decide independently what to spend their money on and seven percentage points more likely to need to ask their parents for permission before spending any money on their own, on average across OECD countries/economies. For both of these items, differences were significant in Australia, the Canadian provinces, Estonia, Finland and the United States, and not statistically significant in other participating countries (Table IV.B1.4.13).

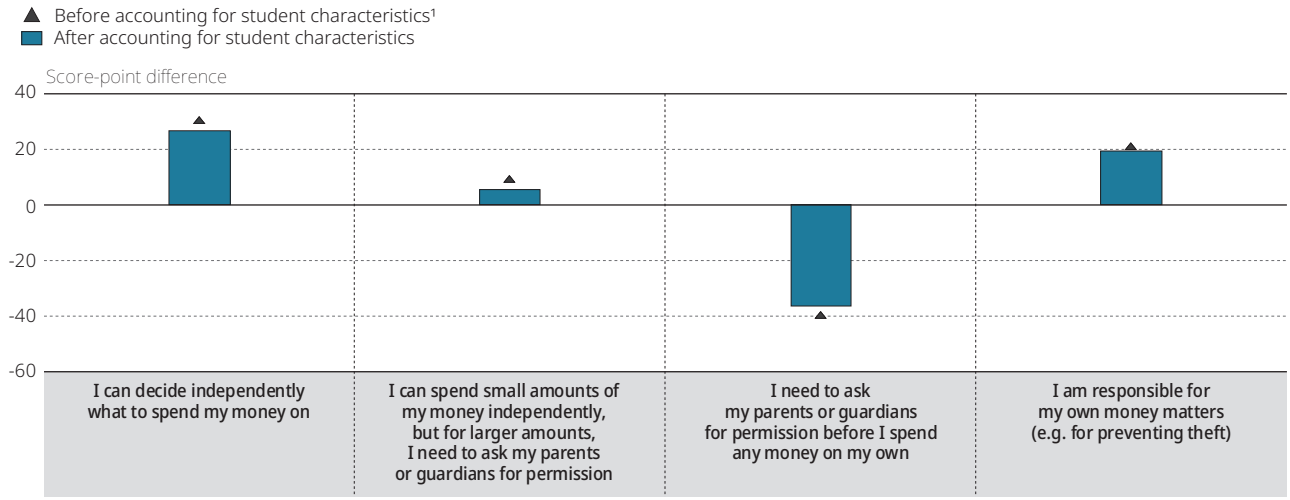
Students were also more financially autonomous the more advantaged their socio-economic status. For instance, advantaged students were five percentage points more likely to agree or strongly agree that they could decide independently what to spend their money on. The gap was significant in 15 of the 20 participating countries/economies in the PISA 2018 financial literacy assessment – and was 22 percentage points wide in Peru. Likewise, advantaged students were seven percentage points less likely to agree or strongly agree that they need to ask their parents for permission before spending any money on their own. This gap was also significant in 15 of the 20 participating countries/economies and, again, was 22 percentage points wide in Peru (Table IV.B1.4.14).

Student performance in financial literacy and autonomy in financial affairs

Students who were more independent in their financial affairs performed better in the PISA 2018 financial literacy assessment, both before and after accounting for gender, socio-economic status and immigrant background. For instance, students who agreed or strongly agreed that they could decide independently what to spend their money on scored 30 points higher, on average across OECD countries/economies, than students who disagreed or strongly disagreed with this statement; after accounting for student characteristics, they still scored 27 points higher. In every participating country/economy except Portugal, this difference was significant and in favour of students who agreed or strongly agreed with this statement (Table IV.B1.4.15 and Figure IV.4.5).

Figure IV.4.5 **Financial literacy performance, by students' autonomy in spending decisions**

Score-point difference between students who agree with and those who do not agree with each statement; OECD average



1. Student characteristics refer to gender, socio-economic status (as measured by the PISA index of economic, social and cultural status [ESCS]) and immigrant background.

Note: All score-point differences are significant.

Source: OECD, PISA 2018 Database, Table IV.B1.4.5

StatLink https://doi.org/10.1787/888934123615

Likewise, students who agreed or strongly agreed that they could spend small amounts of money independently, but had to ask their parents for permission for spending larger amounts of money scored six points higher in the PISA 2018 financial literacy assessment than students who disagreed or strongly disagreed with this statement, after accounting for student characteristics and on average across OECD countries/economies. Being responsible for their own money matters was also associated with a 19-point improvement in students' scores. In 16 of the 20 participating countries/economies, this difference was significant in favour of students who agreed or strongly agreed that they were responsible for their own money matters. The difference was larger than 50 points in Indonesia and more than 45 points in Bulgaria and the Slovak Republic, after accounting for student characteristics (Table IV.B1.4.15 and Figure IV.4.5).

The aspects of financial independence discussed in this section have not been explored in other literature to date. In general, literature on financial independence tends to focus on the transition to full autonomy as an adult, not on adolescents living with parents or guardians (Xiao, Chatterjee and Kim, 2014[24]; Jariwala and Dziegielewski, 2016[25]; Vosylis and Erentaitė, 2019[26]). Further research in this area may be warranted.

Notes

1. In this chapter, the term "parents" is used to refer to parents, guardians or other adult relations.
2. This report only discusses differences related to immigrant status for countries/economies where at least 5% of students had an immigrant background. These countries/economies are, in decreasing order of the percentage of immigrant students: the Canadian provinces, Australia, the United States, Spain, Italy, Estonia, Serbia, Portugal, Finland and Russia. However, data for all countries/economies for which results can be statistically calculated (i.e. on the basis of at least 30 immigrant students attending at least 5 different schools) are presented in tables at the end of this volume and on line. The OECD average includes all countries for which results can be statistically calculated.
3. Students responded to each of these statements separately. Furthermore, they could respond with "strongly agree", "agree", "disagree" or "strongly disagree", adding some nuance to how accurately these statements reflect their lives. This may explain why, for instance, over 80% of students in Indonesia either strongly agreed or agreed that they could spend small amounts of their money independently, but for larger amounts, they needed to ask their parents for permission, while a similar number also either strongly agreed or agreed that they needed to ask their parents for permission before spending any money on their own.

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PISA

5

To what extent are students exposed to financial education at school?

This chapter discusses four aspects that illustrate how financial literacy in schools is taught: the money-related terms that students have learned, the money-related tasks that they have encountered, the classes in which they have encountered various money-related problems, and their textbooks that discuss money matters. These aspects are related to various student and school characteristics, and to performance in financial literacy.

5

To what extent are students exposed to financial education at school?

Chapter 4 shows that while parents are students' most common source of information about money matters, many students obtain such information from their teachers (Table IV.B1.4.1). However, the nature of this information is not clear. What topics do students learn about at school and what tasks do they engage in to do so? In what classes do they discuss money matters? Do they have access to textbooks that deal with money matters? The literature on the exact nature of financial education in secondary schools is sparse, and no comparative studies of financial education programmes across countries have been carried out until now. Instead, most studies have focused on evaluating the impact of specific financial education programmes on financial literacy (Becchetti, Caiazza and Coviello, 2013[1]; Bernheim, Garrett and Maki, 2001[2]; Carlin and Robinson, 2012[3]; Kaiser and Menkhoff, 2019[4]; Frisancho, 2019[5]).

This chapter discusses students' exposure to financial education in school, and relates it to various student- and school-level characteristics. Exposure to various types of financial education activities is then related to students' financial literacy.

What the data tell us

- Students who reported that they had learned and still know each of the eight finance-related terms – "bank loan", "budget", "debit card", "entrepreneur", "income tax", "interest payment", "shares/stocks" and "wage" – outperformed students who did not by at least 25 score points in financial literacy, after accounting for student and school characteristics, on average across OECD countries/economies and after accounting for student characteristics. Students in Finland and the Russian Federation reported that they had learned and still knew the most money-related terms.
- In general, disadvantaged students and students in disadvantaged schools were more likely to report encountering money-related tasks in their school lessons, compared to their advantaged counterparts. But being exposed to such tasks at school was associated with lower performance, on average across OECD countries/economies and after accounting for student and school characteristics, especially in Georgia, Poland, Serbia and the United States.
- Some 16% of students reported having a specific textbook that deals with money matters, and 32% of students reported having a textbook on a different subject but that discusses money matters, on average across OECD countries/economies. Having the latter type of textbook was associated with a 15-point improvement in financial literacy performance, on average across OECD countries/economies and after accounting for student and school characteristics; but having a textbook that specifically addresses money matters was associated with a 25-point decline in financial literacy performance.

WHAT HAPPENS IN FINANCIAL EDUCATION PROGRAMMES IN SCHOOLS AND HOW ARE SUCH PROGRAMMES DELIVERED?

The PISA 2018 financial literacy questionnaire asked students about four aspects of the financial education programmes that they might have been exposed to at school over the previous 12 months:

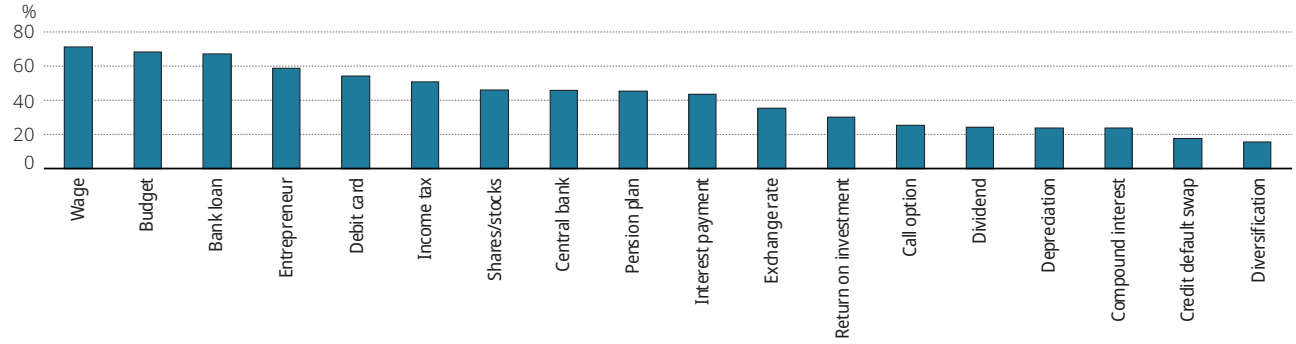
- financial terms that they had encountered at school
- tasks or activities that they had encountered at school
- classes in which they might have encountered certain types of problems about money
- textbooks they might have used that address money matters.

Across countries, students may have different notions about what it means to know a term, or whether a textbook contains information about money matters. Given these differences in how students may interpret the questions in the questionnaire, cross-country comparisons should be conducted with caution; comparisons within countries may be more reliable, although different groups in the same country (boys and girls, for instance) may also have different perspectives, which are reflected in their reports.

Students were presented with a list of 18 terms related to finance and economics. More than two in three students, on average across OECD countries/economies, reported that they had heard about a wage (71%), a budget (68%) or a bank loan (67%) over the preceding 12 months and still know what these terms mean. However, fewer than one in four 15-year-old students, on average across OECD countries/economies, reported that they had heard about diversification (16%), credit default swaps (18%), compound interest (24%), depreciation (24%) or dividends (24%) and still know what they mean (Figure IV.5.1 and Table IV.B1.5.1).

Figure IV.5.1 **Students' exposure to financial terms in school**

Percentage of students who reported that they had learned this term over the previous 12 months and know what it means; OECD average



Terms are ranked in descending order of the percentage of students who had learned about them in the previous 12 months and still know what they mean.

Source: OECD, PISA 2018 Database, Table IV.B1.5.1

StatLink https://doi.org/10.1787/888934123634

The index of familiarity with concepts of finance was created to reflect how many of the 18 terms students had learned about over the previous 12 months and whose meaning they still knew.[1] On average across OECD countries/economies, students reported that they had learned about and still knew just over 7 of the 18 terms. Students in Finland were the most knowledgeable, reporting that they know nearly 10 of the 18 terms on average; they were followed by students in the Russian Federation (hereafter "Russia"), who reported knowing just under 9 of the 18 terms, on average. At the other end of the index, students in Bulgaria reported knowing only just under 5 of the 18 terms, on average, followed by students in Indonesia (just over 5) and Georgia (just under 6 of the terms) (Table IV.B1.5.1).

However, there was a wide distribution in the number of terms that students in each country/economy reported that they had learned about and whose meaning they still know. Although on average across OECD countries/economies, the median student reported knowing roughly 7 of the 18 terms, at least 10% of students in every participating country/economy except Finland reported knowing none of the 18 terms. In Bulgaria, Georgia, Indonesia and Serbia, at least 25% of students reported knowing none of the 18 terms. The standard deviation in the number of terms that students reported learning about over the previous 12 months and whose meaning they still know was 5 of the 18 terms, on average across OECD countries/economies; in every individual country/economy, the standard deviation in this number was between 4 and 6 of the 18 terms (Table IV.B1.5.2).

Students were asked about the frequency (never, sometimes or often) with which they had encountered six personal finance-related tasks in school lessons over the previous 12 months:

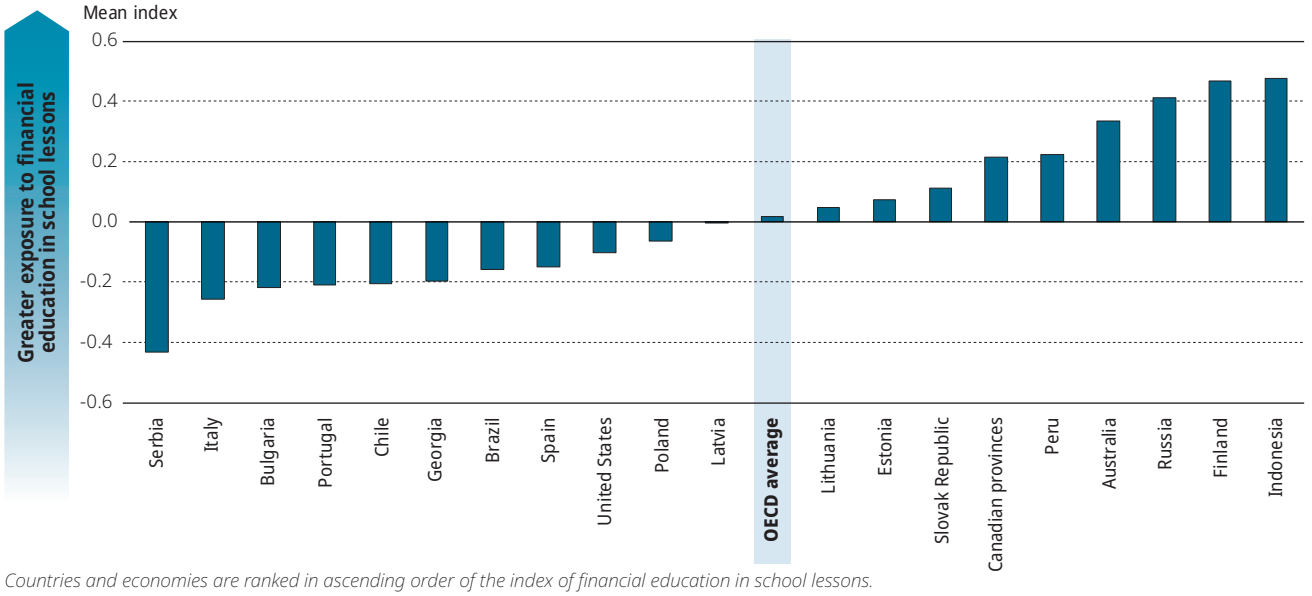
- describing the purpose and uses of money
- exploring the difference between spending money on needs and wants
- exploring ways of planning to pay an expense
- discussing the rights of consumers when dealing with financial institutions
- discussing the ways in which money invested in the stock market changes value over time
- analysing advertisements to understand how they encourage people to buy things.

On average across OECD countries/economies, only between 12% and 20% of students reported that they had often encountered each of the six personal finance-related tasks over the previous 12 months. However, between 44% and 54% of students, on average across OECD countries/economies, reported that they had sometimes encountered each of these tasks or activities over the same period (Table IV.B1.5.9).

The index of financial education in school lessons was created based on students' responses to how often they had encountered these six tasks or activities. It was standardised so that the mean index across OECD countries/economies was 0 and the standard deviation across OECD countries/economies was 1. Students in Indonesia (0.47), Finland (0.47) and Russia (0.41) had been most exposed to financial education in school lessons, while students in Serbia (-0.43) were the least exposed over the prior 12 months (Figure IV.5.2 and Table IV.B1.5.9).

Figure IV.5.2 **Frequency of students' exposure to financial literacy tasks in school lessons**

Index of financial education in school lessons; based on students' self-reports



Countries and economies are ranked in ascending order of the index of financial education in school lessons.

Source: OECD, PISA 2018 Database, Table IV.B1.5.9

StatLink https://doi.org/10.1787/888934123653

Students were also asked about the frequency with which they had encountered either of the following two types of problems in any of their classes or activities:

1. Ann is on holiday in a country called Farway but she normally lives in Zedland. The unit of currency in Zedland is the ZED. The unit of currency in Farway is the FAD. At the time of the holiday, the exchange rate was 1 ZED = 25 FAD.
   Ann needs 200 FAD to buy some food. If she exchanges some of her ZEDs, the exchange bureau will apply a 3% commission. If she withdraws FADs from an ATM in Farway, her bank will charge her a fixed 2-ZED fee.
   Should Ann exchange her ZEDs or withdraw FADs from an ATM?
2. Tom is talking with his grandmother and they are comparing the price of ice cream now and when his grandmother was his age. They noted that the purchasing power of money usually decreases over time, meaning that, all else being equal, inflation decreases the amount of goods and services that you can purchase over time. Discuss some examples of how inflation affects you or your family.

More specifically, students were asked whether they had seen either of these two types of problems in the following classes or activities. They were permitted to state that they had seen these problems in more than one of these options:

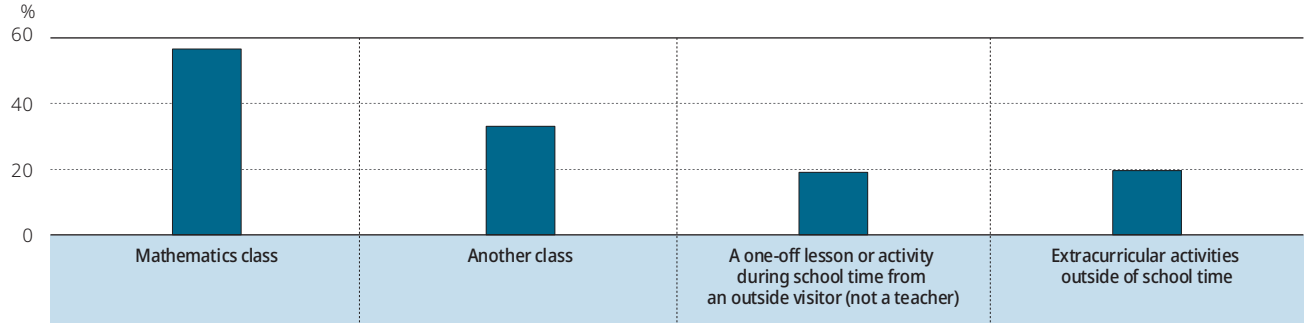
- mathematics class
- another class
- a one-off lesson or activity during school time from an outside visitor (not a teacher)
- extracurricular activities outside of school time.

Some 57% of students reported that they had seen at least one of these two types of problems in their mathematics classes, on average across OECD countries/economies; this ranged from a low of 40% of students in Italy and 41% in Serbia to a high of 75% of students in Indonesia and 72% in Peru. However, a considerable percentage of students (18%, on average across OECD countries/economies) did not know whether they had seen either of these two types of problems in their mathematics classes (Figure IV.5.3 and Table IV.B1.5.16).

On average across OECD countries/economies, roughly one in three students reported that he or she had seen at least one of these two types of problems in another (non-mathematics) class. Just under 20% of students reported that they had seen at least one of these two types of problems in a one-off lesson or activity during school time from an outside visitor (not a teacher) or in extracurricular activities outside of school time. Notably, in Indonesia, 64% of students reported that they had seen these problems in another non-mathematics class, 53% of students reported that they had seen these problems in a one-off lesson or activity during school time from an outside visitor, and 49% reported that they had seen these problems in extracurricular activities outside of school time (Figure IV.5.3 and Table IV.B1.5.16).

Figure IV.5.3 **Students encountering financial literacy tasks in different types of school classes or activities**

Percentage of students who reported that they had encountered problems about money matters[1] in the following classes or activities in the previous 12 months; OECD average



1. Students were asked, in particular, whether they had encountered at least one of the following two types of problems in any of their classes or activities:

Problem 1: Ann is on holiday in a country called Farway but she normally lives in Zedland. The unit of currency in Zedland is the ZED. The unit of currency in Farway is the FAD. At the time of the holiday, the exchange rate was 1 ZED = 25 FAD.

Ann needs 200 FAD to buy some food. If she exchanges some of her ZEDs, the exchange bureau will apply a 3% commission. If she withdraws FADs from an ATM in Farway, her bank will charge her a fixed 2-ZED fee.

Should Ann exchange her ZEDs or withdraw FADs from an ATM?

Problem 2: Tom is talking with his grandmother and they are comparing the price of ice cream now and when his grandmother was his age. They noted that the purchasing power of money usually decreases over time, meaning that, all else being equal, inflation decreases the amount of goods and services that you can purchase over time. Discuss some examples of how inflation affects you or your family.

Source: OECD, PISA 2018 Database, Table IV.B1.5.16

StatLink https://doi.org/10.1787/888934123672

Students were asked whether, during the previous 12 months, they had used textbooks that address money matters. On average across OECD countries/economies, 16% of students reported that they had used a specific textbook on money matters, while 32% of students reported that they had used a textbook on some other subject that also discussed money matters. More than one in three students in Indonesia and Peru reported that they had a specific textbook on money matters, compared to less than 10% of students in Estonia and Portugal who so reported. However, over 40% of students in Estonia, Finland, Indonesia, Latvia, Peru and Russia reported that they had used a textbook on another subject that also discussed money matters (Table IV.B1.5.23).

VARIATION IN EXPOSURE TO FINANCIAL EDUCATION PROGRAMMES IN SCHOOL RELATED TO STUDENT AND SCHOOL CHARACTERISTICS

Gender

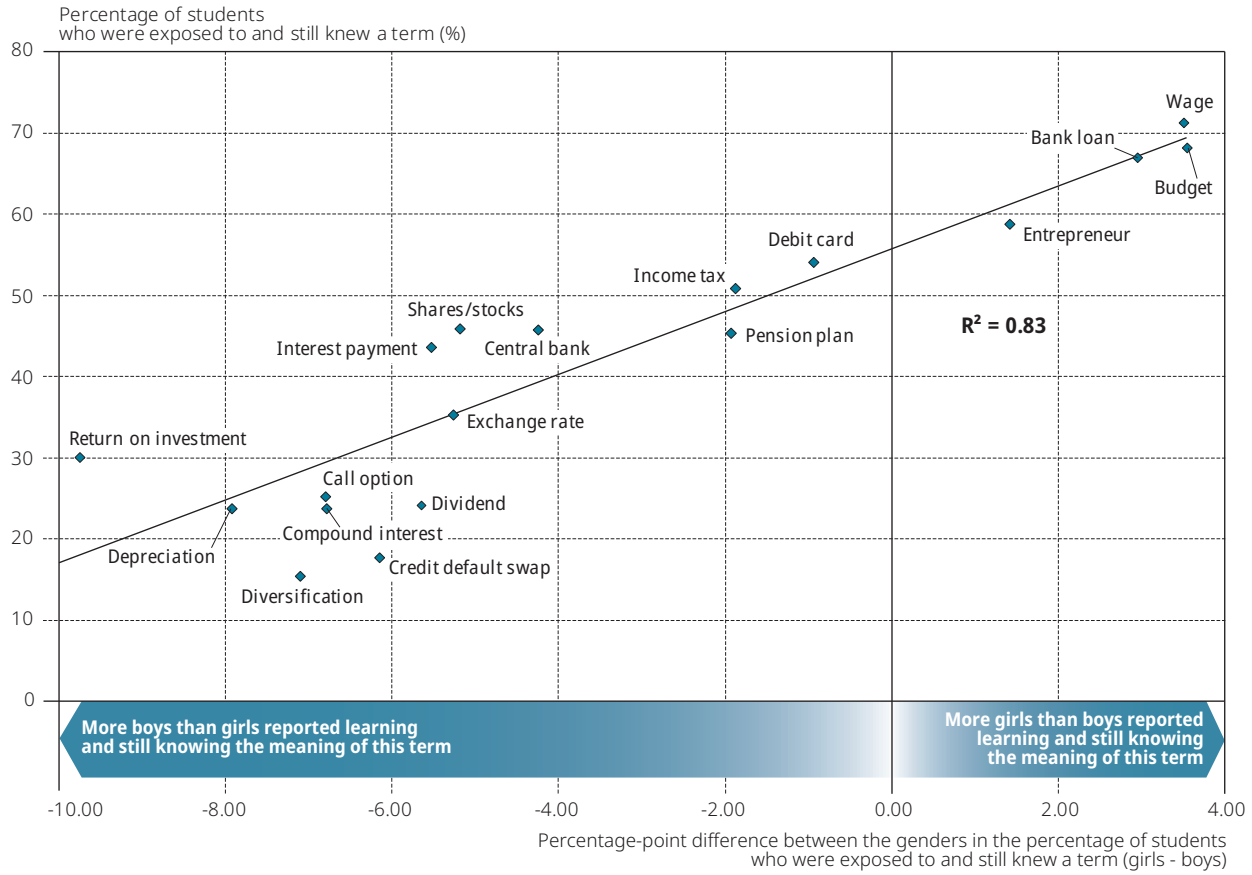
In most countries/economies, boys and girls attend the same types of school and follow the same curriculum, so it might be expected that they are equally exposed to financial education programmes. However, results from the PISA 2018 financial literacy questionnaire show that this is not necessarily the case. In general, girls reported less exposure to financial education programmes than boys.

On average across OECD countries/economies, girls reported knowing around 7 of the 18 finance terms while boys reported knowing closer to 8 of those terms. In the Canadian provinces and Poland, the average boy reported knowing just over one more term than the average girl, and the difference, in favour of boys, was also significant in Australia, Chile, Finland, Italy, Portugal, Russia and the United States. This was not the case in Bulgaria and Georgia, where girls reported knowing significantly more terms than boys did, on average (Table IV.B1.5.3).

The less familiar a term – that is, the smaller the percentage of all students who reported that they had learned about the term in the previous 12 months and still know what the term means – the greater the gender gap in familiarity in favour of boys. Indeed, while the gender gaps in having learned, and still knowing the meaning of, the three most familiar terms – "wage", "budget" and "bank loan" – were in favour of girls, the gender gaps related to the two least-familiar terms – "diversification" and "credit default swap" – were both over six percentage points in favour of boys, on average across OECD countries/economies. Indeed, the gender gaps related to these two terms were statistically significant in favour of boys in the vast majority of participating countries/economies (17 of 20 and 18 of 19, respectively) (Figure IV.5.4 and Table IV.B1.5.3).

Figure IV.5.4 **Students' exposure to financial terms in school, by gender**

OECD average



Source: OECD, PISA 2018 Database, Tables IV.B1.5.1 and IV.B1.5.3

StatLink https://doi.org/10.1787/888934123691

These gender gaps in favour of boys were also observed in the proportion of students who had encountered certain money-related tasks in class over the previous 12 months. On average across OECD countries/economies, boys were between three and nine percentage points more likely than girls to have encountered each of the six types of tasks. For each task, the gender gap was also statistically significant in favour of boys in at least 10 of the 20 participating countries/economies (Table IV.B1.5.10).

Boys were also more likely than girls to report that they had encountered problems about money matters in each of the four types of classes or activities, on average across OECD countries/economies. Boys in 19 of the 20 countries/economies that participated in the financial literacy assessment were significantly more likely than girls to report that they had encountered problems about money matters in these one-off lessons or activities during school time overseen by an outside visitor (i.e. not a teacher); the only exception was in Peru (Table IV.B1.5.17). Likewise, boys were seven percentage points more likely than girls to have had a specific textbook on money matters and two percentage points more likely to have used a textbook on some other subject that also discussed money matters, on average across OECD countries/economies. The difference was particularly notable when considering textbooks that focused specifically on money matters, where the gender gap was significantly in favour of boys in every country/economy except Indonesia and Spain (Table IV.5.24).

It is difficult to attribute these gender gaps to any one cause. The greater self-reported knowledge of financial terms and concepts amongst boys might be attributable to their greater self-reported exposure to financial activities, lessons, problems and textbooks. At the same time, boys and girls may have different thresholds about what it means to "know what a term/concept means" or different perceptions about their level of knowledge (Chevalier et al., 2009[6]). In addition, while they may attend the same schools, boys and girls may have different tendencies to enrol in certain programmes or courses. Further research in this area may be warranted.

Student- and school-level socio-economic profile

Students from more socio-economically advantaged backgrounds – in terms of either their own personal family background or the socio-economic profile of their school – were more likely to report that they know about terms related to economics and finance. According to students' reports, advantaged students[2] had learned about and still know the definitions of two more of the 18 terms than disadvantaged students had learned, on average across OECD countries/economies. The difference was statistically significant in each of the countries/economies that participated in the assessment, and exceeded three terms in Australia and Brazil. Indeed, in Brazil, students' socio-economic status explained 7% of the variation in the number of terms that students knew. At the other end of the scale, in Italy, Portugal and Serbia, advantaged students knew roughly only one more term than disadvantaged students, according to students' reports (Table IV.B1.5.4).

According to students' reports, students attending advantaged schools[3] also knew at least one more of the 18 terms than students attending disadvantaged schools did, on average across OECD countries/economies. As with students' socio-economic status, the gap related to schools' socio-economic profile was particularly large in Brazil, where students attending advantaged schools knew roughly four more terms than did students attending disadvantaged schools. The difference was not significant in Italy and Serbia (Table IV.B1.5.5).

Advantaged students were significantly more likely than disadvantaged students to know each of the 18 terms, on average across OECD countries/economies. The gap, as measured by the percentage of advantaged students minus the percentage of disadvantaged students who reported that they had learned about and still know the definition of a term, was widest for the terms "shares/stocks" (a gap of 17 percentage points), "entrepreneur" (17 percentage points), "exchange rate" (14 percentage points), "interest payment" (14 percentage points), "budget" (14 percentage points), "wage" (13 percentage points), "central bank" (13 percentage points), "bank loan" (13 percentage points) and "debit card" (13 percentage points) (Table IV.B1.5.4). Students attending advantaged schools were also significantly more likely than their counterparts attending disadvantaged schools to report that they had learned about most of these terms in the previous 12 months and still know what they mean, on average across OECD countries/economies. However, there was no significant difference for the term "diversification", and students attending more advantaged schools were less likely to report knowing the terms "credit default swap" and "call option" (Table IV.B1.5.5).

Disadvantaged students in Bulgaria, Italy, Serbia and the Slovak Republic were more likely than their advantaged counterparts to report that they had sometimes or often encountered most of the individual money-related tasks or activities described above over the 12 months prior to the PISA 2018 financial literacy assessment; by contrast, advantaged students in Australia, Brazil, the Canadian provinces, Finland, Indonesia, Peru and Russia were more likely than their disadvantaged counterparts to report so. There was no significant difference on average across OECD countries/economies (Table IV.B1.5.11).

However, students attending disadvantaged schools were, on average across OECD countries/economies, more likely than their counterparts attending advantaged schools to report that they had seen these tasks/activities over the previous 12 months. This was also true in Bulgaria, Chile, Estonia, Italy, Lithuania, Poland, Serbia, the Slovak Republic and the United States, while the opposite was observed in Australia, Indonesia and Peru (Table IV.B1.5.12).

By contrast, advantaged students were significantly more likely than disadvantaged students to report that they had encountered the two types of money matters-related problems discussed above in all four of the types of classes or activities, on average across OECD countries/economies (although the association in most individual countries/economies was not significant). Somewhat paradoxically though, there was no significant difference between students attending advantaged schools and those attending disadvantaged schools (Table IV.B1.5.18 and IV.B1.5.19). Advantaged students and students attending advantaged schools were significantly more likely than disadvantaged students or students attending disadvantaged schools to have used a textbook that addressed money matters but did not specifically focus on money matters, on average across OECD countries/economies; this was also true in at least half of the individual countries/economies (Table IV.B1.5.25 and IV.B1.5.26).

Variation amongst students in the variables related to exposure to financial education in schools discussed in this chapter can be divided into variation between schools and variation within schools. The greater the variation between schools, the greater the degree to which a student is exposed to financial education in school depends on the school he or she attends. For example, if the variation between schools accounts for 100% of the total variation, then knowing which school a student attends perfectly determines his or her exposure to financial education in school (i.e. all students in that school have the same level of exposure). If the variation between schools accounts for 0% of the total variation, then students in all schools have the same mean exposure to financial education; therefore, knowing which school a student attends will not provide any useful information about an individual student's exposure to financial education at school, and all of the variation is amongst students within schools.

There was relatively little variation between schools in all of the variables related to exposure to financial education in schools. On average across OECD countries/economies, the variation between schools accounted for 5% of the total variation in the index of familiarity with concepts of finance; 6% of the total variation in the index of financial education in school lessons; between 1% and 4% of the total variation in whether students had encountered financial literacy tasks in each type of lesson or activity; and between 3% and 6% of the total variation in whether students had used different types of textbooks that address money matters. These are small differences compared to, for example, the roughly 21% of variation in students' performance in financial literacy that can be attributed to variations between schools. Given these findings, this chapter will not systematically discuss the relationship between exposure to financial education in schools and school characteristics beyond socio-economic status, as was done above. However, results related to school location and programme orientation (i.e. general vs. vocational/pre-vocational) are available in the tables in Annex B on line.

EXPOSURE TO FINANCIAL EDUCATION IN SCHOOLS AND PERFORMANCE IN FINANCIAL LITERACY

It might be expected that students who have greater exposure to financial education in school would be more financially literate. However, in an attempt to direct resources to where they are most needed or to improve equity in outcomes, financial education programmes might be emphasised in schools whose students may be, a priori, less financially literate.

Students who were more knowledgeable about finance or economics-related terms were also more financially literate, as measured by the PISA 2018 financial literacy assessment. Each additional term, of the 18 proposed, that a student reported having learned in school in the previous 12 months, and whose definition the student still knew, was associated with a 4-point increase in his/her financial literacy score, on average across OECD countries/economies. After accounting for gender, student and school socio-economic profile and immigrant background, each additional term was associated with a 3-point improvement in the financial literacy score (Table IV.B1.5.8).

In Finland, the relationship between a student's performance in financial literacy and the number of finance/economics-related terms the student reported having learned in the previous 12 months and whose meaning the student still knew exceeded 7 score points per additional term the student still knew (6 points after accounting for student and school characteristics). By contrast, in Portugal, each additional term that the student still knew was associated with only one additional score point in the PISA 2018 financial literacy assessment, both before and after accounting for student and school characteristics (though this difference was no longer significant after accounting for student and school characteristics). These differences were significant in the other 19 countries/economies that participated in the assessment, both before and after accounting for student and school characteristics (Table IV.B1.5.8).

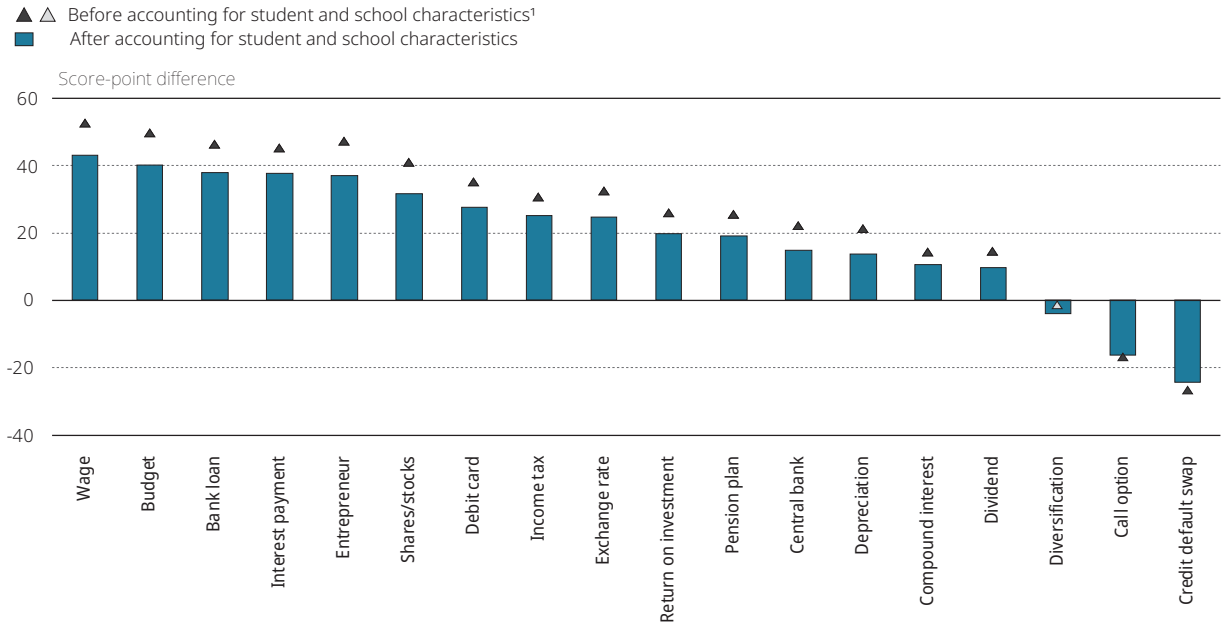
While these score-point improvements per each additional term may seem small, a student who reported knowing all 18 terms might be expected to score 60 points, or close to a full proficiency level, higher in the financial literacy assessment than a student who reported knowing none of the 18 terms, on average across OECD countries/economies, after accounting for student and school characteristics. A student located one standard deviation higher in the index of familiarity with concepts of finance (i.e. how many of the 18 finance-related terms the student reported knowing) would be expected to score approximately 17 points higher in the PISA 2018 financial literacy assessment (Tables IV.B1.5.2 and IV.B1.5.8).

However, the knowledge of individual terms was associated with different performance gaps. The largest performance gaps, in favour of students who reported that they know the meaning of the terms, were for the terms "wage" (a difference of 43 score points, on average across OECD countries/economies, after accounting for student and school characteristics), "budget" (40 points), "bank loan" (38 points), "interest payment" (38 points) and "entrepreneur" (37 points). The performance gaps related to knowledge of these individual terms were significant in almost every country/economy (in each case, at least 19 out of the 20 countries/economies) that participated in the PISA 2018 financial literacy assessment. These terms were amongst those that were most commonly known by 15-year-old students (Figures IV.5.1 and IV.5.5, and Tables IV.B1.5.1 and IV.B1.5.8).

By contrast, knowledge of certain other terms was associated with lower financial literacy scores. For example, students who reported that they had learned and still know the term "credit default swap" scored 24 score points lower than those who did not so report; those who reported knowing the term "call option" scored 16 points lower than those who did not so report; and those who reported knowing the term "diversification" scored 4 points lower than those who did not so report, on average across OECD countries/economies, after accounting for student and school characteristics. This pattern was also largely replicated in individual countries/economies (Figure IV.5.5 and Table IV.B1.5.8).

Figure IV.5.5 **Financial literacy performance, by students' exposure to financial terms in school**

Score-point difference between students who were exposed to a term and still know what it means and those who were/do not; OECD average



1. Student and school characteristics refer to gender, student and school socio-economic profile (as measured by the PISA index of economic, social and cultural status [ESCS]) and immigrant background.

Note: Score-point differences that are statistically significant are marked in a darker tone (see Annex A3).

Terms are ranked in descending order of the score-point difference between students who were exposed to the term and still know what it means and those who were/do not, after accounting for socio-economic status.

Source: OECD, PISA 2018 Database, Table IV.B1.5.8

StatLink https://doi.org/10.1787/888934123710

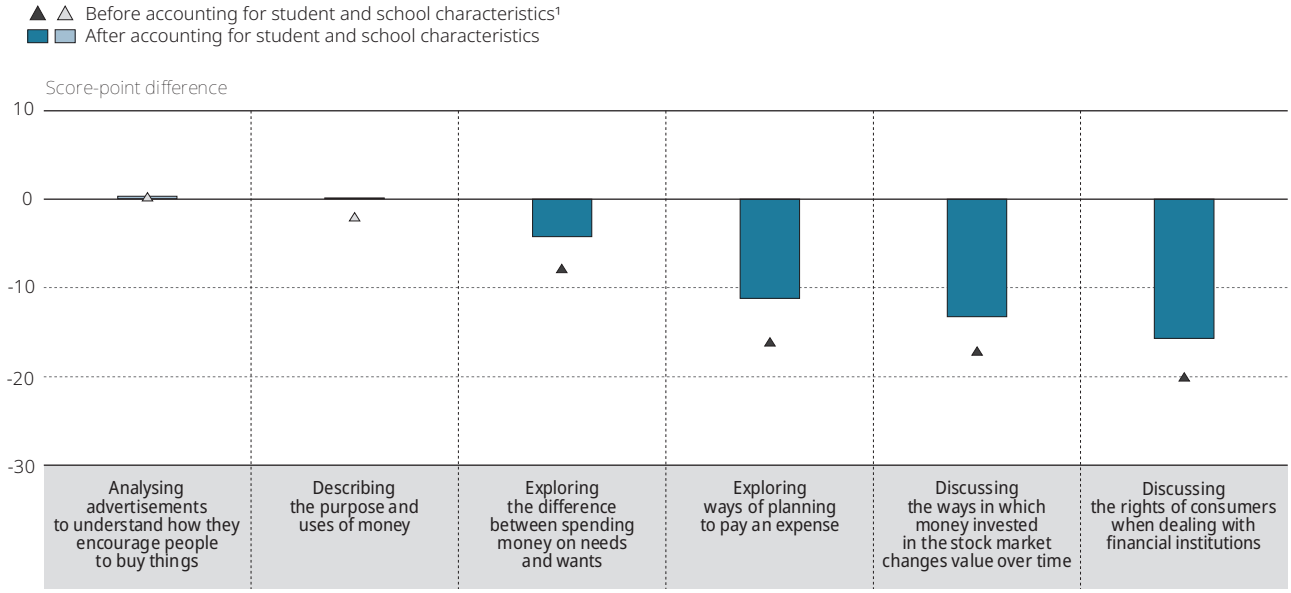
This might indicate that the (self-reported) understanding of terms was more important for some terms than for others when it came to performance in the PISA 2018 financial literacy assessment. Terms such as "call option" and "credit default swap" were not included in the financial literacy test items and are unlikely to be relevant to the personal financial decisions of 15-year-old students. By contrast, many questions in the assessment required students to consider budgets and wages, even if the terms were not explicitly stated as such. These were the terms that students were most likely to know, and might be the most age-appropriate for PISA students. Students might need to master simpler terms and concepts before they can understand more complex ones.

While the self-reported knowledge of finance/economics-related terms was associated with greater financial literacy, students' exposure to personal finance-related tasks in school lessons was associated with poorer financial literacy, on average across OECD countries/economies. For each additional unit on the index of financial education in school lessons, students scored three points lower in the PISA 2018 financial literacy assessment, after accounting for student and school characteristics. The decline in performance associated with greater exposure to personal finance-related tasks in school was particularly large in Georgia (a decline of 10 score points per unit increase in the index, after accounting for student and school characteristics), Poland (10 points), Serbia (11 points) and the United States (10 points). However, exposure to these tasks in school was associated with an improvement in financial literacy performance in three countries: Finland (an improvement of 17 points), Peru (9 points) and Russia (5 points). There was no statistically significant relationship in 8 of the 20 countries/economies that participated in the assessment (Table IV.B1.5.15). However, these results do not imply a causal relationship in which exposure to personal finance-related tasks in school lessons leads to poorer financial literacy. Indeed, students with poorer financial literacy skills (or poorer cognitive skills in general) might be those who attend classes where such tasks are presented.

Encountering four of the six personal finance-related tasks in school was associated with lower scores in financial literacy. However, encountering the other two tasks – describing the purposes and uses of money, and analysing advertisements to understand how they encourage people to buy things – was not associated with a significant difference in financial literacy performance, on average across OECD countries/economies. Indeed, the direction of the performance gap related to exposure to these two tasks in school was not consistent across countries/economies (Figure IV.5.6 and Table IV.B1.5.15).

Figure IV.5.6 **Financial literacy performance, by students' exposure to financial tasks in school lessons**

Score-point difference between students who had encountered these tasks/activities in school lessons and those who had not; OECD average



1. Student and school characteristics refer to gender, student and school socio-economic profile (as measured by the PISA index of economic, social and cultural status [ESCS]) and immigrant background.

Note: Score-point differences that are statistically significant are marked in a darker tone (see Annex A3).

Tasks/activities are ranked in descending order of the score-point difference between students who had encountered them in school lessons and those who had not, after accounting for socio-economic status.

Source: OECD, PISA 2018 Database, Table IV.B1.5.15

StatLink https://doi.org/10.1787/888934123729

Students who had encountered problems about money matters (in particular, those described earlier in this chapter) in their mathematics classes scored 12 points higher in the PISA 2018 financial literacy assessment than students who had not encountered such problems[4] in their mathematics classes, on average across OECD countries/economies. The difference when it came to encountering such problems in another class was only 3 points in favour of students who reported encountering such problems. Students who had encountered such problems in a one-off lesson or activity during school time from an outside visitor scored 19 score points lower, and students who had encountered such problems in extracurricular activities outside of school time scored 15 score points lower than students who had not encountered such problems, on average across OECD countries and economies and after accounting for student and school characteristics. The performance differences were observed in the vast majority of countries/economies that participated in the assessment (Table IV.B1.5.22).

It cannot be inferred from these results that mathematics classes are the best vehicle for imparting knowledge about financial matters to students. Students who were exposed to these problems in different venues might be different from those who were exposed to these problems in mathematics classes in ways that could not be accounted for in the analysis. It might be the case, for instance, that students whose parents or teachers thought they were deficient in financial skills had encouraged them to attend extracurricular activities to acquire those skills. It might also be the case that money matters are only discussed in more advanced mathematics classes. Stronger students, i.e. those who tend to score higher in the financial literacy assessment, would also be those who encounter such topics in mathematics class.

Students who had used a specific textbook on money matters over the previous 12 months scored 25 score points lower in the financial literacy assessment than students who had not used such a textbook, after accounting for student and school characteristics.[5] This performance gap was significant in 16 of the 20 participating countries/economies. However, students who had used a textbook on some other subject that also discussed money matters scored 15 points higher in the assessment, after accounting for student and school characteristics. The difference between the two groups of students was largest in Finland (42 score points) and Estonia (32 points), while it was significantly in favour of students who had not used such textbooks in Indonesia (a difference of 8 points) (Table IV.B1.5.29).

Again, it is important to remember that most studies to date have examined the effect of individual programmes on specific populations. The PISA 2018 financial literacy questionnaire, on the other hand, asked students to report on the financial education programmes in which they had participated. It did not standardise the programmes across students and, as such, there is no way of knowing what students learned through these programmes, the comparability of these programmes, the accuracy of the information delivered, the effectiveness of these programmes, or the reliability of students' responses. PISA provides a large array of data that are comparable across countries; however, this information should always be interpreted within the context of individual countries.

Notes

1. The index of familiarity with concepts of finance could therefore take values between 0 and 18. Students in Peru were not asked about credit default swaps and hence the index of familiarity with concepts of finance could only take on values between 0 and 17 in this country. Results that involve this index are therefore not reported for Peru; Peru is also not included in the average for all participating countries/economies.
2. In PISA, advantaged students are defined as those in the top quarter (25%) of the distribution of socio-economic status in their country/economy, as measured by the PISA index of economic, social and cultural status (ESCS). Disadvantaged students are defined as those in the bottom quarter of this distribution.
3. Advantaged schools are those in the top quarter (25%) of the distribution of school socio-economic profile in their country/economy. The school socio-economic profile was measured as the average ESCS of the students in the school. Disadvantaged schools are defined as those in the bottom quarter of this distribution.
4. In addition to students who reported that they had not seen such problems in this class/activity, this category includes students who reported that they do not know whether they had seen such problems in this class/activity and students who reported that they do not have this class/activity.
5. In addition to students who reported that they did not have such a textbook, this category includes students who reported that they do not know whether they had such a textbook.

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PISA

6

How experienced are students at handling money?

This chapter explores various money-related activities that students might engage in, and how they are related to financial literacy. It begins by discussing the financial products that students hold, and examines changes in the uptake of such products over time. The chapter then discusses financial activities that are conducted digitally and the sources from which students receive their money.

6 How experienced are students at handling money?

PISA defines financial literacy as not only the knowledge and understanding of financial concepts – the focus of the previous chapters – but also "the skills, motivation and confidence to apply such knowledge and understanding in order to make effective decisions". In other words, the goal of improving financial literacy, or of financial education programmes in schools, is to ensure that students make wise financial decisions. However, students start making these decisions well before they graduate from secondary school. Indeed, most 15-year-old students already make financial decisions from time to time: Should they work to make money? Should they put this money into a bank account? Should they spend this money and, if so, are they comfortable shopping on line?

This chapter explores students' experiences with money and how they are related to their financial literacy. The relationship between the two runs in both directions: students who are more experienced with money might make better decisions through "learning by doing"; but students who appear to be better at handling money, because they do well on a financial literacy test, might seek out more real-world opportunities to make financial decisions. On the other hand, not all experiences with money are necessarily associated with better financial literacy. Which financial experiences are most common amongst 15-year-old students and most strongly related to good financial decision making?

What the data tell us

- On average across OECD countries/economies in 2018, 54% of students held an account at a bank, building society, post office or credit union, and 45% of students held a payment card or a debit card. Students in Australia, the Canadian provinces, Estonia and Finland were particularly likely to hold such products, while students in Brazil, Peru and Serbia were amongst the least likely to hold such products.
- Students in all countries/economies that had participated in a previous PISA financial literacy assessment (in 2012 or in 2015) were more likely to hold a payment card or a debit card in 2018 than their counterparts were in the earlier year(s). Indeed, students in the Canadian provinces were 51 percentage points more likely to hold such a card in 2018 than in 2015.
- Some 73% of students reported that they had bought something on line (either alone or with a family member) during the 12 months prior to the PISA assessment, and 39% of students reported that they had made a payment using a mobile phone during that period, on average across OECD countries/economies. Boys were more likely than girls, and advantaged students were generally more likely than disadvantaged students, to have engaged in these digital financial activities.
- Students who reported that they had bought something on line during the 12 months prior to sitting the PISA assessment scored 18 points higher than students who reported that they had not done so, on average across OECD countries/economies and after accounting for student characteristics. However, students who reported that they had made a payment using a mobile phone during that period scored 18 points lower than students who reported that they had not done so.

STUDENTS' INCLUSION IN THE FINANCIAL SYSTEM

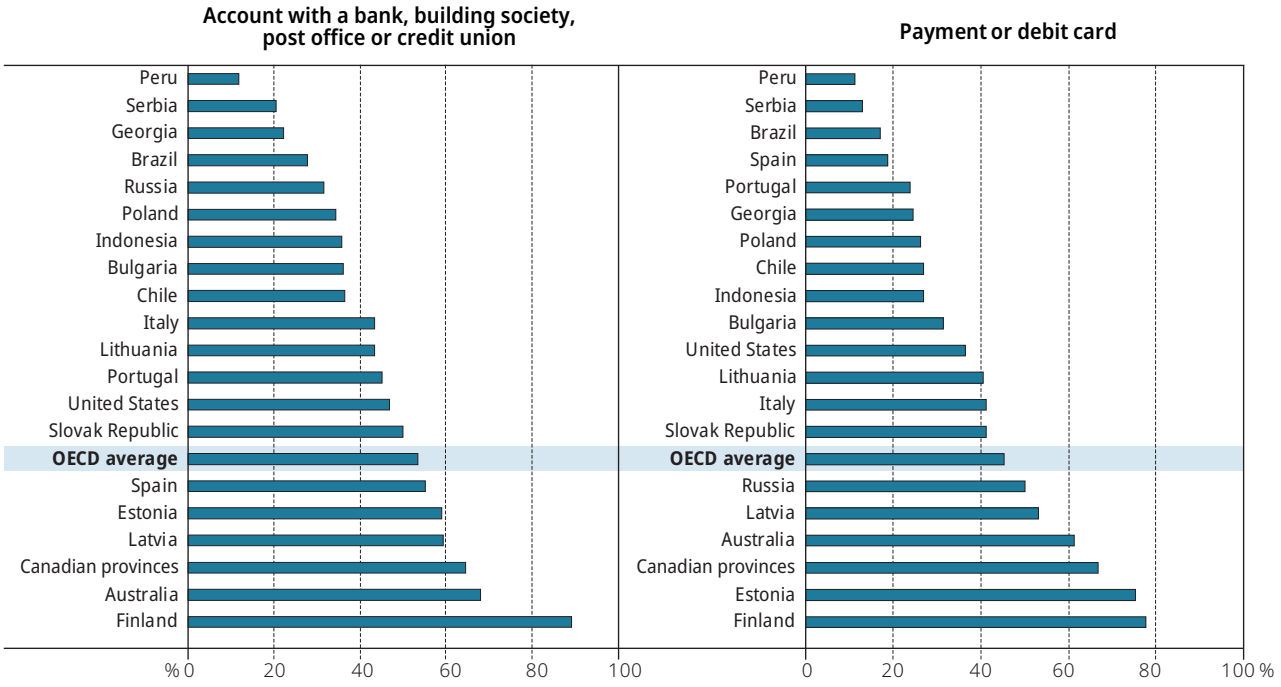
Students who are included in the financial system at a young age start to become familiar with financial products and are likely to remain in the formal financial system as they progress into adulthood (Friedline and Elliott, 2013[1]). This can be valuable in a variety of ways, such as facilitating transactions without the need for cash, providing options to build savings and offering insurance against financial loss. The PISA 2018 financial literacy questionnaire asked 15-year-old students whether they hold a variety of basic financial products and tools:

- an account with a bank, building society, post office or credit union
- a payment card or a debit card
- a mobile app to access their account.

On average across OECD countries/economies in 2018, 54% of students held an account at a bank, building society, post office or credit union; on average across all countries/economies that participated in the assessment, only 44% of students held such an account. Some 89% of students in Finland held an account at one of these institutions, as did between 60% and 70% of students in Australia and the Canadian provinces, and over 55% of students in Estonia, Latvia and Spain. However, in Peru, only 12% of students – fewer than 1 in 8 – held an account at one of these institutions, as did less than 30% of students in Brazil, Georgia and Serbia (Figure IV.6.1 and Table IV.B1.6.1).

Figure IV.6.1 **Students holding basic financial products**

Percentage of students who reported holding one of these financial products



Countries and economies are ranked in ascending order of the percentage of students who reported holding each financial product.

Source: OECD, PISA 2018 Database, Table IV.B1.6.1

StatLink https://doi.org/10.1787/888934123748

Some 45% of students, on average across OECD countries/economies, held a payment card or a debit card; on average across all countries/economies that participated in the assessment, 38% of students held such a card. Between 75% and 80% of students in Estonia and Finland held one of these cards, as did between 60% and 70% of students in Australia and the Canadian provinces. However, only between 10% and 15% of students in Peru and Serbia held a payment or debit card, as did between 15% and 20% of students in Brazil and Spain (Figure IV.6.1 and Table IV.B1.6.1).

In most countries/economies in 2018, at least as many students held an account at a bank, building society, post office or credit union as held a payment or debit card; and in Portugal and Spain, students were more than 20 percentage points more likely to hold an account than a card. This is not surprising as, in most cases, a payment or debit card is linked to an account. By contrast, in Estonia, Georgia and the Russian Federation (hereafter "Russia"), students were significantly more likely to hold a payment or debit card than an account at a bank, building society, post office or credit union (Figure IV.6.1 and Table IV.B1.6.1). This might be due to students reporting that they do not hold an account with a bank, building society, post office or credit union in their own name, while reporting that they hold a payment card or debit card that is attached to their parents' account.

Some 30% of students had a mobile app to access their financial account, on average across OECD countries/economies in 2018, while on average across all participating countries/economies, 27% of students had such an app. Having such an app was most common amongst students in Australia, where 55% of students had one; in the Canadian provinces, Estonia, Latvia and Russia, between 40% and 50% of students had such an app. However, less than 10% of students in Peru and Portugal had a mobile app to access their financial account (Table IV.B1.6.1).

As a proportion of account-holders, 15-year-olds in Portugal and Spain were particularly unlikely to have a mobile app to access their account. In these countries, roughly only one in seven or eight students who held an account had a mobile app to access it. In Finland and Italy, only roughly one in four students who held an account had a mobile app to access it. By contrast, roughly four in five students in Russia (79%) and roughly two in three students in Australia (67%), Latvia (66%) and Lithuania (65%) who had an account also had a mobile app to access it (Table IV.B1.6.1).

However, these data regarding apps should be interpreted with caution. For example, in Russia, 24% of students stated that they did not hold an account, but also stated that they had an app to access this (non-existent) account; and between 5% and 8% of students in another 9 countries/economies stated likewise (Table IV.B1.6.2). Students might have misinterpreted the question about apps, and responded that they had an app, in general, instead of an app to access their bank account. Results regarding mobile apps to access students' bank accounts are not discussed in the rest of the report, but are presented in tables at the end of this report and on line.

Fifteen-year-old boys were, in general, more likely than girls to participate in the formal financial system. On average across OECD countries/economies, boys were two percentage points more likely than girls to hold an account at a bank, building society, post office or credit union. In Brazil, Bulgaria, Georgia, Indonesia, Italy, Latvia, Lithuania, Peru, Poland, Russia, Serbia and the Slovak Republic, boys were significantly more likely than girls to hold an account; in Georgia, the gender gap was 10 percentage points. Only in Portugal were girls were more likely than boys to hold an account (Table IV.B1.6.3).

Although the gender gap in holding a payment or debit card was not significant, on average across OECD countries/economies, it was significant in favour of boys when considering all participating countries/economies (a gap of three percentage points). Boys in Georgia were 11 percentage points more likely than girls to hold a payment or debit card; a significant difference in favour of boys was observed in a further 10 countries/economies. However, girls in Australia, Estonia and Finland were more likely than boys to hold one of these products (Table IV.B1.6.3).

Advantaged students[1] tended to be more likely than disadvantaged students to participate in the formal financial system. Advantaged students were 20 percentage points more likely to hold an account at a bank, building society, post office or credit union, and 18 percentage points more likely to hold a payment or debit card, than disadvantaged students, on average across OECD countries/economies. This relationship was significant in all 20 participating countries/economies. In the United States, the gap between advantaged and disadvantaged students in holding a financial account was largest (38 percentage points) and socio-economic status explained 7% of the variation in whether students held an account. A 28 percentage-point gap between advantaged and disadvantaged students in holding a payment or debit card was observed in Latvia and Poland; and in Poland, 5% of the variation in whether students held such a card was explained by socio-economic status (Table IV.B1.6.3).

Immigrant students were less likely than non-immigrant students to hold an account with a bank, building society, post office or credit union (a difference of 10 percentage points) or to hold a payment or debit card (a difference of 6 percentage points), on average across OECD countries/economies.[2] In Australia, the Canadian provinces, Finland, Italy and the United States, such disparities were significant for both types of products (Table IV.B1.6.5).

These results are consistent with many previous studies that have found that girls, disadvantaged students and immigrant students participate less in the formal financial system (Devlin, 2005[2]; Johnson and Niño-Zarazua, 2009[3]; Solo, 2008[4]; Chavan, 2008[5]; Adegbite and Machethe, 2020[6]; Northwood and Rhine, 2017[7]; Rhine and Greene, 2006[8]).

The financial literacy questionnaire in both PISA 2012 and 2015 asked students whether they hold a bank account, and whether they hold a prepaid debit card. These questions differ slightly from the questions asked in the PISA 2018 financial literacy questionnaire; trend comparisons should therefore be made with caution. In particular, the questions in the PISA 2018 financial literacy questionnaire are broader and might be expected to lead to greater numbers of students saying that they hold such products. Differences in how countries/economies translated or adapted the questionnaire to their own national financial landscape might make such differences across years more or less important.

On average across the OECD countries that participated in both PISA 2012 and 2018, there was a 3 percentage-point increase in the proportion of students who held an account, with particularly large increases in Italy (8 percentage points), Latvia (19 percentage points), Poland (19 percentage points), Russia (9 percentage points) and the Slovak Republic (25 percentage points). The decrease in the proportion of students who held an account in Australia and Estonia might be attributed, in part, to the greater percentage of students in 2018 who reported that they did not know what an account at one of the listed institutions was. This also helps explain the decrease observed between 2015 and 2018 in the percentage of students in Australia, the Canadian provinces and the United States who reported holding an account in a financial institution. In Chile, Italy, Lithuania, Poland, Russia and the Slovak Republic, more students in 2018 than in 2015 reported holding an account (Table IV.B1.6.7).

In every country/economy that took part in PISA 2018 and a previous assessment, more students reported holding a payment card or debit card in 2018 than in the earlier year. On average across the OECD countries that participated in both PISA 2012 and 2018, for example, students in 2018 were 26 percentage points more likely to report holding a payment/debit card than were their counterparts in 2012. This change was particularly notable in Estonia (47 percentage points) and Latvia (39 percentage points). In these two countries, students in 2018 were also between 26 and 29 percentage points less likely than students in 2012 to report not knowing what a payment/debit card was. On average across the OECD countries/economies that participated in both PISA 2015 and 2018, students in 2015 were 20 percentage points less likely than their counterparts in 2018 to report holding a payment/debit card, with the largest increase observed in the Canadian provinces (16% in 2015 and 67% in 2018, for a 51 percentage-point change) (Table IV.B1.6.8).

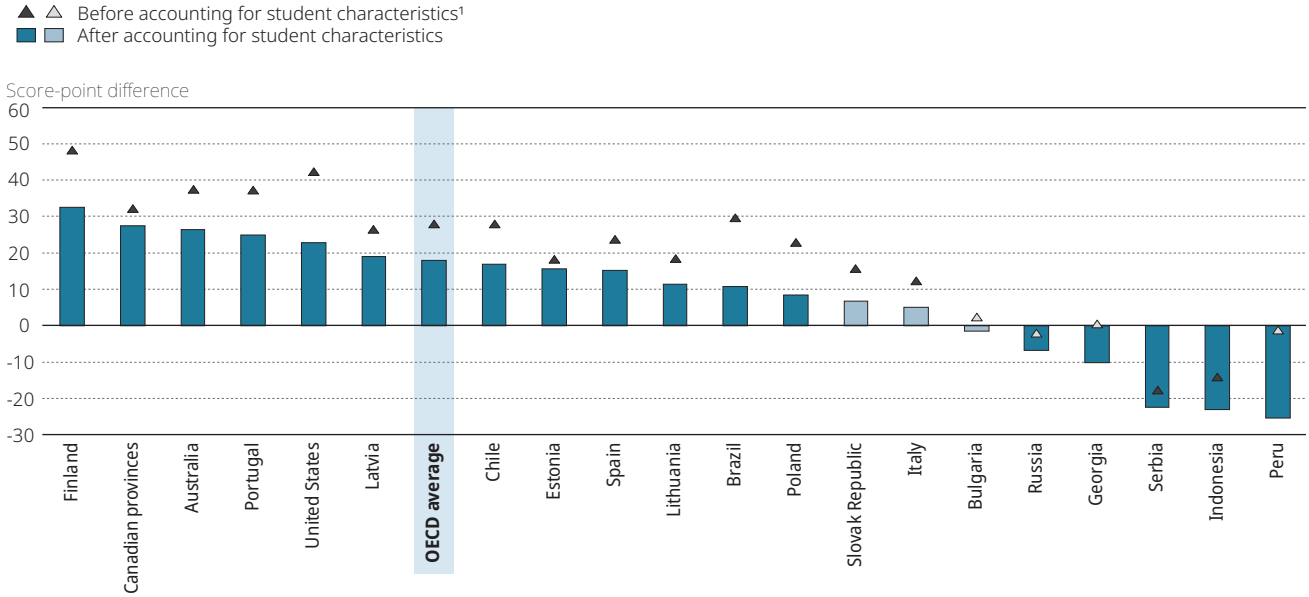
Young people, which, in most studies, refers to those over 16 or 18 years of age, tend to participate the least in formal financial systems (Devlin, 2005[2]; Johnson and Niño-Zarazua, 2009[3]). Financial inclusion is expected to increase as 15-year-olds reach adulthood and must become more financially independent. In other words, low levels of financial inclusion amongst 15-year-olds are not necessarily cause for worry, although participation in the formal financial system at age 15 is a good harbinger for financial inclusion in adulthood.

Performance in the financial literacy assessment and students' inclusion in the financial system

On average across OECD countries/economies in 2018, students who held an account with a bank, building society, post office or credit union scored 28 points higher in the PISA 2018 financial literacy assessment than students who did not hold such an account/did not know what an account is. This performance gap shrank to 18 points after accounting for student characteristics, such as gender, socio-economic status and immigrant background. This gap was positive and significant in 12 countries and economies, after accounting for student characteristics. In Finland, the performance gap was 33 points wide and in the Canadian provinces, it was 28 points wide. However, the performance difference was negative and significant in 5 countries/economies, and exceeded 20 points in Indonesia, Peru and Serbia (Figure IV.6.2 and Table IV.B1.6.6).

Figure IV.6.2 **Financial literacy performance, by whether students hold a bank account**

Score-point difference between students who hold a bank account and those who do not hold a bank account/those who do not know what a bank account is



1. Student characteristics refer to gender, socio-economic status (as measured by the PISA index of economic, social and cultural status [ESCS]) and immigrant background.

Note: Score-point differences that are statistically significant are marked in a darker tone (see Annex A3).

Countries are ranked in descending order of the score-point difference between students who hold a bank account and those who do not hold a bank account/do not know what a bank account is, after accounting for socio-economic status.

Source: OECD, PISA 2018 Database, Table IV.B1.6.6

StatLink https://doi.org/10.1787/888934123767

Likewise, students who held a payment card or debit card scored 21 points higher in the PISA 2018 financial literacy assessment than students who did not hold such a card/did not know what such a card is, on average across OECD countries/economies; after accounting for student characteristics, the performance gap narrowed to 11 score points. The performance gap exceeded 25 score points, after accounting for student characteristics, in Chile, Estonia and Latvia, and was significant in favour of students holding such a card in 9 more countries/economies. However, in Indonesia and Peru, the performance gap in favour of students who did not hold such a card/did not know what such a card is exceeded 30 score points, and in Portugal and Serbia, it exceeded 14 score points (Table IV.B1.6.6).

STUDENTS' ONLINE FINANCIAL ACTIVITIES

Young people are spending more and more time on digital devices (Tables I.B1.51, I.B1.52 and I.B1.53). They can undertake a variety of activities on line, from communicating with their friends, to obtaining information from reputable (or less reputable) websites, to, most relevant for this report, engaging in various transactions that involve the exchange of money. The PISA 2018 financial literacy questionnaire asked students whether they had, in the previous 12 months:

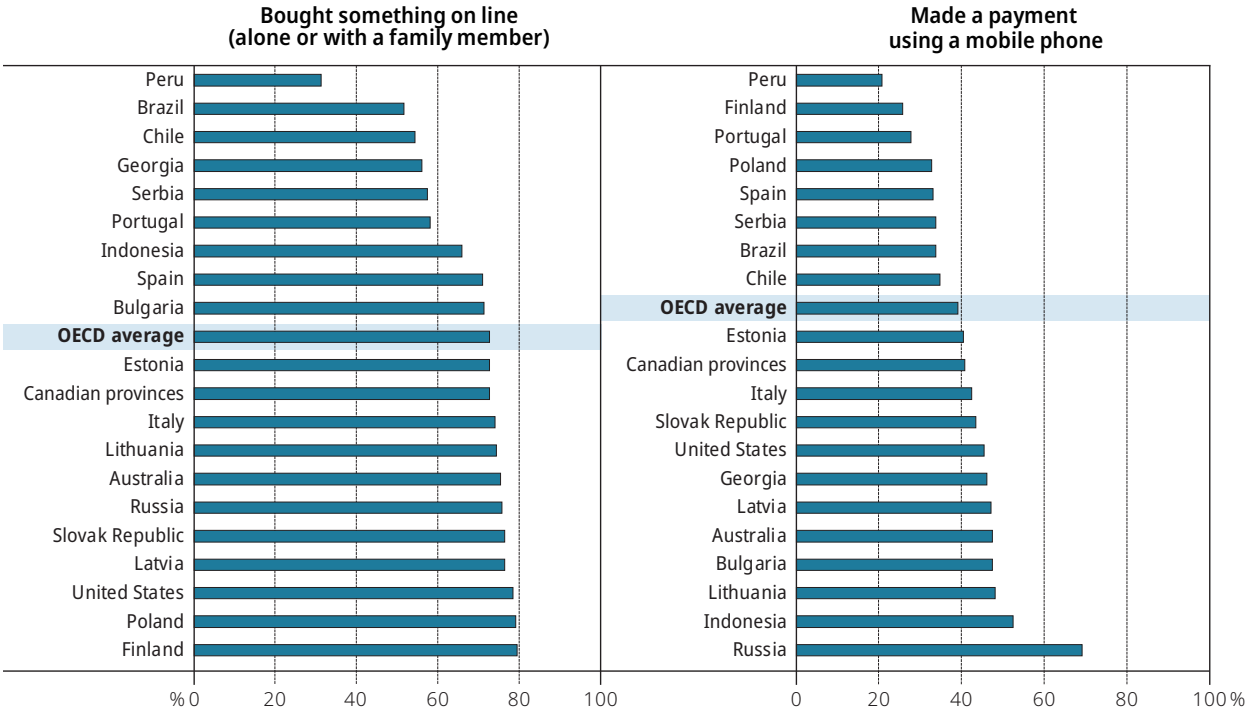
- bought something on line (either alone or with a family member)
- made a payment using a mobile phone.

On average across OECD countries/economies in 2018, 73% of students had bought something on line (either alone or with a family member) over the previous 12 months. In many countries/economies, particularly OECD countries/economies, this proportion was large – indeed, between 75% and 80% of students in Australia, Finland, Latvia, Poland, Russia, the Slovak Republic and the United States had done so. However, only 31% of students in Peru had bought something on line over the previous 12 months (Figure IV.6.3 and Table IV.B1.6.9).

Making payments using a mobile phone was less common amongst students: only 39% of students, on average across OECD countries/economies, had done this over the previous 12 months. Some 69% of students in Russia had made a payment using a mobile phone during that period, as did 52% of students in Indonesia. However, only 21% of students in Peru had done so over the preceding 12 months, as had between 25% and 30% of students in Finland and Portugal (Figure IV.6.3 and Table IV.B1.6.9).

Figure IV.6.3 **Students with experience with online financial transactions**

Percentage of students who reported that they had performed the following activities over the previous 12 months



Countries and economies are ranked in ascending order of the percentage of students who reported that they had engaged in each activity over the previous 12 months.

Source: OECD, PISA 2018 Database, Table IV.B1.6.9

StatLink https://doi.org/10.1787/888934123786

Boys were more likely than girls to have had experience with digital financial transactions. On average across OECD countries and economies, boys were 5 percentage points more likely than girls to have bought something on line (either alone or with a family member) over the previous 12 months. The gender gap was significant in favour of boys in 12 of the 20 countries/economies that participated in the PISA 2018 financial literacy assessment and was not statistically significant in the other countries/economies. In Brazil, Chile, Georgia, Peru and Portugal, boys were more than 10 percentage points more likely than girls to have bought something on line (either alone or with a family member) during this period (Table IV.B1.6.10).

The gender gap was even larger when considering making payments using mobile phones: boys were 12 percentage points more likely than girls, on average across OECD countries/economies, to have made a payment using a mobile phone over the previous 12 months. This difference was significant in favour of boys in every participating country/economy except the United States, where the difference was not significant. Boys in Georgia, Poland, Portugal and Serbia were over 15 percentage points more likely than girls to have made a payment using a mobile phone during the previous 12 months (Table IV.B1.6.10).

Students from advantaged backgrounds were more likely than those from disadvantaged families to have bought something on line (alone or with a family member) during the previous 12 months. The difference between advantaged and disadvantaged students in this activity was 16 percentage points, on average across OECD countries/economies, and was significant (in favour of advantaged students) in every participating country/economy. The disparity between the two groups of students was particularly large in Brazil and Peru (over 30 percentage points), but was less than 10 percentage points in Australia, Finland and Latvia (Table IV.B1.6.11).

Advantaged students were only three percentage points more likely than disadvantaged students, on average across OECD countries, to have made a payment using a mobile phone over the previous 12 months. A significant difference was observed in Brazil, the Canadian provinces, Chile, Finland, Indonesia, Peru and Serbia, in favour of advantaged students; no significant difference was observed in any other participating country (Table IV.B1.6.11).

Similarly, immigrant students were six percentage points less likely than non-immigrant students to have bought something on line (alone or with a family member) over the previous 12 months. In particular, immigrant students in Australia, Finland, Italy, Spain and the United States were less likely to have bought something on line than non-immigrant students. There was no significant difference observed between immigrant and non-immigrant students in their propensity to make a payment using a mobile phone, on average across OECD countries/economies or in any participating country/economy (Table IV.B1.6.12).

Performance in the financial literacy assessment and students' experience with digital financial transactions

Students who had bought something on line (either alone or with a family member) scored 28 points higher in the PISA 2018 financial literacy assessment than students who had not bought something on line during the previous 12 months, on average across OECD countries/economies. After accounting for student characteristics, such as gender, socio-economic status and immigrant background, the performance gap between the two groups of students was still a notable 18 points (Figure IV.6.4 and Table IV.B1.6.13).

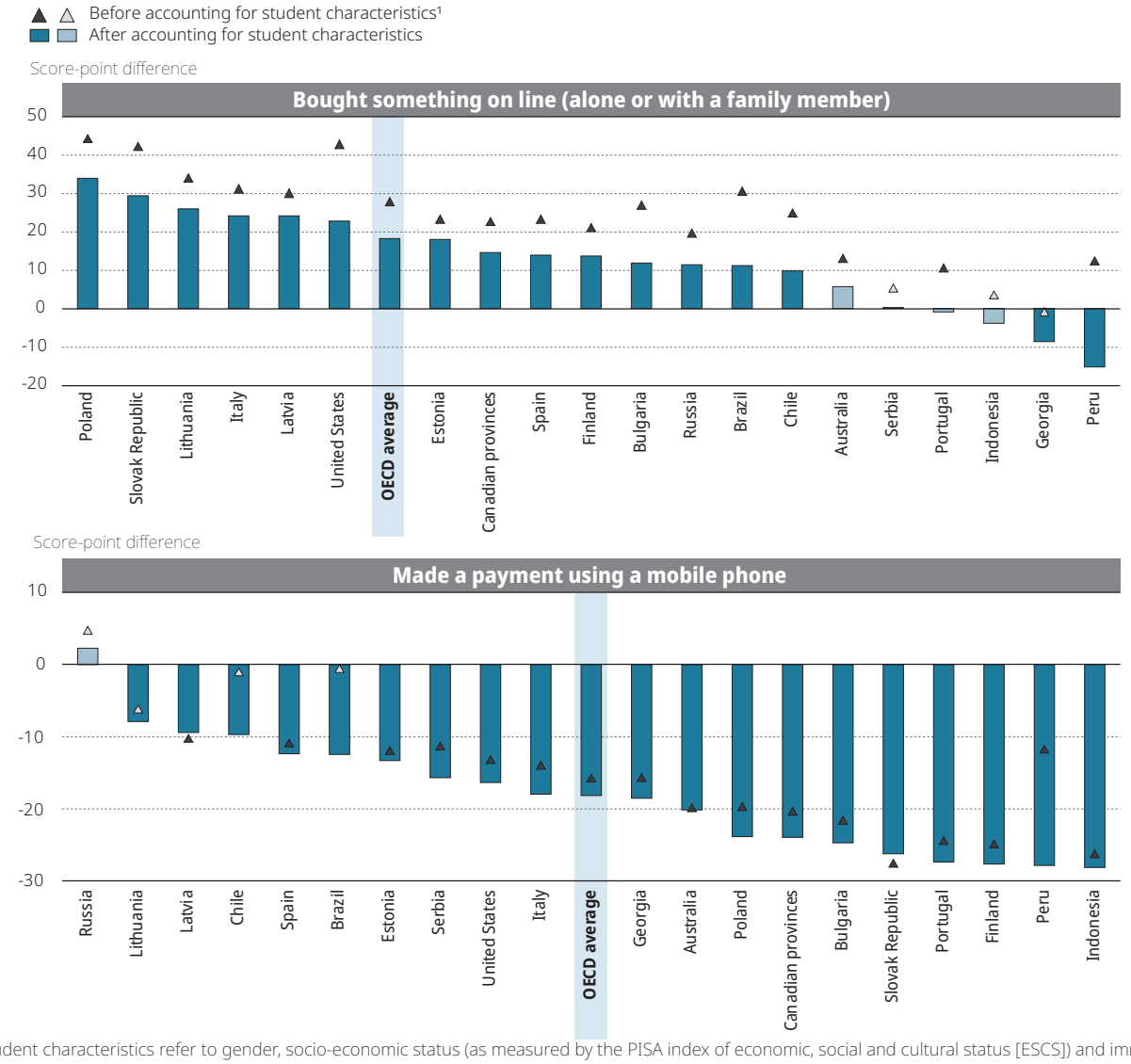
After accounting for student characteristics, having bought something on line was associated with greater financial literacy in 14 of the 20 participating countries/economies. The performance gap was especially large in Lithuania (26 score points), Poland (34 score points) and the Slovak Republic (30 score points). However, in Georgia and Peru, students who had bought something on line scored lower, by 9 and 15 points, respectively, than their peers who had not bought anything on line (Figure IV.6.4 and Table IV.B1.6.13).

By contrast, making payments using mobile phones was associated with lower performance in the assessment. On average across OECD countries/economies, students who had made a payment using a mobile phone over the previous 12 months scored 16 points lower than those who had not; the gap amounted to 18 points once student characteristics were accounted for. A gap in favour of students who had not made payments using mobile phones during that period was observed in every participating country/economy except Russia (where it was not significant), after accounting for student characteristics. The gap exceeded 25 score points in Finland, Indonesia, Peru, Portugal and the Slovak Republic (Figure IV.6.4 and Table IV.B1.6.13).

Explanations for the difference between the two types of digital financial transactions and their relationship with financial literacy are beyond the scope of this report. It may be that there are unobserved characteristics in the types of students who buy things on line and those who make payments using a mobile phone (although there is substantial overlap between these two groups). The students who bought things on line might have done so with a family member using a desktop or tablet (or other non-mobile device), while making payments using a mobile phone might be a more independent activity.

Figure IV.6.4 **Financial literacy performance, by students' experience with digital financial transactions**

Score-point difference between students who had engaged in the activity and those who had not



1. Student characteristics refer to gender, socio-economic status (as measured by the PISA index of economic, social and cultural status [ESCS]) and immigrant background.

Note: Score-point differences that are statistically significant are marked in a darker tone (see Annex A3).

Countries are ranked in descending order of the score-point difference between students who had engaged in the activity and those who had not, after accounting for socio-economic status

Source: OECD, PISA 2018 Database, Table IV.B1.6.13

StatLink https://doi.org/10.1787/888934123805

STUDENTS' SOURCES OF MONEY

The previous sections examined whether students hold basic financial products and whether they engage in digital financial transactions. In order to hold financial products or to transfer money to others, students must first have some money, whether they earn it themselves or receive it from friends and family members. Previous research, including from the PISA 2015 financial literacy assessment, has shown that students receive money both as a gift from people they know and from their own work activity (Charles Schwab and Co., 2011[9]; Institut pour l'Éducation Financière du Public, 2006[10]). Furthermore, young people increasingly continue to receive financial support from their families well into adulthood (Semyonov and Lewin-Epstein, 2001[11]; Henretta et al., 2012[12]; Drake et al., 2017[13]; Fingerman, 2017[14]; Fingerman et al., 2015[15]; Mortimer et al., 2016[16]).

Like the students who participated in the PISA 2015 financial literacy assessment, students who sat the 2018 financial literacy test were asked whether they receive money from the following sources:

- an allowance or pocket money for regularly doing chores at home
- an allowance or pocket money without having to do any chores

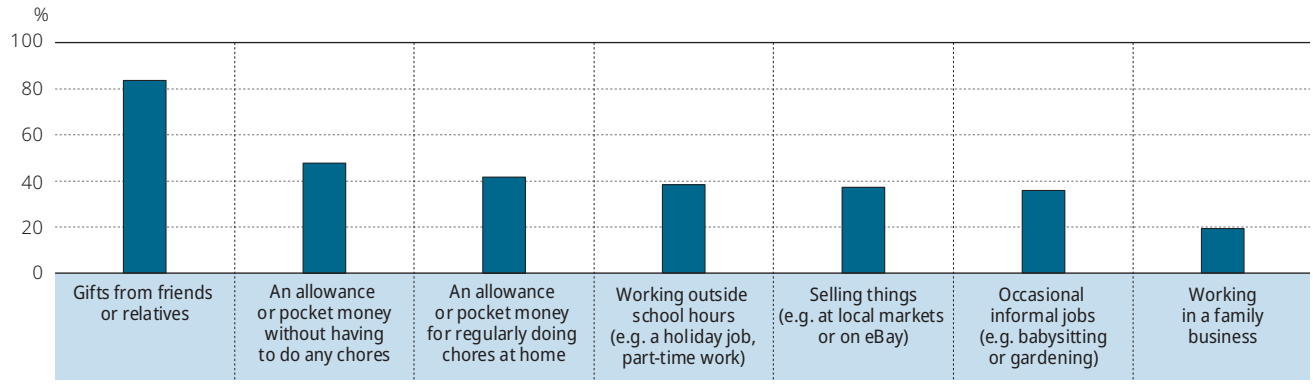
- working outside school hours (e.g. a holiday job or part-time work)
- working in a family business
- occasional informal jobs (e.g. babysitting or gardening)
- gifts from friends or relatives
- selling things (e.g. at local markets or on eBay).

Results from the PISA 2018 financial literacy assessment regarding students' sources of money are, on the whole, similar to those from the PISA 2015 assessment. This section only discusses how often students receive money from the above sources, and the association between receiving money from these sources and financial literacy. Tables about how receiving money from these sources is related to various student characteristics are available on line.[3]

On average across OECD countries/economies in 2018, the most common source of money amongst 15-year-olds was gifts from friends or relatives. Some 84% of students received money as a gift from friends or relatives, on average across OECD countries/economies; in Finland, 91% of students did, and in Lithuania, 90% of students did. However, only 50% of students in Brazil received money from friends or relatives, as did 55% of students in Peru (Figure IV.6.5 and Table IV.B1.6.14).

Figure IV.6.5 **Students receiving money from various sources**

Percentage of students who reported that they receive money from each source; OECD average



Sources are ranked in descending order of the percentage of students who reported that they receive money from that source.

Source: OECD, PISA 2018 Database, Table IV.B1.6.14

StatLink https://doi.org/10.1787/888934123824

Just under half (48%) of students received money as an allowance or pocket money without having to do any chores, on average across OECD countries/economies. This was most commonly observed in Bulgaria, Estonia, Indonesia and Serbia, where over 70% of students received money without having to do any chores. However, only 30% of students in Brazil received money in this way, as did fewer than one in three students in Australia and the United States (Figure IV.6.5 and Table IV.B1.6.14).

On average across OECD countries/economies, 42% of students received money from an allowance or pocket money for regularly doing chores at home; 38% received money for working outside school hours (e.g. a holiday job or part-time work); 37% received money from selling things (e.g. at local markets or on eBay); and 36% of students received money from working at occasional informal jobs (e.g. babysitting or gardening). Some 72% of students in Indonesia received an allowance or pocket money for regularly doing chores at home, as did 55% of students in Bulgaria and 54% of students in Peru. By contrast, only 29% of students in Brazil and 32% of students in Portugal received money this way (Figure IV.6.5 and Table IV.B1.6.14).

More than half of all students in Australia (52%), Estonia (51%) and Indonesia (52%) worked outside school hours (e.g. a holiday job or part-time work), while fewer than one in five students in Portugal (17%) and Spain (18%) did so. Selling things (e.g. at local markets or on eBay) was most common amongst students in Lithuania (53%), followed by students in Finland (48%), Bulgaria (48%) and Russia (47%); it was least common amongst students in Brazil (19%), Georgia (20%) and Portugal (20%). While 54% of students in Lithuania, 51% of students in Finland and 50% of students in the United States earned money by performing occasional informal jobs (e.g. babysitting or gardening), only 18% of students in Chile and 13% of students in Portugal earned money this way (Figure IV.6.5 and Table IV.B1.6.14).

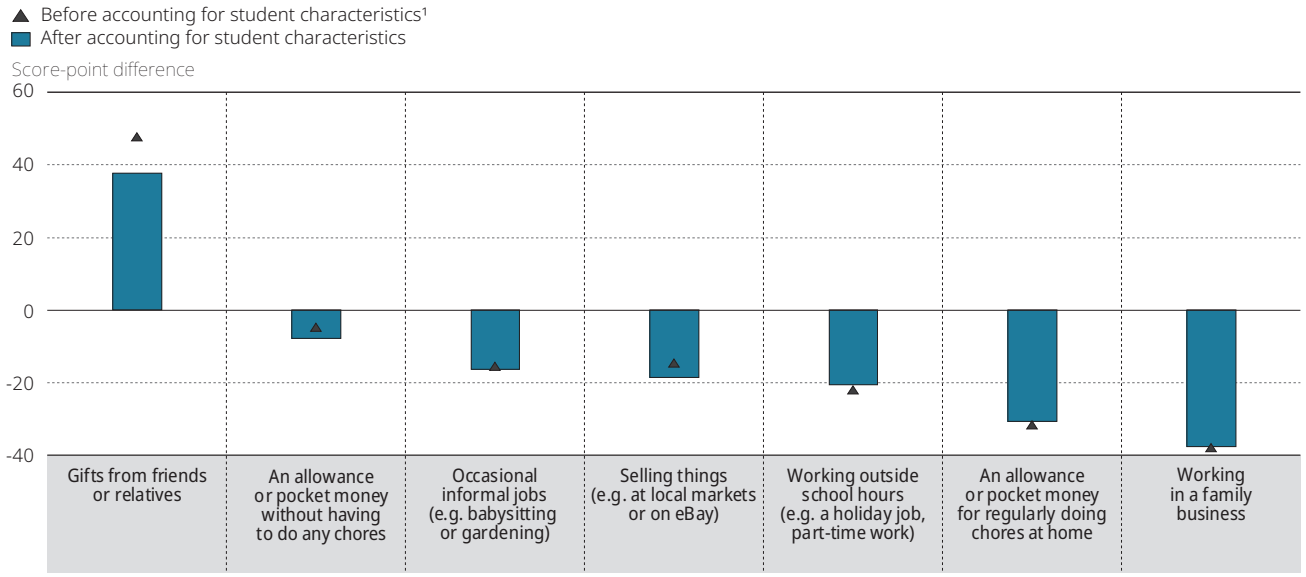
The least common source of money for 15-year-old students, on average across OECD countries/economies, was working in a family business: only 19% of students received money in this way. Working in a family business was most common in Bulgaria (41% of students reported doing so), Indonesia (42%) and Peru (36%), while less than 15% of students in Finland (13%), Portugal (14%) and Spain (14%) earned money by working in a family business (Figure IV.6.5 and Table IV.B1.6.14).

Performance in the financial literacy assessment and students' sources of money

Students' financial literacy, as measured by performance in the PISA 2018 financial literacy assessment, was positively correlated with receiving money from only one of the seven sources investigated: gifts from friends or relatives. After accounting for student characteristics, such as gender, socio-economic status and immigrant background, students who received money as a gift from friends or relatives scored 38 points higher in the assessment than students who did not receive money in this way (they scored 48 points higher before accounting for such characteristics). This difference was significant in 19 of the 20 countries/economies that participated in the assessment. In Lithuania, the performance difference amounted to 66 points, while in Estonia, Finland, Italy and Latvia, it amounted to between 40 and 45 points. In Indonesia, the difference was not significant (Figure IV.6.6 and Table IV.B1.6.18).

Figure IV.6.6 **Financial literacy performance, by students' sources of money**

Score-point difference between students who receive money from each source and those who do not; OECD average



1. Student characteristics refer to gender, socio-economic status (as measured by the PISA index of economic, social and cultural status [ESCS]) and immigrant background.

Note: All score-point differences are statistically significant (see Annex A3).

Sources are ranked in descending order of the score-point difference between students who receive money from the source and those who do not.

Source: OECD, PISA 2018 Database, Table IV.B1.6.18

StatLink https://doi.org/10.1787/888934123843

Receiving money in any of the other ways considered was associated with lower scores in financial literacy. The largest performance gap was observed amongst students who received money by working in a family business: these students scored 38 points lower than students who did not receive money in this way, after accounting for student characteristics. A significant gap was observed in all 20 participating countries/economies, and ranged from 43 score points in Australia, Italy and Latvia to 27 points in Peru (Figure IV.6.6 and Table IV.B1.6.18).

A 31-point performance gap was observed between students who had and those who had not received an allowance or pocket money for regularly doing chores at home, on average across OECD countries/economies and after accounting for student characteristics. In 19 of the 20 participating countries/economies, the gap was significant in favour of students who had not received money for doing chores, and ranged between 42 points in the Slovak Republic and 22 points in Finland. This performance gap was not significant in Peru (Figure IV.6.6 and Table IV.B1.6.18).

Working outside school hours (e.g. a holiday job or part-time work), selling things (e.g. at local markets or on eBay) and working at occasional informal jobs (e.g. babysitting or gardening) were all associated with lower scores in financial literacy – between 16 and 21 score points lower – compared to students who did not receive money from these sources, on average across OECD countries/economies and after accounting for student characteristics. In each case, performance gaps in favour of students who did not receive money from these sources were significant in at least 16 of the 20 participating countries/economies, and were not significant in the other countries/economies (Figure IV.6.6 and Table IV.B1.6.18).

Students who received an allowance or pocket money without having to do any chores scored eight points below students who did not receive such an allowance, on average across OECD countries/economies and after accounting for student characteristics. However, there were large differences across countries. In 8 of the 20 participating countries/economies (Australia, Brazil, the Canadian provinces, Finland, Italy, Portugal, Spain and the United States), students who received such an allowance scored lower in the assessment, while in 7 of the 20 participating countries/economies (Bulgaria, Estonia, Georgia, Latvia, Lithuania, Peru and Poland), students who received such an allowance scored higher (Figure IV.6.6 and Table IV.B1.6.18).

Notes

1. In PISA, advantaged students are defined as those who are in the top quarter (25%) of the socio-economic distribution of their country or economy, as measured by the PISA index of economic, social and cultural status (ESCS). Disadvantaged students are those in the bottom quarter of that distribution.
2. This report only discusses differences related to immigrant status for countries/economies where at least 5% of students had an immigrant background. These countries/economies are, in decreasing order of the percentage of immigrant students: the Canadian provinces, Australia, the United States, Spain, Italy, Estonia, Serbia, Portugal, Finland and Russia. However, data for all countries/economies for which results can be statistically calculated (i.e. on the basis of at least 30 immigrant students attending at least 5 different schools) are presented in tables at the end of this volume and on line. The OECD average includes all countries for which results can be statistically calculated.
3. See https://www.oecd.org/pisa/

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7

What are students' attitudes towards money matters?

This chapter discusses students' attitudes towards their own money matters. It begins by examining students' confidence in managing their money, especially when using online financial services. The chapter also explores whether students are interested in money matters. Students' attitudes are related to performance in financial literacy and to students' exposure to financial education in school and at home.

Motivation and self-belief can be strong driving forces behind learning and behaviour (Bandura, 1997[1]; Ryan and Deci, 2000[2]). This is no less true for financial literacy than it is for the core subjects that PISA assesses (reading, mathematics and science). Indeed, a wealth of literature has provided evidence of a strong link between attitudes and financial behaviour. However, most studies have focused on post-secondary students or working adults over the age of 18, and their attitudes towards saving, debt, risk and borrowing (Białowolski et al., 2019[3]; Serido et al., 2015[4]; Hira, 1997[5]; Xiao, Noring and Anderson, 1995[6]; Hayhoe, Leach and Turner, 1999[7]; Hancock, Jorgensen and Swanson, 2012[8]; Shih and Ke, 2013[9]). There is a gap in the literature on adolescents' attitudes towards financial matters and attitudes, in general, towards online financial services.

The PISA 2018 financial literacy assessment and questionnaire targeted 15-year-old students who do not yet – but may soon – face momentous financial decisions. Their attitudes towards money matters today might be indicative of their behaviour tomorrow and of their readiness to take control of their own finances. These attitudes are so relevant to financial decision making that PISA includes the "motivation and confidence" to apply financial knowledge in its definition of financial literacy.

This chapter examines students' confidence in handling money matters, including digital money matters, and students' interest in doing so. The chapter also investigates the extent to which these attitudes are related to students' financial literacy. While there is a wealth of resources aimed at helping teenagers manage their money, there is a dearth of evidence as to whether students feel that they are able to do so. This chapter helps policy makers understand not just whether students can make good financial decisions (the subject of previous chapters), but whether students in their countries think they can do so.[1]

What the data tell us

- Roughly two in three students, on average across OECD countries/economies, reported that they feel confident in paying with a debit card instead of using cash and in keeping track of their balance on line. Students in Australia, the Canadian provinces and Lithuania reported the greatest confidence in using digital financial services, while students in Serbia reported the least confidence.
- Confidence in using digital financial services was associated with stronger financial literacy performance. In particular, students who reported being confident in keeping track of their balance on line scored 29 points higher in the financial literacy assessment, on average across OECD countries and after accounting for student characteristics.
- On average across OECD countries/economies, 52% of students agreed that they enjoy talking about money matters, but 37% of students agreed that money matters are not relevant for them right now. Boys were 12% more likely than girls to agree that they enjoy talking about money matters.
- Exposure to financial education in school lessons and parental involvement in financial education were both associated with greater confidence in using digital financial services and with enjoyment in talking about money matters.

STUDENTS' CONFIDENCE IN USING DIGITAL FINANCIAL SERVICES

Given the increased importance of digital financial services today – and in particular, in the working world that today's 15-year-old students will soon enter – are these students prepared to manage their money digitally? The PISA 2018 financial literacy questionnaire asked students whether they feel not at all confident, not very confident, confident, or very confident in performing the following tasks when using digital or electronic devices outside of a bank:[2]

- transferring money
- keeping track of their balance
- paying with a debit card instead of using cash
- paying with a mobile device (e.g. mobile phone or tablet) instead of using cash
- ensuring the safety of sensitive information when making an electronic payment or using online banking.

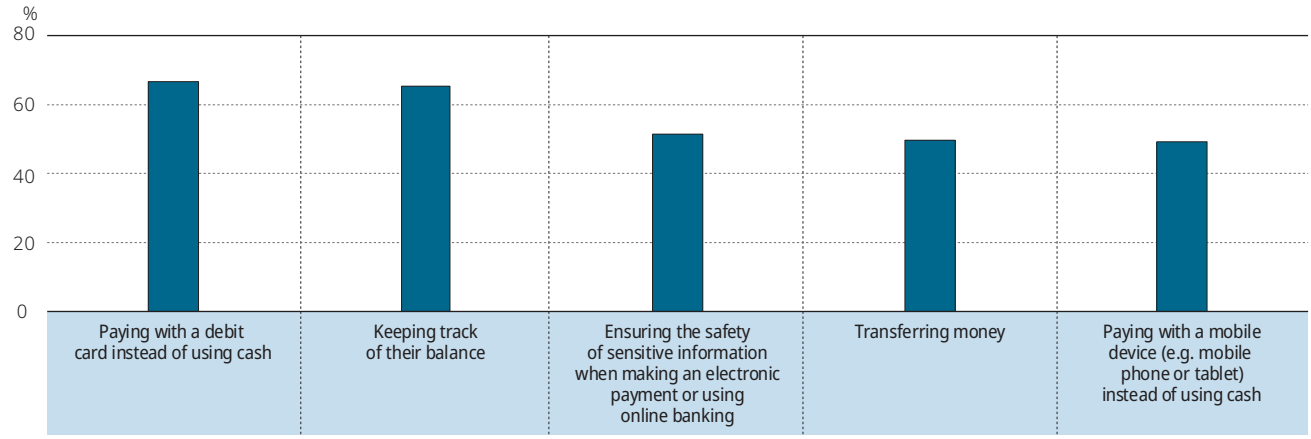
The index of confidence in using digital financial services was created from students' responses to these five questions; it was standardised to a mean of 0 and a standard deviation of 1, on average across OECD countries/economies.[3] Students in Australia were the most confident in using digital financial services, with a mean index of 0.29; they were followed by students in the Canadian provinces (0.15) and Lithuania (0.14). The least confident students were found in Serbia, with a mean index of -0.68.

Students in Brazil (-0.35), Indonesia (-0.38), Italy (-0.53) and Spain (-0.33) also reported low mean levels of confidence. Students in partner countries were less confident in using digital financial services, on average, than students in OECD countries/economies (Table IV.B1.7.1).

Students were most confident[4] in paying with a debit card instead of using cash (67%, on average across OECD countries and economies) and in keeping track of their balance when using digital or electronic devices (65%, on average across OECD countries and economies). Some 81% of students in Finland reported feeling confident in paying with a debit card instead of using cash, as did between 70% and 80% of students in Australia, the Canadian provinces and Estonia. However, only 35% of students in Serbia, 43% of students in Indonesia, and between 50% and 55% of students in Brazil, Bulgaria, Georgia and Italy reported so. Similarly, while 79% of students in Australia and 76% of students in Estonia reported that they feel confident in keeping track of their balance, only 36% of students in Italy and Serbia reported the same (Figure IV.7.1 and Table IV.B1.7.1).

Figure IV.7.1 **Students' confidence in using digital financial services**

Percentage of students who reported that they are confident or very confident in performing each task; OECD average



Tasks are ranked in descending order of the percentage of students who reported feeling confident or very confident in performing them.

Source: OECD, PISA 2018 Database, Table IV.B1.7.1

StatLink https://doi.org/10.1787/888934123862

Roughly half of all students, on average across OECD countries/economies, reported that they feel confident in ensuring the safety of sensitive information when making an electronic payment or using online banking (51%), transferring money (50%) and paying with a mobile device (e.g. a mobile phone or tablet) instead of using cash (49%). Just under two in three students in Australia (65%) and the Russian Federation (hereafter "Russia") (63%) reported feeling confident in ensuring the safety of sensitive information, compared to 39% of students in Italy and 33% of students in Serbia. Likewise, students in Australia (61%) and Russia (62%) were amongst the most confident in transferring money using digital or electronic devices, while those in Italy (28%) and Serbia (30%) were amongst the least confident. While only 40% of students in Italy and 34% of students in Serbia reported feeling comfortable in paying with a mobile device instead of using cash, 65% of students in Russia and 58% of students in Australia and Poland reported the same (Figure IV.7.1 and Table IV.B1.7.1).

Boys were also more confident than girls in using digital financial services. The index of confidence in using digital financial services was higher amongst boys, both on average across OECD countries/economies and in 17 of the 19 countries/economies that both participated in the PISA 2018 financial literacy assessment and that included this question in the questionnaire. The only exceptions were Australia and Georgia, where the gender gap was not significant (Table IV.B1.7.2).

The gender gap, in favour of boys, was also observed for each of the five digital finance-related tasks. Boys were 15 percentage points more likely than girls to report feeling confident in ensuring the safety of sensitive information (59% for boys versus 44% for girls, on average across OECD countries/economies). This difference was significant in all participating countries/economies, reaching 23 percentage points in Finland. However, the gender gap was only 7 percentage points wide for confidence in keeping track of one's account balance (though it reached 18 percentage points, in favour of boys, in Italy and Poland), and 2 percentage points when considering confidence in paying with a debit card instead of using cash. Indeed, the gender gap in confidence in paying with a debit card instead of using cash was significant in favour of boys in only 6 of the 19 countries/economies for which data were available (Bulgaria, Indonesia, Italy, Lithuania, Russia and Serbia), and was significant in favour of girls in Australia (Table IV.B1.7.2).

A positive correlation (with an R^2 value of 0.79) was observed between the OECD-average gender gap and the OECD-average familiarity of a task (as approximated by the percentage of students who reported feeling confident in performing the task), across digital finance-related tasks. Girls may be falling behind boys in more "difficult" tasks (if self-reported confidence is taken as indicative of difficulty); but another plausible explanation for the gender gap is that boys might overstate, or equally, girls might understate, their confidence in handling more "difficult" tasks. The data from the PISA 2018 financial literacy questionnaire do not allow for differentiation between these hypotheses.

Advantaged students[5] were also more likely than disadvantaged students to report that they are confident in using digital financial services. On average across OECD countries/economies, the index of confidence in using digital financial services was 0.25 of a unit higher amongst advantaged students than amongst disadvantaged students. This gap related to socio-economic status was also observed in 17 of the 19 countries/economies that examined this issue, reaching 0.53 of a unit in Brazil. However, the gap was not significant in Italy and Portugal (Table IV.B1.7.3).

The gap related to socio-economic status was also significant, in favour of advantaged students, for each of the five digital finance-related tasks. The gap was largest – 13 percentage points, on average across OECD countries – for confidence in paying with a debit card instead of using cash. It was significant in all 19 participating countries/economies that examined this issue, and reached 28 percentage points in Brazil. The smallest gap, on average across OECD countries/economies, was observed for confidence in transferring money: advantaged students were only six percentage points more likely than disadvantaged students to feel confident in performing this task. In no country/economy were disadvantaged students more likely than their advantaged peers to feel confident in performing any one of the five digital finance-related tasks (Table IV.B1.7.3).

Performance in the financial literacy assessment and students' confidence in using digital financial services

Confidence in using digital financial services was positively associated with financial literacy, as measured by performance in the PISA 2018 financial literacy assessment. Each one-unit increase in the index of confidence in using digital financial services was associated with a 15-score point improvement in performance in the assessment, on average across OECD countries/economies; the improvement amounted to 12 score points after accounting for student characteristics, such as gender, socio-economic status and immigrant background. The association between the index of confidence in digital financial services and financial literacy performance was positive and significant in 17 of the 19 countries/economies that participated in the PISA 2018 financial literacy assessment and examined this issue, after accounting for student characteristics. The improvement in performance, after accounting for student characteristics, amounted to between 15 and 19 score points per unit increase in the index in Chile, Finland, Latvia, Lithuania, Poland and Russia. Only in Indonesia and Serbia was the association not statistically significant (Table IV.B1.7.5).

Students who reported that they are confident in performing each of the five digital finance-related tasks also scored higher in the PISA 2018 financial literacy assessment, on average across OECD countries/economies. However, the difference in performance varied across tasks. The largest was observed for the task "keeping track of one's balance": students who reported that they are confident in performing this task scored 29 points higher in the assessment than students who reported that they are not confident, after accounting for student characteristics, on average across OECD countries/economies. Such a gap, in favour of students who reported feeling confident, was observed in every participating country/economy – ranging from 41 points in Georgia to 15 points in Portugal – except Indonesia, where students who reported that they are not confident scored 12 points higher, on average, than students who reported being confident in keeping track of their balance (Figure IV.7.2 and Table IV.B1.7.5).

On average across OECD countries/economies, students who reported being confident in paying with a debit card instead of using cash scored 25 points higher than students who reported that they are not confident, after accounting for student characteristics. Again, this gap was significant in favour of students who reported being confident in every participating country and economy except Indonesia, where it was significant in favour of students who reported that they are not confident (Figure IV.7.2 and Table IV.B1.7.5).

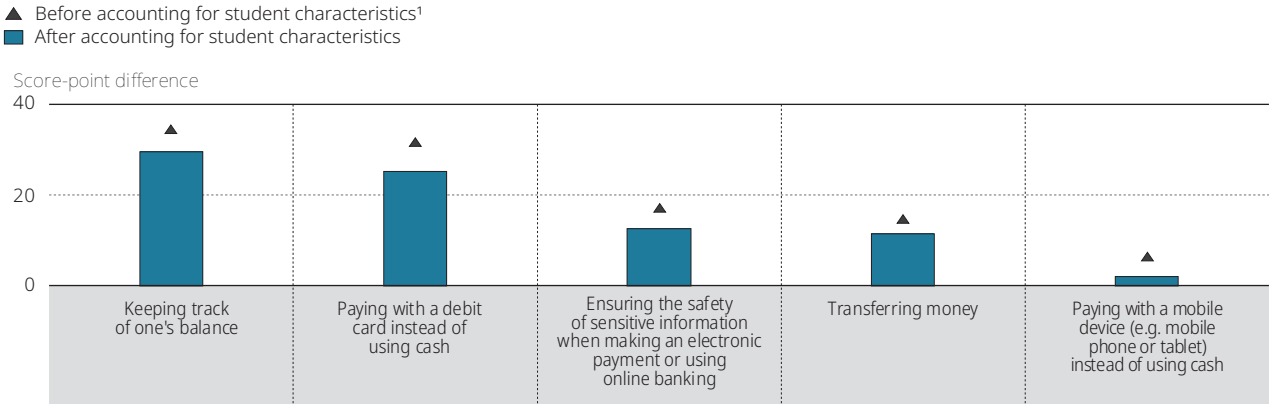
Students who reported feeling confident in ensuring the safety of sensitive information when making an electronic payment or using online banking scored 13 points higher than those who did not feel confident; and those who reported feeling confident in transferring money digitally scored 11 points higher than those who were not confident, on average across OECD countries and economies, after accounting for student characteristics. In none of the participating countries/economies were these differences significant in favour of students who reported that they are not confident. The performance gap associated with reporting confidence in paying with a mobile device instead of using cash was only two points, on average across OECD countries/economies, after accounting for student characteristics. However, there were large differences across countries/economies. In only 7 of the 19 countries/economies for which data were available was the performance gap significant in favour of students reporting

confidence in performing this task (Bulgaria, Georgia, Latvia, Lithuania, Poland, Russia and Spain). In 3 of the 19 countries and economies, the performance gap was significant in favour of students who reported they do not have confidence (Indonesia, Portugal and the Slovak Republic); and in the remaining 9 countries/economies, the performance gap was not significant (Figure IV.7.2 and Table IV.B1.7.5).

There was a strong positive relationship between the size of the link between confidence in performing a digital finance-related task and financial literacy performance, and the percentage of students who reported that they are confident in completing that task (R^2 of 0.87).

Figure IV.7.2 **Financial literacy performance and students' confidence in using digital financial services**

Score-point difference between students who reported feeling confident/very confident and those who reported feeling not very confident/not at all confident; OECD average



1. Student characteristics refer to gender, socio-economic status (as measured by the PISA index of economic, social and cultural status [ESCS]) and immigrant background.

Note: All score-point differences are statistically significant (see Annex A3).

Tasks are ranked in descending order of the score-point difference between students who reported feeling confident/very confident and those who reported feeling not very confident/not at all confident.

Source: OECD, PISA 2018 Database, Table IV.B1.7.5

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Confidence in using digital financial services and exposure to financial education

A positive correlation was observed between exposure to financial literacy education and confidence in using digital financial services. Students who were in the top quarter of the index of financial education in school lessons were, on average across OECD countries/economies, 0.35 of a unit higher in the index of confidence in using digital financial services. Every one-unit increase in the index of financial education in school lessons was associated with a 0.16-unit increase in the index of confidence in using digital financial services, on average across OECD countries/economies. This positive association was observed in all countries and economies except Georgia, where the association was not significant. The association was particularly large in Finland, Indonesia and Serbia (Table IV.B1.7.7).[6]

Students who were more exposed to financial literacy in school were more likely to report that they feel confident in ensuring the safety of sensitive information when making an electronic payment or using online banking (a 16 percentage-point gap between students in the top and bottom quarters of the index of financial education in school lessons, on average across OECD countries and economies) and in paying with a mobile device instead of using cash (a 14 percentage-point gap). These significant differences were also observed in every participating country/economy (Table IV.B1.7.7).

Disparities in confidence between students in the top and bottom quarters of the index of financial education in school lessons for the other three digital finance-related tasks ranged from 9 to 13 percentage points, on average across OECD countries and economies. Such disparities were not significant in the other direction (i.e. in favour of students who were less exposed to financial education in school lessons) in any participating country/economy for any of these three digital finance-related tasks (Table IV.B1.7.7).

Even more consistently significant gaps in confidence in performing digital finance-related tasks were observed with respect to exposure to financial education at home. Students in the top quarter of the index of parental involvement in matters of financial literacy were, compared to students in the bottom quarter of that index, 0.47 of a unit higher in the index of confidence in using digital financial services, on average across OECD countries/economies. This difference was observed and significant in all of the 19 countries/economies for which data were available, and, in Australia, Chile and Indonesia, was greater than 0.60 of a unit in the index of confidence in using digital financial services. Indeed, in Chile, parental involvement in financial education explained 8% of the variation in the index of confidence in using digital financial services (Table IV.B1.7.8).

Differences in confidence between students in the top and bottom quarters of the index of parental involvement in matters of financial literacy ranged between 15 and 17 percentage points for each of the five digital finance-related tasks, on average across OECD countries/economies. They were significant in every country/economy and for every task, and were particularly large in Chile (25 percentage points for both ensuring the safety of sensitive information and keeping track of their account balance) (Table IV.B1.7.8).

It was not possible to establish a causal link between confidence in using digital financial services and parental involvement in financial literacy. Indeed, many factors could simultaneously affect both confidence in using digital financial services, and parental or school involvement in financial literacy. However, if such a causal link exists, it is probable that parents' involvement in their child's financial education, or greater exposure to financial education in school, may lead to greater confidence in using digital financial services, rather than the other way around.

STUDENTS' CONFIDENCE IN DEALING WITH MONEY MATTERS

The PISA 2018 financial literacy questionnaire asked students about their confidence in dealing with non-digital money matters. In particular, it asked students whether they feel not at all confident, not very confident, confident or very confident about:

- making a money transfer (e.g. paying a bill)
- filling in forms at the bank
- understanding bank statements
- understanding a sales contract
- keeping track of [their] account balance
- planning [their] spending in consideration of [their] current financial situation.

Students' responses to these questions were aggregated into an overall index of confidence in dealing with money matters. This index was standardised to have a mean of 0 and standard deviation of 1 across OECD countries/economies.

The results regarding confidence in dealing with money matters were broadly similar to those regarding confidence in using digital financial services. They are briefly discussed below; detailed results are presented in Annex B.

Students in Estonia, Lithuania and Russia were the most confident in dealing with money matters; at the other end of the scale, students in Italy, Peru, Serbia and Spain reported particularly low levels of confidence in dealing with money matters (Table IV.B1.7.9).

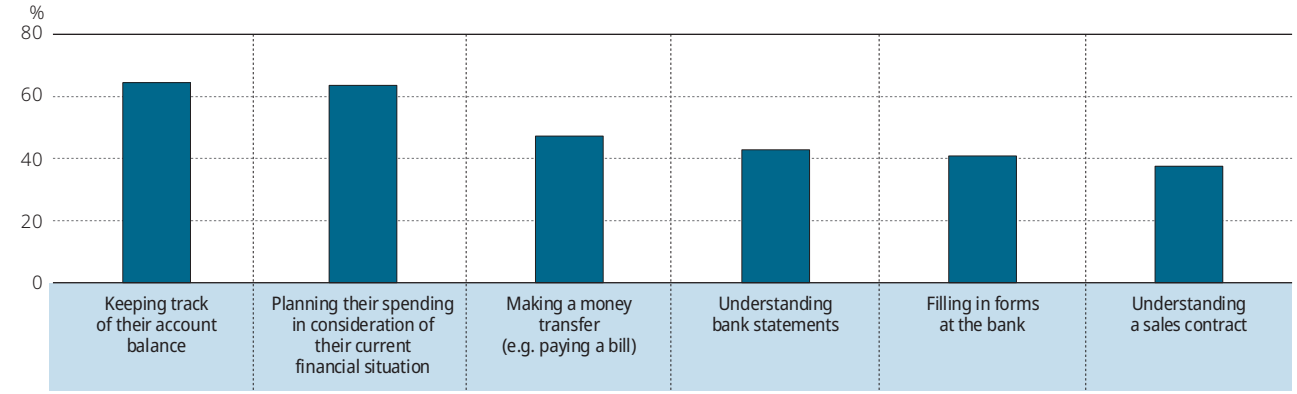
On average across OECD countries/economies, large majorities of students were confident in keeping track of their account balance (65%) and planning their spending in consideration of their current financial situation (64%). Students in OECD countries and economies appeared to be somewhat more confident than students in partner countries in these tasks, as 60% of students, on average across all countries/economies that participated in the PISA 2018 financial literacy assessment, were confident in performing each of these two tasks (Figure IV.7.3 and Table IV.B1.7.9).

Over 70% of students in Australia, the Canadian provinces, Estonia and Portugal were confident about keeping track of their account balance. However, less than 45% of students in Indonesia, Italy, Peru and Serbia were similarly confident. Some 70% of students in Finland, but less than 50% of students in Brazil and Serbia, were confident in their ability to plan their spending in consideration of their current financial situation (Table IV.B1.7.9).

Some 47% of students, on average across OECD countries/economies, reported feeling confident in making a money transfer (e.g. paying a bill). Over 60% of students in Chile and Russia reported confidence in this task, compared to less than 40% of students in Italy, Serbia, the Slovak Republic and Spain. On average across OECD countries/economies, 43% of students reported that they feel confident in understanding bank statements. Some 65% of students in Estonia reported feeling confident in understanding bank statements, but less than 33% of students in Italy, Peru and Spain reported feeling confident in doing so (Figure IV.7.3 and Table IV.B1.7.9)

Figure IV.7.3 **Students' confidence in dealing with money matters**

Percentage of students who reported that they are confident or very confident in performing each task; OECD average



Tasks are ranked in descending order of the percentage of students who reported feeling confident or very confident in performing them.

Source: OECD, PISA 2018 Database, Table IV.B1.7.9

StatLink https://doi.org/10.1787/888934123900

Some 41% of students reported that they feel confident filling in forms at the bank, on average across OECD countries/economies. This ranged from 51% of students in Russia to 28% of students in Peru. On average across OECD countries/economies, only 37% of students reported that they feel confident in understanding a sales contract, making it the activity in which students were least confident. Just under 50% of students in Lithuania and Russia reported that they feel confident in this task, but only 28% of students in the United States and 31% of students in Australia, the Canadian provinces and Spain reported the same (Figure IV.7.3 and Table IV.B1.7.9).

The questionnaire did not provide more information as to why students feel confident (or not) performing certain tasks. However, it appears that students generally feel less confident performing tasks that require actions (e.g. making a money transfer or filling in forms at the bank) or understanding documents that, in most countries, they cannot handle autonomously because of legal frameworks (e.g. bank statements or sales contracts). By contrast, keeping track of their account balance and planning their spending are activities that students can often do without parental involvement; indeed, this may be why over 80% of students, on average across OECD countries/economies, reported that they are responsible for their own money matters, and 15-year-old students might therefore be more experienced in these tasks (Table IV.B1.4.11).

Boys were more confident than girls in each of the six money-related tasks, on average across OECD countries/economies; and, in every participating country/economy, the average boy was significantly more confident than the average girl in dealing with money matters (as measured by the index of confidence in dealing with money matters) (Table IV.B1.7.10).

There was a strong correlation between the size of the gender gap in a particular task and the proportion of students (overall, including both boys and girls) who reported feeling confident in performing the task (R^2 = 0.86); this was also observed in students' confidence in using digital financial services. The largest gender gap in favour of boys was observed for the task in which the smallest proportion of students feel confident (understanding a sales contract), while the smallest gaps in favour of boys were observed for the tasks in which the largest proportion of students feel confident (keeping track of one's account balance and planning one's spending in consideration of one's current financial situation). As was the case with the digital finance-related tasks discussed in the previous section, it is not clear whether such gender differences in reported confidence in handling money matters are due to disparities in boys' and girls' propensity to report self-confidence in general, or whether they indicate that girls are falling behind in being able to handle more "difficult" digital finance-related activities.

Students' confidence in handling money matters increases with their socio-economic status. The gap related to socio-economic status was particularly large in Peru. However, advantaged students in Peru reported levels of confidence that were relatively close to the OECD average. The large gap related to socio-economic status in Peru is indicative of the low level of confidence in handling money matters amongst disadvantaged students (Table IV.B1.7.11).

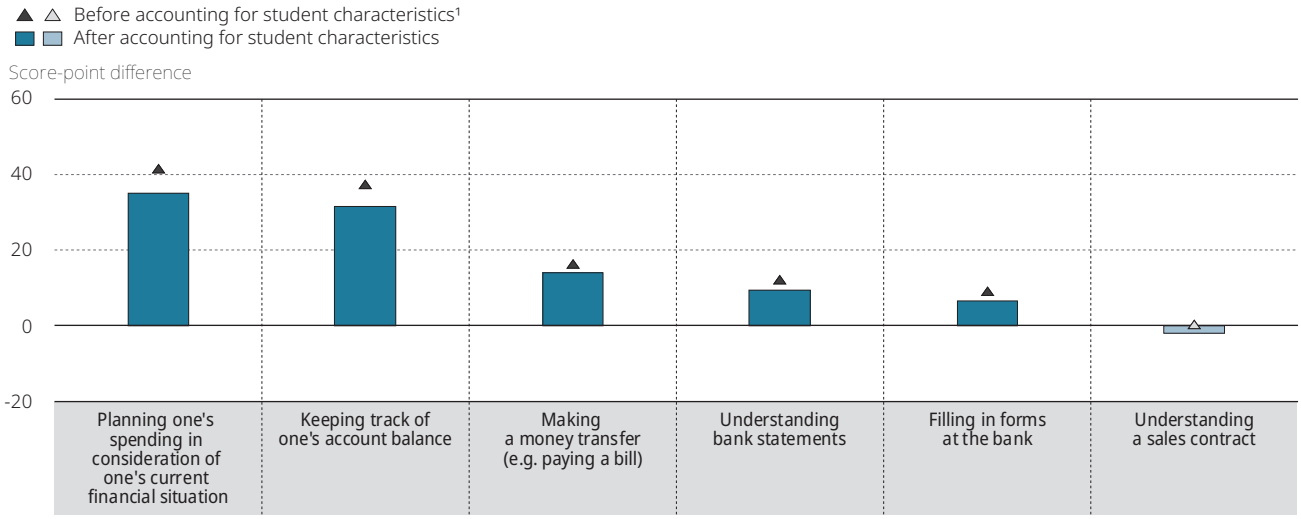
Performance in the financial literacy assessment and students' confidence in dealing with money matters

Students who were more confident in dealing with money matters also tended to be more financially literate, as measured by their performance in the PISA 2018 financial literacy assessment.[7] Every unit increase in the index of confidence in dealing with

money matters – equivalent to a standard deviation in the distribution of the index, on average across OECD countries and economies – was associated with an 11-point improvement in performance. After accounting for student characteristics, such as gender, socio-economic status and immigrant background, a one-unit increase in the index of confidence in dealing with money matters was associated with a nine-point improvement in performance (Figure IV.7.4 and Table IV.B1.7.13).

Figure IV.7.4 **Financial literacy performance and students' confidence in dealing with money matters**

Score-point difference between students who reported feeling confident/very confident and those who reported feeling not very confident/not at all confident; OECD average



1. Student characteristics refer to gender, socio-economic status (as measured by the PISA index of economic, social and cultural status [ESCS]) and immigrant background.

Note: Score-point differences that are statistically significant are marked in a darker tone (see Annex A3).

Sources are ranked in descending order of the score-point difference between students who reported feeling confident/very confident and those who reported feeling not very confident/not at all confident.

Source: OECD, PISA 2018 Database, Table IV.B1.7.13

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Performance in the PISA 2018 financial literacy assessment was, in most cases, positively correlated with a student reporting that he or she is confident in performing a task. The difference in performance was largest when considering the two tasks in which students reported they were most confident: planning one's spending in consideration of one's current financial situation (a difference of 35 score points, after accounting for student characteristics, on average across OECD countries/economies) and keeping track of one's account balance (a 32 score-point difference). However, there was no significant relationship between performance in financial literacy and confidence in understanding a sales contract, on average across OECD countries/economies (Figure IV.7.4 and Table IV.B1.7.13).

STUDENTS' INTEREST IN MONEY MATTERS

The preceding two sections examine whether students are confident in performing basic financial tasks. Confidence is one factor that helps people make informed financial decisions; interest is another. Although many 15-year-old students might be able to leave all of their financial decisions to their parents, they will soon enter adulthood and need to take more control of their own money. Are they already interested in doing so?

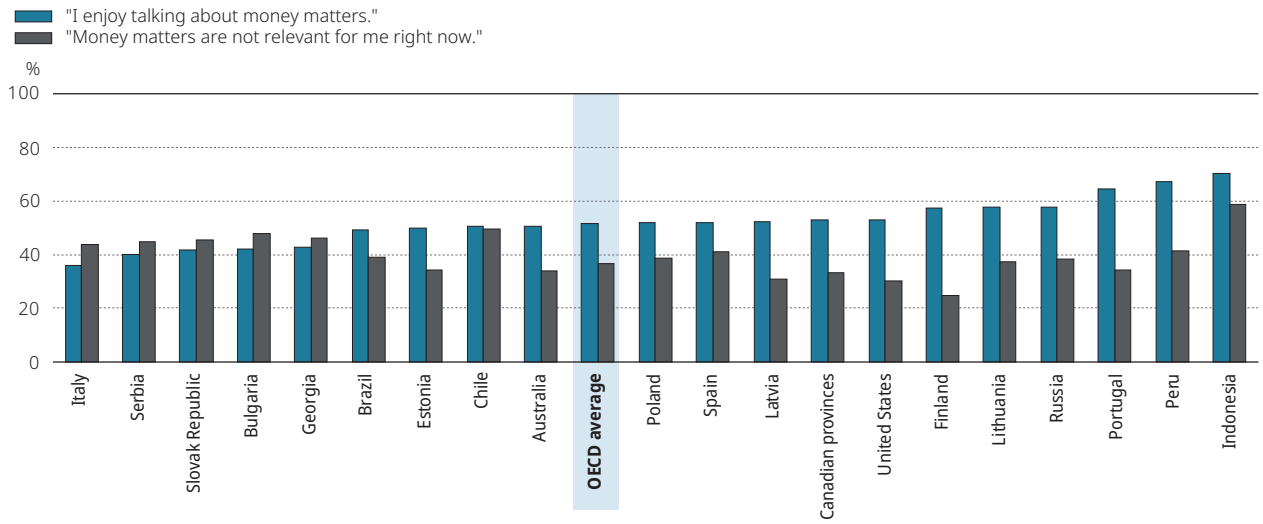
The PISA 2018 financial literacy questionnaire asked students whether they strongly agreed, agreed, disagreed or strongly disagreed with the following statements:

- "I enjoy talking about money matters"
- "Money matters are not relevant for me right now".

On average across OECD countries/economies, 52% of students agreed or strongly agreed[8] that they enjoy talking about money matters. This opinion was most prevalent (70%) amongst students in Indonesia, followed by students in Peru (67%) and Portugal (64%). Students in Italy (36%) were the least likely to agree with this statement across the 20 countries/economies that participated in the PISA 2018 financial literacy assessment; and less than 45% of students in Bulgaria, Georgia, Serbia and the Slovak Republic agreed with this statement (Figure IV.7.5 and Table IV.B1.7.17).

Figure IV.7.5 **Students' interest in money matters**

Percentage of students who agreed or strongly agreed with each statement



Countries and economies are ranked in ascending order of the percentage of students who agreed or strongly agreed with the statement "I enjoy talking about money matters".

Source: OECD, PISA 2018 Database, Table IV.B1.7.17

StatLink https://doi.org/10.1787/888934123938

Some 37% of students, on average across OECD countries/economies, agreed that money matters are not relevant for them right now. Only 25% of students in Finland were of this opinion, as were fewer than 1 in 3 students in the Canadian provinces, Latvia and the United States. Perhaps somewhat paradoxically, 59% of students in Indonesia agreed that money matters are not important for them right now,[9] as did 50% of students in Chile and 48% of students in Bulgaria (Figure IV.7.5 and Table IV.B1.7.17).

Boys (57%) were 12 percentage points more likely than girls (46%) to agree that they enjoy talking about money matters, on average across OECD countries/economies. The gender gap was significant in favour of boys in 18 of the 20 participating countries and economies and was widest in Finland (21 percentage points); it was not significant in Indonesia and Peru (Table IV.B1.7.18).

However, boys (39%) were also 5 percentage points more likely than girls (34%) to agree that money matters are not relevant to them right now. A gap in this direction was observed in 13 of the 20 participating countries/economies, reaching 9 percentage points in the Canadian provinces and 7 percentage points in Finland, Portugal and the Slovak Republic. The gender gap was not significant in the other seven countries (Table IV.B1.7.18).

Interest in money matters was positively associated with socio-economic status. Indeed, advantaged students were eight percentage points more likely than disadvantaged students to agree that they enjoy talking about money matters, on average across OECD countries/economies. This gap was as wide as between 12 and 13 percentage points in 5 countries (Brazil, Chile, Estonia, Finland and the Slovak Republic) and was significant in a further 10 countries/economies; it was not significant in the 5 remaining participating countries/economies. Likewise, advantaged students were six percentage points more likely than their disadvantaged peers to disagree that money matters are not relevant for them right now, on average across OECD countries/economies. In Brazil and Portugal, there was an 11 percentage-point difference between the two groups; in another 12 countries/economies, this difference was significant. The gap was not significant in the other six countries/economies (Table IV.B1.7.19).

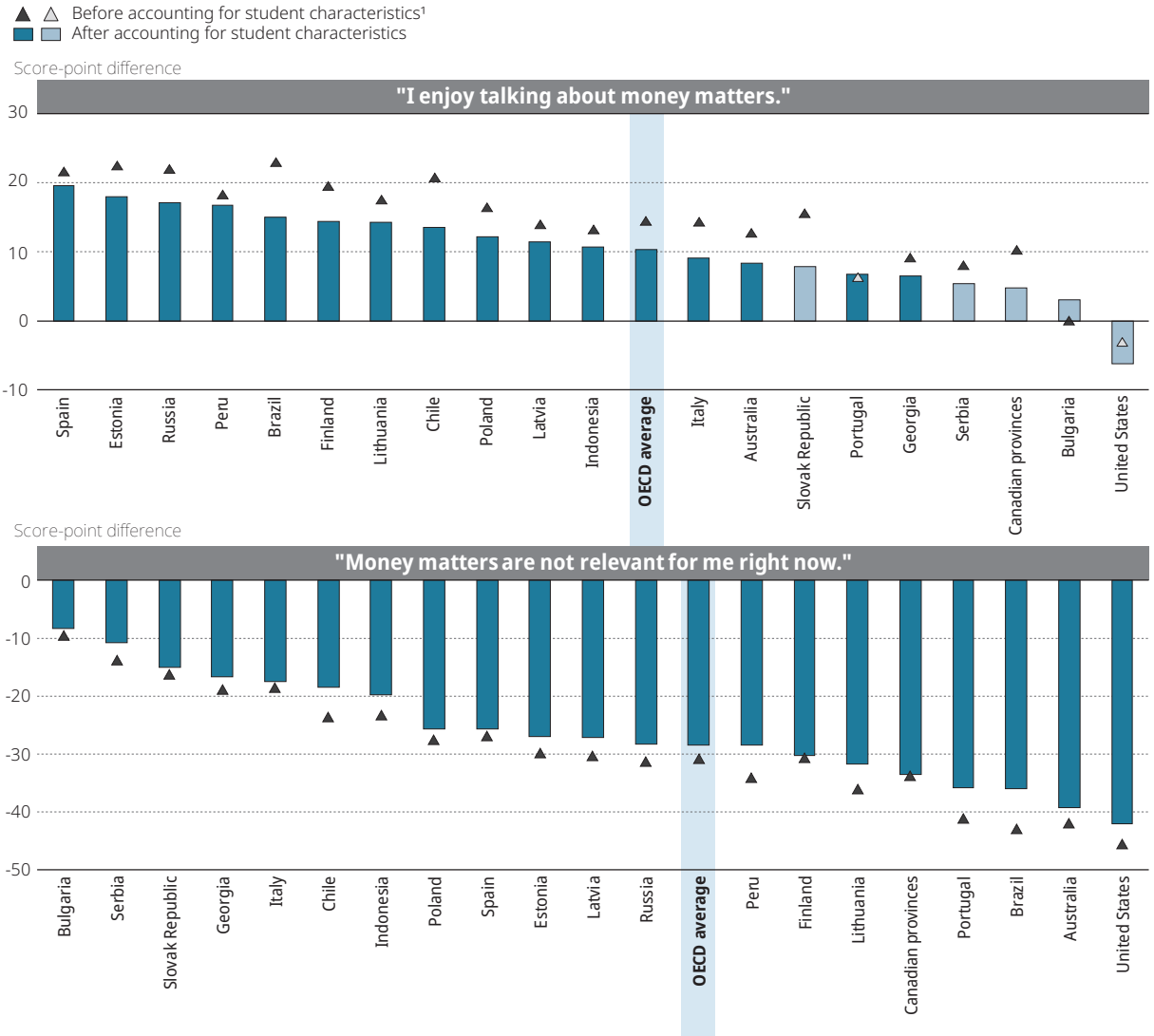
Despite the consistent differences in interest in money matters associated with it, socio-economic status, as measured by the PISA index of economic, social and cultural status, explained only 0.7% of the variation (at most) in whether students in any country or economy agreed with either of these two statements (Table IV.B1.7.19). In other words, socio-economic status, on its own, is not indicative of whether students are interested in money matters. At the same time, the greater interest in money matters held by advantaged students might contribute to greater inequality in future outcomes.

Performance in the financial literacy assessment and interest in money matters

Perhaps unsurprisingly, students who were more interested in money matters scored higher in the PISA 2018 financial literacy assessment. On average across OECD countries/economies, students who agreed that they enjoy talking about money matters scored 15 points higher in the assessment; after accounting for student characteristics, such as gender, socio-economic status and immigrant background, students who enjoy talking about money matters scored 10 points higher in the assessment (Figure IV.7.6 and Table IV.B1.7.21).

Figure IV.7.6 **Financial literacy performance and students' interest in money matters**

Score-point difference between students who agreed/strongly agreed with the statement and those who disagreed/strongly disagreed



1. Student characteristics refer to gender, socio-economic status (as measured by the PISA index of economic, social and cultural status [ESCS]) and immigrant background.

Note: Score-point differences that are statistically significant are marked in a darker tone (see Annex A3).

Countries are ranked in descending order of the score-point difference between students who agreed/strongly agreed with the statement and those who disagreed/strongly disagreed.

Source: OECD, PISA 2018 Database, Table IV.B1.7.21

StatLink https://doi.org/10.1787/888934123957

In Spain, students who agreed that they enjoy talking about money scored 20 points higher in the PISA 2018 financial literacy assessment than students who disagreed with this statement, after accounting for student characteristics. Gaps of over 15 score points were also observed in Estonia, Peru and Russia. In only 5 of the 20 participating countries/economies was the performance gap not significant (Figure IV.7.6 and Table IV.B1.7.21).

Similarly, students who agreed that money matters are not significant for them right now scored lower in the financial literacy assessment – by 31 points before, and by 28 points after accounting for student characteristics, on average across OECD countries/economies, compared to students who disagreed with this statement. This performance gap was observed in every participating country/economy, and was particularly large in the United States (42 points, after accounting for student characteristics), Australia (39 points), Brazil (36 points), Portugal (36 points) and the Canadian provinces (34 points). Performance gaps of 15 points or less were observed in Bulgaria (8 points), Serbia (11 points) and the Slovak Republic (15 points) (Figure IV.7.6 and Table IV.B1.7.21).

Interest in money matters and exposure to financial education

Students who are more exposed to financial education – whether at school or by their parents at home – were more likely to agree that they enjoy talking about money matters. On average across OECD countries/economies, students in the top quarter of the index of financial education in school lessons were 18 percentage points more likely than students in the bottom quarter of this index to agree that they enjoy talking about money matters. This positive association was observed in all 20 participating countries/economies, with the gap ranging between 26 percentage points in Australia and 23 percentage points in the Canadian provinces, Peru and Russia, to 11 percentage points in Georgia, 12 percentage points in Latvia and 13 percentage points in Lithuania (Table IV.B1.7.22).

Likewise, students in the top quarter of the index of parental involvement in matters of financial literacy were 28 percentage points more likely than students in the bottom quarter of this index to agree that they enjoy talking about money matters, on average across OECD countries/economies. Again, this association was observed across all participating countries/economies and ranged from 38 percentage points in Chile and 36 percentage points in Brazil, to below 20 percentage points in Bulgaria, Georgia, Indonesia and Serbia (Table IV.B1.7.23).

However, the association between exposure to financial education and whether students agreed that money matters are not relevant for them right now was less consistent across countries/economies. Students who were more exposed to financial education in school lessons were, perhaps counterintuitively, three percentage points more likely to agree that money matters are not relevant for them right now, on average across OECD countries/economies. This positive relationship was observed in 10 of the 20 participating countries/economies – Brazil, Bulgaria, Estonia, Georgia, Indonesia, Latvia, Poland, Russia, Serbia and the Slovak Republic – with students in the top quarter of the index of financial education in school lessons in Bulgaria 14 percentage points more likely, and those in Poland 12 percentage points more likely, than students in the bottom quarter of this index (in their country/economy) to agree with this statement. However, the opposite relationship was observed in Finland, where students who were most exposed to financial education in school lessons were seven percentage points less likely than students least exposed to financial education in school to agree that money matters are not important for them right now (Table IV.B1.7.22).

On average across OECD countries/economies and in 5 of the 20 participating countries/economies (Australia, the Canadian province, Finland, Portugal and Spain), students in the top quarter of the index of parental involvement in matters of financial literacy were less likely to agree (or more likely to disagree) that money matters are not relevant for them right now. However, the opposite was reported by students in Bulgaria, Indonesia and Russia. In any country/economy, parental involvement explains only 0.6% of the variation, at most, in whether students agreed with this statement, thus the relationship between these two variables was weak (Table IV.B1.7.23).

Notes

1. On average across OECD countries/economies, there was no significant difference between immigrant and non-immigrant students in either of the indices discussed in this chapter, nor in the responses to most of the individual statements analysed in this chapter. As such, immigrant and non-immigrant differences are not discussed in this chapter but are presented in tables in Annex B and on line.
2. These questions were not asked in Peru.
3. Countries and economies were given equal weight in the standardisation procedure.
4. Nuances in intensity between "very confident" and "confident", and between "not at all confident" and "not very confident", were used when mathematically constructing the indices used in this chapter. However, in this chapter, the responses of "very confident" and "confident" were combined when discussing the percentage of students who reported feeling confident in performing certain actions.
5. In PISA, advantaged students are defined as those who are in the top quarter (25%) of the socio-economic distribution in their country or economy, as measured by the PISA index of economic, social and cultural status (ESCS). Disadvantaged students are those in the bottom quarter of that distribution.
6. However, comparisons of the size of gaps in indices across countries/economies should be interpreted with caution. Students vary in the range of responses they use. Students in one country might respond with the same answer, even if they feel differently about their confidence in a certain task, while students in another country might provide a greater range of responses. The gap observed in the former country would be smaller than the gap observed in the latter country.
7. This statement should not be taken to imply that confidence in dealing with money matters results in greater financial literacy; the causal relationship may indeed be in the other direction. The PISA results show correlation, not causation, between these variables.
8. In this chapter, the responses "strongly agree" and "agree" were combined when discussing the percentage of students who agreed with certain statements.
9. Some students, especially in Indonesia and Peru, agreed that they enjoy talking about money matters, while also agreeing that money matters are not relevant for them right now. This is not a contradiction – it is possible to enjoy talking about things that are not currently relevant to one's life – but may also reflect a bias towards agreeing to statements in questionnaires.

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8

Do students engage in financially responsible behaviours and practices?

This chapter explores whether students practice basic behaviours that demonstrate responsibility in their financial management and spending decisions. It also discusses whether such behaviours are related to performance in the financial literacy assessment.

8 Do students engage in financially responsible behaviours and practices?

Research has shown that financial literacy is positively associated with better financial outcomes, in terms of spending, investment and debt (de Bassa Scheresberg, 2013[1]; Lusardi and Tufano, 2015[2]; Disney and Gathergood, 2013[3]; Brown et al., 2016[4]; van Rooij, Lusardi and Alessie, 2011[5]; van Rooij, Lusardi and Alessie, 2012[6]; Deuflhard, Georgarakos and Inderst, 2018[7]; Schützeichel, 2019[8]). However, the existing literature has only examined financial outcomes amongst adults, not the 15-year-old students who are the focus of PISA. Although 15-year-olds have only limited agency in their financial decisions – they are often legally restricted from opening their own bank accounts or signing their own sales contracts – there are still basic financial behaviours that they can engage in on a regular basis. These behaviours and actions might reflect how responsible they are with their money and finances, and whether they will be ready to make more formal financial decisions in only a few years' time.

This chapter examines whether students engage in elementary money-related behaviours and whether such behaviours are associated with financial literacy and knowledge. It may provide policy makers with simple suggestions as to how to encourage students to behave financially responsibly, even (or perhaps especially) when the stakes at their age are relatively low.

What the data tell us

- Over three in four students in every country/economy that participated in the PISA 2018 financial literacy assessment reported that they had checked how much money they have, and that they were given the right change in the 12 months prior to sitting the assessment. But 63% of students, on average across OECD countries/economies, reported that they had bought something that cost more money than they had intended to spend.
- Students who had checked how much money they have scored 50 points higher in the financial literacy assessment than students who had not done so, on average across OECD countries/economies and after accounting for student characteristics. In every participating country/economy, students who had checked how much money they have scored significantly above students who had not done so. However, students who had bought something that cost more money than they had intended to spend scored 10 points lower in the assessment than students who had not done so.
- Some 76% of students, on average across OECD countries/economies, reported that they sometimes or always compare prices in different shops when thinking about buying something using their allowance, and 69% of students reported comparing prices between a physical and an online shop. However, 38% of students reported sometimes or always buying the product without comparing prices.
- Advantaged students were 10 percentage points more likely than their disadvantaged peers to compare prices in different shops when buying something from their allowance, on average across OECD countries/economies. In every participating country/economy, students who compared prices in different shops scored at least 29 points higher in the financial literacy assessment than students who did not compare prices.

STUDENTS' FINANCIAL BEHAVIOUR

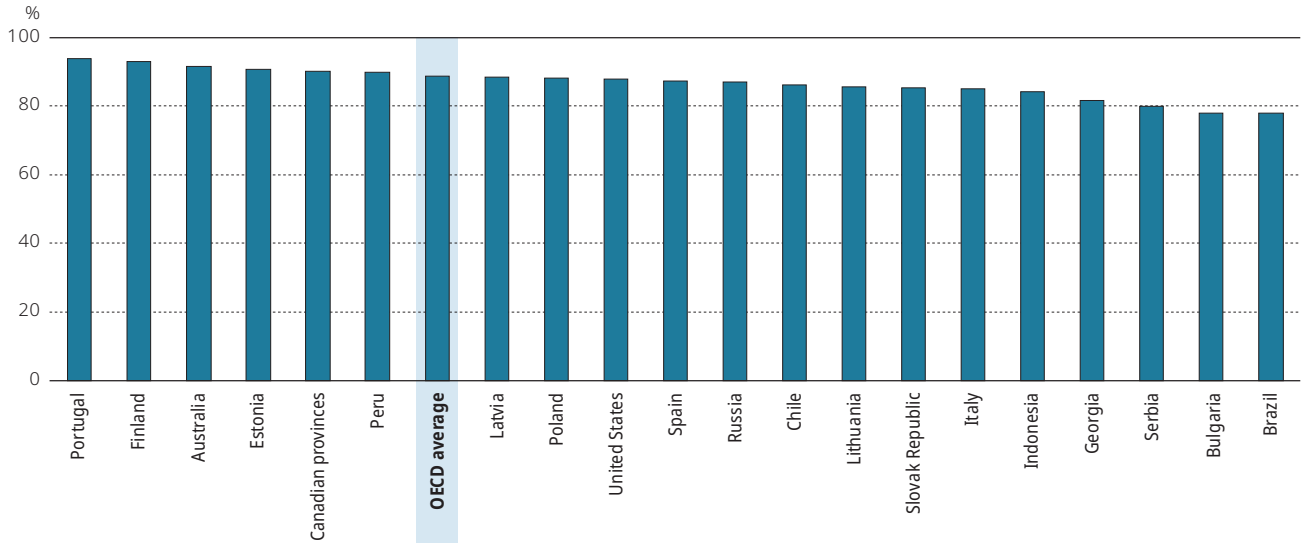
The PISA 2018 financial literacy questionnaire asked students whether they had, in the previous 12 months:

- checked that they were given the right change when they bought something
- checked how much money they have
- bought something that cost more money than they intended to spend
- complained that they did not have enough money for something they wanted to buy.

On average across OECD countries/economies, 89% of students reported that they had checked how much money they have and 86% of students reported that they had checked that they were given the right change in the previous 12 months. These behaviours were commonplace amongst students in all of the countries/economies that participated in the PISA 2018 financial literacy assessment. Some 94% of students in Portugal, 93% of students in Finland and 92% of students in Australia had checked how much money they have, while even in the countries/economies where this behaviour was least common – Brazil, Bulgaria, Georgia and Serbia – over 78% of students had checked how much money they have (Figure IV.8.1 and Table IV.B1.8.1).

Figure IV.8.1 **Students who check how much money they have**

Percentage of students who reported that they check how much money they have



Countries are ranked in descending order of the percentage of students who reported that they check how much money they have.

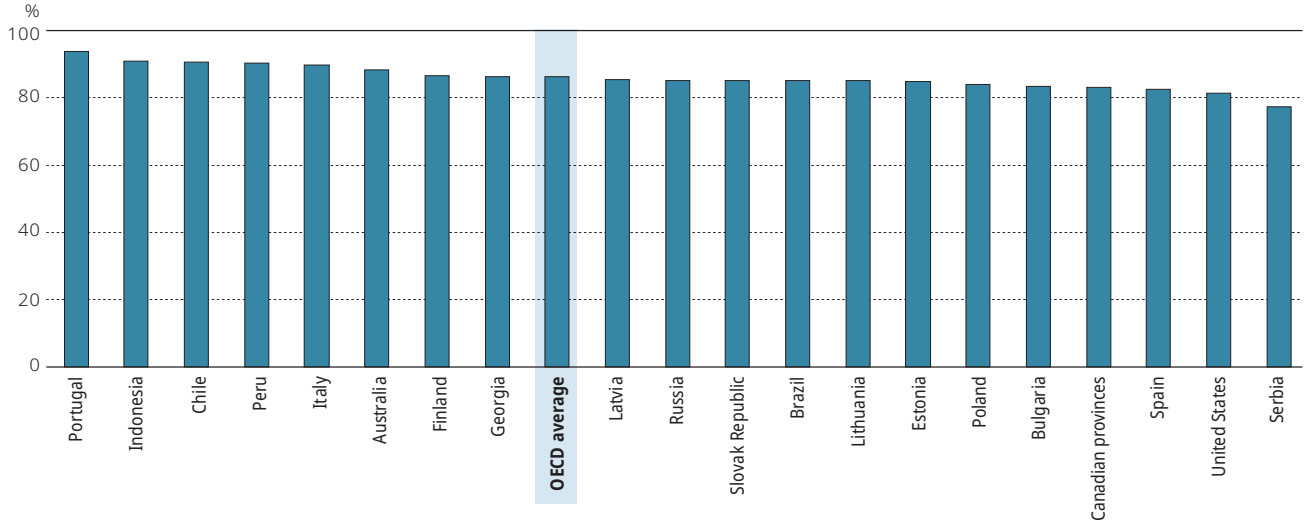
Source: OECD, PISA 2018 Database, Table IV.B1.8.1

StatLink https://doi.org/10.1787/888934123976

Likewise, over 90% of students in Chile, Indonesia, Peru and Portugal reported that they had checked that they were given the right change when they bought something. In Serbia, where this behaviour was least common, more than three in four students (77%) had checked that they were given the right change, as did 81% of students in the United States and 82% of students in Spain (Figure IV.8.2 and Table IV.B1.8.1).

Figure IV.8.2 **Students who check if they are given the right change**

Percentage of students who reported that they check to see that they are given the right change



Countries are ranked in descending order of the percentage of students who reported that they check to see that they are given the right change.

Source: OECD, PISA 2018 Database, Table IV.B1.8.1

StatLink https://doi.org/10.1787/888934123995

Some 63% of students reported that they had bought something that cost more money than they intended to spend at some point in the previous 12 months, on average across OECD countries/economies. More than two in three students in the Russian Federation (hereafter "Russia") (70%), the Slovak Republic (69%), the Canadian provinces (67%) and Bulgaria (67%) reported doing so. The smallest proportions of students who reported doing so were observed in Brazil (53%), Peru (49%) and Portugal (55%) (Table IV.B1.8.1).

Similarly, 62% of students reported that, over the previous 12 months, they had complained that they did not have enough money for something they wanted to buy, on average across OECD countries/economies. Students in Brazil (75%) were most likely to have done this, followed by roughly two in three students in Poland (68%), Finland (67%) and Indonesia (66%). By contrast, fewer than one in two students in Peru (47%) reported that they had complained about not having enough money for something they wanted to buy, as did 54% of students in Italy, Latvia, Russia and Serbia (Table IV.B1.8.1). There was almost no correlation between the proportion of students who had complained that they did not have enough money for something they wanted to buy, and the average socio-economic status in a country/economy (as measured by the PISA index of economic, social and cultural status; $R^2 < 0.01$). This indicates that, at the country/economy level, the perception of not having enough money to buy something was related to more than simple material conditions.

There was no significant difference between boys and girls in the percentage of students who reported that they had checked that they were given the right change, on average across OECD countries/economies. This difference was significant in only 4 of the 20 participating countries/economies (in favour of boys in Estonia and the United States, and in favour of girls in Chile and the Slovak Republic). However, girls were significantly more likely than boys to report that they had checked how much money they have – by four percentage points, on average across OECD countries/economies, and by up to seven percentage points in Latvia and six percentage points in Bulgaria, Italy, Poland, Serbia and the Slovak Republic. In another seven countries/economies, namely Australia, the Canadian provinces, Estonia, Finland, Lithuania, Portugal and Spain, more girls than boys had checked how much money they have; and the difference was not significant in the remaining seven participating countries/economies (Table IV.B1.8.2).

Girls were two percentage points more likely than boys to have bought something that cost more money than they had intended to spend, on average across OECD countries/economies. However, the differences were not consistent across countries/economies. In Australia, Poland and the United States, girls were more likely than boys to have bought something that cost more than they had intended to spend, but in Chile, Georgia, Indonesia and Peru, boys were more likely than girls to have done so. Girls were six percentage points more likely than boys to have complained that they did not have enough money for something they wanted to buy, on average across OECD countries/economies. The gender gap was 11 percentage points wide in the United States and 10 percentage points wide in Australia. In another 11 countries/economies (Brazil, the Canadian provinces, Estonia, Finland, Italy, Latvia, Lithuania, Poland, Portugal, the Slovak Republic and Spain), girls were more likely than boys to have complained, while in the other 7 countries/economies, there was no significant difference between the genders (Table IV.B1.8.2). However, the gender gap in students complaining that they did not have enough money for something they wanted to buy may also be related to disparities in boys' and girls' propensity to complain or to report that they had complained.

Students were more likely to report that they had checked how much money they have over the previous 12 months if they came from more advantaged families. Indeed, advantaged students[1] were seven percentage points more likely than disadvantaged students to have checked how much money they have, on average across OECD countries/economies. This gap was particularly large in Brazil (18 percentage points), Bulgaria (16 percentage points) and the Slovak Republic (14 percentage points), while it was not significant in only two countries, Italy and Spain (Table IV.B1.8.3).

Advantaged students were also more likely to report that they had checked that they were given the right change. The gap between advantaged and disadvantaged students in reporting this behaviour was five percentage points, on average across OECD countries/economies, and reached ten percentage points in Brazil and Peru. Only in five countries/economies was this difference not significant (Table IV.B1.8.3).

Although the previous paragraphs have discussed how advantaged students reported being more vigilant with their money and accounts than disadvantaged students, advantaged students also more often reported – by four percentage points, on average across OECD countries and economies – that they had bought something that cost more money than they had intended to spend. This might be because disadvantaged students have less money to spend and may therefore be more restricted with their purchases. This gap was particularly large in Brazil (17 percentage points), Indonesia (11 percentage points) and Peru (23 percentage points) (Table IV.B1.8.3).

Although advantaged students were three percentage points less likely than disadvantaged students to report that they had complained that they did not have enough money for something they wanted to buy, the gap related to socio-economic

status was not consistent across countries/economies. In Italy, Portugal and Spain, advantaged students were between 6 and 15 percentage points less likely than disadvantaged students to have complained, while in Brazil, Georgia and Peru they were between 6 and 13 percentage points more likely to have complained (Table IV.B1.8.3).

There were few differences between immigrant and non-immigrant students in their reported financial behaviour, especially at the country level.[2] The greatest differences were found in the United States, where immigrant students were less likely than non-immigrant students to have checked how much money they have, but also less likely to have bought something that cost more than they had intended to spend and less likely to have complained about not having enough money for something they wanted to buy. Immigrant students in Australia were also less likely to have overspent or complained about not having enough money (Table IV.B1.8.4).

Performance in financial literacy and students' financial behaviour

Responsible financial behaviours are, perhaps unsurprisingly, positively associated with financial literacy. On average across OECD countries/economies, students who had checked how much money they have in the previous 12 months scored 58 points higher in the PISA 2018 financial literacy assessment than students who had not done this. After accounting for student characteristics, such as gender, socio-economic status and immigrant background, students who had checked how much money they have still scored 50 points higher than students who had not checked. This difference was significant in every country and economy that participated in the assessment, and varied between 35 score points (in Georgia and Serbia) and 62 score points (in Lithuania) across countries/economies (Table IV.B1.8.5).

Likewise, students who had checked that they were given the right change in the previous 12 months scored 27 points higher in the financial literacy assessment than students who had not done this, on average across OECD countries/economies, after accounting for student characteristics. The performance gap was 55 score points in Chile, 41 score points in Brazil and 40 score points in Peru; however, the gap was only 14 score points wide in Latvia and less than 20 score points wide in Georgia, Poland, Serbia and the United States (Table IV.B1.8.5).

Students who reported that they had bought something that cost more money than they had intended to spend scored 10 points lower in the financial literacy assessment than students who had not done so over the previous 12 months, on average across OECD countries/economies and after accounting for student characteristics. This relationship was particularly large in the United States (a 26 score-point difference) and Australia (a 23-point difference); however, it was significant in only 11 of the 20 participating countries/economies. Complaining about not having enough money for something they wanted to buy was associated with a four-point drop in financial literacy scores, on average across OECD countries/economies and after accounting for student characteristics, although this decline was significant in this direction in only five countries/economies (Australia, Bulgaria, the Canadian provinces, Finland and Spain). By contrast, students in Brazil who had complained scored 13 points higher than students who had not complained (Table IV.B1.8.5).

STUDENTS' SPENDING STRATEGIES

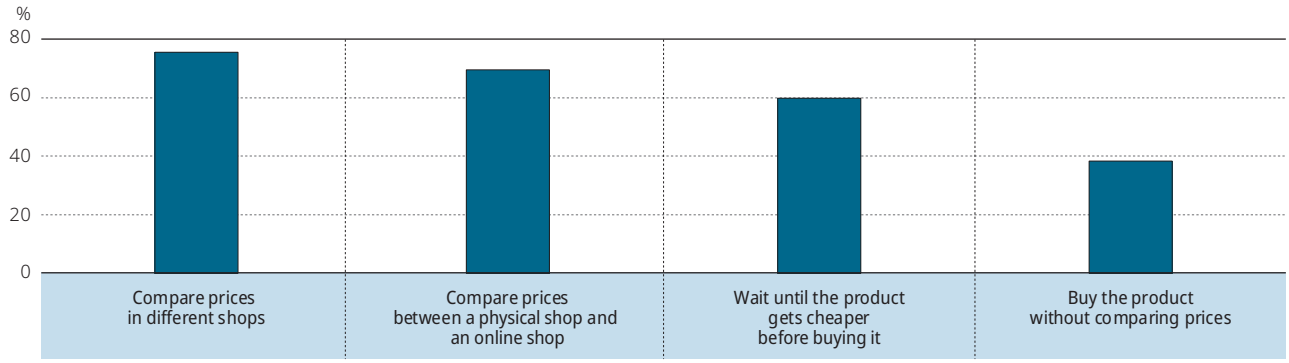
In addition to questions about how they manage their money when making purchases, students who sat the PISA 2018 financial literacy assessment were asked about their strategies in what and when they buy, when they think about buying a product from their allowance. More specifically, students were asked whether they always, sometimes, rarely or never:

- compare prices in different shops
- compare prices between a physical shop and an online shop
- buy the product without comparing prices
- wait until the product becomes less expensive before buying it.

The most commonly used strategy was comparing prices in different shops. On average across OECD countries/economies, 76% of students reported always or sometimes[3] comparing prices in different shops. However, unlike the more common financial behaviours described in the previous section, there were large differences across countries/economies. Between 80% and 85% of students in Australia, the Canadian provinces, Finland and Portugal reported that they compare prices, but only 50% of students in Georgia and between 60% and 65% of students in Bulgaria, Indonesia and the Slovak Republic reported doing so (Figure IV.8.3 and Table IV.B1.8.6).

Figure IV.8.3 **Students' spending strategies**

Percentage of students who reported that they sometimes or always use each spending strategy; OECD average



Strategies are ranked in descending order of the percentage of students who reported using them.

Source: OECD, PISA 2018 Database, Table IV.B1.8.6

StatLink https://doi.org/10.1787/888934124014

A slightly smaller proportion of students, 69%, reported comparing prices between a physical shop and an online shop. This strategy was used by more than three in four students in Australia (78%) and the Canadian provinces (76%), and by nearly three in four students in Finland (74%), Poland (74%) and the United States (74%). However, fewer than one in two students in Georgia reported that they compare prices between a physical shop and an online shop (47%), as did only 51% of students in Peru. Students in most countries/economies were more likely to compare prices in different shops than to compare prices between a physical shop and an online shop (the difference was not significant only in Indonesia, Latvia, Lithuania, Russia and the United States) (Figure IV.8.3 and Table IV.B1.8.6).

Some 60% of students, on average across OECD countries/economies, reported that they wait until the product becomes less expensive before buying it. Between 71% and 74% of students in Australia, the Canadian provinces and Portugal reported using this strategy. However, only 36% of students in Georgia reported waiting until the product becomes cheaper before buying it, as did less than half of all students in Chile (48%) and Russia (41%) (Figure IV.8.3 and Table IV.B1.8.6).

The least prudent spending strategy – buying the product without comparing prices – was also the least commonly observed. Only 38% of students, on average across OECD countries/economies, reported doing this. Buying a product without comparing prices was relatively less common amongst students in Portugal (31%), Italy (32%), Brazil, Chile, Poland and Spain (all 34%). However, 51% of students in Indonesia reported following this strategy, as did 49% of students in Georgia, 46% of students in Bulgaria and 45% of students in Serbia (Figure IV.8.3 and Table IV.B1.8.6).

Girls were more likely than boys to compare prices in different shops when thinking about buying something with their allowance. On average across OECD countries/economies, girls were 4 percentage points more likely than boys to compare prices in different shops, and in 13 of the 20 participating countries/economies, girls were more likely than boys to do this. The gender gap was nine percentage points wide in the Slovak Republic and seven percentage points wide in Poland and Serbia. In no country/economy were boys more likely than girls to use in this strategy (Table IV.B1.8.7).

However, boys were three percentage points more likely than girls to compare prices between a physical shop and an online shop when thinking about buying something with their allowance, on average across OECD countries/economies. Boys in Chile and Portugal were especially more likely than girls to compare prices between a physical shop and an online shop (a 12 percentage-point gender gap in both countries), as were boys in Peru (an 11 percentage-point gender gap); this was also the case in a further 9 countries/economies. However, girls in Indonesia and Poland were more likely than boys to compare prices between a physical shop and an online shop (Table IV.B1.8.7). The difference in the direction of the gender gap when considering comparing prices between shops versus comparing prices between a physical shop and an online shop might be related to gender-related preferences for engaging in digital activities, particularly digital financial activities (Tables IV.B1.6.10 and IV.B1.7.2).

There was no consistent gender gap across countries/economies in waiting until a product becomes less expensive before buying it. Girls in Poland, Portugal and the Slovak Republic were between 4 and 5 percentage points more likely than boys to follow this strategy, while boys in Georgia, Indonesia, Italy and Russia were between 3 and 10 percentage points more likely than girls to do this. There was no significant gender gap in the other 13 countries/economies (Table IV.B1.8.7).

Girls were two percentage points more likely than boys to buy a product without comparing prices, on average across OECD countries/economies. Girls in Australia, the Canadian provinces, Finland, Serbia and the United States were more likely to do this than boys (up to a 12 percentage-point difference in Finland), but boys in Brazil and Peru were between 5 and 6 percentage points more likely than girls to do this (Table IV.B1.8.7).

Students from advantaged families were more likely to compare prices, either between physical shops or with an online shop. Advantaged students were 10 percentage points more likely than disadvantaged students to compare prices in different shops, on average across OECD countries/economies. The gap between the two groups of students was particularly large in Chile (20 percentage points) and Peru (21 percentage points), while it was not significant in only one participating country/economy, Italy. Likewise, advantaged students were 12 percentage points more likely than disadvantaged students to compare prices between a physical shop and an online shop, on average across OECD countries/economies. This gap was particularly pronounced in Brazil (27 percentage points), Chile (28 percentage points) and Peru (40 percentage points) but was not significant in Estonia (Table IV.B1.8.8).

Advantaged students were also more likely than disadvantaged students to wait for a product to become less expensive before buying it. The gap amounted to 6 percentage points, on average across OECD countries/economies, and was between 10 and 13 percentage points in Indonesia, Latvia and Serbia. However, it was not significant in Italy, Peru, Portugal and the Slovak Republic. On average across OECD countries/economies, disadvantaged students were four percentage points more likely to buy a product without comparing prices, although at the country level, the difference related to socio-economic status was observed only amongst students in Australia, Chile, Finland, Lithuania, Poland and Portugal (Table IV.B1.8.8).

These results indicate that advantaged students are, in general, more likely to use responsible spending strategies than disadvantaged students. This may be partly due to different levels of awareness about such strategies between advantaged and disadvantaged students; it may also be due, in part, to advantaged students having more opportunities to apply responsible spending strategies. For example, advantaged students may have more opportunities to be digitally connected and access online shops; they also may not be in immediate need of certain items and thus can wait until such items become cheaper before purchasing them. No matter the reason, the greater use of responsible spending strategies by advantaged students may lead to further inequalities in financial outcomes later in life.

Immigrant students in Australia, the Canadian provinces and the United States were, on the whole, more likely than non-immigrant students to use price-comparison strategies when making purchases. For example, in the Canadian provinces, immigrant students were seven percentage points more likely than non-immigrant students to compare prices in different physical shops, five percentage points more likely than non-immigrant students to compare prices between a physical shop and an online shop, and four percentage points more likely than non-immigrant students to wait until a product becomes cheaper before buying it. Immigrant students in the Canadian provinces were also five percentage points less likely than non-immigrant students to buy a product without comparing prices. In the other participating countries, most differences in the use of these strategies between immigrant and non-immigrant students were not significant (Table IV.B1.8.8).

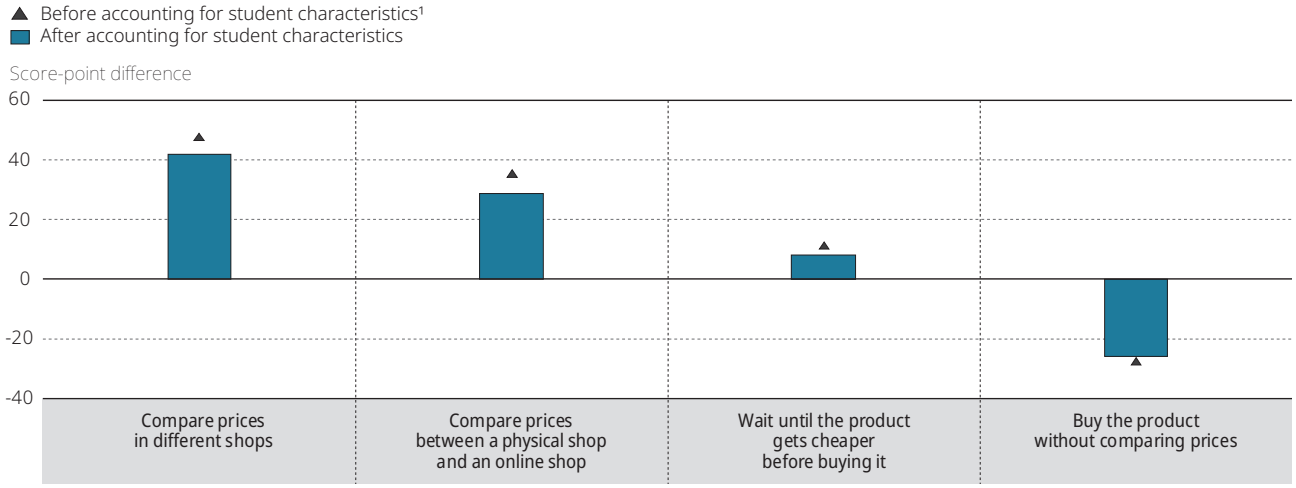
Performance in financial literacy and students' spending strategies

As was the case with students' financial behaviours, discussed in the first part of this chapter, using responsible spending strategies was positively associated with financial literacy (as measured by performance in the PISA 2018 financial literacy assessment). After accounting for student characteristics, such as gender, socio-economic status and immigrant background, students who reported that they compare prices in different shops when thinking about buying a product with their allowance scored 42 points higher in the assessment than students who did not so report, on average across OECD countries/economies (the difference was 48 points before accounting for these factors). This positive association was observed in all of the 20 countries/economies that participated in the assessment, and the size of the performance gap ranged from 29 points in Peru to 53 points in Australia (Figure IV.8.4 and Table IV.B1.8.10).

Likewise, students who reported that they compare prices between a physical shop and an online shop scored 29 points higher in the PISA 2018 financial literacy assessment than students who did not so report, on average across OECD countries/economies and after accounting for student characteristics. The performance gap was significant in all participating countries/economies, and varied between 36 score points in Indonesia, Italy and the Slovak Republic and 12 score points in Peru. In all countries and economies, the performance gap associated with comparing prices in different shops was no less than (i.e. at least as great as) the performance gap associated with comparing prices between a physical shop and an online shop (Figure IV.8.4 and Table IV.B1.8.10).

Figure IV.8.4 **Spending strategies and performance in financial literacy**

Score-point difference between students who reported that they sometimes or always use the strategy and those who reported otherwise



1. Student characteristics refer to gender, socio-economic status (as measured by the PISA index of economic, social and cultural status [ESCS]) and immigrant background.

Note: All score-point differences are statistically significant (see Annex A3).

Strategies are ranked in descending order of the score-point difference between students who reported that they sometimes or always use the strategy and those who reported otherwise.

Source: OECD, PISA 2018 Database, Table IV.B1.8.10

StatLink https://doi.org/10.1787/888934124033

Waiting until a product becomes less expensive before buying it was also associated with higher financial literacy. On average across OECD countries/economies and after accounting for student characteristics, students who reported that they wait until a product gets cheaper scored 8 points higher in the PISA 2018 financial literacy assessment than students who did not so report. Such a positive association was observed in 11 of the 20 participating countries/economies, with gaps between the two groups of students of up to 19 score points in Australia and 15 score points in the Canadian provinces (Figure IV.8.4 and Table IV.B1.8.10).

Students who reported that they buy a product without comparing prices scored 26 points below students who did not so report, on average across OECD countries/economies and after accounting for student characteristics. The decline in performance associated with using this "strategy" (or, perhaps more accurately, associated with "not using a strategy of comparison") was as large as 35 score points in Australia and Italy, and was not significant only in Georgia and Indonesia (Table IV.B1.8.10 and Figure IV.8.4).

Notes

1. Advantaged students are defined as those who fall within the top quarter of the distribution of socio-economic status in their country/economy, as measured by the PISA index of economic, social and cultural status (ESCS). Likewise, disadvantaged students are defined as those who fall within the bottom quarter of the distribution of socio-economic status in their country/economy.
2. This report only discusses differences related to immigrant status for countries/economies where at least 5% of students had an immigrant background. These countries/economies are, in decreasing order of the percentage of immigrant students: the Canadian provinces, Australia, the United States, Spain, Italy, Estonia, Serbia, Portugal, Finland and Russia. However, data for all countries/economies for which results can be statistically calculated (i.e. on the basis of at least 30 immigrant students attending at least 5 different schools) are presented in tables at the end of this volume and on line. The OECD average includes all countries for which results can be statistically calculated.
3. The remainder of this section refers to responses of "always" or "sometimes" together when discussing students who perform these actions; responses of "rarely" or "never" are referred to when discussing students do not perform these actions.

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PISA

9

What PISA 2018 financial literacy results imply for policy

Most young people already use (digital) money and financial services; soon, they will have to take decisions independently with long-term financial consequences. Results from the PISA 2018 financial literacy assessment and questionnaire show that many students, in countries and economies at all levels of economic and financial development, have room to improve their financial literacy. This chapter describes weaknesses and disparities in financial literacy, and suggests how policies and practices can address these issues.

9 What PISA 2018 financial literacy results imply for policy

Globalisation and digital technologies have made financial services and products both more complex and more widely accessible. At the same time, responsibility for many crucial financial decisions, such as investing in additional education, choosing a health plan or planning for retirement, is increasingly assumed by individuals.

From choosing mobile phone plans to deciding how to spend pocket money, financial decisions are common in the lives of young people. Young people are likely to encounter situations where they need to set their spending priorities, be aware that some items they want to buy will incur ongoing costs, and be alert that some purchasing offers are simply too good to be true. Data from PISA 2018 show that many 15-year-old students hold a bank account and/or a payment or debit card, and that in the vast majority of participating countries/economies, more than one in two students reported that they had bought something on line (either alone or with a family member) at some point during the 12 months prior to sitting the assessment.

Students' level of financial literacy today is also positively correlated with responsible self-reported behaviours in hypothetical spending situations and with confidence and positive attitudes towards money matters. This suggests that financially literate students may be more forward-looking and more likely to recognise the importance of being financially proactive. It also suggests that improving financial literacy amongst low-performing students might be one way of addressing money-related inequalities at an early stage, before they widen as students move into adulthood.

The PISA 2018 financial literacy assessment included a test of 15-year-olds' financial literacy – their understanding of financial concepts and risks, and the skills to make effective decisions and participate in economic life – and a questionnaire designed to investigate their exposure to financial education and their money-related experiences, behaviours and attitudes. The main results of the 2018 assessment were broadly consistent with the results of the 2012 and 2015 assessments, which covered a somewhat different set of countries. The questionnaire in the 2018 assessment was also more extensive than previous questionnaires, allowing for greater insight into students' financial lives. This chapter highlights some policy suggestions drawn from the results of the 2018 assessment. The suggestions reinforce and go beyond those from the previous assessments.

Many policy interventions that improve performance in the core PISA subjects (as discussed in Volumes I, II and III of of *PISA 2018 Results*) are also likely to improve performance in financial literacy; indeed, 80% of performance in financial literacy is related to performance in mathematics and reading, on average across OECD countries/economies. This section will primarily focus on interventions that target those skills that are unique to financial literacy, which explain 20% of the variation in performance across students.

Address the needs of low-performing students

Results from the PISA 2018 financial literacy assessment show that many students, in countries and economies at all levels of economic and financial development, need to improve their financial literacy.

On average across OECD countries and economies, 15% of students performed below Level 2 in financial literacy. These students displayed only basic financial literacy skills, such as identifying common financial products and terms, and interpreting information related to basic financial concepts. They might have been able to recognise the difference between needs and wants and make simple decisions on everyday spending, but they were not yet able to apply their knowledge to make financial decisions in contexts that were not immediately relevant to them, such as recognising the value of a simple budget or undertaking a simple assessment of value-for-money. Over one in three students in Brazil, Bulgaria, Georgia, Indonesia and Peru performed below Level 2; and even in the high-performing countries and economies of the Canadian provinces (British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario and Prince Edward Island), Estonia, Finland and Poland, between 5% and 10% of students scored below Level 2.

Low-performing students need support to improve their abilities to fully participate in economic life. They need to acquire the knowledge and skills that will allow them to plan for the short and long term, take into account the implications of their financial decisions for themselves and their families and for society, understand the wider financial landscape (such as knowing the purpose of income tax or insurance), and save so that they can make ends meet in periods of hardship or unexpected shocks.

At the same time, countries/economies should also try to increase the proportion of high-performing students. Only 10% of students, on average across OECD countries/economies, performed at the highest level of proficiency, Level 5. These students could analyse complex financial products and take into account their important yet often hidden or not obvious details. They are also familiar with a wide range of terms, concepts and contexts that are relevant to the financial decisions they will need to make as adults. At most 20% of students in any country/economy were proficient at Level 5; therefore, all countries/economies, at all levels of economic and financial development, have much room for improvement.

Tackle socio-economic inequalities early on

Perhaps unsurprisingly, students who scored below Level 2 were over-represented amongst socio-economically disadvantaged groups. Disadvantaged students scored roughly one proficiency level lower in the financial literacy assessment than advantaged students, on average across OECD countries/economies (467 points, near the top end of Level 2 performance, compared to 544 points, near the top end of Level 3 performance).

Financial literacy is relevant not just for those who have large sums of money to invest. Everyone needs to be financially literate, especially those who live on tight budgets and have little margin for error in case they make financial mistakes or experience external shocks; this has become especially evident during the Covid-19 crisis. Moreover, the development of digital financial services means that financial services are becoming increasingly accessible to everyone, particularly to previously excluded segments of the population and young people. Those who use these services are exposed to new forms of risk, of which they should be aware.

Although disadvantaged students are amongst the least financially literate, they might be most in need of certain types of financial knowledge and skills. Evidence from PISA 2018 shows that while over three in four students in every participating country/economy have engaged in responsible financial behaviours, such as checking that they were given the right change and checking how much money they have, in most participating countries/economies, disadvantaged students were less likely to do so than advantaged students. Disadvantaged students were significantly less likely than their advantaged peers to engage in responsible spending behaviours, such as comparing prices and waiting until a product became cheaper before they bought it.

If socio-economic disparities in skills and behaviours are not addressed early, they are likely to lead to even larger gaps in financial literacy as students become adults. Low-performing disadvantaged students need to be supported to ensure that they can safely navigate the (increasingly digital) financial system as they become more independent.

One step in this direction was observed in 9 of the 20 participating countries/economies (Bulgaria, Chile, Estonia, Italy, Lithuania, Poland, Serbia, the Slovak Republic and the United States), where students in disadvantaged schools tended to be more likely than their peers in advantaged schools to report that they are exposed to financial education in school lessons. Students in disadvantaged schools in these countries were more likely to explore ways to pay for something or to know the difference between needs and wants; they were more likely to discuss the rights of consumers when dealing with financial institutions or how money invested in the stock market changes value over time (or, at least, to have reported doing so). These school-led activities and interventions, focussed on the populations that could most benefit from them, are one way of tackling socio-economic inequalities, not only in students' financial literacy but in the real-world outcomes that result from low financial literacy and poor financial decisions.

In the same vein, policy makers should also address other inequalities that may affect students' abilities to become financially literate, such as those related to family background (specifically immigrant background), where a student lives or the type of study programme in which he or she is enrolled. In many cases, differences in financial literacy performance can be attributed largely to differences in performance in mathematics and reading, and interventions to improve skills in all subjects may be appropriate. However, there may also be a need for financial literacy-specific interventions. For example, information on financial products and practices can be prepared in a variety of languages for newly-arrived immigrant students and their families, and it may be possible to integrate financial education into vocational students' work placements.

Provide equal opportunities for learning to boys and girls

The gender gap in financial literacy performance was not significant in most countries/economies that participated in PISA 2018, as was the case in PISA 2012 and 2015. Taking into account girls' stronger performance in reading, and boys' slight advantage in mathematics performance, boys outperformed girls in tasks specific to financial literacy in most countries/economies. However, the difference between boys and girls remained relatively small – only 10 score points on average across OECD countries and economies. Furthermore, boys were over-represented amongst low performers: 14% of girls, but 16% of boys, did not attain Level 2 proficiency in financial literacy. Efforts to improve students' financial literacy should hence target both boys and girls.

In almost every participating country/economy, girls were more likely than boys to report receiving information about money matters from their parents (96% of girls versus 93% of boys, on average across OECD countries/economies). Girls also reported talking more often to their parents about their spending decisions and money for things they wanted to buy, and reported having more autonomy in their spending decisions.

However, on average, girls were less familiar with money-related terms; reported less exposure to financial education in schools; and were less confident in using digital financial services and in dealing with money matters than boys. Furthermore, girls appeared to be falling behind boys especially in the number of complex financial terms they know about, and in their ability to

complete difficult money-related tasks, both traditional and digital. In a majority of the participating countries/economies, girls were also less likely to hold an account at a financial institution and a payment/debit card, and were less likely to have engaged in digital financial activities. The digital gap was also apparent in spending behaviours: girls were more likely than boys to compare prices across different physical shops, but boys were more likely than girls to compare prices between a physical shop and an online shop.

Some of these differences might be related to disparities in how boys and girls report their experiences or in the courses and programmes they follow at school. Whatever the reason, less familiarity, confidence and financial inclusion are generally associated with lower performance in financial literacy. Thus, interventions to improve these factors may also raise proficiency in financial literacy amongst both boys and girls

Support both access to and education about safe and age-appropriate (digital) financial products

On average across OECD countries/economies, just over one in two students holds an account at a financial institution, and just under one in two students holds a payment card or a debit card. Inclusion in the financial system at an early age bodes well for financial inclusion later in life, which in turn underpins a wide range of activities necessary for being a confident and empowered citizen.

At the same time, access to a basic account or payment instrument amongst 15-year-old students remains low in many countries. Fewer than a quarter of all 15-year-old students in Georgia, Peru and Serbia hold an account at a financial institution, and fewer than a quarter of such students in Brazil, Georgia, Peru, Portugal, Serbia and Spain hold a payment/debit card. But access to accounts can be rapidly expanded. Most countries/economies that have participated in multiple PISA financial literacy assessments have made strides in improving access to basic financial services for 15-year-olds in just three or six years. In the Slovak Republic, for instance, almost twice as many students held an account at a financial institution in 2018 (50%) compared to 2012 (25%), while in the Canadian provinces, there was a more than 50 percentage-point increase in the proportion of students who held a payment/debit card between 2015 and 2018.

Digital financial transactions have become an essential and established component of everyday financial transactions; indeed, in almost every participating country/economy, a majority of students had purchased something on line (either alone or with a family member) in the 12 months prior to sitting the PISA assessment. Digital inclusion is a prerequisite to taking part in digital financial services; for young people, digital inclusion and financial inclusion are often inextricably linked.

However, on average across OECD countries/economies, one in three students was not confident using electronic devices to keep track of their balance or paying with a debit card instead of using cash; and roughly one in two students was not confident using electronic devices to transfer money or ensuring the safety of sensitive information when making an electronic payment or using online banking. Online and digital financial products carry new risks, such as concerns about security and privacy and the rapid access to credit products with hidden and potentially dangerous conditions. A lack of experience with financial services can make young people, especially those with low levels of financial literacy, more likely to be victims of scams; indeed, scams may deliberately target young people. For safe and age-sensitive digital financial inclusion, young people should be made aware of the risks in engaging in digital financial transactions, and be empowered with appropriate digital and financial skills, so that they can engage in digital financial transactions confidently and securely.

More generally, financial inclusion should be promoted within a sound financial consumer-protection framework and individuals must be equipped with sufficient skills to use financial products safely. For young people, access to financial products should be age-appropriate, with oversight by parents or guardians as necessary. For example, it is generally not considered appropriate for young people to have access to credit until they reach the required legal age, usually 18, reflecting the risks and responsibilities involved.

Reinforce financial literacy at school and at home

What students know about financial literacy depends to a large extent on their families. In Australia, Brazil, Bulgaria, Chile, Georgia, Lithuania, Peru, Portugal, the Russian Federation, the Slovak Republic and the United States, over 10% of the variation in financial literacy performance was related to students' socio-economic status, which is a reflection of parents' education and occupations, home possessions and educational resources available in the home. To some extent, socio-economically advantaged families provide their children with more opportunities to acquire financial literacy skills than disadvantaged families do.

But all parents have a role to play in developing their children's financial literacy, not only through the resources that they make available to them but also through direct engagement. Parents are amongst the most important sources through which young people can develop values, attitudes, habits, norms, knowledge and behaviours about money and finance. Indeed, over seven in

eight students in every participating country/economy reported that they receive information about money matters from their parents; and over two in three students reported that they talk to their parents about their own spending and saving decisions at least once a month.

Given their importance in their children's financial education, it is important that parents themselves are financially literate, and transmit accurate and appropriate information. Countries should continue to strengthen their initiatives targeting adults through national strategies for financial education. Targeting adults with low levels of financial literacy and disadvantaged adults can help reduce inequalities amongst those adults today, and through this transmission pathway, may contribute to reducing inequalities in the next generation.

Schools may also be a channel through which financial education can be provided. Results from PISA 2018 indicate that there is a positive correlation between financial literacy performance and students' exposure to money and learning finance-related terms at school: students who had learned about and still knew the meaning of all 18 of the terms considered in the financial literacy questionnaire (ranging in familiarity from "wage" and "budget" to "credit default swap" and "diversification") performed roughly one proficiency level higher in the assessment than students who had learned about and still knew the meaning of none of the 18 terms.

However, the correlations between financial literacy performance and other aspects of delivering financial education provided in schools was less conclusive. This may reflect the lack of standardisation in the content of the financial education that is delivered in schools, which was not addressed in the questionnaire. Most participating countries/economies have enacted national strategies for financial education, but these strategies often give regions, schools and teachers considerable discretion as to whether and how to incorporate financial education into lessons. Indeed, financial literacy has emerged only relatively recently as a relevant skill for students and society at large, and it competes with other important skills, such as global citizenship and critical thinking, to be integrated into already overcrowded school curricula and students' timetables.

The most effective way of delivering financial education to students (and, indeed, to their parents) will likely depend on the context of the country, community, education system and school. As such, evaluations of programmes, which are already being conducted in many jurisdictions, will provide useful information to policy makers as they continue to adjust and improve their national strategies. The ultimate goal of all of these programmes must be ensuring that students receive the information and support they need to make responsible and appropriate financial decisions confidently, both now and in their adult lives.

PISA

ANNEX A

PISA 2018 technical background

All figures and tables in Annex A are available on line

Annex A1: Construction of indices

Annex A2: The PISA target population, the PISA samples and the definition of schools
https://doi.org/10.1787/888934028862

Annex A3: Technical notes on the analyses in this volume

Annex A4: Quality assurance

ANNEX A1
Construction of indices

EXPLANATION OF THE INDICES

This section explains the indices derived from the PISA 2018 student, school and financial literacy questionnaires used in this volume.

Several PISA measures reflect indices that summarise responses from students, their parents, teachers or school representatives (typically principals) to a series of related questions. The questions were selected from a larger pool on the basis of theoretical considerations and previous research. The *PISA 2018 Assessment and Analytical Framework* (OECD, 2019[1]) provides an in-depth description of this conceptual framework. Item response theory modelling was used to confirm the theoretically expected behaviour of the indices and to validate their comparability across countries. For this purpose a joint model across all countries was estimated. Item fit (RMSD) was evaluated separately for each item and each group (county by language). This procedure is in line with the PISA 2015 scaling approach. For a detailed description of other PISA indices and details on the methods, see the *PISA 2015 Technical Report* (OECD; 2017) and the PISA 2018 Technical Report (OECD, forthcoming[2]).

There are three types of indices: simple indices, new scale indices and trend scale indices.

Simple indices are the variables that are constructed through the arithmetic transformation or recoding of one or more items in exactly the same way across assessments. Here, item responses are used to calculate meaningful variables, such as the recoding of the four-digit ISCO-08 codes into "Highest parents' socio-economic index (HISEI)" or teacher-student ratio based on information from the school questionnaire.

New and scale indices from other cycles: are the variables constructed through the scaling of multiple items. Unless otherwise indicated, the index was scaled using a two-parameter item-response model (a generalised partial credit model was used in the case of items with more than two categories) and values of the index correspond to Warm likelihood estimates (WLE) (Warm, 1989[3]). For details on how each scale index was constructed, see the *PISA 2018 Technical Report* (OECD, forthcoming[2]). In general, the scaling was done in two stages:

1. The item parameters were estimated based on all students from equally-weighted countries and economies; only cases with a minimum number of three valid responses to items that are part of the index were included. In the case of trend indices, a common calibration linking procedure was used: countries/economies that participated in both PISA 2009 and PISA 2018 contributed both samples to the calibration of item parameters; each cycle and, within each cycle, each country/economy contributed equally to the estimation.[1]

2. For new scale indices, the Warm likelihood estimates were then standardised so that the mean of the index value for the OECD student population was zero and the standard deviation was one (countries were given equal weight in the standardisation process).

Sequential codes were assigned to the different response categories of the questions in the sequence in which the latter appeared in the student, school or parent questionnaires. Where indicated in this section, these codes were inverted for the purpose of constructing indices or scales. Negative values for an index do not necessarily imply that students responded negatively to the underlying questions. A negative value merely indicates that the respondents answered less positively than all respondents did on average across OECD countries. Likewise, a positive value on an index indicates that the respondents answered more favourably, or more positively, on average, than respondents in OECD countries did. Terms enclosed in brackets < > in the following descriptions were replaced in the national versions of the student, school and parent questionnaires by the appropriate national equivalent. For example, the term <qualification at ISCED level 5A> was translated in the United States into "Bachelor's degree, post-graduate certificate program, Master's degree program or first professional degree program". Similarly the term <classes in the language of assessment> in Luxembourg was translated into "German classes" or "French classes", depending on whether students received the German or French version of the assessment instruments.

In addition to simple and scaled indices described in this annex, there are a number of variables from the questionnaires that were used in this volume and correspond to single items not used to construct indices. These non-recoded variables have prefix of "ST" for the questionnaire items in the student questionnaire and "SC" for the items in the school questionnaire. All the context questionnaires, and the PISA international database, including all variables, are available through www.oecd.org/pisa.

EXPLANATION OF THE INDICES

Students' age

The age of a student (AGE) was calculated as the difference between the year and month of the testing and the year and month of a student's birth. Data on a student's age were obtained from both the questionnaire (ST003) and the student tracking forms. If the month of testing was not known for a particular student, the median month for that country was used in the calculation.

Parents' level of education

Students' responses to questions ST005, ST006, ST007 and ST008 regarding their parents' education were classified using ISCED 1997 (OECD, 1999[4]). Indices on parental education were constructed by recoding educational qualifications into the following categories: (0) None, (1) <ISCED level 1> (primary education), (2) <ISCED level 2> (lower secondary), (3) <ISCED level 3B or 3C> (vocational/pre-vocational upper secondary), (4) <ISCED level 3A> (general upper secondary) and/or <ISCED level 4> (non-tertiary post-secondary), (5) <ISCED level 5B> (vocational tertiary) and (6) <ISCED level 5A> and/or <ISCED level 6> (theoretically oriented tertiary and post-graduate). Indices with these categories were provided for a student's mother (MISCED) and father (FISCED). In addition, the index of highest education level of parents (HISCED) corresponded to the higher ISCED level of either parent. The index of highest education level of parents was also recoded into estimated number of years of schooling (PARED). In PISA 2018, to avoid issues related to the misreporting of parental education by students, students' answers about post-secondary qualifications were considered only for those students who reported their parents' highest level of schooling to be at least lower secondary education. The conversion from ISCED levels to year of education is common to all countries. This international conversion was determined by using the modal years of education across countries for each ISCED level. The correspondence is available in the *PISA 2018 Technical Report* (OECD, forthcoming[2]).

Parents' highest occupational status

Occupational data for both the student's father and the student's mother were obtained from responses to open-ended questions. The responses were coded to four-digit ISCO codes (ILO, 2007) and then mapped to the international socio-economic index of occupational status (ISEI) (Ganzeboom and Treiman, 2003[5]). In PISA 2018, as in PISA 2015, the new ISCO and ISEI in their 2008 version were used rather than the 1988 versions that had been applied in the previous four cycles (Ganzeboom, 2010[6]). Three indices were calculated based on this information: father's occupational status (BFMJ2); mother's occupational status (BMMJ1); and the highest occupational status of parents (HISEI), which corresponds to the higher ISEI score of either parent or to the only available parent's ISEI score. For all three indices, higher ISEI scores indicate higher levels of occupational status. In PISA 2018, in order to reduce missing values, an ISEI value of 17 (equivalent to the ISEI value for ISCO code 9000, corresponding to the major group "Elementary Occupations") was attributed to pseudo-ISCO codes 9701, 9702 and 9703 ("Doing housework, bringing up children", "Learning, studying", "Retired, pensioner, on unemployment benefits").

Immigrant background

Information on the country of birth of the students and their parents was also collected. Included in the database are three country-specific variables relating to the country of birth of the student, mother and father (ST019). The variables are binary and indicate whether the student, mother and father were born in the country of assessment or elsewhere. The index on immigrant background (IMMIG) is calculated from these variables, and has the following categories: (1) native students (those students who had at least one parent born in the country); (2) second-generation students (those born in the country of assessment but whose parent[s] were born in another country); and (3) first-generation students (those students born outside the country of assessment and whose parents were also born in another country). Students with missing responses for either the student or for both parents were given missing values for this variable.

Language spoken at home

Students also indicated what language they usually spoke at home, and the database includes a variable (LANGN) containing country-specific code for each language. In addition, an internationally comparable variable (ST022Q01TA) was derived from this information and has the following categories: (1) language at home is same as the language of assessment for that student; (2) language at home is another language. [2]

Familiarity with concepts of finance

Students were asked whether, for each of 18 terms related to finance and economies, they had learned about the term in the 12 months prior to sitting the PISA assessment and still know its meaning (FL164). These terms were "interest payment", "compound interest", "exchange rate", "depreciation", "shares/stocks", "return on investment", "dividend", "diversification", "debit card", "bank loan", "pension plan", "budget", "wage", "entrepreneur", "central bank", "income tax", "credit default swap" and "call option". The index of familiarity with concepts of finance (FLFMLRTY) was defined as the total number of terms that students reported that they had learned about and still know the meaning of. This index can range from 0 to 18.

STUDENT-LEVEL SCALE INDICES

New scale indices

Confidence in dealing with money matters

The index of confidence in dealing with money matters (FLCONFIN) was constructed using students' responses to a new question developed for PISA 2018 (FL162). Students reported the extent to which they felt confident ("not at all confident", "not very confident", "confident", "very confident") doing the following things: making a money transfer (e.g. paying a bill); filling in forms at the bank; understanding bank statements; understanding a sales contract; keeping account of their account balance; and planning their spending in consideration of their current financial situation. Positive values on this scale mean that students expressed more confidence in dealing with money matters than did the average student across OECD countries.

Confidence in using digital financial services

The index of confidence in using digital financial services (FLCONICT) was constructed using students' responses to a new question developed for PISA 2018 (FL163). Students reported the extent to which they felt confident ("not at all confident", "not very confident", "confident", "very confident") doing the following things when using digital or electronic devices outside of a bank (e.g. at home or in shops): transferring money; keeping track of their balance; paying with a debit card instead of using cash; paying with a mobile device (e.g. mobile phone or tablet) instead of fusing cash; and ensuring the safety of sensitive information when making an electronic payment or using online banking. Positive values on this scale mean that students expressed more confidence in using digital financial services than did the average student across OECD countries/economies.

Financial education in school lessons

The index of financial education in school lesson (FLSCHOOL) was constructed using students' responses to a new question developed for PISA 2018 (FL166). Students reported how often ("never", "sometimes", "often") they encountered the following types of tasks or activities in a school lesson during the 12 months prior to sitting the PISA assessment: describing the purposes and uses of money; exploring the difference between spending money on needs and wants; exploring ways of planning to pay an expense; discussing the rights of consumers when dealing with financial institutions; discussing the ways in which money invested in the stock market changes value over time; analysing advertisements to understand how they encourage people to buy things. Positive values on this scale mean that students were more exposed to financial education in school lessons than was the average student across OECD countries/economies.

Parental involvement in matters of financial literacy

The index of parental involvement in financial literacy (FLFAMILY) was constructed using students' responses to a new question developed for PISA 2018 (FL167). Students reported how often ("never or hardly ever", "once or twice a month", "once or twice a week", "almost every day") they discussed the following matters with their parents, guardians or relatives: their spending decisions; their savings decisions; the family budget; money for things they want to buy; and news related to finance or economics. Positive values on this scale mean that students reported their parents were more involved in matters of financial literacy with them than did the average student across OECD countries/economies.

SCALING OF INDICES RELATED TO THE PISA INDEX OF ECONOMIC, SOCIAL AND CULTURAL STATUS

The PISA index of economic, social and cultural status (ESCS) was derived, as in previous cycles, from three variables related to family background: parents' highest level of education (PARED), parents' highest occupational status (HISEI), and home possessions (HOMEPOS), including books in the home. PARED and HISEI are simple indices, described above. HOMEPOS is a proxy measure for family wealth.

Household possessions

In PISA 2018, students reported the availability of 16 household items at home (ST011), including three country-specific household items that were seen as appropriate measures of family wealth within the country's context. In addition, students reported the amount of possessions and books at home (ST012, ST013). HOMEPOS is a summary index of all household and possession items (ST011, ST012 and ST013).

Computation of ESCS

For the purpose of computing the PISA index of economic, social and cultural status (ESCS), values for students with missing PARED, HISEI or HOMEPOS were imputed with predicted values plus a random component based on a regression on the other two variables. If there were missing data on more than one of the three variables, ESCS was not computed and a missing value was assigned for ESCS.

In previous cycles, the PISA index of economic, social and cultural status was derived from a principal component analysis of standardised variables (each variable has an OECD mean of zero and a standard deviation of one), taking the factor scores for the first principal component as measures of the PISA index of economic, social and cultural status. In PISA 2018, ESCS is computed by attributing equal weight to the three standardised components. As in PISA 2015, the three components were standardised across all countries and economies (both OECD and partner countries/economies), with each country/economy contributing equally (in cycles prior to 2015, the standardisation and principal component analysis was based on OECD countries only). As in every previous cycle, the final ESCS variable was transformed, with 0 the score of an average OECD student and 1 the standard deviation across equally weighted OECD countries.

SCHOOL-LEVEL SIMPLE INDICES

Socio-economic profile of schools

Advantaged and disadvantaged schools are defined in terms of the socio-economic profile of schools. All schools in each PISA-participating education system are ranked according to their average PISA index of economic, social and cultural status (ESCS) and then divided into four groups with approximately an equal number of students (quarters). Schools in the bottom quarter are referred to as "socio-economically disadvantaged schools"; and schools in the top quarter are referred to as "socio-economically advantaged schools".

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Notes

1. PISA expert groups identified a few indices that should be scaled to make index values directly comparable between PISA 2009 and PISA 2018. These indices include DISCLIMA, JOYREAD and JOYREADP. For these trend indices, a common calibration linking procedure was used. Countries/Economies that participated in both PISA 2009 and PISA 2018 contributed both samples to the calibration of item parameters. Each country/economy contributed equally to the estimation in each cycle. Trend indices were equated so that the mean and standard deviation of rescaled PISA 2009 estimates and of the original estimates included in the PISA 2009 database, across OECD countries, matched. Trend indices are therefore reported on the same scale as used in PISA 2009, so that values can be directly compared to those included in the PISA 2009 database.
2. The mapping of options provided in national versions of the student questionnaire (and recorded in variable LANGN) to the two possible values for the "International Language at Home" variable (ST022Q01TA) is the responsibility of national PISA centres. In Belgium, for students in the Flemish Community, "Flemish dialect" was considered (together with "Dutch") as equivalent to the "Language of test"; for students in the French-speaking and German-speaking community, Walloon (a French dialect) and the German dialect were considered to be equivalent to "Other language", respectively.

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ANNEX A2
The PISA target population, the PISA samples and the definition of schools

This annex discusses the PISA target population and the procedures used to select the sample that represented the target population. The information presented below is, for the most part, a summary of the information presented in Annex A2 of *PISA 2018 Results (Volume I): What Students Know and Can Do* (OECD, 2019[1]); the reader is invited to refer to that volume for more details. This annex also includes information specific to the financial literacy sample.

WHO IS THE PISA TARGET POPULATION?

PISA 2018 assessed the cumulative outcomes of education and learning at a point at which most young people are still enrolled in formal education – when they are 15 years old.

Any international survey of education must guarantee the comparability of its target population across nations. One way to do this is to assess students at the same grade level. However, differences between countries in the nature and extent of pre-primary education and care, the age at entry into formal schooling, and the institutional structure of education systems do not allow for a definition of internationally comparable grade levels.

Other international assessments have defined their target population by the grade level that provides maximum coverage of a particular age cohort. However, this method is particularly sensitive to the distribution of students across age and grade levels; small changes in this distribution can lead to the selection of different target grades, even within the same country over different PISA cycles. There also may be differences across countries in whether students who are older or younger than the desired age cohort are represented in the modal grade, further rendering such grade level-based samples difficult to compare.

To overcome these problems, PISA uses an age-based definition of its target population, one that is not tied to the institutional structures of national education systems. PISA assesses students who were aged between 15 years and 3 (complete) months and 16 years and 2 (complete) months[1] at the beginning of the assessment period, plus or minus an allowed 1-month variation, and who were enrolled in an educational institution[2] at grade 7 or higher.[3] All students who met these criteria were eligible to sit the PISA assessment, regardless of the type of educational institution in which they were enrolled and whether they were enrolled in full-time or part-time education. This also allows PISA to evaluate students shortly before they are faced with major life choices, such as whether to continue with education or enter the workforce.

Hence, PISA makes statements about the knowledge and skills of a group of individuals who were born within a comparable reference period, but who may have undergone different educational experiences both in and outside of school. These students may be distributed over different ranges of grades (both in terms of the specific grade levels and the spread in grade levels) in different countries, or in different tracks or streams within countries. It is important to consider these differences when comparing PISA results across countries. In addition, differences in performance observed when students are 15 may disappear later on if students' experiences in education converge over time.

If a country's mean scores in reading, mathematics, science or financial literacy are significantly higher than those of another country, it cannot automatically be inferred that schools or particular parts of the education system in the first country are more effective than those in the second. However, one can legitimately conclude that it is the cumulative impact of learning experiences in the first country, starting in early childhood and up to the age of 15, and including all experiences, whether they be at school, home or elsewhere, that have resulted in the better outcomes of the first country in the subjects that PISA assesses.[4]

The PISA target population does not include residents of a country who attend school in another country. It does, however, include foreign nationals who attend school in the country of assessment.

To accommodate countries that requested grade-based results for the purpose of national analyses, PISA 2018 provided a sampling option to supplement age-based sampling with grade-based sampling.

HOW WERE STUDENTS CHOSEN?

The accuracy of the results from any survey depends on the quality of the information drawn from those surveyed as well as on the sampling procedures. Quality standards, procedures, instruments and verification mechanisms were developed for PISA that ensured that national samples yielded comparable data and that the results could be compared across countries with confidence. Experts from the PISA Consortium selected the samples for most participating countries/economies and monitored the sample-selection process closely in those countries that selected their own samples.

Most PISA samples were designed as two-stage stratified samples.[5] The first stage sampled schools in which 15-year-old students may be enrolled. Schools were sampled systematically with probabilities proportional to the estimated size of their (eligible) 15-year-old population. At least 150 schools[6] were selected in each country, although the requirements for national analyses often demanded a larger sample. Replacement schools for each sampled school were simultaneously identified, in case an originally sampled school chose not to participate in PISA 2018.

The second stage of the selection process sampled students within sampled schools. Once schools were selected, a list of each sampled school's 15-year-old students was prepared. From this list, 42 students were then selected with equal probability (all 15-year-old students were selected if fewer than 42 were enrolled). The number of students who were to be sampled in a school could deviate from 42 but could not fall below 20.

Data-quality standards in PISA required minimum participation rates for schools as well as for students. These standards were established to minimise the potential for bias resulting from non-response. Indeed, it was likely that any bias resulting from non-response would be negligible – i.e. typically smaller than the sampling error – in countries that met these standards.

At least 85% of the schools initially selected to take part in the PISA assessment were required to agree to conduct the test. Where the initial response rate of schools was between 65% and 85%, however, an acceptable school-response rate could still be achieved through the use of replacement schools. Inherent in this procedure was a risk of introducing bias, if replacement schools differed from initially sampled schools along dimensions other than those considered for sampling. Participating countries were therefore encouraged to persuade as many of the schools in the original sample as possible to participate.

Schools with a student participation rate of between 25% and 50% were not considered to be participating schools, but data (from both the cognitive assessment and questionnaire) from these schools were included in the database and contributed to the various estimates. Data from schools with a student participation rate of less than 25% were excluded from the database.

In PISA 2018, two countries that participated in the financial literacy assessment – Latvia (82%) and the United States (65%) – did not meet the 85% threshold, but met the 65% threshold, amongst schools initially selected to take part in the PISA assessment. Upon replacement, the United States (76%) still failed to reach an acceptable participation rate.[7] Amongst the schools initially selected before replacement, the Netherlands (61%) did not meet the 65% school response-rate threshold, but it reached a response rate of 87% upon replacement. However, these were not considered to be major issues as, for each of these countries and economies, additional non-response analyses showed that there were limited differences between schools that did participate and the full set of schools originally drawn in the sample.[8] Data from these jurisdictions were hence considered to be largely comparable with, and were therefore reported together with, data from other countries/economies.

PISA 2018 also required that at least 80% of the students chosen within participating schools participated themselves. This threshold was calculated at the national level and did not have to be met in each participating school. Follow-up sessions were required in schools where too few students had participated in the original assessment sessions. Student-participation rates were calculated over all original schools; and also over all schools, whether original or replacement schools. Students who participated in either the original or in any follow-up assessment sessions were counted in these participation rates; those who attended only the questionnaire session were included in the international database and contributed to the statistics presented in this publication if they provided at least a description of their father's or mother's occupation.

This 80% threshold was met in every country/economy except Portugal, where only 76% of students who were sampled actually participated. The high level of non-responding students could lead to biased results, e.g. if students who did not respond were more likely to be low-performing students. This was indeed the case in Portugal, but a non-response analysis based on data from a national mathematics assessment in the country showed that the upward bias of Portugal's overall results was likely small enough to preserve comparability over time and with other countries. Data from Portugal was therefore reported along with data from the countries/economies that met this 80% student participation threshold.

Table I.A2.3, available on line, shows the response rate for students and schools, before and after replacement.

WHAT PROPORTION OF 15-YEAR-OLDS DOES PISA REPRESENT?

All countries and economies attempted to maximise the coverage of 15-year-olds enrolled in education in their national samples, including students enrolled in special-education institutions.

The sampling standards used in PISA only permitted countries to exclude up to a total of 5% of the relevant population (i.e. 15-year-old students enrolled in school at grade 7 or higher) either by excluding schools or excluding students within schools. Exclusions that should remain within the above limits include both:

- at the school level:
  - schools that were geographically inaccessible or where the administration of the PISA assessment was not considered feasible
  - schools that provided teaching only for students in the categories defined under "within-school exclusions", such as schools for the blind.

  The percentage of 15-year-olds enrolled in such schools had to be less than 2.5% of the nationally desired target population (0.5% maximum for the former group and 2% maximum for the latter group). The magnitude, nature and justification of school-level exclusions are documented in the *PISA 2018 Technical Report* (OECD, forthcoming[2]).
- at the student level:
  - schools with an intellectual disability, i.e. a mental or emotional disability resulting in the student being so cognitively delayed that he/she could not perform in the PISA testing environment
  - schools with a functional disability, i.e. a moderate to severe permanent physical disability resulting in the student being unable to perform in the PISA testing environment
  - students with limited assessment-language proficiency. These students were unable to read or speak any of the languages of assessment in the country at a sufficient level and unable to overcome such a language barrier in the PISA testing environment, and were typically students who had received less than one year of instruction in the language of assessment
  - other exclusions, a category defined by the PISA national centres in individual participating countries and approved by the PISA international consortium
  - students taught in a language of instruction for the major domain for which no materials were available.

  Students could not be excluded solely because of low proficiency or common disciplinary problems. The percentage of 15-year-olds excluded within schools had to be less than 2.5% of the national desired target population.

All countries and economies attempted to maximise the coverage of 15-year-olds enrolled in education in their national samples, including students enrolled in special-education institutions. The only countries that participated in the PISA 2018 financial literacy assessment that did not meet this 5% standard were Canada (6.87%),[9] the Netherlands (6.24%), Australia (5.72%) and Estonia (5.03%) (Table I.A2.1a, available on line). When language exclusions[10] were accounted for (i.e. removed from the overall exclusion rate), Estonia no longer had an exclusion rate greater than 5%. Although exceeding the exclusion rate limit of 5%, data from Australia and Canada were deemed to be acceptable because exclusion rates have consistently been above 5% across cycles. In particular, this reason was accepted by a data-adjudication panel to allow for the reliable comparison of PISA results across countries and across time; thus the data from these countries were reported together with data from other countries/economies. More details can be found in the *PISA 2018 Technical Report* (OECD, forthcoming[2]).

However, in the Netherlands, there was a marked increase in students who were excluded within schools due to intellectual or functional disabilities. Moreover, a large proportion of students in the Netherlands was not excluded but assigned to UH (*une heure*) booklets, which were intended for students with special education needs (Table IV.A2.1). As these booklets did not cover the domain of financial literacy, the effective exclusion rate for the Netherlands in financial literacy was roughly 20%. This resulted in a strong upward bias in the country mean and other population statistics in that domain. Data from the Netherlands in financial literacy were not comparable with data from other education systems; but data from the Netherlands in the core PISA subjects were still deemed to be largely comparable. Recourse was made to the UH booklet in only four other participating countries and economies (the Canadian provinces, Finland, the Slovak Republic and the United States). In each of these countries/economies, less than 4% of the student sample were presented with this booklet and not the financial literacy booklet. The data-adjudication panel did not judge this to significantly affect the comparison of these countries'/economies' results.

Table I.A2.1a describes the target population of the countries participating in PISA 2018. Further information on the target population and the implementation of PISA sampling standards can be found in the *PISA 2018 Technical Report* (OECD, forthcoming[2]).

The high level of coverage contributes to the comparability of the assessment results. For example, even assuming that the excluded students would have systematically scored worse than those who participated, and that this relationship is moderately strong, an exclusion rate on the order of 5% would likely lead to an overestimation of national mean scores of less than 5 score points on the PISA scale (where the standard deviation is 100 score points).[11]

DEFINITION OF SCHOOLS

In some countries, subunits within schools were sampled instead of schools, which may affect the estimate of the between-school variance. In the Netherlands, locations were listed as sampling units. In Australia, each campus of a multi-campus school was sampled independently. Some schools in Portugal were organised into clusters where all units in a cluster shared the same teachers and principal; each of these clusters constituted a single sampling unit.

SAMPLING FOR THE FINANCIAL LITERACY ASSESSMENT

All countries and economies, regardless of their participation in the financial literacy assessment, selected schools in the manner described above. However, countries/economies that participated in the financial literacy assessment sampled a larger number of students in each selected school. In this way, some students in these schools were presented with test forms that involved financial literacy booklets (along with booklets in mathematics, reading or both), while other students were presented with test forms that involved only the core subjects (mathematics, reading and science). To increase the size of the financial literacy student sample, financial literacy scores were imputed for those students who were given forms involving only mathematics and reading (forms 1 to 12); these students were then included in the financial literacy sample.

Table IV.A2.1 presents the number of students who comprised the financial literacy sample in each country/economy, and the number of 15-year-old students in each country/economy that the sample represented.

Table IV.A2.1 **Sample size for financial literacy**

		Financial literacy assessment		
		Number of participating students (unweighted)	Number of participating students (weighted)	Percentage of students sitting the une-heure booklet (%)
		(1)	(2)	(3)
OECD	Australia	9 411	256 109	0.00
	Canadian provinces	7 762	207 800	3.40
	Chile	4 485	211 928	0.00
	Estonia	4 167	11 543	0.00
	Finland	4 328	55 318	0.81
	Italy	9 182	521 823	0.00
	Latvia	3 151	15 979	0.00
	Lithuania	4 076	24 405	0.00
	Netherlands	3 042	163 127	14.11
	Poland	4 295	312 844	0.00
	Portugal	4 568	98 021	0.00
	Slovak Republic	3 411	42 575	2.83
	Spain	9 361	413 345	0.00
	United States	3 738	3 543 521	0.65
Partners	Brazil	8 311	2 045 364	0.00
	Bulgaria	4 110	47 910	0.00
	Georgia	4 321	38 431	0.00
	Indonesia	7 133	3 741 920	0.00
	Peru	4 734	425 561	0.00
	Russia	4 520	1 257 204	0.00
	Serbia	3 874	60 923	0.00

StatLink https://doi.org/10.1787/888934124052

Notes

1. More precisely, PISA assessed students who were at least 15 years and 3 complete months old and who were at most 16 years and 3 complete months old (i.e. younger than 16 years, 2 months and roughly 30 days old), with a tolerance of one month on each side of this age window. If the PISA assessment was conducted in April 2018, as was the case in most countries, all students born in 2002 would have been eligible.
2. Educational institutions are generally referred to as schools in this publication, although some educational institutions (in particular, some types of vocational education establishments) may not be referred to as schools in certain countries.
3. As might be expected from this definition, the average age of students across OECD countries was 15 years and 9 months. The range in country means was 2 months and 13 days (0.20 year), from the minimum country mean of 15 years and 8 months to the maximum country mean of 15 years and 10 months (OECD, 2019[3]).
4. Such a comparison is complicated by first-generation immigrant students, who received part of their education in a country other than the one in which they were assessed. Mean scores in any country/economy should be interpreted in the context of student demographics within that country/economy.
5. Details for countries that applied different sampling designs are documented in the *PISA 2018 Technical Report* (OECD, forthcoming[2]).
6. Due to the small size of these education systems, all schools and all eligible students within these schools were included in the samples of Brunei Darussalam, Iceland, Luxembourg, Macao (China), Malta, Montenegro and Qatar.
7. The threshold for an acceptable participation rate after replacement varies between 85% and 100%, depending on the participation rate before replacement.
8. In particular, in the case of the Netherlands, non-response bias analyses relied on direct measures of school performance external to PISA, typically from national assessments. More indirect correlates of school performance were analysed in the United States, due to the absence of national assessments.
9. Information on exclusions was available only for the entire country of Canada, not for the seven Canadian provinces that took part in the financial literacy assessment.
10. These exclusions refer only to those students with limited proficiency in the language of instruction/assessment. Exclusions related to the unavailability of test material in the language of instruction are not considered in this analysis.
11. If the correlation between the propensity of exclusions and student performance were 0.3, then resulting mean scores would likely have been overestimated by 1 score point if the exclusion rate were 1%; by 3 score points if the exclusion rate were 5%; and by 6 score points if the exclusion rate were 10%. If the correlation between the propensity of exclusions and student performance were 0.5, then resulting mean scores would likely have been overestimated by 1 score point if the exclusion rate were 1%; by 5 score points if the exclusion rate were 5%; and by 10 score points if the exclusion rate were 10%. For this calculation, a model was used that assumed a bivariate normal distribution for performance and the propensity to participate.

References

OECD (2019), *PISA 2018 Initial Report (Volume II): Where All Students Can Succeed*, PISA, OECD Publishing, Paris, https://doi.org/10.1787/b5fd1b8f-en. [3]

OECD (2019), *PISA 2018 Results (Volume I): What Students Know and Can Do*, PISA, OECD Publishing, Paris, https://dx.doi.org/10.1787/5f07c754-en. [1]

OECD (forthcoming), *PISA 2018 Technical Report*, OECD publishing. [2]


PISA

ANNEX A3
Technical notes on the analyses in this volume

STANDARD ERRORS, CONFIDENCE INTERVALS AND SIGNIFICANCE TESTS

The statistics in this report represent estimates based on samples of students, rather than values that could be calculated if every student in every country had answered every question. Consequently, it is important to measure the degree of uncertainty of the estimates. In PISA, each estimate has an associated degree of uncertainty, which is expressed through a standard error. The use of confidence intervals provides a way to make inferences about the population parameters (e.g. means and proportions) in a manner that reflects the uncertainty associated with the sample estimates. If numerous different samples were drawn from the same population, according to the same procedures as the original sample, then in 95 out of 100 samples the calculated confidence interval would encompass the true population parameter. For many parameters, sample estimators follow a normal distribution and the 95% confidence interval can be constructed as the estimated parameter, plus or minus 1.96 times the associated standard error.

In many cases, readers are primarily interested in whether a given value in a particular country is different from a second value in the same or another country, e.g. whether girls in a country perform better than boys in the same country. In the tables and figures used in this report, differences are labelled as statistically significant when a difference of that size or larger, in either direction, would be observed less than 5% of the time, if there were actually no difference in corresponding population values. Similarly, the risk of reporting an association as significant if there is, in fact, no correlation between two measures, is contained at 5%.

Throughout the report, significance tests were undertaken to assess the statistical significance of the comparisons made.

Statistical significance of gender differences and differences between subgroup means

Gender differences in student performance or other indices were tested for statistical significance. Positive differences indicate higher scores for girls while negative differences indicate higher scores for boys. Generally, differences marked in bold in the tables in this volume are statistically significant at the 95% confidence level.

Similarly, differences between other groups of students (e.g. non-immigrant students and students with an immigrant background, or socio-economically advantaged and disadvantaged students) were tested for statistical significance. The definitions of the subgroups can, in general, be found in the tables and the text accompanying the analysis. All differences marked in bold in the tables presented in Annex B of this report are statistically significant at the 95% level.

Statistical significance of differences between subgroup means, after accounting for other variables

For many tables, subgroup comparisons were performed both on the observed difference ("before accounting for other variables") and after accounting for other variables, such as the PISA index of economic, social and cultural status of students. The adjusted differences were estimated using linear regression and tested for significance at the 95% confidence level. Significant differences are marked in bold.

Statistical significance of performance differences between the top and bottom quartiles of PISA indices and scales

Differences in average performance between the top and bottom quarters of the PISA indices and scales were tested for statistical significance. Figures marked in bold indicate that performance between the top and bottom quarters of students on the respective index is statistically significantly different at the 95% confidence level.

USE OF STUDENT, SCHOOL AND TEACHER WEIGHTS

The target population in PISA is 15-year-old students, but a two-stage sampling procedure was used. After the population was defined, school samples were selected with a probability proportional to the expected number of eligible students in each school. Only in a second sampling stage were students drawn from amongst the eligible students in each selected school.

Although the student samples were drawn from within a sample of schools, the school sample was designed to optimise the resulting sample of students, rather than to give an optimal sample of schools. It is therefore preferable to analyse the school-level variables as attributes of students (e.g. in terms of the share of 15-year-old students affected), rather than as elements in their own right.

Most analyses of student and school characteristics are therefore weighted by student final weights (or their sum, in the case of school characteristics), and use student replicate weights for estimating standard errors.

In PISA 2018, as in PISA 2012 and 2015, multilevel models weights are used at both the student and school levels. The purpose of these weights is to account for differences in the probabilities of students being selected in the sample. Since PISA applies a two-stage sampling procedure, these differences are due to factors at both the school and the student levels. For the multilevel models, student final weights (W_FSTUWT) were used. Within-school weights correspond to student final weights, rescaled to amount to the sample size within each school. Between-school weights correspond to the sum of final student weights (W_FSTUWT) within each school.

ANNEX A4
Quality assurance

Quality assurance procedures were implemented in all parts of PISA 2018, as was done for all previous PISA surveys. The PISA 2018 Technical Standards (available on line at www.oecd.org/pisa/) specify the way in which PISA must be implemented in each country, economy and adjudicated region. International contractors monitor the implementation in each of these and adjudicate on their adherence to the standards.

The consistent quality and linguistic equivalence of the PISA 2018 assessment instruments were facilitated by assessing the ease with which the original English version could be translated. Two source versions of the assessment instruments, in English and French, were prepared (except for the financial literacy assessment and the operational manuals, which were provided only in English) in order for countries to conduct a double translation design, i.e. two independent translations from the source language(s), and reconciliation by a third person. Detailed instructions for the localisation (adaptation, translation and validation) of the instruments for the field trial and for their review for the main survey, and translation/adaptation guidelines were supplied. An independent team of expert verifiers, appointed and trained by the PISA Consortium, verified each national version against the English and/or French source versions. These translators' mother tongue was the language of instruction in the country concerned, and the translators were knowledgeable about education systems. For further information on PISA translation procedures, see the *PISA 2018 Technical Report* (OECD, forthcoming[1]).

The survey was implemented through standardised procedures. The PISA Consortium provided comprehensive manuals that explained the implementation of the survey, including precise instructions for the work of school co-ordinators and scripts for test administrators to use during the assessment sessions. Proposed adaptations to survey procedures, or proposed modifications to the assessment session script, were submitted to the PISA Consortium for approval prior to verification. The PISA Consortium then verified the national translation and adaptation of these manuals.

To establish the credibility of PISA as valid and unbiased and to encourage uniformity in conducting the assessment sessions, test administrators in participating countries were selected using the following criteria: it was required that the test administrator not be the reading, mathematics or science instructor of any student in the sessions he or she would conduct for PISA; and it was considered preferable that the test administrator not be a member of the staff of any school in the PISA sample. Participating countries organised an in-person training session for test administrators.

Participating countries and economies were required to ensure that test administrators worked with the school co-ordinator to prepare the assessment session, including reviewing and updating the Student Tracking Form; completing the Session Attendance Form, which is designed to record students' attendance and instruments allocation; completing the Session Report Form, which is designed to summarise session times, any disturbance to the session, etc.; ensuring that the number of test booklets and questionnaires collected from students tallied with the number sent to the school (for countries using the paper-based assessment) or ensuring that the number of USB sticks or external laptops used for the assessment were accounted for (for countries using the computer-based assessment); and sending or uploading the school questionnaire, student questionnaires, parent and teacher questionnaires (if applicable), and all test materials (both completed and not completed) to the national centre after the assessment.

The PISA Consortium responsible for overseeing survey operations implemented all phases of the PISA Quality Monitor (PQM) process: interviewing and hiring PQM candidates in each of the countries, organising their training, selecting the schools to visit, and collecting information from the PQM visits. PQMs are independent contractors located in participating countries who are hired by the international survey operations contractor. They visit a sample of schools to observe test administration and to record the implementation of the documented field-operations procedures in the main survey.

Typically, two or four PQMs were hired for each country, and they visited an average of 15 schools in each country. If there were adjudicated regions in a country, it was usually necessary to hire additional PQMs, as a minimum of five schools were observed in adjudicated regions.

Approximately one-third of test items are open-ended items in PISA. Reliable human coding is critical for ensuring the validity of assessment results within a country, as well as the comparability of assessment results across countries. Coder reliability in PISA 2018 was evaluated and reported at both within- and across-country levels. The evaluation of coder reliability was made possible by the design of multiple coding: a portion or all of the responses from each human-coded constructed-response item were coded by at least two human coders.

All quality-assurance data collected throughout the PISA 2018 assessment were entered and collated in a central data-adjudication database on the quality of field operations, printing, translation, school and student sampling, and coding. Comprehensive reports were then generated for the PISA Adjudication Group. This group was formed by the Technical Advisory Group and the Sampling Referee. Its role is to review the adjudication database and reports in order to recommend adequate treatment to preserve the quality of PISA data. For further information, see the *PISA 2018 Technical Report* (OECD, forthcoming[1]). Overall, the review suggests good adherence of national implementations of PISA to the technical standards. Despite the overall high quality of data, a few countries' data failed to meet critical standards or presented inexplicable anomalies, such that the Adjudication Group recommends a special treatment of these data in databases and/or reporting.

The major issues for adjudication discussed at the adjudication meeting that are relevant to the financial literacy assessment are listed below:

- The Netherlands missed the standard for overall exclusions by a small margin. At the same time, in the Netherlands UH booklets, intended for students with special education needs, were assigned to about 17% of the non-excluded students. Because UH booklets do not cover the domain of financial literacy, the effective exclusion rate for the financial literacy additional sample is above 20%. The fact that students that receive support for learning in school were systematically excluded from the financial literacy sample results in a strong upward bias for the country mean and other population statistics. Therefore, the Netherlands' results in financial literacy may not be comparable to those of other countries or to results for the Netherlands from previous years. The Netherlands also missed the school response rate (before replacement) by a large margin, and could only reach close to an acceptable response rate through the use of replacement schools. However, based on evidence provided in a non-response bias analysis, the Netherlands' results in reading, mathematics and science were accepted as largely comparable.
- Portugal did not meet the student-response rate standard. In Portugal, response rates dropped between 2015 and 2018. A student-non-response-bias analysis was submitted, investigating bias amongst students in grades 9 and above. Students in grades 7 and 8 represented about 11% of the total sample, but 20% of the non-respondents. A comparison of the linked responding and non-responding cases, using sampling weights, revealed that non-respondents tended to score about one-third of a standard deviation below respondents on the national mathematics examination (implying a "raw" upward bias of about 10% of a standard deviation on population statistics that are based on respondents only). At the same time, a significant proportion of the performance differences could be accounted for by variables considered in non-response adjustments (including grade level). Nevertheless, a residual upward bias in population statistics remained, even when using non-response adjusted weights. The non-response bias analysis therefore implies a small upward bias for PISA 2018 performance results in Portugal. The Adjudication Group also considered that trend comparisons and performance comparisons with other countries may not be particularly affected, because an upward bias of that size cannot be excluded even in countries that met the response-rate standard or for previous cycles of PISA. Therefore, Portugal's results are reported with an annotation.

While the adjudication group did not consider the violation of response-rate standards by the United States (see Annex A2) as a major adjudication issue, they noted several limitations in the data used in non-response-bias analyses submitted by the United States. In consideration of the lower response rates, compared to other countries, the data for the United States are reported with an annotation.

In Spain, while no major standard violation was identified, subsequent data analyses identified sub-optimal response behaviours of some students. This was especially evident in the reading-fluency items. The reporting of Spain's reading performance will be deferred as this issue will be further investigated.

ANNEX B

PISA 2018 Data

All tables in Annex B are available on line

Annex B1: Results for countries and economies
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https://doi.org/10.1787/888934124090

https://doi.org/10.1787/888934124109

https://doi.org/10.1787/888934124128

https://doi.org/10.1787/888934124147

https://doi.org/10.1787/888934124166

https://doi.org/10.1787/888934124185

https://doi.org/10.1787/888934124204

ANNEX B1
Results for countries and economies

Table IV.B1.1.1 [1/2] **Young people and adults engaged in basic financial activities**

		Young people: 16-24 year-olds											
		Percentage of young people who reported that they do/did the following at least once a week in their job or last job[1]						Percentage of young people who reported that they do the following at least once a week in their daily lives					
		Read bills, invoices, bank statements or other financial statements		Calculate prices, costs or budgets		Conduct transactions on the Internet, for example buying or selling products or services, or banking		Read bills, invoices, bank statements or other financial statements		Calculate prices, costs or budgets		Conduct transactions on the Internet, for example buying or selling products or services, or banking	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	29.1	(2.0)	47.5	(2.2)	13.9	(1.7)	41.2	(1.8)	52.9	(1.8)	46.2	(2.3)
	Canada	26.5	(1.3)	39.8	(1.4)	10.1	(0.8)	29.4	(1.2)	45.8	(1.2)	32.6	(1.2)
	Chile	21.4	(2.1)	42.5	(3.3)	9.9	(1.9)	12.6	(1.5)	37.1	(2.4)	15.0	(1.6)
	Estonia	25.1	(1.4)	28.4	(1.7)	14.2	(1.2)	22.0	(1.1)	41.4	(1.4)	35.6	(1.2)
	Finland	22.4	(1.7)	28.5	(1.8)	6.8	(0.9)	33.5	(1.4)	54.3	(1.6)	37.6	(1.6)
	Italy	15.3	(2.9)	25.9	(3.5)	6.4	(1.9)	7.5	(1.4)	32.2	(2.4)	8.9	(1.4)
	Latvia	25.0	(3.0)	28.2	(2.9)	9.3	(2.0)	8.4	(1.1)	42.5	(2.4)	22.2	(2.1)
	Lithuania	17.3	(1.5)	26.9	(1.8)	8.7	(1.1)	43.0	(1.6)	29.7	(1.6)	43.4	(1.9)
	Poland	29.8	(1.1)	26.0	(1.0)	10.8	(0.7)	15.0	(0.6)	38.6	(1.2)	20.8	(0.8)
	Slovak Republic	25.5	(2.2)	34.1	(2.4)	10.8	(1.6)	14.7	(1.1)	43.5	(1.7)	16.5	(1.4)
	Spain	20.7	(1.9)	32.9	(2.3)	5.8	(1.4)	18.8	(1.3)	42.4	(1.5)	9.6	(1.0)
	United States*	20.5	(2.2)	35.6	(2.2)	20.1	(1.9)	35.3	(2.7)	53.8	(2.4)	40.0	(2.1)
Partners	Peru	23.2	(1.7)	45.0	(2.0)	8.0	(0.9)	12.5	(0.9)	41.8	(1.5)	9.0	(0.8)
	Russia	29.1	(2.2)	31.6	(2.0)	10.2	(1.4)	13.9	(1.5)	26.4	(2.7)	7.0	(0.8)

1. These columns consider only those who have ever held a job.

Notes: The sample for the Russian Federation (Russia) does not include the population of the Moscow municipal area. The data published, therefore, do not represent the entire resident population aged 16-65 in Russia but rather the population of Russia excluding the population residing in the Moscow municipal area. More detailed information regarding the data from Russia as well as that of other countries can be found in the Technical Report of the Survey of Adult Skills.

Data come from the most recent year in which the PIAAC assessment was conducted in each country. Australia, Canada, Estonia, Finland, Italy, Poland, the Slovak Republic, Spain and Russia conducted the PIAAC assessment in its first cycle, between 2011 and 2012. Chile and Lithuania conducted the PIAAC assessment in its second cycle, between 2014 and 2015. Peru and the United States conducted the PIAAC assessment in its third cycle, in 2017. (The United States also conducted the first cycle of the PIAAC assessment.)

Source: OECD, Survey of Adult Skills (PIAAC) (2012, 2015, 2017), http://www.oecd.org/skills/piaac/

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Table IV.B1.1.1 [2/2] **Young people and adults engaged in basic financial activities**

		Adults: 16-65 year-olds											
		Percentage of adults who reported that they do/did the following at least once a week in their job or last job						Percentage of adults who reported that they do the following at least once a week in their daily lives					
		Read bills, invoices, bank statements or other financial statements		Calculate prices, costs or budgets		Conduct transactions on the Internet, for example buying or selling products or services, or banking		Read bills, invoices, bank statements or other financial statements		Calculate prices, costs or budgets		Conduct transactions on the Internet, for example buying or selling products or services, or banking	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	42.2	(0.8)	45.7	(0.7)	24.8	(0.8)	61.6	(0.7)	51.8	(0.7)	48.1	(0.8)
	Canada	36.4	(0.6)	39.4	(0.6)	19.5	(0.5)	54.5	(0.5)	46.8	(0.5)	40.5	(0.5)
	Chile	28.4	(1.8)	41.8	(1.9)	17.3	(1.4)	24.1	(1.4)	37.4	(1.2)	18.7	(1.7)
	Estonia	36.6	(0.6)	29.4	(0.7)	24.2	(0.6)	24.2	(0.5)	44.5	(0.6)	34.1	(0.6)
	Finland	32.0	(0.6)	32.0	(0.7)	19.9	(0.5)	50.5	(0.6)	41.9	(0.6)	47.3	(0.6)
	Italy	22.2	(0.8)	32.0	(1.0)	10.7	(0.6)	24.9	(1.0)	32.5	(1.4)	10.5	(0.6)
	Latvia	26.2	(0.8)	27.5	(0.8)	12.6	(0.7)	11.3	(0.6)	40.2	(1.2)	18.0	(0.8)
	Lithuania	30.5	(0.7)	27.9	(0.7)	19.4	(0.6)	58.2	(0.7)	19.3	(0.7)	51.0	(0.8)
	Poland	34.1	(0.8)	27.0	(0.9)	14.1	(0.7)	23.3	(0.6)	41.0	(0.7)	19.1	(0.5)
	Slovak Republic	30.3	(0.9)	35.9	(0.9)	16.3	(0.6)	23.1	(0.8)	41.9	(0.8)	17.9	(0.6)
	Spain	30.0	(0.8)	33.8	(0.7)	11.0	(0.5)	49.6	(0.9)	43.0	(0.8)	13.5	(0.5)
	United States	33.0	(1.0)	38.1	(0.9)	25.9	(0.9)	58.7	(0.9)	54.9	(1.0)	49.5	(0.9)
Partners	Peru	19.5	(0.6)	43.4	(0.9)	7.1	(0.3)	11.8	(0.4)	40.1	(0.8)	7.0	(0.3)
	Russia	26.5	(1.0)	29.0	(0.9)	6.0	(0.6)	12.6	(1.4)	29.4	(2.1)	4.6	(0.5)

1. These columns consider only those who have ever held a job.

Notes: The sample for the Russian Federation (Russia) does not include the population of the Moscow municipal area. The data published, therefore, do not represent the entire resident population aged 16-65 in Russia but rather the population of Russia excluding the population residing in the Moscow municipal area. More detailed information regarding the data from Russia as well as that of other countries can be found in the Technical Report of the Survey of Adult Skills.

Data come from the most recent year in which the PIAAC assessment was conducted in each country. Australia, Canada, Estonia, Finland, Italy, Poland, the Slovak Republic, Spain and Russia conducted the PIAAC assessment in its first cycle, between 2011 and 2012. Chile and Lithuania conducted the PIAAC assessment in its second cycle, between 2014 and 2015. Peru and the United States conducted the PIAAC assessment in its third cycle, in 2017. (The United States also conducted the first cycle of the PIAAC assessment.)

Source: OECD, Survey of Adult Skills (PIAAC) (2012, 2015, 2017), http://www.oecd.org/skills/piaac/

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Table IV.B1.2.1 **Mean financial literacy scores in 2012, 2015 and 2018**

		Financial literacy performance, by PISA cycle						Change in financial literacy performance between PISA 2018 and...			
		PISA 2012		PISA 2015		PISA 2018		PISA 2012 (PISA 2018- PISA 2012)		PISA 2015 (PISA 2018- PISA 2015)	
		Mean score	S.E.	Mean score	S.E	Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.
OECD	Australia	526	(2.1)	504	(1.9)	511	(2.1)	**-15**	(6.3)	7	(9.8)
	Canadian provinces	m	m	533	(4.6)	532	(3.2)	m	m	-1	(10.9)
	Chile	m	m	432	(3.7)	451	(2.9)	m	m	19	(10.5)
	Estonia	529	(3.0)	m	m	547	(2.0)	**18**	(6.6)	m	m
	Finland	m	m	m	m	537	(2.4)	m	m	m	m
	Italy	466	(2.1)	483	(2.8)	476	(2.5)	10	(6.4)	-7	(10.1)
	Latvia	501	(3.3)	m	m	501	(1.8)	1	(6.7)	m	m
	Lithuania	m	m	449	(3.1)	498	(1.8)	m	m	**50**	(10.0)
	Poland	510	(3.7)	485	(3.0)	520	(2.5)	9	(7.1)	**34**	(10.2)
	Portugal*	m	m	m	m	505	(2.4)	m	m	m	m
	Slovak Republic	470	(4.9)	445	(4.5)	481	(2.3)	11	(7.7)	**36**	(10.7)
	Spain	484	(3.2)	469	(3.2)	492	(2.2)	8	(6.8)	**24**	(10.1)
	United States*	492	(4.9)	487	(3.8)	506	(3.3)	14	(8.1)	18	(10.7)
	OECD average	81.8	(1.1)	5.8	(0.6)	2.7	(0.4)	55.4	(3.3)	68.1	(2.9)
	OECD average - 2012	497	(1.2)	m	m	504	(0.8)	7	(5.8)	m	m
	OECD average - 2015	m	m	476	(1.2)	496	(0.9)	m	m	20	(9.5)
Partners	Brazil	m	m	393	(3.8)	420	(2.3)	m	m	27	(10.4)
	Bulgaria	m	m	m	m	432	(4.1)	m	m	m	m
	Georgia	m	m	m	m	403	(2.6)	m	m	m	m
	Indonesia	m	m	m	m	388	(3.2)	m	m	m	m
	Peru	m	m	403	(3.4)	411	(3.2)	m	m	8	(10.5)
	Russia	486	(3.7)	512	(3.3)	495	(2.9)	9	(7.3)	-17	(10.4)
	Serbia	m	m	m	m	444	(2.9)	m	m	m	m
	Average all countries/ economies	m	m	m	m	478	(0.6)	m	m	m	m
	Netherlands**	m	m	509	(3.3)	558	(2.6)	m	m	**49**	(10.3)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

StatLink https://doi.org/10.1787/888934124090

Table IV.B1.2.2 **Top performers in financial literacy, mathematics and reading**

		Percentage of students who were:								Percentage of top performers in financial literacy who were also top performers in...			
		Not top performers in any of the three subjects		Top performers in at least one subject, but not in financial literacy		Top performers in financial literacy, but not in any of the other subjects assessed		Top performers in financial literacy and in at least one other subject		Mathematics		Reading	
		%	S.E.	%	S.E	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	79.2	(0.6)	6.7	(0.5)	4.0	(0.3)	10.1	(0.5)	52.5	(1.9)	56.6	(2.1)
	Canadian provinces	74.0	(1.4)	9.3	(0.8)	3.7	(0.5)	13.0	(1.1)	60.0	(2.8)	62.6	(2.5)
	Chile	95.3	(0.5)	1.7	(0.3)	1.4	(0.3)	1.6	(0.3)	33.7	(6.1)	39.6	(6.8)
	Estonia	74.5	(1.0)	6.5	(0.7)	5.1	(0.5)	13.9	(0.8)	58.4	(2.4)	54.8	(2.5)
	Finland	75.0	(1.0)	5.2	(0.5)	6.9	(0.5)	13.0	(0.8)	46.0	(2.7)	51.1	(2.2)
	Italy	87.7	(1.0)	7.8	(0.6)	0.9	(0.2)	3.6	(0.5)	73.1	(4.9)	43.5	(5.3)
	Latvia	88.8	(0.7)	5.2	(0.5)	1.3	(0.3)	4.8	(0.5)	73.1	(4.0)	48.8	(5.8)
	Lithuania	88.2	(0.8)	4.1	(0.6)	2.4	(0.4)	5.3	(0.5)	60.8	(3.7)	39.6	(4.6)
	Poland	78.9	(1.1)	9.3	(0.9)	2.0	(0.3)	9.8	(0.8)	73.9	(3.2)	57.9	(3.5)
	Portugal*	83.7	(0.9)	8.0	(0.6)	1.7	(0.4)	6.6	(0.6)	69.6	(4.3)	52.5	(4.7)
	Slovak Republic	86.7	(0.8)	6.2	(0.5)	1.6	(0.4)	5.6	(0.6)	71.1	(5.4)	39.2	(4.2)
	Spain	c	m	m	m	m	m	m	m	52.5	(4.1)	m	m
	United States*	81.8	(1.1)	5.8	(0.6)	2.7	(0.4)	9.7	(0.9)	55.4	(3.3)	68.1	(2.9)
	OECD average	81.8	(1.1)	5.8	(0.6)	2.7	(0.4)	9.7	(0.9)	55.4	(3.3)	68.1	(2.9)
Partners	Brazil	96.9	(0.4)	1.2	(0.2)	1.0	(0.3)	1.0	(0.2)	29.9	(6.2)	40.8	(5.5)
	Bulgaria	94.0	(0.8)	3.6	(0.5)	0.7	(0.2)	1.7	(0.3)	62.3	(5.9)	42.2	(7.2)
	Georgia	98.5	(0.3)	0.8	(0.2)	0.3	(0.1)	0.4	(0.1)	55.6	(11.0)	14.8	(8.5)
	Indonesia	99.4	(0.2)	0.3	(0.1)	0.1	(0.1)	0.2	(0.1)	67.4	(16.4)	9.1	(9.3)
	Peru	97.9	(0.3)	0.7	(0.2)	0.6	(0.2)	0.8	(0.2)	39.9	(9.5)	39.1	(8.3)
	Russia	88.2	(0.9)	5.5	(0.6)	1.7	(0.3)	4.5	(0.5)	64.3	(3.9)	43.7	(3.9)
	Serbia	93.1	(0.6)	4.4	(0.5)	0.6	(0.2)	1.9	(0.3)	70.6	(6.3)	40.7	(7.0)
	Average all countries/ economies	87.5	(0.2)	4.8	(0.1)	2.0	(0.1)	5.6	(0.1)	58.5	(1.4)	44.5	(1.3)
	Netherlands**	67.7	(1.3)	3.7	(0.5)	8.9	(0.8)	19.8	(1.0)	63.5	(2.4)	33.9	(2.3)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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Table IV.B1.2.3 **Low performers in financial literacy, mathematics and reading**

		Percentage of students who were:								Percentage of low performers in financial literacy who were also low performers in...			
		Not low performers in any of the three subjects		Low performers in at least one subject, but not in financial literacy		Low performers in financial literacy, but not in any of the other subjects assessed		Low performers in financial literacy and in at least one other subject		Mathematics		Reading	
		%	S.E.	%	S.E	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	71.5	(0.8)	12.9	(0.5)	1.5	(0.2)	14.1	(0.7)	81.3	(1.6)	71.5	(1.8)
	Canadian provinces	79.8	(1.0)	11.4	(0.9)	1.0	(0.2)	7.8	(0.6)	76.5	(3.1)	73.3	(3.6)
	Chile	45.9	(1.4)	24.0	(1.1)	0.6	(0.2)	29.6	(1.3)	96.6	(0.8)	76.0	(2.0)
	Estonia	83.9	(0.8)	10.8	(0.6)	0.4	(0.2)	4.9	(0.5)	76.9	(4.6)	81.4	(4.6)
	Finland	80.6	(0.9)	9.4	(0.6)	0.9	(0.2)	9.0	(0.6)	79.4	(2.5)	74.7	(3.1)
	Italy	66.3	(1.2)	12.8	(0.7)	3.0	(0.4)	17.9	(0.9)	74.4	(2.4)	70.1	(2.5)
	Latvia	73.0	(1.1)	16.4	(0.9)	0.8	(0.2)	9.8	(0.7)	81.0	(3.1)	80.4	(3.0)
	Lithuania	68.6	(1.0)	17.2	(0.9)	0.7	(0.2)	13.5	(0.8)	87.2	(2.1)	86.1	(2.2)
	Poland	78.7	(1.0)	11.8	(0.7)	1.2	(0.2)	8.4	(0.7)	76.6	(3.8)	71.1	(3.3)
	Portugal*	72.2	(1.2)	13.8	(0.8)	0.7	(0.2)	13.2	(0.9)	89.2	(1.9)	82.2	(2.7)
	Slovak Republic	63.9	(1.1)	14.9	(0.9)	2.2	(0.4)	19.0	(1.0)	74.9	(2.9)	80.2	(2.2)
	Spain	m	m	m	m	m	m	m	m	80.3	(2.0)	m	m
	United States*	69.8	(1.4)	14.3	(0.9)	0.9	(0.3)	15.0	(0.9)	90.5	(2.0)	74.5	(3.0)
	OECD average	71.2	(0.3)	14.1	(0.2)	1.2	(0.1)	13.5	(0.2)	81.9	(0.7)	76.8	(0.8)
Partners	Brazil	29.6	(1.0)	26.8	(0.8)	0.5	(0.1)	43.1	(1.0)	98.0	(0.3)	87.3	(0.8)
	Bulgaria	43.1	(1.7)	18.4	(1.0)	1.9	(0.4)	36.6	(1.9)	84.6	(1.4)	88.4	(1.4)
	Georgia	28.1	(1.2)	22.1	(0.9)	1.1	(0.2)	48.6	(1.2)	92.1	(1.0)	92.2	(0.8)
	Indonesia	21.8	(1.4)	20.7	(1.1)	1.0	(0.3)	56.5	(1.7)	94.8	(0.8)	94.1	(0.8)
	Peru	33.6	(1.3)	20.0	(1.0)	1.0	(0.2)	45.5	(1.5)	95.1	(0.6)	89.8	(0.8)
	Russia	70.7	(1.5)	14.9	(0.9)	1.2	(0.2)	13.2	(1.1)	81.8	(2.1)	77.4	(2.3)
	Serbia	51.1	(1.6)	15.7	(0.8)	2.2	(0.4)	31.0	(1.5)	85.1	(1.3)	81.0	(1.5)
	Average all countries/ economies	59.6	(0.3)	16.2	(0.2)	1.2	(0.1)	23.0	(0.3)	84.8	(0.5)	80.6	(0.6)
	Netherlands**	78.7	(1.0)	13.4	(1.0)	0.5	(0.2)	7.5	(0.7)	70.8	(5.2)	88.8	(2.7)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.2.4[1/5] **Change over time in students' proficiency in financial literacy**

		Proficiency levels in PISA 2012											
		Below Level 1 (below 325.57 score points)		Level 1 (from 325.57 to less than 400.33 score points)		Level 2 (from 400.33 to less than 475.10 score points)		Level 3 (from 475.10 to less than 549.86 score points)		Level 4 (from 549.86 to less than 624.63 score points)		Level 5 (at or above 624.63 score points)	
		%	S.E.	%	S.E	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	2.8	(0.4)	7.5	(0.7)	19.4	(1.3)	29.4	(1.2)	24.9	(1.0)	16.0	(0.8)
	Canadian provinces	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	0.6	(0.3)	4.7	(0.8)	19.1	(1.5)	36.0	(2.1)	28.3	(2.0)	11.3	(1.2)
	Finland	m	m	m	m	m	m	m	m	m	m	m	m
	Italy	6.5	(0.6)	15.2	(0.7)	29.5	(1.0)	31.7	(0.9)	14.9	(0.8)	2.1	(0.3)
	Latvia	1.7	(0.7)	7.9	(1.3)	26.8	(1.8)	36.2	(2.1)	22.7	(1.9)	4.6	(0.9)
	Lithuania	m	m	m	m	m	m	m	m	m	m	m	m
	Poland	1.3	(0.4)	8.5	(1.1)	23.2	(1.7)	34.2	(1.8)	25.6	(1.8)	7.2	(1.0)
	Portugal*	m	m	m	m	m	m	m	m	m	m	m	m
	Slovak Republic	9.5	(1.3)	13.3	(1.7)	26.5	(2.1)	28.1	(1.9)	16.9	(1.6)	5.7	(1.0)
	Spain	4.0	(0.7)	12.6	(1.1)	26.4	(1.6)	34.6	(1.6)	18.6	(1.5)	3.8	(0.9)
	United States*	5.2	(1.0)	12.6	(1.5)	26.2	(1.8)	27.1	(1.8)	19.4	(1.8)	9.4	(1.2)
	OECD average	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average - 2012	3.9	(0.3)	10.3	(0.4)	24.6	(0.6)	32.2	(0.6)	21.4	(0.6)	7.5	(0.3)
	OECD average - 2015	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Brazil	m	m	m	m	m	m	m	m	m	m	m	m
	Bulgaria	m	m	m	m	m	m	m	m	m	m	m	m
	Georgia	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m
	Peru	m	m	m	m	m	m	m	m	m	m	m	m
	Russia	4.4	(0.7)	12.3	(1.4)	25.4	(1.5)	33.1	(1.7)	20.5	(1.6)	4.3	(0.8)
	Serbia	m	m	m	m	m	m	m	m	m	m	m	m
	Average all countries/ economies	m	m	m	m	m	m	m	m	m	m	m	m
	Netherlands**	m	m	m	m	m	m	m	m	m	m	m	m

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.2.4[2/5] **Change over time in students' proficiency in financial literacy**

		Proficiency levels in PISA 2015											
		Below Level 1 (below 325.57 score points)		Level 1 (from 325.57 to less than 400.33 score points)		Level 2 (from 400.33 to less than 475.10 score points)		Level 3 (from 475.10 to less than 549.86 score points)		Level 4 (from 549.86 to less than 624.63 score points)		Level 5 (at or above 624.63 score points)	
		%	S.E.	%	S.E	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	8.0	(0.3)	11.7	(0.4)	19.0	(0.5)	24.4	(0.5)	21.5	(0.5)	15.4	(0.6)
	Canadian provinces	4.4	(0.6)	8.3	(0.7)	17.1	(0.9)	24.5	(0.8)	23.9	(1.1)	21.8	(1.2)
	Chile	16.1	(1.0)	22.0	(1.0)	26.5	(1.0)	21.8	(0.8)	10.5	(0.8)	3.1	(0.4)
	Estonia	m	m	m	m	m	m	m	m	m	m	m	m
	Finland	m	m	m	m	m	m	m	m	m	m	m	m
	Italy	5.8	(0.7)	14.0	(0.8)	25.2	(0.9)	29.3	(0.9)	19.2	(0.8)	6.5	(0.5)
	Latvia	m	m	m	m	m	m	m	m	m	m	m	m
	Lithuania	12.1	(0.9)	19.4	(0.8)	27.3	(0.9)	24.8	(0.9)	12.6	(0.8)	3.7	(0.5)
	Poland	6.5	(0.6)	13.6	(0.8)	24.5	(0.8)	28.4	(0.9)	19.0	(0.8)	8.0	(0.8)
	Portugal*	m	m	m	m	m	m	m	m	m	m	m	m
	Slovak Republic	16.3	(1.0)	18.3	(0.9)	23.6	(1.0)	22.0	(0.7)	13.4	(1.1)	6.3	(0.6)
	Spain	9.0	(0.7)	15.7	(0.7)	25.9	(0.8)	27.3	(0.9)	16.4	(0.7)	5.6	(0.5)
	United States*	7.0	(0.7)	14.5	(0.8)	23.3	(0.9)	25.7	(1.1)	19.2	(0.9)	10.2	(0.7)
	OECD average	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average - 2012	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average - 2015	9.5	(0.3)	15.3	(0.3)	23.6	(0.3)	25.4	(0.3)	17.3	(0.3)	9.0	(0.2)
Partners	Brazil	29.1	(1.2)	24.3	(0.7)	22.2	(0.6)	14.8	(0.7)	7.1	(0.5)	2.6	(0.4)
	Bulgaria	m	m	m	m	m	m	m	m	m	m	m	m
	Georgia	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m
	Peru	24.3	(1.1)	24.0	(0.9)	25.8	(0.9)	17.9	(0.9)	6.9	(0.6)	1.2	(0.2)
	Russia	2.2	(0.3)	8.7	(0.8)	22.7	(1.1)	32.2	(1.0)	23.6	(1.0)	10.5	(0.9)
	Serbia	m	m	m	m	m	m	m	m	m	m	m	m
	Average all countries/ economies	m	m	m	m	m	m	m	m	m	m	m	m
	Netherlands**	7.2	(0.9)	12.0	(0.7)	18.5	(1.0)	23.0	(0.9)	21.8	(0.9)	17.5	(0.8)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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Table IV.B1.2.4[3/5] **Change over time in students' proficiency in financial literacy**

		Proficiency levels in PISA 2018											
		Below Level 1 (below 325.57 score points)		Level 1 (from 325.57 to less than 400.33 score points)		Level 2 (from 400.33 to less than 475.10 score points)		Level 3 (from 475.10 to less than 549.86 score points)		Level 4 (from 549.86 to less than 624.63 score points)		Level 5 (at or above 624.63 score points)	
		%	S.E.	%	S.E	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	4.6	(0.3)	11.0	(0.6)	20.2	(0.7)	26.9	(0.6)	23.2	(0.7)	14.1	(0.6)
	Canadian provinces	1.8	(0.3)	7.1	(0.6)	18.1	(1.0)	29.3	(0.9)	27.0	(1.0)	16.7	(1.3)
	Chile	9.7	(0.7)	20.4	(1.1)	29.4	(1.1)	24.8	(1.0)	12.6	(0.8)	3.0	(0.4)
	Estonia	0.7	(0.2)	4.7	(0.5)	15.1	(0.7)	29.3	(1.0)	31.2	(0.9)	19.0	(0.9)
	Finland	2.4	(0.3)	7.6	(0.5)	17.0	(0.7)	26.4	(0.8)	26.8	(0.9)	19.9	(0.9)
	Italy	5.9	(0.5)	15.0	(0.8)	26.5	(1.0)	30.8	(0.9)	17.3	(0.9)	4.5	(0.5)
	Latvia	1.5	(0.4)	9.1	(0.8)	26.3	(0.9)	35.6	(1.2)	21.4	(0.9)	6.1	(0.6)
	Lithuania	2.7	(0.4)	11.5	(0.7)	25.5	(1.1)	30.9	(1.2)	21.7	(1.0)	7.7	(0.6)
	Poland	1.7	(0.3)	7.9	(0.6)	21.1	(0.8)	32.0	(0.9)	25.6	(1.0)	11.8	(1.0)
	Portugal*	3.0	(0.4)	10.9	(0.8)	20.8	(0.9)	31.6	(1.1)	25.4	(1.1)	8.3	(0.7)
	Slovak Republic	6.2	(0.6)	15.0	(0.9)	25.2	(1.1)	28.1	(1.0)	18.3	(1.1)	7.2	(0.7)
	Spain	3.6	(0.4)	11.3	(0.7)	25.5	(0.8)	32.7	(0.9)	21.0	(0.9)	5.7	(0.5)
	United States*	3.9	(0.4)	12.0	(0.8)	22.0	(1.1)	27.5	(1.2)	22.1	(1.0)	12.4	(1.0)
	OECD average	3.7	(0.1)	11.0	(0.2)	22.5	(0.3)	29.7	(0.3)	22.6	(0.3)	10.5	(0.2)
	OECD average - 2012	3.5	(0.1)	10.8	(0.3)	22.7	(0.3)	30.4	(0.3)	22.5	(0.3)	10.1	(0.3)
	OECD average - 2015	4.5	(0.2)	12.4	(0.3)	23.7	(0.3)	29.2	(0.3)	21.0	(0.3)	9.2	(0.3)
Partners	Brazil	17.0	(0.7)	26.6	(0.9)	27.7	(0.7)	18.8	(0.6)	8.0	(0.6)	1.9	(0.4)
	Bulgaria	15.7	(1.4)	22.8	(1.1)	26.6	(1.2)	22.1	(1.2)	10.4	(0.8)	2.4	(0.4)
	Georgia	20.9	(1.0)	28.9	(0.9)	27.5	(1.0)	16.8	(0.9)	5.2	(0.5)	0.7	(0.2)
	Indonesia	22.7	(1.4)	34.7	(1.3)	27.7	(1.3)	12.0	(1.1)	2.5	(0.5)	0.3	(0.1)
	Peru	20.0	(1.1)	26.5	(1.0)	27.4	(1.0)	18.2	(0.8)	6.6	(0.6)	1.4	(0.2)
	Russia	3.3	(0.5)	11.1	(0.8)	24.6	(1.1)	33.5	(1.2)	21.2	(1.0)	6.3	(0.7)
	Serbia	11.4	(1.0)	21.8	(1.1)	28.8	(1.1)	24.4	(1.0)	11.2	(0.7)	2.5	(0.4)
	Average all countries/ economies	7.9	(0.2)	15.8	(0.2)	24.2	(0.2)	26.6	(0.2)	17.9	(0.2)	7.6	(0.1)
	Netherlands**	1.4	(0.3)	6.5	(0.6)	14.5	(0.8)	22.7	(1.0)	26.2	(1.2)	28.7	(1.2)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.2.4[4/5] **Change over time in students' proficiency in financial literacy**

		Change between 2012 and 2018 (PISA 2018 - PISA 2012)											
		Below Level 1 (below 325.57 score points)		Level 1 (from 325.57 to less than 400.33 score points)		Level 2 (from 400.33 to less than 475.10 score points)		Level 3 (from 475.10 to less than 549.86 score points)		Level 4 (from 549.86 to less than 624.63 score points)		Level 5 (at or above 624.63 score points)	
		%	S.E.	%	S.E	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	**1.8**	(0.6)	**3.5**	(1.1)	0.8	(1.5)	-2.6	(1.3)	-1.7	(1.4)	-1.9	(1.9)
	Canadian provinces	m	m	m	m	m	m	m	m	m	m	m	m
	Chile	m	m	m	m	m	m	m	m	m	m	m	m
	Estonia	0.1	(0.4)	0.0	(1.0)	**-4.0**	(1.8)	**-6.7**	(2.6)	2.9	(2.3)	**7.7**	(3.7)
	Finland	m	m	m	m	m	m	m	m	m	m	m	m
	Italy	-0.7	(0.9)	-0.2	(1.3)	-3.1	(1.6)	-0.9	(1.3)	2.4	(2.7)	**2.4**	(0.8)
	Latvia	-0.3	(0.8)	1.2	(1.9)	-0.4	(2.7)	-0.6	(2.5)	-1.3	(3.1)	1.4	(1.3)
	Lithuania	m	m	m	m	m	m	m	m	m	m	m	m
	Poland	0.4	(0.5)	-0.6	(1.5)	-2.1	(2.2)	-2.2	(2.0)	-0.1	(2.5)	**4.6**	(2.3)
	Portugal*	m	m	m	m	m	m	m	m	m	m	m	m
	Slovak Republic	**-3.3**	(1.5)	1.6	(2.4)	-1.3	(2.4)	0.0	(2.2)	1.4	(2.2)	1.5	(1.4)
	Spain	-0.3	(0.8)	-1.2	(1.6)	-0.9	(2.3)	-1.9	(1.8)	2.4	(3.0)	2.0	(1.3)
	United States*	-1.3	(1.1)	-0.6	(2.0)	**-4.2**	(2.1)	0.4	(2.1)	2.7	(2.1)	3.0	(2.2)
	OECD average	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average - 2012	-0.4	(0.4)	0.5	(0.9)	**-1.9**	(0.9)	**-1.8**	(0.7)	1.1	(1.5)	2.6	(1.3)
	OECD average - 2015	m	m	m	m	m	m	m	m	m	m	m	m
Partners	Brazil	m	m	m	m	m	m	m	m	m	m	m	m
	Bulgaria	m	m	m	m	m	m	m	m	m	m	m	m
	Georgia	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m
	Peru	m	m	m	m	m	m	m	m	m	m	m	m
	Russia	-1.1	(0.9)	-1.2	(1.8)	-0.7	(2.7)	0.4	(2.1)	0.7	(2.6)	2.0	(1.3)
	Serbia	m	m	m	m	m	m	m	m	m	m	m	m
	Average all countries/ economies	m	m	m	m	m	m	m	m	m	m	m	m
	Netherlands**	m	m	m	m	m	m	m	m	m	m	m	m

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.2.4[5/5] **Change over time in students' proficiency in financial literacy**

		Change between 2015 and 2018 (PISA 2018 - PISA 2015)											
		Below Level 1 (below 325.57 score points)		Level 1 (from 325.57 to less than 400.33 score points)		Level 2 (from 400.33 to less than 475.10 score points)		Level 3 (from 475.10 to less than 549.86 score points)		Level 4 (from 549.86 to less than 624.63 score points)		Level 5 (at or above 624.63 score points)	
		%	S.E.	%	S.E	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	**-3.4**	(0.9)	-0.7	(2.0)	1.2	(1.2)	**2.5**	(0.8)	1.6	(1.9)	-1.3	(5.0)
	Canadian provinces	**-2.6**	(0.7)	-1.3	(1.5)	1.1	(3.2)	**4.8**	(1.4)	3.1	(1.9)	-5.0	(7.8)
	Chile	**-6.4**	(3.1)	-1.6	(3.7)	2.9	(1.5)	3.0	(1.9)	2.1	(2.9)	-0.1	(0.8)
	Estonia	m	m	m	m	m	m	m	m	m	m	m	m
	Finland	m	m	m	m	m	m	m	m	m	m	m	m
	Italy	0.0	(1.5)	1.0	(2.3)	1.3	(2.5)	1.5	(1.4)	-1.9	(5.9)	-2.0	(1.6)
	Latvia	m	m	m	m	m	m	m	m	m	m	m	m
	Lithuania	**-9.4**	(1.1)	**-8.0**	(3.3)	-1.8	(3.6)	**6.1**	(1.5)	**9.1**	(4.4)	4.0	(3.1)
	Poland	**-4.8**	(0.7)	**-5.7**	(2.1)	-3.4	(3.2)	**3.6**	(1.5)	6.5	(4.1)	3.8	(5.3)
	Portugal*	m	m	m	m	m	m	m	m	m	m	m	m
	Slovak Republic	**-10.1**	(1.8)	-3.4	(3.3)	1.6	(1.8)	**6.1**	(1.3)	4.9	(3.5)	0.8	(2.4)
	Spain	**-5.4**	(1.1)	-4.4	(2.6)	-0.4	(3.8)	**5.4**	(1.3)	4.6	(6.7)	0.1	(2.4)
	United States*	**-3.1**	(1.1)	-2.5	(2.8)	-1.2	(1.9)	1.8	(1.6)	2.9	(1.9)	2.1	(4.8)
	OECD average	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average - 2012	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average - 2015	**-5.0**	(0.8)	-2.9	(2.3)	0.1	(1.6)	**3.9**	(0.4)	3.7	(3.1)	0.3	(3.2)
Partners	Brazil	-12.0	(8.1)	2.3	(1.6)	5.5	(1.1)	4.0	(2.6)	0.9	(1.5)	-0.7	(0.6)
	Bulgaria	m	m	m	m	m	m	m	m	m	m	m	m
	Georgia	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m
	Peru	-4.3	(8.6)	2.5	(1.5)	1.6	(1.4)	0.4	(3.3)	-0.3	(1.6)	0.2	(0.3)
	Russia	1.1	(0.8)	2.4	(2.3)	1.9	(5.4)	1.3	(1.6)	-2.5	(5.1)	-4.3	(2.6)
	Serbia	m	m	m	m	m	m	m	m	m	m	m	m
	Average all countries/ economies	m	m	m	m	m	m	m	m	m	m	m	m
	Netherlands**	-5.8	(1.0)	**-5.5**	(1.5)	**-3.9**	(1.7)	-0.4	(1.7)	**4.4**	(1.5)	11.2	(10.9)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.2.7 **Variation in financial literacy performance associated with mathematics and reading performance**

		Variation in financial literacy performance associated with mathematics and reading performance									
		Total explained variation[1]		Variation uniquely associated[2] with mathematics performance		Variation uniquely associated with reading performance		Variation associated with more than one domain		Residual (unexplained) variation[3]	
		%	S.E.	%	S.E	%	S.E	%	S.E	%	S.E
OECD	Australia	79.4	(1.1)	11.8	(0.6)	4.5	(0.3)	63.1	(1.1)	20.6	(1.1)
	Canadian provinces	77.7	(1.0)	11.3	(0.9)	5.9	(0.7)	60.5	(1.2)	22.3	(1.0)
	Chile	84.2	(0.9)	12.0	(0.8)	4.7	(0.6)	67.5	(1.2)	15.8	(0.9)
	Estonia	78.6	(1.0)	9.1	(0.7)	6.0	(0.6)	63.4	(1.3)	21.4	(1.0)
	Finland	81.0	(0.9)	9.7	(0.7)	5.2	(0.6)	66.2	(1.2)	19.0	(0.9)
	Italy	73.2	(1.2)	14.2	(1.1)	3.3	(0.6)	55.8	(1.5)	26.8	(1.2)
	Latvia	80.6	(1.1)	16.0	(1.2)	2.7	(0.4)	61.9	(1.2)	19.4	(1.1)
	Lithuania	80.9	(1.0)	7.3	(0.8)	5.4	(0.6)	68.1	(1.1)	19.1	(1.0)
	Poland	77.3	(1.0)	13.4	(0.9)	3.2	(0.5)	60.7	(1.3)	22.7	(1.0)
	Portugal*	81.9	(0.9)	9.9	(0.9)	3.9	(0.5)	68.1	(1.0)	18.1	(0.9)
	Slovak Republic	79.7	(1.1)	11.5	(1.1)	4.4	(0.6)	63.9	(1.3)	20.3	(1.1)
	Spain	m	m	m	m	m	m	m	m	m	m
	United States*	84.0	(0.8)	11.3	(0.9)	2.4	(0.3)	70.3	(1.1)	16.0	(0.8)
	OECD average	79.9	(0.3)	11.4	(0.3)	4.3	(0.2)	64.1	(0.4)	20.1	(0.3)
Partners	Brazil	80.5	(0.7)	7.2	(0.6)	5.7	(0.6)	67.6	(1.0)	19.5	(0.7)
	Bulgaria	79.0	(1.1)	8.2	(0.6)	7.2	(0.6)	63.6	(1.4)	21.0	(1.1)
	Georgia	77.8	(1.0)	11.4	(0.8)	5.0	(0.5)	61.3	(1.1)	22.2	(1.0)
	Indonesia	77.4	(1.6)	6.6	(1.1)	7.0	(1.1)	63.8	(1.8)	22.6	(1.6)
	Peru	82.9	(0.7)	8.6	(0.7)	4.8	(0.5)	69.5	(1.0)	17.1	(0.7)
	Russia	77.5	(1.1)	14.0	(0.8)	3.6	(0.5)	59.9	(1.4)	22.5	(1.1)
	Serbia	79.7	(0.9)	11.9	(0.9)	3.9	(0.5)	63.9	(1.2)	20.3	(0.9)
	Average all countries/ economies	79.7	(0.2)	10.8	(0.2)	4.7	(0.1)	64.2	(0.3)	20.3	(0.2)
	Netherlands**	84.3	(0.8)	11.2	(0.9)	4.1	(0.5)	68.9	(1.1)	15.7	(0.8)

1. The total explained variance is the R-squared coefficient from a regression of financial literacy performance on mathematics and reading performance.
2. The variation uniquely associated with mathematics is measured as the difference between the R-squared of the full regression (a regression of financial literacy on mathematics and reading performance) and the R-squared of a regression of financial literacy on all variables except mathematics (in this case, reading only). The variation uniquely associated with reading is calculated in an analogous manner.
3. The residual variation is computed as 100 - total explained variation.

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.2.8 **Relative performance in financial literacy**

Based on residual scores after accounting for performance in mathematics and reading, in regressions involving all OECD and partner countries/economies

		Relative performance in financial literacy based on performance in...																	
		Mathematics and reading				Mathematics								Reading					
		Average relative score[1]		Percentage of students who performed above their expected score[2,3]		Average relative score		Relative performance amongst students who performed at or above Level 4 in mathematics		Relative performance amongst students who performed at or below Level 3 in mathematics		Difference in relative performance: Students who performed at or above Level 4 minus students who performed at or below Level 3		Average relative score		Relative performance amongst students who performed at or above Level 4 in reading		Relative performance amongst students who performed at or below Level 3 in reading		Difference in relative performance: Students who performed at or above Level 4 minus students who performed at or below Level 3	
		Score dif.	S.E.	%	S.E	Score dif.	S.E	Score dif.	S.E	Score dif.	S.E	Score dif.	S.E	Score dif.	S.E	Score dif.	S.E	Score dif.	S.E	Score dif.	S.E
OECD	Australia	**4**	(1.0)	**53.8**	(0.9)	**10**	(1.1)	**17**	(3.5)	-4	(2.4)	**21**	(4.7)	0	(1.2)	**-6**	(3.0)	4	(2.3)	**-10**	(3.2)
	Canadian provinces	**4**	(1.5)	**54.2**	(1.4)	**11**	(1.6)	**6**	(2.9)	8	(4.1)	-2	(4.6)	**5**	(1.7)	**-7**	(3.0)	**19**	(3.8)	**-25**	(4.6)
	Chile	**5**	(1.0)	**55.1**	(1.2)	**17**	(1.2)	**23**	(6.3)	**10**	(1.8)	13	(7.1)	**-18**	(1.3)	**-15**	(6.1)	**-23**	(1.9)	9	(6.5)
	Estonia	**16**	(1.1)	**65.5**	(1.3)	**18**	(1.2)	**16**	(2.9)	**15**	(3.6)	1	(4.7)	**23**	(1.3)	**11**	(2.9)	**32**	(3.3)	**-21**	(4.6)
	Finland	**14**	(1.1)	**62.2**	(1.1)	**21**	(1.3)	**40**	(3.4)	-4	(3.3)	**44**	(4.9)	**12**	(1.2)	**16**	(2.6)	4	(3.3)	**13**	(4.2)
	Italy	**-17**	(1.2)	**35.4**	(0.9)	**-21**	(1.4)	**-39**	(2.9)	**-11**	(2.3)	**-28**	(3.5)	**-10**	(1.4)	**-28**	(5.3)	1	(2.5)	**-29**	(6.3)
	Latvia	1	(1.0)	50.7	(1.4)	**-4**	(1.0)	**-10**	(3.0)	0	(2.7)	**-10**	(4.3)	**11**	(1.4)	-10	(5.8)	**26**	(2.7)	**-36**	(6.3)
	Lithuania	**7**	(1.0)	**57.0**	(1.1)	**5**	(1.1)	-3	(3.8)	9	(2.3)	**-12**	(5.1)	**12**	(1.2)	10	(5.8)	**12**	(2.7)	-3	(6.4)
	Poland	**-3**	(1.1)	**47.1**	(1.2)	-2	(1.2)	**-11**	(2.8)	6	(3.3)	**-17**	(4.7)	**3**	(1.3)	**-12**	(3.8)	**20**	(3.0)	**-32**	(4.6)
	Portugal*	1	(1.4)	51.4	(1.7)	3	(1.8)	**-19**	(3.0)	**12**	(2.8)	**-31**	(3.4)	**4**	(1.2)	**-9**	(3.9)	**6**	(2.0)	**-15**	(4.1)
	Slovak Republic	**-9**	(1.0)	**42.1**	(1.2)	**-18**	(1.1)	**-19**	(3.7)	**-14**	(2.5)	-5	(4.3)	**6**	(1.4)	2	(6.6)	**5**	(2.5)	-3	(7.3)
	Spain	m	m	m	m	**-5**	(1.3)	**-15**	(3.1)	-2	(2.6)	**-14**	(3.8)	m	m	m	m	m	m	m	m
	United States*	**5**	(1.3)	**55.5**	(1.6)	**16**	(1.5)	**29**	(4.4)	**5**	(2.2)	**24**	(4.6)	**-6**	(1.6)	**-10**	(4.2)	1	(2.7)	**-11**	(5.4)
	OECD average	**2**	(0.3)	**52.5**	(0.4)	**4**	(0.4)	1	(1.0)	**2**	(0.8)	6	(4.6)	**3**	(0.4)	**-5**	(1.3)	**9**	(0.8)	**-14**	(1.6)
Partners	Brazil	**12**	(1.1)	**60.8**	(1.1)	**20**	(1.2)	9	(8.6)	**18**	(1.4)	-9	(8.7)	**-13**	(1.1)	**-20**	(6.6)	**-13**	(1.1)	-8	(6.5)
	Bulgaria	**-10**	(1.2)	**41.5**	(1.2)	**-17**	(1.4)	**-37**	(5.3)	**-13**	(2.4)	**-24**	(5.9)	**-7**	(1.5)	**-26**	(7.0)	**-7**	(2.3)	**-19**	(7.5)
	Georgia	**-3**	(1.1)	47.7	(1.2)	**-11**	(1.2)	**-28**	(9.2)	**-10**	(1.6)	**-18**	(9.1)	**-5**	(1.4)	-13	(21.0)	**-8**	(1.7)	-5	(20.7)
	Indonesia	**-3**	(1.5)	46.3	(1.9)	**-10**	(1.6)	-22	(14.9)	**-9**	(2.0)	-13	(15.9)	**-11**	(1.8)	12	(24.6)	**-16**	(1.9)	27	(24.4)
	Peru	**-3**	(1.1)	**46.8**	(1.2)	**-5**	(1.2)	7	(10.4)	**-10**	(1.5)	17	(10.4)	**-14**	(1.5)	-4	(11.8)	**-19**	(2.0)	15	(11.9)
	Russia	-1	(0.9)	49.7	(0.9)	**-3**	(1.1)	**-12**	(3.3)	-1	(2.5)	**-12**	(4.2)	**5**	(1.1)	**-17**	(4.1)	**12**	(3.1)	**-29**	(4.7)
	Serbia	**-15**	(1.1)	**35.8**	(1.3)	**-19**	(1.4)	**-36**	(4.9)	**-14**	(2.3)	**-22**	(4.8)	**-14**	(1.2)	**-32**	(7.1)	**-11**	(2.1)	**-20**	(7.5)
	Average all countries/ economies	0	(0.3)	50.5	(0.3)	0	(0.3)	-5	(1.3)	0	(0.6)	4	(5.9)	**-1**	(0.3)	**-8**	(2.1)	**2**	(0.6)	**-11**	(2.2)
	Netherlands**	**26**	(1.6)	**73.4**	(1.6)	**16**	(1.8)	**36**	(2.9)	**-14**	(4.2)	**50**	(5.3)	**51**	(1.8)	**53**	(4.4)	**41**	(3.8)	11	(6.5)

1. Relative scores are the residuals obtained from a pooled linear regression, across all participating countries/economies, of performance in financial literacy over performance in mathematics and/or reading.
2. Students who scored higher than expected are those with positive relative scores.
3. The percentage of students who scored higher than expected is bolded when it differs significantly from 50%.

Notes: Values that are statistically significant are indicated in bold (see Annex A3).

National samples were weighted equally in the cross-country regressions.

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.2.9 **Contexts of countries participating in the financial literacy assessment**

		GDP, PPP, 2018[1]	Per capita GDP, PPP, 2018[1]	Gini coefficient (most recent between 2010 and 2011)[1]	Percentage of people who have an account at a formal financial institution, 2017[2]		Stock market capitalisation as a percentage of GDP, 2017 (or most recent year)[3,4]	Percentage of adults who can answer correctly at least 5 out of 7 financial knowledge questions, 2018[5]	Cumulative expenditure per student between 6 and 15 years (in equivalent USD converted using PPPs)[6,7]	Performance in financial literacy in PISA 2018		Percentage of 15-year-old students holding a bank account in PISA 2018	
					Age 15-24	Age 25+							
		Current international $ (billions)	Current international $	Coefficient	%	%	%	%	Equivalent USD converted using PPPs	Mean score	S.E.	%	S.E.
OECD	Australia	1291	51663	0.358	100.0	99.6	106.1	m	107140	511	(2.1)	68.1	(0.7)
	Canadian provinces	1784	48130	0.340	100.0	99.7	134.5	61	96145	532	(3.2)	64.5	(1.1)
	Chile	472	25223	0.466	73.4	73.9	93.1	m	50149	451	(2.9)	36.5	(1.1)
	Estonia	48	35974	0.327	91.9	98.8	8.5	73	64315	547	(2.0)	59.2	(0.9)
	Finland	267	48417	0.271	100.0	99.8	57.2	70	110532	537	(2.4)	89.2	(0.5)
	Italy	2528	41830	0.354	63.9	97.7	28.0	m	87840	476	(2.5)	43.5	(0.9)
	Latvia	58	30305	0.342	75.7	95.4	3.7	68	65515	501	(1.8)	59.4	(1.0)
	Lithuania	99	35461	0.374	63.8	86.2	9.2	60	53133	498	(1.8)	43.6	(0.8)
	Poland	1190	31337	0.318	62.6	90.5	32.8	55	67720	520	(2.5)	34.5	(0.9)
	Portugal*	344	33415	0.355	79.4	94.2	30.6	60	82452	505	(2.4)	45.2	(0.9)
	Slovak Republic	184	33736	0.265	54.6	89.6	4.9	m	66012	481	(2.3)	49.9	(0.9)
	Spain	1856	39715	0.362	65.3	98.0	60.7	m	79488	492	(2.2)	55.1	(0.8)
	United States*	20544	62795	0.415	86.9	94.2	153.2	m	121917	506	(3.3)	46.9	(1.3)
Partners	Brazil	3372	16096	0.533	46.7	77.2	43.4	48	37954	420	(2.3)	27.9	(0.8)
	Bulgaria	154	21960	0.374	43.5	75.1	13.6	m	31029	432	(4.1)	36.3	(1.2)
	Georgia	45	12005	0.379	30.7	66.9	5.5	55	m	403	(2.6)	22.4	(0.7)
	Indonesia	3501	13080	0.381	45.0	49.4	46.6	m	14717	388	(3.2)	35.8	(1.3)
	Peru	461	14418	0.433	28.1	46.9	43.7	m	27339	411	(3.2)	12.0	(0.6)
	Russia	4051	27147	0.377	66.9	77.5	42.6	45	43728	495	(2.9)	31.6	(0.8)
	Serbia	122	17435	0.396	33.3	76.9	17.7	m	24292	444	(2.9)	20.7	(1.1)
	Netherlands**	971	56329	0.282	100.0	99.6	116.0	64	101581	558	(2.6)	94.5	(0.5)

1. World Bank, World Development Indicators.
2. Demirguc-Kunt, A., L. Klapper, D. Singer, S. Ansar and J. Hess (2018), "The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution", World Bank, Washington, DC.
3. World Bank, Global Financial Development Database. Stock market capitalisation is defined as the total, across all listed domestic companies, of a company's share price multiplied by the number of shares outstanding for that company. A listed domestic company is a company incorporated within a country and listed on a stock exchange in that country at the end of the year.
4. Data for certain countries were not available for 2017; they are reported for the most recent year in which they were available. This affects Italy (2014), the Slovak Republic (2013), and Bulgaria, Estonia, Finland, Georgia, Latvia, Lithuania and Serbia (all 2012).
5. OECD (2016), OECD/INFE International Survey of Adult Financial Literacy Competencies.
6. OECD, PISA 2018 Database, Table B3.1.1
7. Data for Indonesia and Peru come from 2017; data for Chile come from 2016.

*PISA data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The PISA results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.3.1 **Mean score and variation in financial literacy performance**

		Mean score		Standard deviation		Percentiles											
						5th		10th		25th		Median (50th)		75th		90th		95th	
		Mean	S.E.	S.D.	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.
OECD	Australia	511	(2.1)	106	(1.1)	330	(3.8)	370	(3.5)	439	(3.0)	516	(2.4)	586	(2.3)	645	(2.9)	678	(3.5)
	Canadian provinces	532	(3.2)	95	(1.6)	371	(4.5)	408	(4.4)	469	(3.6)	535	(3.3)	598	(4.5)	654	(4.8)	685	(4.7)
	Chile	451	(2.9)	95	(1.6)	293	(6.2)	327	(4.2)	385	(4.0)	451	(3.5)	518	(3.7)	575	(4.4)	605	(4.5)
	Estonia	547	(2.0)	88	(1.4)	398	(4.8)	431	(4.2)	489	(3.1)	550	(2.4)	608	(2.4)	657	(3.3)	689	(3.4)
	Finland	537	(2.4)	102	(1.6)	362	(5.8)	401	(4.2)	469	(3.2)	542	(3.0)	608	(3.1)	666	(4.0)	699	(4.0)
	Italy	476	(2.5)	92	(1.6)	318	(4.8)	354	(3.5)	415	(3.8)	482	(2.9)	541	(2.9)	591	(3.6)	621	(4.8)
	Latvia	501	(1.8)	80	(1.4)	368	(4.3)	398	(3.5)	447	(3.0)	503	(2.5)	556	(2.5)	603	(3.6)	632	(4.4)
	Lithuania	498	(1.8)	89	(1.3)	349	(4.7)	380	(4.0)	437	(2.5)	500	(2.8)	561	(2.3)	612	(3.8)	642	(4.0)
	Poland	520	(2.5)	89	(1.6)	370	(5.0)	403	(4.3)	460	(2.9)	521	(2.9)	580	(3.2)	633	(4.5)	664	(4.7)
	Portugal*	505	(2.4)	91	(1.4)	347	(4.9)	381	(3.8)	445	(3.9)	513	(3.0)	571	(2.6)	618	(3.2)	643	(3.7)
	Slovak Republic	481	(2.3)	99	(1.8)	314	(6.1)	352	(4.4)	412	(3.6)	485	(3.3)	551	(3.2)	608	(3.9)	641	(5.0)
	Spain	492	(2.2)	88	(1.2)	340	(4.6)	377	(3.5)	435	(3.2)	496	(2.8)	554	(2.7)	603	(2.9)	630	(3.7)
	United States*	506	(3.3)	102	(1.7)	337	(4.9)	371	(4.5)	434	(4.3)	508	(3.9)	577	(4.5)	637	(5.3)	671	(6.6)
	OECD average	505	(0.7)	94	(0.4)	346	(1.4)	381	(1.1)	441	(1.0)	508	(0.8)	570	(0.9)	623	(1.1)	654	(1.2)
Partners	Brazil	420	(2.3)	97	(1.6)	269	(2.9)	298	(3.0)	351	(2.4)	416	(2.6)	487	(3.1)	549	(4.5)	586	(5.5)
	Bulgaria	432	(4.1)	100	(2.0)	269	(5.6)	300	(5.3)	360	(5.4)	433	(5.5)	505	(4.5)	564	(5.1)	595	(5.9)
	Georgia	403	(2.6)	93	(1.6)	253	(5.1)	284	(3.5)	337	(2.9)	401	(3.0)	468	(3.4)	525	(3.7)	557	(4.9)
	Indonesia	388	(3.2)	81	(2.1)	262	(5.1)	288	(4.1)	331	(3.4)	385	(3.9)	442	(4.3)	496	(5.8)	529	(6.9)
	Peru	411	(3.2)	97	(1.7)	254	(5.2)	285	(3.9)	342	(3.8)	409	(3.9)	479	(3.7)	538	(4.5)	573	(5.2)
	Russia	495	(2.9)	87	(2.0)	343	(6.0)	379	(5.1)	439	(4.3)	499	(3.0)	556	(3.2)	605	(3.9)	633	(4.3)
	Serbia	444	(2.9)	95	(1.8)	288	(5.0)	319	(4.2)	376	(4.4)	445	(3.7)	510	(3.4)	567	(3.6)	598	(4.1)
	Average all countries/ economies	478	(0.6)	93	(0.4)	322	(1.1)	355	(0.9)	414	(0.8)	479	(0.7)	543	(0.7)	597	(0.9)	628	(1.1)
	Netherlands**	558	(2.6)	105	(1.6)	376	(6.3)	414	(4.6)	484	(4.2)	564	(3.1)	635	(3.5)	690	(3.7)	720	(4.5)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.3.3 **Change over time in the distribution of financial literacy performance**

		PISA 2012				PISA 2015				PISA 2018				Change between 2012 and 2018 (PISA 2018 - PISA 2012)				Change between 2015 and 2018 (PISA 2018 - PISA 2015)			
		Standard deviation		Interdecile range		Standard deviation		Interdecile range		Standard deviation		Interdecile range		Standard deviation		Interdecile range		Standard deviation		Interdecile range	
		S.D.	S.E.	Score dif.	S.E.	S.D.	S.E.	Score dif.	S.E.	S.D.	S.E.	Score dif.	S.E.	S.D.	S.E.	Score dif.	S.E.	S.D.	S.E.	Score dif.	S.E.
OECD	Australia	101	(1.7)	255	(5.8)	118	(1.1)	309	(3.9)	106	(1.1)	275	(4.1)	**5**	(2.0)	**20**	(7.1)	**-12**	(1.6)	**-35**	(5.7)
	Canadian provinces	m	m	m	m	116	(2.7)	295	(6.7)	95	(1.6)	246	(5.5)	m	m	m	m	**-21**	(3.1)	**-49**	(8.7)
	Chile	m	m	m	m	106	(2.1)	274	(6.6)	95	(1.6)	248	(5.6)	m	m	m	m	**-11**	(2.6)	**-27**	(8.7)
	Estonia	79	(1.8)	203	(6.8)	m	m	m	m	88	(1.4)	226	(5.1)	**9**	(2.3)	**23**	(8.5)	m	m	m	m
	Finland	m	m	m	m	m	m	m	m	102	(1.6)	265	(5.6)	m	m	m	m	m	m	m	m
	Italy	87	(1.5)	224	(4.7)	97	(1.9)	249	(6.0)	92	(1.6)	238	(4.6)	**5**	(2.2)	**13**	(6.6)	**-5**	(2.5)	-11	(7.6)
	Latvia	78	(2.7)	196	(7.9)	m	m	m	m	80	(1.4)	205	(5.0)	2	(3.0)	9	(9.3)	m	m	m	m
	Lithuania	m	m	m	m	102	(2.2)	266	(6.4)	89	(1.3)	232	(5.3)	m	m	m	m	**-13**	(2.6)	**-34**	(8.3)
	Poland	82	(2.1)	210	(7.9)	102	(1.8)	262	(5.5)	89	(1.6)	230	(5.8)	**7**	(2.7)	**20**	(9.8)	**-13**	(2.4)	**-32**	(8.0)
	Portugal*	m	m	m	m	m	m	m	m	91	(1.4)	237	(4.5)	m	m	m	m	m	m	m	m
	Slovak Republic	105	(3.6)	266	(14.1)	121	(2.3)	311	(6.1)	99	(1.8)	257	(6.0)	-6	(4.1)	-9	(15.3)	**-22**	(2.9)	**-54**	(8.5)
	Spain	85	(2.1)	222	(7.4)	103	(1.5)	265	(4.8)	88	(1.2)	226	(4.3)	3	(2.4)	3	(8.5)	**-15**	(1.9)	**-39**	(6.4)
	United States*	99	(2.5)	256	(10.1)	108	(1.8)	280	(5.8)	102	(1.7)	266	(5.7)	2	(3.0)	10	(11.6)	**-6**	(2.5)	-14	(8.1)
	OECD average - 2012	90	(0.8)	229	(3.0)	m	m	m	m	93	(0.5)	240	(1.8)	**3**	(1.0)	**11**	(3.5)	m	m	m	m
	OECD average - 2015	m	m	m	m	108	(0.7)	279	(1.9)	95	(0.5)	246	(1.8)	m	m	m	m	**-13**	(0.8)	**-33**	(2.6)
Partners	Brazil	m	m	m	m	117	(1.9)	302	(5.3)	97	(1.6)	251	(4.9)	m	m	m	m	-20	(2.5)	**-51**	(7.3)
	Bulgaria	m	m	m	m	m	m	m	m	100	(2.0)	263	(6.4)	m	m	m	m	m	m	m	m
	Georgia	m	m	m	m	m	m	m	m	93	(1.6)	241	(4.4)	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	81	(2.1)	209	(6.5)	m	m	m	m	m	m	m	m
	Peru	m	m	m	m	105	(1.7)	276	(5.4)	97	(1.7)	252	(5.1)	m	m	m	m	-8	(2.4)	**-24**	(7.4)
	Russia	88	(2.2)	226	(8.0)	90	(1.8)	232	(5.1)	87	(2.0)	226	(5.9)	0	(3.0)	-1	(9.9)	-3	(2.7)	-6	(7.8)
	Serbia	m	m	m	m	m	m	m	m	95	(1.8)	248	(5.1)	m	m	m	m	m	m	m	m
	Netherlands**	m	m	m	m	120	(3.4)	312	(8.8)	105	(1.6)	277	(4.8)	m	m	m	m	-15	(3.7)	**-35**	(10.0)

Notes: Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.3.4 [1/3] **Mean score and variation in financial literacy performance, by gender**

		Boys													
		Mean score		Standard deviation		Percentiles									
						10th		25th		Median (50th)		75th		90th	
		Mean	S.E.	S.D.	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.
OECD	Australia	512	(2.5)	110	(1.7)	364	(4.6)	437	(3.3)	516	(3.2)	590	(3.4)	651	(3.6)
	Canadian provinces	535	(4.0)	101	(1.7)	402	(5.7)	467	(4.3)	538	(5.0)	608	(5.0)	664	(5.1)
	Chile	453	(4.0)	100	(2.0)	324	(6.1)	382	(5.4)	452	(5.1)	526	(5.4)	584	(5.3)
	Estonia	549	(2.5)	90	(1.8)	429	(5.5)	490	(3.9)	552	(3.0)	610	(3.1)	661	(4.2)
	Finland	534	(3.2)	108	(2.1)	389	(5.5)	461	(4.5)	538	(3.7)	611	(4.2)	673	(5.0)
	Italy	484	(3.0)	95	(1.9)	356	(5.0)	419	(4.8)	490	(4.0)	552	(3.8)	602	(4.4)
	Latvia	499	(2.5)	82	(2.3)	392	(6.1)	443	(4.4)	501	(3.5)	555	(3.7)	604	(5.2)
	Lithuania	496	(2.4)	93	(1.9)	374	(5.5)	432	(4.1)	497	(3.5)	561	(3.6)	616	(5.8)
	Poland	523	(3.3)	96	(2.4)	397	(6.1)	459	(4.7)	525	(4.0)	589	(4.0)	646	(5.5)
	Portugal*	506	(2.8)	93	(1.8)	379	(4.7)	441	(5.0)	513	(4.0)	574	(3.7)	621	(3.9)
	Slovak Republic	482	(3.0)	101	(2.5)	348	(6.0)	410	(5.3)	484	(4.2)	553	(4.2)	613	(5.7)
	Spain	492	(2.7)	91	(1.7)	371	(5.4)	431	(4.4)	497	(3.6)	556	(3.5)	606	(3.6)
	United States*	509	(4.1)	106	(2.6)	367	(5.9)	433	(5.4)	511	(5.3)	584	(6.0)	647	(7.0)
	OECD average	506	(0.9)	98	(0.6)	376	(1.5)	439	(1.3)	509	(1.1)	575	(1.2)	630	(1.4)
Partners	Brazil	419	(2.6)	100	(1.9)	294	(3.2)	346	(3.3)	414	(3.2)	489	(3.9)	554	(4.9)
	Bulgaria	423	(5.1)	105	(2.5)	290	(6.4)	346	(6.3)	419	(6.2)	499	(6.1)	565	(7.1)
	Georgia	397	(3.3)	95	(2.0)	274	(4.6)	329	(4.3)	394	(4.1)	464	(4.7)	523	(5.2)
	Indonesia	379	(3.7)	83	(2.4)	278	(4.9)	320	(4.4)	374	(4.8)	432	(4.3)	491	(7.0)
	Peru	416	(3.7)	99	(2.2)	289	(5.2)	344	(4.5)	413	(5.2)	484	(4.2)	547	(5.7)
	Russia	498	(3.4)	90	(2.3)	377	(6.7)	438	(5.2)	502	(4.1)	562	(3.7)	611	(4.4)
	Serbia	441	(3.5)	98	(2.1)	312	(5.6)	369	(4.7)	440	(5.0)	510	(5.2)	571	(4.8)
	Average all countries/ economies	477	(0.7)	97	(0.5)	350	(1.2)	410	(1.0)	478	(1.0)	546	(1.0)	602	(1.2)
	Netherlands**	557	(3.4)	110	(2.3)	404	(6.8)	478	(5.4)	564	(4.6)	639	(4.5)	694	(5.2)

Notes: Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.3.4 [2/3] **Mean score and variation in financial literacy performance, by gender**

		Girls													
		Mean score		Standard deviation		Percentiles									
						10th		25th		Median (50th)		75th		90th	
		Mean	S.E.	S.D.	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.
OECD	Australia	510	(2.8)	101	(1.3)	376	(4.1)	441	(4.2)	515	(3.7)	581	(3.2)	637	(4.0)
	Canadian provinces	529	(3.4)	89	(2.2)	412	(4.8)	470	(4.2)	533	(3.6)	589	(4.8)	643	(6.5)
	Chile	448	(3.1)	89	(1.9)	331	(5.3)	387	(4.5)	450	(3.4)	511	(4.2)	563	(5.0)
	Estonia	546	(2.6)	85	(1.9)	434	(5.0)	489	(4.1)	548	(3.2)	605	(3.5)	652	(4.4)
	Finland	540	(3.0)	95	(2.0)	413	(5.6)	476	(4.9)	545	(3.9)	605	(4.0)	659	(4.6)
	Italy	469	(2.7)	88	(1.9)	352	(4.4)	410	(4.4)	474	(4.1)	530	(3.6)	578	(4.3)
	Latvia	503	(2.4)	77	(1.8)	404	(5.3)	451	(4.0)	505	(3.0)	556	(3.2)	602	(5.0)
	Lithuania	500	(2.5)	85	(1.7)	388	(4.9)	442	(3.2)	503	(4.1)	561	(3.0)	609	(4.3)
	Poland	516	(2.8)	82	(1.7)	408	(5.3)	460	(3.0)	518	(3.5)	573	(3.8)	621	(4.9)
	Portugal*	505	(3.0)	89	(1.9)	385	(5.4)	449	(4.7)	513	(3.6)	567	(3.3)	613	(5.3)
	Slovak Republic	481	(3.1)	97	(2.1)	355	(5.6)	415	(5.1)	485	(4.5)	550	(4.4)	604	(5.6)
	Spain	493	(2.3)	85	(1.7)	383	(4.2)	438	(3.3)	495	(2.9)	552	(3.5)	599	(3.8)
	United States*	503	(3.5)	97	(2.0)	375	(5.6)	436	(5.1)	504	(3.9)	570	(5.2)	627	(5.3)
	OECD average	503	(0.8)	89	(0.5)	386	(1.4)	443	(1.2)	507	(1.0)	565	(1.1)	616	(1.4)
Partners	Brazil	421	(2.7)	93	(1.7)	303	(4.1)	356	(3.1)	419	(3.1)	485	(3.6)	544	(5.0)
	Bulgaria	442	(4.5)	95	(2.2)	314	(7.1)	376	(6.3)	446	(5.6)	510	(5.1)	563	(5.4)
	Georgia	409	(2.7)	89	(1.9)	296	(4.2)	347	(3.7)	408	(3.6)	472	(3.9)	526	(4.2)
	Indonesia	397	(3.4)	78	(2.4)	299	(4.6)	342	(4.3)	394	(4.0)	449	(4.7)	500	(6.5)
	Peru	405	(3.6)	95	(2.0)	281	(6.0)	340	(4.8)	406	(4.2)	473	(4.7)	528	(4.9)
	Russia	493	(3.1)	85	(2.3)	381	(5.8)	439	(4.6)	496	(3.4)	550	(3.5)	598	(5.5)
	Serbia	447	(3.5)	90	(2.2)	326	(5.4)	384	(5.5)	449	(4.5)	511	(4.0)	563	(4.6)
	Average all countries/ economies	478	(0.7)	89	(0.4)	361	(1.2)	417	(1.0)	480	(0.9)	540	(0.9)	591	(1.1)
	Netherlands**	559	(3.1)	100	(2.1)	424	(5.8)	491	(5.7)	564	(3.6)	631	(4.0)	685	(6.0)

Notes: Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.3.4 [3/3] **Mean score and variation in financial literacy performance, by gender**

		Gender differences (girls - boys)													
		Mean score		Standard deviation		Percentiles									
						10th		25th		Median (50th)		75th		90th	
		Mean	S.E.	S.D.	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.
OECD	Australia	-2	(3.4)	**-9**	(2.0)	**12**	(5.0)	4	(4.7)	-1	(4.9)	**-9**	(4.7)	**-14**	(5.2)
	Canadian provinces	-6	(3.6)	**-11**	(2.2)	10	(6.0)	3	(4.9)	-5	(5.2)	**-19**	(5.1)	**-21**	(6.3)
	Chile	-5	(4.2)	**-11**	(2.4)	7	(8.0)	6	(6.2)	-1	(5.4)	**-16**	(6.1)	**-21**	(6.3)
	Estonia	-3	(3.0)	**-5**	(2.4)	5	(7.0)	-1	(4.8)	-4	(4.1)	-5	(4.3)	-9	(5.6)
	Finland	6	(3.9)	**-13**	(2.6)	**23**	(7.6)	**15**	(6.7)	7	(5.0)	-6	(5.3)	**-14**	(6.0)
	Italy	**-15**	(2.9)	**-7**	(2.2)	-4	(6.2)	-9	(6.0)	**-16**	(5.1)	**-22**	(4.2)	**-24**	(4.7)
	Latvia	4	(3.4)	-5	(3.0)	13	(8.4)	8	(6.0)	3	(4.4)	1	(4.9)	-2	(7.1)
	Lithuania	4	(3.4)	**-8**	(2.5)	**14**	(7.1)	10	(5.2)	6	(5.0)	0	(4.7)	-8	(6.6)
	Poland	-7	(3.3)	**-14**	(2.7)	12	(7.2)	1	(4.8)	-6	(4.7)	**-16**	(4.5)	**-25**	(5.7)
	Portugal*	-1	(3.3)	-4	(2.5)	6	(6.2)	9	(5.8)	0	(4.8)	-8	(4.4)	-8	(5.8)
	Slovak Republic	-1	(4.0)	-5	(2.9)	6	(8.0)	4	(7.7)	1	(5.7)	-3	(5.9)	-9	(7.8)
	Spain	1	(2.4)	**-7**	(2.4)	12	(6.4)	7	(4.3)	-2	(3.5)	-4	(4.5)	-7	(5.2)
	United States*	-6	(3.5)	**-9**	(3.2)	8	(7.3)	3	(6.0)	-7	(4.5)	**-14**	(6.1)	**-20**	(7.6)
	OECD average	**-2**	(1.0)	**-8**	(0.7)	**10**	(1.9)	**4**	(1.6)	-2	(1.3)	**-9**	(1.4)	**-14**	(1.7)
Partners	Brazil	2	(2.5)	**-7**	(1.7)	9	(4.9)	**10**	(4.5)	5	(3.5)	-5	(4.2)	**-10**	(4.9)
	Bulgaria	**19**	(5.1)	**-10**	(2.6)	**24**	(7.3)	**30**	(6.6)	**27**	(6.7)	11	(6.8)	-2	(7.3)
	Georgia	**12**	(3.4)	**-6**	(2.3)	**21**	(5.8)	**18**	(5.0)	**14**	(4.6)	7	(5.0)	3	(5.6)
	Indonesia	**18**	(3.1)	**-5**	(2.2)	**21**	(5.7)	**22**	(5.0)	**20**	(4.6)	**17**	(4.9)	9	(6.7)
	Peru	**-10**	(3.8)	-4	(2.4)	-8	(7.0)	-4	(5.5)	-7	(5.4)	**-12**	(5.4)	**-19**	(6.5)
	Russia	-5	(2.7)	**-5**	(2.0)	4	(6.2)	1	(4.8)	-6	(4.3)	**-11**	(4.0)	**-13**	(5.7)
	Serbia	6	(4.0)	**-8**	(2.3)	**14**	(6.5)	**15**	(6.1)	9	(6.0)	1	(6.1)	-7	(6.1)
	Average all countries/ economies	1	(0.8)	**-8**	(0.5)	**11**	(1.5)	**7**	(1.3)	2	(1.1)	**-6**	(1.1)	**-11**	(1.4)
	Netherlands**	2	(3.9)	**-10**	(3.1)	**20**	(8.7)	13	(7.6)	0	(5.4)	-8	(5.1)	-9	(7.4)

Notes: Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.3.6 [1/3] **Students at each proficiency level in financial literacy, by gender**

		Boys											
		Below Level 1 (below 325.57 score points)		Level 1 (from 325.57 to less than 400.33 score points)		Level 2 (from 400.33 to less than 475.10 score points)		Level 3 (from 475.10 to less than 549.86 score points)		Level 4 (from 549.86 to less than 624.63 score points)		Level 5 (at or above 624.63 score points)	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	5.2	(0.5)	11.3	(0.7)	19.7	(0.9)	25.5	(1.0)	22.7	(0.8)	15.6	(0.8)
	Canadian provinces	2.2	(0.4)	7.6	(0.7)	17.6	(1.2)	26.7	(1.2)	26.5	(1.3)	19.4	(1.5)
	Chile	10.3	(1.1)	20.4	(1.4)	28.0	(1.4)	23.2	(1.4)	14.1	(1.2)	4.0	(0.5)
	Estonia	0.9	(0.3)	5.0	(0.7)	14.6	(0.9)	28.3	(1.4)	31.2	(1.3)	20.1	(1.1)
	Finland	3.1	(0.5)	8.6	(0.7)	17.3	(1.1)	25.4	(1.1)	24.4	(1.2)	21.2	(1.1)
	Italy	5.8	(0.7)	14.0	(1.1)	24.6	(1.3)	29.8	(1.2)	19.9	(1.1)	5.9	(0.7)
	Latvia	1.7	(0.6)	10.2	(1.2)	26.1	(1.5)	34.7	(1.6)	21.1	(1.3)	6.2	(0.8)
	Lithuania	3.3	(0.6)	12.6	(1.1)	25.2	(1.6)	29.8	(1.8)	20.6	(1.5)	8.5	(0.9)
	Poland	2.2	(0.5)	8.5	(0.9)	19.7	(1.1)	30.0	(1.4)	25.0	(1.3)	14.7	(1.2)
	Portugal*	2.8	(0.5)	12.2	(1.0)	20.7	(1.2)	29.4	(1.4)	25.9	(1.5)	9.1	(0.9)
	Slovak Republic	6.4	(1.0)	15.3	(1.4)	25.1	(1.5)	27.1	(1.3)	18.2	(1.5)	7.8	(1.0)
	Spain	4.3	(0.6)	12.0	(1.0)	24.4	(1.1)	31.7	(1.3)	21.2	(1.3)	6.3	(0.7)
	United States*	4.2	(0.6)	12.5	(1.0)	20.8	(1.3)	25.6	(1.5)	22.5	(1.4)	14.3	(1.4)
	OECD average	4.0	(0.2)	11.6	(0.3)	21.8	(0.3)	28.3	(0.4)	22.6	(0.4)	11.8	(0.3)
Partners	Brazil	18.4	(1.0)	26.6	(1.0)	25.7	(1.2)	18.4	(0.8)	8.6	(0.7)	2.2	(0.5)
	Bulgaria	18.8	(1.7)	24.6	(1.3)	24.9	(1.4)	19.2	(1.3)	9.9	(1.0)	2.7	(0.7)
	Georgia	23.7	(1.4)	28.8	(1.4)	25.8	(1.4)	16.0	(1.1)	5.0	(0.7)	0.8	(0.2)
	Indonesia	27.5	(1.9)	34.5	(1.7)	24.7	(1.6)	10.7	(1.3)	2.4	(0.5)	0.2	(0.1)
	Peru	19.3	(1.3)	25.9	(1.3)	26.8	(1.4)	18.6	(1.2)	7.6	(0.8)	1.9	(0.4)
	Russia	3.4	(0.6)	11.5	(0.9)	23.7	(1.2)	31.9	(1.5)	22.3	(1.3)	7.3	(0.9)
	Serbia	12.8	(1.3)	23.0	(1.4)	27.2	(1.3)	22.7	(1.3)	11.4	(1.0)	3.0	(0.6)
	Average all countries/ economies	8.8	(0.2)	16.2	(0.3)	23.1	(0.3)	25.2	(0.3)	18.0	(0.3)	8.6	(0.2)
	Netherlands**	1.8	(0.4)	7.6	(1.1)	14.8	(1.3)	21.4	(1.4)	24.5	(1.5)	29.9	(1.5)

Notes: Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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Table IV.B1.3.6 [2/3] **Students at each proficiency level in financial literacy, by gender**

		Girls											
		Below Level 1 (below 325.57 score points)		Level 1 (from 325.57 to less than 400.33 score points)		Level 2 (from 400.33 to less than 475.10 score points)		Level 3 (from 475.10 to less than 549.86 score points)		Level 4 (from 549.86 to less than 624.63 score points)		Level 5 (at or above 624.63 score points)	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	4.0	(0.4)	10.7	(0.8)	20.7	(1.0)	28.2	(0.9)	23.7	(1.0)	12.6	(0.9)
	Canadian provinces	1.3	(0.4)	6.5	(0.8)	18.7	(1.2)	31.9	(1.4)	27.6	(1.5)	14.0	(1.5)
	Chile	9.1	(0.9)	20.5	(1.6)	30.9	(1.6)	26.5	(1.2)	11.0	(0.9)	2.0	(0.4)
	Estonia	0.5	(0.2)	4.4	(0.6)	15.7	(1.0)	30.3	(1.4)	31.2	(1.4)	18.0	(1.3)
	Finland	1.6	(0.4)	6.5	(0.7)	16.6	(1.1)	27.4	(1.3)	29.4	(1.2)	18.6	(1.1)
	Italy	5.9	(0.8)	16.0	(1.2)	28.5	(1.4)	31.9	(1.4)	14.7	(1.1)	3.1	(0.6)
	Latvia	1.2	(0.4)	8.0	(1.1)	26.6	(1.5)	36.5	(1.5)	21.7	(1.2)	5.9	(0.9)
	Lithuania	2.2	(0.5)	10.3	(0.9)	25.7	(1.4)	32.1	(1.4)	22.8	(1.3)	6.9	(0.8)
	Poland	1.2	(0.3)	7.3	(0.9)	22.4	(1.2)	34.0	(1.3)	26.1	(1.4)	9.0	(1.2)
	Portugal*	3.3	(0.6)	9.7	(1.0)	20.9	(1.5)	33.8	(1.5)	24.9	(1.2)	7.5	(0.8)
	Slovak Republic	6.0	(0.8)	14.6	(1.4)	25.3	(1.4)	29.2	(1.5)	18.4	(1.3)	6.5	(0.8)
	Spain	3.0	(0.5)	10.7	(0.9)	26.6	(1.4)	33.7	(1.4)	20.8	(1.1)	5.2	(0.6)
	United States*	3.6	(0.5)	11.6	(1.2)	23.2	(1.4)	29.4	(1.5)	21.7	(1.2)	10.4	(1.0)
	OECD average	3.3	(0.2)	10.5	(0.3)	23.2	(0.4)	31.1	(0.4)	22.6	(0.3)	9.2	(0.3)
Partners	Brazil	15.6	(1.0)	26.5	(1.2)	29.7	(0.9)	19.1	(0.9)	7.4	(0.7)	1.6	(0.4)
	Bulgaria	12.2	(1.4)	20.7	(1.4)	28.7	(1.4)	25.4	(1.5)	11.1	(1.2)	2.0	(0.4)
	Georgia	17.8	(1.2)	29.1	(1.2)	29.4	(1.4)	17.8	(1.2)	5.4	(0.7)	0.6	(0.2)
	Indonesia	18.2	(1.4)	34.9	(1.7)	30.7	(1.7)	13.2	(1.3)	2.7	(0.7)	0.3	(0.2)
	Peru	20.7	(1.4)	27.1	(1.3)	28.0	(1.3)	17.8	(1.2)	5.6	(0.7)	0.8	(0.3)
	Russia	3.3	(0.5)	10.8	(1.1)	25.6	(1.5)	35.1	(1.5)	20.0	(1.2)	5.3	(0.8)
	Serbia	9.9	(1.1)	20.6	(1.5)	30.3	(1.6)	26.1	(1.4)	11.0	(1.0)	1.9	(0.4)
	Average all countries/ economies	7.0	(0.2)	15.3	(0.3)	25.2	(0.3)	28.0	(0.3)	17.9	(0.3)	6.6	(0.2)
	Netherlands**	1.0	(0.3)	5.5	(0.7)	14.3	(1.1)	24.0	(1.4)	27.9	(1.7)	27.4	(1.5)

Notes: Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.3.6 [3/3] **Students at each proficiency level in financial literacy, by gender**

		Gender differences (girls - boys)											
		Below Level 1 (below 325.57 score points)		Level 1 (from 325.57 to less than 400.33 score points)		Level 2 (from 400.33 to less than 475.10 score points)		Level 3 (from 475.10 to less than 549.86 score points)		Level 4 (from 549.86 to less than 624.63 score points)		Level 5 (at or above 624.63 score points)	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	-1.2	(0.6)	-0.6	(0.9)	1.0	(1.3)	2.7	(1.4)	1.0	(1.2)	**-3.0**	(1.2)
	Canadian provinces	-0.9	(0.5)	-1.0	(0.9)	1.1	(1.4)	**5.2**	(1.8)	1.1	(2.1)	**-5.5**	(1.6)
	Chile	-1.2	(1.4)	0.1	(2.2)	2.9	(1.9)	3.3	(1.8)	**-3.1**	(1.5)	**-2.0**	(0.6)
	Estonia	-0.4	(0.3)	-0.7	(0.8)	1.1	(1.3)	2.1	(2.0)	0.0	(2.0)	-2.1	(1.6)
	Finland	**-1.6**	(0.6)	**-2.1**	(1.0)	-0.7	(1.7)	2.0	(1.7)	**5.0**	(1.7)	-2.6	(1.3)
	Italy	0.2	(1.1)	2.0	(1.6)	**3.9**	(1.9)	2.0	(1.8)	**-5.2**	(1.4)	**-2.8**	(0.6)
	Latvia	-0.5	(0.6)	-2.2	(1.8)	0.6	(2.4)	1.8	(2.0)	0.6	(1.8)	-0.2	(1.2)
	Lithuania	-1.0	(0.7)	-2.2	(1.4)	0.5	(2.0)	2.2	(2.2)	2.2	(2.0)	-1.6	(1.2)
	Poland	-0.9	(0.6)	-1.2	(1.2)	2.7	(1.6)	3.9	(2.1)	1.2	(1.9)	**-5.7**	(1.4)
	Portugal*	0.5	(0.6)	**-2.5**	(1.3)	0.2	(2.0)	**4.4**	(1.8)	-1.0	(1.7)	-1.6	(1.0)
	Slovak Republic	-0.4	(1.2)	-0.7	(2.1)	0.1	(2.0)	2.1	(2.0)	0.2	(1.8)	-1.3	(1.3)
	Spain	-1.3	(0.7)	-1.3	(1.1)	2.2	(1.8)	2.0	(2.0)	-0.4	(1.6)	-1.2	(0.8)
	United States*	-0.6	(0.8)	-0.9	(1.4)	2.4	(1.6)	**3.8**	(1.9)	-0.7	(1.9)	**-4.0**	(1.4)
	OECD average	**-0.7**	(0.2)	**-1.0**	(0.4)	**1.4**	(0.5)	**2.9**	(0.5)	0.1	(0.5)	**-2.6**	(0.3)
Partners	Brazil	**-2.9**	(1.3)	-0.1	(1.4)	**4.0**	(1.5)	0.7	(1.2)	-1.2	(0.8)	-0.6	(0.4)
	Bulgaria	**-6.6**	(1.6)	**-3.9**	(1.7)	**3.8**	(1.6)	**6.2**	(1.6)	1.2	(1.4)	-0.7	(0.7)
	Georgia	**-6.0**	(1.6)	0.3	(1.9)	3.7	(2.0)	1.8	(1.6)	0.4	(0.9)	-0.2	(0.3)
	Indonesia	**-9.3**	(1.9)	0.5	(2.3)	**6.0**	(2.0)	2.6	(1.4)	0.3	(0.6)	0.1	(0.2)
	Peru	1.4	(1.5)	1.2	(1.7)	1.3	(1.7)	-0.8	(1.7)	**-2.0**	(0.9)	**-1.1**	(0.5)
	Russia	-0.1	(0.6)	-0.7	(1.2)	1.9	(1.6)	3.2	(2.0)	-2.3	(1.5)	**-2.0**	(1.0)
	Serbia	**-2.8**	(1.3)	-2.4	(1.7)	3.1	(1.9)	**3.5**	(1.8)	-0.4	(1.4)	-1.0	(0.7)
	Average all countries/ economies	**-1.8**	(0.2)	**-0.9**	(0.3)	**2.1**	(0.4)	**2.7**	(0.4)	-0.2	(0.3)	**-2.0**	(0.2)
	Netherlands**	-0.8	(0.5)	-2.1	(1.2)	-0.6	(1.7)	2.6	(1.9)	3.4	(2.2)	-2.5	(1.9)

Notes: Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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Table IV.B1.3.8 [1/2] **Change over time in mean financial literacy scores, by gender**

		PISA 2012						PISA 2015						PISA 2018					
		Boys		Girls		Difference (girls - boys)		Boys		Girls		Difference (girls - boys)		Boys		Girls		Difference (girls - boys)	
		Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.	Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.	Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.
OECD	Australia	524	(3.3)	528	(2.4)	3	(4.0)	498	(2.7)	510	(2.1)	**12**	(2.8)	512	(2.5)	510	(2.8)	-2	(3.4)
	Canadian provinces	m	m	m	m	m	m	531	(4.8)	536	(5.2)	5	(3.9)	535	(4.0)	529	(3.4)	-6	(3.6)
	Chile	m	m	m	m	m	m	434	(4.5)	430	(4.2)	-4	(4.4)	453	(4.0)	448	(3.1)	-5	(4.2)
	Estonia	527	(4.5)	531	(4.1)	3	(6.2)	m	m	m	m	m	m	549	(2.5)	546	(2.6)	-3	(3.0)
	Finland	m	m	m	m	m	m	m	m	m	m	m	m	534	(3.2)	540	(3.0)	6	(3.9)
	Italy	470	(3.1)	462	(2.2)	**-8**	(3.4)	489	(3.9)	478	(4.0)	**-11**	(5.6)	484	(3.0)	469	(2.7)	**-15**	(2.9)
	Latvia	495	(4.8)	506	(4.3)	11	(6.3)	m	m	m	m	m	m	499	(2.5)	503	(2.4)	4	(3.4)
	Lithuania	m	m	m	m	m	m	435	(3.7)	462	(3.2)	**27**	(3.0)	496	(2.4)	500	(2.5)	4	(3.4)
	Poland	512	(4.7)	508	(4.2)	-3	(5.0)	478	(3.6)	493	(3.2)	**15**	(3.5)	523	(3.3)	516	(2.8)	**-7**	(3.3)
	Portugal*	m	m	m	m	m	m	m	m	m	m	m	m	506	(2.8)	505	(3.0)	-1	(3.3)
	Slovak Republic	469	(5.8)	472	(6.2)	3	(6.9)	433	(4.9)	458	(5.6)	**25**	(5.3)	482	(3.0)	481	(3.1)	-1	(4.0)
	Spain	487	(4.3)	481	(4.3)	-6	(5.8)	464	(3.7)	474	(4.1)	**10**	(4.4)	492	(2.7)	493	(2.3)	1	(2.4)
	United States*	492	(6.3)	491	(6.0)	-1	(7.4)	488	(4.4)	487	(4.1)	-2	(3.8)	509	(4.1)	503	(3.5)	-6	(3.5)
	OECD average - 2012	497	(1.7)	497	(1.6)	0	(2.0)	m	m	m	m	m	m	506	(1.1)	503	(1.0)	**-4**	(1.2)
	OECD average - 2015	m	m	m	m	m	m	472	(1.4)	481	(1.4)	9	(1.4)	498	(1.1)	494	(1.0)	**-4**	(1.2)
Partners	Brazil	m	m	m	m	m	m	389	(4.5)	397	(4.3)	8	(4.4)	419	(2.6)	421	(2.7)	2	(2.5)
	Bulgaria	m	m	m	m	m	m	m	m	m	m	m	m	423	(5.1)	442	(4.5)	**19**	(5.1)
	Georgia	m	m	m	m	m	m	m	m	m	m	m	m	397	(3.3)	409	(2.7)	**12**	(3.4)
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	379	(3.7)	397	(3.4)	**18**	(3.1)
	Peru	m	m	m	m	m	m	400	(4.1)	405	(4.0)	5	(4.5)	416	(3.7)	405	(3.6)	**-10**	(3.8)
	Russia	487	(4.5)	486	(4.2)	-1	(4.7)	510	(4.2)	514	(3.3)	3	(3.6)	498	(3.4)	493	(3.1)	-5	(2.7)
	Serbia	m	m	m	m	m	m	m	m	m	m	m	m	441	(3.5)	447	(3.5)	6	(4.0)
	Netherlands**	m	m	m	m	m	m	507	(3.9)	512	(3.6)	5	(3.6)	557	(3.4)	559	(3.1)	2	(3.9)

Notes: Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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Table IV.B1.3.8 [2/2] **Change over time in mean financial literacy scores, by gender**

		Change between 2012 and 2018 (PISA 2018 - PISA 2012)						Change between 2015 and 2018 (PISA 2018 - PISA 2015)					
		Boys		Girls		Difference (girls - boys)		Boys		Girls		Difference (girls - boys)	
		Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.
OECD	Australia	-13	(6.9)	**-18**	(6.7)	-5	(5.2)	14	(10.1)	0	(10.0)	**-14**	(4.4)
	Canadian provinces	m	m	m	m	m	m	5	(11.3)	-7	(11.2)	**-11**	(5.2)
	Chile	m	m	m	m	m	m	19	(11.1)	18	(10.7)	-1	(6.1)
	Estonia	**21**	(7.6)	**15**	(7.4)	-6	(6.8)	m	m	m	m	m	m
	Finland	m	m	m	m	m	m	m	m	m	m	m	m
	Italy	14	(7.0)	7	(6.5)	-7	(4.5)	-5	(10.6)	-9	(10.5)	-4	(6.3)
	Latvia	4	(7.8)	-3	(7.4)	-7	(7.2)	m	m	m	m	m	m
	Lithuania	m	m	m	m	m	m	**61**	(10.3)	**38**	(10.2)	**-23**	(4.5)
	Poland	11	(8.0)	8	(7.5)	-4	(6.0)	**45**	(10.6)	**23**	(10.3)	**-23**	(4.9)
	Portugal*	m	m	m	m	m	m	m	m	m	m	m	m
	Slovak Republic	13	(8.6)	9	(8.8)	-4	(8.0)	**48**	(11.0)	**23**	(11.3)	**-26**	(6.7)
	Spain	5	(7.5)	12	(7.4)	7	(6.3)	**28**	(10.4)	19	(10.5)	**-9**	(5.0)
	United States*	17	(9.3)	11	(8.9)	-5	(8.2)	20	(11.1)	16	(10.8)	-4	(5.2)
	OECD average - 2012	9	(5.9)	5	(5.8)	-4	(2.4)	m	m	m	m	m	m
	OECD average - 2015	m	m	m	m	m	m	**26**	(9.5)	14	(9.5)	**-13**	(1.8)
Partners	Brazil	m	m	m	m	m	m	**30**	(10.7)	**24**	(10.7)	-6	(5.0)
	Bulgaria	m	m	m	m	m	m	m	m	m	m	m	m
	Georgia	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m
	Peru	m	m	m	m	m	m	15	(10.9)	0	(10.8)	**-15**	(5.9)
	Russia	11	(7.9)	7	(7.6)	-4	(5.5)	-13	(10.8)	**-21**	(10.4)	-9	(4.5)
	Serbia	m	m	m	m	m	m	m	m	m	m	m	m
	Netherlands**	m	m	m	m	m	m	**50**	(10.7)	**47**	(10.5)	-3	(5.3)

Notes: Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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Table IV.B1.3.10 **Mean scores in financial literacy, by students' socio-economic status**
Results based on students' reports

		Performance in financial literacy, by national quarter of ESCS[1]								Difference in financial literacy performance between students in the top and bottom quarter of this index (top - bottom)	
		Bottom quarter		Second quarter		Third quarter		Top quarter			
		Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.
OECD	**Australia**	467	(3.3)	501	(3.1)	525	(3.8)	556	(3.1)	**89**	(4.6)
	Canadian provinces	500	(4.6)	523	(3.9)	546	(5.5)	565	(4.3)	**65**	(5.7)
	Chile	411	(4.6)	440	(4.6)	454	(4.2)	500	(4.4)	**89**	(6.2)
	Estonia	525	(3.4)	535	(3.6)	556	(3.6)	580	(3.0)	**55**	(4.4)
	Finland	497	(3.9)	524	(3.7)	550	(4.7)	583	(4.0)	**86**	(5.8)
	Italy	440	(4.1)	473	(3.4)	488	(3.8)	506	(3.9)	**66**	(5.2)
	Latvia	473	(3.7)	490	(3.3)	514	(3.5)	531	(3.2)	**59**	(4.8)
	Lithuania	459	(3.9)	491	(3.4)	511	(3.2)	537	(3.3)	**78**	(5.3)
	Poland	485	(4.2)	510	(3.5)	530	(3.9)	556	(4.2)	**71**	(5.7)
	Portugal*	462	(4.3)	498	(3.6)	512	(4.4)	552	(3.9)	**90**	(5.3)
	Slovak Republic	430	(4.4)	475	(3.6)	490	(3.7)	531	(4.7)	**101**	(6.2)
	Spain	463	(4.2)	479	(3.5)	504	(3.4)	525	(3.6)	**63**	(5.1)
	United States*	457	(4.6)	492	(5.1)	520	(5.1)	555	(5.2)	**98**	(6.6)
	OECD average	467	(1.1)	495	(1.0)	515	(1.1)	544	(1.1)	**78**	(1.5)
Partners	**Brazil**	381	(2.8)	402	(3.0)	427	(3.4)	478	(5.0)	**98**	(5.6)
	Bulgaria	382	(5.3)	418	(6.6)	446	(5.2)	489	(5.5)	**108**	(6.7)
	Georgia	365	(3.8)	391	(3.7)	414	(4.6)	444	(3.8)	**79**	(4.9)
	Indonesia	368	(4.0)	374	(4.3)	394	(5.6)	418	(7.1)	**50**	(7.9)
	Peru	354	(3.6)	397	(4.8)	421	(4.4)	472	(5.3)	**118**	(5.7)
	Russia	455	(4.9)	489	(3.0)	508	(4.5)	529	(4.5)	**75**	(6.4)
	Serbia	414	(4.6)	431	(4.2)	450	(4.6)	484	(4.3)	**71**	(5.9)
	Average all countries/ economies	439	(0.9)	467	(0.9)	488	(1.0)	520	(1.0)	**80**	(1.3)
	Netherlands**	522	(5.1)	542	(3.9)	570	(5.4)	605	(5.0)	**82**	(7.4)

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

Notes: Values that are statistically significant are indicated in bold (see Annex A3).

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Table IV.B1.3.11 **Mean scores in financial literacy, by students' socio-economic status**

		Score-point difference in financial literacy associated with a one-unit increase in ESCS[1] (slope of the socio-economic gradient)		Percentage of the variation in student performance in financial literacy explained by ESCS (strength of the socio-economic gradient)	
		Score dif.	S.E.	%	S.E.
OECD	**Australia**	37	(1.7)	10.0	(0.8)
	Canadian provinces	30	(2.6)	6.4	(1.0)
	Chile	34	(1.9)	13.2	(1.4)
	Estonia	27	(2.1)	6.1	(0.8)
	Finland	39	(2.5)	9.4	(1.1)
	Italy	29	(2.1)	7.9	(1.1)
	Latvia	27	(2.0)	8.2	(1.1)
	Lithuania	35	(2.2)	11.8	(1.4)
	Poland	32	(2.5)	9.4	(1.4)
	Portugal*	28	(1.6)	12.9	(1.4)
	Slovak Republic	44	(2.6)	15.2	(1.6)
	Spain	24	(1.7)	7.9	(1.1)
	United States*	36	(2.1)	14.0	(1.5)
	OECD average	33	(0.6)	10.2	(0.3)
Partners	**Brazil**	31	(1.6)	15.7	(1.4)
	Bulgaria	38	(2.8)	14.8	(1.6)
	Georgia	32	(1.9)	10.4	(1.1)
	Indonesia	18	(2.6)	6.4	(1.7)
	Peru	38	(1.5)	20.7	(1.6)
	Russia	37	(3.1)	10.2	(1.4)
	Serbia	33	(2.7)	8.4	(1.3)
	Average all countries/ economies	33	(0.5)	11.0	(0.3)
	Netherlands**	38	(2.8)	8.8	(1.3)

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

Notes: Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/ economies.

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Table IV.B1.3.13 **Students and school location**

		Percentage of students attending schools located in...					
		A village, hamlet or rural area (fewer than 3 000 people)		A town (3 000 to 100 000 people)		A city (100 000 people or more)	
		%	S.E.	%	S.E.	%	S.E.
OECD	Australia	4.3	(0.8)	26.6	(1.4)	69.1	(1.3)
	Canadian provinces	5.6	(1.2)	33.6	(3.0)	60.8	(2.9)
	Chile	3.4	(1.4)	36.9	(3.7)	59.7	(3.6)
	Estonia	23.3	(1.6)	46.0	(1.5)	30.7	(0.9)
	Finland	6.4	(1.6)	60.6	(3.6)	32.9	(3.0)
	Italy	1.4	(0.7)	70.6	(2.3)	28.0	(2.1)
	Latvia	19.6	(1.1)	49.4	(1.5)	31.1	(1.1)
	Lithuania	21.1	(1.0)	41.2	(1.3)	37.7	(0.9)
	Poland	29.5	(2.1)	48.9	(2.6)	21.5	(2.0)
	Portugal*	1.8	(0.7)	71.8	(2.6)	26.3	(2.6)
	Slovak Republic	16.0	(1.4)	67.8	(2.0)	16.2	(1.6)
	Spain	3.0	(0.8)	64.7	(2.8)	32.3	(2.6)
	United States*	5.9	(1.9)	53.3	(4.0)	40.8	(3.6)
	OECD average	10.9	(0.4)	51.6	(0.7)	37.5	(0.7)
Partners	Brazil	5.1	(1.0)	46.8	(2.0)	48.1	(1.9)
	Bulgaria	3.0	(0.9)	57.6	(1.9)	39.5	(1.8)
	Georgia	30.2	(1.2)	23.2	(2.2)	46.5	(2.0)
	Indonesia	24.4	(3.5)	61.4	(4.1)	14.2	(2.6)
	Peru	29.0	(2.4)	55.1	(3.2)	15.9	(2.1)
	Russia	13.8	(1.9)	38.3	(2.9)	47.9	(2.3)
	Serbia	0.3	(0.2)	51.3	(2.8)	48.4	(2.8)
	Average all countries/ economies	12.4	(0.3)	50.3	(0.6)	37.4	(0.5)
	Netherlands**	1.5	(1.0)	68.8	(3.9)	29.8	(3.9)

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Table IV.B1.3.14 **Students at each proficiency level in financial literacy, by gender**

		Students attending schools located in a village, hamlet or rural area (fewer than 3 000 people)		Students attending schools located in a town (3 000 to about 100 000 people)		Students attending schools located in a city (100 000 people or more)		Difference in financial literacy performance between students attending schools located in a city (100 000 people or more) and those attending schools in a village, hamlet or rural area (fewer than 3 000 people) (urban - rural)					
								Before accounting for ESCS[1]		After accounting for ESCS		After accounting for ESCS and ISCED level[2]	
		Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.
OECD	**Australia**	472	(12.6)	496	(4.0)	520	(2.5)	48	(12.8)	30	(11.7)	30	(12.0)
	Canadian provinces	510	(5.8)	523	(5.1)	540	(4.1)	30	(6.7)	23	(6.3)	21	(6.2)
	Chile	390	(14.9)	445	(4.5)	463	(4.5)	72	(15.5)	45	(13.2)	36	(11.4)
	Estonia	544	(5.4)	542	(2.5)	558	(3.1)	14	(6.2)	-1	(5.8)	-2	(5.7)
	Finland	534	(8.1)	535	(2.4)	541	(5.1)	7	(9.4)	-14	(8.3)	-14	(8.3)
	Italy	445	(36.6)	475	(3.6)	485	(7.1)	40	(38.1)	31	(34.2)	33	(34.5)
	Latvia	468	(4.8)	500	(2.5)	515	(3.4)	47	(5.7)	30	(6.0)	29	(6.1)
	Lithuania	456	(4.6)	497	(2.7)	523	(3.4)	67	(6.1)	42	(6.3)	42	(6.3)
	Poland	499	(3.7)	524	(3.3)	537	(7.0)	38	(7.9)	18	(8.2)	16	(8.0)
	Portugal*	438	(24.9)	499	(3.0)	528	(5.8)	90	(24.8)	64	(24.2)	31	(19.7)
	Slovak Republic	430	(7.1)	483	(2.9)	528	(7.3)	99	(10.4)	60	(10.3)	42	(13.9)
	Spain	476	(8.9)	488	(2.9)	499	(4.1)	23	(9.6)	5	(9.0)	5	(9.0)
	United States*	494	(13.0)	510	(4.6)	507	(6.1)	13	(14.3)	3	(10.3)	0	(8.9)
	OECD average	474	(4.1)	501	(1.0)	519	(1.4)	45	(4.3)	26	(4.0)	21	(3.8)
Partners	**Brazil**	359	(8.7)	409	(3.6)	438	(3.9)	79	(9.0)	28	(9.4)	7	(6.9)
	Bulgaria	356	(8.6)	415	(5.8)	469	(6.2)	113	(9.6)	68	(16.1)	67	(16.1)
	Georgia	370	(4.1)	390	(5.4)	431	(4.0)	62	(5.8)	44	(5.7)	45	(5.7)
	Indonesia	362	(6.7)	387	(4.7)	450	(10.4)	88	(12.7)	70	(11.9)	59	(9.8)
	Peru	366	(5.4)	420	(4.0)	459	(8.4)	93	(10.3)	49	(9.5)	38	(7.8)
	Russia	466	(6.9)	485	(5.9)	513	(4.7)	47	(8.8)	27	(8.7)	27	(8.7)
	Serbia	c	c	430	(4.7)	459	(4.8)	c	c	c	c	m	m
	Average all countries/ economies	444	(2.9)	473	(0.9)	498	(1.3)	56	(3.2)	33	(3.0)	27	(2.9)
	Netherlands**	c	c	562	(4.8)	559	(10.2)	c	c	c	c	c	c

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: Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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Table IV.B1.3.19 [1/2] **Change between 2012 and 2018 in the percentage of students with an immigrant background**

		PISA 2012								PISA 2015							
		Non-immigrant students		Immigrant students		Second-generation immigrant students		First-generation immigrant students		Non-immigrant students		Immigrant students		Second-generation immigrant students		First-generation immigrant students	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	78.6	(1.1)	21.4	(1.1)	12.3	(0.8)	9.1	(0.7)	72.6	(0.9)	27.4	(0.9)	13.3	(0.5)	14.2	(0.6)
	Canadian provinces	m	m	m	m	m	m	m	m	61.2	(2.2)	38.8	(2.2)	22.6	(1.6)	16.2	(1.0)
	Chile	m	m	m	m	m	m	m	m	96.5	(0.4)	3.5	(0.4)	0.8	(0.2)	2.7	(0.4)
	Estonia	90.4	(0.9)	9.6	(0.9)	9.0	(0.8)	0.6	(0.3)	90.3	(0.5)	9.7	(0.5)	9.0	(0.5)	0.7	(0.2)
	Finland	m	m	m	m	m	m	m	m	94.2	(0.6)	5.8	(0.6)	2.6	(0.3)	3.3	(0.4)
	Italy	92.5	(0.5)	7.5	(0.5)	2.4	(0.2)	5.1	(0.4)	90.2	(0.5)	9.8	(0.5)	5.7	(0.5)	4.0	(0.3)
	Latvia	96.6	(0.6)	3.4	(0.6)	3.0	(0.6)	0.3	(0.2)	95.6	(0.4)	4.4	(0.4)	3.7	(0.4)	0.7	(0.2)
	Lithuania	m	m	m	m	m	m	m	m	98.4	(0.2)	1.6	(0.2)	1.3	(0.2)	0.3	(0.1)
	Poland	99.9	(0.1)	0.1	(0.1)	0.0	c	0.1	(0.1)	99.3	(0.2)	0.7	(0.2)	0.3	(0.1)	0.5	(0.2)
	Portugal*	m	m	m	m	m	m	m	m	92.8	(0.5)	7.2	(0.5)	4.4	(0.4)	2.8	(0.3)
	Slovak Republic	99.0	(0.4)	1.0	(0.4)	0.5	(0.2)	0.5	(0.4)	98.8	(0.2)	1.2	(0.2)	0.7	(0.1)	0.5	(0.1)
	Spain	88.6	(1.1)	11.4	(1.1)	1.6	(0.4)	9.7	(1.1)	88.4	(0.7)	11.6	(0.7)	5.0	(0.5)	6.6	(0.4)
	United States*	77.0	(2.4)	23.0	(2.4)	17.2	(2.2)	5.8	(0.8)	75.8	(1.5)	24.2	(1.5)	17.9	(1.2)	6.3	(0.6)
	OECD average	90.3	(0.4)	9.7	(0.4)	5.8	(0.3)	3.9	(0.2)	88.8	(0.2)	11.2	(0.2)	6.7	(0.2)	4.5	(0.1)
Partners	Brazil	m	m	m	m	m	m	m	m	99.3	(0.1)	0.7	(0.1)	0.5	(0.1)	0.2	(0.0)
	Bulgaria	m	m	m	m	m	m	m	m	98.9	(0.2)	1.1	(0.2)	0.7	(0.1)	0.4	(0.1)
	Georgia	m	m	m	m	m	m	m	m	98.8	(0.2)	1.2	(0.2)	0.4	(0.1)	0.8	(0.2)
	Indonesia	m	m	m	m	m	m	m	m	99.7	(0.1)	0.3	(0.1)	0.1	(0.0)	0.2	(0.1)
	Peru	m	m	m	m	m	m	m	m	99.6	(0.1)	0.4	(0.1)	0.3	(0.1)	0.1	(0.1)
	Russia	90.2	(1.0)	9.8	(1.0)	7.2	(0.8)	2.6	(0.6)	94.4	(0.4)	5.6	(0.4)	3.1	(0.3)	2.4	(0.3)
	Serbia	m	m	m	m	m	m	m	m	90.7	(0.5)	9.3	(0.5)	8.3	(0.5)	0.9	(0.1)
	Average all countries/ economies	90.3	(0.4)	9.7	(0.4)	5.9	(0.3)	3.8	(0.2)	91.8	(0.2)	8.2	(0.2)	5.0	(0.1)	3.2	(0.1)
	Netherlands**	m	m	m	m	m	m	m	m	88.3	(1.1)	11.7	(1.1)	10.1	(1.0)	1.5	(0.3)

Notes: Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.3.19 [2/2] **Change between 2012 and 2018 in the percentage of students with an immigrant background**

		Change between PISA 2012 and PISA 2018 (PISA 2018 - PISA 2012)							
		Non-immigrant students		Immigrant students		Second-generation immigrant students		First-generation immigrant students	
		% dif.	S.E.	% dif.	S.E.	% dif.	S.E.	% dif.	S.E.
OECD	Australia	**-6.0**	(1.4)	**6.0**	(1.4)	1.0	(0.9)	**5.1**	(0.9)
	Canadian provinces	m	m	m	m	m	m	m	m
	Chile	m	m	m	m	m	m	m	m
	Estonia	-0.1	(1.0)	0.1	(1.0)	-0.1	(1.0)	0.1	(0.4)
	Finland	m	m	m	m	m	m	m	m
	Italy	**-2.2**	(0.7)	**2.2**	(0.7)	**3.3**	(0.5)	**-1.1**	(0.5)
	Latvia	-1.1	(0.8)	1.1	(0.8)	0.7	(0.7)	0.4	(0.2)
	Lithuania	m	m	m	m	m	m	m	m
	Poland	-0.6	(0.2)	0.6	(0.2)	**0.3**	(0.1)	0.4	(0.2)
	Portugal*	m	m	m	m	m	m	m	m
	Slovak Republic	-0.2	(0.5)	0.2	(0.5)	0.2	(0.3)	0.0	(0.4)
	Spain	-0.2	(1.3)	0.2	(1.3)	3.4	(0.6)	**-3.2**	(1.2)
	United States*	-1.2	(2.9)	1.2	(2.9)	0.8	(2.5)	0.4	(1.0)
	OECD average	**-1.4**	(0.5)	**1.4**	(0.5)	**1.2**	(0.4)	0.3	(0.2)
Partners	Brazil	m	m	m	m	m	m	m	m
	Bulgaria	m	m	m	m	m	m	m	m
	Georgia	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m
	Peru	m	m	m	m	m	m	m	m
	Russia	**4.3**	(1.0)	**-4.3**	(1.0)	**-4.1**	(0.9)	-0.2	(0.6)
	Serbia	m	m	m	m	m	m	m	m
	Average all countries/ economies	-0.8	(0.4)	0.8	(0.4)	0.6	(0.4)	0.2	(0.2)
	Netherlands**	m	m	m	m	m	m	m	m

Notes: Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.3.20 **Students' immigrant background and performance in financial literacy**
Results based on students' reports

		Financial literacy performance							
						Difference in financial literacy performance between non-immigrant and immigrant students in PISA 2018 (immigrant - non-immigrant)			
		Non-immigrant students		Immigrant students		Before accounting for ESCS[1]		After accounting for ESCS	
		Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.
OECD	**Australia**	512	(2.2)	519	(3.8)	7	(3.9)	**11**	(3.6)
	Canadian provinces	533	(3.4)	537	(4.8)	4	(5.0)	6	(4.7)
	Chile	454	(3.0)	425	(10.1)	**-29**	(10.0)	**-23**	(9.9)
	Estonia	552	(2.1)	519	(5.4)	**-33**	(5.7)	**-33**	(5.6)
	Finland	543	(2.1)	464	(8.9)	**-79**	(8.7)	**-58**	(8.9)
	Italy	481	(2.7)	447	(6.5)	**-34**	(6.7)	**-17**	(6.8)
	Latvia	502	(1.8)	498	(8.1)	-4	(8.3)	-5	(8.4)
	Lithuania	500	(1.8)	441	(14.0)	**-59**	(14.2)	**-53**	(13.3)
	Poland	521	(2.5)	c	c	c	c	c	c
	Portugal*	508	(2.7)	476	(8.3)	**-32**	(8.6)	**-26**	(8.4)
	Slovak Republic	483	(2.3)	425	(23.2)	**-58**	(23.1)	**-58**	(20.4)
	Spain	497	(2.2)	468	(4.5)	**-28**	(4.5)	**-13**	(4.7)
	United States*	511	(3.4)	498	(5.5)	**-13**	(5.4)	**9**	(4.3)
	OECD average	508	(0.7)	477	(2.9)	**-30**	(2.9)	**-22**	(2.7)
Partners	**Brazil**	425	(2.3)	373	(20.8)	**-51**	(20.5)	**-50**	(20.2)
	Bulgaria	437	(4.1)	395	(20.2)	**-42**	(20.1)	**-47**	(18.9)
	Georgia	408	(2.5)	333	(14.8)	**-75**	(15.3)	**-69**	(15.9)
	Indonesia	390	(3.3)	c	c	c	c	c	c
	Peru	413	(3.1)	c	c	c	c	c	c
	Russia	496	(2.9)	497	(7.3)	1	(6.4)	4	(6.0)
	Serbia	446	(2.8)	443	(8.1)	-3	(8.0)	-1	(7.6)
	Average all countries/ economies	481	(0.6)	456	(2.9)	**-31**	(2.9)	**-25**	(2.7)
	Netherlands**	567	(2.9)	503	(7.4)	**-65**	(8.2)	**-42**	(7.9)

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

Notes: Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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Table IV.B1.3.23 **Language spoken at home**
Results based on students' reports

		All students				Non-immigrant students				Immigrant students				Difference between non-immigrant students and immigrant students (immigrant - non-immigrant)			
		Students who speak the language of assessment at home		Students who speak another language at home		Students who speak the language of assessment at home		Students who speak another language at home		Students who speak the language of assessment at home		Students who speak another language at home		Students who speak the language of assessment at home		Students who speak another language at home	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.	% dif.	S.E.
OECD	Australia	86.2	(0.6)	13.8	(0.6)	97.3	(0.2)	2.7	(0.2)	57.7	(1.6)	42.3	(1.6)	**-39.5**	(1.6)	**39.5**	(1.6)
	Canadian provinces	79.1	(1.4)	20.9	(1.4)	96.1	(0.4)	3.9	(0.4)	52.9	(2.0)	47.1	(2.0)	**-43.3**	(1.9)	**43.3**	(1.9)
	Chile	98.3	(0.2)	1.7	(0.2)	98.6	(0.2)	1.4	(0.2)	89.4	(3.6)	10.6	(3.6)	**-9.3**	(3.6)	**9.3**	(3.6)
	Estonia	95.0	(0.4)	5.0	(0.4)	95.7	(0.4)	4.3	(0.4)	88.5	(1.7)	11.5	(1.7)	**-7.2**	(1.6)	**7.2**	(1.6)
	Finland	92.4	(0.6)	7.6	(0.6)	96.8	(0.5)	3.2	(0.5)	26.5	(3.0)	73.5	(3.0)	**-70.3**	(3.0)	**70.3**	(3.0)
	Italy	81.3	(0.7)	18.7	(0.7)	86.3	(0.7)	13.7	(0.7)	36.7	(2.3)	63.3	(2.3)	**-49.7**	(2.4)	**49.7**	(2.4)
	Latvia	89.7	(0.7)	10.3	(0.7)	90.5	(0.7)	9.5	(0.7)	75.8	(4.0)	24.2	(4.0)	**-14.7**	(4.0)	**14.7**	(4.0)
	Lithuania	93.6	(0.5)	6.4	(0.5)	94.1	(0.4)	5.9	(0.4)	65.5	(6.3)	34.5	(6.3)	**-28.6**	(6.3)	**28.6**	(6.3)
	Poland	98.3	(0.3)	1.7	(0.3)	98.9	(0.2)	1.1	(0.2)	c	c	c	c	c	c	c	c
	Portugal*	97.4	(0.3)	2.6	(0.3)	99.1	(0.2)	0.9	(0.2)	76.4	(2.3)	23.6	(2.3)	**-22.7**	(2.3)	**22.7**	(2.3)
	Slovak Republic	92.5	(0.9)	7.5	(0.9)	93.1	(0.9)	6.9	(0.9)	51.3	(7.6)	48.7	(7.6)	**-41.8**	(7.7)	**41.8**	(7.7)
	Spain	79.8	(1.3)	20.2	(1.3)	83.8	(1.3)	16.2	(1.3)	50.2	(3.1)	49.8	(3.1)	**-33.6**	(3.3)	**33.6**	(3.3)
	United States*	83.4	(1.2)	16.6	(1.2)	97.3	(0.4)	2.7	(0.4)	40.9	(2.1)	59.1	(2.1)	**-56.4**	(2.1)	**56.4**	(2.1)
	OECD average	89.8	(0.2)	10.2	(0.2)	94.4	(0.2)	5.6	(0.2)	59.3	(1.1)	40.7	(1.1)	**-34.8**	(1.1)	**34.8**	(1.1)
Partners	Brazil	98.6	(0.2)	1.4	(0.2)	98.9	(0.2)	1.1	(0.2)	71.3	(7.3)	28.7	(7.3)	**-27.6**	(7.3)	**27.6**	(7.3)
	Bulgaria	86.3	(1.3)	13.7	(1.3)	87.3	(1.2)	12.7	(1.2)	34.1	(8.5)	65.9	(8.5)	**-53.2**	(8.7)	**53.2**	(8.7)
	Georgia	94.1	(0.5)	5.9	(0.5)	94.5	(0.5)	5.5	(0.5)	64.6	(7.4)	35.4	(7.4)	**-29.9**	(7.4)	**29.9**	(7.4)
	Indonesia	47.0	(2.5)	53.0	(2.5)	46.7	(2.5)	53.3	(2.5)	c	c	c	c	c	c	c	c
	Peru	93.2	(0.7)	6.8	(0.7)	93.3	(0.7)	6.7	(0.7)	c	c	c	c	c	c	c	c
	Russia	91.9	(1.0)	8.1	(1.0)	92.6	(1.1)	7.4	(1.1)	82.8	(2.5)	17.2	(2.5)	**-9.8**	(2.7)	**9.8**	(2.7)
	Serbia	95.2	(0.6)	4.8	(0.6)	95.6	(0.5)	4.4	(0.5)	91.3	(2.1)	8.7	(2.1)	**-4.3**	(1.9)	**4.3**	(1.9)
	Average all countries/ economies	88.7	(0.2)	11.3	(0.2)	91.8	(0.2)	8.2	(0.2)	62.1	(1.1)	37.9	(1.1)	**-31.9**	(1.1)	**31.9**	(1.1)
	Netherlands**	92.3	(0.7)	7.7	(0.7)	98.1	(0.3)	1.9	(0.3)	49.2	(3.1)	50.8	(3.1)	**-49.0**	(3.1)	**49.0**	(3.1)

Notes: Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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Table IV.B1.3.24 [1/2] **Student performance in financial literacy, by language spoken at home**
Results based on students' reports

		All students								Immigrant students							
		Students who speak the language of assessment at home		Students who speak another language at home		Difference in financial literacy performance between students who speak the language of assessment at home and those who do not (speak - do not speak the language of assessment at home)				Students who speak the language of assessment at home		Students who speak another language at home		Difference in financial literacy performance between students who speak the language of assessment at home and those who do not (speak - do not speak the language of assessment at home)			
						Before accounting for ESCS[1]		After accounting for ESCS						Before accounting for ESCS		After accounting for ESCS	
		Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.	Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.
OECD	Australia	515	(2.1)	491	(6.3)	**24**	-(6.3)	**12**	-(6.0)	529	(4.4)	507	(6.1)	**21**	-(7.1)	12	-(7.2)
	Canadian provinces	536	(3.4)	526	(5.8)	10	-(5.9)	6	-(5.2)	542	(5.8)	532	(6.4)	10	-(7.5)	7	-(6.7)
	Chile	451	(3.0)	448	(15.4)	3	-(15.4)	10	-(13.7)	428	(9.5)	c	c	m	m	m	m
	Estonia	551	(2.0)	515	(8.2)	**35**	-(7.8)	**34**	-(7.9)	522	(5.6)	502	(15.6)	20	-(16.1)	16	-(15.8)
	Finland	542	(2.2)	484	(8.7)	**58**	-(8.4)	**48**	-(7.2)	472	(15.7)	461	(11.1)	11	-(20.0)	11	-(18.9)
	Italy	484	(2.8)	446	(4.2)	**38**	-(4.7)	**22**	-(4.4)	472	(8.7)	433	(7.3)	**39**	-(9.6)	33	-(9.7)
	Latvia	506	(1.9)	460	(5.2)	**47**	-(5.4)	**39**	-(5.2)	503	(9.7)	482	(14.8)	21	-(18.0)	20	-(16.4)
	Lithuania	501	(1.9)	460	(7.6)	**41**	-(8.0)	**33**	-(7.5)	443	(14.3)	c	c	m	m	m	m
	Poland	521	(2.5)	481	(12.2)	**40**	-(11.9)	**48**	-(12.0)	c	c	c	c	m	m	m	m
	Portugal*	507	(2.7)	457	(13.5)	**50**	-(13.8)	**44**	-(13.2)	484	(8.3)	452	(19.1)	32	-(19.7)	26	-(19.0)
	Slovak Republic	489	(2.3)	397	(9.0)	**92**	-(9.2)	**70**	-(7.9)	c	c	c	c	m	m	m	m
	Spain	493	(2.3)	492	(5.2)	1	-(5.5)	-4	-(4.8)	466	(4.7)	471	(7.5)	-5	-(8.6)	-5	-(8.4)
	United States*	511	(3.3)	480	(6.1)	**31**	-(5.7)	0	-(5.1)	518	(8.0)	484	(5.9)	**34**	-(8.5)	9	-(8.1)
	OECD average	508	(0.7)	472	(2.5)	**36**	(2.5)	**28**	(2.3)	489	(2.8)	480	(3.8)	**20**	(4.6)	**14**	(4.4)
Partners	Brazil	422	(2.3)	400	(15.0)	22	-(14.8)	**38**	-(15.2)	343	(21.3)	c	c	m	m	m	m
	Bulgaria	444	(4.0)	369	(7.8)	**75**	-(7.8)	**44**	-(8.4)	c	c	c	c	m	m	m	m
	Georgia	406	(2.6)	375	(8.2)	**31**	-(8.6)	**31**	-(8.9)	c	c	c	c	m	m	m	m
	Indonesia	389	(4.7)	389	(3.9)	0	-(5.6)	**-12**	-(5.3)	c	c	c	c	m	m	m	m
	Peru	417	(3.0)	338	(8.1)	**79**	-(7.9)	**51**	-(8.7)	c	c	c	c	m	m	m	m
	Russia	501	(2.8)	428	(10.7)	**74**	-(11.0)	**62**	-(9.8)	511	(7.6)	433	(12.2)	**78**	-(13.4)	**62**	-(13.7)
	Serbia	446	(2.8)	421	(14.4)	25	-(14.4)	19	-(13.5)	444	(8.2)	442	(27.7)	2	-(27.5)	-1	-(26.6)
	Average all countries/ economies	482	(0.6)	443	(2.1)	**39**	(2.1)	**30**	(2.0)	477	(2.8)	473	(4.2)	**24**	(4.7)	**17**	(4.5)
	Netherlands**	566	(2.7)	487	(8.2)	**79**	-(8.7)	**55**	-(9.0)	525	(9.5)	482	(9.4)	**43**	-(11.7)	**42**	-(11.5)

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

Notes: Means and differences in financial literacy performance between students who speak the language of assessment at home and those who do not are calculated considering only students for whom data on the PISA index of economic, social and cultural status and on immigrant background are available. Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.3.24 [2/2] **Student performance in financial literacy, by language spoken at home**
Results based on students' reports

		Non-immigrant students							
		Students who speak the language of assessment at home		Students who speak another language at home		Difference in financial literacy performance between students who speak the language of assessment at home and those who do not (speak - do not speak the language of assessment at home)			
						Before accounting for ESCS[1]		After accounting for ESCS	
		Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.
OECD	Australia	515	(2.2)	431	(13.6)	**84**	-(13.6)	**69**	-(12.9)
	Canadian provinces	535	(3.6)	487	(7.2)	**49**	-(7.9)	**43**	-(7.9)
	Chile	454	(3.0)	461	(16.5)	-7	-(16.5)	1	-(15.9)
	Estonia	554	(2.1)	521	(9.6)	**33**	-(9.4)	**32**	-(9.6)
	Finland	544	(2.1)	526	(8.5)	**17**	-(8.6)	**27**	-(8.4)
	Italy	485	(2.8)	456	(5.3)	**29**	-(5.6)	**16**	-(5.1)
	Latvia	507	(1.9)	457	(5.6)	**49**	-(5.8)	**41**	-(5.9)
	Lithuania	502	(1.9)	463	(8.0)	**39**	-(8.3)	**30**	-(7.7)
	Poland	521	(2.5)	488	(14.5)	**33**	-(14.6)	**34**	-(13.9)
	Portugal*	509	(2.7)	468	(17.1)	**41**	-(17.5)	**43**	-(15.2)
	Slovak Republic	490	(2.4)	399	(8.8)	**91**	-(9.0)	**68**	-(8.3)
	Spain	496	(2.4)	502	(4.7)	-7	-(5.1)	-8	-(4.4)
	United States*	512	(3.5)	465	(13.1)	**47**	-(13.4)	**26**	-(11.6)
	OECD average	510	(0.7)	471	(3.0)	**38**	(3.1)	**33**	(2.9)
Partners	Brazil	425	(2.3)	414	(15.3)	12	-(15.4)	**25**	-(14.8)
	Bulgaria	447	(4.0)	371	(8.3)	**75**	-(8.3)	**41**	-(8.9)
	Georgia	409	(2.5)	383	(8.7)	**26**	-(9.0)	**27**	-(9.3)
	Indonesia	391	(4.9)	389	(3.9)	2	-(5.9)	**-11**	-(5.4)
	Peru	419	(3.0)	340	(8.0)	**79**	-(7.7)	**49**	-(8.3)
	Russia	501	(2.7)	428	(12.1)	**74**	-(12.5)	**63**	-(10.9)
	Serbia	447	(2.8)	418	(13.1)	**29**	-(13.3)	22	-(12.3)
	Average all countries/ economies	483	(0.6)	443	(2.4)	**40**	(2.5)	**32**	(2.3)
	Netherlands**	569	(2.9)	502	(13.9)	**67**	-(14.0)	**58**	-(14.9)

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

Notes: Means and differences in financial literacy performance between students who speak the language of assessment at home and those who do not are calculated considering only students for whom data on the PISA index of economic, social and cultural status and on immigrant background are available. Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.4.1 **Students' sources of information about money matters**
Results based on students' reports

		Percentage of students who obtain information about money matters (e.g. spending, saving, banking or investment) from...											
		Parents, guardians or other adult relations		Friends		Television or radio		The Internet		Magazines		Teachers	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	96.1	(0.2)	52.0	(0.6)	33.5	(0.6)	64.8	(0.7)	15.3	(0.6)	60.5	(0.7)
	Canadian provinces	95.9	(0.4)	47.7	(1.0)	30.9	(1.0)	66.1	(0.9)	14.6	(0.7)	57.1	(1.0)
	Chile	93.8	(0.5)	47.5	(0.8)	58.4	(0.9)	81.3	(0.7)	25.5	(0.7)	44.8	(1.3)
	Estonia	94.5	(0.4)	58.6	(1.0)	44.9	(1.1)	82.4	(0.7)	30.7	(0.8)	50.8	(0.8)
	Finland	96.9	(0.3)	52.6	(0.8)	33.4	(0.9)	77.3	(0.7)	31.2	(0.9)	71.5	(0.8)
	Italy	90.5	(0.5)	40.8	(0.9)	65.0	(0.8)	82.7	(0.7)	27.6	(0.8)	44.2	(1.0)
	Latvia	94.7	(0.4)	54.9	(1.0)	51.5	(0.9)	85.8	(0.7)	24.9	(0.9)	51.9	(1.1)
	Lithuania	93.8	(0.4)	55.0	(0.9)	59.5	(1.1)	81.1	(0.8)	33.3	(1.0)	51.0	(1.2)
	Poland	93.6	(0.4)	58.4	(0.8)	54.6	(1.0)	78.7	(0.8)	25.8	(0.9)	34.3	(1.2)
	Portugal*	94.7	(0.4)	51.4	(1.0)	76.2	(0.6)	81.7	(0.6)	28.4	(0.9)	43.3	(0.9)
	Slovak Republic	92.6	(0.5)	53.5	(1.0)	64.7	(1.1)	78.8	(0.9)	39.3	(1.0)	55.3	(1.1)
	Spain	94.0	(0.3)	43.6	(0.9)	48.4	(0.8)	69.8	(0.7)	15.6	(0.5)	41.8	(1.0)
	United States*	96.2	(0.4)	44.6	(0.9)	32.1	(0.9)	65.5	(1.0)	14.0	(0.8)	46.6	(1.5)
	OECD average	94.4	(0.1)	50.8	(0.2)	50.2	(0.3)	76.6	(0.2)	25.1	(0.2)	50.2	(0.3)
Partners	Brazil	89.8	(0.4)	43.0	(0.6)	61.2	(0.7)	80.6	(0.6)	32.1	(0.7)	46.2	(0.7)
	Bulgaria	90.8	(0.6)	54.1	(1.1)	52.8	(1.0)	65.9	(1.0)	35.6	(1.1)	43.8	(1.3)
	Georgia	90.4	(0.6)	54.5	(1.0)	60.8	(1.0)	73.7	(0.8)	31.6	(0.9)	38.6	(1.0)
	Indonesia	93.0	(0.6)	74.6	(1.0)	70.1	(1.0)	81.5	(0.8)	49.8	(1.2)	86.5	(0.8)
	Peru	89.0	(0.5)	37.5	(0.9)	56.8	(0.9)	72.5	(0.9)	34.8	(0.8)	73.8	(0.9)
	Russia	89.7	(0.6)	54.1	(0.8)	58.9	(0.9)	83.0	(0.7)	32.8	(0.9)	60.8	(1.2)
	Serbia	92.4	(0.5)	52.7	(1.1)	41.7	(1.1)	59.1	(1.0)	27.3	(1.2)	31.6	(1.2)
	Average all countries/ economies	93.1	(0.1)	51.6	(0.2)	52.8	(0.2)	75.6	(0.2)	28.5	(0.2)	51.7	(0.2)
	Netherlands**	97.3	(0.3)	49.9	(0.9)	33.6	(1.0)	58.7	(0.9)	10.3	(0.6)	56.8	(1.1)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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Table IV.B1.4.6 [1/3] **Topics and frequency of discussion between students and their parents about money matters**
Results based on students' reports

		Index of parental involvement in matters of financial literacy		Percentage of students who discuss the following topics with their parents, guardians or relatives							
				The student's own spending decisions							
				Never or hardly ever		Once or twice a month		Once or twice a week		Almost every day	
		Mean index	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	0.08	(0.01)	19.1	(0.5)	36.5	(0.6)	32.9	(0.7)	11.5	(0.4)
	Canadian provinces	0.05	(0.02)	20.2	(0.6)	35.6	(0.8)	32.0	(0.9)	12.2	(0.5)
	Chile	-0.03	(0.02)	32.4	(0.9)	30.5	(0.8)	25.6	(0.8)	11.5	(0.6)
	Estonia	-0.15	(0.02)	24.6	(0.7)	43.7	(0.9)	24.2	(0.7)	7.5	(0.4)
	Finland	-0.15	(0.01)	18.0	(0.6)	47.6	(0.8)	27.0	(0.6)	7.4	(0.4)
	Italy	0.05	(0.02)	30.2	(0.8)	30.4	(0.8)	25.5	(0.7)	14.0	(0.6)
	Latvia	0.02	(0.02)	19.2	(0.8)	38.0	(0.9)	29.1	(1.0)	13.7	(0.7)
	Lithuania	0.26	(0.02)	17.4	(0.7)	33.6	(0.8)	32.4	(0.8)	16.7	(0.5)
	Poland	-0.05	(0.02)	22.3	(0.7)	40.5	(0.9)	28.1	(0.8)	9.1	(0.6)
	Portugal*	0.15	(0.02)	24.1	(0.7)	32.2	(0.8)	32.0	(0.9)	11.7	(0.6)
	Slovak Republic	-0.04	(0.02)	28.9	(0.9)	37.1	(0.8)	23.9	(0.8)	10.0	(0.5)
	Spain	-0.01	(0.02)	29.1	(0.7)	34.4	(0.7)	25.5	(0.7)	11.0	(0.5)
	United States*	0.12	(0.02)	20.4	(0.8)	36.5	(0.8)	28.9	(0.9)	14.1	(0.6)
	OECD average	0.02	(0.00)	23.5	(0.2)	36.6	(0.2)	28.2	(0.2)	11.6	(0.1)
Partners	Brazil	0.28	(0.02)	22.7	(0.7)	29.0	(0.7)	24.0	(0.7)	24.3	(0.6)
	Bulgaria	0.33	(0.02)	20.2	(0.8)	28.2	(0.8)	25.3	(0.8)	26.3	(0.7)
	Georgia	0.01	(0.02)	27.8	(0.7)	30.1	(0.9)	22.0	(0.8)	20.1	(0.8)
	Indonesia	0.10	(0.02)	23.7	(1.0)	38.9	(1.0)	20.7	(1.0)	16.7	(0.8)
	Peru	0.17	(0.02)	26.8	(0.8)	35.2	(0.7)	24.9	(0.7)	13.1	(0.5)
	Russia	0.11	(0.02)	21.4	(0.8)	38.6	(0.8)	23.8	(0.8)	16.2	(0.7)
	Serbia	0.24	(0.02)	21.5	(0.7)	30.7	(0.9)	25.2	(0.8)	22.5	(0.8)
	Average all countries/ economies	0.08	(0.00)	23.5	(0.2)	35.4	(0.2)	26.7	(0.2)	14.5	(0.1)
	Netherlands**	-0.16	(0.02)	20.1	(0.9)	41.5	(1.0)	30.0	(1.1)	8.4	(0.5)

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Table IV.B1.4.6 [2/3] **Topics and frequency of discussion between students and their parents about money matters**
Results based on students' reports

		Percentage of students who discuss the following topics with their parents, guardians or relatives															
		The student's own saving decisions								The family budget							
		Never or hardly ever		Once or twice a month		Once or twice a week		Almost every day		Never or hardly ever		Once or twice a month		Once or twice a week		Almost every day	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	21.2	(0.5)	36.7	(0.6)	30.7	(0.6)	11.4	(0.4)	41.9	(0.6)	30.1	(0.6)	20.4	(0.6)	7.6	(0.4)
	Canadian provinces	23.0	(0.7)	36.7	(0.8)	29.3	(0.8)	11.0	(0.5)	43.3	(1.0)	30.5	(0.8)	18.0	(0.7)	8.1	(0.5)
	Chile	29.0	(0.9)	31.1	(0.8)	26.0	(0.7)	13.9	(0.6)	41.3	(0.9)	28.3	(0.9)	21.1	(0.8)	9.2	(0.6)
	Estonia	29.4	(0.9)	43.2	(0.8)	21.3	(0.7)	6.1	(0.4)	39.9	(0.9)	37.7	(0.9)	16.8	(0.7)	5.6	(0.4)
	Finland	27.4	(0.7)	47.9	(0.7)	20.0	(0.6)	4.7	(0.3)	45.5	(0.9)	36.2	(0.8)	14.2	(0.5)	4.1	(0.3)
	Italy	27.2	(0.8)	34.7	(0.8)	25.8	(0.7)	12.4	(0.6)	37.8	(0.8)	28.8	(0.8)	23.0	(0.7)	10.4	(0.5)
	Latvia	29.1	(0.8)	39.9	(1.0)	22.7	(0.8)	8.3	(0.5)	31.7	(1.1)	37.5	(1.0)	22.7	(0.9)	8.2	(0.6)
	Lithuania	18.6	(0.7)	35.9	(0.8)	30.8	(0.8)	14.7	(0.6)	23.8	(0.8)	34.8	(0.7)	28.9	(0.8)	12.5	(0.6)
	Poland	26.6	(0.7)	41.0	(0.8)	24.4	(0.8)	8.0	(0.5)	36.8	(0.9)	36.7	(0.8)	20.0	(0.7)	6.4	(0.5)
	Portugal*	18.6	(0.6)	34.6	(0.9)	33.5	(0.9)	13.2	(0.6)	35.8	(0.9)	32.8	(0.8)	23.2	(0.8)	8.2	(0.4)
	Slovak Republic	22.5	(0.8)	43.5	(0.9)	24.1	(0.7)	9.9	(0.6)	34.6	(0.9)	35.9	(1.0)	21.7	(0.8)	7.9	(0.5)
	Spain	25.0	(0.8)	37.6	(0.7)	25.6	(0.8)	11.7	(0.6)	43.9	(0.9)	30.6	(0.8)	18.0	(0.6)	7.5	(0.4)
	United States*	23.6	(0.8)	36.4	(0.9)	26.3	(0.7)	13.7	(0.5)	38.7	(0.8)	28.1	(0.7)	21.8	(0.7)	11.4	(0.5)
	OECD average	24.7	(0.2)	38.4	(0.2)	26.2	(0.2)	10.7	(0.1)	38.1	(0.2)	32.9	(0.2)	20.8	(0.2)	8.2	(0.1)
Partners	Brazil	25.2	(0.6)	29.8	(0.6)	24.2	(0.7)	20.8	(0.6)	30.3	(0.7)	28.7	(0.7)	22.8	(0.5)	18.2	(0.6)
	Bulgaria	22.2	(0.8)	33.3	(1.0)	25.2	(0.8)	19.3	(0.7)	25.3	(0.8)	31.7	(0.8)	25.6	(0.8)	17.5	(0.8)
	Georgia	30.5	(0.9)	32.3	(0.8)	20.6	(0.7)	16.6	(0.7)	30.4	(0.9)	30.7	(0.8)	23.4	(0.8)	15.5	(0.7)
	Indonesia	19.5	(0.9)	42.9	(1.2)	24.0	(0.9)	13.5	(0.8)	29.1	(1.1)	37.5	(1.0)	21.2	(0.8)	12.2	(0.6)
	Peru	21.3	(0.6)	33.5	(0.7)	27.8	(0.7)	17.4	(0.6)	20.7	(0.7)	29.5	(0.7)	27.8	(0.6)	21.9	(0.6)
	Russia	24.3	(0.8)	40.3	(1.0)	22.7	(0.7)	12.8	(0.6)	24.8	(0.8)	35.3	(0.7)	25.7	(0.7)	14.2	(0.5)
	Serbia	25.7	(0.8)	32.4	(0.9)	24.7	(0.8)	17.2	(0.7)	28.9	(0.9)	30.5	(0.8)	24.9	(0.9)	15.7	(0.7)
	Average all countries/ economies	24.5	(0.2)	37.2	(0.2)	25.5	(0.2)	12.8	(0.1)	34.2	(0.2)	32.6	(0.2)	22.1	(0.2)	11.1	(0.1)
	Netherlands**	26.2	(0.7)	44.8	(0.9)	22.3	(0.8)	6.6	(0.5)	66.5	(0.9)	21.5	(0.8)	9.4	(0.5)	2.6	(0.3)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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Table IV.B1.4.6 [3/3] **Topics and frequency of discussion between students and their parents about money matters**
Results based on students' reports

		Percentage of students who discuss the following topics with their parents, guardians or relatives															
		Money for things that the student wants to buy								News related to economics or finance							
		Never or hardly ever		Once or twice a month		Once or twice a week		Almost every day		Never or hardly ever		Once or twice a month		Once or twice a week		Almost every day	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	13.3	(0.4)	37.0	(0.6)	35.9	(0.6)	13.8	(0.4)	50.6	(0.7)	28.2	(0.6)	15.2	(0.5)	6.0	(0.3)
	Canadian provinces	14.9	(0.6)	36.2	(0.8)	34.3	(0.9)	14.6	(0.5)	50.2	(0.8)	27.6	(0.8)	15.5	(0.7)	6.7	(0.4)
	Chile	15.5	(0.7)	31.6	(0.8)	33.4	(0.9)	19.5	(0.7)	50.6	(1.0)	25.5	(0.8)	16.7	(0.7)	7.2	(0.5)
	Estonia	12.4	(0.6)	45.4	(0.7)	32.7	(0.8)	9.6	(0.5)	39.5	(1.0)	37.4	(1.1)	17.7	(0.7)	5.5	(0.4)
	Finland	13.5	(0.6)	46.6	(0.8)	31.3	(0.7)	8.7	(0.5)	43.1	(0.9)	36.9	(0.8)	15.5	(0.6)	4.6	(0.4)
	Italy	12.7	(0.6)	27.6	(0.8)	36.5	(0.7)	23.2	(0.7)	44.8	(0.9)	28.1	(0.7)	18.2	(0.8)	9.0	(0.5)
	Latvia	11.7	(0.6)	38.8	(1.0)	34.6	(0.8)	14.9	(0.7)	43.0	(1.0)	33.1	(1.0)	17.3	(0.7)	6.6	(0.5)
	Lithuania	10.0	(0.6)	34.5	(0.8)	38.0	(0.8)	17.4	(0.7)	31.4	(0.8)	34.8	(0.8)	23.6	(0.7)	10.2	(0.6)
	Poland	12.7	(0.6)	40.5	(0.8)	34.5	(0.8)	12.4	(0.6)	44.7	(1.1)	31.5	(0.8)	17.3	(0.7)	6.5	(0.5)
	Portugal*	10.0	(0.7)	31.3	(0.8)	39.6	(0.8)	19.1	(0.7)	32.1	(0.9)	32.3	(0.8)	25.4	(0.8)	10.2	(0.5)
	Slovak Republic	14.8	(0.7)	37.6	(0.8)	31.5	(0.8)	16.2	(0.6)	39.4	(0.9)	33.0	(0.9)	18.3	(0.8)	9.4	(0.6)
	Spain	11.9	(0.5)	34.2	(0.9)	35.8	(0.9)	18.1	(0.7)	49.8	(0.8)	27.0	(0.8)	15.4	(0.6)	7.8	(0.4)
	United States*	12.8	(0.7)	34.3	(0.9)	33.5	(0.8)	19.4	(0.7)	47.2	(1.0)	29.1	(0.8)	15.9	(0.6)	7.8	(0.5)
	OECD average	12.8	(0.2)	36.6	(0.2)	34.7	(0.2)	15.9	(0.2)	43.5	(0.3)	31.1	(0.2)	17.8	(0.2)	7.5	(0.1)
Partners	Brazil	13.3	(0.6)	27.9	(0.6)	28.6	(0.7)	30.2	(0.6)	34.7	(0.7)	28.1	(0.7)	20.6	(0.6)	16.5	(0.6)
	Bulgaria	12.4	(0.6)	29.6	(1.0)	32.3	(0.9)	25.7	(0.8)	37.5	(1.0)	28.5	(0.8)	20.1	(0.7)	13.9	(0.6)
	Georgia	29.1	(0.9)	29.7	(0.9)	23.8	(0.9)	17.4	(0.8)	40.9	(1.1)	27.2	(0.7)	17.7	(0.7)	14.2	(0.8)
	Indonesia	12.8	(0.9)	40.1	(1.0)	27.1	(1.0)	20.0	(0.9)	25.2	(1.1)	38.3	(1.0)	22.4	(1.0)	14.1	(0.8)
	Peru	16.0	(0.6)	34.1	(0.7)	30.5	(0.8)	19.4	(0.6)	37.5	(0.7)	30.9	(0.7)	21.4	(0.7)	10.1	(0.4)
	Russia	14.9	(0.7)	35.4	(0.7)	29.8	(0.9)	19.9	(0.7)	35.9	(1.0)	32.6	(0.6)	19.4	(0.7)	12.1	(0.6)
	Serbia	12.7	(0.6)	29.2	(0.9)	31.6	(0.9)	26.4	(0.8)	43.7	(1.1)	27.1	(0.9)	16.9	(0.7)	12.3	(0.6)
	Average all countries/ economies	13.9	(0.1)	35.1	(0.2)	32.8	(0.2)	18.3	(0.2)	41.1	(0.2)	30.9	(0.2)	18.5	(0.2)	9.5	(0.1)
	Netherlands**	14.4	(0.9)	42.8	(1.0)	33.7	(0.8)	9.2	(0.6)	53.8	(1.0)	28.3	(0.8)	13.5	(0.6)	4.5	(0.5)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.4.11 **Students' autonomy in handling money**
Results based on students' reports

		Percentage of students who agreed/strongly agreed with the following statements:							
		I can decide independently what to spend my money on		I can spend small amounts of my money independently, but for larger amounts, I need to ask my parents or guardians for permission		I need to ask my parents or guardians for permission before I spend any money on my own		I am responsible for my own money matters (e.g. for preventing theft)	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	88.8	(0.4)	67.0	(0.6)	32.1	(0.7)	85.3	(0.5)
	Canadian provinces	87.7	(0.6)	69.1	(0.7)	31.7	(1.1)	85.4	(0.7)
	Chile	81.2	(0.8)	61.4	(0.9)	39.6	(1.0)	78.4	(0.8)
	Estonia	86.9	(0.6)	63.8	(0.8)	22.2	(0.8)	82.2	(0.7)
	Finland	89.3	(0.5)	60.3	(0.9)	15.0	(0.6)	79.3	(0.7)
	Italy	71.8	(0.7)	76.1	(0.8)	38.9	(0.9)	77.4	(0.8)
	Latvia	72.6	(0.8)	63.2	(1.0)	27.5	(0.9)	81.7	(0.8)
	Lithuania	85.9	(0.6)	77.7	(0.7)	47.2	(0.8)	81.8	(0.7)
	Poland	81.1	(0.8)	62.1	(1.0)	29.0	(0.9)	73.3	(0.7)
	Portugal*	66.1	(1.0)	78.4	(0.9)	38.8	(1.0)	88.8	(0.6)
	Slovak Republic	74.3	(0.9)	59.5	(0.9)	45.9	(0.8)	80.8	(0.8)
	Spain	79.8	(0.8)	77.2	(0.7)	48.1	(0.9)	80.4	(0.6)
	United States*	85.9	(0.7)	65.1	(1.0)	31.0	(0.8)	82.7	(0.8)
	OECD average	80.9	(0.2)	67.8	(0.2)	34.4	(0.2)	81.3	(0.2)
Partners	Brazil	66.2	(0.7)	62.5	(0.8)	47.1	(0.7)	65.4	(0.7)
	Bulgaria	73.5	(1.1)	66.8	(1.1)	49.1	(1.1)	81.2	(1.0)
	Georgia	76.1	(0.8)	72.2	(0.8)	48.7	(1.1)	71.7	(0.9)
	Indonesia	82.3	(0.9)	82.7	(0.9)	80.7	(0.8)	86.6	(0.9)
	Peru	65.4	(0.8)	76.6	(0.7)	48.0	(0.9)	76.4	(0.8)
	Russia	82.5	(0.7)	68.8	(0.8)	42.1	(0.8)	80.4	(0.7)
	Serbia	79.3	(1.0)	67.7	(1.0)	43.6	(1.1)	81.9	(0.7)
	Average all countries/ economies	78.8	(0.2)	68.9	(0.2)	40.3	(0.2)	80.0	(0.2)
	Netherlands**	87.9	(0.7)	60.1	(1.1)	19.3	(0.9)	75.1	(1.0)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.5.1 [1/6] **Topics and frequency of discussion between students and their parents about money matters**
Results based on students' reports

		Index of familiarity with concepts of finance[1]		Percentage of students who have/have not encountered the following terms in school in the previous 12 months:															
				Interest payment						Compound interest						Exchange rate			
				Never heard of this term		Heard of this term but cannot recall the meaning		Learned about this term and knows what it mean		Never heard of this term		Heard of this term but cannot recall the meaning		Learned about this term and knows what it means		Never heard of this term		Heard of this term but cannot recall the meaning		Learned about this term and knows what it means	
		Mean	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	7.98	(0.07)	11.2	(0.4)	34.4	(0.5)	54.4	(0.6)	17.9	(0.6)	35.5	(0.7)	46.6	(0.9)	14.1	(0.4)	40.0	(0.6)	45.9	(0.7)
	Canadian provinces	7.64	(0.12)	20.5	(0.8)	36.5	(0.9)	43.0	(1.3)	41.7	(1.3)	35.3	(0.8)	23.0	(1.1)	19.5	(0.8)	35.4	(0.8)	45.1	(1.0)
	Chile	6.27	(0.13)	21.8	(0.8)	44.1	(0.9)	34.1	(1.1)	38.0	(1.2)	42.7	(0.8)	19.3	(1.1)	39.9	(0.9)	39.7	(0.8)	20.4	(0.8)
	Estonia	7.65	(0.10)	15.7	(0.6)	36.9	(0.9)	47.4	(1.1)	41.0	(1.1)	43.5	(1.0)	15.5	(0.8)	27.3	(0.8)	36.1	(0.9)	36.6	(0.9)
	Finland	9.96	(0.09)	8.6	(0.5)	26.7	(0.7)	64.7	(0.9)	15.1	(0.6)	38.3	(0.8)	46.6	(0.9)	33.0	(0.9)	41.1	(0.8)	25.8	(0.8)
	Italy	6.42	(0.10)	34.5	(0.9)	30.0	(0.8)	35.5	(1.0)	62.9	(1.0)	27.8	(0.8)	9.3	(0.6)	56.2	(1.0)	27.6	(0.8)	16.2	(0.7)
	Latvia	7.25	(0.11)	18.2	(0.7)	44.6	(1.0)	37.2	(1.0)	39.5	(1.1)	45.7	(1.1)	14.8	(0.7)	15.4	(0.7)	31.3	(1.0)	53.3	(1.0)
	Lithuania	7.52	(0.11)	19.8	(0.8)	41.5	(0.8)	38.7	(1.0)	24.9	(0.9)	48.3	(1.0)	26.7	(0.9)	13.7	(0.7)	33.3	(0.9)	53.0	(0.9)
	Poland	7.14	(0.11)	12.3	(0.6)	32.7	(1.0)	55.0	(1.2)	41.9	(0.9)	40.0	(0.8)	18.2	(0.6)	24.2	(0.8)	31.9	(0.9)	43.8	(1.1)
	Portugal*	6.37	(0.10)	24.0	(0.7)	30.4	(0.9)	45.5	(1.1)	44.7	(0.9)	37.1	(0.9)	18.2	(0.7)	37.2	(0.8)	36.9	(0.9)	25.8	(0.8)
	Slovak Republic	6.53	(0.12)	15.8	(0.8)	44.1	(1.1)	40.1	(1.1)	26.0	(0.8)	51.8	(1.1)	22.3	(0.9)	19.3	(0.7)	39.9	(0.9)	40.8	(1.1)
	Spain	7.55	(0.09)	30.2	(0.9)	33.5	(0.7)	36.3	(0.9)	41.5	(1.1)	32.8	(0.7)	25.7	(1.1)	41.9	(0.9)	32.7	(0.7)	25.5	(0.7)
	United States*	6.89	(0.12)	23.3	(0.9)	41.4	(1.0)	35.2	(1.1)	36.6	(1.2)	40.6	(1.0)	22.9	(1.1)	28.5	(1.0)	44.7	(0.9)	26.8	(1.1)
	OECD average	7.32	(0.03)	19.7	(0.2)	36.7	(0.2)	43.6	(0.3)	36.3	(0.3)	40.0	(0.2)	23.8	(0.2)	28.5	(0.2)	36.2	(0.2)	35.3	(0.3)
Partners	Brazil	6.45	(0.11)	15.9	(0.5)	32.1	(0.8)	52.0	(0.9)	25.6	(0.8)	43.6	(0.8)	30.9	(0.8)	40.7	(0.8)	41.6	(0.6)	17.7	(0.6)
	Bulgaria	4.83	(0.14)	30.0	(0.9)	37.6	(0.8)	32.4	(1.0)	40.2	(1.0)	42.7	(0.9)	17.1	(0.8)	34.8	(0.9)	39.9	(0.9)	25.4	(0.9)
	Georgia	5.69	(0.08)	31.5	(0.9)	31.1	(0.8)	37.4	(0.7)	37.2	(1.0)	38.5	(1.1)	24.2	(0.7)	30.5	(0.9)	31.2	(0.9)	38.3	(0.9)
	Indonesia	5.21	(0.15)	23.2	(0.9)	41.9	(1.0)	34.9	(1.2)	36.9	(1.1)	49.2	(0.9)	13.9	(0.8)	20.4	(1.1)	40.7	(1.1)	39.0	(1.3)
	Peru	m	m	13.8	(0.7)	37.6	(0.8)	48.5	(1.1)	28.6	(0.8)	41.6	(0.8)	29.8	(1.1)	32.6	(1.0)	38.2	(0.9)	29.2	(0.9)
	Russia	8.77	(0.14)	12.2	(0.5)	34.3	(0.9)	53.5	(1.1)	28.7	(0.7)	46.2	(0.8)	25.1	(0.9)	9.6	(0.5)	28.7	(0.8)	61.7	(0.9)
	Serbia	6.06	(0.12)	21.4	(0.7)	33.8	(0.8)	44.8	(1.0)	25.8	(0.9)	48.3	(0.8)	25.9	(0.8)	19.6	(0.7)	34.7	(0.9)	45.7	(1.1)
	Average all countries/ economies	6.96	(0.03)	20.2	(0.2)	36.3	(0.2)	43.5	(0.2)	34.7	(0.2)	41.5	(0.2)	23.8	(0.2)	27.9	(0.2)	36.3	(0.2)	35.8	(0.2)
	Netherlands**	10.57	(0.10)	8.4	(0.6)	24.6	(1.0)	67.0	(1.0)	23.0	(1.3)	41.4	(1.0)	35.6	(1.4)	14.5	(0.9)	29.0	(1.0)	56.4	(1.4)

1. The index of familiarity with concepts of finance is the total number of concepts that the student both learned about at school and knows the meaning of. It ranges from 0 to 18.

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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Table IV.B1.5.1 [2/6] **Topics and frequency of discussion between students and their parents about money matters**
Results based on students' reports

		Percentage of students who have/have not encountered the following terms in school in the previous 12 months:																	
		Depreciation						Shares/stocks						Return on investment					
		Never heard of this term		Heard of this term but cannot recall the meaning		Learned about this term and knows what it mean		Never heard of this term		Heard of this term but cannot recall the meaning		Learned about this term and knows what it means		Never heard of this term		Heard of this term but cannot recall the meaning		Learned about this term and knows what it means	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	34.7	(0.7)	33.6	(0.6)	31.7	(0.7)	13.5	(0.4)	40.0	(0.6)	46.5	(0.6)	20.7	(0.5)	40.8	(0.6)	38.5	(0.6)
	Canadian provinces	48.8	(1.1)	31.6	(0.8)	19.6	(1.0)	15.5	(0.6)	30.7	(0.9)	53.8	(1.1)	31.8	(0.9)	35.1	(0.8)	33.1	(1.1)
	Chile	55.9	(0.9)	33.4	(0.8)	10.7	(0.6)	20.8	(0.7)	43.4	(0.9)	35.9	(1.0)	47.0	(0.8)	36.7	(0.8)	16.4	(0.7)
	Estonia	31.6	(0.9)	37.5	(0.9)	30.8	(0.9)	13.8	(0.6)	34.1	(0.9)	52.0	(1.0)	28.8	(0.8)	41.6	(0.9)	29.5	(0.9)
	Finland	33.0	(1.0)	41.1	(0.9)	25.9	(0.8)	6.2	(0.5)	21.4	(0.8)	72.3	(0.9)	16.0	(0.7)	35.7	(0.9)	48.3	(1.0)
	Italy	32.8	(1.0)	27.6	(0.8)	39.7	(1.1)	29.0	(0.8)	33.5	(0.8)	37.5	(0.9)	47.9	(0.8)	30.7	(0.7)	21.4	(0.7)
	Latvia	21.5	(0.8)	38.6	(0.9)	39.9	(0.9)	15.1	(0.7)	35.3	(0.9)	49.6	(0.9)	22.3	(0.9)	38.9	(1.1)	38.8	(1.1)
	Lithuania	21.0	(0.8)	35.8	(0.9)	43.2	(1.0)	13.2	(0.6)	36.3	(0.9)	50.5	(0.9)	27.0	(0.9)	44.0	(0.9)	29.0	(0.9)
	Poland	54.3	(1.0)	32.3	(0.9)	13.3	(0.6)	18.9	(0.7)	36.8	(0.8)	44.3	(1.1)	24.6	(0.9)	40.6	(0.7)	34.8	(0.9)
	Portugal*	60.1	(0.9)	29.8	(0.8)	10.1	(0.6)	42.2	(0.8)	34.1	(0.9)	23.7	(0.9)	40.6	(0.8)	33.5	(0.8)	26.0	(0.8)
	Slovak Republic	50.8	(1.0)	35.8	(1.0)	13.4	(0.7)	18.6	(0.7)	41.3	(1.0)	40.1	(1.2)	28.3	(1.0)	42.5	(1.1)	29.2	(1.0)
	Spain	66.2	(0.9)	23.5	(0.7)	10.3	(0.4)	23.7	(0.8)	30.4	(0.8)	46.0	(1.0)	52.0	(0.9)	29.4	(0.8)	18.6	(0.7)
	United States*	45.4	(1.1)	34.1	(0.8)	20.5	(0.9)	16.8	(0.8)	37.6	(0.9)	45.6	(1.2)	31.5	(0.9)	40.4	(0.9)	28.1	(1.0)
	OECD average	42.8	(0.3)	33.4	(0.2)	23.8	(0.2)	19.0	(0.2)	35.0	(0.2)	46.0	(0.3)	32.2	(0.2)	37.7	(0.2)	30.1	(0.2)
Partners	Brazil	52.1	(0.8)	36.3	(0.7)	11.7	(0.5)	29.2	(0.7)	39.2	(0.6)	31.6	(0.8)	32.0	(0.7)	39.9	(0.6)	28.1	(0.8)
	Bulgaria	31.7	(0.9)	39.1	(1.0)	29.3	(1.0)	31.1	(1.0)	40.9	(1.0)	28.0	(1.1)	34.8	(0.9)	41.1	(0.8)	24.1	(0.9)
	Georgia	56.3	(0.9)	28.0	(0.9)	15.7	(0.7)	31.8	(0.8)	29.3	(0.8)	38.9	(0.8)	48.1	(0.9)	30.5	(0.8)	21.4	(0.7)
	Indonesia	42.8	(1.2)	43.7	(1.0)	13.5	(0.9)	31.7	(1.1)	46.6	(1.2)	21.7	(1.1)	37.1	(1.1)	44.6	(0.9)	18.2	(0.9)
	Peru	51.1	(1.0)	33.6	(0.8)	15.3	(0.7)	46.3	(0.9)	36.0	(0.7)	17.7	(0.7)	41.2	(0.9)	38.0	(0.8)	20.8	(0.6)
	Russia	13.0	(0.6)	31.0	(0.8)	56.0	(1.0)	8.0	(0.5)	26.5	(0.7)	65.5	(0.9)	16.4	(0.6)	40.4	(0.9)	43.2	(1.1)
	Serbia	44.6	(1.0)	37.8	(1.0)	17.6	(0.7)	22.8	(0.9)	37.0	(0.9)	40.2	(1.0)	32.7	(0.9)	42.1	(0.9)	25.2	(0.8)
	Average all countries/ economies	42.4	(0.2)	34.2	(0.2)	23.4	(0.2)	22.4	(0.2)	35.5	(0.2)	42.1	(0.2)	33.0	(0.2)	38.3	(0.2)	28.6	(0.2)
	Netherlands**	10.5	(0.8)	22.1	(0.9)	67.4	(1.1)	7.2	(0.6)	21.4	(0.8)	71.4	(1.0)	24.9	(1.0)	39.9	(0.8)	35.3	(1.0)

1. The index of familiarity with concepts of finance is the total number of concepts that the student both learned about at school and knows the meaning of. It ranges from 0 to 18.

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.5.1 [3/6] **Topics and frequency of discussion between students and their parents about money matters**
Results based on students' reports

		Percentage of students who have/have not encountered the following terms in school in the previous 12 months:																	
		Dividend						Diversification						Debit card					
		Never heard of this term		Heard of this term but cannot recall the meaning		Learned about this term and knows what it mean		Never heard of this term		Heard of this term but cannot recall the meaning		Learned about this term and knows what it means		Never heard of this term		Heard of this term but cannot recall the meaning		Learned about this term and knows what it means	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	35.6	(0.7)	40.4	(0.6)	24.0	(0.6)	45.8	(0.7)	39.3	(0.6)	14.9	(0.5)	8.1	(0.3)	23.7	(0.5)	68.2	(0.6)
	Canadian provinces	44.6	(1.3)	33.4	(0.8)	21.9	(1.1)	52.3	(1.2)	31.6	(0.8)	16.1	(0.8)	9.6	(0.6)	16.1	(0.7)	74.4	(0.8)
	Chile	22.0	(0.7)	44.1	(0.9)	33.9	(1.0)	53.5	(1.0)	36.5	(1.0)	10.0	(0.6)	16.4	(0.7)	31.3	(0.8)	52.3	(1.1)
	Estonia	40.1	(0.9)	42.3	(0.7)	17.6	(0.7)	44.8	(0.8)	37.4	(0.8)	17.9	(0.7)	25.4	(0.8)	33.5	(0.8)	41.1	(1.0)
	Finland	16.4	(0.8)	38.3	(1.1)	45.3	(1.1)	35.2	(1.1)	39.8	(1.0)	24.9	(0.8)	4.3	(0.3)	7.5	(0.4)	88.2	(0.6)
	Italy	45.4	(1.0)	28.0	(0.8)	26.6	(0.8)	56.4	(1.0)	27.5	(0.8)	16.0	(0.7)	34.8	(0.9)	27.8	(0.8)	37.5	(0.9)
	Latvia	50.4	(1.1)	36.2	(1.1)	13.3	(0.7)	60.2	(1.0)	30.9	(1.0)	8.9	(0.5)	28.6	(0.9)	35.3	(0.8)	36.1	(1.0)
	Lithuania	35.5	(1.0)	43.5	(1.0)	21.0	(0.8)	45.7	(1.0)	39.4	(1.0)	14.9	(0.7)	25.7	(0.7)	38.3	(1.1)	36.0	(1.0)
	Poland	58.1	(1.1)	30.0	(0.9)	11.9	(0.6)	58.7	(1.0)	30.0	(0.8)	11.3	(0.5)	18.5	(0.6)	33.6	(0.8)	47.8	(0.8)
	Portugal*	41.1	(0.8)	35.6	(0.9)	23.2	(0.8)	47.8	(0.9)	34.1	(0.8)	18.1	(0.7)	21.8	(0.7)	25.3	(0.9)	53.0	(0.9)
	Slovak Republic	49.1	(1.0)	36.3	(1.0)	14.6	(0.8)	52.9	(0.9)	35.5	(0.9)	11.6	(0.6)	17.8	(0.8)	32.1	(1.0)	50.0	(1.1)
	Spain	31.3	(0.8)	28.3	(0.7)	40.4	(0.8)	42.1	(0.9)	33.8	(0.7)	24.1	(0.7)	25.1	(0.8)	26.4	(0.6)	48.5	(0.9)
	United States*	38.7	(0.9)	40.4	(1.0)	20.9	(0.9)	51.2	(1.0)	35.4	(0.8)	13.3	(0.8)	10.3	(0.6)	18.5	(0.9)	71.2	(1.0)
	OECD average	39.1	(0.3)	36.7	(0.2)	24.2	(0.2)	49.8	(0.3)	34.7	(0.2)	15.5	(0.2)	18.9	(0.2)	26.9	(0.2)	54.2	(0.3)
Partners	Brazil	39.4	(0.6)	38.4	(0.6)	22.2	(0.7)	42.1	(0.8)	38.9	(0.7)	19.0	(0.6)	14.4	(0.5)	30.4	(0.6)	55.1	(0.8)
	Bulgaria	43.6	(1.2)	38.1	(1.1)	18.3	(1.0)	46.4	(1.1)	37.6	(1.0)	16.0	(0.8)	23.1	(0.9)	33.2	(1.0)	43.6	(1.1)
	Georgia	60.9	(1.1)	26.7	(0.9)	12.4	(0.6)	59.9	(1.0)	27.5	(0.8)	12.6	(0.6)	53.9	(1.0)	26.9	(1.0)	19.2	(0.7)
	Indonesia	49.3	(1.1)	38.7	(0.9)	12.0	(0.9)	46.1	(1.1)	41.5	(0.9)	12.3	(0.8)	17.6	(0.9)	43.6	(1.2)	38.8	(1.5)
	Peru	26.0	(0.8)	35.7	(0.8)	38.3	(0.9)	47.0	(0.9)	37.1	(0.9)	15.8	(0.6)	21.6	(0.8)	34.1	(0.8)	44.2	(1.1)
	Russia	20.5	(0.7)	41.8	(0.9)	37.7	(1.1)	35.5	(0.9)	42.7	(1.0)	21.7	(0.9)	23.7	(0.8)	38.3	(0.9)	37.9	(1.0)
	Serbia	44.0	(1.1)	36.9	(1.0)	19.1	(0.8)	49.3	(1.1)	35.5	(1.0)	15.2	(0.7)	25.5	(0.9)	40.1	(0.9)	34.4	(0.9)
	Average all countries/ economies	39.6	(0.2)	36.7	(0.2)	23.7	(0.2)	48.7	(0.2)	35.6	(0.2)	15.7	(0.2)	21.3	(0.2)	29.8	(0.2)	48.9	(0.2)
	Netherlands**	30.9	(1.2)	38.6	(1.0)	30.5	(1.1)	32.1	(1.0)	37.5	(0.9)	30.4	(1.2)	3.5	(0.5)	5.1	(0.5)	91.4	(0.6)

1. The index of familiarity with concepts of finance is the total number of concepts that the student both learned about at school and knows the meaning of. It ranges from 0 to 18.

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.5.1 [4/6] **Topics and frequency of discussion between students and their parents about money matters**
Results based on students' reports

		Percentage of students who have/have not encountered the following terms in school in the previous 12 months:																	
		Bank loan						Pension plan						Budget					
		Never heard of this term		Heard of this term but cannot recall the meaning		Learned about this term and knows what it mean		Never heard of this term		Heard of this term but cannot recall the meaning		Learned about this term and knows what it means		Never heard of this term		Heard of this term but cannot recall the meaning		Learned about this term and knows what it means	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	6.7	(0.3)	21.0	(0.4)	72.3	(0.5)	13.5	(0.4)	31.4	(0.6)	55.1	(0.6)	5.8	(0.3)	19.3	(0.5)	74.9	(0.5)
	Canadian provinces	10.1	(0.4)	17.4	(0.7)	72.5	(0.8)	19.0	(0.7)	29.2	(0.8)	51.8	(1.0)	8.6	(0.5)	16.6	(0.7)	74.8	(0.8)
	Chile	14.6	(0.7)	28.1	(0.7)	57.3	(1.1)	26.3	(0.9)	36.9	(0.9)	36.8	(1.1)	15.0	(0.7)	31.3	(0.9)	53.7	(1.2)
	Estonia	7.8	(0.4)	19.5	(0.8)	72.7	(0.9)	15.2	(0.6)	30.0	(0.8)	54.9	(0.8)	7.5	(0.4)	20.3	(0.8)	72.2	(0.9)
	Finland	4.9	(0.4)	10.7	(0.5)	84.3	(0.6)	10.9	(0.6)	27.5	(0.6)	61.6	(0.7)	5.0	(0.4)	9.4	(0.5)	85.6	(0.7)
	Italy	17.9	(0.7)	23.2	(0.7)	58.8	(0.8)	29.1	(0.9)	29.1	(0.9)	41.7	(0.9)	18.4	(0.7)	21.9	(0.7)	59.6	(0.8)
	Latvia	8.8	(0.6)	25.4	(0.9)	65.7	(0.9)	15.2	(0.8)	32.6	(1.0)	52.2	(1.1)	7.4	(0.6)	24.1	(1.0)	68.4	(1.1)
	Lithuania	10.5	(0.5)	26.6	(0.8)	62.9	(0.9)	14.7	(0.6)	34.5	(0.9)	50.8	(0.9)	10.3	(0.6)	29.9	(0.8)	59.7	(0.9)
	Poland	10.2	(0.6)	24.2	(0.8)	65.6	(1.0)	16.8	(0.7)	30.5	(0.8)	52.7	(1.0)	8.9	(0.5)	24.4	(0.9)	66.7	(1.0)
	Portugal*	18.2	(0.6)	19.2	(0.8)	62.6	(0.9)	37.5	(0.7)	34.0	(0.7)	28.5	(0.7)	15.8	(0.7)	19.7	(0.8)	64.5	(1.0)
	Slovak Republic	9.7	(0.6)	30.8	(0.9)	59.4	(1.1)	31.8	(1.0)	39.3	(1.1)	28.9	(1.0)	10.0	(0.6)	28.5	(0.9)	61.5	(1.1)
	Spain	13.3	(0.6)	18.4	(0.6)	68.3	(0.8)	17.5	(0.7)	27.5	(0.6)	55.0	(0.9)	12.1	(0.6)	16.9	(0.6)	71.0	(0.9)
	United States*	10.4	(0.6)	20.6	(0.8)	69.0	(1.0)	41.6	(0.9)	37.6	(0.8)	20.8	(0.8)	9.6	(0.6)	16.6	(0.8)	73.8	(1.0)
	OECD average	11.0	(0.2)	21.9	(0.2)	67.0	(0.2)	22.2	(0.2)	32.3	(0.2)	45.5	(0.3)	10.4	(0.2)	21.5	(0.2)	68.2	(0.3)
Partners	Brazil	15.1	(0.5)	29.6	(0.8)	55.3	(1.0)	18.1	(0.6)	33.0	(0.7)	49.0	(0.9)	16.5	(0.6)	32.5	(0.8)	51.0	(1.1)
	Bulgaria	22.8	(0.8)	32.3	(0.9)	44.8	(1.0)	29.2	(0.9)	38.5	(0.9)	32.4	(1.2)	21.8	(0.9)	33.1	(1.1)	45.0	(1.1)
	Georgia	22.2	(0.8)	21.5	(0.7)	56.4	(0.8)	29.2	(0.8)	27.2	(0.8)	43.6	(0.9)	20.0	(0.8)	21.5	(0.7)	58.5	(0.9)
	Indonesia	14.6	(0.8)	39.5	(1.2)	46.0	(1.4)	18.7	(1.0)	39.4	(1.0)	41.9	(1.4)	16.8	(0.8)	41.8	(1.0)	41.4	(1.2)
	Peru	11.6	(0.6)	28.6	(0.8)	59.8	(1.1)	25.8	(0.7)	37.4	(0.7)	36.9	(0.8)	12.0	(0.7)	29.9	(0.8)	58.2	(1.1)
	Russia	7.3	(0.5)	22.4	(0.8)	70.3	(0.9)	8.8	(0.4)	30.2	(0.9)	60.9	(1.0)	6.3	(0.4)	21.3	(0.7)	72.4	(0.8)
	Serbia	16.9	(0.7)	26.3	(0.9)	56.7	(1.1)	23.8	(0.8)	36.8	(0.9)	39.4	(0.8)	16.8	(0.7)	28.5	(0.9)	54.7	(1.1)
	Average all countries/ economies	12.7	(0.1)	24.3	(0.2)	63.0	(0.2)	22.1	(0.2)	33.1	(0.2)	44.7	(0.2)	12.2	(0.1)	24.4	(0.2)	63.4	(0.2)
	Netherlands**	3.7	(0.4)	8.6	(0.5)	87.8	(0.7)	7.1	(0.5)	19.3	(0.8)	73.6	(0.9)	3.4	(0.4)	7.8	(0.6)	88.9	(0.6)

1. The index of familiarity with concepts of finance is the total number of concepts that the student both learned about at school and knows the meaning of. It ranges from 0 to 18.

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.5.1 [5/6] **Topics and frequency of discussion between students and their parents about money matters**
Results based on students' reports

		Percentage of students who have/have not encountered the following terms in school in the previous 12 months:																	
		Wage						Entrepreneur						Central bank					
		Never heard of this term		Heard of this term but cannot recall the meaning		Learned about this term and knows what it mean		Never heard of this term		Heard of this term but cannot recall the meaning		Learned about this term and knows what it means		Never heard of this term		Heard of this term but cannot recall the meaning		Learned about this term and knows what it means	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	6.2	(0.3)	19.5	(0.5)	74.3	(0.6)	17.6	(0.6)	31.1	(0.6)	51.3	(0.7)	31.4	(0.6)	43.9	(0.6)	24.7	(0.6)
	Canadian provinces	10.2	(0.6)	18.8	(0.7)	70.9	(0.8)	16.5	(0.6)	24.8	(0.7)	58.7	(0.9)	27.6	(0.9)	38.3	(0.8)	34.1	(0.9)
	Chile	9.3	(0.5)	21.3	(0.8)	69.4	(1.0)	16.2	(0.6)	32.3	(0.8)	51.5	(1.0)	17.5	(0.7)	31.2	(0.9)	51.3	(1.0)
	Estonia	5.8	(0.4)	16.4	(0.8)	77.8	(0.8)	7.6	(0.4)	21.2	(0.8)	71.1	(0.9)	21.1	(0.7)	39.3	(0.9)	39.7	(0.9)
	Finland	3.6	(0.3)	6.7	(0.4)	89.7	(0.5)	4.1	(0.3)	8.3	(0.4)	87.6	(0.6)	7.7	(0.5)	22.4	(0.8)	69.9	(1.0)
	Italy	11.4	(0.6)	19.5	(0.7)	69.1	(0.9)	15.8	(0.7)	23.4	(0.7)	60.8	(0.9)	22.0	(0.6)	29.7	(0.9)	48.3	(0.9)
	Latvia	7.1	(0.5)	18.7	(0.7)	74.2	(0.8)	28.5	(1.1)	41.6	(1.0)	29.9	(0.9)	17.4	(0.7)	35.4	(0.9)	47.2	(1.0)
	Lithuania	10.3	(0.6)	26.6	(0.8)	63.1	(0.8)	9.4	(0.5)	26.1	(0.8)	64.4	(0.9)	14.7	(0.7)	35.7	(0.9)	49.5	(0.8)
	Poland	13.1	(0.6)	28.9	(0.9)	57.9	(1.0)	12.5	(0.6)	30.1	(0.9)	57.4	(1.1)	18.7	(0.8)	34.7	(0.9)	46.6	(1.1)
	Portugal*	11.4	(0.6)	14.3	(0.7)	74.3	(0.9)	28.0	(0.9)	30.8	(0.9)	41.3	(0.9)	29.0	(0.9)	31.9	(0.9)	39.1	(1.0)
	Slovak Republic	9.4	(0.5)	28.0	(0.9)	62.6	(1.1)	8.8	(0.6)	25.7	(0.9)	65.4	(1.1)	13.5	(0.6)	33.0	(1.0)	53.4	(1.2)
	Spain	9.4	(0.6)	13.9	(0.6)	76.7	(0.8)	14.1	(0.6)	19.1	(0.7)	66.8	(0.9)	18.6	(0.6)	25.8	(0.6)	55.6	(0.7)
	United States*	12.0	(0.6)	21.8	(0.9)	66.2	(1.0)	18.0	(0.9)	23.8	(0.9)	58.2	(1.2)	27.0	(0.9)	36.0	(0.7)	37.0	(0.9)
	OECD average	9.2	(0.1)	19.6	(0.2)	71.3	(0.2)	15.2	(0.2)	26.0	(0.2)	58.8	(0.3)	20.5	(0.2)	33.7	(0.2)	45.9	(0.3)
Partners	Brazil	10.5	(0.5)	23.1	(0.7)	66.3	(0.9)	15.1	(0.5)	29.4	(0.7)	55.5	(0.9)	17.4	(0.5)	33.3	(0.8)	49.4	(0.9)
	Bulgaria	24.3	(1.0)	33.6	(0.9)	42.0	(1.1)	25.3	(0.9)	36.7	(0.8)	38.0	(1.1)	25.6	(0.9)	34.8	(1.0)	39.6	(1.0)
	Georgia	18.6	(0.7)	20.9	(0.8)	60.5	(1.0)	22.9	(0.8)	23.8	(0.7)	53.3	(0.9)	28.5	(0.8)	28.4	(0.9)	43.1	(0.8)
	Indonesia	14.3	(0.8)	34.6	(1.2)	51.1	(1.4)	18.2	(1.0)	39.6	(1.1)	42.2	(1.3)	18.9	(1.1)	41.7	(1.4)	39.4	(1.6)
	Peru	8.2	(0.6)	25.1	(0.8)	66.7	(1.0)	13.5	(0.6)	30.1	(0.9)	56.5	(1.0)	13.7	(0.6)	31.2	(0.8)	55.1	(0.9)
	Russia	6.4	(0.4)	19.6	(0.7)	74.0	(0.9)	6.9	(0.5)	23.4	(0.8)	69.7	(0.9)	9.1	(0.6)	28.3	(0.8)	62.6	(1.1)
	Serbia	15.3	(0.7)	24.2	(0.9)	60.5	(1.2)	19.7	(0.8)	34.5	(0.9)	45.9	(1.1)	21.0	(0.8)	36.3	(0.9)	42.7	(1.0)
	Average all countries/ economies	10.9	(0.1)	21.8	(0.2)	67.4	(0.2)	15.9	(0.2)	27.8	(0.2)	56.3	(0.2)	20.0	(0.2)	33.6	(0.2)	46.4	(0.2)
	Netherlands**	3.0	(0.4)	4.9	(0.4)	92.1	(0.6)	4.4	(0.5)	11.0	(0.6)	84.6	(0.7)	9.0	(0.6)	25.9	(1.0)	65.2	(1.1)

1. The index of familiarity with concepts of finance is the total number of concepts that the student both learned about at school and knows the meaning of. It ranges from 0 to 18.

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.5.1 [6/6] **Topics and frequency of discussion between students and their parents about money matters**
Results based on students' reports

		Percentage of students who have/have not encountered the following terms in school in the previous 12 months:																	
		Income tax						Credit default swap						Call option					
		Never heard of this term		Heard of this term but cannot recall the meaning		Learned about this term and knows what it mean		Never heard of this term		Heard of this term but cannot recall the meaning		Learned about this term and knows what it means		Never heard of this term		Heard of this term but cannot recall the meaning		Learned about this term and knows what it means	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	9.3	(0.3)	31.1	(0.6)	59.6	(0.6)	44.4	(0.7)	39.2	(0.6)	16.3	(0.5)	51.1	(0.7)	36.2	(0.6)	12.7	(0.5)
	Canadian provinces	11.2	(0.6)	26.8	(0.8)	62.1	(1.1)	53.7	(1.1)	31.3	(1.0)	15.0	(0.6)	57.2	(0.9)	30.3	(0.9)	12.5	(0.6)
	Chile	27.3	(0.7)	39.1	(0.9)	33.6	(0.9)	49.7	(0.9)	34.4	(0.8)	15.8	(0.7)	25.4	(0.7)	35.8	(0.7)	38.8	(1.0)
	Estonia	8.7	(0.4)	27.6	(0.8)	63.7	(0.8)	39.3	(0.9)	36.7	(0.9)	24.0	(0.7)	53.6	(1.0)	33.6	(0.9)	12.8	(0.5)
	Finland	7.8	(0.5)	29.8	(0.7)	62.5	(0.8)	47.6	(0.8)	35.5	(0.8)	17.0	(0.7)	54.7	(1.0)	32.0	(0.8)	13.4	(0.6)
	Italy	31.5	(0.9)	34.9	(0.7)	33.7	(1.0)	51.3	(0.9)	30.9	(0.8)	17.8	(0.7)	36.8	(0.8)	29.6	(0.6)	33.7	(0.8)
	Latvia	15.1	(0.7)	35.6	(1.1)	49.3	(1.2)	23.7	(0.8)	43.8	(1.0)	32.6	(1.1)	33.1	(0.9)	41.5	(0.9)	25.4	(0.8)
	Lithuania	13.2	(0.6)	37.6	(0.9)	49.2	(0.9)	31.7	(0.9)	41.0	(1.0)	27.3	(0.9)	34.7	(1.0)	40.2	(1.0)	25.1	(0.7)
	Poland	15.3	(0.7)	34.2	(0.8)	50.5	(1.0)	54.0	(1.1)	31.0	(0.9)	14.9	(0.5)	29.4	(0.9)	34.5	(0.8)	36.1	(0.8)
	Portugal*	29.2	(0.9)	35.2	(0.9)	35.6	(0.9)	59.3	(0.8)	31.2	(0.9)	9.6	(0.5)	23.6	(0.7)	29.7	(0.8)	46.7	(0.9)
	Slovak Republic	10.9	(0.7)	31.9	(0.9)	57.2	(1.0)	54.3	(1.0)	33.5	(1.0)	12.2	(0.6)	50.9	(0.9)	33.7	(1.0)	15.4	(0.6)
	Spain	21.4	(0.7)	35.2	(0.7)	43.5	(0.8)	61.8	(0.9)	25.0	(0.6)	13.2	(0.6)	25.6	(0.7)	30.9	(0.7)	43.5	(0.7)
	United States*	11.2	(0.5)	27.3	(0.9)	61.5	(1.0)	51.4	(0.9)	33.1	(0.9)	15.5	(0.7)	56.0	(0.9)	30.8	(0.8)	13.2	(0.6)
	OECD average	16.3	(0.2)	32.8	(0.2)	50.9	(0.3)	47.9	(0.3)	34.3	(0.2)	17.8	(0.2)	40.9	(0.2)	33.7	(0.2)	25.3	(0.2)
Partners	Brazil	15.9	(0.5)	37.0	(0.8)	47.1	(0.9)	55.9	(0.8)	33.6	(0.6)	10.5	(0.4)	22.8	(0.6)	34.3	(0.7)	42.9	(0.8)
	Bulgaria	27.9	(0.8)	37.9	(0.9)	34.2	(1.1)	47.6	(1.0)	35.3	(0.9)	17.2	(0.8)	50.6	(1.0)	33.5	(0.9)	15.9	(0.7)
	Georgia	25.6	(0.8)	25.1	(0.8)	49.4	(0.8)	53.3	(0.9)	27.9	(0.7)	18.8	(0.7)	53.2	(0.9)	27.3	(0.8)	19.4	(0.8)
	Indonesia	19.2	(1.0)	45.6	(1.1)	35.1	(1.2)	34.8	(1.2)	46.1	(1.1)	19.1	(0.8)	35.2	(1.2)	45.6	(1.1)	19.3	(0.8)
	Peru	18.3	(0.7)	34.4	(0.8)	47.3	(0.9)	m	m	m	m	m	m	19.5	(0.6)	36.4	(0.9)	44.2	(0.9)
	Russia	12.8	(0.6)	32.0	(0.7)	55.2	(0.9)	42.6	(1.2)	36.7	(0.9)	20.7	(0.8)	48.5	(1.2)	34.6	(0.9)	16.9	(0.7)
	Serbia	22.4	(0.8)	37.7	(0.9)	40.0	(1.0)	38.7	(1.0)	38.0	(0.9)	23.3	(0.8)	33.8	(0.9)	37.7	(0.9)	28.4	(0.7)
	Average all countries/ economies	17.7	(0.2)	33.8	(0.2)	48.5	(0.2)	47.1	(0.2)	35.0	(0.2)	17.9	(0.2)	39.8	(0.2)	34.4	(0.2)	25.8	(0.2)
	Netherlands**	6.9	(0.5)	20.0	(0.8)	73.1	(0.9)	66.5	(0.9)	25.7	(0.8)	7.8	(0.5)	72.1	(0.9)	22.1	(0.8)	5.7	(0.5)

1. The index of familiarity with concepts of finance is the total number of concepts that the student both learned about at school and knows the meaning of. It ranges from 0 to 18.

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.5.2 **Variation in students' familiarity with concepts of finance**
Results on the index of familiarity with concepts of finance[1] based on students' reports

		Mean index		Standard deviation		Percentiles											
						5th		10th		25th		Median (50th)		75th		90th		95th	
		Mean	S.E.	S.D.	S.E.	Index	S.E.	Index	S.E.	Index	S.E.	Index	S.E.	Index	S.E.	Index	S.E.	Index	S.E.
OECD	Australia	8	(0.1)	5	(0.0)	0	c	0	c	4	c	8	c	12	c	15	c	17	(0.5)
	Canadian provinces	8	(0.1)	5	(0.1)	0	c	0	c	3	(0.2)	8	c	11	(0.3)	15	(0.6)	17	(0.5)
	Chile	6	(0.1)	5	(0.1)	0	c	0	c	1	c	6	c	10	(0.2)	14	(1.5)	16	(0.7)
	Estonia	8	(0.1)	5	(0.0)	0	c	0	c	4	c	8	c	11	c	14	c	16	(0.2)
	Finland	10	(0.1)	5	(0.1)	0	c	2	(0.4)	7	c	11	(1.0)	13	c	16	c	18	c
	Italy	6	(0.1)	5	(0.1)	0	c	0	c	2	(0.5)	6	c	10	c	13	(0.3)	15	(1.1)
	Latvia	7	(0.1)	5	(0.0)	0	c	0	c	3	(0.7)	7	(0.6)	11	c	14	c	16	c
	Lithuania	8	(0.1)	6	(0.1)	0	c	0	c	1	(0.2)	8	(0.4)	12	(0.2)	16	c	18	c
	Poland	7	(0.1)	5	(0.1)	0	c	0	c	2	(1.1)	7	(0.3)	11	(0.2)	14	c	18	(0.5)
	Portugal*	6	(0.1)	5	(0.1)	0	c	0	c	1	(0.9)	6	c	10	c	14	(0.4)	16	(0.3)
	Slovak Republic	7	(0.1)	5	(0.1)	0	c	0	c	1	(0.5)	7	c	10	c	13	c	16	(0.7)
	Spain	8	(0.1)	5	(0.0)	0	c	0	c	3	(0.4)	8	c	11	(0.7)	14	c	16	c
	United States*	7	(0.1)	5	(0.1)	0	c	0	c	3	c	7	c	10	c	13	(1.3)	16	c
	OECD average	7	(0.0)	5	(0.0)	0	c	0	(0.0)	3	(0.1)	7	(0.1)	11	(0.1)	14	(0.2)	17	(0.1)
Partners	Brazil	6	(0.1)	6	(0.0)	0	c	0	c	1	c	6	c	11	c	14	c	16	(1.3)
	Bulgaria	5	(0.1)	6	(0.1)	0	c	0	c	0	c	2	(0.3)	9	(1.0)	14	(0.9)	18	c
	Georgia	6	(0.1)	5	(0.1)	0	c	0	c	0	c	5	c	10	c	13	c	16	(0.5)
	Indonesia	5	(0.1)	5	(0.1)	0	c	0	c	0	c	4	(0.2)	9	(0.2)	13	(1.3)	15	(0.5)
	Peru	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Russia	9	(0.1)	6	(0.0)	0	c	0	c	3	(0.7)	10	c	13	c	17	(1.2)	18	c
	Serbia	6	(0.1)	6	(0.1)	0	c	0	c	0	c	5	c	11	(0.8)	15	(0.2)	18	c
	Average all countries/ economies	7	(0.0)	5	(0.0)	0	c	0	(0.0)	2	(0.1)	7	(0.1)	11	(0.1)	14	(0.2)	17	(0.1)
	Netherlands**	11	(0.1)	4	(0.1)	1	(0.6)	5	(1.3)	8	c	11	c	14	(0.3)	15	(0.4)	16	c

1. The index of familiarity with concepts of finance is the total number of concepts that the student both learned about at school and knows the meaning of. It ranges from 0 to 18.

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.5.9 [1/2] **Tasks and activities in school lessons**
Results based on students' reports

		Index of financial education in school lessons		Frequency with which students had encountered the following types of tasks or activities in a school lesson over the previous 12 months:																	
				Describing the purpose and uses of money						Exploring the difference between spending money on needs and wants						Exploring ways of planning to pay an expense					
				Never		Sometimes		Often		Never		Sometimes		Often		Never		Sometimes		Often	
		Mean index	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	0.33	(0.02)	21.6	(0.5)	56.7	(0.7)	21.7	(0.6)	20.2	(0.5)	49.6	(0.7)	30.3	(0.7)	30.5	(0.6)	46.8	(0.6)	22.6	(0.6)
	Canadian provinces	0.22	(0.02)	27.4	(1.0)	53.7	(0.9)	19.0	(0.8)	23.4	(1.0)	48.5	(0.9)	28.2	(0.9)	32.5	(0.9)	45.9	(0.9)	21.5	(0.8)
	Chile	-0.20	(0.02)	45.5	(1.0)	48.0	(0.9)	6.5	(0.5)	35.0	(1.0)	50.7	(1.0)	14.3	(0.7)	44.4	(1.0)	45.3	(0.8)	10.3	(0.6)
	Estonia	0.07	(0.02)	22.5	(0.8)	66.9	(0.9)	10.7	(0.6)	26.1	(0.8)	62.0	(0.9)	11.9	(0.6)	29.0	(0.7)	58.2	(0.9)	12.7	(0.6)
	Finland	0.47	(0.02)	9.8	(0.4)	65.1	(0.8)	25.1	(0.9)	14.3	(0.7)	63.8	(0.8)	22.0	(0.7)	23.4	(0.8)	60.2	(0.8)	16.5	(0.7)
	Italy	-0.26	(0.02)	54.0	(1.0)	38.0	(0.9)	8.0	(0.5)	42.5	(0.9)	43.6	(0.8)	13.9	(0.6)	43.9	(1.0)	40.5	(0.8)	15.6	(0.6)
	Latvia	0.00	(0.02)	30.5	(0.9)	60.1	(1.0)	9.4	(0.6)	21.6	(0.8)	61.8	(1.0)	16.6	(0.8)	30.0	(0.9)	55.3	(1.0)	14.7	(0.7)
	Lithuania	0.05	(0.02)	29.0	(1.0)	58.2	(1.0)	12.8	(0.7)	30.7	(1.1)	54.3	(1.0)	15.0	(0.8)	31.4	(1.2)	51.9	(1.0)	16.6	(0.8)
	Poland	-0.06	(0.02)	31.7	(0.9)	57.2	(0.8)	11.1	(0.6)	34.8	(1.0)	51.6	(0.9)	13.5	(0.6)	38.9	(1.2)	47.9	(1.1)	13.2	(0.6)
	Portugal*	-0.21	(0.02)	43.6	(0.9)	45.0	(0.9)	11.3	(0.6)	33.3	(0.7)	46.3	(0.9)	20.5	(0.7)	47.3	(1.0)	40.5	(1.0)	12.2	(0.6)
	Slovak Republic	0.11	(0.02)	28.9	(0.9)	56.7	(1.0)	14.4	(0.7)	23.6	(0.7)	55.9	(0.8)	20.5	(0.8)	31.4	(0.9)	51.9	(0.9)	16.8	(0.8)
	Spain	-0.15	(0.02)	48.5	(0.9)	41.7	(0.9)	9.8	(0.5)	32.5	(0.8)	47.3	(0.8)	20.3	(0.6)	44.6	(0.9)	40.0	(0.9)	15.4	(0.6)
	United States*	-0.10	(0.03)	36.1	(1.0)	49.9	(1.0)	14.0	(0.8)	34.0	(1.1)	45.0	(1.1)	21.0	(1.0)	44.2	(1.3)	40.4	(1.1)	15.4	(0.7)
	OECD average	0.02	(0.01)	33.0	(0.2)	53.6	(0.2)	13.4	(0.2)	28.6	(0.2)	52.3	(0.2)	19.1	(0.2)	36.3	(0.3)	48.1	(0.3)	15.7	(0.2)
Partners	Brazil	-0.16	(0.02)	48.3	(0.7)	43.5	(0.7)	8.1	(0.4)	37.6	(0.8)	48.2	(0.8)	14.2	(0.5)	44.7	(0.6)	43.4	(0.7)	11.9	(0.5)
	Bulgaria	-0.22	(0.03)	48.7	(1.2)	41.6	(1.0)	9.7	(0.5)	39.4	(1.2)	49.7	(1.1)	10.9	(0.6)	44.6	(1.2)	43.6	(1.0)	11.8	(0.6)
	Georgia	-0.20	(0.02)	36.7	(0.9)	51.8	(0.8)	11.5	(0.6)	39.4	(0.9)	49.0	(0.8)	11.6	(0.5)	41.8	(0.9)	46.3	(0.9)	11.9	(0.7)
	Indonesia	0.47	(0.03)	15.3	(1.0)	56.4	(1.1)	28.3	(1.2)	13.8	(1.0)	54.5	(1.0)	31.7	(1.1)	16.1	(0.9)	56.0	(1.1)	27.8	(1.0)
	Peru	0.22	(0.02)	25.8	(0.8)	63.8	(0.8)	10.5	(0.5)	18.5	(0.7)	59.0	(0.7)	22.5	(0.8)	21.1	(0.7)	55.7	(0.8)	23.1	(0.7)
	Russia	0.41	(0.02)	23.7	(0.8)	56.0	(0.7)	20.3	(0.9)	19.9	(0.8)	56.1	(0.7)	24.1	(0.8)	21.0	(0.9)	52.8	(0.7)	26.2	(0.9)
	Serbia	-0.43	(0.02)	54.2	(1.0)	38.3	(0.9)	7.5	(0.5)	49.5	(0.9)	40.8	(0.9)	9.6	(0.6)	53.3	(1.1)	37.0	(0.9)	9.7	(0.7)
	Average all countries/ economies	0.02	(0.00)	34.1	(0.2)	52.4	(0.2)	13.5	(0.1)	29.5	(0.2)	51.9	(0.2)	18.6	(0.2)	35.7	(0.2)	48.0	(0.2)	16.3	(0.2)
	Netherlands**	0.13	(0.02)	34.7	(1.2)	51.0	(1.1)	14.2	(0.7)	27.1	(1.0)	51.2	(0.9)	21.7	(0.9)	27.3	(0.9)	48.3	(0.9)	24.4	(0.8)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.5.9 [2/2] **Tasks and activities in school lessons**
Results based on students' reports

		Frequency with which students had encountered the following types of tasks or activities in a school lesson over the previous 12 months:																	
		Discussing the rights of consumers when dealing with financial institutions						Discussing the ways in which money invested in the stock market changes value over time						Analysing advertisements to understand how they encourage people to buy things					
		Never		Sometimes		Often		Never		Sometimes		Often		Never		Sometimes		Often	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	33.8	(0.7)	45.9	(0.7)	20.3	(0.6)	33.5	(0.6)	46.5	(0.7)	20.0	(0.6)	22.5	(0.6)	49.5	(0.7)	28.0	(0.6)
	Canadian provinces	41.5	(1.1)	41.9	(1.0)	16.5	(0.6)	35.1	(1.0)	44.9	(0.7)	20.0	(0.8)	28.7	(1.0)	46.6	(1.0)	24.7	(1.0)
	Chile	50.7	(0.9)	40.7	(0.8)	8.6	(0.6)	50.1	(1.1)	40.7	(1.0)	9.2	(0.6)	36.8	(1.1)	46.1	(0.9)	17.2	(0.8)
	Estonia	38.5	(0.8)	52.0	(0.8)	9.5	(0.6)	39.5	(1.0)	51.6	(1.0)	8.9	(0.5)	22.7	(0.8)	60.0	(0.8)	17.2	(0.6)
	Finland	19.4	(0.8)	59.0	(0.8)	21.6	(0.8)	20.4	(0.7)	60.2	(0.9)	19.5	(0.8)	14.0	(0.6)	63.8	(0.8)	22.2	(0.7)
	Italy	50.6	(1.1)	38.8	(0.9)	10.6	(0.6)	52.6	(1.0)	37.5	(0.9)	9.9	(0.6)	45.5	(1.0)	40.7	(0.8)	13.9	(0.7)
	Latvia	42.4	(1.1)	48.4	(1.1)	9.1	(0.6)	47.2	(1.1)	43.5	(1.0)	9.3	(0.6)	35.1	(1.0)	52.0	(0.9)	12.9	(0.7)
	Lithuania	38.9	(0.9)	49.4	(1.0)	11.7	(0.6)	36.5	(1.0)	50.7	(0.9)	12.9	(0.6)	31.8	(0.9)	54.0	(0.9)	14.2	(0.8)
	Poland	43.1	(1.3)	46.2	(1.1)	10.6	(0.6)	42.9	(1.1)	46.9	(1.0)	10.2	(0.5)	33.8	(0.9)	51.7	(0.8)	14.5	(0.6)
	Portugal*	53.3	(1.0)	37.0	(1.1)	9.6	(0.7)	54.7	(1.0)	37.4	(0.9)	7.9	(0.5)	40.0	(1.0)	45.6	(1.0)	14.4	(0.7)
	Slovak Republic	37.2	(1.0)	50.4	(1.0)	12.5	(0.6)	37.4	(0.9)	49.6	(0.8)	13.0	(0.7)	30.8	(1.0)	51.4	(1.0)	17.8	(0.7)
	Spain	55.0	(0.8)	35.4	(0.7)	9.7	(0.4)	47.7	(0.8)	39.4	(0.7)	12.9	(0.5)	35.5	(0.8)	47.2	(0.9)	17.3	(0.6)
	United States*	53.9	(1.3)	35.3	(1.1)	10.8	(0.7)	47.0	(1.2)	40.3	(1.0)	12.6	(0.8)	37.9	(0.9)	44.4	(0.9)	17.7	(0.8)
	OECD average	42.9	(0.3)	44.6	(0.3)	12.4	(0.2)	41.9	(0.3)	45.3	(0.2)	12.8	(0.2)	31.9	(0.2)	50.2	(0.2)	17.8	(0.2)
Partners	Brazil	45.9	(0.7)	42.9	(0.7)	11.2	(0.5)	44.3	(0.8)	43.9	(0.7)	11.8	(0.6)	34.5	(0.8)	47.6	(0.7)	17.9	(0.6)
	Bulgaria	46.1	(1.3)	43.5	(1.3)	10.4	(0.6)	47.7	(1.2)	41.0	(1.1)	11.3	(0.6)	41.5	(1.1)	44.8	(1.1)	13.7	(0.6)
	Georgia	49.0	(1.0)	41.5	(0.8)	9.5	(0.7)	50.3	(1.0)	39.6	(0.9)	10.1	(0.6)	44.5	(0.9)	42.6	(0.8)	12.9	(0.6)
	Indonesia	27.4	(1.0)	52.1	(0.9)	20.5	(0.9)	30.0	(0.9)	51.1	(1.1)	18.8	(1.0)	23.2	(0.9)	53.7	(1.1)	23.1	(1.1)
	Peru	31.8	(0.9)	52.9	(0.8)	15.3	(0.6)	35.8	(0.9)	50.8	(0.9)	13.4	(0.6)	30.4	(0.8)	53.2	(0.8)	16.4	(0.6)
	Russia	20.6	(0.7)	54.4	(0.8)	25.1	(0.7)	26.5	(0.8)	50.9	(0.8)	22.5	(0.9)	27.4	(1.0)	51.0	(0.8)	21.6	(0.8)
	Serbia	54.8	(1.1)	36.9	(1.0)	8.3	(0.5)	56.9	(1.2)	34.8	(1.1)	8.3	(0.6)	51.5	(1.1)	38.0	(1.0)	10.5	(0.6)
	Average all countries/ economies	41.7	(0.2)	45.2	(0.2)	13.1	(0.1)	41.8	(0.2)	45.1	(0.2)	13.1	(0.1)	33.4	(0.2)	49.2	(0.2)	17.4	(0.2)
	Netherlands**	40.2	(1.0)	44.0	(1.0)	15.8	(0.7)	34.7	(1.1)	47.0	(0.9)	18.3	(0.7)	35.7	(1.0)	49.1	(0.9)	15.2	(0.7)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.5.16 [1/2] **Classes where students encounter problems about money matters**
Results based on students' reports

		Percentage of students who had encountered problems about money matters[1] in the following classes or activities in the previous 12 months:															
		Mathematics class								Another class							
		Yes		No		Does not know		Does not have this class		Yes		No		Does not know		Does not have this class	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	60.7	(0.8)	19.8	(0.5)	18.3	(0.6)	1.3	(0.2)	29.7	(0.6)	42.5	(0.6)	25.3	(0.6)	2.6	(0.2)
	Canadian provinces	59.9	(0.8)	23.2	(0.8)	15.3	(0.6)	1.6	(0.2)	33.6	(1.0)	44.1	(1.0)	20.4	(0.8)	1.9	(0.2)
	Chile	52.4	(1.2)	25.9	(0.8)	19.6	(0.8)	2.1	(0.3)	23.8	(1.1)	45.9	(1.0)	26.2	(0.8)	4.1	(0.4)
	Estonia	68.3	(0.9)	16.5	(0.8)	14.6	(0.7)	0.6	(0.2)	38.6	(1.0)	35.0	(0.9)	24.5	(0.8)	1.9	(0.3)
	Finland	58.1	(0.9)	16.0	(0.6)	23.1	(0.7)	2.7	(0.2)	50.7	(0.9)	18.8	(0.8)	28.0	(0.7)	2.5	(0.3)
	Italy	39.8	(0.9)	36.7	(0.9)	17.3	(0.7)	6.2	(0.4)	27.4	(0.8)	45.3	(0.8)	20.4	(0.7)	6.8	(0.4)
	Latvia	62.6	(1.2)	19.3	(0.8)	16.1	(0.8)	2.0	(0.2)	43.2	(1.0)	28.9	(0.8)	25.5	(0.9)	2.4	(0.3)
	Lithuania	65.5	(0.9)	17.1	(0.6)	16.6	(0.7)	0.8	(0.2)	44.0	(1.0)	29.5	(0.8)	24.8	(0.8)	1.7	(0.2)
	Poland	63.3	(1.0)	16.3	(0.6)	18.1	(0.7)	2.3	(0.2)	30.5	(0.8)	36.3	(0.8)	28.5	(0.7)	4.8	(0.3)
	Portugal*	48.4	(0.9)	29.3	(0.7)	16.4	(0.7)	5.8	(0.5)	26.5	(0.8)	46.0	(0.9)	25.0	(0.7)	2.5	(0.3)
	Slovak Republic	48.7	(1.0)	22.2	(0.8)	26.3	(0.8)	2.8	(0.4)	26.1	(0.9)	35.2	(0.9)	32.7	(0.9)	6.0	(0.5)
	Spain	53.5	(0.8)	30.0	(0.8)	15.1	(0.5)	1.5	(0.2)	28.1	(0.7)	46.3	(0.8)	22.2	(0.7)	3.4	(0.3)
	United States*	54.6	(0.9)	25.5	(0.9)	17.4	(0.8)	2.5	(0.3)	27.5	(1.1)	46.8	(1.2)	22.9	(0.9)	2.8	(0.4)
	OECD average	56.6	(0.3)	22.9	(0.2)	18.0	(0.2)	2.5	(0.1)	33.0	(0.3)	38.5	(0.2)	25.1	(0.2)	3.3	(0.1)
Partners	Brazil	65.8	(0.6)	20.0	(0.6)	13.0	(0.5)	1.2	(0.2)	34.5	(0.6)	42.4	(0.7)	20.8	(0.5)	2.3	(0.2)
	Bulgaria	48.2	(1.1)	31.3	(1.0)	17.3	(0.7)	3.2	(0.3)	30.2	(1.0)	42.3	(0.8)	22.6	(0.8)	4.9	(0.5)
	Georgia	62.5	(0.9)	21.9	(0.7)	13.9	(0.6)	1.6	(0.2)	27.0	(0.9)	50.0	(1.0)	20.4	(0.8)	2.6	(0.3)
	Indonesia	75.2	(0.9)	15.9	(0.7)	7.4	(0.6)	1.5	(0.2)	63.8	(1.1)	24.8	(0.9)	9.3	(0.6)	2.1	(0.3)
	Peru	72.4	(0.8)	19.1	(0.7)	7.1	(0.4)	1.3	(0.2)	44.2	(0.9)	40.4	(0.9)	13.8	(0.5)	1.6	(0.2)
	Russia	68.9	(0.9)	15.8	(0.6)	12.2	(0.7)	3.1	(0.3)	47.0	(0.9)	33.2	(1.0)	16.1	(0.7)	3.7	(0.3)
	Serbia	40.5	(1.0)	38.1	(0.9)	18.8	(0.7)	2.6	(0.4)	19.6	(0.8)	53.0	(1.1)	24.4	(0.8)	3.0	(0.3)
	Average all countries/ economies	58.5	(0.2)	23.0	(0.2)	16.2	(0.2)	2.3	(0.1)	34.8	(0.2)	39.3	(0.2)	22.7	(0.2)	3.2	(0.1)
	Netherlands**	50.2	(1.1)	31.0	(1.0)	14.7	(0.6)	4.0	(0.5)	67.9	(1.1)	14.4	(0.7)	16.1	(0.7)	1.5	(0.3)

1. Students were asked, in particular, whether they had encountered at least one of the following two types of problems in any of their classes or activities:

Problem 1: Ann is on holiday in a country called Farway but she normally lives in Zedland. The unit of currency in Zedland is the ZED. The unit of currency in Farway is the FAD. At the time of the holiday, the exchange rate was 1 ZED = 25 FAD.

Ann needs 200 FAD to buy some food. If she exchanges some of her ZEDs, the exchange bureau will apply a 3% commission. If she withdraws FADs from an ATM in Farway, her bank will charge her a fixed 2-ZED fee.

Should Ann exchange her ZEDs or withdraw FADs from an ATM?

Problem 2: Tom is talking with his grandmother and they are comparing the price of ice cream now and when his grandmother was his age. They noted that the purchasing power of money usually decreases over time, meaning that, all else being equal, inflation decreases the amount of goods and services that you can purchase over time. Discuss some examples of how inflation affects you or your family.

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.5.16 [2/2] **Classes where students encounter problems about money matters**
Results based on students' reports

		Percentage of students who had encountered problems about money matters[1] in the following classes or activities in the previous 12 months:															
		A one-off lesson or activity during school time from an outside visitor (not a teacher)								Extracurricular activities outside of school time							
		Yes		No		Does not know		Does not have this class		Yes		No		Does not know		Does not have this class	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	17.4	(0.5)	48.2	(0.7)	25.0	(0.6)	9.4	(0.4)	14.8	(0.4)	49.8	(0.7)	22.4	(0.5)	13.0	(0.4)
	Canadian provinces	20.9	(0.8)	50.4	(0.9)	22.2	(0.7)	6.4	(0.4)	19.0	(0.6)	54.0	(0.7)	19.8	(0.7)	7.2	(0.4)
	Chile	14.0	(0.9)	47.6	(0.9)	23.1	(0.8)	15.2	(0.7)	15.3	(0.7)	46.4	(1.0)	23.0	(1.0)	15.3	(0.8)
	Estonia	25.2	(0.7)	40.0	(0.9)	25.5	(0.9)	9.3	(0.5)	35.3	(0.8)	34.6	(0.8)	23.4	(0.8)	6.8	(0.4)
	Finland	13.1	(0.7)	44.2	(0.8)	35.8	(0.9)	6.8	(0.4)	17.4	(0.7)	42.8	(0.8)	31.7	(0.7)	8.0	(0.4)
	Italy	16.5	(0.6)	46.2	(0.8)	23.6	(0.7)	13.7	(0.6)	15.1	(0.7)	43.9	(0.9)	18.6	(0.7)	22.4	(0.8)
	Latvia	19.1	(0.8)	39.3	(0.9)	28.5	(0.8)	13.2	(0.7)	24.6	(0.8)	36.5	(1.0)	22.6	(0.8)	16.3	(0.7)
	Lithuania	29.2	(0.7)	34.8	(0.8)	27.9	(0.9)	8.1	(0.6)	25.1	(0.9)	40.4	(1.0)	20.8	(0.8)	13.7	(0.7)
	Poland	25.9	(1.0)	33.7	(0.7)	26.0	(0.7)	14.5	(0.6)	16.7	(0.7)	39.3	(0.8)	22.2	(0.7)	21.9	(0.8)
	Portugal*	14.4	(0.8)	53.7	(0.9)	25.3	(0.8)	6.7	(0.4)	12.1	(0.6)	57.5	(0.9)	20.1	(0.7)	10.3	(0.5)
	Slovak Republic	22.7	(0.8)	33.2	(0.9)	33.9	(0.9)	10.2	(0.6)	26.7	(0.8)	30.5	(0.9)	31.3	(1.0)	11.5	(0.6)
	Spain	12.8	(0.7)	52.0	(0.9)	19.2	(0.6)	15.9	(0.6)	12.3	(0.5)	52.4	(0.8)	16.2	(0.5)	19.1	(0.6)
	United States*	16.5	(0.8)	50.7	(1.1)	23.5	(0.8)	9.3	(0.6)	20.1	(0.7)	48.9	(0.9)	21.8	(0.8)	9.2	(0.5)
	OECD average	19.1	(0.2)	44.2	(0.2)	26.1	(0.2)	10.7	(0.2)	19.6	(0.2)	44.4	(0.2)	22.6	(0.2)	13.4	(0.2)
Partners	Brazil	24.3	(0.6)	47.8	(0.7)	22.1	(0.7)	5.8	(0.3)	29.2	(0.6)	42.9	(0.6)	20.4	(0.6)	7.5	(0.3)
	Bulgaria	25.0	(0.9)	41.0	(1.0)	24.4	(0.8)	9.5	(0.5)	33.8	(0.9)	34.2	(0.8)	21.9	(0.8)	10.1	(0.6)
	Georgia	23.8	(0.8)	48.7	(1.0)	23.0	(0.8)	4.5	(0.4)	34.9	(0.9)	39.2	(1.0)	19.5	(0.7)	6.3	(0.4)
	Indonesia	52.8	(1.0)	30.8	(0.9)	11.9	(0.7)	4.5	(0.5)	48.8	(1.0)	33.8	(0.9)	11.4	(0.7)	6.0	(0.6)
	Peru	26.8	(0.8)	51.8	(0.7)	14.4	(0.5)	7.0	(0.4)	33.1	(0.7)	47.2	(0.8)	12.7	(0.5)	7.0	(0.4)
	Russia	31.8	(0.9)	36.3	(0.7)	18.4	(0.7)	13.4	(0.7)	36.8	(0.8)	32.8	(0.8)	17.4	(0.7)	13.0	(0.7)
	Serbia	17.8	(0.8)	49.5	(1.0)	26.6	(0.8)	6.0	(0.4)	34.3	(0.9)	36.7	(0.9)	22.9	(0.7)	6.2	(0.4)
	Average all countries/ economies	22.5	(0.2)	44.0	(0.2)	24.0	(0.2)	9.5	(0.1)	25.3	(0.2)	42.2	(0.2)	21.0	(0.2)	11.5	(0.1)
	Netherlands**	12.2	(0.8)	47.5	(1.1)	25.7	(1.1)	14.6	(0.8)	8.3	(0.5)	48.2	(1.1)	13.5	(0.8)	30.0	(0.9)

1. Students were asked, in particular, whether they had encountered at least one of the following two types of problems in any of their classes or activities:

Problem 1: Ann is on holiday in a country called Farway but she normally lives in Zedland. The unit of currency in Zedland is the ZED. The unit of currency in Farway is the FAD. At the time of the holiday, the exchange rate was 1 ZED = 25 FAD.

Ann needs 200 FAD to buy some food. If she exchanges some of her ZEDs, the exchange bureau will apply a 3% commission. If she withdraws FADs from an ATM in Farway, her bank will charge her a fixed 2-ZED fee.

Should Ann exchange her ZEDs or withdraw FADs from an ATM?

Problem 2: Tom is talking with his grandmother and they are comparing the price of ice cream now and when his grandmother was his age. They noted that the purchasing power of money usually decreases over time, meaning that, all else being equal, inflation decreases the amount of goods and services that you can purchase over time. Discuss some examples of how inflation affects you or your family.

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.5.23 **Textbooks that deal with money matters**
Results based on students' reports

		Percentage of students who had, in the previous 12 months, a...											
		Specific textbook on money matters						Textbook on some other subject but that discusses money matters					
		Yes		No		Does not know		Yes		No		Does not know	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	17.9	(0.5)	64.8	(0.6)	17.3	(0.5)	34.1	(0.6)	47.3	(0.6)	18.6	(0.6)
	Canadian provinces	12.4	(0.7)	74.6	(0.8)	13.1	(0.6)	27.3	(1.0)	57.7	(0.9)	15.0	(0.6)
	Chile	15.0	(0.7)	65.0	(0.9)	19.9	(0.8)	25.8	(0.9)	53.7	(1.0)	20.5	(0.7)
	Estonia	9.5	(0.5)	76.8	(0.7)	13.6	(0.5)	41.4	(0.8)	41.1	(0.8)	17.5	(0.6)
	Finland	13.9	(0.7)	68.1	(0.8)	18.0	(0.6)	43.1	(0.9)	37.8	(0.9)	19.1	(0.6)
	Italy	23.3	(0.9)	63.2	(1.1)	13.5	(0.7)	30.3	(0.7)	51.3	(0.9)	18.4	(0.7)
	Latvia	14.4	(0.6)	68.6	(0.7)	17.0	(0.7)	46.5	(1.0)	36.9	(0.9)	16.6	(0.8)
	Lithuania	27.5	(0.9)	53.1	(1.0)	19.4	(0.8)	29.2	(0.9)	47.3	(1.0)	23.5	(0.9)
	Poland	13.3	(0.7)	70.3	(0.8)	16.3	(0.5)	28.9	(0.9)	50.7	(0.9)	20.4	(0.7)
	Portugal*	7.3	(0.4)	80.4	(0.7)	12.4	(0.6)	30.8	(1.0)	52.3	(0.8)	16.9	(0.6)
	Slovak Republic	18.9	(0.7)	57.9	(0.8)	23.2	(0.7)	22.1	(0.8)	51.2	(0.8)	26.8	(0.7)
	Spain	15.3	(0.7)	71.7	(0.8)	13.0	(0.5)	29.0	(0.7)	54.2	(0.9)	16.7	(0.6)
	United States*	14.8	(0.8)	71.9	(1.0)	13.3	(0.6)	22.7	(0.8)	62.6	(0.9)	14.7	(0.7)
	OECD average	15.6	(0.2)	68.2	(0.2)	16.2	(0.2)	31.6	(0.2)	49.6	(0.2)	18.8	(0.2)
Partners	Brazil	20.9	(0.6)	58.9	(0.7)	20.2	(0.6)	28.9	(0.6)	49.5	(0.6)	21.5	(0.6)
	Bulgaria	22.0	(1.2)	64.9	(1.2)	13.1	(0.6)	24.0	(1.1)	60.1	(1.1)	16.0	(0.8)
	Georgia	18.6	(0.7)	66.6	(1.0)	14.8	(0.7)	23.8	(0.7)	59.0	(1.0)	17.2	(0.7)
	Indonesia	37.8	(1.2)	52.2	(1.3)	10.0	(0.7)	47.1	(1.1)	43.4	(1.2)	9.5	(0.6)
	Peru	34.9	(0.9)	51.7	(0.9)	13.4	(0.5)	45.4	(1.0)	42.2	(0.9)	12.4	(0.5)
	Russia	25.3	(0.9)	61.7	(1.1)	13.0	(0.7)	46.0	(0.9)	40.9	(1.0)	13.2	(0.7)
	Serbia	14.4	(0.9)	71.3	(1.0)	14.3	(0.6)	18.2	(0.9)	63.3	(1.0)	18.5	(0.7)
	Average all countries/ economies	18.9	(0.2)	65.7	(0.2)	15.4	(0.1)	32.2	(0.2)	50.1	(0.2)	17.6	(0.1)
	Netherlands**	29.5	(1.0)	56.2	(1.1)	14.3	(0.7)	68.8	(1.0)	19.2	(0.8)	12.1	(0.7)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.6.1 [1/2] **Students holding basic financial products**
Results based on students' reports

		Percentage of students who hold a(n)...											
		Account with a bank, building society, post office or credit union						Payment card or debit card					
		Yes		No		Student does not know what this is		Yes		No		Student does not know what this is	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	68.1	(0.7)	22.8	(0.6)	9.0	(0.3)	61.3	(0.6)	36.8	(0.6)	1.8	(0.2)
	Canadian provinces	64.5	(1.1)	27.8	(1.0)	7.7	(0.6)	66.8	(1.1)	31.0	(1.1)	2.2	(0.3)
	Chile	36.5	(1.1)	61.5	(1.0)	2.0	(0.3)	26.8	(1.0)	71.0	(1.0)	2.2	(0.3)
	Estonia*	59.2	(0.9)	26.0	(0.8)	14.8	(0.6)	75.2	(0.8)	20.6	(0.8)	4.2	(0.3)
	Finland	89.2	(0.5)	9.7	(0.5)	1.1	(0.2)	77.7	(0.7)	21.5	(0.7)	0.8	(0.1)
	Italy	43.5	(0.9)	51.4	(0.9)	5.0	(0.4)	41.1	(0.8)	55.1	(0.8)	3.8	(0.3)
	Latvia	59.4	(1.0)	39.2	(1.0)	1.3	(0.2)	53.3	(0.9)	43.6	(0.9)	3.0	(0.3)
	Lithuania	43.6	(0.8)	52.9	(0.8)	3.5	(0.4)	40.7	(0.8)	55.4	(0.9)	3.8	(0.3)
	Poland	34.5	(0.9)	63.8	(0.9)	1.7	(0.2)	26.2	(0.9)	72.0	(0.9)	1.8	(0.2)
	Portugal**	45.2	(0.9)	48.4	(0.8)	6.3	(0.4)	23.9	(1.0)	73.1	(0.9)	3.0	(0.3)
	Slovak Republic	49.9	(0.9)	47.1	(1.0)	3.0	(0.3)	41.2	(0.9)	56.2	(1.0)	2.6	(0.3)
	Spain	55.1	(0.8)	41.6	(0.7)	3.3	(0.3)	18.9	(0.6)	78.7	(0.7)	2.3	(0.2)
	United States**	46.9	(1.3)	48.7	(1.2)	4.3	(0.4)	36.4	(0.9)	62.2	(0.9)	1.4	(0.2)
	OECD average	53.5	(0.3)	41.6	(0.2)	4.9	(0.1)	45.4	(0.2)	52.1	(0.2)	2.5	(0.1)
Partners	Brazil	27.9	(0.8)	69.5	(0.9)	2.6	(0.3)	17.1	(0.8)	79.9	(0.8)	3.0	(0.3)
	Bulgaria	36.3	(1.2)	57.9	(1.2)	5.8	(0.4)	31.3	(1.3)	63.3	(1.3)	5.4	(0.5)
	Georgia	22.4	(0.7)	73.4	(0.9)	4.2	(0.4)	24.5	(0.7)	70.7	(0.7)	4.8	(0.4)
	Indonesia	35.8	(1.3)	51.3	(1.4)	12.8	(0.7)	27.0	(1.2)	60.5	(1.3)	12.6	(0.7)
	Peru	12.0	(0.6)	80.8	(0.8)	7.2	(0.5)	11.3	(0.6)	85.3	(0.7)	3.4	(0.3)
	Russia	31.6	(0.8)	65.3	(0.9)	3.1	(0.3)	50.2	(1.0)	46.9	(1.0)	2.9	(0.3)
	Serbia	20.7	(1.1)	75.5	(1.1)	3.8	(0.3)	13.2	(0.8)	82.7	(0.9)	4.1	(0.4)
	Average all countries/ economies	44.1	(0.2)	50.7	(0.2)	5.1	(0.1)	38.2	(0.2)	58.3	(0.2)	3.5	(0.1)
	Netherlands***	94.5	(0.5)	4.3	(0.4)	1.2	(0.3)	92.7	(0.5)	6.5	(0.5)	0.7	(0.2)

*The term "bank account" is not commonly used in the Estonian language; as a result, of students who sat the PISA assessment in Estonian, more students than expected may have stated that they do not know what an account with a bank, building society, post office or credit union is. This was not observed amongst students who sat the Russian-language questionnaire in Estonia.

**Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

***Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.6.1 [2/2] **Students holding basic financial products**
Results based on students' reports

		Percentage of students who hold a(n)...						Percentage of students who hold an account with a bank, building society, post office or credit union who hold a ...					
		Mobile app to access [your] account						Mobile app to access [your] account					
		Yes		No		Student does not know what this is		Yes		No		Student does not know what this is	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	55.1	(0.7)	42.4	(0.7)	2.5	(0.2)	67.2	(0.8)	31.6	(0.8)	1.3	(0.2)
	Canadian provinces	45.6	(1.0)	51.1	(1.0)	3.3	(0.3)	57.2	(1.1)	40.7	(1.1)	2.0	(0.3)
	Chile	22.1	(0.9)	75.0	(0.9)	3.0	(0.4)	44.6	(1.8)	53.3	(1.8)	2.1	(0.5)
	Estonia*	42.6	(0.9)	53.8	(0.9)	3.6	(0.3)	53.4	(1.2)	44.8	(1.2)	1.8	(0.3)
	Finland	23.8	(0.8)	73.6	(0.8)	2.6	(0.2)	26.4	(0.9)	71.8	(0.9)	1.9	(0.2)
	Italy	16.1	(0.6)	77.9	(0.7)	6.0	(0.4)	23.2	(1.2)	69.9	(1.3)	6.9	(0.7)
	Latvia	42.6	(1.1)	54.9	(1.1)	2.4	(0.3)	65.8	(1.3)	31.9	(1.2)	2.3	(0.3)
	Lithuania	34.9	(0.8)	60.9	(0.9)	4.2	(0.3)	65.0	(1.3)	31.4	(1.3)	3.5	(0.5)
	Poland	21.1	(0.8)	75.1	(0.9)	3.8	(0.4)	52.0	(1.4)	42.7	(1.5)	5.3	(0.7)
	Portugal**	9.2	(0.5)	86.9	(0.6)	4.0	(0.4)	12.8	(1.0)	84.6	(1.0)	2.6	(0.5)
	Slovak Republic	30.0	(0.9)	64.4	(0.9)	5.6	(0.5)	53.7	(1.6)	39.6	(1.5)	6.7	(0.7)
	Spain	10.9	(0.6)	85.4	(0.7)	3.7	(0.3)	14.5	(0.9)	82.1	(1.0)	3.4	(0.4)
	United States**	33.6	(0.9)	64.1	(0.9)	2.3	(0.3)	53.5	(1.2)	44.6	(1.2)	1.8	(0.3)
	OECD average	29.8	(0.2)	66.6	(0.2)	3.6	(0.1)	45.3	(0.3)	51.5	(0.3)	3.2	(0.1)
Partners	Brazil	14.9	(0.6)	80.0	(0.7)	5.1	(0.4)	38.5	(1.4)	54.1	(1.5)	7.4	(0.9)
	Bulgaria	24.5	(0.9)	66.3	(1.0)	9.3	(0.6)	47.1	(1.9)	42.7	(1.9)	10.1	(0.8)
	Georgia	16.7	(0.6)	75.3	(0.8)	8.0	(0.5)	39.0	(1.8)	47.2	(1.8)	13.8	(1.1)
	Indonesia	24.0	(1.1)	61.1	(1.3)	14.9	(0.7)	54.7	(1.7)	35.8	(1.8)	9.5	(0.9)
	Peru	8.1	(0.5)	87.2	(0.7)	4.6	(0.4)	36.8	(2.7)	58.2	(2.6)	5.0	(1.0)
	Russia	49.7	(0.8)	45.9	(0.8)	4.5	(0.4)	78.9	(1.7)	14.9	(1.2)	6.2	(0.9)
	Serbia	14.7	(0.8)	78.7	(1.0)	6.6	(0.6)	43.5	(2.1)	42.0	(2.4)	14.5	(1.7)
	Average all countries/ economies	27.0	(0.2)	68.0	(0.2)	5.0	(0.1)	46.4	(0.3)	48.2	(0.3)	5.4	(0.2)
	Netherlands***	63.8	(1.1)	35.2	(1.1)	1.0	(0.2)	66.7	(1.1)	33.1	(1.1)	0.2	(0.1)

*The term "bank account" is not commonly used in the Estonian language; as a result, of students who sat the PISA assessment in Estonian, more students than expected may have stated that they do not know what an account with a bank, building society, post office or credit union is. This was not observed amongst students who sat the Russian-language questionnaire in Estonia.

**Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

***Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.6.3 **Holding basic financial products, by gender**
Results based on students' reports

		Percentage of students who hold a(n)...																	
		Account with a bank, building society, post office or credit union						Payment card or debit card						Mobile app to access [your] account					
		Boys		Girls		Difference (girls - boys)		Boys		Girls		Difference (girls - boys)		Boys		Girls		Difference (girls - boys)	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	67.5	(0.7)	68.8	(0.9)	1.3	(1.0)	57.7	(0.7)	65.1	(1.0)	**7.4**	(1.2)	52.1	(0.8)	58.2	(1.0)	**6.2**	(1.2)
	Canadian provinces	64.1	(1.5)	64.8	(1.3)	0.7	(1.8)	65.5	(1.5)	68.2	(1.4)	2.7	(1.7)	47.2	(1.4)	44.0	(1.3)	-3.2	(1.8)
	Chile	37.3	(1.4)	35.7	(1.4)	-1.6	(1.9)	27.2	(1.2)	26.5	(1.3)	-0.7	(1.6)	25.2	(1.2)	18.9	(1.1)	**-6.3**	(1.5)
	Estonia*	58.9	(1.3)	59.4	(1.1)	0.5	(1.4)	73.5	(1.2)	76.9	(0.9)	**3.4**	(1.3)	46.1	(1.3)	39.2	(1.2)	**-7.0**	(1.7)
	Finland	89.0	(0.8)	89.4	(0.7)	0.4	(0.9)	76.1	(1.0)	79.2	(1.0)	**3.1**	(1.3)	26.4	(1.0)	21.2	(1.0)	**-5.2**	(1.2)
	Italy	46.9	(1.3)	40.1	(1.2)	**-6.7**	(1.7)	42.5	(1.2)	39.7	(1.3)	-2.8	(1.8)	22.7	(0.9)	9.2	(0.8)	**-13.5**	(1.3)
	Latvia	61.8	(1.4)	57.1	(1.3)	**-4.7**	(1.7)	56.2	(1.3)	50.5	(1.2)	**-5.8**	(1.8)	45.9	(1.4)	39.4	(1.4)	**-6.5**	(1.8)
	Lithuania	47.5	(1.2)	39.7	(1.2)	**-7.8**	(1.8)	43.9	(1.2)	37.5	(1.2)	**-6.4**	(1.8)	38.8	(1.1)	31.0	(1.1)	**-7.8**	(1.6)
	Poland	38.4	(1.1)	30.8	(1.2)	**-7.5**	(1.4)	28.3	(1.0)	24.2	(1.2)	**-4.1**	(1.4)	24.9	(1.2)	17.6	(1.0)	**-7.3**	(1.5)
	Portugal*	43.0	(1.3)	47.5	(1.2)	**4.6**	(1.8)	25.8	(1.1)	22.0	(1.3)	**-3.8**	(1.5)	11.4	(0.8)	6.9	(0.6)	**-4.5**	(1.0)
	Slovak Republic	53.0	(1.4)	47.0	(1.4)	**-6.0**	(2.2)	41.7	(1.4)	40.8	(1.4)	-0.8	(2.2)	35.2	(1.7)	25.1	(1.1)	**-10.1**	(2.1)
	Spain	54.3	(1.2)	55.9	(1.0)	1.6	(1.5)	18.9	(0.8)	19.0	(1.0)	0.0	(1.2)	14.1	(0.9)	7.6	(0.7)	**-6.5**	(1.0)
	United States**	47.1	(1.5)	46.7	(1.4)	-0.4	(1.5)	36.7	(1.2)	36.1	(1.2)	-0.6	(1.6)	35.4	(1.2)	31.9	(1.2)	**-3.5**	(1.6)
	OECD average	54.5	(0.3)	52.5	(0.3)	**-2.0**	(0.5)	45.7	(0.3)	45.0	(0.3)	-0.7	(0.4)	32.7	(0.3)	26.9	(0.3)	**-5.8**	(0.4)
Partners	Brazil	31.0	(1.1)	24.8	(1.0)	**-6.2**	(1.3)	19.1	(1.1)	15.1	(0.9)	**-4.0**	(1.1)	18.8	(0.8)	11.2	(0.7)	**-7.5**	(1.0)
	Bulgaria	39.4	(1.4)	33.0	(1.7)	**-6.5**	(2.0)	34.7	(1.5)	27.8	(1.7)	**-6.9**	(1.9)	29.6	(1.2)	19.1	(1.2)	**-10.5**	(1.8)
	Georgia	27.5	(1.1)	17.2	(1.0)	**-10.3**	(1.6)	30.0	(1.0)	18.9	(1.0)	**-11.1**	(1.4)	21.2	(1.0)	12.1	(0.7)	**-9.1**	(1.2)
	Indonesia	38.5	(1.7)	33.3	(1.7)	**-5.2**	(2.2)	30.5	(1.5)	23.6	(1.5)	**-6.9**	(1.9)	27.9	(1.7)	20.2	(1.3)	**-7.7**	(2.1)
	Peru	13.4	(0.8)	10.6	(0.8)	**-2.8**	(1.0)	13.1	(0.8)	9.4	(0.8)	**-3.7**	(1.0)	10.4	(0.8)	5.8	(0.6)	**-4.6**	(0.9)
	Russia	35.3	(1.2)	28.0	(1.1)	**-7.3**	(1.5)	53.1	(1.4)	47.4	(1.3)	**-5.7**	(1.8)	53.9	(1.1)	45.5	(1.3)	**-8.4**	(1.8)
	Serbia	24.7	(1.7)	16.9	(1.0)	**-7.8**	(1.6)	16.0	(1.2)	10.5	(0.9)	**-5.5**	(1.2)	18.7	(1.2)	10.9	(0.8)	**-7.8**	(1.3)
	Average all countries/ economies	45.9	(0.3)	42.3	(0.3)	**-3.6**	(0.4)	39.5	(0.3)	36.9	(0.3)	**-2.6**	(0.4)	30.3	(0.3)	23.8	(0.2)	**-6.5**	(0.3)
	Netherlands***	93.8	(0.6)	95.3	(0.6)	1.5	(0.8)	91.1	(0.7)	94.4	(0.7)	**3.3**	(1.0)	64.1	(1.3)	63.5	(1.6)	-0.6	(1.7)

Note: Values that are statistically significant are indicated in bold (see Annex A3).

*The term "bank account" is not commonly used in the Estonian language; as a result, of students who sat the PISA assessment in Estonian, more students than expected may have stated that they do not know what an account with a bank, building society, post office or credit union is. This was not observed amongst students who sat the Russian-language questionnaire in Estonia.

**Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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Table IV.B1.6.7 [1/2] **Change over time in students holding bank accounts**
Results based on students' reports

		Percentage of students who hold an account with a bank, building society, post office or credit union																	
		2012						2015						2018					
		Yes		No		Student does not know what this is		Yes		No		Student does not know what this is		Yes		No		Student does not know what this is	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	**Australia**	81.6	(1.2)	17.7	(1.2)	0.7	(0.2)	79.0	(0.5)	19.4	(0.5)	1.6	(0.2)	68.1	(0.7)	22.8	(0.6)	9.0	(0.3)
	Canadian provinces	m	m	m	m	m	m	77.6	(1.3)	21.9	(1.3)	0.5	(0.1)	64.5	(1.1)	27.8	(1.0)	7.7	(0.6)
	Chile	m	m	m	m	m	m	27.2	(1.3)	70.4	(1.4)	2.3	(0.4)	36.5	(1.1)	61.5	(1.0)	2.0	(0.3)
	Estonia*	82.0	(2.1)	17.1	(2.0)	0.9	(0.5)	m	m	m	m	m	m	59.2	(0.9)	26.0	(0.8)	14.8	(0.6)
	Finland	m	m	m	m	m	m	m	m	m	m	m	m	89.2	(0.5)	9.7	(0.5)	1.1	(0.2)
	Italy	35.9	(1.3)	62.2	(1.3)	1.9	(0.4)	35.3	(1.7)	63.0	(1.7)	1.7	(0.3)	43.5	(0.9)	51.4	(0.9)	5.0	(0.4)
	Latvia	40.8	(2.5)	58.1	(2.5)	1.0	(0.4)	m	m	m	m	m	m	59.4	(1.0)	39.2	(1.0)	1.3	(0.2)
	Lithuania	m	m	m	m	m	m	39.0	(1.5)	59.0	(1.4)	2.0	(0.4)	43.6	(0.8)	52.9	(0.8)	3.5	(0.4)
	Poland	15.5	(1.8)	83.4	(1.9)	1.1	(0.5)	27.8	(1.2)	69.9	(1.2)	2.3	(0.4)	34.5	(0.9)	63.8	(0.9)	1.7	(0.2)
	Portugal**	m	m	m	m	m	m	m	m	m	m	m	m	45.2	(0.9)	48.4	(0.8)	6.3	(0.4)
	Slovak Republic	25.1	(1.9)	73.2	(2.2)	1.7	(0.6)	42.3	(1.4)	53.6	(1.5)	4.2	(0.6)	49.9	(0.9)	47.1	(1.0)	3.0	(0.3)
	Spain	59.1	(2.3)	38.7	(2.2)	2.2	(0.8)	52.4	(1.3)	45.9	(1.3)	1.7	(0.4)	55.1	(0.8)	41.6	(0.7)	3.3	(0.3)
	United States**	51.4	(2.4)	47.3	(2.4)	1.3	(0.7)	52.8	(1.8)	46.3	(1.8)	0.8	(0.2)	46.9	(1.3)	48.7	(1.2)	4.3	(0.4)
	OECD average	48.9	(0.7)	49.7	(0.7)	1.4	(0.2)	48.2	(0.5)	49.9	(0.5)	1.9	(0.1)	53.5	(0.3)	41.6	(0.2)	4.9	(0.1)
Partners	**Brazil**	m	m	m	m	m	m	27.4	(1.3)	68.7	(1.3)	3.9	(0.6)	27.9	(0.8)	69.5	(0.9)	2.6	(0.3)
	Bulgaria	m	m	m	m	m	m	m	m	m	m	m	m	36.3	(1.2)	57.9	(1.2)	5.8	(0.4)
	Georgia	m	m	m	m	m	m	m	m	m	m	m	m	22.4	(0.7)	73.4	(0.9)	4.2	(0.4)
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	35.8	(1.3)	51.3	(1.4)	12.8	(0.7)
	Peru	m	m	m	m	m	m	14.1	(1.4)	80.6	(1.5)	5.3	(0.7)	12.0	(0.6)	80.8	(0.8)	7.2	(0.5)
	Russia	22.9	(2.3)	74.9	(2.4)	2.1	(0.9)	28.1	(1.5)	70.0	(1.6)	1.9	(0.5)	31.6	(0.8)	65.3	(0.9)	3.1	(0.3)
	Serbia	m	m	m	m	m	m	m	m	m	m	m	m	20.7	(1.1)	75.5	(1.1)	3.8	(0.3)
	Average all countries/ economies	46.0	(0.7)	52.5	(0.7)	1.4	(0.2)	41.9	(0.4)	55.7	(0.4)	2.4	(0.1)	44.1	(0.2)	50.7	(0.2)	5.1	(0.1)
	Netherlands***	m	m	m	m	m	m	95.0	(0.6)	4.7	(0.6)	0.3	(0.1)	94.5	(0.5)	4.3	(0.4)	1.2	(0.3)

Note: Values that are statistically significant are indicated in bold (see Annex A3).

*The term "bank account" is not commonly used in the Estonian language; as a result, of students who sat the PISA assessment in Estonian, more students than expected may have stated that they do not know what an account with a bank, building society, post office or credit union is. This was not observed amongst students who sat the Russian-language questionnaire in Estonia.

**Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

***Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.6.7 [2/2] **Change over time in students holding bank accounts**
Results based on students' reports

		Percentage of students who hold an account with a bank, building society, post office or credit union											
		Change from 2012 to 2018 (2018 - 2012)						Change from 2015 to 2018 (2018 - 2015)					
		Yes		No		Student does not know what this is		Yes		No		Student does not know what this is	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	**-13.4**	(1.4)	**5.1**	(1.4)	**8.3**	(0.4)	**-10.9**	(0.8)	**3.4**	(0.8)	**7.4**	(0.4)
	Canadian provinces	m	m	m	m	m	m	**-13.2**	(1.7)	**6.0**	(1.6)	**7.2**	(0.6)
	Chile	m	m	m	m	m	m	**9.3**	(1.7)	**-8.9**	(1.8)	-0.3	(0.5)
	Estonia*	**-22.8**	(2.2)	**8.9**	(2.1)	**13.9**	(0.8)	m	m	m	m	m	m
	Finland	m	m	m	m	m	m	m	m	m	m	m	m
	Italy	**7.6**	(1.6)	**-10.8**	(1.6)	**3.1**	(0.6)	**8.3**	(1.9)	**-11.6**	(1.9)	**3.3**	(0.5)
	Latvia	**18.6**	(2.7)	**-18.9**	(2.7)	0.3	(0.5)	m	m	m	m	m	m
	Lithuania	m	m	m	m	m	m	**4.6**	(1.7)	**-6.1**	(1.6)	**1.5**	(0.5)
	Poland	**19.0**	(2.0)	**-19.7**	(2.1)	0.7	(0.5)	**6.7**	(1.5)	**-6.1**	(1.5)	-0.5	(0.5)
	Portugal**	m	m	m	m	m	m	m	m	m	m	m	m
	Slovak Republic	**24.8**	(2.1)	**-26.0**	(2.4)	1.2	(0.7)	**7.7**	(1.7)	**-6.5**	(1.8)	-1.2	(0.7)
	Spain	-4.0	(2.4)	3.0	(2.3)	1.1	(0.9)	2.7	(1.5)	**-4.2**	(1.5)	**1.5**	(0.5)
	United States**	-4.5	(2.7)	1.5	(2.7)	**3.0**	(0.8)	**-5.9**	(2.2)	2.4	(2.2)	**3.5**	(0.4)
	OECD average	**3.2**	(0.8)	**-7.1**	(0.8)	**4.0**	(0.2)	1.0	(0.6)	**-3.5**	(0.6)	**2.5**	(0.2)
Partners	Brazil	m	m	m	m	m	m	0.5	(1.6)	0.9	(1.5)	**-1.3**	(0.6)
	Bulgaria	m	m	m	m	m	m	m	m	m	m	m	m
	Georgia	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m
	Peru	m	m	m	m	m	m	-2.1	(1.6)	0.2	(1.7)	**1.9**	(0.9)
	Russia	**8.6**	(2.5)	**-9.6**	(2.5)	1.0	(0.9)	**3.4**	(1.7)	**-4.6**	(1.8)	**1.2**	(0.6)
	Serbia	m	m	m	m	m	m	m	m	m	m	m	m
	Average all countries/ economies	**3.8**	(0.7)	**-7.4**	(0.7)	**3.6**	(0.2)	0.9	(0.5)	**-2.9**	(0.5)	**2.0**	(0.2)
	Netherlands***	m	m	m	m	m	m	-0.5	(0.8)	-0.4	(0.7)	**0.9**	(0.3)

Note: Values that are statistically significant are indicated in bold (see Annex A3).

*The term "bank account" is not commonly used in the Estonian language; as a result, of students who sat the PISA assessment in Estonian, more students than expected may have stated that they do not know what an account with a bank, building society, post office or credit union is. This was not observed amongst students who sat the Russian-language questionnaire in Estonia.

**Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

***Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.6.8 [1/2] **Change over time in students holding payment or debit cards**
Results based on students' reports

		Percentage of students who hold a payment card or a debit card																	
		2012						2015						2018					
		Yes		No		Student does not know what this is		Yes		No		Student does not know what this is		Yes		No		Student does not know what this is	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	**Australia**	26.4	(1.4)	62.2	(1.4)	11.4	(0.9)	32.7	(0.5)	58.0	(0.5)	9.2	(0.4)	61.3	(0.6)	36.8	(0.6)	1.8	(0.2)
	Canadian provinces	m	m	m	m	m	m	16.3	(1.0)	74.3	(1.2)	9.4	(0.8)	66.8	(1.1)	31.0	(1.1)	2.2	(0.3)
	Chile	m	m	m	m	m	m	8.6	(0.9)	89.0	(1.0)	2.4	(0.4)	26.8	(1.0)	71.0	(1.0)	2.2	(0.3)
	Estonia	28.7	(2.0)	40.6	(2.5)	30.8	(2.5)	m	m	m	m	m	m	75.2	(0.8)	20.6	(0.8)	4.2	(0.3)
	Finland	m	m	m	m	m	m	m	m	m	m	m	m	77.7	(0.7)	21.5	(0.7)	0.8	(0.1)
	Italy	19.2	(1.1)	75.8	(1.2)	5.0	(0.5)	36.6	(1.4)	60.9	(1.4)	2.5	(0.5)	41.1	(0.8)	55.1	(0.8)	3.8	(0.3)
	Latvia	13.9	(2.0)	55.0	(2.7)	31.1	(2.6)	m	m	m	m	m	m	53.3	(0.9)	43.6	(0.9)	3.0	(0.3)
	Lithuania	m	m	m	m	m	m	13.6	(1.0)	67.1	(1.3)	19.3	(1.1)	40.7	(0.8)	55.4	(0.9)	3.8	(0.3)
	Poland	8.7	(1.4)	89.8	(1.5)	1.5	(0.6)	21.2	(1.1)	76.5	(1.1)	2.3	(0.4)	26.2	(0.9)	72.0	(0.9)	1.8	(0.2)
	Portugal*	m	m	m	m	m	m	m	m	m	m	m	m	23.9	(1.0)	73.1	(0.9)	3.0	(0.3)
	Slovak Republic	19.5	(1.9)	79.2	(2.0)	1.3	(0.4)	16.5	(1.1)	70.3	(1.8)	13.2	(1.1)	41.2	(0.9)	56.2	(1.0)	2.6	(0.3)
	Spain	12.6	(1.8)	74.1	(2.1)	13.3	(1.7)	8.7	(0.7)	76.0	(1.1)	15.3	(1.0)	18.9	(0.6)	78.7	(0.7)	2.3	(0.2)
	United States*	14.3	(1.6)	82.2	(1.8)	3.4	(0.9)	21.6	(1.2)	74.0	(1.3)	4.4	(0.6)	36.4	(0.9)	62.2	(0.9)	1.4	(0.2)
	OECD average	17.9	(0.6)	69.9	(0.7)	12.2	(0.5)	19.5	(0.3)	71.8	(0.4)	8.7	(0.3)	45.4	(0.2)	52.1	(0.2)	2.5	(0.1)
Partners	**Brazil**	m	m	m	m	m	m	8.9	(0.9)	84.6	(1.0)	6.5	(0.7)	17.1	(0.8)	79.9	(0.8)	3.0	(0.3)
	Bulgaria	m	m	m	m	m	m	m	m	m	m	m	m	31.3	(1.3)	63.3	(1.3)	5.4	(0.5)
	Georgia	m	m	m	m	m	m	m	m	m	m	m	m	24.5	(0.7)	70.7	(0.7)	4.8	(0.4)
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m	27.0	(1.2)	60.5	(1.3)	12.6	(0.7)
	Peru	m	m	m	m	m	m	8.8	(1.0)	83.5	(1.2)	7.6	(0.9)	11.3	(0.6)	85.3	(0.7)	3.4	(0.3)
	Russia	26.6	(2.0)	71.7	(2.0)	1.7	(0.5)	38.5	(1.7)	60.0	(1.8)	1.5	(0.4)	50.2	(1.0)	46.9	(1.0)	2.9	(0.3)
	Serbia	m	m	m	m	m	m	m	m	m	m	m	m	13.2	(0.8)	82.7	(0.9)	4.1	(0.4)
	Average all countries/ economies	18.9	(0.6)	70.1	(0.7)	11.0	(0.5)	19.3	(0.3)	72.9	(0.4)	7.8	(0.2)	38.2	(0.2)	58.3	(0.2)	3.5	(0.1)
	Netherlands**	m	m	m	m	m	m	10.5	(1.1)	76.7	(1.2)	12.7	(1.2)	92.7	(0.5)	6.5	(0.5)	0.7	(0.2)

Note: Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.6.8 [2/2] **Change over time in students holding payment or debit cards**
Results based on students' reports

		Percentage of students who hold a payment card or a debit card											
		Change from 2012 to 2018 (2018 - 2012)						Change from 2015 to 2018 (2018 - 2015)					
		Yes		No		Student does not know what this is		Yes		No		Student does not know what this is	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	**34.9**	(1.5)	**-25.4**	(1.6)	**-9.5**	(0.9)	**28.6**	(0.8)	**-21.2**	(0.8)	**-7.4**	(0.4)
	Canadian provinces	m	m	m	m	m	m	**50.5**	(1.5)	**-43.3**	(1.6)	**-7.2**	(0.8)
	Chile	m	m	m	m	m	m	**18.2**	(1.3)	**-18.0**	(1.4)	-0.2	(0.5)
	Estonia	**46.5**	(2.1)	**-20.0**	(2.6)	**-26.6**	(2.5)	m	m	m	m	m	m
	Finland	m	m	m	m	m	m	m	m	m	m	m	m
	Italy	**21.9**	(1.4)	**-20.7**	(1.4)	**-1.2**	(0.6)	**4.5**	(1.7)	**-5.8**	(1.6)	**1.3**	(0.6)
	Latvia	**39.4**	(2.2)	**-11.3**	(2.9)	**-28.1**	(2.6)	m	m	m	m	m	m
	Lithuania	m	m	m	m	m	m	**27.2**	(1.2)	**-11.7**	(1.6)	**-15.5**	(1.2)
	Poland	**17.4**	(1.7)	**-17.8**	(1.7)	0.3	(0.6)	**5.0**	(1.4)	**-4.5**	(1.4)	-0.5	(0.5)
	Portugal*	m	m	m	m	m	m	m	m	m	m	m	m
	Slovak Republic	**21.8**	(2.1)	**-23.0**	(2.2)	**1.3**	(0.5)	**24.8**	(1.4)	**-14.1**	(2.0)	**-10.6**	(1.2)
	Spain	**6.4**	(1.9)	**4.6**	(2.2)	**-11.0**	(1.7)	**10.2**	(1.0)	**2.8**	(1.3)	**-13.0**	(1.0)
	United States*	**22.1**	(1.8)	**-20.1**	(2.0)	**-2.0**	(1.0)	**14.8**	(1.5)	**-11.9**	(1.6)	**-2.9**	(0.7)
	OECD average	**26.3**	(0.7)	**-16.7**	(0.8)	**-9.6**	(0.5)	**20.4**	(0.4)	**-14.2**	(0.5)	**-6.2**	(0.3)
Partners	Brazil	m	m	m	m	m	m	**8.2**	(1.2)	**-4.7**	(1.3)	**-3.5**	(0.7)
	Bulgaria	m	m	m	m	m	m	m	m	m	m	m	m
	Georgia	m	m	m	m	m	m	m	m	m	m	m	m
	Indonesia	m	m	m	m	m	m	m	m	m	m	m	m
	Peru	m	m	m	m	m	m	**2.5**	(1.2)	1.7	(1.4)	**-4.2**	(0.9)
	Russia	**23.6**	(2.3)	**-24.8**	(2.2)	**1.2**	(0.6)	**11.8**	(2.0)	**-13.2**	(2.0)	**1.4**	(0.5)
	Serbia	m	m	m	m	m	m	m	m	m	m	m	m
	Average all countries/ economies	**26.0**	(0.6)	**-17.6**	(0.7)	**-8.4**	(0.5)	**17.2**	(0.4)	**-12.0**	(0.4)	**-5.2**	(0.2)
	Netherlands**	m	m	m	m	m	m	**82.2**	(1.2)	**-70.2**	(1.3)	**-12.0**	(1.2)

Note: Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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Table IV.B1.6.9 **Students' digital financial activities**
Results based on students' reports

		Percentage of students who hold a payment card or a debit card			
		Bought something on line (alone or with a family member)		Made a payment using a mobile phone	
		%	S.E.	%	S.E.
OECD	Australia	75.3	(0.6)	47.2	(0.8)
	Canadian provinces	72.7	(0.7)	40.6	(0.9)
	Chile	54.5	(0.9)	34.5	(0.9)
	Estonia	72.6	(0.8)	40.5	(0.8)
	Finland	79.7	(0.6)	25.7	(0.7)
	Italy	74.1	(0.8)	42.4	(0.9)
	Latvia	76.5	(1.0)	46.9	(1.0)
	Lithuania	74.4	(0.8)	47.9	(0.9)
	Poland	79.3	(0.8)	32.6	(0.8)
	Portugal*	58.2	(0.9)	27.8	(0.9)
	Slovak Republic	76.4	(0.9)	43.3	(1.1)
	Spain	71.1	(0.7)	33.0	(0.8)
	United States*	78.4	(0.9)	45.4	(1.0)
	OECD average	72.6	(0.2)	39.1	(0.2)
Partners	Brazil	51.6	(0.8)	33.8	(0.9)
	Bulgaria	71.4	(1.1)	47.3	(1.1)
	Georgia	56.2	(1.1)	45.9	(1.0)
	Indonesia	65.9	(1.0)	52.2	(1.2)
	Peru	31.4	(1.1)	20.7	(0.8)
	Russia	75.8	(0.6)	69.0	(0.7)
	Serbia	57.5	(0.9)	33.8	(1.1)
	Average all countries/ economies	67.7	(0.2)	40.5	(0.2)
	Netherlands**	86.7	(0.6)	56.7	(1.3)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.6.10 **Digital financial activities, by gender**
Results based on students' reports

		Percentage of students who, in the previous 12 months, had...											
		Bought something on line (alone or with a family member)						Made a payment using a mobile phone					
		Boys		Girls		Difference (girls - boys)		Boys		Girls		Difference (girls - boys)	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	77.1	(0.7)	73.6	(0.8)	**-3.5**	(1.1)	49.8	(1.1)	44.5	(1.0)	**-5.3**	(1.3)
	Canadian provinces	76.2	(1.0)	69.4	(0.9)	**-6.8**	(1.4)	43.7	(1.3)	37.6	(1.2)	**-6.2**	(1.6)
	Chile	60.4	(1.3)	48.5	(1.4)	**-11.8**	(1.9)	39.5	(1.2)	29.5	(1.2)	**-10.0**	(1.7)
	Estonia	77.2	(1.2)	68.1	(1.0)	**-9.1**	(1.6)	46.3	(1.2)	34.7	(1.1)	**-11.7**	(1.7)
	Finland	81.9	(0.8)	77.4	(1.0)	**-4.5**	(1.3)	32.1	(1.0)	19.4	(1.0)	**-12.7**	(1.4)
	Italy	76.3	(1.0)	71.8	(1.2)	**-4.5**	(1.5)	49.5	(1.3)	35.0	(1.1)	**-14.5**	(1.6)
	Latvia	77.0	(1.2)	76.0	(1.3)	-1.0	(1.7)	54.1	(1.4)	39.8	(1.4)	**-14.3**	(1.8)
	Lithuania	75.4	(1.0)	73.4	(1.2)	-2.0	(1.5)	55.1	(1.2)	40.5	(1.3)	**-14.7**	(1.7)
	Poland	80.3	(1.0)	78.4	(1.0)	-1.9	(1.3)	42.3	(1.1)	23.5	(1.1)	**-18.8**	(1.6)
	Portugal*	65.1	(1.3)	51.3	(1.2)	**-13.8**	(1.7)	35.4	(1.3)	20.0	(1.1)	**-15.4**	(1.6)
	Slovak Republic	76.8	(1.3)	76.0	(1.2)	-0.8	(1.8)	50.6	(1.7)	36.4	(1.3)	**-14.3**	(2.0)
	Spain	72.4	(1.0)	69.8	(1.1)	-2.7	(1.5)	38.7	(1.2)	27.3	(1.0)	**-11.4**	(1.4)
	United States*	78.8	(1.1)	78.1	(1.1)	-0.7	(1.4)	46.5	(1.2)	44.4	(1.2)	-2.1	(1.4)
	OECD average	75.0	(0.3)	70.1	(0.3)	**-4.8**	(0.4)	44.9	(0.3)	33.3	(0.3)	**-11.6**	(0.4)
Partners	Brazil	58.5	(1.1)	44.8	(1.1)	**-13.7**	(1.5)	39.9	(1.2)	27.9	(1.2)	**-12.0**	(1.4)
	Bulgaria	70.5	(1.3)	72.4	(1.4)	1.9	(1.7)	52.6	(1.5)	41.8	(1.9)	**-10.8**	(2.5)
	Georgia	62.1	(1.6)	50.2	(1.4)	**-11.8**	(2.0)	55.3	(1.4)	36.5	(1.4)	**-18.8**	(1.9)
	Indonesia	66.2	(1.4)	65.6	(1.6)	-0.7	(2.3)	57.4	(1.6)	47.2	(1.6)	**-10.3**	(2.1)
	Peru	36.7	(1.4)	25.8	(1.3)	**-10.9**	(1.5)	24.1	(1.0)	17.3	(1.0)	**-6.8**	(1.2)
	Russia	77.3	(0.9)	74.3	(0.9)	**-3.0**	(1.4)	73.3	(1.0)	64.9	(1.0)	**-8.4**	(1.4)
	Serbia	61.9	(1.2)	53.3	(1.4)	**-8.6**	(1.8)	41.8	(1.5)	26.3	(1.3)	**-15.5**	(1.9)
	Average all countries/ economies	70.4	(0.3)	64.9	(0.3)	**-5.5**	(0.4)	46.4	(0.3)	34.7	(0.3)	**-11.7**	(0.4)
	Netherlands**	87.2	(0.9)	86.3	(0.8)	-0.9	(1.2)	57.1	(1.4)	56.2	(1.7)	-0.9	(1.7)

Note: Values that are statistically significant are indicated in bold (see Annex A3).

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.6.14 **Students' sources of money**
Results based on students' reports

		Percentage of students who get money from...													
		An allowance or pocket money for regularly doing chores at home		An allowance or pocket money without having to do any chores		Working outside school hours (e.g. a holiday job, part-time work)		Working in a family business		Occasional informal jobs (e.g. babysitting or gardening)		Gifts from friends or relatives		Selling things (e.g. at local markets or on eBay)	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	43.0	(0.6)	31.8	(0.6)	52.3	(0.8)	18.8	(0.5)	37.6	(0.8)	86.0	(0.4)	36.9	(0.8)
	Canadian provinces	37.6	(0.9)	35.9	(0.9)	47.1	(1.2)	17.2	(0.6)	45.6	(1.2)	84.8	(0.7)	34.4	(1.0)
	Chile	35.1	(0.9)	39.8	(0.8)	30.9	(1.0)	22.0	(0.8)	18.1	(0.8)	69.8	(0.9)	38.4	(1.1)
	Estonia	39.8	(0.9)	72.4	(0.8)	50.9	(1.0)	18.8	(0.7)	42.5	(0.8)	88.5	(0.6)	39.4	(0.8)
	Finland	48.7	(0.8)	36.5	(0.9)	45.9	(0.9)	13.0	(0.5)	50.9	(0.8)	91.0	(0.5)	48.2	(0.8)
	Italy	36.7	(0.9)	40.1	(1.0)	21.2	(0.7)	18.2	(0.9)	23.3	(0.8)	79.6	(0.6)	24.9	(0.8)
	Latvia	50.0	(1.0)	68.7	(0.9)	37.1	(0.8)	23.1	(0.8)	44.2	(0.9)	87.4	(0.5)	35.6	(1.0)
	Lithuania	46.6	(0.9)	56.9	(0.8)	44.0	(1.0)	30.5	(0.9)	54.3	(0.8)	90.0	(0.6)	52.6	(0.9)
	Poland	50.5	(0.9)	58.0	(0.8)	45.5	(1.1)	21.1	(0.7)	30.2	(0.9)	79.2	(0.8)	41.0	(0.8)
	Portugal*	31.5	(0.8)	49.3	(0.9)	16.5	(0.8)	13.8	(0.6)	12.9	(0.7)	83.5	(0.7)	19.6	(0.8)
	Slovak Republic	51.4	(0.8)	53.9	(1.0)	48.3	(1.2)	23.3	(0.9)	38.4	(1.0)	79.2	(0.9)	43.0	(1.1)
	Spain	34.1	(0.7)	42.8	(1.0)	17.5	(0.7)	14.0	(0.7)	20.9	(0.8)	84.5	(0.8)	33.3	(0.9)
	United States*	37.5	(1.2)	33.2	(1.0)	42.6	(1.2)	18.6	(0.8)	49.9	(1.0)	85.3	(0.6)	38.7	(1.0)
	OECD average	41.7	(0.2)	47.6	(0.2)	38.5	(0.3)	19.4	(0.2)	36.1	(0.2)	83.7	(0.2)	37.4	(0.3)
Partners	Brazil	29.3	(0.7)	29.6	(0.7)	28.1	(0.6)	21.1	(0.6)	20.2	(0.6)	49.9	(0.8)	18.6	(0.6)
	Bulgaria	55.2	(1.2)	71.4	(1.1)	48.1	(1.0)	40.7	(1.2)	39.2	(1.2)	76.7	(1.0)	47.8	(1.2)
	Georgia	36.8	(1.1)	61.6	(0.9)	26.0	(0.9)	22.9	(0.9)	24.8	(1.0)	63.7	(1.0)	19.9	(0.9)
	Indonesia	71.6	(1.1)	72.8	(1.1)	52.2	(1.2)	42.2	(1.1)	37.0	(1.3)	69.1	(1.0)	41.8	(1.2)
	Peru	53.7	(1.0)	40.4	(0.9)	49.2	(0.9)	36.3	(0.8)	22.3	(0.6)	54.6	(0.9)	24.1	(0.7)
	Russia	44.2	(1.1)	69.8	(0.9)	49.6	(1.0)	27.3	(0.8)	31.0	(0.9)	86.6	(0.6)	47.1	(1.1)
	Serbia	46.6	(1.1)	70.2	(0.9)	44.9	(1.3)	28.2	(1.1)	30.9	(1.0)	84.9	(0.7)	32.2	(1.0)
	Average all countries/ economies	44.0	(0.2)	51.8	(0.2)	39.9	(0.2)	23.5	(0.2)	33.7	(0.2)	78.7	(0.2)	35.9	(0.2)
	Netherlands**	34.3	(0.9)	80.4	(0.9)	61.1	(1.2)	12.2	(0.6)	36.3	(1.3)	83.7	(0.7)	38.4	(1.0)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.7.1 **Students' confidence in using digital financial services**
Results based on students' reports

		Index of confidence in using digital financial services		Percentage of students who, when using digital or electronic devices outside of a bank (e.g. at home or in shops), feel confident/very confident about...									
				Transferring money		Keeping track of their balance		Paying with a debit card instead of using cash		Paying with a mobile device (e.g. mobile phone or tablet) instead of using cash		Ensuring the safety of sensitive information when making an electronic payment or using online banking	
		Index	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	0.29	(0.01)	60.8	(0.6)	79.5	(0.5)	77.4	(0.5)	57.8	(0.6)	64.6	(0.7)
	Canadian provinces	0.15	(0.02)	55.5	(1.0)	75.0	(0.9)	76.9	(0.9)	54.1	(0.8)	57.7	(0.9)
	Chile	-0.01	(0.02)	58.4	(0.9)	65.1	(1.0)	61.9	(0.9)	47.6	(0.9)	49.7	(1.0)
	Estonia	0.09	(0.02)	55.9	(1.0)	76.5	(0.8)	72.2	(0.9)	45.7	(0.9)	55.5	(1.0)
	Finland	0.03	(0.02)	46.9	(0.8)	67.4	(0.9)	80.5	(0.7)	52.5	(0.9)	54.2	(0.8)
	Italy	-0.53	(0.02)	27.6	(0.7)	35.7	(0.8)	51.4	(0.8)	39.9	(0.9)	39.0	(1.0)
	Latvia	-0.03	(0.02)	53.0	(0.9)	64.8	(1.1)	66.6	(1.0)	47.4	(1.0)	52.2	(0.9)
	Lithuania	0.14	(0.02)	59.2	(0.9)	67.4	(0.9)	65.6	(0.8)	54.0	(0.9)	56.4	(0.8)
	Poland	0.02	(0.02)	53.7	(0.9)	59.2	(0.8)	69.6	(1.0)	57.6	(0.8)	49.1	(1.0)
	Portugal*	-0.14	(0.02)	45.5	(1.1)	70.8	(0.9)	63.1	(1.0)	41.4	(1.1)	48.1	(1.0)
	Slovak Republic	-0.21	(0.02)	43.8	(1.0)	59.0	(1.1)	57.6	(1.0)	46.6	(1.0)	48.0	(1.1)
	Spain	-0.33	(0.02)	38.2	(1.1)	56.9	(0.9)	55.2	(0.9)	45.3	(1.1)	41.1	(0.9)
	United States*	-0.02	(0.02)	48.4	(1.0)	71.4	(0.9)	68.6	(0.9)	51.2	(0.8)	53.1	(0.9)
	OECD average	-0.04	(0.01)	49.8	(0.3)	65.3	(0.2)	66.7	(0.2)	49.3	(0.3)	51.4	(0.3)
Partners	Brazil	-0.35	(0.02)	38.2	(0.9)	57.8	(0.9)	53.7	(0.9)	42.6	(0.8)	41.1	(0.7)
	Bulgaria	-0.24	(0.02)	42.8	(1.1)	51.6	(1.1)	52.9	(1.1)	47.0	(1.1)	49.4	(1.1)
	Georgia	-0.12	(0.02)	54.1	(1.0)	60.8	(1.0)	54.4	(1.1)	54.2	(1.0)	54.3	(1.0)
	Indonesia	-0.38	(0.02)	48.8	(1.1)	41.0	(1.1)	43.2	(1.2)	41.4	(1.2)	47.7	(1.3)
	Peru	m	m	m	m	m	m	m	m	m	m	m	m
	Russia	0.08	(0.02)	61.6	(1.0)	71.0	(0.9)	63.0	(0.9)	65.0	(1.0)	63.0	(0.8)
	Serbia	-0.68	(0.02)	30.0	(0.9)	36.3	(1.0)	35.4	(1.0)	33.8	(0.9)	33.5	(0.9)
	Average all countries/ economies	-0.12	(0.00)	48.6	(0.2)	61.4	(0.2)	61.6	(0.2)	48.7	(0.2)	50.4	(0.2)
	Netherlands**	0.50	(0.02)	77.5	(0.7)	89.0	(0.6)	90.3	(0.6)	67.6	(0.8)	67.9	(0.9)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.7.9 **Students' confidence in dealing with money matters**
Results based on students' reports

		Index of confidence in dealing with money matters		Percentage of students who feel confident/very confident about...											
				Making a money transfer (e.g. paying a bill)		Filling in forms at the bank		Understanding bank statements		Understanding a sales contract		Keeping track of their account balance		Planning their spending in consideration of their current financial situation	
		Mean index	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	0.06	(0.01)	50.9	(0.6)	43.1	(0.7)	44.9	(0.7)	30.5	(0.7)	76.1	(0.5)	67.7	(0.7)
	Canadian provinces	0.00	(0.02)	49.6	(0.8)	44.4	(0.8)	40.7	(0.9)	30.6	(0.8)	73.4	(0.9)	64.1	(0.8)
	Chile	0.05	(0.02)	60.9	(1.1)	45.4	(1.0)	44.4	(1.0)	36.4	(0.8)	61.4	(1.0)	62.2	(0.9)
	Estonia	0.20	(0.01)	51.2	(1.0)	41.8	(0.9)	65.2	(0.9)	41.2	(0.8)	76.6	(0.7)	67.5	(0.9)
	Finland	0.00	(0.02)	45.5	(0.9)	47.3	(0.9)	38.3	(0.8)	37.6	(0.8)	69.9	(0.8)	70.3	(0.8)
	Italy	-0.38	(0.02)	33.8	(0.7)	30.9	(0.7)	30.3	(0.8)	34.0	(0.8)	41.9	(0.8)	56.3	(0.9)
	Latvia	0.08	(0.02)	48.6	(1.1)	44.6	(1.0)	52.7	(1.0)	45.2	(1.2)	66.1	(0.9)	63.1	(1.0)
	Lithuania	0.16	(0.02)	54.9	(0.9)	42.9	(1.0)	49.2	(1.0)	49.9	(0.9)	63.0	(0.8)	68.2	(0.8)
	Poland	0.02	(0.02)	48.5	(1.0)	42.9	(1.0)	43.8	(0.8)	46.3	(0.8)	52.6	(0.9)	61.1	(1.0)
	Portugal*	-0.05	(0.02)	49.7	(1.1)	38.0	(1.0)	42.8	(0.9)	36.3	(0.9)	72.5	(0.9)	68.9	(1.0)
	Slovak Republic	-0.13	(0.02)	39.2	(1.1)	37.6	(1.1)	38.6	(1.0)	40.1	(1.0)	63.4	(1.0)	59.0	(1.1)
	Spain	-0.30	(0.02)	38.8	(0.8)	35.1	(0.8)	32.0	(0.9)	31.0	(0.9)	53.8	(0.9)	58.5	(0.9)
	United States*	-0.18	(0.02)	41.8	(1.0)	37.4	(1.0)	35.4	(1.0)	27.8	(0.9)	68.3	(0.8)	59.9	(0.9)
	OECD average	-0.04	(0.00)	47.2	(0.3)	40.9	(0.3)	42.9	(0.3)	37.5	(0.2)	64.5	(0.2)	63.6	(0.3)
Partners	Brazil	-0.22	(0.02)	41.6	(0.8)	36.7	(0.8)	42.8	(0.8)	38.2	(0.8)	56.2	(1.0)	49.3	(0.8)
	Bulgaria	-0.06	(0.03)	43.0	(1.0)	42.7	(1.1)	42.5	(1.1)	45.4	(1.3)	54.9	(1.3)	54.3	(1.2)
	Georgia	-0.08	(0.02)	52.6	(0.9)	43.0	(0.9)	43.9	(1.1)	46.1	(0.9)	57.7	(1.0)	56.6	(1.1)
	Indonesia	-0.08	(0.02)	41.8	(1.1)	47.6	(1.0)	44.8	(1.0)	39.0	(1.0)	42.0	(1.1)	53.8	(1.3)
	Peru	-0.35	(0.02)	45.1	(0.9)	28.2	(0.7)	31.4	(0.7)	38.7	(0.8)	38.9	(0.8)	51.0	(0.9)
	Russia	0.15	(0.02)	60.2	(1.0)	50.6	(1.0)	52.3	(1.1)	49.7	(1.0)	69.0	(1.1)	68.9	(1.1)
	Serbia	-0.40	(0.02)	37.7	(0.9)	32.8	(0.8)	36.2	(0.8)	35.3	(1.0)	41.3	(1.0)	45.1	(1.0)
	Average all countries/ economies	-0.07	(0.00)	46.8	(0.2)	40.6	(0.2)	42.6	(0.2)	39.0	(0.2)	60.0	(0.2)	60.3	(0.2)
	Netherlands**	0.43	(0.02)	75.6	(0.8)	56.5	(0.9)	64.8	(1.0)	49.9	(1.0)	85.7	(0.7)	80.6	(0.7)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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Table IV.B1.7.17 **Students' interest in money matters**
Results based on students' reports

		Percentage of students who agreed/strongly agreed that...			
		They enjoy talking about money matters		Money matters are not relevant for them right now	
		%	S.E.	%	S.E.
OECD	Australia	50.6	(0.6)	34.0	(0.7)
	Canadian provinces	52.8	(0.8)	33.2	(0.9)
	Chile	50.5	(1.1)	49.6	(1.2)
	Estonia	49.8	(0.9)	34.4	(0.9)
	Finland	57.5	(0.7)	24.7	(0.7)
	Italy	36.1	(0.9)	43.6	(0.9)
	Latvia	52.2	(1.1)	30.9	(1.0)
	Lithuania	57.6	(0.9)	37.1	(0.9)
	Poland	51.9	(0.9)	38.6	(0.9)
	Portugal*	64.4	(0.8)	34.3	(0.9)
	Slovak Republic	41.6	(0.9)	45.4	(1.2)
	Spain	52.0	(0.8)	41.0	(1.0)
	United States*	52.8	(0.8)	30.2	(0.9)
	OECD average	51.5	(0.2)	36.7	(0.3)
Partners	Brazil	49.3	(0.7)	38.8	(0.8)
	Bulgaria	41.9	(1.1)	47.7	(1.2)
	Georgia	42.9	(1.1)	46.1	(0.8)
	Indonesia	70.3	(1.2)	58.8	(1.1)
	Peru	67.3	(0.8)	41.5	(0.8)
	Russia	57.6	(0.8)	38.4	(0.8)
	Serbia	39.9	(1.0)	44.8	(1.1)
	Average all countries/ economies	51.9	(0.2)	39.7	(0.2)
	Netherlands**	54.1	(1.1)	23.3	(1.1)

*Data did not meet the PISA 2018 technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the PISA 2018 financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies.

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Table IV.B1.8.1 **Students' financial behaviour**

Results based on students' reports

		Percentage of students who, in the previous 12 months, had...							
		Checked that they were given the right change when they bought something		Checked how much money they have		Bought something that cost more money than they intended to spend		Complained that they did not have enough money for something they wanted to buy	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	88.3	(0.4)	91.5	(0.4)	64.2	(0.6)	63.8	(0.7)
	Canada	83.2	(0.8)	90.1	(0.6)	67.2	(0.8)	63.5	(0.9)
	Chile	90.7	(0.7)	86.1	(0.8)	58.0	(0.9)	64.0	(1.0)
	Estonia	85.0	(0.7)	90.8	(0.6)	66.4	(0.7)	65.6	(0.8)
	Finland	86.5	(0.6)	92.9	(0.4)	60.1	(0.8)	67.3	(0.9)
	Italy	89.9	(0.6)	85.0	(0.7)	60.5	(0.9)	54.5	(1.0)
	Latvia	85.4	(0.8)	88.6	(0.6)	65.2	(0.9)	54.3	(1.0)
	Lithuania	85.0	(0.7)	85.6	(0.6)	64.0	(1.0)	56.1	(0.8)
	Poland	84.1	(0.6)	88.2	(0.7)	66.1	(0.9)	67.7	(0.8)
	Portugal*	93.7	(0.4)	93.8	(0.4)	55.1	(1.0)	58.7	(0.9)
	Slovak Republic	85.2	(0.7)	85.3	(0.8)	69.3	(0.9)	64.3	(1.0)
	Spain	82.5	(0.7)	87.4	(0.7)	59.7	(0.9)	61.3	(0.9)
	United States*	81.4	(0.7)	87.9	(0.6)	60.4	(0.8)	64.9	(0.9)
	OECD average	86.2	(0.2)	88.7	(0.2)	62.8	(0.2)	62.0	(0.2)
Partners	Brazil	85.1	(0.6)	78.1	(0.7)	52.9	(0.8)	74.5	(0.6)
	Bulgaria	83.5	(0.7)	78.1	(0.9)	66.9	(1.0)	63.5	(0.9)
	Georgia	86.4	(0.7)	81.5	(0.9)	60.3	(0.8)	64.2	(0.8)
	Indonesia	91.0	(0.6)	84.2	(0.8)	60.6	(1.1)	66.3	(0.9)
	Peru	90.3	(0.5)	89.8	(0.6)	49.1	(0.9)	47.5	(0.8)
	Russia	85.2	(0.7)	86.9	(0.6)	69.8	(0.8)	53.8	(0.9)
	Serbia	77.3	(0.8)	80.0	(0.9)	60.5	(1.0)	54.4	(1.1)
	Average all countries/ economies	86.0	(0.1)	86.6	(0.2)	61.8	(0.2)	61.5	(0.2)
	Netherlands**	81.7	(0.8)	93.6	(0.5)	56.8	(1.0)	50.6	(1.1)

*Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies..

StatLink https://doi.org/10.1787/888934124204

Table IV.B1.8.6 **Students' spending strategies**

Results based on students' reports

		Percentage of students who, when thinking about buying a new product from their allowance, sometimes or always...							
		Compare prices in different shops		Compare prices between a shop and an online shop		Buy the product without comparing prices		Wait until the product gets cheaper before buying it	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	84.3	(0.5)	77.7	(0.5)	42.3	(0.7)	73.5	(0.5)
	Canada	80.3	(0.8)	75.6	(0.8)	44.1	(1.0)	73.7	(0.9)
	Chile	70.1	(1.0)	55.8	(1.0)	33.7	(0.9)	48.0	(0.9)
	Estonia	72.3	(0.7)	65.2	(0.9)	38.5	(0.8)	51.0	(1.0)
	Finland	80.6	(0.7)	74.3	(0.7)	40.1	(0.7)	57.0	(0.8)
	Italy	76.7	(0.8)	71.4	(0.8)	32.1	(0.8)	60.5	(0.8)
	Latvia	69.4	(1.0)	69.8	(1.0)	40.0	(1.0)	51.7	(1.1)
	Lithuania	71.9	(0.8)	71.8	(1.0)	42.0	(0.9)	54.9	(1.0)
	Poland	77.6	(0.9)	74.2	(0.9)	34.1	(0.9)	55.4	(0.9)
	Portugal*	82.7	(0.7)	65.4	(1.0)	31.3	(0.9)	71.2	(1.0)
	Slovak Republic	63.1	(1.1)	59.4	(1.1)	43.6	(0.9)	55.7	(1.0)
	Spain	77.6	(0.8)	67.1	(0.7)	34.3	(0.7)	59.0	(0.8)
	United States*	76.1	(0.7)	74.5	(0.9)	42.1	(0.9)	65.6	(1.0)
	OECD average	75.6	(0.2)	69.4	(0.2)	38.3	(0.2)	59.8	(0.3)
Partners	Brazil	73.1	(0.7)	64.6	(0.7)	34.1	(0.7)	59.4	(0.7)
	Bulgaria	60.7	(1.0)	56.7	(1.0)	45.6	(1.0)	51.7	(0.9)
	Georgia	50.1	(1.0)	47.2	(0.9)	48.6	(0.9)	36.5	(1.0)
	Indonesia	62.4	(1.3)	63.7	(1.1)	51.1	(1.1)	53.5	(1.1)
	Peru	76.8	(0.6)	50.7	(1.0)	36.9	(0.7)	65.3	(0.6)
	Russia	69.2	(0.9)	69.0	(0.8)	40.8	(1.1)	40.8	(1.1)
	Serbia	65.7	(1.1)	55.7	(0.8)	44.7	(0.9)	52.7	(1.0)
	Average all countries/ economies	72.0	(0.2)	65.5	(0.2)	40.0	(0.2)	56.8	(0.2)
	Netherlands**	77.0	(0.8)	68.7	(1.0)	41.9	(1.1)	52.9	(0.9)

*Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

**Weaker students are under-represented in the Netherlands' sample for the financial literacy assessment. The results presented should therefore be interpreted with caution and may not be comparable with results from other countries/economies..

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Annex B1 List of tables available on line

Chapter 2 How did students perform in financial literacy in PISA 2018?

https://doi.org/10.1787/888934124090

WEB	**Table IV.B1.2.5**	Change over time in mean mathematics and reading scores
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Chapter 3 How does student performance in financial literacy vary within countries?

https://doi.org/10.1787/888934124109

WEB	**Table IV.B1.3.2**	Change over time in the distribution of financial literacy performance
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https://doi.org/10.1787/888934124128

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Chapter 5 To what extent are students exposed to financial education at school?

https://doi.org/10.1787/888934124147

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WEB	**Table IV.B1.5.4**	Learning about financial/economic terms in school and socio-economic status
WEB	**Table IV.B1.5.5**	Learning about financial/economic terms in school and schoo socio-economic profile
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https://doi.org/10.1787/888934124166

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Chapter 7 **What are students' attitudes towards money matters?**

https://doi.org/10.1787/888934124185

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Chapter 8 **Do students engage in financially responsible behaviours and practices?**

https://doi.org/10.1787/888934124204

WEB	**Table IV.B1.8.2**	Financial behaviour, by gender
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ANNEX C

Released items from the PISA 2018 financial literacy field trial

This annex presents items from the PISA 2018 financial literacy field trial. These items were not used in the PISA 2018 financial literacy assessment and are presented to illustrate the content, processes and contexts of items at a variety of proficiency levels.

ANNEX C
Released items from the PISA 2018 financial literacy field trial

Fourteen items were released as sample items from those excluded after the PISA 2018 field trial. One unit (ZCYCLE) was developed for the 2018 field trial and was never used previously; one item (CHARITABLE GIVING) was used in the 2015 assessment but not in 2012; all other items have been used to assess students in both the PISA 2012 and 2015 financial literacy assessments.

Items presented in this document complement those already released from the 2012 field trial and main study, available in the *PISA 2012 Assessment and Analytical Framework* (OECD, 2013[1]), in the volumes of results of the PISA 2012 and 2015 financial literacy assessments (OECD, 2014[2]; OECD, 2017[3]), and on line (http://www.oecd.org/pisa/test/).

COSTS OF RUNNING A CAR

Mr Davies takes out a loan to buy a car for his family. The interest rate on the loan is fixed. One cost Mr Davies will have is monthly loan repayments. There are also other costs of running a car, such as petrol costs, and repair and maintenance costs.

Question

Some costs will increase if the family uses the car more, but other costs will stay the same. For each cost in the table, put a circle around "Increases" or "Stays the same" to show what is likely to happen if the family uses the care more.

Cost	What is likely to happen to the cost if the family uses the car more?
Monthly loan repayments	Increases / Stays the same
Petrol costs	Increases / Stays the same
Repair and maintenance costs	Increases / Stays the same

This question asks students to distinguish between the fixed and variable costs associated with running a car. Understanding fixed and variable costs is an important component of planning finances for an individual or a family. The question belongs to the process category of analysing information in a financial context because students should recognise something that is not explicit and understand the implications that using the car more has on different types of costs. The correct answers are Stays the same, Increases, Increases, in that order.

Unit name	Costs of Running a Car
Content	Planning and managing finances
Process	Analysing information in a financial context
Context	Home and family
Item format	Complex multiple choice – Computer scored
Level estimated from the PISA 2018 field trial	3

MUSIC SYSTEM

Kelly asks her bank to lend her 2000 zeds to buy a music system. Kelly has the choice to repay the loan over two years or over three years. The annual interest rate on the loan is the same in each case. The table shows the repayment conditions for borrowing 2000 zeds over **two** years.

Repayment period	Monthly repayment (zeds)	Total repayment (zeds)	T
Two years	91.67	2200.08	200.08

Question

How will the repayment conditions for borrowing 2000 zeds over three years be different to the repayment conditions over two years? Circle "True" or "False" for each statement.

Statement	Is the statement true or false?
The monthly repayments will be larger for a loan over three years.	True / False
The total interest paid will be larger for a loan over three years.	True / False

This question asks students to determine the effects of extending the loan repayment period from two to three years on the monthly interest repayments and on the total interest paid when the annual interest rate does not change. As credit is widely available to young people and may be offered as an option when making a purchase in some countries, it is important that they understand how loans work so that they can make an informed decision about whether it is the best option for them. Students may be confronted with such a decision in the near future, for example, if they look to buy equipment to start a business or durable goods to furnish a home. The question requires planning ahead and anticipating the future consequences of choosing loans with different durations, without having to do any calculations. Full credit for this question is gained by replying False and True in this order.

Unit name	Music System
Content	Planning and managing finances
Process	Analysing information in a financial context
Context	Individual
Item format	Complex multiple choice – Computer scored
Level estimated from the PISA 2018 field trial	4

BANK STATEMENT

Each week, Mrs Citizen transfers 130 zeds into her son's bank account. In Zedland, banks charge a fee for each transfer. Mrs Citizen received this statement from her bank in November 2011.

ZEDBANK				
Statement for: Mrs Citizen		**Account type: Current**		
Month: November 2015		**Account number: Z0005689**		
Date	**Transaction details**	**Credit**	**Debit**	**Balance**
1-Nov	Opening balance			1780.25
5-Nov	Wages	575.00		2355.25
5-Nov	Transfer		130.00	2225.25
5-Nov	Transfer fee		1.50	2223.75
12-Nov	Wages	575.00		2798.75
12-Nov	Transfer		130.00	2668.75
12-Nov	Transfer fee		1.50	2667.25
13-Nov	Withdrawal		165.00	2502.25
19-Nov	Wages	575.00		3077.25
19-Nov	Transfer		130.00	2947.25
19-Nov	Transfer fee		1.50	2945.75
26-Nov	Wages	575.00		3520.75
26-Nov	Transfer		130.00	3390.75
26-Nov	Transfer fee		1.50	3389.25
27-Nov	Withdrawal		180.00	3209.25
27-Nov	Withdrawal (Rent)		1200.00	2009.25
30-Nov	Interest	6.10		2015.35

Question 1

What were the total fees charged by the bank in November?

Balance in zeds:: .....

This question asks students to interpret a financial statement, in this case a bank statement. Students are required to identify bank fees from the statement and to perform a basic calculation (addition or multiplication). The purpose of the question is to test whether students can find the information on the statement and notice that it is not presented as a total, but as individual transactions. Such skills are fundamental to properly understanding the information received from financial service providers. The correct answer is 6.00.

Unit name	Bank Statement (Question 1)
Content	Money and transactions
Process	Identifying financial information
Context	Home and family
Item format	Open response – Computer scored
Level estimated from the PISA 2018 field trial	4

Question 2

The next transactions occurred on 3 December:

- Wages of 575 zeds were deposited into Mrs Citizen's account.
- Mrs Citizen transferred 130 zeds into her son's account.

Mrs Citizen made no other transactions on 3 December. What was her new bank balance at the close of business on 3 December?

Balance in zeds:: .....

The second question of the item BANK STATEMENT requires students to calculate the bank balance at a given point in time given the initial balance and the transactions that occurred. Full credit is given to students who can not only add and subtract the relevant amounts deposited to and paid from the account, but also take into account transaction fees. The correct answer to gain full credit is 2458.85, obtained via 2015.35 + 575 – 130 – 1.50. Partial credit is given to students who give values in the range 2458 and to 2459 inclusive (value rounded or truncated to a whole number of zeds, or minor calculation error, or transcription error) or to students who do not take into account the transfer fee (2460.35 or 2460).

Unit name	Bank Statement (Question 2)
Content	Money and transactions
Process	Analysing information in a financial context
Context	Home and family
Item format	Open response – Computer scored
Level estimated from the PISA 2018 field trial	5 – full credit 5 – partial credit

MUSIC SYSTEM

Ben lives in Zedland and has a mobile phone. In Zedland, there are two different kinds of phone plan available:

Plan 1

- You pay the phone bill at the end of the month.
- The bill is the cost of the calls you make **plus** a monthly fee.

Plan 2

- You buy credit for the phone in advance.
- The credit lasts for a maximum of one month or until all credit has been used.

Question 1

What is one possible **financial** advantage of using phone plans like **Plan 2**?

.....

.....

The unit PHONE PLANS asks students to analyse information in the context of mobile phone plans, a situation that many 15-year-old students may have already encountered or will soon encounter. The first question asks students to explain a possible financial advantage of a pre-paid phone plan. Students should recognise that the pre-paid plan does not entail a monthly fee or that it may help the user not go beyond a certain spending limit.

Unit name	Phone Plans (Question 1)
Content	Planning and managing finances
Process	Analysing information in a financial context
Context	Individual
Item format	Open response – Human coded
Level estimated from the PISA 2018 field trial	3

For full credit, students must have either:

- Referred to the ease of planning or to keeping to a specified budget. For example,
  - You know exactly how much it will cost.
  - You can choose how much you can afford to spend in advance.
  - It helps you plan your finances better.
  - It means you will not go over your limit.
  - You will not be surprised by big bills at the end of the month.
  - You only buy the amount of credit you need.
- Referred to the ease of planning or to keeping to a specified budget. For example,
  - You don't have to pay a monthly fee.

Stimulus update

Ben decides to use Plan 1. He must now choose which phone company to use.
The table below shows the details of the four different phone companies that offer Plan 1. All costs are shown in zeds.

	Company 1	Company 2	Company 3	Company 4
Monthly fee (zeds)	20	20	30	30
Cost of call per minute (zeds)	0.27	0.25	0.30	0.25
Number of free minutes per month	90	90	60	60
Cost per text message (zeds)	0.02	0.02	Free	0.01
Number of free text messages per month	200	100	Unlimited	200

I speak on the phone for about an hour each day, but I very rarely send text messages.

Ben

Which phone company offers the best financial deal for Ben?

A. Company 1

B. Company 2

C. Company 3

D. Company 4

The second question in the unit PHONE PLANS looks at students' ability to select the most suitable telephone plan for a particular individual. Students are required to compare the conditions offered by different mobile phone companies by looking at multiple dimensions, such as flat fees, the cost of calls and the cost of messages, select the ones that are most relevant, and find the best offer for a given need. To get full credit, students should indicate that Company 2 offers the best deal for Ben's needs.

Unit name	Phone Plans (Question 2)
Content	Planning and managing finances
Process	Analysing information in a financial context
Context	Individual
Item format	Simple multiple choice – Computer scored
Level estimated from the PISA 2018 field trial	3

RINGTONES

Colin sees this advertisement in a magazine for teenagers .

Get Cheeky Monkey™ ringtones for your phone.
Your phone will make a monkey noise when your friends call you.

Get one NOW for only 3 zeds*

Text the word MONK to 13 45 67

* Each ring-tone costs 3 zeds. By texting MONK to 13 45 67. customer agrees to receive a different *Cheeky Monkey*™ ring-tone every day. Customer can cancel contract at any time by texting STOP to 13 45 67. Cancellation fee is 5 zeds.

Question

Colin has 30 zeds credit on his phone. He texts the word MONK to 13 45 67. Colin does not use his phone again to make calls or send texts. He does not add any more credit. How much credit will Colin have on his phone exactly one week later?

Credit in zeds: .....

This question asks students to pay attention and interpret the small print to understand the terms and conditions of buying a service, and then to calculate the implications for the true cost. When developed as a test item for the 2012 assessment, this question presented a widely relevant situation; while ads for ringtones may have changed in the meantime in some countries, students continue to receive adverts in a similar format, including for purchases through digital games and apps. The question falls in the category *Applying financial knowledge and understanding* because it asks students to perform basic calculations (multiplication and subtraction) taking into account multiple elements that are not immediately evident (by buying one ringtone, the user agrees to receiving – and pays for – a ringtone every day). This item also highlights a wider issue that young people face when starting to make financial decisions and budget their own money. An impulse decision to make a purchase of 3 zeds without first reading the small print would cost the student a minimum of 8 zeds even if they recognised their error immediately. The correct response is 9 or 6, recognising the potential ambiguity as to when the first or last download occurs.

Unit name	Ringtones
Content	Financial landscape
Process	Applying financial knowledge and understanding
Context	Individual
Item format	Open response – Computer scored
Level estimated from the PISA 2018 field trial	4

ONLINE SHOPPING

Kevin is using a computer at an Internet café. He visits an online shopping website that sells sports equipment. He enters his bank card details to pay for a football. The security of financial information is important when buying goods on line.

Question

What is one thing Kevin could have done to increase security when he paid for the football on line?

.....

.....

The question ONLINE SHOPPING asks students to reflect on the potential risks of conducting financial transactions on line using computers in public places and to evaluate those risks. Internet cafés are less widespread in developed countries than they were when the item was designed, but young people may still be sharing computers with friends, may have occasion to make payments on line in public places, or use public Wi-Fi to access personal data. In the case of ONLINE SHOPPING, all of the necessary information is provided in the question, but to gain credit, students need to identify what is relevant and reflect on the consequences of taking a particular action. Various responses are awarded full credit, such as referring to using a secure computer rather than one in a public place, using a more secure or safer method of online payment, or using a trusted website.

Unit name	Online Shopping
Content	Financial landscape
Process	Evaluating financial issues
Context	Societal
Item format	Open response – Human coded
Level estimated from the PISA 2018 field trial	4

For full credit, students must either:

- Refer to using a secure computer rather than one in a public place:
  - Use a personal (or private) computer
  - You can choose how much you can afford to spend in advance.
  - Do it at home
  - Make sure no one is looking (or identifies a behaviour in public to improve security)
  - Delete browser history after the purchase
  - Not do it in a public place on a public computer- You only buy the amount of credit you need.
- Refer to using a more secure or safer method of online payment
  - Use PayPal
  - Use a trusted online method of third-party payment (which may be country-specific)
  - Buy a pre-paid bank card so that his bank details are not exposed
- Refer to using a trusted/genuine/credible website
  - Check that the website has s security certificate before making a purchase
  - Check reviews on line to see whether the website can be trusted
  - Make sure it is an https site
  - Make sure it is a safe website

MOBILE PHONE CONTRACT

Alan wants to buy a mobile phone but he is not old enough to sign the contract. His mother buys the phone for Alan and signs a one-year contract. Alan agrees to pay the monthly bill for the phone.

After 6 weeks, Alan's mother discovers that the bill has **not** been paid.

Question

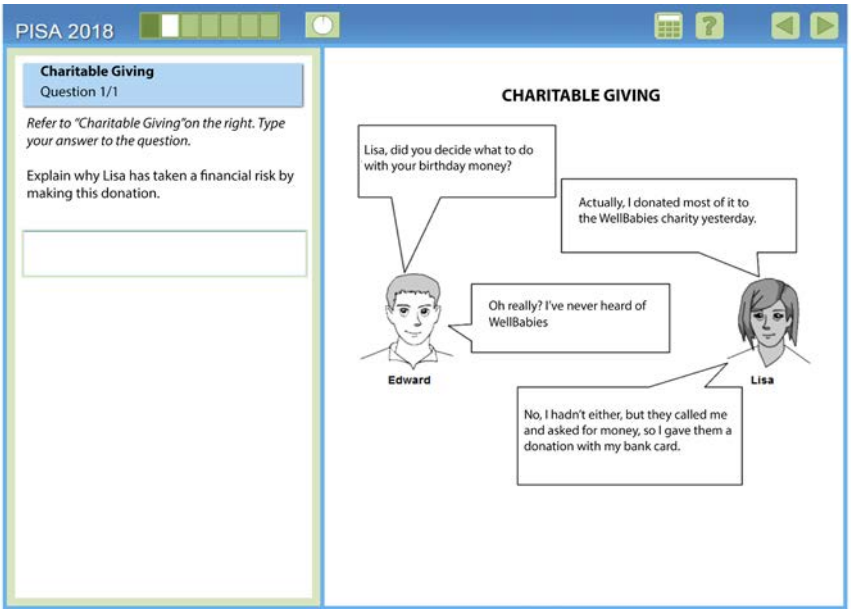
Is each statement about the mobile phone bill true or false? Circle "True" or "False" for each statement.

Statement	Is the statement about the mobile phone bill true or false?
Alan's mother is legally responsible for paying the bill.	True / False
The mobile phone shop must pay the bill if Alan and his mother do not.	True / False
The bill does not have to be paid if Alan returns the mobile phone to the shop.	True / False

To answer this question correctly, students should understand the legal implications of financial contracts and recognise the potential financial consequences on others (Alan's mother) if a contract is not honoured (if Alan does not pay the phone bill). Even if they cannot sign contracts at 15, students will soon be confronted with legal obligations and their financial consequences. In order to get full credit, students should answer True, False and False, in this order.

Unit name	Mobile Phone Contract
Content	Financial landscape
Process	Evaluating financial issues
Context	Home and family
Item format	Complex multiple choice – Computer scored
Level estimated from the PISA 2018 field trial	2

CHARITABLE GIVING



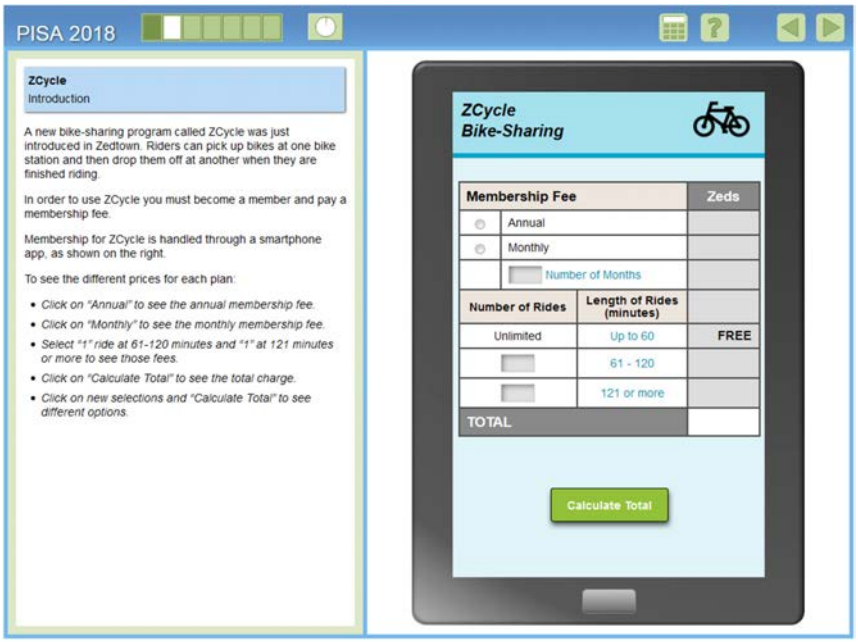
In this question, students should demonstrate an understanding of why Lisa has taken a risk in giving her card details to an unsolicited caller. As students may receive unsolicited requests for donations in the street or over the phone, they should be aware of the risks. Correct responses to this question should indicate awareness that the caller may not be genuine (it may not be a charity) and/or that giving card details to unknown people may expose the card holder to unauthorised use of the card later on.

Unit name	Charitable Giving
Content	Financial landscape
Process	Evaluating financial issues
Context	Societal
Item format	Open response – Human coded
Level estimated from the PISA 2018 field trial	2

For full credit, students must indicate an awareness of the risk associated with giving card details to an unknown caller. For example, students may state that:

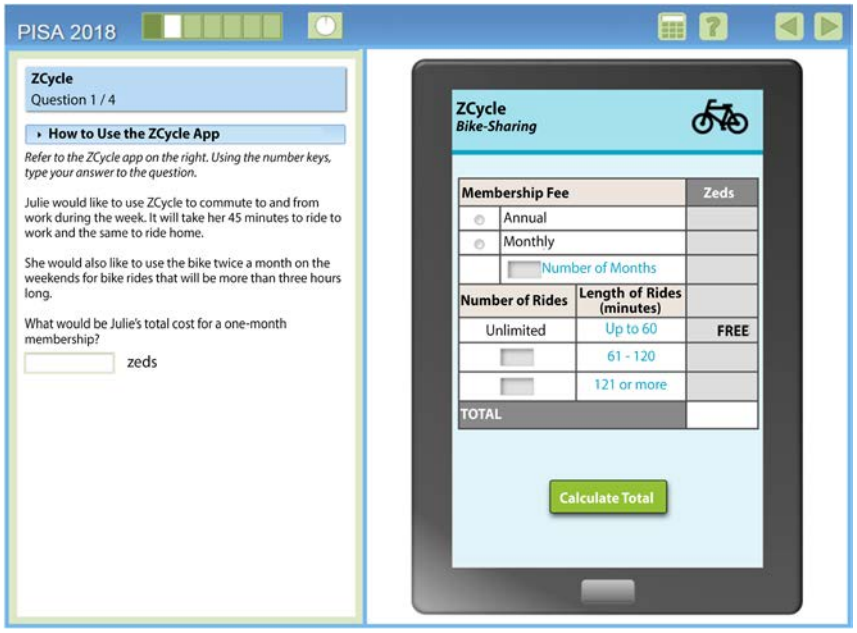
- She does not know if the caller is genuine
- Anyone could call and pretend to be a charity
- The caller could take more money than she agreed to donate since they have her bank card information
- Bank card information should not be shared with someone you do not know

ZCYCLE



In this unit, students are first introduced to a text explaining how the bike sharing scheme works and how the membership fee in the scheme is managed through a hypothetical smartphone application. Prospective bike users should understand that there is an annual or monthly membership fee, and that they may be asked to pay additional costs for each ride, depending on the ride duration. This is an example of a relatively common fee structure, combining fixed and variable costs, that students may encounter not only in bike sharing schemes but also in some mobile phone plans. Students have an opportunity to try the app to see how different uses of the bike scheme would affect the final cost.

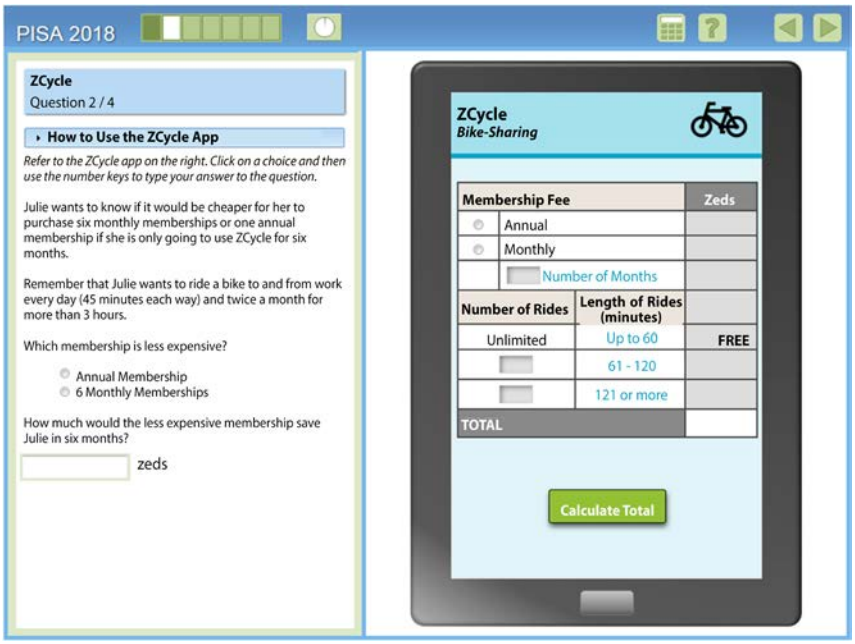
Question 1



The first question of the unit ZCYCLE asks students to use the application to figure out how much membership in the bike-sharing scheme would cost given that Julie would like to use the bike for relatively short rides during the week and two longer rides during the weekend. This question falls into the *Planning and managing finances* content area because students need to demonstrate an ability to put together different pieces of information on the relevant fees from different options and plan expenses. The correct response is 32 (the monthly fee costs 20 zeds and each ride of at least 121 minutes costs 6 zeds).

Unit name	ZCycle (Question 1)
Content	Planning and managing finances
Process	Applying financial knowledge and understanding
Context	Individual
Item format	Open response – Computer scored
Level estimated from the PISA 2018 field trial	4

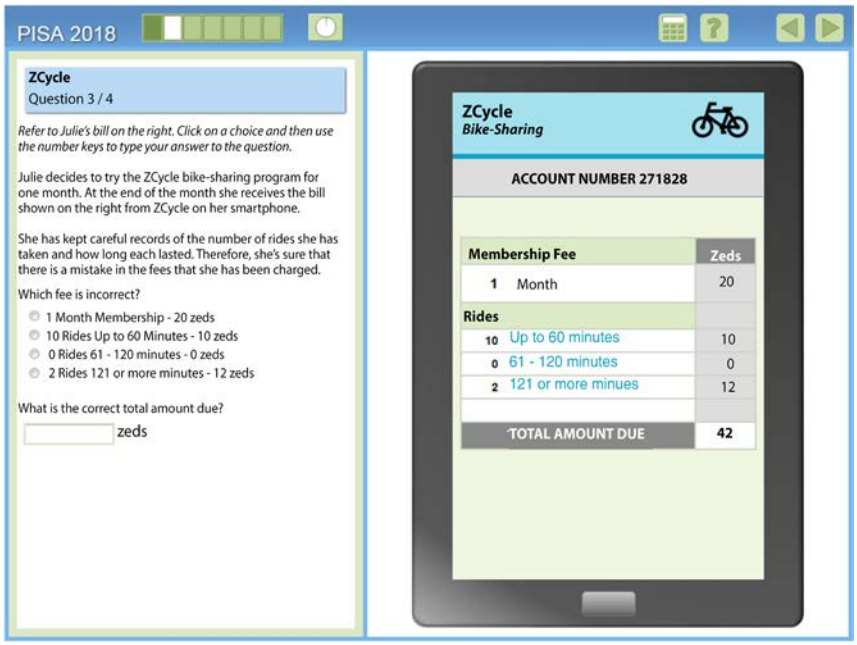
Question 2



The second question asks students to use the app to compare the cost of using the bike sharing scheme for six months or one year given the use that Julie would like to make of the bikes (the same as in the first question – relatively short rides during the week and for two longer rides during the weekend). Annual membership costs 180 zeds, including short and long rides. Students should recognise that this is cheaper than a six-month membership (120 zeds for the membership fee plus 12 × 6 = 72 zeds for the three-hour rides during the weekend). In order to get full credit, students should indicate both that the one-year membership is less expensive and that the cost difference for Julie is 12 zeds. Students indicating only one of these two elements obtain partial credit.

Unit name	ZCycle (Question 2)
Content	Money and transactions
Process	Analysing information in a financial context
Context	Individual
Item format	Open response – Computer scored
Level estimated from the PISA 2018 field trial	5 – full credit 5 – partial credit

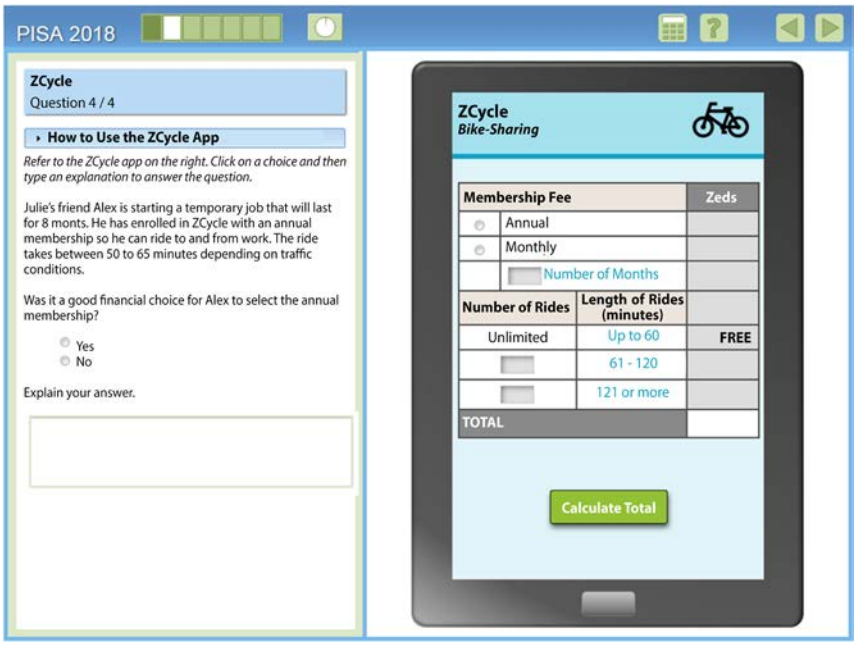
Question 3



The third question requires students to find a mistake in an invoice issued by the bike sharing app. Students should recognise that rides up to 60 minutes are free and then compute the correct total amount due (32). Full credit is granted to students who both select B (10 Rides Up to 60 Minutes – 10 zeds) and enter 32. Students who do only one of these things obtain partial credit.

Unit name	ZCycle (Question 3)
Content	Money and transactions
Process	Identifying financial information
Context	Individual
Item format	Open response – Computer scored
Level estimated from the PISA 2018 field trial	4 – full credit 3 – partial credit

Question 4



In the fourth question of this unit, students are asked to evaluate the financial situation of Alex, who has taken an annual subscription, uses the bike sharing programme for 8 months and whose rides may exceed 60 minutes. Students should evaluate the consequences of taking an annual membership in Alex's situation and explain whether or not this is a good financial choice. There is no right or wrong response based solely on the information provided in the stimulus. Whether the annual subscription is a good or bad choice depends on how many rides exceeding 60 minutes Alex will make. Students should therefore reason and explain why those chose to reply Yes or No. Correct responses should take into account both the membership fee and the possible costs associated with rides over 60 minutes.

Unit name	ZCycle (Question 4)
Content	Planning and managing finances
Process	Evaluating financial issues
Context	Individual
Item format	Open response – Human coded
Level estimated from the PISA 2018 field trial	5

For full credit, students must take into account both the membership fee AND the possible costs associated with rides over 60 minutes.

If students answer Yes, they must also indicate that any time the commute exceeds 60 minutes, Alex will have to pay an additional 4 zeds with the monthly membership. Sample responses include:

- Yes, it would only take a few rides over 60 minutes for the monthly membership to cost more than the annual membership
- Yes, after 5 longer rides, the monthly membership will cost as much
- Yes, after more than five rides of over 60 minutes, the monthly membership will cost more
- Yes, he will likely have enough rides over 60 minutes in 8 months for the monthly membership to cost more
- Yes, he won't have to worry about how many times the ride takes 65 minutes

If students answer No, they must also indicate that one cannot be sure of how many longer rides Alex will need.

- No, if he only has a few 65-minute rides, the monthly membership would be cheaper
- No, if all of the rides are 50 or 60 minutes long, the annual membership would be more expensive
- No, traffic may be better than he expects so the monthly membership would be cheaper

PISA

ANNEX D

The development and implementation of PISA: A collaborative effort

PISA is a collaborative effort, bringing together experts from the participating countries, steered jointly by their governments on the basis of shared, policy-driven interests.

A PISA Governing Board, on which each country is represented, determines the policy priorities for PISA, in the context of OECD objectives, and oversees adherence to these priorities during the implementation of the programme. This includes setting priorities for the development of indicators, for establishing the assessment instruments, and for reporting the results.

Experts from participating countries also serve on working groups that are charged with linking policy objectives with the best internationally available technical expertise. By participating in these expert groups, countries ensure that the instruments are internationally valid and take into account the cultural and educational contexts in OECD member and partner countries and economies, that the assessment materials have strong measurement properties, and that the instruments emphasise authenticity and educational validity.

Through National Project Managers, participating countries and economies implement PISA at the national level subject to the agreed administration procedures. National Project Managers play a vital role in ensuring that the implementation of the survey is of high quality, and verify and evaluate the survey results, analyses, reports and publications.

The design and implementation of the surveys, within the framework established by the PISA Governing Board, is the responsibility of external contractors. For PISA 2018, the overall management of contractors and implementation was carried out by the Educational Testing Service (ETS) in the United States as the Core A contractor. Tasks under Core A also included instrument development, development of the computer platform, survey operations and meetings, scaling, analysis and data products. These tasks were implemented in co-operation with the following subcontractors; i) the University of Luxembourg for support with test development; ii) the Unité d'analyse des systèmes et des pratiques d'enseignement (aSPe) at the University of Liège in Belgium for test development and coding training for open-response items; iii) the International Association for the Evaluation of Educational Achievement (IEA) in the Netherlands for the data management software; iv) Westat in the United States for survey operations; v) Deutsches Institut für Internationale Pädagogische Forschung (DIPF) in Germany, with co-operation from Statistics Canada, for the development of the questionnaires; and vi) HallStat SPRL in Belgium for the translation referee.

The remaining tasks related to the implementation of PISA 2018 were implemented through three additional contractors – Cores B to D. The development of the cognitive assessment frameworks for reading and global competence and of the framework for questionnaires was carried out by Pearson in the United Kingdom as the Core B contractor. Core C focused on sampling and was the responsibility of Westat in the United States in co-operation with the Australian Council for Educational Research (ACER) for the sampling software KeyQuest. Linguistic quality control and the development of the French source version for Core D were undertaken by cApStAn, who worked in collaboration with BranTra as a subcontractor.

The OECD Secretariat has overall managerial responsibility for the programme, monitors its implementation daily, acts as the secretariat for the PISA Governing Board, builds consensus among countries and serves as the interlocutor between the PISA Governing Board and the international Consortium charged with implementing the activities. The OECD Secretariat also produces the indicators and analyses and prepares the international reports and publications in co-operation with the PISA Consortium and in close consultation with member and partner countries and economies both at the policy level (PISA Governing Board) and at the level of implementation (National Project Managers).

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