

Publication

PISA 2022 Results

How Financially Smart Are Students?

Volume IV



PISA 2022 Results (Volume IV)

HOW FINANCIALLY SMART ARE STUDENTS?

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Preface

In 2022, as countries were still dealing with the lingering impacts of the COVID-19 pandemic, nearly 700 000 students from 81 OECD Member and partner economies, representing 29 million across the world, took the Programme for International Student Assessment (PISA) test. Nearly 100 000 students from 20 OECD Member and partner economies were part of the optional financial literacy assessment.

PISA 2022 is the first large-scale study to collect data on student performance, well-being, and equity before and after the COVID-19 disruptions. The report finds that in spite of the challenging circumstances, 31 countries and economies managed to at least maintain their performance in mathematics since PISA 2018. Among these, Australia*, Japan, Korea, Singapore, and Switzerland maintained or further raised already high levels of student performance, with scores ranging from 487 to 575 points (OECD average 472). These systems showed common features including shorter school closures, fewer obstacles to remote learning, and continuing teachers' and parental support, which can further offer insights and indications of broader best practices to address future crises.

Many countries also made significant progress towards universal secondary education, key to enabling equality of opportunity and full participation in the economy. Among them, Cambodia, Colombia, Costa Rica, Indonesia, Morocco, Paraguay and Romania have rapidly expanded education to previously marginalised populations over the past decade.

Ten countries and economies saw a large share of all 15-year-olds with basic proficiency in maths, reading and science and achieve high levels of socio-economic fairness: Canada*, Denmark*, Finland, Hong Kong (China)*, Ireland*, Japan, Korea, Latvia*, Macao (China) and the United Kingdom*. While socioeconomic status remains a significant predictor of performance in these and other OECD countries and economies, education in these countries can be considered highly equitable.

At the same time, on average, the PISA 2022 assessment saw an unprecedented drop in performance across the OECD. Compared to 2018, mean performance fell by ten score points in reading and by almost 15 score points in mathematics, which is equivalent to three-quarters of a year's worth of learning. The decline in mathematics performance is three times greater than any previous consecutive change. In fact, one in four 15-year-old is now considered a low performer in mathematics, reading, and science on average across OECD countries. This means they can struggle to do tasks such as use basic algorithms or interpret simple texts. This trend is more pronounced in 18 countries and economies, where more than 60% of 15-year-olds are falling behind.

Yet the decline can only partially be attributed to the COVID-19 pandemic. Scores in reading and science had already been falling prior to the pandemic. For example, negative trends in maths performance were already apparent prior to 2018 in Belgium, Canada*, Czechia, Finland, France, Hungary, Iceland, the Netherlands*, New Zealand*, and the Slovak Republic.

The relationship between pandemic-induced school closures, often cited as the main cause of performance decline is not so direct. Across the OECD, around half of the students experienced closures for more than three months. However, PISA results show no clear difference in performance trends between education systems with limited school closures such as Iceland, Sweden and Chinese Taipei and systems that experienced longer school closures, such as Brazil, Ireland* and Jamaica*.

School closures also drove a global conversion to digitally enabled remote learning, adding to long-term challenges that had already emerged, such as the use of technology in classrooms. How education systems grapple with technological change and whether policymakers find the right balance between risks and opportunities, will be a defining feature of effective education systems.

According to our results, on average across OECD countries, around three quarters of students reported being confident using various technologies, including learning-management systems, school learning platforms and video communication programs. Students who spent up to one hour per day on digital devices for learning activities in school scored 14 points higher in mathematics than students who spent no time, even after accounting for students' and schools' socio-economic profile, and this positive relationship is observed in over half (45 countries and economies) of all systems with available data. Yet technology used for leisure rather than instruction, such as mobile phones, often seems to be associated with poorer results. Students who reported that they become distracted by other students who are using digital devices in at least some mathematics lessons scored 15 points lower than students who reported that this never or almost never happens, after accounting for students' and schools' socio-economic profile.

PISA data shows that teachers' support is particularly important in times of disruption, including by providing extra pedagogical and motivational support to students. The availability of teachers to help students in need had the strongest relationship to mathematics performance across the OECD, compared to other experiences linked to COVID-19 school closure. Mathematics score were 15 points higher on average in places where students agreed they had good access to teacher help. These students were also more confident than their peers to learn autonomously and remotely. Despite this, one in five students overall reported that they only received extra help from teachers in some mathematics lessons in 2022. Around eight percent never or almost never received additional support.

Overall, education systems with positive trends in parental engagement in student learning between 2018 and 2022 showed greater stability or improvement in mathematics performance. This was particularly true for disadvantaged students. These figures show that the level of active support that parents offer their children might have a decisive effect. Yet parental involvement in students' learning at school decreased substantially between 2018 and 2022. On average across OECD countries, the share of students in schools where most parents initiated discussions about their child's progress with a teacher dropped by ten percentage points.

Finally, we see a positive relationship between investment in education and average performance up to a threshold of USD 75 000 (PPP) in cumulative spending per student from age 6 to 15. For many OECD countries that spend more per student, there is no relationship between extra investment and student performance. Countries like Korea and Singapore have demonstrated that it is possible to establish a top-tier education system even when starting from a relatively low-income level, by prioritising the quality of teaching over the size of classes and funding mechanisms that align resources with needs.

To strengthen the role of education in empowering young people to succeed and ensuring merit-based equality of opportunity, the resilience of our education systems will be critical not only to improve learning outcomes measured through PISA, but to their long-term effectiveness. I'm pleased to share the PISA 2022 results with you, including those on financial literacy in this volume, to provide policymakers across OECD Members and partner economies with evidence-based policy advice to design resilient and effective education systems that will help give our children and adolescents the best possible future.



Mathias Cormann,

OECD Secretary-General

Foreword

Up to the end of the 1990s, the OECD's comparisons of education outcomes were mainly based on measures of years of schooling, which don't necessarily reflect what people actually know and can do. The Programme for International Student Assessment (PISA) changed this. The 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 OECD countries that initiated PISA tried to make PISA different from traditional assessments. 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 learnt 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 they learn how to learn, and are able to think for themselves, and work with others, they can go anywhere they want.

Starting from the core subjects of mathematics, reading and science, PISA expanded over time to other key life skills for students, from problem solving to creative thinking. Financial literacy is now also recognised as a life skill for the 21st century, ensuring students have the ability to make sound financial decisions as they grow into responsible adults, navigate an ever-changing financial landscape and cope with emerging risks. PISA undertook its first financial literacy assessment in 2012, focusing on the knowledge and understanding that 15-year-olds across the world have of money matters. Building upon initial results and financial education work globally, the scope of the financial literacy assessment has been expanded to look not only at students' financial knowledge, attitudes and behaviours, but also at how parents, schools and peers can help students improve their financial literacy.

Over the past two decades, PISA has become the world's premier yardstick for comparing quality, equity and efficiency in learning outcomes across countries, and an influential force for education reform. PISA 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.

This also holds true for financial literacy. Over the last 15 years, the PISA financial literacy assessment has become the reference point for efforts to define, evaluate and improve financial competences among young people worldwide, even among countries that did not participate in PISA tests. For example, frameworks defining the financial competences that children and young people should possess, such as the Financial Competence Framework for Children and Youth in the European Union, developed by the OECD and the European Commission, take the PISA financial literacy analytical and assessment framework as the starting point. The results of the PISA financial literacy assessment have influenced financial education policy and have prompted many countries to improve the way they teach financial literacy to students.

PISA 2022 was the fourth round of the international financial literacy assessment, with twenty OECD and partner countries and economies taking part, including eight countries participating for the first time. Every PISA financial literacy test assesses students' financial knowledge, attitudes, behaviours and skills, and PISA 2022 also captures a wider range of aspects, including the influence of friends on 15-year-old students' financial decisions and behaviours.

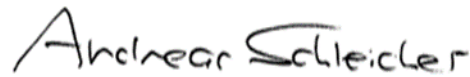
These latest PISA financial literacy results show that while most 15-year-old students are already consumers of financial products and services, many still lack some of the skills and knowledge that are needed to make sound financial decisions for themselves. This publication suggests ways in which common issues can be addressed to improve students' financial literacy, and ultimately create the adequate conditions for students' financial well-being now and as they become adults.

Countries and economies that take part in PISA are culturally diverse and have attained different levels of economic development. Nevertheless, they face a common challenge--to support children and young people, in particular the most vulnerable and low-performing ones, so they can reach their full potential as learners and human beings, and fully participate in economic life. Results from the PISA financial literacy assessment highlight that socio-economically disadvantaged students are over-represented among low performers in financial literacy, calling for policy action to avoid inequalities rising as these students become adults. PISA provides the evidence and the policy insights that countries need to address these matters. There is an urgent need for action. The task for governments is to help education systems rise to this challenge.



Carmine Di Noia,

Director for Financial and Enterprise Affairs



Andreas Schleicher,

Director for Education and Skills

Special Advisor on Education Policy to the Secretary-General

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This report 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.

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The development of the report was steered by the PISA Governing Board, chaired by Michele Bruniges (Australia), with Peggy Carr (United States), Akiko Ono (Japan) 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, the Financial Literacy Expert Group and the individual experts and consultants who have contributed to PISA 2022. Members of the OECD International Network on Financial Education (INFE) also provided comments on this volume.

Table of contents

Preface	3
Foreword	5
Acknowledgements	7
Reader's Guide	13
Executive Summary	20
What is PISA?	25
OECD's Programme for International Student Assessment (PISA)	25
What is unique about PISA?	25
Which countries and economies participate in PISA?	25
Key features of PISA 2022	27
Where can you find the results?	29
References	29
1 How and why does PISA assess financial literacy?	31
The importance of financial literacy for young people	33
Providing financial education to young people	34
The financial literacy assessment in PISA 2022: definition, framework and assessment in practice	39
Notes	45
References	45
2 Students' performance in financial literacy in PISA 2022	47
Average performance in financial literacy	48
The range of proficiency covered by the PISA financial literacy assessment	51
Performance of students at the different levels of financial literacy proficiency	53
Trends in student performance in financial literacy	57
Student performance in financial literacy compared to performance in the core PISA subjects	61
Notes	65
References	66
3 Variations in students' performance in financial literacy within countries and economies	67
Variation in performance within countries and economies	68
Gender differences in performance in financial literacy	71
The relationship between students' socio-economic status and performance in financial literacy	72

Differences in performance in financial literacy associated with school location	74
The relationship between performance in financial literacy and immigrant background	75
Notes	77
References	78
4 Students' interactions with their parents about money matters	79
Do students discuss money matters with their parents?	80
How independent are students in their financial affairs?	84
Notes	87
References	87
5 Students' self-reported exposure to financial literacy in school	89
Self-reported exposure to financial education in schools	90
Variation in self-reported exposure to financial education programmes in school related to student and school characteristics	95
Self-reported exposure to financial education in schools and performance in financial literacy	96
Notes	101
References	101
6 Students' attitudes towards money matters	103
Students' interest in money matters	105
Students' self-assessed financial skills	108
Notes	110
References	111
7 Money and basic financial services: access, use and attitudes	113
Students' holding of basic financial products	115
Students' use of basic financial products and digital transactions	119
Students' sources of money	121
Students' confidence in using financial services, including digital ones	124
Notes	133
References	134
8 Students' spending and saving behaviours and attitudes	137
Students' spending behaviours, strategies and attitudes	139
Spending behaviours and attitudes: the influence of friends	147
Students' saving behaviours and attitudes	151
Notes	155
References	155
9 From data to insights	157
Address the needs of low-performing students	158
Tackle socio-economic inequalities	160
Focus on students' environment: parents and peers	162
Offer opportunities to acquire financial literacy in school to all	162
Ensure that opportunities to learn via access to and use of financial services is safe and age-appropriate	163
Strengthen attitudes in addition to knowledge and skills	164
References	164

Annex A1. The construction of reporting scales and indices	165
Annex A2. The PISA target population, the PISA samples and the definition of schools	173
Annex A3. Technical notes on analyses in this Volume	181
Annex A4. Quality assurance	185
Annex A5. Comparing financial literacy performance across PISA assessments	189
Annex B1. Results for countries and economies	193
Annex B2. Results for regions within countries	197
Annex C. Financial literacy released items	199
References	229
Annex D. The development and implementation of PISA: A collaborative effort	231

FIGURES

Figure IV.1. Map of PISA countries and economies	26
Figure IV.2.1. Percentage of students at each level of proficiency in financial literacy	53
Figure IV.2.2. Financial literacy performance and students' self-assessed financial skills	54
Figure IV.2.3. Changes across time in mean financial literacy performance	59
Figure IV.2.4. Changes across time in mean financial literacy performance among countries that participated in all PISA financial literacy assessments	60
Figure IV.2.5. Correlation between performance in financial literacy, mathematics and reading	61
Figure IV.2.6. Relative performance in financial literacy	63
Figure IV.2.7. Mean performance in financial literacy and per capita GDP	64
Figure IV.3.1. Variation in financial literacy performance between countries and economies, schools and students	69
Figure IV.3.2. Gender differences in financial literacy performance	71
Figure IV.3.3. Mean performance in financial literacy, by national quarter of socio-economic status	73
Figure IV.3.4. Financial literacy performance, by immigrant background	76
Figure IV.4.1. Frequency of discussing money matters with parents	81
Figure IV.4.2. Financial literacy performance, by frequency of discussing money matters with parents	84
Figure IV.4.3. Financial literacy performance, by students' autonomy in spending decisions	86
Figure IV.5.1. Students' self-reported exposure to financial terms in school	91
Figure IV.5.2. Students' self-reported exposure to financial literacy tasks in school lessons	93
Figure IV.5.3. Students' self-reported exposure to financial literacy tasks in different types of classes or activities	94
Figure IV.5.4. Financial literacy performance, by students' self-reported exposure to financial terms in school	97
Figure IV.6.1. Financial literacy performance, by students' interest in money matters	107
Figure IV.6.2. Financial literacy performance, by students' self-assessed financial skills	110
Figure IV.7.1. Students' holding of basic financial products	116
Figure IV.7.2. Students with experience in digital financial transactions	120
Figure IV.7.3. Students receiving money from various sources	122
Figure IV.7.4. Students' confidence in dealing with traditional money matters and in using digital financial services	126
Figure IV.7.5. Financial literacy performance, by students' experience with money, basic financial products and digital transactions	129

Figure IV.7.6. Financial literacy performance, by students' confidence in dealing with traditional money matters and in using digital financial services	132
Figure IV.8.1. Students' spending behaviour	140
Figure IV.8.2. Students' spending strategies	142
Figure IV.8.3. Students' spending behaviour, by performance in financial literacy	146
Figure IV.8.4. Students' spending strategies, by performance in financial literacy	147
Figure IV.8.5. The influence of friends on students' spending behaviour and attitudes	148
Figure IV.8.6. Buying something because friends have it, by performance in financial literacy	150
Figure IV.8.7. Students' saving behaviour	152
Figure IV.8.8. Students' saving behaviour, by performance in financial literacy	154
Figure IV.A1.1. Relationship between questions and student performance on a scale	166

INFOGRAPHICS

Infographic 1. PISA 2022 key results (Volume IV)	24
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TABLES

Table IV.1. Snapshot of performance in financial literacy	23
Table IV.2.1. Comparing countries' and economies' mean performance in financial literacy	49
Table IV.2.2. Financial literacy performance of 15-year-old students at the national level	50
Table IV.2.3. Summary description of the five levels of financial literacy proficiency in PISA 2022	52
Table IV.2.4. Map of selected financial literacy questions, illustrating the proficiency levels	52
Table IV.2.5. Students' performance in financial literacy in PISA 2022 chapter figures and tables	65
Table IV.3.1. Variations in students' performance in financial literacy within countries and economies chapter figures	76
Table IV.4.1. Students' interactions with their parents about money matters chapter figures	87
Table IV.5.1. Students' self-reported exposure to financial literacy in school chapter figures	101
Table IV.6.1. Students' attitudes towards money matters chapter figures	110
Table IV.7.1. Money and basic financial services: access, use and attitudes chapter figures	133
Table IV.8.1. Students' spending and saving behaviour and attitudes chapter figures	154
Table IV.A1.1. Proficiency levels on the financial literacy scale	168
Table IV.A2.1. Sample size for the PISA financial literacy assessment	178
Table IV.A2.2. Overall exclusion rates taking into account the percentage of students answering the PISA <i>Une Heure</i> forms	179
Table IV.A5.1. Robust link error for comparisons of performance between PISA 2022 and previous assessments	190
Table IV.B1.1. Students' performance in financial literacy in PISA 2022: Chapter 2 annex tables	193
Table IV.B1.2. Variations in students' performance in financial literacy within countries/economies: Chapter 3 annex tables	193
Table IV.B1.3. Students' interactions with their parents about money matters: Chapter 4 annex tables	194
Table IV.B1.4. Students' self-reported exposure to financial literacy in school: Chapter 5 annex tables	194
Table IV.B1.5. Students' attitudes towards money matters: Chapter 6 annex tables	195
Table IV.B1.6. Money and basic financial services: access, use, and attitudes: Chapter 7 annex tables	195
Table IV.B1.7. Students' spending and saving behaviour and attitudes: Chapter 8 annex tables	196
Table IV.B2.1. Results for regions within countries: Annex B2 tables	197

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Reader's Guide

PISA in the pandemic

This edition of PISA was originally planned to take place in 2021 but was delayed by one year due to the COVID-19 pandemic. The exceptional circumstances throughout this period, including lockdowns and school closures in many places, led to occasional difficulties in collecting some data. While the vast majority of countries and economies met PISA's technical standards, a small number did not. In prior PISA rounds, countries and economies that failed to comply with the standards, and which the PISA Adjudication Group judged to be consequential, could face exclusion from the main part of reporting. However, given the unprecedented situation caused by the pandemic, PISA 2022 results include data from all participating education systems, including those where there were issues such as low response rates (see Annexes A2 and A4). The next section explains the potential limitations of data from countries not meeting specific technical standards. Readers are alerted to these limitations throughout the volume wherever appropriate.

It is important to note that the limitations and implications were assessed by the PISA Adjudication Group in June 2023. There may be a need for subsequent adjustments as new evidence on the quality and comparability of the data emerges. PISA will return to the standard ways of reporting for the 2025 assessment.

Adjudicated entities not meeting the sampling standards

The results of certain adjudicated entities (i.e. countries, economies and regions within countries), listed below, will be reported with annotations. Caution is required when interpreting estimates for these countries and economies because one or more PISA sampling standards listed below were not met. PISA sampling standards are referred to the PISA 2022 main sample (i.e., the sample of students assessed in mathematics, reading and science), and were not computed specifically for the financial literacy sample. Nevertheless, the same notes of caution apply when interpreting the financial literacy results.

- **Overall exclusion rate. Standard 1.7:** The PISA Defined Target Population covers 95% or more of the PISA Desired Target Population. That is, school-level exclusions and within-school exclusions combined do not exceed 5%.
- **School response rate. Standard 1.11:** The final weighted school response rate is at least 85% of sampled schools. If a response rate is below 85% then an acceptable response rate can still be achieved through agreed upon use of replacement schools.
- **Student response rate. Standard 1.12:** The student response rate is at least 80% of all sampled students across responding schools.

The full list of adjudicated entities not meeting the sampling standards is reported in Volume I. Considering the countries and economies that participated in the PISA 2022 financial literacy assessment, these entities can be grouped into two:

- (i) Entities that submitted technically strong analyses, which indicated that more than minimal bias was most likely introduced in the estimates due to low response rates (falling below PISA standards): Canada.
- (ii) Entities that did not meet one or more PISA sampling standards and it is not possible to exclude the possibility of more than minimal bias based on the information available at the time of data adjudication: Denmark, the Netherlands and the United States.

The Adjudication Group also noted that the bias associated with trend and cross-country comparisons might be smaller, if past data or data for other countries are biased in the same direction. Therefore, the deviations from the standards in PISA 2022 are compared with those in PISA 2018 where necessary.

(i) Entities that submitted technically strong analyses, which indicated that more than minimal bias was most likely introduced in the estimates due to low response rates (falling below PISA standards)

As PISA sampling standards are referred to the PISA 2022 main sample (i.e., the sample of students assessed in mathematics, reading and science), response and exclusion rates refer to the entire Canada. Nevertheless, the same note of caution applies when interpreting the results about the eight Canadian provinces that participated in the financial literacy assessment.

Canada

- **Overall exclusion rate:** 5.8%. Exclusions exceeded the acceptable rate by less than one percentage point; at the same time, the exclusion rates observed in 2022 remained relatively close to exclusion rates observed in 2018 (6.9%). When taking into account the fact that the PISA *Une Heure* (UH) forms (i.e., a special one-hour test prepared for students with special needs) were not available for the financial literacy assessment, the overall exclusion rate was 8.1% (Annex A2).
- **Student response rate:** 77%. School response rates: 81% before replacement, 86% after replacement. Student response rates decreased from 84% with respect to PISA 2018, and fell short of the target in 7 out of 10 provinces (all but New Brunswick, Prince Edward Island and Saskatchewan). A thorough non-response bias analysis was submitted, with analyses conducted separately for each province, using students' academic achievement data as auxiliary information. School response rates also fell short of the target, driven by low participation rates in two provinces (Alberta and Quebec). For these provinces, non-response bias was also examined at the school level. The analyses clearly indicate that school nonresponse has not led to any appreciable bias, but student nonresponse has given rise to a small upwards bias.

(ii) Entities that did not meet one or more PISA sampling standards and it is not possible to exclude the possibility of more than minimal bias based on the information available at the time of data adjudication.

Denmark

- **Overall exclusion rate:** 11.6%. Exclusions exceeded the acceptable rate by a large margin and showed a marked increase, with respect to 2018 (5.7%). The Adjudication Group noted that high levels of student exclusions may bias performance results upwards. In Denmark, a major cause behind the rise appears to be the increased share of students with diagnosed dyslexia, and the fact that more of these students are using electronic assistive devices to help them read on the screen, including during exams. The lack of such an accommodation for students with diagnosed dyslexia in the PISA assessment led schools to exclude many of these students. In order to reduce exclusion rates in the future, PISA may need to further accommodate dyslexic students, allowing the use of assistive devices. When taking into account the fact that the PISA *Une Heure* (UH) forms were not available for the financial literacy assessment, the overall exclusion rate was 14.3% (Annex A2).

The Netherlands

- **Overall exclusion rate:** 8.4%. Exclusions exceeded the acceptable rate by a large margin and showed a marked increase, with respect to 2018 (6.2%). Most of these students were excluded because they had a physical or intellectual disability and no adaptation was available for them. The Adjudication Group noted that high levels of student exclusions may bias performance results upwards. When taking into account the fact that the PISA *Une Heure* (UH) forms were not available for the financial literacy assessment, the overall exclusion rate was 11.6% (Annex A2).
- **School response rates: 66% before replacement, 90% after replacement.** A non-response bias analysis was submitted, analysing differences in performance and in other characteristics between responding schools and the total population of schools, as well as differences between replacement schools and originally sampled, but non-responding schools. This supported the case that no large bias would result from non-response; furthermore, given the available evidence, there is no clear indication about the direction of any residual bias.

The United States

- **Exclusion rates:** 6.1%. Exclusions exceeded the acceptable rate by a small margin but showed a marked increase, with respect to 2018 (3.8%), in exclusion rates for students with functional or intellectual disabilities. The Adjudication Group invited the national centres to investigate the reasons for this increase in exclusion rates and take remedial action for future cycles. It is expected that exclusion rates will fall again in the future, as a result. When taking into account the fact that the PISA *Une Heure* (UH) forms were not available for the financial literacy assessment, the overall exclusion rate was 10.5% (Annex A2).
- **School response rates: 51% before replacement, 63% after replacement.** School participation rates missed the standard by a substantial margin, and participation rates were particularly low among private schools (representing about 7% of the student population). A non-response bias analysis was submitted, indicating that, after replacement schools and non-response adjustments are taken into account, a number of characteristics (not including direct measures of school performance) are balanced across respondents and non-respondents. The Adjudication Group also noted that the response rate for students was only slightly above the target (80%). Based on the available information, it is not possible to exclude the possibility of bias, nor to determine its most likely direction.

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/economy 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/economy; or these data were collected but subsequently removed from the publication for technical reasons.
- w Results were withdrawn at the request of the country/economy 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).

Coverage

This publication features data on 20 countries and economies, including 14 OECD countries and economies (Austria, the Flemish community of Belgium, eight Canadian provinces, Costa Rica, Czechia, Denmark, Hungary, Italy, the Netherlands, Norway, Poland, Portugal, Spain and the United States) and 6 partner countries (Brazil, Bulgaria, Malaysia, Peru, Saudi Arabia and the United Arab Emirates).

The Canadian provinces refer to the eight provinces of Canada that participated in the PISA 2022 financial literacy assessment: Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario and Prince Edward Island.

Following OECD data regulations, a visual separation between countries and territories has been marked in italics in all charts to reduce the risk of data misinterpretation.

International averages

The OECD and overall averages correspond to the arithmetic mean of the respective country/economy estimates. They were calculated for most indicators presented in this report.

In this publication, the OECD and overall averages are generally used when the focus is on comparing performance across countries and economies. In the case of some countries and 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” or “Overall average” refers to the OECD or all countries and 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” or “Overall average” is not necessarily computed on a consistent set of countries and economies across all columns of a table.

In analyses involving data from multiple years, the OECD and overall averages are always reported on consistent sets of countries and economies, and several averages may be reported in the same table. For instance, the “OECD average - 2018” includes only those OECD countries and economies that participated in both the PISA 2018 and 2022 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 and economies that participated in the PISA 2022 financial literacy assessment (Austria, the Flemish community of Belgium, the Canadian provinces, Costa Rica, Czechia, Denmark, Hungary, Italy, the Netherlands, Norway, Poland, Portugal, Spain and the United States).
- OECD average - 2012: Arithmetic mean across all OECD countries and economies that participated in both the PISA 2012 and 2022 financial literacy assessments (the Flemish community of Belgium, Czechia, Italy, Poland, Spain and the United States).
- OECD average - 2015: Arithmetic mean across all OECD countries and economies that participated in both the PISA 2015 and 2022 financial literacy assessments¹ (the Flemish community of Belgium, Italy, the Netherlands, Poland, Spain and the United States).
- OECD average - 2018: Arithmetic mean across all OECD countries and economies that participated in both the PISA 2018 and 2022 financial literacy assessments² (Italy, Poland, Portugal, Spain and the United States).
- Overall average: Arithmetic mean across all countries and economies that participated in the PISA 2022 financial literacy assessment (Austria, the Flemish community of Belgium, Brazil, Bulgaria, the Canadian provinces, Costa Rica, Czechia, Denmark, Hungary, Italy, Malaysia, the Netherlands, Norway, Peru, Poland, Portugal, Saudi Arabia, Spain, the United Arab Emirates and the United States).

- Overall average – 2012: Arithmetic mean across all countries and economies that participated in both the PISA 2012 and 2022 financial literacy assessments (the Flemish community of Belgium, Czechia, Italy, Poland, Spain and the United States).
- Overall average – 2015: Arithmetic mean across all countries and economies that participated in both the PISA 2015 and 2022 financial literacy assessments³ (the Flemish community of Belgium, Brazil, Italy, the Netherlands, Peru, Poland, Spain and the United States).
- Overall average – 2018: Arithmetic mean across all countries and economies that participated in both the PISA 2018 and 2022 financial literacy assessments⁴ (Brazil, Bulgaria, Italy, Peru, Poland, Portugal, 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 2022 Technical Report (OECD, 2023^[1]).

StatLink

This report has StatLinks for 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.

Box 1. Interpreting differences in PISA scores

PISA scores do not have a substantive meaning as they are not physical units such as metres or grams. Instead, they are set in relation to the variation in results observed across all test participants. There is, theoretically, no minimum or maximum score in PISA; rather, the results are scaled to fit approximately normal distributions (i.e. means around 500 score points, standard deviations around 100 score points). In statistical terms, a one-point difference on the PISA scale therefore corresponds to an effect size (Cohen's *d*) of 0.01; and a 10-point difference to an effect size of 0.10.

Interpreting large differences in scores: proficiency levels

PISA scales are divided into proficiency levels. For example, for PISA 2022, the range of difficulty of financial literacy items is represented by five levels of financial literacy proficiency: the simplest items correspond to Level 1; Levels 2, 3, 4 and 5 correspond to increasingly difficult items. Individuals who are proficient within the range of Level 1 are likely to be able to complete Level 1 items but are unlikely to be able to complete items at higher levels. See Chapter 2 for a detailed description of proficiency levels in financial literacy.

In financial literacy, each proficiency level corresponds to a range of about 75 score points. Hence, score-point differences of that magnitude can be interpreted as the difference in described skills and knowledge between successive proficiency levels.

Interpreting small differences in scores: statistical significance

Smaller differences in PISA scores cannot be expressed in terms of the difference in skills and knowledge between proficiency levels. However, they can still be compared with each other by means of verifying their “statistical significance”.

A difference is called “statistically significant” if it is unlikely that such a difference can be observed in the estimates based on samples when, in fact, no true difference exists in the populations from which the samples are drawn. The results of the PISA assessments are “estimates” because they are obtained from samples of students rather than from a census of all students (i.e. which introduces a “sampling error”), and because they are obtained using a limited set of assessment tasks rather than the universe of all possible assessment tasks (i.e. which introduces a “measurement error”).

It is possible to determine the magnitude of the uncertainty associated with the estimate and to represent it as a “confidence interval”, i.e. a range defined in such a way that if the true value lies above its upper bound or below its lower bound, an estimate different from the reported estimate would be observed only with a small probability (typically less than 5%). The confidence interval needs to be taken into account when making comparisons

between estimates so that differences that may arise simply due to the sampling error and measurement error are not interpreted as real differences.

Interpreting differences in scores across PISA assessments

To ensure the comparability of PISA results across different assessment years, “link errors” must be used. The link error represents uncertainty around scale values (“is a financial literacy score of 432 in PISA 2022 the same as 432 in PISA 2018?”) and is therefore independent of the size of the student sample. For comparisons between financial literacy results in PISA 2022 and financial literacy results in 2018, the link error corresponds to 2.20 score points. For detailed information, see Box IV.2.2 in Chapter 2 and Annex A5.

Notes

¹ The Canadian provinces are not included in this average as Alberta did not participate in the PISA 2015 financial literacy assessment, making comparisons unreliable with results from the PISA 2022 financial literacy assessment.

² The Canadian provinces are not included in this average as Alberta did not participate in the PISA 2018 financial literacy assessment, making comparisons unreliable with results from the PISA 2022 financial literacy assessment.

³ The Canadian provinces are not included in this average as Alberta did not participate in the PISA 2015 financial literacy assessment, making comparisons unreliable with results from the PISA 2022 financial literacy assessment.

⁴ The Canadian provinces are not included in this average as Alberta did not participate in the PISA 2018 financial literacy assessment, making comparisons unreliable with results from the PISA 2022 financial literacy assessment.

References

OECD (2023), *PISA 2022 Technical Report*, OECD Publishing, Paris, <https://doi.org/10.1787/01820d6d-en>. [1]

Executive Summary

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.

Twenty countries and economies participated in the PISA 2022 financial literacy assessment:

- 14 OECD countries and economies (Austria, the Flemish community of Belgium, eight Canadian provinces* (Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario and Prince Edward Island), Costa Rica, Czechia, Denmark*, Hungary, Italy, the Netherlands*, Norway, Poland, Portugal, Spain and the United States*), and
- 6 partner countries (Brazil, Bulgaria, Malaysia, Peru, Saudi Arabia and the United Arab Emirates).

Students' performance in financial literacy in PISA 2022

- Austria, the Flemish community of Belgium, the Canadian provinces*, Czechia, Denmark*, the Netherlands* and Poland performed above the OECD average in financial literacy.
- On average across OECD countries and economies, 11% of students were top performers in financial literacy, meaning that they were proficient at Level 5. These students can analyse complex financial products and solve non-routine financial problems. More than 15% of students in the Flemish community of Belgium and the Netherlands* were top performers in financial literacy, compared to less than 1% of students in Malaysia and Saudi Arabia.
- On average across OECD countries and economies, 18% of students performed at or below Level 1. These students can, at best, recognise the difference between needs and wants, make simple decisions about everyday spending and recognise the purpose of everyday financial documents, such as an invoice. More than 45% of students in Brazil, Malaysia and Saudi Arabia performed at or below Level 1, compared to 11% of students in Denmark*.

Variations in students' performance in financial literacy within countries and economies

- Socio-economically advantaged students performed better in the PISA 2022 financial literacy assessment than disadvantaged students by 87 points on average across OECD countries and economies, which is more than one proficiency level.
- Boys performed better than girls in Austria, Costa Rica, Denmark*, Hungary, Italy and Portugal, and girls outperformed boys in Bulgaria, Malaysia, Norway and the United Arab Emirates. There was no significant gender difference in the other 10 participating countries and economies. There were more boys than girls both among low performers and top performers on average across OECD countries and economies.

Financial literacy matters: students' spending and saving behaviours and attitudes

- On average across OECD countries and economies, 93% of students, reported that they had saved money at least once in the previous 12 months, from 85% in Saudi Arabia to 95% in Czechia, the Netherlands* and the United States*. On average across OECD countries and economies, 74% of students reported that they compare prices in different shops before buying something, from 60% in Saudi Arabia to 80% in Denmark* and Portugal.
- On average across OECD countries and economies, 60% of students reported having bought something because their friends had it, from 36% in Costa Rica to 69% in Bulgaria, Czechia and Norway.
- Students who performed at Level 4 or 5 in financial literacy were 50% more likely than those who scored at Level 1 or below to report that they compare prices in different shops before buying something, and 72% more likely to report having saved into an account or at home, on average across OECD countries and economies, after accounting for student characteristics, attitudes, and performance in mathematics and reading.

Students' interactions with their parents about money matters

- Most students reported talking to their parents about money matters. On average across OECD countries and economies, 64% of students reported talking to their parents weekly or monthly about their own spending decisions, with results ranging from 52% of students in Peru and Saudi Arabia to 71% of those in Norway. On average across OECD countries and economies, students who reported discussing about their own spending decisions on a weekly or monthly basis performed 12 score points higher in financial literacy than those who reported never discussing these, after accounting for student characteristics.
- Most students reported that they could independently decide what to spend their money on: 83% on average across OECD countries and economies, from 64% of students in Peru, to 91% of those in Denmark* and Hungary. On average across OECD countries and economies and after accounting for student characteristics, these students scored around 30 points higher in the financial literacy assessment than students who did not report so.

Students' self-reported exposure to financial literacy in school

- More than two in three students, on average across OECD countries and economies, reported that they had learnt about a wage, a budget, or a bank loan in school over the preceding 12 months and still know what these terms mean. By contrast, only one in four students reported that they had learnt about compound interest in school and still know what this means, and fewer than one in five about diversification, on average across OECD countries and economies.
- Students who reported that they had learnt and still know these finance-related terms outperformed students who did not in the financial literacy assessment, on average across OECD countries and economies and after accounting for student and school characteristics, and students' performance in mathematics and reading.
- Students reported having been exposed to personal finance-related tasks in school mostly in mathematics classes, but also in social sciences, citizenship, economics, or business classes.

Money and basic financial services: access, use and attitudes

- Many 15-year-old students participate in the financial system. On average across OECD countries and economies, 63% of students reported holding an account at a bank/financial institution, and 62% of students

reported holding a payment/debit card. Over 80% of students in the Flemish community of Belgium, Denmark*, the Netherlands* and Norway reported holding an account or a payment/debit card, while students in Peru were amongst the least likely to hold either of these products.

- Students also reported experience with digital financial transactions. On average across OECD countries and economies, 86% of students reported that they had bought something on line in the previous 12 months (alone or with a family member), and 66% of students reported that they had made a payment using a mobile phone.
- Holding an account at a bank, having bought something on line, and receiving gifts of money from friends or relatives were associated with greater financial literacy performance after accounting for student characteristics and other experiences with money and basic financial products.

Students' attitudes towards money matters

- On average across OECD countries and economies, 50% of students reported that they enjoy talking about money matters, but 36% of students reported that money matters are not relevant for them right now.
- Enjoying talking about money matters was associated with greater financial literacy performance on average across OECD countries and economies and after accounting for student characteristics and exposure to financial education at home and in school.
- On average across OECD countries and economies, 80% of students felt confident about their ability to manage their money, from 63% of students in Brazil to 86% in Portugal. Confidence was common across all levels of proficiency, with 64% of low performing students feeling confident about their financial skills, on average across OECD countries and economies, ranging from 45% of low performers in Bulgaria to 74% in Portugal.

From data to insights

These results show that there are wide variations among students in their financial literacy proficiency, and that students can learn about money matters in a variety of ways: from their parents, families and friends, at school, and from their experience with money and financial products. To tackle inequalities and provide opportunities to all students to improve their financial literacy, the report suggests using complementary approaches involving various stakeholders to:

- Address the needs of low-performing students, to help them participate in economic life as they become adults.
- Tackle socio-economic inequalities in financial skills and behaviours as early as possible, to avoid them building up as students grow older.
- Focus on students' environment, including on parents and peers to leverage on their role and influence on students' financial behaviours and attitudes.
- Offer opportunities to acquire financial literacy in school to all students, regardless of their socio-economic background.
- Ensure that opportunities to learn via access to and use of financial services are safe and age-appropriate, including through robust financial consumer protection frameworks.
- Strengthen students' financial attitudes in addition to their knowledge and skills, to foster interest in money matters and prevent overconfidence.

Table IV.1. Snapshot of performance in financial literacy

	Mean score in PISA 2022	Low-performing and top-performing students		Gender differences in performance			Socio-economic disparities in performance	
		Share of low performers (below Level 2)	Share of top performers (Level 5)	Girls	Boys	Difference between girls and boys	Difference between advantaged ¹ and disadvantaged students in financial literacy	Strength: Percentage of variance in financial literacy performance explained by ESCS ²
	Mean index	%	%	Mean score	Mean score	Score dif.	Score dif.	%
OECD average	498	17.9	10.6	495	501	-5	87	11.6
<i>Flemish community of Belgium</i>	527	12.0	16.5	529	524	5	104	16.8
Denmark*	521	10.9	12.5	516	525	-9	71	10.0
<i>Canadian provinces*</i>	519	12.7	14.8	517	521	-4	68	7.3
Netherlands*	517	17.5	18.5	515	519	-4	97	10.8
Czechia	507	15.3	12.5	503	510	-7	103	15.3
Austria	506	16.8	13.2	502	510	-8	100	14.1
Poland	506	14.8	9.9	506	506	0	92	12.1
United States*	505	16.8	13.5	501	509	-8	92	10.3
Portugal	494	15.5	6.6	490	498	-8	74	10.3
Hungary	492	18.2	8.6	484	500	-16	110	18.3
Norway	489	21.8	10.5	494	484	10	82	6.9
Spain	486	17.1	4.7	486	486	-1	73	10.1
Italy	484	18.3	5.1	474	494	-20	68	9.0
United Arab Emirates	441	39.0	7.1	447	435	12	85	6.8
Bulgaria	426	40.8	2.7	433	421	12	116	17.6
Peru	421	41.9	1.0	419	423	-5	105	18.9
Costa Rica	418	43.0	1.3	415	422	-7	m	m
Brazil	416	45.1	2.0	418	413	5	86	9.4
Saudi Arabia	412	45.4	0.6	416	409	6	59	7.7
Malaysia	406	47.5	0.8	415	396	19	90	14.8

- Countries/economies with a mean performance/share of top performers above the OECD average
- Countries/economies with a share of low performers below the OECD average"
- Countries/economies with a strength of socio-economic gradient below the OECD average
- Countries/economies with a mean performance/share of top performers/share of low performers not significantly different from the OECD average
- Countries/economies with a strength of socio-economic gradient not significantly different from the OECD average
- Countries/economies with a mean performance/share of top performers below the OECD average
- Countries/economies with a share of low performers above the OECD average"
- Countries/economies with a strength of socio-economic gradient above the OECD average

* Caution is required when interpreting estimates because one or more PISA sampling standards were not met (see Reader's Guide, Annexes A2 and A4).

1. A socio-economically advantaged (disadvantaged) student is a student in the top (bottom) quarter of ESCS in his or her own country/economy.

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

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

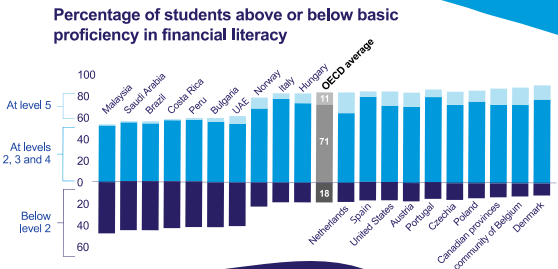
Countries and economies are ranked in descending order of the mean financial literacy score in PISA 2022.

Source: OECD, PISA 2022 Database, Table IV.B1.2.1, Table IV.B1.2.5, Table IV.B1.3.9, Table IV.B1.3.11 and Table IV.B1.3.12.

Infographic 1. PISA 2022 key results (Volume IV)

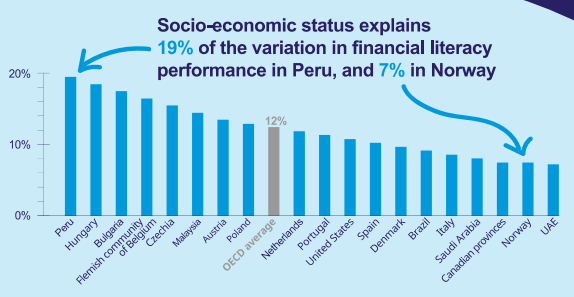
Students' proficiency in financial literacy

Students should be better prepared for their financial future

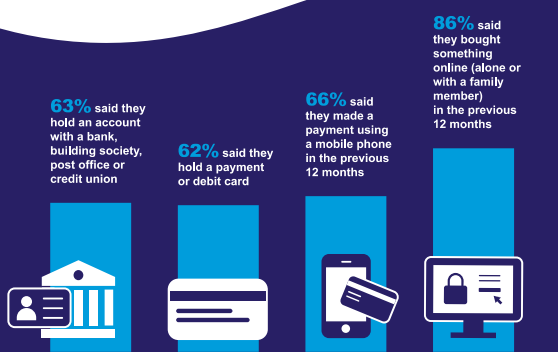


Students performing below Level 2 are not yet able to apply their knowledge to real-life situations involving financial issues and decisions

Socio-economic background explains 12% of the variation in financial literacy performance



More than two-thirds of students use financial services



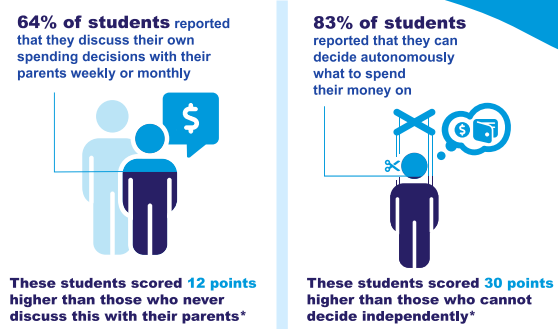
On average across participating OECD countries/economies

Financial literacy is associated with positive financial behaviours among students

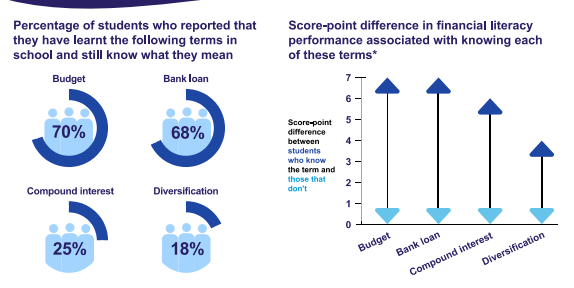


Students performing at level 4 or 5 in financial literacy compared to students performing at or below level 1, on average across participating OECD countries/economies, during the previous 12 months, after accounting for student characteristics, attitudes, and performance in mathematics and reading

Students' performance in financial literacy is related to family interactions



Exposure to finance-related terms in school is associated with higher financial literacy performance



* On average across participating OECD countries/economies, after accounting for gender, immigration background, and socio-economic profile

* Performance difference between students who reported that they had learnt and still know these finance-related terms compared to students who did not, after accounting for student characteristics and performance in mathematics and reading, on average across OECD countries/economies



What is PISA?

OECD's Programme for International Student Assessment (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 1997 and the first assessment was conducted 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 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.

While the eighth assessment was originally planned for 2021, the PISA Governing Board postponed the assessment to 2022 because of the many difficulties education systems faced due to the COVID-19 pandemic.

What is unique about PISA?

PISA is unique because of its:

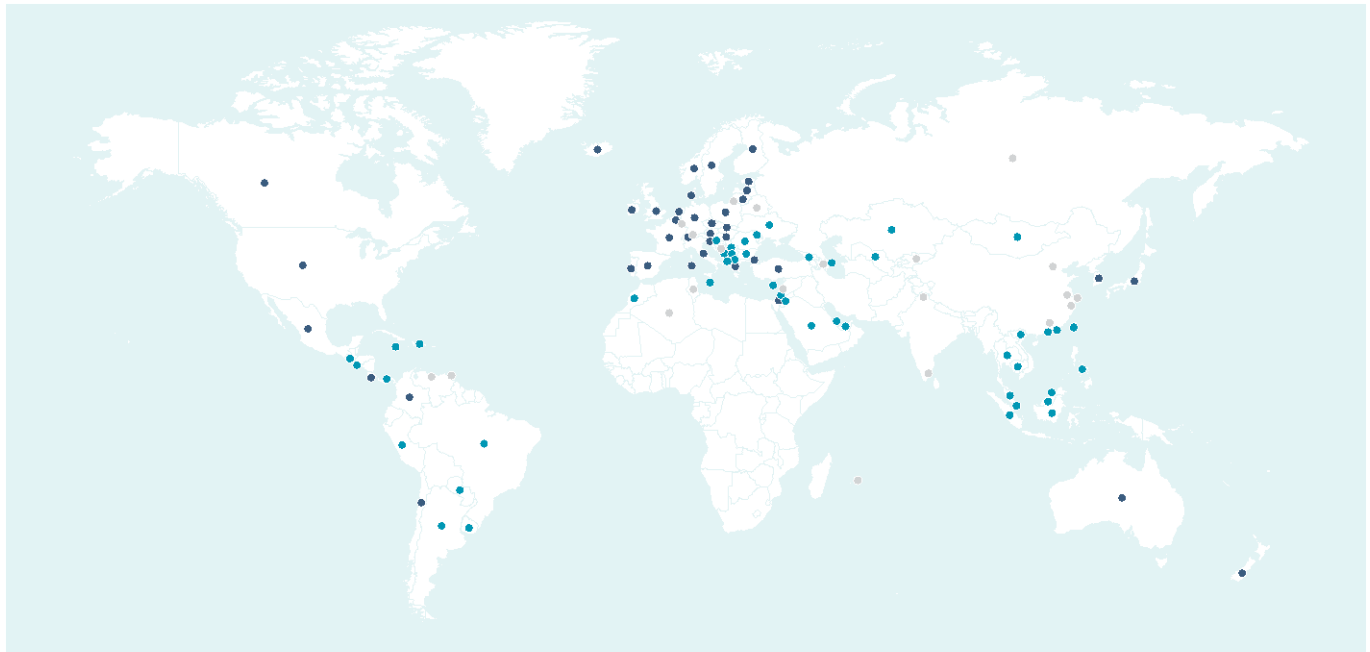
- **Policy orientation**, which links data on student learning outcomes with data on students' backgrounds and attitudes towards learning, and with key aspects that shape their learning, in and outside of school; by doing so, PISA can highlight differences in performance and identify the characteristics of students, schools and education systems that perform well.
- **Innovative concept of student competency**, 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 2022, encompassed 37 OECD countries and 44 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), 72 in the sixth assessment (2015) and 79 in the seventh assessment (2018). In 2022, 81 countries and economies participated in PISA.

Figure IV.1. Map of PISA countries and economies



**OECD member countries
in PISA 2022**

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

**Partner countries and economies
in PISA 2022**

Albania	Republic of Moldova
Argentina	Mongolia
Baku (Azerbaijan)	Montenegro
Brazil	Morocco
Brunei Darussalam	North Macedonia
Bulgaria	Palestinian Authority
Cambodia	Panama
Croatia	Paraguay
Cyprus	Peru
Dominican Republic	Philippines
Georgia	Qatar
Guatemala	Romania
Hong Kong (China)	Saudi Arabia
Indonesia	Serbia
Jamaica	Singapore
Jordan	Chinese Taipei
Kazakhstan	Thailand
Kosovo	Ukraine
Macao (China)	United Arab Emirates
Malaysia	Uruguay
Malta	Uzbekistan
	Viet Nam

**Countries and economies
in previous cycles**

Algeria
Azerbaijan
Beijing (China)
Belarus
Bosnia and Herzegovina
Guangdong (China)
Himachal Pradesh (India)
Jiangsu (China)
Kyrgyzstan
Lebanon
Liechtenstein
Luxembourg
Mauritius
Miranda (Venezuela)
Russian Federation
Shanghai (China)
Tamil Nadu (India)
Trinidad and Tobago
Tunisia
Zhejiang (China)

First-time participants include Cambodia, El Salvador, Guatemala, Jamaica, Mongolia, the Palestinian Authority, Paraguay and Uzbekistan, while Cambodia, Guatemala and Paraguay participated in the PISA for Development programme. Chinese provinces/municipalities (Beijing, Shanghai, Jiangsu and Zhejiang) and Lebanon are

participants in PISA 2022 but were unable to collect data because schools were closed during the intended data collection period.

Key features of PISA 2022

The content

The PISA 2022 survey focused on mathematics, with reading, science and creative thinking as minor areas of assessment. In each round of PISA, one subject is tested in detail, taking up nearly half of the total testing time. The main subject in 2022 was mathematics, as it was in 2012 and 2003. Reading was the main subject in 2000, 2009 and 2018, 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 (or 10) years; and an analysis of trends is offered every three (or four) years. As this cycle was postponed from 2021 to 2022 due to the COVID-19 pandemic, this cycle offers results one year later than previous cycles.

Creative thinking was assessed as an innovative domain for the first time in PISA 2022.

The PISA 2022 Assessment and Analytical Framework (OECD, 2023^[1]) presents definitions and more detailed descriptions of the subjects assessed in PISA 2022:

- Mathematics is defined as students' capacity to reason mathematically and to formulate, employ and interpret mathematics to solve problems in a variety of real-world contexts. It includes concepts, procedures, facts and tools to describe, explain and predict phenomena. It helps individuals make well-founded judgements and decisions, and become constructive, engaged and reflective 21st-century citizens.
- Reading 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.
- Science literacy is defined as students' 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.
- Creative thinking is defined as students' ability to engage productively in the generation, evaluation and improvement of ideas that can result in original and effective solutions, advances in knowledge and impactful expressions of imagination.

PISA 2022 also included an assessment of young people's financial literacy, which was optional for countries and economies and is the subject of the current report.

The students

Some 690 000 students took the assessment in 2022, representing about 29 million 15-year-olds in the schools of the 81 countries and economies.

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. 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. 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.

The population of PISA-participating students is defined by the PISA 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 five score points, i.e. typically within the order of magnitude of two standard errors of sampling. Exclusion could take place either through the schools that participated or the students who participated within schools. 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.

The assessment

As was done in 2015 and 2018, computer-based tests were used in most countries and economies in PISA 2022, with assessments lasting a total of two hours for each student. In mathematics and 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 in groups based on a passage setting out a real-life situation. More than 15 hours of test items for reading, mathematics, science and creative thinking were covered, with different students taking different combinations of test items.

There were six different kinds of test forms representing various combinations of two of the four domains (i.e. the three core domains, plus the innovative domain). Typically, within each country/economy, 94% of students received test forms covering 60 minutes of mathematics as the major domain, and another 60 minutes of one of the three minor or innovative domains (reading, science or creative thinking). In addition, 6% of students received test forms composed of two minor domains. Each test form was completed by enough students to allow for estimations of proficiency and psychometric analyses of all items by students in each country/economy and in relevant subgroups within a country/economy, such as boys and girls, or students from different social and economic backgrounds.

In addition, PISA 2022 retained a paper-based version of the assessment that included only trend items that had been used in prior paper-based assessments. This paper-based assessment was implemented in four countries: Cambodia, Guatemala, Paraguay and Viet Nam.

The assessment of financial literacy was offered again in PISA 2022 as an optional computer-based test. It was based on the PISA 2022 updated analytical and assessment framework. The cognitive instruments included trend items and a set of new interactive items that were developed specifically for PISA 2022.

The questionnaires

Students answered a background questionnaire, which took about 35 minutes to complete. The questionnaire sought information about the students' 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. Both students and schools responded to items in the Global Crises Module in their respective questionnaires. These items aimed to elicit their perspectives on how learning was organised when schools were closed because of the COVID-19 pandemic.

Some countries and economies also distributed additional questionnaires to elicit more information. These included: a questionnaire for teachers asking about themselves and their teaching practices; and a questionnaire for parents asking them to provide information about their perceptions of and involvement in their child's school and learning.

Countries and economies could also choose to distribute two other optional questionnaires for students: a questionnaire about students' familiarity with computers and a questionnaire about students' well-being. A financial literacy questionnaire was also distributed to the students in the countries and economies that conducted the optional financial literacy assessment.

Where can you find the results?

The initial PISA 2022 results are released in five volumes:

- Volume I: The State of Learning and Equity in Education (OECD, 2023^[2]) presents two of the main education outcomes: performance and equity. The volume examines countries' and economies' performance in mathematics, reading and science and how performance has changed over time. In addition, equity in education is analysed from the perspectives of inclusion and fairness, focusing on students' gender, socioeconomic status and immigrant background.
- Volume II: Learning During – and From – Disruption (OECD, 2023^[3]) examines various student-, school-, and system-level characteristics, and analyses how these are related to student outcomes, such as performance, equity and student well-being. The volume also presents data on how learning was organised when schools were closed because of COVID-19. These results can assist countries in building resilience in their education systems, schools and students so they are all better able to withstand disruptions in teaching and learning.
- Volume III: Creative Minds, Creative Schools (OECD, 2024^[4]) is on creative thinking. This volume examines students' capacity to generate original and diverse ideas in the 66 countries and economies that participated in the innovative domain assessment for the PISA 2022 cycle. It explores how student performance and attitudes associated with creative thinking vary across and within countries, and with different student- and school-level characteristics. The chapter also offers an insight into students' participation in creative activities, how opportunities to engage in creative thinking vary across schools and socio-demographic factors, and how these are associated with different student outcomes including well-being.
- Volume IV: How Financially Smart Are Students? (OECD, 2024^[5]) is on financial literacy. This volume 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 other subjects and how it varies across socio-demographic factors. It also offers an overview of students' experiences with money, of their financial behaviour and attitudes, and of exposure to financial literacy in school.
- Volume V (OECD, forthcoming^[6]) on students' readiness for lifelong learning. This volume presents key aspects of students' preparedness to continue learning throughout their lives. These include students' attitudes towards mathematics, their social and emotional skills, and their aspirations for future education and a career.

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1 How and why does PISA assess financial literacy?

The PISA 2022 assessment of financial literacy amongst 15-year-old students was the fourth of its kind. It assesses the extent to which students in twenty 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 the types of financial education initiatives that can be provided to students in school and through extracurricular and after-school activities. The chapter concludes with a description of how financial literacy is defined and assessed in the 2022 assessment.

Over the past decades, developed and emerging countries and economies have become increasingly concerned about the level of financial literacy of their citizens, particularly among young people (OECD, 2020^[11]). This stems from concerns about such things as shifting demographics and the increased sophistication and expansion of financial services, meaning many more people are required to make financial decisions and navigate financial risks than in previous generations. This includes young people, many of whom face financial decisions, are consumers of financial products and services from an early age, and may be the target of financial scams and frauds. 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 among adults and young people, in both their current and future lives. As a result, financial literacy is now globally recognised as an essential life skill. The 2020 OECD Recommendation on Financial Literacy (OECD, 2020^[12]) acknowledges financial literacy as a complement to financial consumer protection, inclusion and regulation, as a way to improve individual decision-making and well-being, and to support financial stability and development.

This chapter begins by discussing the importance of financial literacy for young people. It explains why 15-year-old students will need to have the financial knowledge and skills to be able to conduct financial operations in their everyday lives in the future. Students' exposure to financial education in and outside of school is also discussed. The chapter then describes how financial literacy is defined and assessed in the PISA 2022 financial literacy assessment.

What the data tell us

- Twenty countries and economies – 14 OECD and 6 partner countries and economies – took part in the PISA 2022 financial literacy assessment, among which five G20 countries and economies (Brazil, eight Canadian provinces*, Italy, Saudi Arabia and the United States*). Eight countries participated for the first time in 2022 (Austria, Costa Rica, Denmark*, Hungary, Malaysia, Norway, Saudi Arabia and the United Arab Emirates).
- People engage in basic financial activities from a young age. PISA 2022 data reveal that, on average across 14 participating OECD countries and economies, about six in ten 15-year-old students have a bank account and/or a payment or debit card, and more than eight in ten students have bought something on line during the 12 months prior to the PISA assessment.
- Students tend to save money but also to overspend, and their spending decisions are influenced by their friends. On average across OECD countries and economies, while more than 90% of students reported having saved money at least once over the 12 months prior to the assessment, close to 80% reported having bought something that cost more than they had intended to spend during that period, and 60% of students reported having bought something because their friends had it.
- Higher financial literacy is associated with more responsible financial behaviours. PISA data show that financially literate students were more likely than lower performing ones to report having saved into an account or at home, and comparing prices in different shops before buying something, on average across OECD countries and economies, after accounting for student characteristics, attitudes, and performance in mathematics and reading.
- Fifteen of the participating countries and economies have a national strategy for financial literacy. Among countries with a national strategy, many target young people specifically, including Austria, Brazil, Canada*, Hungary, Italy, the Netherlands*, Spain and the United States*. All participating countries and economies started introducing financial literacy topics in the school curriculum or have developed financial education extracurricular activities in schools.

The importance of financial literacy for young people

Policy makers recognise that young people need to be financially literate to perform common tasks in their day-to-day lives, such as using a payment card, choosing amongst mobile phone plans or understanding the implications of in-app purchases. Students also need basic financial skills to make important decisions about their future, such as understanding different options for funding their education or choosing between different career and education paths. As students become increasingly independent from their families, it is likely that the number and complexity of financial decisions will also increase.

Recent and emerging trends suggest that the importance for young people to acquire financial literacy skills will only grow in the future. Young people are likely to face more challenging decisions and risks as new financial products, services and providers appear in the market. The digitalisation of financial services can help reduce financial exclusion by reducing physical infrastructure and cost barriers to the formal financial system, provided young people have the adequate combination of financial literacy and digital skills (OECD, 2020^[3]; 2021^[4]). Other recent developments in the financial landscape, including a growing interest in and use of crypto-assets or Buy Now Pay Later schemes (BNPL), new and alternative forms of financial advice (such as “finfluencers”, i.e. social media influencers on finance) and the increased incidence and complexity of financial frauds and scams, also highlight the need to strengthen financial literacy skills, especially among young people (OECD, 2024^[5]). Financial education therefore has a role, in the context of robust financial consumer protection frameworks, in equipping people with the skills needed to understand financial products and services, choose the most appropriate for them, recognise impartial sources of financial information, know how to assert their rights and protect themselves from financial frauds and scams. Technology, such as budgeting apps or investment simulators, has the potential to facilitate financial decisions and calculations, but financial education is important to ensure that citizens understand how to choose reliable tools and avoid pitfalls while navigating financial decisions.

Alongside these recent and emerging trends, longer-term trends continue to warrant the need for young people to be equipped with financial literacy. Increased life expectancy, less welfare protection and more uncertainty in retirement income due to changing pension regimes mean that future generations will probably need to take more individual financial responsibilities and therefore to bear more financial risks during their lifetime than the previous generations. Digitalisation, technological change, climate change, pandemics, globalisation and changes in the nature of work will continue to contribute to economic and financial uncertainty (OECD, 2019^[6]).

PISA data indicate the extent to which 15-year-olds are already using money and are involved in financial decisions. Figure IV.7.1 shows that, on average across OECD countries and economies, 63% of students (55% on average across the 20 countries and economies that participated in the PISA 2022 financial literacy assessment¹) held a bank account (or an account with another type of financial service provider), while 62% of students (53% in all participating countries and economies) held a payment or debit card. Over 90% of students in Denmark*, the Netherlands* and Norway held a bank account compared to 13% in Peru, and over 90% of students in Denmark* and the Netherlands* held a payment or debit card compared to less than 25% in Peru (14%), Malaysia (23%) and Spain (24%) (Figure IV.7.1).

Moreover, many students already have experience with financial transactions, including digital financial transactions. Figure IV.7.2 shows that, on average across the 14 participating OECD countries and economies, 86% of students (83% on average across the 20 participating countries and economies) had bought something on line (either alone or with a family member) over the previous 12 months, while around 66% of students had made a payment using a mobile phone. More than 9 out of 10 students in Denmark* had made a payment using a mobile phone over the previous 12 months (Table IV.B1.7.9).

PISA data also provide insights into students' behaviours related to saving and spending. On average across the 14 participating OECD countries and economies and considering the 12 months prior to the assessment, 93% of students reported having saved money at least once, while 82% reported having checked that they were given the right change when they bought something, 94% reported having checked how much money they had and 74% of students reported having compared prices in different shops before buying something. Across all participating

countries and economies, 92% of students had saved, 82% had checked they were given the right change, 92% had checked how much money they had and 72% had compared prices between shops (Table IV.B1.8.1, Table IV.B1.8.5 and Table IV.B1.8.22).

PISA data also indicate that financial literacy and several responsible behaviours are positively associated. Students who performed well in the PISA 2022 financial literacy assessment were more likely to report having saved money at least once in the 12 months prior to the survey, checking that they were given the right change after buying something, checking how much money they had, and comparing prices in different shops before buying something, when compared to students who performed poorly in financial literacy, on average across OECD countries and economies, and after accounting for student characteristics, attitudes, and performance in mathematics and reading (Table IV.B1.8.14, Table IV.B1.8.15 and Table IV.B1.8.28).

Providing financial education to young people

It is important to provide all young people with opportunities for improving their financial literacy. Educational attainment, income, and wealth have been shown to be strongly correlated with financial literacy levels among adults and young people (OECD/INFE, 2023^[7]; Lusardi and Mitchell, 2014^[8]; OECD, 2020^[9]). Analogously, 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^[10]). Growing income and wealth inequality might mean that socio-economically disadvantaged groups could fall further behind, without adequate financial literacy. If children and young people learn about money matters only through their parents and families, inequalities in levels of financial literacy, wealth, and financial well-being may be reinforced across generations. Providing youth with financial education in schools and via other programmes can help shrink disparities in financial literacy due to differences in students' current socio-economic status, which can contribute to reducing income and wealth inequality when these students become adults. Financial literacy programmes in schools can also help improve the levels of financial literacy of students' teachers and parents (Frisancho, 2018^[11]; Bruhn et al., 2013^[12]).

Recognising the importance of developing financial literacy skills amongst young people, a growing number of countries and economies have started introducing financial education in schools and through extracurricular and after-school initiatives. To this aim, many countries have developed and implemented nationally coordinated approaches to financial literacy, usually referred to as national strategies (Box IV.1.1).

Box IV.1.1. Improving financial literacy within a country through national financial literacy strategies

Many countries have developed and are implementing national financial literacy strategies. The 2020 OECD Recommendation on Financial Literacy defines a national financial literacy strategy as “a sustained, co-ordinated approach to financial literacy which:

- recognises the importance of financial literacy – through legislation where appropriate – and agrees its scope at the national level, taking into account identified national needs and gaps
- is coherent with other strategies fostering economic and social prosperity such as those focusing on financial inclusion and financial consumer protection
- involves cooperation with relevant stakeholders as well as the identification of a national leader or co-ordinating body/council
- includes the establishment of a roadmap to support the achievement of specific and predetermined objectives within a set period of time
- provides guidance to be applied by individual programmes implemented under the national strategy in order to efficiently and appropriately contribute to the overall strategy, and

- incorporates monitoring and evaluation to assess the progress of the strategy and propose improvements accordingly” (OECD, 2020_[2]).

As of 2024 and the preparation of this report, over 80 countries at different income levels reported that they are developing or implementing a national strategy for financial literacy. National financial literacy strategies 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.

Among the 20 countries and economies taking part in the 2022 PISA financial literacy assessment, 15 have a national strategy (Austria, the Flemish community of Belgium, Brazil, Bulgaria, the Canadian provinces*, Czechia, Hungary, Italy, Malaysia, the Netherlands*, Peru, Portugal, Saudi Arabia, Spain and the United States*). Many of these, such as Austria, Brazil, the Canadian provinces*, Hungary, Italy, the Netherlands*, Spain and the United States*, include a specific focus on young people. Additionally, Poland is in the process of adopting its first national strategy, which includes children and young people as a priority target group (OECD, 2023_[13]).

Note: The national strategy for financial education of Belgium applies to the whole of Belgium, including to the Flemish community. Similarly, the Canadian national financial literacy strategy covers all Canadian provinces and territories.

Introducing financial literacy in school

Many existing national strategies for financial literacy in countries around the world specifically identify young people and students amongst their main target groups and support the introduction of financial education in schools. The OECD Recommendation on Financial Literacy advises countries to “take measures to develop financial literacy from the earliest possible age” and “continuing throughout life” (OECD, 2020_[2]). The Recommendation recognises the importance of teaching young people key life skills before they start to become active financial consumers, and of using long-term and structural approaches to do so, as opposed to one-off interventions.

A growing number of countries teach financial education in schools, although the extent and nature of such teaching vary across countries and jurisdictions. 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 (OECD, 2020_[1]). At the same time, problems related to money matters can be used as a real-life context for teaching mathematics and other subjects (Noi Keng and Hwee Kian, 2010_[14]).

More countries are teaching financial education in school than were doing so when the first PISA financial literacy assessment was conducted in 2012. For example, Portugal has made teaching financial literacy as part of a broader subject “Education for citizenship” compulsory since 2018, while Peru has included financial literacy in the curriculum as part of the competence “Responsibly managing economic resources” since 2016. In 2024 in the United States*, 35 states require students to take a course in personal finance to graduate from high school, up from seven in 2000. Box IV.1.2 details how the countries and economies that participated in the PISA 2022 financial literacy assessment include financial education in school.

Box IV.1.2. Financial education in school among countries and economies taking part in the 2022 PISA financial literacy assessment

Most participating countries and economies started introducing financial literacy topics in the school curriculum, either as a standalone subject or as a cross-cutting topic integrated within other subjects.

In **Austria**, financial literacy is part of the school curriculum from the age of three. For pre-primary and primary school pupils, the subject is integrated within the “economics: experience and learning” area which focuses on

pupils' basic economic needs in relation to their living space. From grade 5 to grade 12, the “geography and economics” and “people and society” education areas of the general secondary school curriculum cover financial literacy aspects, including the need to plan expenses in households according to financial capabilities. Financial literacy is also integrated in the curriculum of all vocational school pupils.

In the **Flemish community of Belgium**, financial literacy is taught in primary schools as part of the mathematics, and people and society subjects. It is also mandatory for children in first and third grade of secondary education (i.e. aged between 12 and 14, and between 16 and 18) in all types of education and schools are free to organise financial education as a project, or as a separate or integrated subject, according to their pedagogical strategy.

In **Brazil**, the National Common Curricular Base defined by the Ministry of Education includes financial education as a compulsory cross-cutting theme, to be integrated in other mandatory subjects. The Central Bank of Brazil and experts from the Centre for Public Policies and Education Assessment at the Federal University of Juiz de Fora developed a pilot programme called “Aprender Valor” to support schools and teachers to effectively teach financial literacy topics. Aprender Valor included the development of a financial competence framework for primary and secondary education, and of ready-to-use teaching resources, to support the integration of financial education within compulsory subjects such as mathematics, Portuguese language and human sciences. Aprender Valor has so far been implemented in more than half of municipalities and close to a quarter (23%) of primary and secondary public schools across the country, with each school participating on a voluntary basis.

In **Bulgaria**, primary and secondary school pupils enrolled in general or vocational education are taught financial literacy within different subjects from the mandatory curriculum, such as technology and entrepreneurship, mathematics, geography and economics, information technology or civic education, as mandated by the standards developed by the Ministry of Education and Science.

In the **Canadian provinces***, financial education is provided to children as part of curricular teaching in several provinces, including six out of the eight provinces participating in the PISA 2022 financial literacy assessment, (British Columbia, Manitoba, New Brunswick, Nova Scotia, Ontario and Prince Edward Island). In Alberta and Newfoundland and Labrador it is taught through compulsory extracurricular activities:

- In Manitoba for example, financial literacy is part of the mathematics curriculum, which is compulsory at every grade level, and the provincial government has also defined a personal finance course for grade 10 students (aged around 15).
- The Ministry of Education of Ontario has developed the financial literacy curriculum based on the PISA financial literacy analytical and assessment framework (OECD, 2019^[15]). Financial education is provided within the mathematics curriculum for grades 1 to 9, within the career studies course in grade 10, and as part of cross-curricular learning across all grades, subjects and disciplines of the curriculum.

In **Costa Rica**, financial education is mandatory and integrated from pre-primary to lower secondary education. Financial education is provided in primary and lower secondary education as part of the “education for household living” subject, where it is taught jointly with responsible and sustainable consumption, and civic education topics, such as compliance with tax obligations.

In **Czechia**, financial literacy has been integrated as a cross-curricular topic in the lower and upper secondary school curriculum, thanks to the cooperation between the Ministry of Education, the Ministry of Finance, the Czech National Bank, the banking association and non-governmental organisations. Participation of Czechia in the PISA 2012 financial literacy assessment also informed the curriculum. Financial literacy is part of the “people, State and economy” thematic area, which covers money and payments, personal finances and budgeting, family finances and budgeting, financial products and services, taxes and the State budget.

In **Denmark***, primary and lower secondary education operate with mandatory national common objectives which are focused on subject purposes, competence areas, competence objectives, and knowledge and skills areas. Individual schools and teachers are responsible for preparing the content and delivery method according to these

objectives. Financial literacy is covered in the subject of social studies and in the knowledge and skills area of “personal finance and consumer behaviour”.

The Ministry of Interior’s Deputy State Secretariat on Education developed a financial literacy curriculum for school children in **Hungary**. Financial literacy content is integrated with mandatory subjects, such as mathematics, environmental studies, and technology and design for primary education, and digital safety and citizenship studies for secondary education. Financial literacy is also taught as a stand-alone subject named “finances of citizens”, which is optional for primary school students and those attending general high schools, and mandatory for students studying at lower secondary vocational schools.

In **Malaysia**, financial literacy standards were developed in 2012 by the Ministry of Education and the Central Bank, and are integrated in the curriculum for children aged between 3 and 17. A financial education handbook is available, and students in each grade of primary and secondary school must receive about three hours of financial education teaching per year, which is integrated within other core subjects, in particular mathematics.

In **Norway**, financial literacy training is provided to all children attending primary, lower secondary and upper secondary schools as part of the curriculum for mathematics and social studies. The Ministry of Education sets and approves the curriculum which is coordinated by the Norwegian Directorate for Education and Training.

Financial education has been included in the national curriculum for basic education since 2016 in **Peru**. The curriculum currently defines 31 competences, among which three are directly related to financial education learning outcomes: “responsibly managing economic resources”, “managing social or economic entrepreneurship projects” and “handling virtual environments generated by information and communication technologies”. Financial literacy lessons are integrated in the mandatory courses of “social individual” in primary education and “social sciences” in secondary education.

In **Poland**, the Ministry of Education has defined a financial literacy curriculum based on the EU/OECD Financial Competence Framework for Children and Youth in the European Union (European Union/OECD, 2023^[16]). Financial literacy topics are integrated within core curriculum subjects for primary education, such as mathematics, geography, civic education and computer science. In secondary education, financial literacy is included in a compulsory “business and management” subject, which is taught for one hour weekly for two years (or two hours weekly for one year) in both general and vocational schools. Topics covered include entrepreneurship, personal finances, the market economy and functioning of financial markets, consumer protection and public finances.

In the 2018/2019 school year, the Ministry of Education of **Portugal** reviewed the school curriculum and introduced financial literacy as a compulsory subject to be taught (either as a standalone or integrated subject) by schools, in the first and third stages of basic education, as part of the National Strategy for Citizenship Education. A core competence framework for financial education, teacher training and teaching materials had already been developed as part of the national strategy for financial literacy (National Plan for Financial Education) and were adopted by the Ministry of Education in 2012. The core competence framework related to financial literacy covers the knowledge, attitudes and behaviours of children from kindergarten to secondary school and addresses thematic areas including budget planning and management, financial system and basic products, savings, credit, ethics, and rights and duties. A revision of this core competence framework is currently underway to reflect current trends such as the emergence of digital and sustainable finance, and using the EU/OECD Financial Competence Framework for Children and Youth in the European Union (European Union/OECD, 2023^[16]) as a reference.

Since 2022, financial literacy has been part of the curriculum for high school students in **Saudi Arabia**. Financial literacy lessons are compulsory in grade 10 (students aged around 15) and aim to help students understand basic financial concepts and develop a culture of savings and investment. Money-related matters such as buying and selling are taught to children from the pre-primary level, and children in primary and lower secondary schools receive financial literacy teachings as part of other subjects, in particular mathematics, life skills and digital skills.

In three royal decrees signed in 2022, the Ministry of Education, Vocational Training and Sports of **Spain** outlines eight cross-cutting key competences defining the basic curriculum for all school children aged between 6 and 18, with objectives set for each competence at the end of primary and secondary education (Ministerio de Educación y Formación Profesional, 2022^[17]; 2022^[18]; 2022^[19]). The entrepreneurial competence covers several aspects related to financial literacy, such as the knowledge of basic economic and financial elements, or the skills to gather and optimise necessary resources to carry out an entrepreneurial experience. The 17 departments of education of the autonomous regions are encouraged to consider an interdisciplinary approach when establishing the detailed curricula in accordance with these key competences.

In the **United States***, the National Standards for Personal Financial Education (Council for Economic Education and JumpStart Coalition for Personal Financial Literacy, 2021^[20]) are used by many states and districts as guidelines when designing curricula for children in the primary and secondary education system. These standards are organised around six topics with related learning outcomes for each school grade: earning income, spending, saving, investing, managing credit and managing risk. A few states and cities have made financial literacy a requirement for lower secondary education (grades 6 to 8, i.e. children aged around 11 to 13), while 35 states have made taking a personal finance course compulsory (grades 9 to 12) for children to graduate from high school, among which 25 states mandate a stand-alone course in financial literacy (Council for Economic Education, 2024^[21]). The Consumer Financial Protection Bureau provides financial literacy lessons for all grades of the school system.

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 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 schools or offered by external organisations and might include such things as 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. Box IV.1.3 presents examples of different delivery methods and channels in the countries that participated in the PISA 2022 financial literacy assessment.

Box IV.1.3. Financial education through extracurricular activities among countries taking part in the 2022 PISA financial literacy assessment

Financial literacy is not part of the curriculum in **Italy**, but various authorities offer extracurricular activities in school. For example, the Bank of Italy has developed a programme to train about 3 000 teachers (from primary, lower secondary and upper secondary schools) every year, while the Italian Companies and Exchange Commission (CONSOB) has set up an iterative programme where a small group of teachers receive training and then train their peers to teach students aged between 6 and 10 about matters related to financial markets.

Schoolchildren in the **Netherlands*** are taught about financial literacy via extracurricular activities organised in and outside of school in particular during Dutch Money Week. Employees from the Dutch central bank, the financial regulator, the Ministry of Finance and financial institutions provide guest lectures to students on money matters related to their organisation's area of expertise. Teachers can also access a wide range of financial education material to use in class via the MoneyWise website.

Consumer Financial Protection Bureau (CFPB) financial education staff in the **United States*** have recently worked on two pilot programmes. The first programme offered financial education to the National Baseball team's Spanish speaking recruits. The second one, called "The Bureau Serves", worked with high school students and teachers in socially disadvantaged neighbourhoods to foster financial literacy and career opportunities in financial services and economics, through the CFPB's Office for Minority and Women Inclusion.

The financial literacy assessment in PISA 2022: definition, framework and assessment in practice

PISA assesses the readiness of 15-year-old students for life beyond compulsory education by collecting and analysing assessment 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 financial decisions?".

The financial literacy assessment focuses primarily on measuring the proficiency of 15-year-old students in applying the financial 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 2022 Assessment and Analytical Framework (OECD, 2023^[22]) presents the comprehensive structure that supports the assessment of 15-year-old students' financial literacy.

The PISA 2022 assessment of financial literacy amongst 15-year-old students was the fourth of its kind. Previous assessments were carried out in 18 countries and economies in 2012 (OECD, 2014^[23]), 15 countries and economies in 2015 (OECD, 2017^[24]) and 21 countries and economies in 2018 (OECD, 2020^[9]). This fourth assessment covers 20 countries and economies including:

- 14 OECD countries and economies: Austria, the Flemish community of Belgium, eight Canadian provinces* (Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario and Prince Edward Island, hereafter "the Canadian provinces"), Costa Rica, Czechia, Denmark*, Hungary, Italy, the Netherlands*, Norway, Poland, Portugal, Spain and the United States*.
- 6 partner (non-OECD) countries: Brazil, Bulgaria, Malaysia, Peru, Saudi Arabia and the United Arab Emirates.

Four countries have participated in all four financial literacy assessments undertaken to date: Italy, Poland, Spain and the United States* (Table IV.1.1). Three countries and economies participated in the financial literacy assessment for the third time in 2022: Brazil and Peru participated in the three most recent ones, while the Flemish community of Belgium participated in 2012, 2015 and 2022. Four more countries participated in the financial literacy assessment for the second time in 2022: Bulgaria, Czechia, the Netherlands* and Portugal. The remaining nine countries and economies participated for the first time in the financial literacy assessment in 2022.

Table IV.1.1. Participation in PISA financial literacy assessment cycles

Among countries and economies participating in the PISA 2022 financial literacy assessment

	2012	2015	2018	2022
OECD countries and economies				
Austria				x
Flemish community of Belgium	x	x		x
Canadian provinces* ¹		x*	x*	x*
Costa Rica				x
Czechia	x			x
Denmark*				x
Hungary				x
Italy	x	x	x	x
Netherlands*		x		x
Norway				x
Poland	x	x	x	x
Portugal			x	x
Spain	x	x	x	x
United States*	x	x	x	x
Partner countries				
Brazil		x	x	x
Bulgaria			x	x
Malaysia				x
Peru		x	x	x
Saudi Arabia				x
United Arab Emirates				x

1. Seven Canadian provinces participated in the PISA 2015 and 2018 financial literacy assessments: British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario and Prince Edward Island. In 2022, Alberta also participated.

Defining financial literacy

The definition of financial literacy for 15-year-olds that underpins the assessment builds on the OECD definition of adult financial literacy. The OECD defines adult financial literacy as “a combination of financial awareness, knowledge, skills, attitudes and behaviours necessary to make sound financial decisions and ultimately achieve individual financial well-being” (OECD, 2020_[2]).

The definition of financial literacy in the PISA 2022 Financial Literacy Assessment Framework (OECD, 2023_[22]) refines the definition used for adults to make it relevant for 15-year-old students and to be consistent with other PISA definitions. 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, as well as the skills and attitudes 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 purpose for 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 2022 Assessment and Analytical Framework (OECD, 2023^[22]) builds on the PISA 2012, PISA 2015 and PISA 2018 assessment frameworks (OECD, 2013^[25]; 2017^[26]; 2019^[15]). It revises them to take into account changes in the socio-demographic and financial landscape that are relevant for students’ financial literacy and decision-making (Box IV.1.4).

Box IV.1.4. What’s new in the PISA 2022 financial literacy framework

The PISA 2022 financial literacy framework takes into account recent developments in the financial, economic and socio-demographic landscape that are relevant for the financial literacy of young people and that provide a motivation for this assessment; it also takes into account recent research on financial literacy and financial education.

It includes a revised definition of financial literacy (replacing “motivation and confidence” with “attitudes”, to consider the role of a broader set of attitudes).

The descriptions of all content areas have been updated to incorporate new financial knowledge competencies needed by young people, reflecting the new trends described in the introduction.

The process category “analyse information in a financial context” has been renamed as “analyse financial information and situations” to take into account its broader scope.

The structure of other content, process and context categories remained the same, but the distribution of score points across the various categories has been slightly revised, in order to:

- give slightly more weight to the “risk and reward” and “financial landscape” content areas, following the trends described in the introduction, and
- give slightly less weight to the process “apply financial knowledge and understanding” to reduce the emphasis on numerical skills in cognitive tasks.

The descriptions of non-cognitive factors have been revised to take into account:

- new ways in which young people can access information and education (including digital tools and delivery channels developed using behavioural insights)
- new ways in which young people can access money and financial products (notably through digital financial services)
- a wider set of financial attitudes that may be related to cognitive aspects of financial literacy
- a wider set of financial behaviours that young people may engage in.

The section on “the interaction of financial literacy with knowledge and skills in other domains” was expanded to consider possible future synergies with other cognitive assessments.

Source: (OECD, 2023^[22])

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 international core-competencies frameworks on financial literacy for children and young people (Box IV.1.5).

Box IV.1.5. Financial competencies frameworks for children and youth

OECD/INFE Core Competencies Framework on Financial Literacy for Youth

In 2015, the OECD/International Network for Financial Education (INFE) developed the Core Competencies Framework on Financial Literacy for Youth (OECD, 2015^[27]), based on existing financial education learning frameworks (OECD, 2014^[28]) and on the conceptualisation of financial literacy developed in the PISA assessment framework (OECD, 2013^[25]; 2017^[26]).

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.

EU/OECD Financial Competence Framework for Children and Youth in the European Union

In 2023, the European Commission and the OECD/INFE jointly developed the Financial Competence Framework for Children and Youth in the European Union (European Union/OECD, 2023^[16]), following the publication of the joint EU/OECD Financial Competence Framework for Adults in the European Union (European Union/OECD, 2022^[29]).

The EU/OECD framework for children and youth seeks to describe the financial literacy competencies that young Europeans may acquire at different ages (between 6 and 10, between 11 and 15, and between 16 and 18) and across different stages of their formal education. The framework intends to help co-ordinating, designing, sharing and evaluating financial education policies and initiatives within and across EU Member States, to ultimately increase the effectiveness of financial literacy measures across the EU.

Source: OECD (2015^[27]), OECD/INFE Core Competencies Framework on Financial Literacy for Youth, <https://www.oecd.org/finance/Core-Competencies-Framework-Youth.pdf>; European Union/OECD (2023^[16]). Financial competence framework for children and youth in the European Union, <https://data.europa.eu/doi/10.2874/297346>.

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:** covers awareness of the different forms and purposes of money; and managing monetary transactions, including practices such as taking care of cash and other valuables, and filing documents and receipts.
- **Planning and managing finances:** covers skills such as monitoring, managing, and planning income and expenses, and understanding ways of enhancing wealth and financial well-being.
- **Risk and reward:** incorporates the ability to identify ways of balancing and covering risks, and managing finances in uncertainty and an understanding of the potential for financial gains or losses across a range of financial contexts.

- Financial landscape: relates to the character and features of the financial world, and the ways in which a wide variety of factors, including technology, innovation, government policy and global sustainable growth measures, can change this landscape over time.

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:

- Identify financial information: applicable when the student searches for and accesses sources of financial information and identifies or recognises its relevance.
- Analyse financial information and situations: focuses on analysing information to recognise relationships in financial contexts, identify the underlying assumptions or implications of an issue in a financial context, extrapolate from information that is provided and recognise something that is not explicit. This process category requires the use of a wide range of cognitive activities in financial contexts, including interpreting, comparing and contrasting and synthesising.
- Evaluate financial issues: focuses on recognising or constructing financial justifications and explanations, by drawing on financial knowledge and understanding in specific contexts. It also involves cognitive activities such as explaining, reasoning, assessing and generalising.
- Apply financial knowledge and understanding: focuses on taking effective action in a financial setting by using knowledge of financial concepts and products and applying them in a variety of contexts.

Contexts

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: 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.
- 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.
- 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.
- 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.

Non-cognitive factors

PISA collects non-cognitive data on students taking the financial literacy assessment, to explore the potential relationship between non-cognitive factors and financial literacy.²

The 2022 framework identifies four broad groups of non-cognitive factors that are relevant for young people's financial literacy. Non-cognitive factors include a combination of:

- Contextual factors that may be related to students' opportunities to improve their financial literacy, such as *access to information and education*.

- Students' behaviours and opportunities to learn by doing in terms of *access to and use of money and financial products*.
- *Financial attitudes* that are expected to be associated with cognitive aspects of financial literacy.
- Self-reported *financial behaviour* that can be considered as an outcome of the cognitive aspects of financial literacy.

The 2022 financial literacy assessment in practice

Around 98 000 students were part of the financial literacy assessment in 2022, representing about 9.5 million 15-year-olds in the schools of the 20 participating countries and economies.

In countries and economies that conducted the financial literacy assessment, students in sampled schools were divided into two groups. One group was assessed in financial literacy and either mathematics or 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.

The 2022 financial literacy assessment consisted of a one-hour, computer-based assessment using items drawn from a set of 46 question items. Some 41 question items were also used in the 2018 assessment (of which 24 were used in 2012 and an additional 3 were used in 2015); the other five were newly developed to reflect the revised framework (OECD, 2023^[30]). As in other domains, financial literacy items were grouped in units, where one or more items shared a common stimulus. The selection included financially focused 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. After answering the students' questionnaire, students who sat the financial literacy assessment also answered a separate financial literacy questionnaire about their experiences with money matters, exposure to financial literacy in school, financial attitudes and behaviours. 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 (open) 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.

The PISA 2022 financial literacy assessment included items in the four content categories, the four processes and the four contexts described above (Table IV.1.2). Some 16 of the 46 items covered the content area of "planning and managing finances"; 12 covered the content area of "risk and reward"; 11 covered the content area of "money and transactions"; and the remaining 7 items covered the content area of "financial landscape", in accordance with the PISA 2022 assessment and analytical framework (OECD, 2023^[22]).

Some 15 of the 46 items covered the process area of "evaluating financial issues"; 14 items covered the process area of "analysing information and situations" and 10 covered the area of "applying financial knowledge and understanding"; the remaining 7 items covered the process area of "identifying financial information". Over half (26) of the 46 items were set in the "individual" context, followed by 13 items in the "home and family" context; the remaining 7 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 2022 financial literacy main survey, are presented and categorised in Annex C.

Table IV.1.2. Content, processes and contexts used in the PISA 2022 financial literacy assessment

		Number of items in PISA 2022 financial literacy assessment	Proportion in PISA 2022 financial literacy assessment	Target proportion described in PISA 2022 assessment and analytical framework
Content areas	Money and transactions	11	24%	25% - 35%
	Planning and managing finances	16	35%	20% - 30%
	Risk and reward	12	26%	20% - 30%
	Financial landscape	7	15%	15% - 25%
	<i>TOTAL Content</i>	46	100%	
Processes	Identify financial information	7	15%	15% - 25%
	Analyse financial information and situations	14	30%	25% - 35%
	Evaluate financial issues	15	33%	25% - 35%
	Apply financial knowledge and understanding	10	22%	15% - 25%
	<i>TOTAL Processes</i>	46	100%	
Contexts	Education and work	4	9%	10% - 20%
	Home and family	13	28%	30% - 40%
	Individual	26	57%	35% - 45%
	Societal	3	7%	5% - 15%
	<i>TOTAL Contexts</i>	46	100%	

Source: PISA 2022 financial literacy assessment and PISA 2022 assessment and analytical framework (OECD, 2023^[22])

Notes

¹ These countries and economies are Austria, the Flemish community of Belgium, Brazil, Bulgaria, the Canadian provinces* that participated in the assessment, Costa Rica, Czechia, Denmark*, Hungary, Italy, Malaysia, the Netherlands*, Norway, Peru, Poland, Portugal, Saudi Arabia, Spain, the United Arab Emirates and the United States*.

² Keeping in mind that the establishment of causal links between cognitive aspects and students' attitudes, behaviours and outcomes is not possible with PISA data.

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2 Students' performance in financial literacy in PISA 2022

This chapter explores the levels of financial literacy of students in participating countries and economies in 2022. It presents the various levels of proficiency in financial literacy that students exhibited. The chapter examines trends in students' performance in financial literacy and compares their performance in financial literacy to their performance in the core PISA subjects. The chapter concludes by proposing a framework for comparing countries' and economies' performance in financial literacy.

What the data tell us

- Austria, the Flemish community of Belgium, the Canadian provinces*, Czechia, Denmark*, the Netherlands* and Poland performed above the OECD average in financial literacy.
- Some 11% of students on average across OECD countries and economies were top performers in financial literacy, meaning that they were proficient at Level 5. These students can analyse complex financial products and solve non-routine financial problems. They show an understanding of the wider financial landscape, such as the implication of income-tax brackets and can explain the financial advantages of different types of investments. Some 19% of students in the Netherlands*, 16% of students in the Flemish community of Belgium and around 15% of students in the Canadian provinces* displayed Level 5 proficiency.
- On average across OECD countries and economies, 18% of students performed at or below Level 1. The percentage of students performing at or below Level 1 was larger than 40% in Brazil, Bulgaria, Costa Rica, Malaysia, Peru and Saudi Arabia, and was 39% in the United Arab Emirates. These students can, at best, recognise the difference between needs and wants, make simple decisions about everyday spending, and recognise the purpose of everyday financial documents, such as an invoice.
- Among the countries that have participated in all PISA financial literacy assessments, Italy improved its performance in 2022 compared to 2012, and Spain and the United States* improved their performance in 2022 compared to 2015. Poland improved its performance in 2022 compared to 2015, even if it performed worse than in 2018.
- Some 20% of the variation in performance in financial literacy, on average across OECD countries and economies, was independent of performance in the mathematics and reading assessments, meaning that this variation was related to other factors, that may include competences uniquely related to financial literacy.

Average performance in financial literacy

In 2022, the mean financial literacy score across the 14 OECD countries and economies was 498 points, while the mean financial literacy score across the 20 participating countries and economies was 475 points.

Table IV.2.1 shows each country's and economy's mean score and indicates for which pairs of countries and economies the differences between the means are statistically significant. When comparing mean performance across countries and economies, only those differences that are statistically significant should be considered. For each country and 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, the mean performance of students in the Flemish community of Belgium cannot be distinguished from that of students in Denmark* and the Netherlands*; and the mean performance of students in Norway cannot be distinguished from that of students in Hungary, Italy, Portugal and Spain with certainty.

Table IV.2.1 also divides countries and 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).

Austria, the Flemish community of Belgium, the Canadian provinces*, Czechia, Denmark*, the Netherlands* and Poland performed above the OECD average in financial literacy. The mean performance in three countries – Hungary, Portugal and the United States* – was not statistically significantly different from the OECD average. Finally, 10 countries – Brazil, Bulgaria, Costa Rica, Italy, Malaysia, Norway, Peru, Saudi Arabia, Spain and the United Arab Emirates – performed below the OECD average in financial literacy.

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

Mean score	Comparison country/economy	Countries and economies whose mean score is not statistically significantly different from the comparison country's/economy's score
527	<i>Flemish community of Belgium</i>	Denmark*, Netherlands*
521	Denmark*	<i>Flemish community of Belgium</i> , <i>Canadian provinces*</i> , Netherlands*
519	<i>Canadian provinces*</i>	Denmark*, Netherlands*
517	Netherlands*	<i>Flemish community of Belgium</i> , Denmark*, <i>Canadian provinces*</i> , United States*
507	Czechia	Austria, Poland, United States*
506	Austria	Czechia, Poland, United States*
506	Poland	Czechia, Austria, United States*
505	United States*	Netherlands*, Czechia, Austria, Poland
494	Portugal	Hungary, Norway
492	Hungary	Portugal, Norway, Spain
489	Norway	Portugal, Hungary, Spain, Italy
486	Spain	Hungary, Norway, Italy
484	Italy	Norway, Spain
441	United Arab Emirates	
426	Bulgaria	Peru, Costa Rica
421	Peru	Bulgaria, Costa Rica, Brazil
418	Costa Rica	Bulgaria, Peru, Brazil, Saudi Arabia
416	Brazil	Peru, Costa Rica, Saudi Arabia
412	Saudi Arabia	Costa Rica, Brazil, Malaysia
406	Malaysia	Saudi Arabia

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

Source: OECD, PISA 2022 Database.

The gap in financial literacy performance between the highest- and lowest-performing OECD countries and economies was 108 points, and the difference between the highest- and lowest-performing countries and economies that took part in the PISA 2022 financial literacy assessment was 12% larger (121 points). These gaps represent marked differences in the ability of 15-year-olds to make informed financial decisions.

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 placing 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 and 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 and economies, amongst all OECD countries and 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 and economies. However, it is possible to identify the range of possible rankings for a country's or economy's mean performance.¹ The range of ranks can be wide, particularly for countries and economies whose mean scores are similar to those of many other countries and economies.

Table IV.2.2. Financial literacy performance of 15-year-old students at the national level

	Financial literacy scale					
	Mean score	95% confidence interval	Range of ranks			
			All countries/economies		OECD countries/economies	
			Upper rank	Lower rank	Upper rank	Lower rank
<i>Flemish community of Belgium</i>	527	520 - 533	1	4	1	4
Denmark*	521	516 - 525	1	5	1	5
<i>Canadian provinces*</i>	519	514 - 523	1	6	1	5
Netherlands*	517	508 - 526	1	8	1	8
Czechia	507	502 - 511	4	8	4	8
Austria	506	501 - 512	3	10	4	9
Poland	506	501 - 511	4	10	4	9
United States*	505	496 - 515	2	12	2	11
Portugal	494	490 - 499	6	13	6	13
Hungary	492	486 - 499	6	13	8	13
Norway	489	484 - 494	8	13	8	13
Spain	486	481 - 491	8	13	9	13
Italy	484	477 - 490	9	13	9	13
United Arab Emirates	441	438 - 444	14	14		
Bulgaria	426	419 - 433	15	19		
Peru	421	415 - 427	15	19		
Costa Rica	418	412 - 424	15	20	14	14
Brazil	416	411 - 420	15	20		
Saudi Arabia	412	407 - 418	15	20		
Malaysia	406	400 - 412	17	20		

Note: Range-of-rank estimates are computed based on mean and standard-error-of-the-mean estimates for each country or 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 2022 Database, Table IV.B1.2.1.

Financial literacy is a life-long objective and while findings from PISA may help policy makers identify areas where 15-year-old students' financial literacy may need to be reinforced, it is important to have a holistic picture of the financial literacy levels of countries and economies' populations as a whole. Several of the countries taking part in the PISA 2022 financial literacy assessment also assessed the financial literacy levels of their adult population in 2022/2023 as part of a co-ordinated data collection exercise conducted by the OECD International Network on Financial Education (OECD/INFE) (Box IV.2.1). Results from both exercises may be analysed in conjunction when identifying financial literacy priorities for each country and economy.

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

The OECD/INFE conducted an international data-collection exercise in 2022/2023 to measure the financial literacy of adults aged 18 to 79. The survey also explored aspects of digital financial literacy, financial resilience and financial well-being. Over 68 000 people from 39 countries and economies around the world participated in the survey. This co-ordinated measurement exercise follows from previous data collections carried out in 2015/2016 and 2019/2020 using the OECD/INFE survey instrument (OECD, 2022^[1]). The results provide insights into aspects of financial knowledge, attitudes, behaviours and allow for international comparison.

The 2023 OECD/INFE International Survey of Adult Financial Literacy asked a series of questions aimed at measuring financial knowledge, covering topics such as the time-value of money, interest, inflation and risk diversification. Results of the survey show that, on average across the 20 participating OECD countries, 58% of adults could correctly answer at least five out of seven financial knowledge questions, compared to 50% of adults across all participating countries. Amongst the countries that also participated in the PISA 2022 financial literacy assessment, less than 50% of adults in Brazil (26%), Costa Rica and Peru (36% respectively), Italy (39%), Saudi Arabia (45%) and Portugal (48%) could correctly answer at least five out of seven questions, while 75% of adults in Hungary, 68% in Poland, 59% in the Netherlands*, 54% in Malaysia, and 52% of adults in Spain could do so. Comparisons with PISA findings should be made with caution, as the evidence is drawn from different measurement tools and on different age groups; but any differences in country rankings across adults and young people might suggest a considerable generational divide in some countries.

Source: OECD/INFE (2023^[2]), OECD/INFE 2023 International Survey of Adult Financial Literacy, <https://www.oecd.org/publications/oecd-infe-2023-international-survey-of-adult-financial-literacy-56003a32-en.htm>.

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 or economy and those in another country or 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, 2015 and 2018. 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 (see Annex C). 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. 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.

Table IV.2.3. Summary description of the five levels of financial literacy proficiency in PISA 2022

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	10.6	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	32.0	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	59.6	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	82.1	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	95.0	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 2022 Database, Table IV.B1.2.2.

Table IV.2.4 presents the difficulty level of several released items from the current and past PISA financial literacy assessments; these items were used in either the field trial or the main study in PISA 2012, 2015, 2018 or 2022. These items are presented in full in Annex C.

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 4	
4	550	NEW OFFER – Question 2	582
		PAY SLIP – Question 1	551
		MUSIC SYSTEM	N/A
		BANK STATEMENT – Question 1	
		RINGTONES	
		MOTORBIKE INSURANCE – Question 1	
		ONLINE SHOPPING	

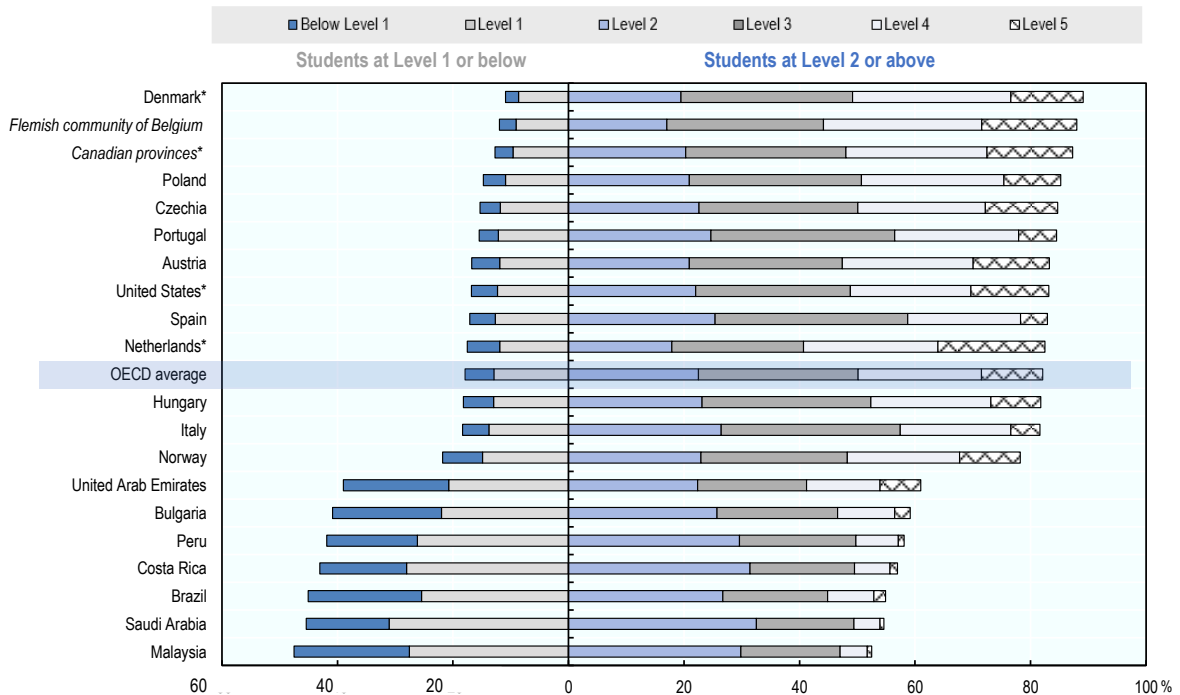
Level	Lower score limit	Question	Question difficulty (in PISA score points)
3	475	ZCYCLE – Question 1	
		ZCYCLE – Question 3 (for full credit)	
		INVOICE – Question 3 (for partial credit)	547
		MOTORBIKE INSURANCE – Question 1, Part 3	494
		COSTS OF RUNNING A CAR	N/A
		PHONE PLANS – Question 1	
		PHONE PLANS – Question 2	
		ZCYCLE – Question 3 (for partial credit)	
2	400	NEW BIKE - Question 1 (for full credit)	
		SELLING ONLINE	471
		INVOICE – Question 2	461
		AT THE MARKET – Question 2	459
		MOBILE PHONE CONTRACT	N/A
		NEW BIKE - Question 1 (for partial credit)	
1	326	CHARITABLE GIVING	
		AT THE MARKET – Question 3	398
		NEW BIKE - Question 2	372
		INVOICE – Question 1	360

Performance of students at the different levels of financial literacy proficiency

Figure IV.2.1 presents the distribution of students across the five levels of financial literacy proficiency. The percentage of students performing at Level 1 or below in PISA 2022 is shown on the left side of the vertical axis.

Figure IV.2.1. Percentage of students at each level of proficiency in financial literacy

Percentage of students at the different levels of financial literacy proficiency



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

Source: OECD, PISA 2022 Database, Table IV.B1.2.2.

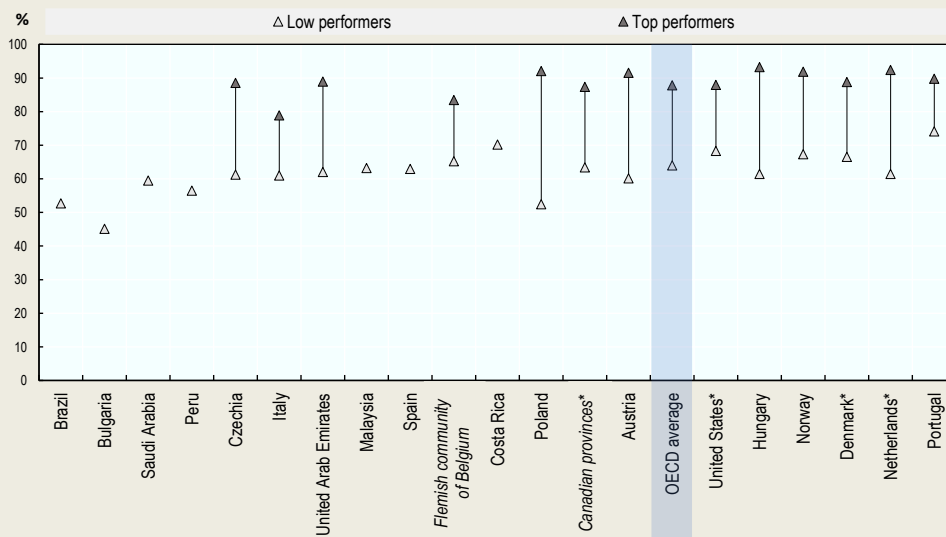
While the distribution of students across financial literacy proficiency levels shows wide variation in performance within countries and economies, data from the PISA financial literacy questionnaire show that all students have a relatively high self-assessment of their financial skills, including top and low performers (Box IV.2.2).

Box IV.2.2. Students’ self-assessed financial skills compared to their performance in financial literacy

The PISA 2022 financial literacy questionnaire asked students to self-assess their level of financial skills by indicating whether they strongly agreed, agreed, disagreed or strongly disagreed with the statement: “I know how to manage my money”.

Figure IV.2.2. Financial literacy performance and students’ self-assessed financial skills

Percentage of students who agreed or strongly agreed with the statement "I know how to manage my money"



Note: The value for top performers is shown only for countries and economies with at least 5% of top performers. Countries and economies are ranked in ascending order of the percentage of all students. Source: OECD, PISA 2022 Database, Table IV.B1.2.10.

Figure IV.2.2 shows not only that top performing students have a higher self-assessment of their own financial skills than low performing students, but also that many low performers think that they know how to manage their money. On average across OECD countries and economies, 64% of low performers in financial literacy think that they know how to manage their money. The percentage of low performing students who agreed that they know how to manage their money ranged from 45% in Bulgaria to 74% in Portugal (Table IV.B1.2.10).*

Being a low performer in the PISA 2022 financial literacy assessment and knowing how to manage one’s money may not necessarily be contradictory, given the relatively simple personal finances of students at age 15. However, low performing students with a high self-assessment of their financial skills may need to be supported even more than their peers with a more realistic self-assessment to develop the necessary financial literacy skills to successfully manage their finances in the future.

Note: * Results should be interpreted with caution due to the limited number of observations in many countries and economies, as indicated in Table IV.B1.2.10.

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 (see released item INVOICE – Question 1 for example) or an insurance contract (see released item NEW BIKE-Question 2). 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 additions, subtractions or multiplications, in financial contexts that they are likely to have personally experienced.

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 14 OECD countries and economies that participated in the PISA 2022 financial literacy assessment, 95% of students were proficient at Level 1 or higher; on average across all 20 participating countries and economies, this percentage fell to 91%.

At the other end of the performance spectrum, between 40% and 50% of students in Brazil, Bulgaria, Costa Rica, Malaysia, Peru and Saudi Arabia performed at Level 1 or below in financial literacy; and between 30% and 40% of students in the United Arab Emirates. 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. In no country was Level 1 the most commonly observed level of proficiency (Figure IV.2.1).

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, (see released item AT THE MARKET – Question 2 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. 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 (see released item SELLING ONLINE, for example) 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.

On average across OECD countries and economies, 82% of students, were proficient at Level 2 or higher; this fell to 74% when considering all countries and economies that participated in the PISA 2022 financial literacy assessment. Over 85% of students in the Flemish community of Belgium, the Canadian provinces*, Denmark* and Poland displayed at least Level 2 proficiency. In contrast, just over half (53%) of students in Malaysia were proficient at Level 2 or higher in financial literacy; meaning that close to one in two students in Malaysia have the basic skills involved in making responsible and well-informed financial decisions (Figure IV.2.1).

Some 23% of students were proficient at Level 2, on average across OECD countries and economies. This was the most common proficiency level observed in Brazil, Bulgaria, Costa Rica, Malaysia, Peru, Saudi Arabia and the United Arab Emirates (Figure IV.2.1).

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, or planning a budget based on the amount of use and the costs incurred (see released item COSTS OF RUNNING A CAR for example). They can 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.

On average across OECD countries and economies, 60% of students attained at least Level 3 in the PISA 2022 financial literacy assessment; on average across all participating countries and economies, 50%, 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 Flemish community of Belgium, as were over 50% of students in a further 12 countries. However, only around one in five students in Saudi Arabia (22%) and Malaysia (23%) displayed at least Level 3 proficiency, as did less than 30% of students in Brazil, Costa Rica and Peru (Figure IV.2.1).

Some 28% of students were proficient at Level 3, on average across OECD countries and economies. Level 3 was the most commonly observed proficiency level in more than half of the countries and economies that participated in the financial literacy assessment, namely Austria, the Canadian provinces*, Czechia, Denmark*, Hungary, Italy, Norway, Poland, Portugal, Spain and the United States*. Indeed, the performance of over 30% of 15-year-old students in Italy, Portugal and Spain fell into Level 3 (Figure IV.2.1).

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 considering 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 (see released item RINGTONES for example), and to choose financial products based on those consequences, such as deciding between two loan offers with different terms and conditions (see released item MUSIC SYSTEM for example).

Almost one-third (32%) of all students performed at Level 4 or above, on average across OECD countries and economies, while about one-quarter (25%) of all students performed at Level 4 or above, on average across all participating countries and economies. This proportion reached over 40% in both the Flemish community of Belgium and the Netherlands*, and over 30% in Austria, the Canadian provinces*, Czechia, Denmark*, Poland and the United States*. By contrast, in Costa Rica, Malaysia, Peru and Saudi Arabia, fewer than one in ten students performed at Level 4 or above (Figure IV.2.1).

Some 21% of students performed at Level 4 (as opposed to Level 4 or above), on average across OECD countries and economies. In the Flemish community of Belgium, 27% of students performed at Level 4, making this proficiency

level the most attained in this economy; Level 4 was also the most attained level in Netherlands*. Over 20% of students in 10 countries and economies (in addition to the Flemish community of Belgium and the Netherlands*, Austria, the Canadian provinces*, Czechia, Denmark*, Hungary, Poland, Portugal and the United States*,) displayed Level 4 proficiency in financial literacy (Figure IV.2.1).

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 considering multiple factors, such as transfer fees (see released item BANK STATEMENT – Question 2 for example).

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.

On average across OECD countries and economies, 11% of students were proficient at Level 5 in financial literacy; these students are referred to as top performers in financial literacy. On average across all countries and economies that participated in the PISA 2022 financial literacy assessment, 8% of students were top performers (Figure IV.2.1). This proportion was higher than 15% in the Netherlands* (19%) and the Flemish community of Belgium (16%), and 15% of students in the Canadian provinces* were also top performers. However, less than 1% of students, or fewer than 1 in 100 students, in Malaysia and Saudi Arabia were top performers; less than 3% of students in another four countries and economies were top performers.

Trends in student performance in financial literacy

Financial literacy has now been assessed in PISA 2012, 2015, 2018 and 2022. Among countries and economies that participated in 2022, four countries and economies participated in all four assessments (Italy, Poland, Spain and the United States); another three participated in three assessments (the Flemish community of Belgium, Brazil and Peru); four countries and economies participated in two assessments (Bulgaria, Czechia, the Netherlands* and Portugal), and eight participated in 2022 for the first time (Austria, Costa Rica, Denmark*, Hungary, Malaysia, Norway, Saudi Arabia and the United Arab Emirates). Seven Canadian provinces* participated in 2015 and 2018, and an additional province (Alberta) also participated in 2022. Comparisons in this section are made between pairs of years using 2022 as a reference: either between 2012 and 2022, 2015 and 2022 or between 2018 and 2022.² As not all countries and economies participated in all of the assessments, only those countries and economies with valid data in both years of a comparison are included when calculating trends in OECD average performance (for more information, see Box IV.2.3 and Annex A5).

Box IV.2.3. Comparing PISA results in financial literacy over time

To ensure the comparability of PISA results over time, successive assessments must include a sufficient number of common items so that results can be reported on a common scale. Some 24 of the 46 financial literacy items used in PISA 2022 were also used in the PISA 2012 assessment, while 27 of the 46 financial literacy items used in PISA 2022 were also used in PISA 2015 and 41 of the 46 items used in PISA 2022 were also used in PISA 2018. Moreover, the financial literacy assessment framework remained largely unchanged across the four 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 (see Annex A5 for full details on the changes implemented between successive PISA financial literacy assessments).

Changes between 2022 and previous cycles were limited, 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, 2015 or 2018 financial literacy assessment is the same as a score of 500 points in the PISA 2022 assessment. (Scales are not automatically equivalent across years because different items, calibration samples, and sometimes even statistical models are used in different assessments.) The link error between the PISA 2012 and 2022 financial literacy assessments was 4.05 score points, while that between the PISA 2015 and 2022 financial literacy assessments was 3.47 score points and that between PISA 2018 and 2022 financial literacy assessments was 2.20 score points.

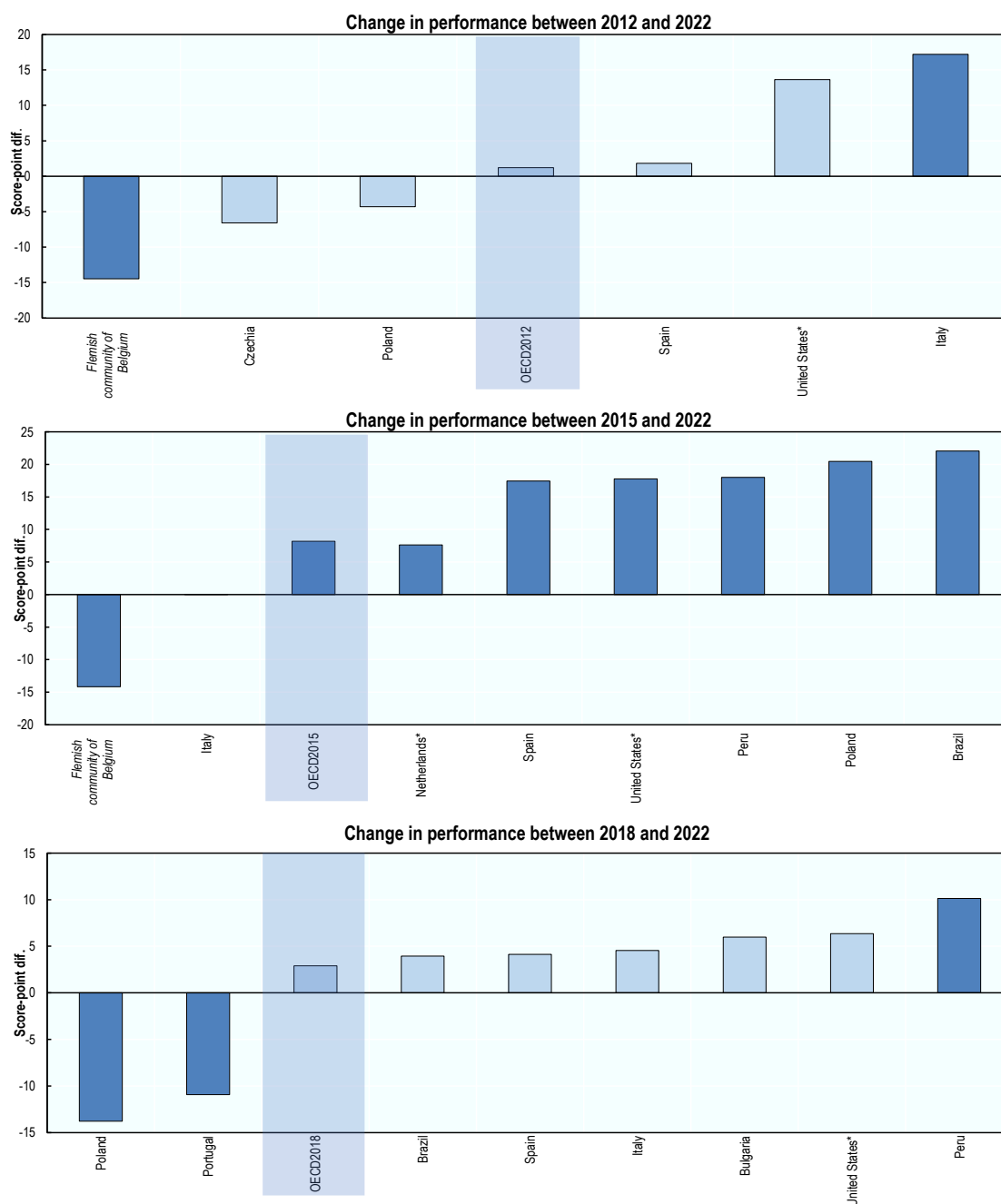
Trends in mean performance

On average across OECD countries with comparable data for 2012 and 2022, the average performance in financial literacy remained stable between the two assessments (Table IV.B1.2.1, Figure IV.2.3 and Figure IV.2.4). The average financial literacy performance increased by 8 score points (from 496 to 504) between 2015 and 2022 for OECD countries and economies with comparable data. On average across OECD countries and economies with comparable data for 2018 and 2022, mean performance did not change significantly between the two assessments.

The relatively limited differences in financial literacy performance between 2022 and previous cycles on average across OECD countries hide changes in opposite directions across different countries and economies. There was a significant change between 2012 and 2022 in mean financial literacy performance in only two of the six countries with data in both years: Italy, where mean performance improved by 17 score points, and the Flemish community of Belgium, where it declined by 14 score points. Between 2015 and 2022, performance in 5 of the 8 countries and economies with comparable data improved by over 17 score points (in Brazil, Poland, Peru, Spain and the United States*), while it decreased by 14 score points in the Flemish community of Belgium (Table IV.B1.2.1 and Figure IV.2.3). Between 2018 and 2022, there was a significant improvement in mean financial literacy performance in Peru (by 10 score points), whereas there was a significant decline in performance in Poland and Portugal, by between 11 and 14 score points.

Figure IV.2.4 shows financial literacy mean scores across the four countries that have participated in all PISA financial literacy assessments. In 2022, Italy improved its performance compared to 2012 (by 17 points). Spain and the United States* improved their performance compared to 2015 (by 17 and 18 points respectively). Poland improved its performance in 2022 compared to 2015 (by 20 points) but performed worse in 2022 than in 2018 (by 14 points).

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



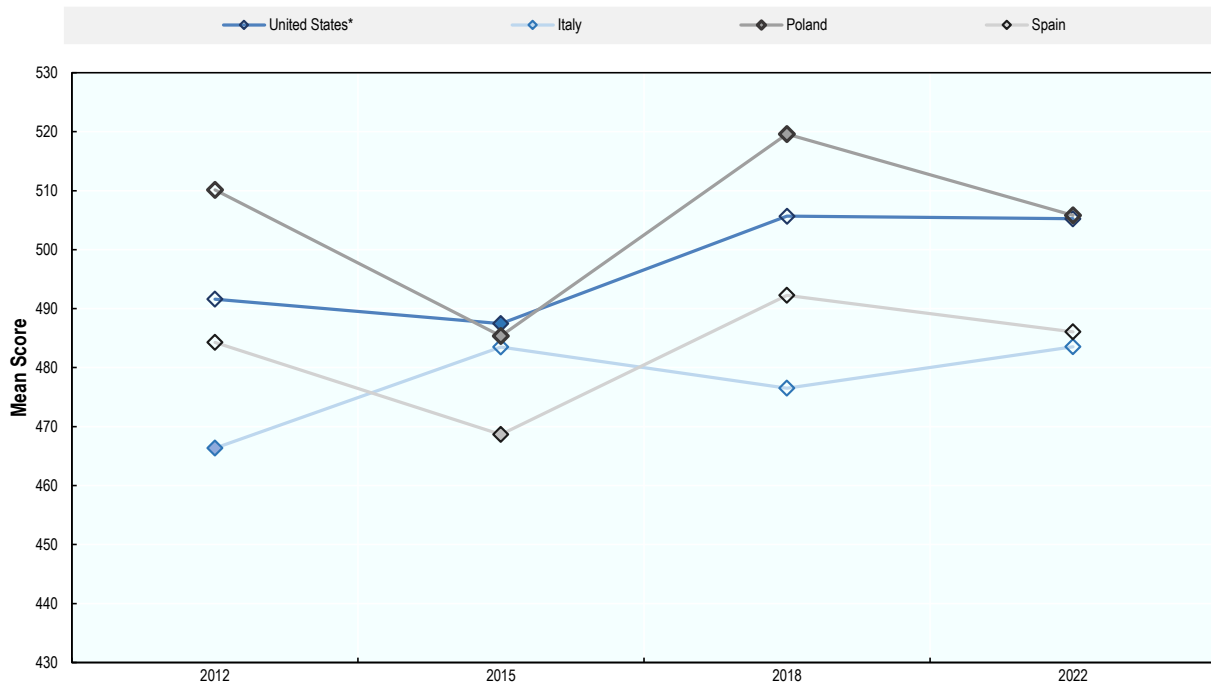
Notes: Statistically significant differences between PISA 2012/2015/2018 and PISA 2022 are shown in a darker tone (see Annex A3).

For Canadian provinces*, values for previous assessments are not reported in the trend tables due to the different number of provinces participating in the 2022 financial literacy assessment compared to previous ones.

Countries and economies are ranked in descending order of the change in financial literacy performance between PISA 2012/2015/2018 and 2022.

Source: OECD, PISA 2022 Database, Table IV.B1.2.1.

Figure IV.2.4. Changes across time in mean financial literacy performance among countries that participated in all PISA financial literacy assessments



Notes: Only countries with available data since PISA 2012 are shown.

White dots indicate mean-performance estimates that are not statistically significantly different from PISA 2022 estimates (see Annex A3).

Source: OECD, PISA 2022 Database, Table IV.B1.2.1.

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/or an increase in the share of students who scored at the highest levels.

Between 2012 and 2022, the increase in the mean financial literacy score of students in Italy (by 17 score points) is due to a higher proportion of students scoring at Level 5 (by 3 percentage points), whereas the 14-score point decrease in mean financial literacy score in the Flemish community of Belgium over the period comes from a 3-percentage point increase in the proportion of students scoring below Level 2. The increased proportion of students scoring at Level 5 in financial literacy in the United States* (by 4 percentage points), or in those scoring below Level 2 in Czechia and Poland does not translate into a significant change in mean financial literacy levels in these countries and economies (Table IV.B1.2.1 and Table IV.B1.2.5).

Between 2015 and 2022, improvements on both ends of the distribution in the United States* contributed to the 18-score point increase in the mean financial literacy score: 5 percentage points fewer students scored below Level 2, and 3 percentage points more students scored at Level 5. In Brazil, Peru, Poland and Spain, improvements in the mean performance over the period are due mostly to fewer students scoring below Level 2. By contrast, the 14 score-point decrease in mean financial literacy levels in the Flemish community of Belgium between 2015 and 2022 is explained by fewer students (8 percentage points) scoring at Level 5 (Table IV.B1.2.1 and Table IV.B1.2.5).

Between 2018 and 2022, the proportion of students scoring below Level 2 increased in Poland (5 percentage points), contributing to the 14-score point decrease in mean performance, while it decreased in Peru (5 percentage points), contributing to the 10-score point increase in mean performance (Table IV.B1.2.1 and Table IV.B1.2.5).

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. The PISA 2022 financial literacy assessment allows users to explore the relationship between financial literacy performance and performance in mathematics and reading, as a certain level of numeracy and reading proficiency can be considered as prerequisites for financial literacy (OECD, 2023^[3]). 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 assessment 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 or to perform basic numerical calculations, which necessarily requires a degree of mathematical literacy.

As shown in Figure IV.2.5, performance in the financial literacy, mathematics and reading assessments was highly correlated in PISA 2022. On average across OECD countries and 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 0.82. These strong correlations were observed in every participating country and economy; indeed, the correlation between financial literacy and mathematics or reading performance was around 0.80 or higher in every participating country and economy (Table IV.B1.2.6).³

Figure IV.2.5. 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
	0,82	Mathematics

Source: OECD, PISA 2022 Database, Table IV.B1.2.6.

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.⁴ Only 3% of all students were top performers in financial literacy but not in one of the other two domains, on average across OECD countries and economies and across all participating countries and economies (Table IV.B1.2.3).

Similarly, around four in five low performers in financial literacy were also low performers in mathematics (89%) and reading (82%), on average across OECD countries and economies. Only 1% of students were low performers in financial literacy but not low performers in mathematics nor reading (Table IV.B1.2.4).

While performance in financial literacy is highly correlated with performance in mathematics and reading, the PISA 2022 financial literacy assessment also highlighted the specificities of financial literacy. For instance, 47% of all top performers in financial literacy were not top performers in mathematics, and 59% of top performers in financial literacy were not top performers in reading, on average across OECD countries and economies (Table IV.B1.2.3).

Moreover, on average across OECD countries and economies, 20% of the differences across students in how they performed in financial literacy was independent of their performance in mathematics and reading.⁵ In Italy, Norway and Saudi Arabia, more than 25% of the of the financial literacy score reflected factors that were not captured by the mathematics and reading assessments. Conversely, 80% of the variation in student performance in financial literacy could be explained by performance in mathematics and reading, on average across OECD countries and economies. High degrees of explained variation (at least 73%) were observed in every participating country and economy. Most of this explained variation (65% 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).

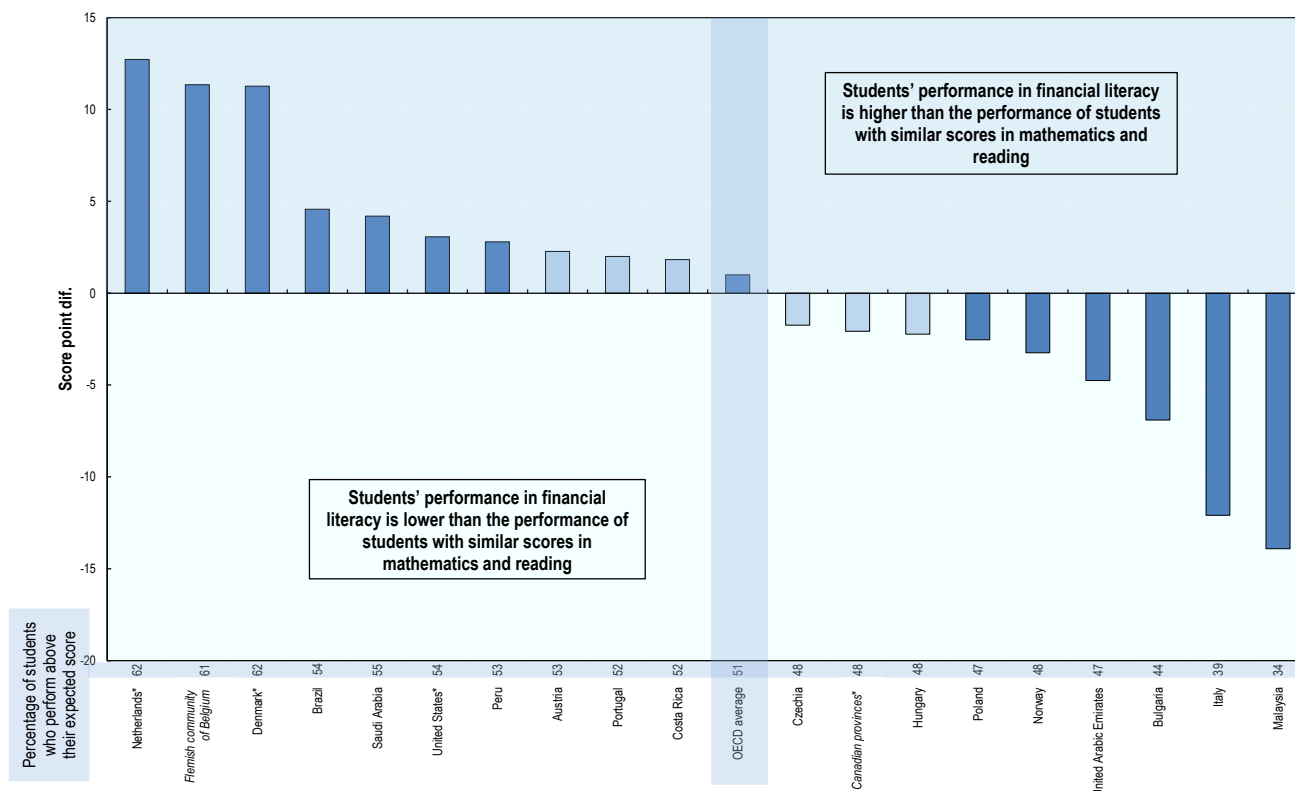
Variation not explained by mathematics or reading performance implies that there is a wide dispersion of student performance in financial literacy amongst students who scored at the same level in the mathematics and reading assessments. It also suggests that it is possible to develop financial literacy skills amongst low performers in mathematics and reading. This unexplained variation in financial literacy performance might be related, among other factors, also to the aspects of financial literacy that are unique to the domain, such as the relationship between risk and reward, the short- and long-term dimensions of financial decisions, the ability to identify financial frauds and scams, or the ability to keep personal financial information safe.⁶ It is possible to estimate the extent to which students' performance exceeded (or fell short of) his or her expected performance, based on his or her performance in the mathematics and reading assessments.⁷ This is known as the relative performance.

Figure IV.2.6 shows the average relative performance across students in each country and economy. Average relative performance was over 10 score points in the Flemish community of Belgium, Denmark* and the Netherlands*. Relative performance was also significantly positive in a further four countries and economies (Brazil, Peru, Saudi Arabia and the United States*). In these countries and economies, students performed better in financial literacy than their counterparts in other countries who had similar scores in mathematics and reading. This may suggest that these students were relatively stronger in competencies that are not associated with mathematics and reading, and that may include competences uniquely related to financial literacy.

By comparison, the average relative performance in Italy and Malaysia was less than -10 score points; the average relative performance was also significantly negative in a further five countries (Bulgaria, Norway, Poland, Spain and the United Arab Emirates). Students in countries and economies with a negative relative performance performed below their counterparts in other countries and economies who scored similarly in mathematics and reading. In other words, students in these countries were relatively weak in competencies that are not associated with mathematics and reading, and that may include competences that relate solely to financial literacy. The average relative performance of students in Austria, the Canadian provinces*, Costa Rica, Czechia, Hungary and Portugal was not significantly different from zero (Figure IV.2.6).

Figure IV.2.6. 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.

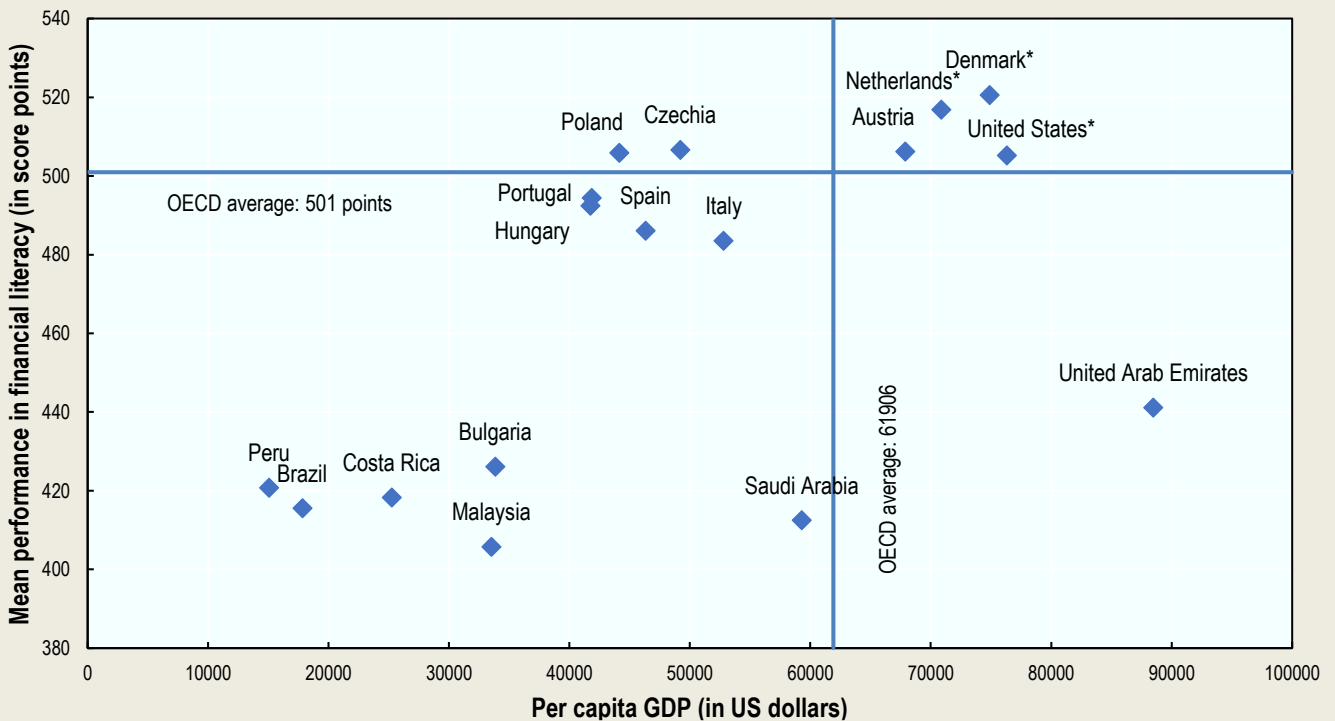
Source: OECD, PISA 2022 Database, Table IV.B1.2.8.

The national context of countries may help interpret 15-year-old students' performance in financial literacy. Box IV.2.4 proposes contextual information to assist in comparing the performance in financial literacy across countries that participated in the PISA 2022 assessment.

Box IV.2.4. A context for comparing countries' and economies' performance in financial literacy

This section provides a brief overview of the context of the 18 countries that participated in the PISA 2022 assessment of financial literacy: Austria, Brazil, Bulgaria, Costa Rica, Czechia, Denmark*, Hungary, Italy, Malaysia, the Netherlands*, Norway, Peru, Poland, Portugal, Saudi Arabia, Spain, the United Arab Emirates 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 the Middle East, representing about 45% of the world's GDP.

Figure IV.2.7. Mean performance in financial literacy and per capita GDP



Source: OECD, PISA 2022 Database, Table IV.B1.2.1 and Table IV.B1.2.9.

Two participating economies, the Flemish community of Belgium and the Canadian provinces*, are not covered in this section because they represent only certain subnational entities within Belgium and Canada. The Flemish community of Belgium covers 57% of the country's total population of 15-year-olds, while the eight provinces of Canada that participated in the financial literacy assessment cover 75% 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, GDP growth, poverty rates, the development of financial markets, financial inclusion, expenditure on education and financial knowledge amongst adults (Table IV.B1.2.9).

Overall, students' average performance in financial literacy as measured by PISA 2022 tends to be positively associated with adults' financial knowledge, financial inclusion and expenditure on education. Financial literacy performance amongst students also appears to be associated with income inequality, with higher income inequality being associated with lower average financial literacy scores. The association between financial literacy and stock market capitalisation or poverty is very low. Nevertheless, these correlations should be interpreted with caution due to the very small number of country points.

It is worth noting that students' average performance in financial literacy is only moderately related to per capita GDP. Figure IV.2.7 gives an indication of the direction of the relationship between per capita GDP and students' mean score in financial literacy but does not display statistics about the strength of this association because they are based on a small number of country points. The scatter plot shows that, overall, per capita national income is positively associated with average performance in financial literacy, but some countries with lower per capita GDP perform better in financial literacy than wealthier countries. For example, the mean performance in Hungary, Poland and Portugal was significantly above that of United Arab Emirates, although per capita GDP in Hungary, Poland and Portugal was significantly lower than that in United Arab Emirates.

Table IV.2.5. Students' performance in financial literacy in PISA 2022 chapter figures and tables

Table IV.2.1	Comparing countries' and economies' mean performance in financial literacy
Table IV.2.2	Financial literacy performance at the national level
Table IV.2.3	Summary description of the five levels of financial literacy proficiency in PISA 2022
Table IV.2.4	Map of selected financial literacy questions, illustrating the proficiency levels
Figure IV.2.1	Percentage of students at each level of proficiency in financial literacy
Figure IV.2.2	Students' self-assessed financial knowledge
Figure IV.2.3	Changes across time in mean financial literacy performance
Figure IV.2.4	Changes across time in mean financial literacy performance among countries that participated in all PISA financial literacy assessments
Figure IV.2.5	Correlation between performance in financial literacy, mathematics and reading
Figure IV.2.6	Relative performance in financial literacy
Figure IV.2.7	Mean performance in financial literacy and per capita GDP

StatLink  <https://stat.link/ku0ehr>

Notes

¹ In this report, the range of ranks is defined as the 95% confidence interval for the rank statistic. This means that there is at least a 95% 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).

² Eight Canadian provinces* participated in the PISA 2022 financial literacy assessment, compared to only seven in 2015 and 2018. Therefore, results for the Canadian provinces* are not comparable across assessments.

³ 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.

⁴ 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.

⁵ This was measured through a linear regression of student performance in financial literacy over student performance in mathematics and reading.

⁶ Unexplained variation in financial literacy might be related to other factors not accounted for in the model, including students' characteristics beyond their performance in mathematics and reading, and measurement error.

⁷ 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.

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3 Variations in students' performance in financial literacy within countries and economies

This chapter measures disparities in financial literacy performance. It first summarises the variation in performance in financial literacy observed within countries and economies. It then analyses the link between performance in financial literacy and gender, socio-economic status, school location and students' immigrant background.

National averages in financial literacy performance of students may hide the variation across students within countries and economies. While Chapter 2 presents a cross-country comparison, this chapter explores variations in performance in financial literacy within countries and economies.

Students and schools were chosen (or sampled) in PISA 2022 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 or 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 students' gender, socio-economic status, school location and immigrant background. 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 or economy.

What the data tell us

- In most participating countries and economies, most of the variation in financial literacy performance came from within school variations, meaning that the characteristics of students accounted for most of the overall variation in student performance in financial literacy, compared to variations between schools and between countries and economies.
- Socio-economically advantaged students performed better in the PISA 2022 financial literacy assessment than disadvantaged students by 87 points, which is more than one proficiency level, on average across OECD countries and economies. On average across OECD countries and economies, 12% of performance differences in financial literacy could be explained by students' socio-economic status.
- Immigrant students scored 15 points lower than non-immigrant students, after accounting for their socio-economic status, on average across OECD countries and economies.
- Students in rural areas scored 19 points lower than students in towns and urban areas, after accounting for their socio-economic status, on average across OECD countries and economies.
- Boys outperformed girls in Austria, Costa Rica, Denmark*, Hungary, Italy and Portugal, while girls outperformed boys in Bulgaria, Malaysia, Norway and the United Arab Emirates. On average across OECD countries and economies, boys were over-represented at both ends of the performance distribution.

Variation in performance within countries and economies

As described in Chapter 2, there are large variations in mean performance across countries and economies in the PISA 2022 financial literacy assessment: students in the Flemish community of Belgium, the highest-performing country or economy, scored 527 points, on average, while students in Malaysia, the lowest-performing country or economy, scored 406 points, on average – a gap of 121 score points (Table IV.B1.3.1). However, there were also large variations in performance between students within the same country or economy.

One way to summarise the within-country variation in performance is the standard deviation. The average standard deviation across all participating OECD countries and economies in the first PISA financial literacy assessment in 2012 was set at 100 score points.¹ In PISA 2022, the standard deviation in 11 of the 20 countries and economies was below 100 score points, meaning that the gaps in performance among students in these countries and economies are relatively narrow. Indeed, the standard deviation was 82 score points in Saudi Arabia; it was roughly 90 score points in Spain (88 points), Costa Rica and Portugal (89 points), Italy and Malaysia (90 points) and Denmark* and Peru (92 points); 96 score points in Poland and roughly 100 in the Flemish community of Belgium and Hungary (99 points). Denmark* is particularly noteworthy as a country that has achieved both high performance and

low variation in performance among students. Students in this country are likely to be well-prepared to make financial decisions, regardless of their family background or school characteristics. The largest standard deviations in performance (between 108 and 120 score points) were observed in the Netherlands*, Norway and the United Arab Emirates (Table IV.B1.3.1).

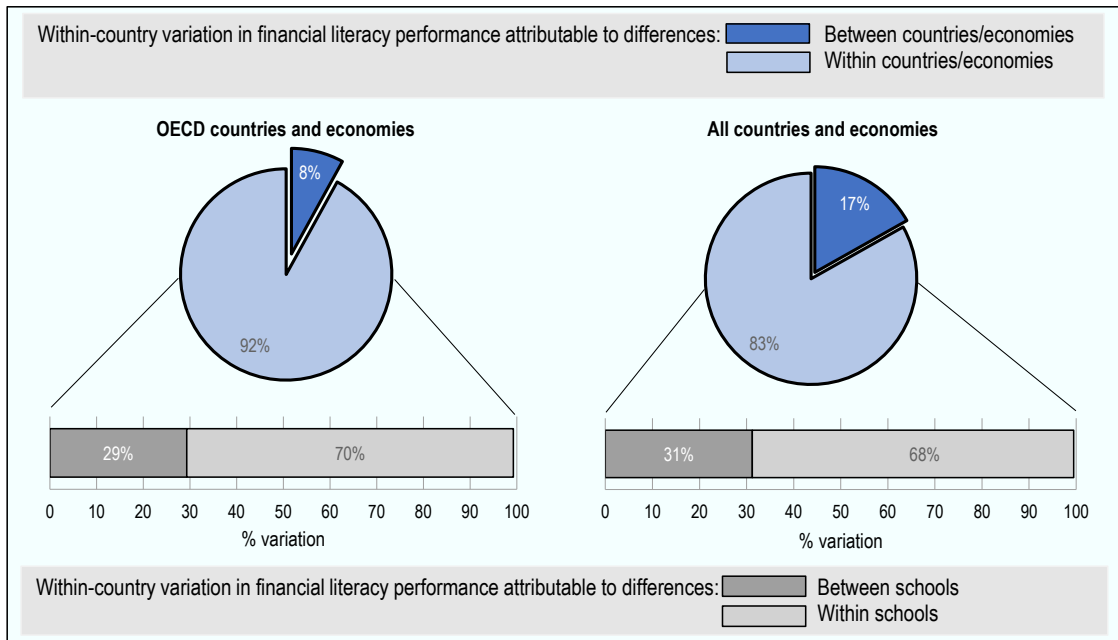
Various interpercentile ranges can also be used to describe the distribution in student performance. For example, the interdecile range is equal to the gap between the 10th and 90th percentiles; 80% of students - four out of five students – score in this range.² The smaller the interdecile range, the smaller the gap in performance between stronger and weaker students, and the smaller the variation in student performance.

The interdecile range in Costa Rica, Saudi Arabia and Spain was at or below 230 points. By contrast, the interdecile range of 316 score points in the United Arab Emirates indicates that its strongest-performing students in financial literacy scored more than 4 proficiency levels higher than its weakest-performing students (603 points at the 90th percentile compared to 287 points at the 10th percentile) (Table IV.B1.3.1).

Performance differences among countries and economies, schools and students

The variation in financial literacy performance among students within a country or economy can be broken down into differences at the student, school and country or economy levels.³ In PISA 2022, about 17% of the variation in financial literacy performance across all participating countries and economies is linked to mean differences in student performance between countries and economies, while 83% of this variation is linked to differences within countries and economies (Figure IV.3.1). This suggests that the overall economic and social conditions of countries and economies and their education policies may have a limited influence on student performance in financial literacy.

Figure IV.3.1. Variation in financial literacy performance between countries and economies, schools and students



Source: OECD, PISA 2022 Database, Table IV.B1.3.2.

Similarly, across OECD countries, only 8% of the variation in financial literacy performance is between countries and economies, while 92% of the variation is within countries and economies. In other words, the characteristics of countries and economies do not play an important role in explaining differences in student performance in financial

literacy among OECD countries and economies. This is likely because the economic and social conditions of OECD countries are very similar to each other. It is also possible that education policies and practices vary less across OECD countries than across all countries and economies participating in the 2022 PISA financial literacy assessment.

Out of the variation observed within countries in PISA 2022, 29% of the OECD average variation in financial literacy performance is between schools; the remaining part of the variation (70%) is within schools (Figure IV.3.1). Across all participating countries and economies, 31% of the average variation in financial literacy performance is between schools, and 68% is within schools. This means that school characteristics do not play a dominant role in explaining student performance in financial literacy; instead, it is the characteristics of students themselves (i.e. their background, attitudes, behaviours, etc.), that account for most of the overall variation in student performance.

Across 18 participating countries and economies, most of the variation in financial literacy performance comes from within school variations. In seven countries and economies (the Canadian provinces*, Denmark*, Norway, Portugal, Saudi Arabia, Spain and the United States*) more than 80% of the total variation in the country or economy's financial literacy performance comes from differences within schools. By contrast, differences between schools account for slightly more than half of the total variation in student performance in Bulgaria and the Netherlands* (Table IV.B1.3.2).

Trends in the variation in performance

Variations in performance within countries and economies changed, to some extent, in some of the countries and economies that participated in the PISA 2022 financial literacy assessment and in at least one earlier financial literacy assessment.^{4,5} Such changes can result from shifts at different points of the performance distribution. For example, for some countries and economies, the average score may improve when high-performing students perform better. In other countries and economies, improvements in mean scores can be largely the result of improvements in performance amongst the lowest-achieving students or can come from improvements over the entire distribution.

Between 2012 and 2022, there were no significant changes in most of the performance distribution in financial literacy, on average across OECD countries. The improvement in mean score in Italy between 2012 and 2022 is largely related to an improvement at the median and upper part of the distribution, while the mean decline in the Flemish community of Belgium is associated to a decline at the median and in the lower part of the distribution (Table IV.B1.2.1 and Table IV.B1.3.3).

Between 2015 and 2022, the decline in mean score in the Flemish community of Belgium is related to a decline at the median and in the upper part of the distribution. The improvements in mean scores in Poland and the United States* between 2015 and 2022 are largely related to improvements across most of the distribution (except the 90th percentile), and mean improvements in Brazil, Peru and Spain are mostly associated with improvements in the lower part of the distribution (Table IV.B1.2.1 and Table IV.B1.3.3).

Between 2018 and 2022, there were no significant changes in most of the performance distribution in financial literacy, on average across OECD countries. The decline in mean scores in Poland and Portugal can be largely attributed to a decline in performance across most of the distribution in Portugal, and amongst weaker students in Poland. By contrast, weaker students improved between 2018 and 2022 in Peru, leading to an improvement in mean score over the period (Table IV.B1.2.1 and Table IV.B1.3.3).

The standard deviation of the performance distribution, which measures how differently students in a country or economy perform, increased between 2012 and 2022, but decreased between 2015 and 2022, on average across OECD countries and economies with valid data for each pair of years. These general trends were also observed in most individual countries and economies. Indeed, there was an increase in the disparity of performance amongst students in Czechia and Poland between 2012 and 2022. There was no significant change in the standard deviation of the performance distribution among other countries and economies that took part in both assessments. There was either no significant change or a decrease in the disparity of performance amongst students in each country and economy that took part in both the 2015 and 2022 PISA financial literacy assessments (Table IV.B1.3.4). There was no significant change in the standard deviation of the performance distribution on average across OECD countries

and economies between 2018 and 2022. Similarly, the interdecile range, which also provides a measure of the disparity among students in a country or economy, increased between 2012 and 2022, decreased between 2015 and 2022, and did not change significantly between 2018 and 2022.

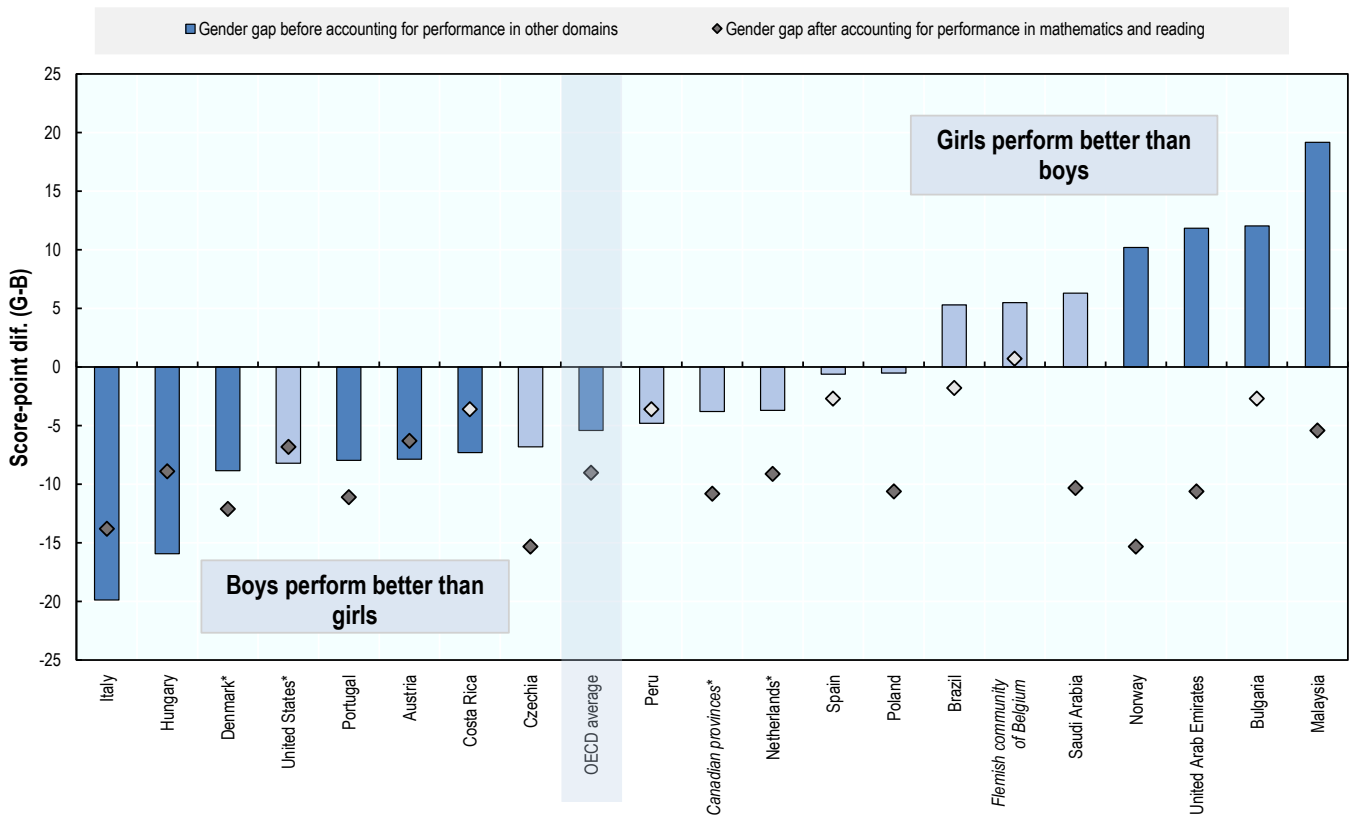
Gender differences in performance in financial literacy

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 2022 Results (Volume I): The State of Learning and Equity in Education (OECD, 2023^[1]). To what extent do they also exist in the PISA 2022 financial literacy assessment?

At the individual country or economy level, boys performed better than girls in Austria, Costa Rica, Denmark*, Hungary, Italy and Portugal (by between 7 and 20 score points), and girls outperformed boys in Bulgaria, Malaysia, Norway and the United Arab Emirates (by between 10 and 19 score points). There was no significant difference in the other 10 participating countries and economies. On average across OECD countries and economies, boys scored five points higher than girls in the PISA 2022 financial literacy assessment, but there was no gender difference on average across all countries and economies that participated in the assessment (Figure IV.3.2).

Figure IV.3.2. Gender differences in financial literacy performance

Score-point difference between girls and boys



Note: Statistically significant gender differences are shown in a darker tone (see Annex A3). Countries are ranked in ascending order of the gender gap in financial literacy performance before accounting for performance in other domains. Source: OECD, PISA 2022 Database, Table IV.B1.3.8.

Although statistically significant, the five score points gender difference observed on average across OECD countries and economies is small - relative to a median score of 499 for girls and 505 for boys - 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. On average across OECD countries and economies, the standard deviation of boys' performance in financial literacy (103 points) was 10 points wider than that of girls' performance (93 points). The performance distribution amongst boys was wider than that amongst girls in all the 20 participating countries and economies (Table IV.B1.3.6).

Compared to girls, boys were over-represented at both ends of the performance distribution. On average across OECD countries and 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 (19% compared to 17%; a gap of 2 percentage points) (Table IV.B1.3.7). Hence, although boys have a small performance advantage over girls in financial literacy, on average across OECD countries and economies, 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 and economies and, indeed, in all participating countries and economies in PISA 2022, girls outperformed boys in reading. By contrast, on average across OECD countries and economies, boys outperformed girls in mathematics. Boys outperformed girls in mathematics in 13 of the 20 countries and economies that took part in the PISA 2022 financial literacy assessment (Austria, Brazil, the Canadian provinces*, Costa Rica, Czechia, Denmark*, Hungary, Italy, the Netherlands*, Peru, Portugal, Spain and the United States*), although girls outperformed boys in Malaysia and the United Arab Emirates. There were no significant differences between boys and girls in mathematics performance in the other countries and economies that participated in the assessment of financial literacy (OECD, 2023_[11]).⁶

Once performance in both mathematics and reading were accounted for, boys scored nine points higher than girls in financial literacy, on average across OECD countries and economies (eight points higher, on average across all participating countries and economies). These nine 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) (Figure IV.3.2 and Table IV.B1.3.8).

On average across the OECD countries that participated in both the PISA 2018 and 2022 financial literacy assessments there was no significant difference in the gender gap in financial literacy performance nor in the proportion of high and low performers among boys and girls (Table IV.B1.3.9 and Table IV.B1.3.10). Trends in the gender differences in financial literacy performance for countries that participated in PISA 2012 and 2022, or in PISA 2015 and 2022 are presented in Annex B1 (Table IV.B1.3.9 and Table IV.B1.3.10).

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 (Endro et al., 2019_[2]; Lusardi, Mitchell and Curto, 2010_[3]; Riitsalu and Pöder, 2016_[4]; Cameron et al., 2014_[5]; OECD, 2024_[6]; Anders, Jerrim and Macmillan, 2023_[7]). 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_[8]). PISA summarises socio-economic

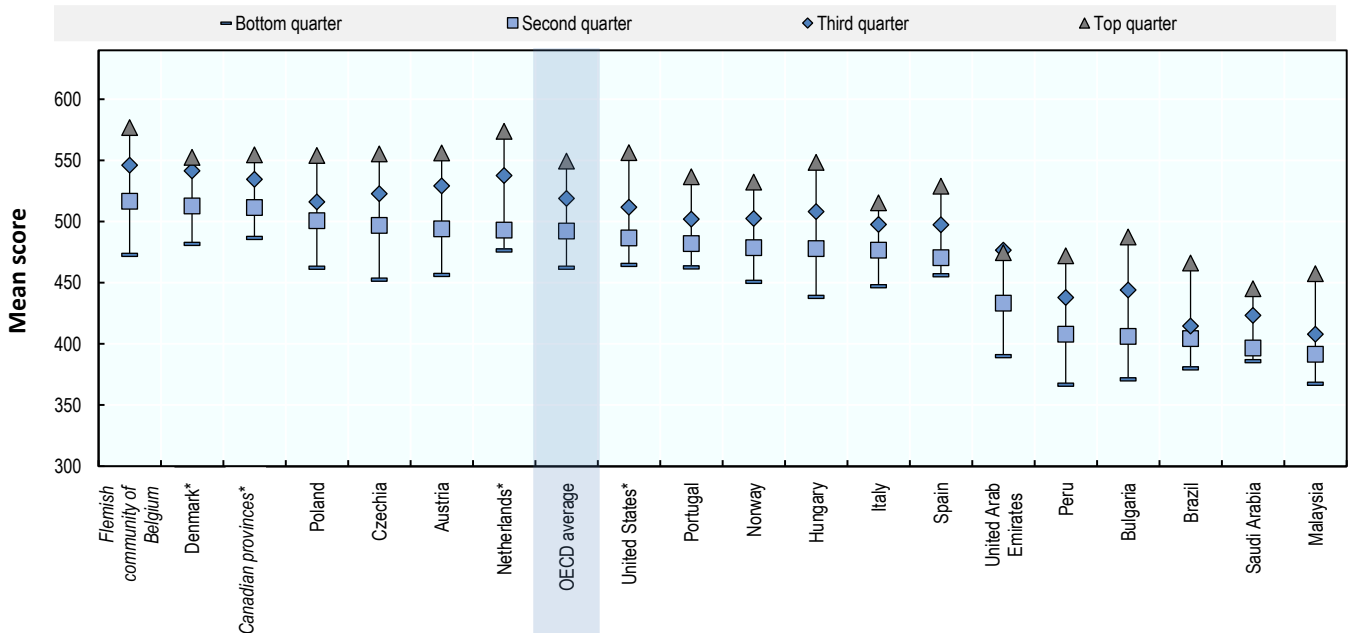
status through the index of economic, social and cultural status (ESCS). This index is a single value derived from several self-reported values related to the student’s family background, grouped into three components – parents’ education, parents’ occupations and home possessions – that can be taken 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 and economies that took part in the PISA 2022 financial literacy assessment spanned the entire socio-economic spectrum, from a high national mean value of the ESCS index of 0.52 (Norway) to a low of -1.15 (Peru) (OECD, 2023^[1]). Different national standards can confound comparisons of students of different socio-economic status across countries and economies. Hence, this section compares students of different socio-economic status within countries and economies. Students in each country and economy were classified as advantaged (in their national context) if they fell within the top quarter (25%) of the ESCS distribution in their country or economy; they were classified as disadvantaged if they fell within the bottom quarter of the ESCS distribution in their country or economy.

In every country and economy that participated in the PISA 2022 financial literacy assessment and had valid data on socio-economic status, advantaged students performed significantly better than disadvantaged students; this was also observed in other subjects. On average across OECD countries and economies, advantaged students scored 87 score points higher than disadvantaged students, which is more than one proficiency level (equal to 75 score points). The gap between advantaged and disadvantaged students in the Flemish community of Belgium, Bulgaria, Czechia, Hungary and Peru was greater than 100 score points, while the gap was less than 75 score points in the Canadian provinces*, Denmark*, Italy, Portugal, Saudi Arabia and Spain (Figure IV.3.3).

Figure IV.3.3. Mean performance in financial literacy, by national quarter of socio-economic status

PISA index of economic, social and cultural status (ESCS)



Countries and economies are ranked in descending order of financial literacy performance for students in the second quarter of national socio-economic status.

Source: OECD, PISA 2022 Database, Table IV.B1.3.11.

Every one-unit increase in the ESCS index was associated with an increase of 37 score points in the financial literacy assessment, on average across OECD countries and economies. The improvement in performance associated with a one-unit increase in the index was roughly 45 score points in Czechia (46 points), Hungary and the Netherlands* (45 points) and the Flemish community of Belgium (44 points). It was also larger than the OECD average in Austria, Bulgaria, Denmark*, Poland and the United Arab Emirates. The smallest improvement in performance associated with a one-unit increase in the ESCS index was observed in Saudi Arabia (22 score points) (Table IV.B1.3.12). 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 and economies, the variation in students' socio-economic status explained 12% 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*, Norway and the United Arab Emirates (all 7%), and Saudi Arabia (8%), while it explained a larger proportion of performance in the Flemish community of Belgium (17%), Bulgaria and Hungary (both 18%), and Peru (19%) (Table IV.B1.3.12).

As discussed above, there were large differences in average performance between students of different socio-economic status within a country or 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.

On average across OECD countries and economies, socio-economic status explained a similar amount of the variation in performance in financial literacy as it did in reading (both 12%), but less than it did for mathematics (15%) (Table IV.B1.3.13).

Differences in performance in financial literacy associated with school location

Research as well as previous PISA results appear to indicate that students in rural areas tend to have lower financial literacy levels compared to students in urban areas (Ali et al., 2016^[9]; OECD, 2017^[10]; 2020^[11]). Opportunities to acquire financial skills 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 bank branches or to see advertisements for financial products and services, and thus be more likely to have a bank account and to hold financial products and services. Is the potentially greater familiarity with financial decision making amongst urban students still reflected in their financial literacy performance in PISA 2022?

On average across the 14 OECD countries and economies that took part in the PISA 2022 financial literacy assessment, some 7% of students attended schools in a village, hamlet or rural area (a place with fewer than 3 000 inhabitants) as opposed to 60% who attends schools in towns (of between 3 000 and 100 000 inhabitants) and 33% who attended schools in cities or urban areas (of 100 000 inhabitants or more). Across the 20 participating countries and economies, 8% attended school in a rural area, 53% in a town and 39% in urban areas (Table IV.B1.3.14).

Students in rural areas scored 473 points in the PISA 2022 financial literacy assessment, on average across OECD countries and economies, while students in towns and urban areas scored 494 and 509 points, respectively. The urban-rural score gap was 33 points, on average across OECD countries and economies, 42 points on average across all countries and economies that took part in the PISA 2022 financial literacy assessment. 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 19 score points, on average across OECD countries and economies. In Hungary and the United Arab Emirates, this gap was 62 and 76 points respectively, after accounting for students' socio-economic status (Table IV.B1.3.15).

Results related to school location, after accounting for performance in mathematics and reading, and to programme orientation (i.e. general vs. vocational/pre-vocational) are available in the tables in Annex B.

The relationship between performance in financial literacy and immigrant background

Many of the countries and economies that participated in the PISA 2022 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 limited familiarity with the education system of the host country and to lower socio-economic status. Being financially literate can help immigrants integrate more easily into their new country of residence, through greater awareness and use of formal financial products and services, including remittances (OECD, 2015^[12]). To what extent is the financial literacy of students with an immigrant background similar to that of non-immigrant students?

PISA 2022 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 assessment, 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 assessment.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 and economies where, in 2022, at least 5% of students had an immigrant background. These countries and economies are, in decreasing order of the proportion of immigrant students: the United Arab Emirates, the Canadian provinces*, Austria, the United States*, the Flemish community of Belgium, Norway, Spain, the Netherlands*, Costa Rica, Portugal, Saudi Arabia, Denmark* and Italy (Table IV.B1.3.20). However, data for all countries and economies for which results can be statistically calculated (i.e. based on at least 30 immigrant students attending at least 5 different schools) are presented in tables in Annex B1.

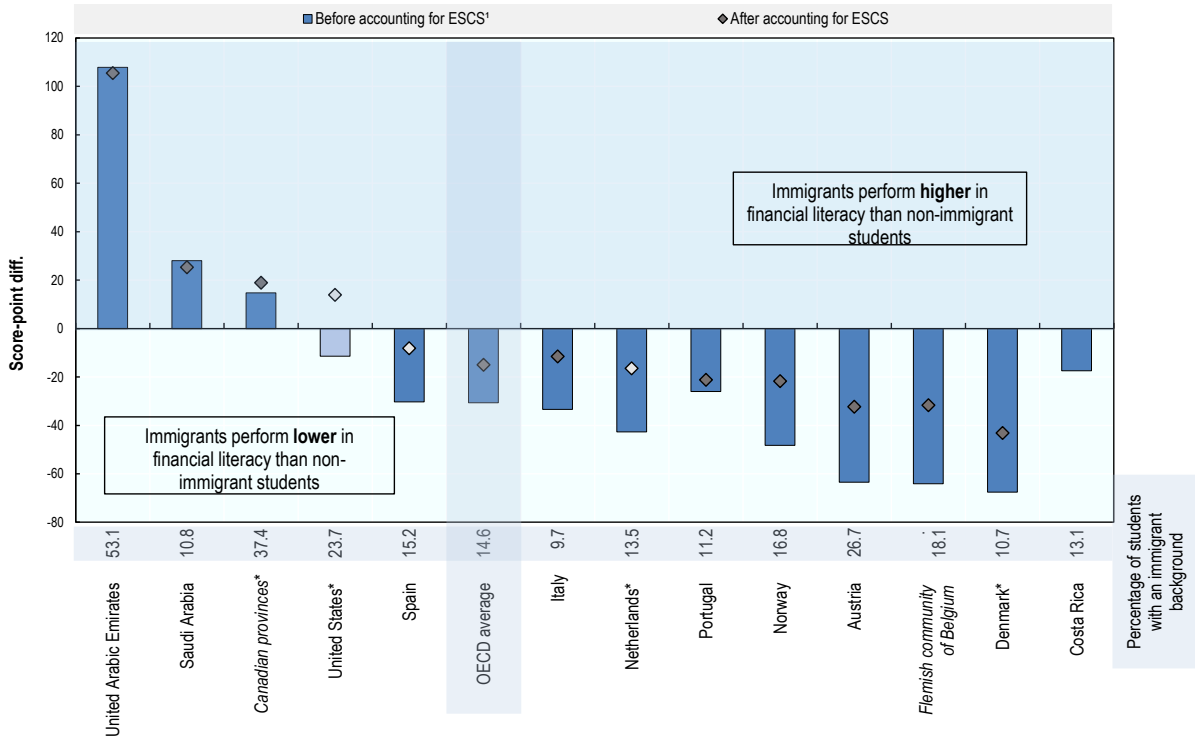
Immigration policies vary largely across countries and economies. Even within a country, immigrant populations are diverse, coming from different countries, cultures and socio-economic circumstances. For instance, the average socio-economic status of immigrants is lower than that of non-immigrants in most countries and economies that participated in the PISA 2022 financial literacy assessment (OECD, 2023^[1]); however, in Saudi Arabia and the United Arab Emirates, students with an immigrant background have on average a higher economic status than non-immigrant students.¹⁰ 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 and economies, immigrant students scored 31 points lower than non-immigrant students in the PISA 2022 financial literacy assessment. However, as mentioned above, immigrant students in most countries and economies come from less advantaged backgrounds than non-immigrant students. Once this was accounted for through the ESCS index, immigrant students scored 15 points lower than non-immigrant students, on average across OECD countries and economies. The gap was widest in Denmark* (43 points, after accounting for

socio-economic status). Immigrant students in the United Arab Emirates scored on average 105 points higher in financial literacy than non-immigrant students, after taking their socio-economic status into account (Figure IV.3.4).

Figure IV.3.4. Financial literacy performance, by immigrant background

Score-point difference between non-immigrant and immigrant students



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

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

Statistically significant differences are shown 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 2022 Database, Table IV.B1.3.20 and Table IV.B1.3.21.

Results related to immigrant/non-immigrant background, after accounting for performance in mathematics and reading, and to language spoken at home are available in the tables in Annex B.

Table IV.3.1. Variations in students’ performance in financial literacy within countries and economies chapter figures

Figure IV.3.1	Variation in financial literacy performance between countries and economies, schools and students
Figure IV.3.2	Gender differences in financial literacy performance
Figure IV.3.3	Mean performance in financial literacy, by national quarter of socio-economic status
Figure IV.3.4	Financial literacy performance, by immigrant background

StatLink <https://stat.link/v34qxs>

Notes

¹ More specifically, the standard deviation of a pooled sample of students from OECD countries and economies, where each national sample was equally weighted, was set at 100 score points in the PISA 2012 financial literacy assessment.

² The 10th percentile is defined as the score attained by less than 10% of students (one in ten students); the other 90% of students (nine in ten students) attained a score higher than this. Likewise, the 90th percentile is the score attained by less than 90% of students (nine in ten students); the remaining 10% of students (one in ten students) attained a score higher than this.

³ This analysis was carried out in two steps. In the first step, the share of the variation in student performance that occurs between countries and economies was identified. In the second step, out of the remaining variation, the between school and within-school was identified. Within-school variation are differences in performance between students. The analysis reported in this chapter focuses on schools with the modal ISCED level for 15-year-old students. The reason for this restriction is the following: while the students sampled in PISA represent all 15-year-old students, whatever type of school they are enrolled in, they may not be representative of the students enrolled in their school. As a result, comparability at the school level may be compromised. For example, if grade repeaters in a country are enrolled in different schools than students in the modal grade because the modal grade in this country is the first year of upper secondary school (ISCED 3) while grade repeaters are enrolled in lower secondary school (ISCED 2), the average performance of schools where only students who had repeated a grade were assessed may be a poor indicator of the actual average performance of these schools. By restricting the sampling to schools with the modal ISCED level for 15-year-old students, PISA ensures that the characteristics of the students sampled are as close as possible to the profiles of the students attending the school.

⁴ Box IV.2.2 and Annex A5 discuss the issues involved in comparing PISA results in financial literacy over time.

⁵ Trend comparisons are only conducted for countries and economies that took part in the PISA 2022 financial literacy assessment and at least one previous PISA financial literacy assessment. Italy, Poland, Spain and the United States* took part in the PISA 2012, 2015 and 2018 financial literacy assessments; Brazil and Peru took part in the PISA 2015 and 2018 financial literacy assessments; the Flemish community of Belgium participated in both the 2012 and 2015 PISA financial literacy assessments; Czechia took part in the 2012 PISA financial literacy assessment; the Netherlands* participated in the 2015 PISA financial literacy assessment; and Bulgaria and Portugal took part in the PISA 2018 financial literacy assessment. Eight Canadian provinces* participated in the PISA 2022 financial literacy assessment, compared to only seven in 2015 and 2018. Therefore, results for the Canadian provinces* cannot be compared.

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 2022 assessment, not the subset of OECD countries that participated in the PISA 2022 financial literacy assessment. These 36 countries do not include Costa Rica, for which data was missing.

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 eight 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. Similarly, the country of birth in the Flemish community of Belgium was considered to be Belgium as a whole.

¹⁰ 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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4 Students' interactions with their parents about money matters

This chapter discusses the role of parents on students' behaviour and financial literacy. It begins by examining the frequency of discussing money matters with parents and explores the relationship between such discussions and students' performance in financial literacy. The chapter continues by looking at how independent students are in their financial affairs, and the link between autonomy in financial affairs and performance in financial literacy.

The previous chapters discuss the performance of 15-year-old students across the world in the PISA 2022 financial literacy assessment. However, no attempts were made to identify what behaviours and attitudes 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 and behaviour. 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 (Tang, 2017^[1]; Moreno-Herrero, Salas-Velasco and Sánchez-Campillo, 2018^[2]; Flouri, 2000^[3]; LeBaron et al., 2020^[4]; Phung, 2023^[5]). Parents transmit values, attitudes, knowledge and behaviours about money to their children, both through their example as role models and through direct teaching. How often do students discuss money matters with 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

- On average across OECD countries and economies, 70% of students reported talking to their parents weekly or monthly about money for things they want to buy, and 64% about their own spending decisions. Other frequently discussed topics were students' own saving decisions and shopping on line. Relatively fewer students reported discussing news related to economics or finance and the family budget.
- Socio-economically disadvantaged students reported discussing with their parents about the family budget more often than students in advantaged households. However, socio-economically advantaged students discussed with their parents the other six financial topics more often than disadvantaged students.
- Students who reported that they discuss with their parents about money for things that they want to buy, shopping on line, and their own spending decisions on a weekly or monthly basis performed better in financial literacy than students who reported never discussing these topics, after accounting for student characteristics, on average across OECD countries and economies.
- Most students (83% on average across OECD countries and economies, and 80% on average across all countries and economies) reported that they could independently decide what to spend their money on. After accounting for student characteristics, these students scored around 30 points higher in the financial literacy assessment than students who did not report so, on average across OECD and all participating countries and economies.

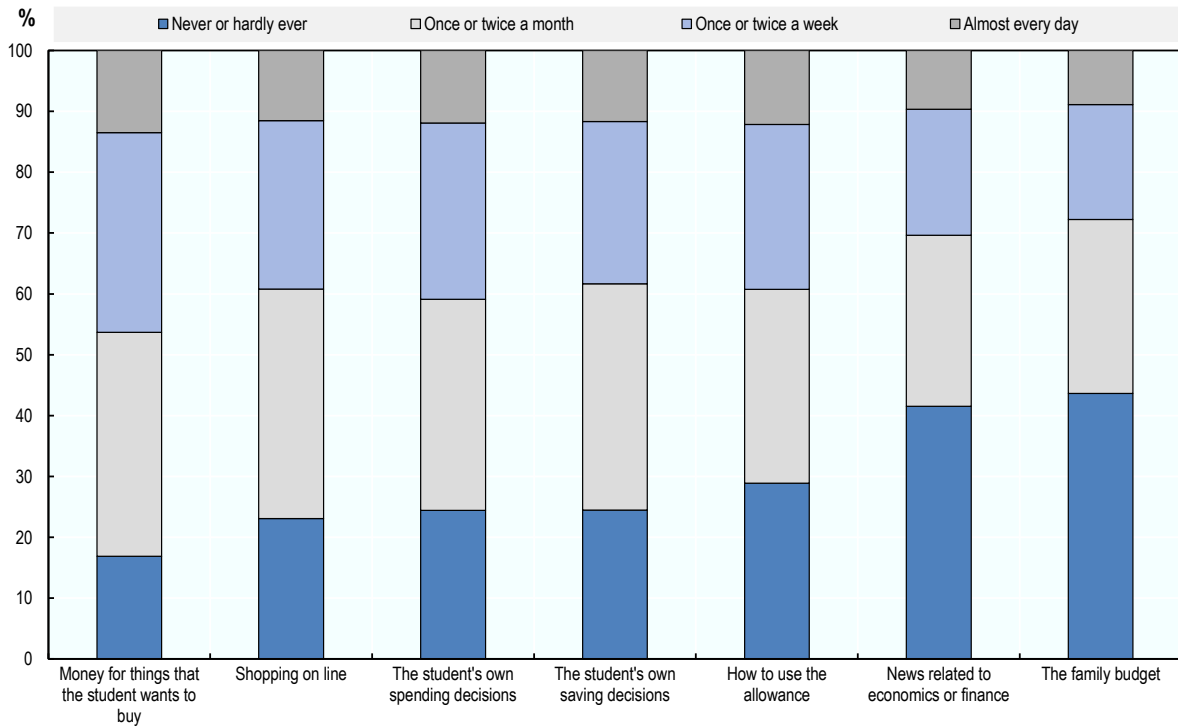
Do students discuss money matters with their parents?

Evidence from previous PISA cycles and from national surveys shows that 15-year-old students frequently turn to their parents as a source of information about financial matters (OECD, 2017^[6]; 2020^[7]; Schwab, 2011^[8]).¹ Understanding what money matters students discuss with their parents, and how often they do so, may therefore provide insights on the role of parents in supporting the financial literacy of 15-year-old students.

PISA 2022 asked students with what frequency (never or hardly ever – thereafter “never”, once or twice a month – thereafter “monthly”, once or twice a week – thereafter “weekly” or almost every day – thereafter “daily”) they discuss seven aspects of financial decisions with their parents, guardians or relatives: their own spending decisions, their own saving decisions, the family budget, money for things they want to buy, news related to finance and economics, how to use their allowance or pocket money and online shopping (Figure IV.4.1). 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 and economies. According to this index, students in Costa Rica discussed money matters with their parents the most, with a mean index of 0.34 of a point. Students in Bulgaria, Hungary and Malaysia were also amongst those discussing money matters with parents frequently. At the other end of the scale, students in Denmark* discussed money matters with parents the least, with a mean index of -0.23 of a point (Table IV.B1.4.1).

Figure IV.4.1. Frequency of discussing money matters with parents

Percentage of students who reported discussing each topic; OECD average



Items are ranked in ascending order of students reporting never or hardly ever discussing each topic.

Source: OECD, PISA 2022 Database, Table IV.B1.4.1.

On average across OECD countries and economies and among the 20 participating countries and economies, at least 75% of students reported discussing with their parents at least monthly about money for things that they want to buy, shopping on line, their own spending decisions, and their own saving decisions, and about 70% of students discuss with their parents at least monthly about how to use their allowance or pocket money. Roughly 60% of students on average in the 20 participating countries and economies, and fewer than 60% of students on average across OECD countries and economies discuss news related to economics or finance and the family budget at least monthly (Figure IV.4.1).

Some 83% of students, on average across OECD countries and economies, reported that they talk to their parents at least monthly about money for things they want to buy; this proportion was 88% in Hungary and Malaysia, and

was only 75% in Peru (its lowest value amongst the 20 countries and economies that participated in the PISA 2022 financial literacy assessment). Only 14% of students reported that they talk to their parents daily about money for things they want to buy, on average across OECD countries and economies. At the national level, this proportion ranged from 6% in Denmark* to 28% in Costa Rica (Figure IV.4.1 and Table IV.B1.4.1).

Discussions with parents about online shopping varied widely across countries. More than three in four students (77%) reported that they talk to their parents at least monthly about shopping on line on average across OECD countries and economies. Across all participating countries and economies, this proportion ranged between 86% in Hungary and 38% in Peru. Close to one in five students reported talking to their parents almost every day about shopping on line in Bulgaria (19%), Brazil, Saudi Arabia and the United Arab Emirates (all 18%), compared to less than one in ten in the Flemish community of Belgium, Denmark*, the Netherlands*, Norway and Peru (Figure IV.4.1 and Table IV.B1.4.1).

Roughly three in four students (76%) reported that they talk to their parents at least monthly about their own spending and saving decisions on average across OECD countries and economies. Over 80% of students in Czechia, Malaysia and Norway reported that they talk to their parents at least monthly about their own spending decisions, while in Italy, Peru and Saudi Arabia, less than 70% of students reported doing so. Similarly, 80% or more students in Costa Rica, Malaysia and Norway reported that they discuss their own saving decisions with their parents at least monthly, while less than 70% of students in Austria, Italy, Peru and Saudi Arabia so reported (Figure IV.4.1 and Table IV.B1.4.1).

On average across OECD countries and economies, 12% of students reported that they discuss their own spending or saving decisions with their parents daily. In Brazil, Bulgaria and Costa Rica, more than 20% of students reported discussing their spending decisions with their parents daily, while in the Flemish community of Belgium, Denmark*, the Netherlands* and Poland, less than 10% did so. Some 25% of students in Costa Rica and 20% of students in Malaysia reported that they talk to their parents daily about their saving decisions, compared to 6% of students in Denmark* and 8% of students in Austria, the Flemish community of Belgium, the Netherlands* and Poland who so reported (Figure IV.4.1 and Table IV.B1.4.1).

On average across OECD countries and economies, and across participating countries and economies, 71% of students reported that they talk to their parents at least monthly about how to use their allowance or pocket money; from 61% in Brazil to 83% in Hungary (Figure IV.4.1 and Table IV.B1.4.1).

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 five topics discussed above. On average across OECD countries and economies, 58% of students reported that they talk to their parents at least monthly about news related to finance or economics, and 56% of students reported that they talk to their parents at least monthly about the family budget. However, about 70% of students in Bulgaria reported that they talk to their parents at least monthly about news related to finance or economics, and more than 70% of students in Bulgaria, Costa Rica, Hungary, Malaysia and Peru reported that they talk to their parents at least monthly about the family budget (Figure IV.4.1 and Table IV.B1.4.1).

On average across OECD countries and economies, more boys than girls – by 9 percentage points – reported discussing news related to economics or finance with their parents at least monthly. More boys than girls reported discussing news related to economics or finance in 18 of the 20 participating countries and economies, and the difference exceeded 10 percentage points in the Flemish community of Belgium, Czechia, Hungary, Italy, the Netherlands*, Norway, Poland, Saudi Arabia and the United Arab Emirates (Table IV.B1.4.2). Gender differences in discussing with parents about other topics were relatively limited on average across OECD countries and economies. When looking at results by country or economy, 8 percentage points more girls than boys in Portugal reported talking with their parents at least monthly about money for things they want to buy and about how to use their allowance; in Saudi Arabia, 10 percentage points more girls than boys reported talking to their parents at least monthly about online shopping; and in Bulgaria, 8 percentage points more girls than boys reported talking with their parents at least monthly about their own spending decisions. In the Netherlands*, 6 percentage points more boys than girls reported discussing the family budget with their parents at least monthly (Table IV.B1.4.2).

Students in socio-economically advantaged households – i.e. those from the top quarter of the distribution of the index of economic, social and cultural status (ESCS) within each country or economy – discussed six of the seven financial topics more often with their parents than students in disadvantaged households. The difference associated with socio-economic background in the percentage of students who reported discussing these topics at least monthly was largest with regards to news related to finance and economics (a 10 percentage-point gap on average across OECD countries and economies; a difference of more than 15 percentage points in Denmark*, the Netherlands* and Peru), students' own spending decisions (a 7 percentage-point gap on average across OECD countries and economies; a difference of more than 15 percentage points in Brazil, Peru and Saudi Arabia) and online shopping (a 7 percentage-point gap on average across OECD countries and economies; a difference of 25 percentage points or more in Brazil and Peru) (Table IV.B1.4.3). This may be because parents in more advantaged households may be more knowledgeable about and more experienced with financial content (Luhr, 2018^[9]; Kuhnen and Miu, 2017^[10]; Dewi, 2022^[11]), and because advantaged students may have more money to spend and hence perhaps more spending decisions to make, whether on line or in physical shops.

However, 6 percentage points more socio-economically disadvantaged students than their advantaged peers reported talking to their parents at least monthly about the family budget, on average across OECD countries and economies. This difference was widest in Austria (12 percentage points), the Flemish community of Belgium (11 percentage points) and the Netherlands* (10 percentage points). In Brazil, Peru and Saudi Arabia, however, more advantaged students than disadvantaged ones reported talking to their parents about the family budget at least monthly, by 6 percentage points or more. In seven countries and economies, this difference was not statistically significant (Table IV.B1.4.3).

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.

Results for immigrant and non-immigrant students are available in Annex B.

Student performance in financial literacy and discussing money matters with parents

Looking at the relationship between the topics discussed, the frequency with which they were discussed, and performance in financial literacy provides a complex picture (Figure IV.4.2 and Table IV.B1.4.5).

On average across OECD countries and economies, students who reported that they discuss with their parents weekly or monthly, about money for things that they want to buy, shopping on line and their own spending decisions performed better in financial literacy than students who reported never discussing these topics (Figure IV.4.2 and Table IV.B1.4.5). These three spending-related issues are also the topics that students discuss most often with their parents. In particular, students who reported discussing with their parents weekly or monthly about their own spending decisions performed 12 points higher in financial literacy than students who reported never discussing this topic, on average across OECD countries and economies, after accounting for students' characteristics including gender, socio-economic status and immigrant background. While PISA data do not allow to identify causal relationships, this result suggests that discussing spending-related topics with parents sometimes can be associated with higher financial literacy, or that high-performing students may initiate discussions with their parents about how to spend their money more than low-performing students.

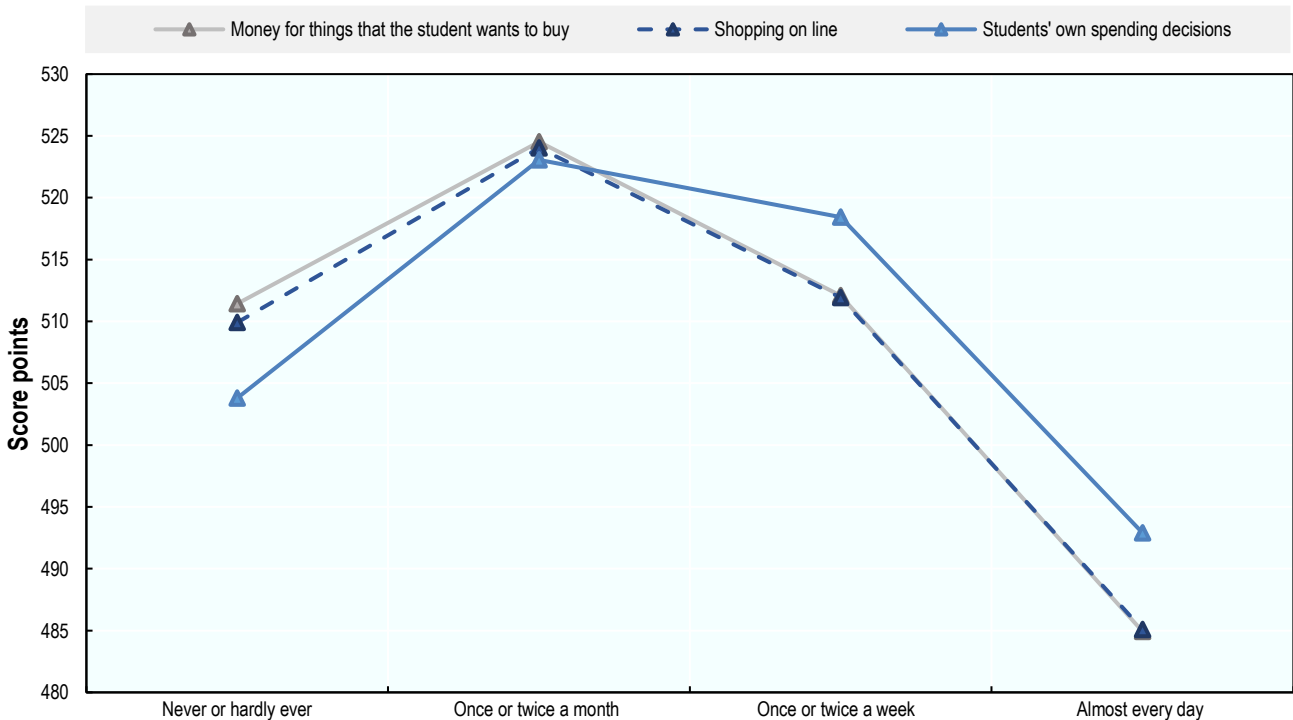
However, the association between discussing about the family budget and financial literacy performance tends to be negative in most participating countries and economies. On average across OECD countries and economies, students who discuss the family budget with their parents monthly or weekly performed 13 points lower in financial literacy than students who reported never discussing this topic, after accounting for students' characteristics such as gender, socio-economic status and immigrant background. The relationship between financial literacy performance and discussing - at least sometimes - other topics, such as students' own saving decisions, how to use pocket money

or news related to economics or finance, is less clear and varies substantially across participating countries and economies.

Discussing money matters with parents very often, such as daily, is associated with lower financial literacy than discussing monthly or weekly, and this is true for all topics, after accounting for student characteristics (Figure IV.4.2 and Table IV.B1.4.5). These results do not imply a causal relationship in which discussing money matters with parents very often leads to poorer financial literacy. It may be the case that low-performing students seek advice about money matters from their parents more often than high-performing students. It should also be noted that fewer than 15% of students reported discussing any of these topics with their parents almost daily, on average across OECD countries.

Figure IV.4.2. Financial literacy performance, by frequency of discussing money matters with parents

OECD average



Source: OECD, PISA 2022 Database, Table IV.B1.4.5.

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 Altioek-Yilmaz, 2014^[12]; Serido et al., 2015^[13]; Shim et al., 2010^[14]; Tang, Baker and Peter, 2015^[15]; Jarvis Bleazard, 2022^[16]), while other studies have found no such relationship (Jorgensen and Savla, 2010^[17]). PISA 2022 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. More specific research in this area may be beneficial.

How independent are students in their financial affairs?

PISA 2022 asked students to what extent they agree with various statements about their ability to handle their own money. On average across OECD countries and economies, over four in five students (83%) agreed or strongly

agreed that they could independently decide what to spend their money on. However, there was a large range across countries and economies – from less than 70% of students in Brazil, Peru and Portugal to 85% or more students in Austria, the Canadian provinces*, Czechia, Denmark*, Hungary, the Netherlands*, Norway and the United States* (Table IV.B1.4.6).

More specifically, over two in three students (70%), on average across OECD countries and economies, agreed or strongly agreed that they could spend small amounts of money independently, but needed to ask their parents for permission to spend larger amounts of money. Some 80% of students in Norway reported that they need to ask their parents for permission to spend larger amounts of money, compared to 58% of students in both the Netherlands* and Poland (Table IV.B1.4.6).

Just under one in three students (33%), on average across OECD countries and economies, agreed or strongly agreed that they need to ask their parents for permission before spending any money on their own. Some 62% of students in Malaysia and the United Arab Emirates, and 60% of students in Saudi Arabia so reported, compared to 23% of those in Austria, the Netherlands* and Poland (Table IV.B1.4.6).²

Some 77% of students, on average across OECD countries and 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 and economy except Denmark* (60%), Brazil (67%), Austria (69%) and Poland (70%) agreed or strongly agreed with this statement (Table IV.B1.4.6).

Some 68% of students, on average across OECD countries and economies, agreed or strongly agreed that young people should make their own decisions about how to spend their money. Some 51% of students in Portugal agreed with this statement, compared to 80% of those in Denmark* (Table IV.B1.4.12).

In almost every country and economy, girls were more autonomous than boys in spending money. On average across OECD countries and economies, more girls than boys agreed or strongly agreed that they could decide independently what to spend their money on (by 3 percentage points), more girls than boys agreed or strongly agreed that they could spend small amounts of money independently but would need to ask their parents for permission to spend larger amounts (by 1 percentage point), and more girls than boys agreed that young people should make their own decisions about how to spend money (by 1 percentage point). The gender gaps were particularly wide in Bulgaria, Czechia, Malaysia and Saudi Arabia. Conversely, more boys than girls, by 6 percentage points on average across OECD countries and economies, agreed or strongly agreed that they had to ask their parents for permission before spending any money on their own (Table IV.B1.4.7 and Table IV.B1.4.13).

Students were also more financially autonomous, at least for small amounts of money, the more advantaged their socio-economic status. For instance, more advantaged students than disadvantaged students agreed or strongly agreed that they could decide independently what to spend their money on, by 4 percentage points on average across OECD countries and economies. There was a difference between socio-economically advantaged and disadvantaged students in 13 of the 19 participating countries and economies with valid data in the PISA 2022 financial literacy assessment – and it was 26 percentage points wide in Peru. Likewise, fewer advantaged students than disadvantaged students agreed or strongly agreed that they need to ask their parents for permission before spending any money on their own, by 7 percentage points on average across OECD countries and economies. There was a difference between advantaged and disadvantaged students in 12 of the 19 participating countries and economies with valid data and, again, it was 18 percentage points wide in Peru. More advantaged students than disadvantaged students agreed or strongly agreed that they could spend small amounts of money independently, but needed to ask their parents for larger amounts, by 6 percentage points on average across OECD countries and economies. There was a difference between advantaged and disadvantaged students in 14 of the 19 countries and economies that participated in the 2022 financial literacy assessment and had valid data, and this difference was widest in the United States* (14 percentage points). Finally, more advantaged students than disadvantaged students agreed or strongly agreed that young people should make their own decisions on how to spend money (by 4 percentage points on average across OECD countries and economies). This gap was significant in 12 of the 19 participating countries and economies with valid data, and was widest in Peru (21 percentage points) (Table IV.B1.4.8 and Table IV.B1.4.14).

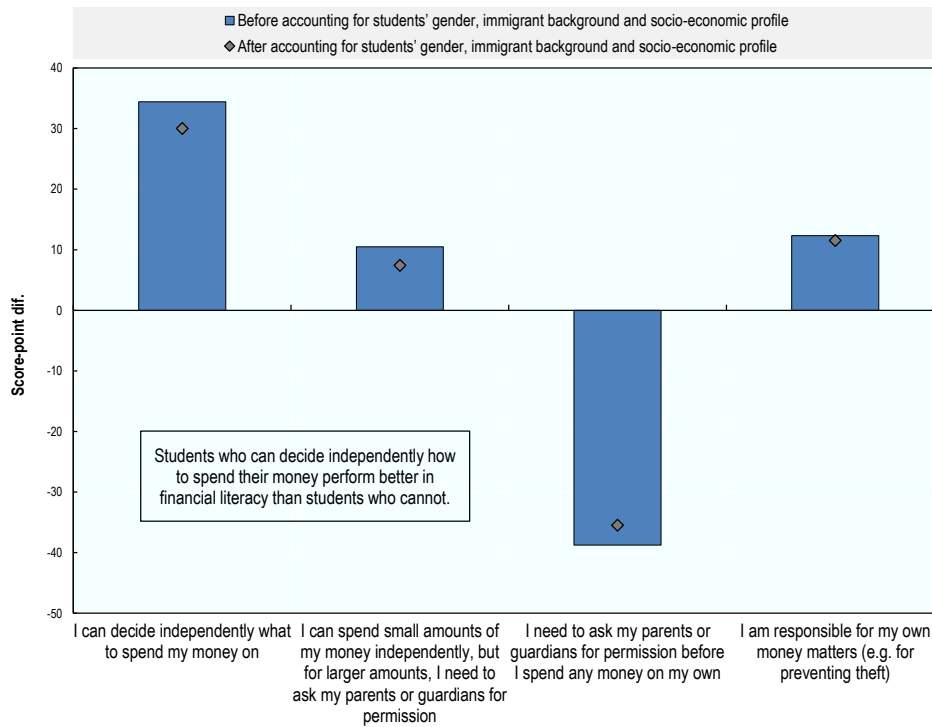
Results for immigrant and non-immigrant students are available in Annex B.

Student performance in financial literacy and autonomy in financial affairs

Students who were more independent in their financial affairs performed better in the PISA 2022 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 34 points higher, on average across OECD countries and economies, than students who disagreed or strongly disagreed with this statement; after accounting for student characteristics, they still scored 30 points higher. Students who agreed or strongly agreed that they could decide independently what to spend their money on scored higher than students who disagreed or strongly disagreed with this statement in every participating country and economy with valid data, except Italy and Portugal (Table IV.B1.4.10 and Figure IV.4.3).

Figure IV.4.3. 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. The socio-economic profile is measured by the PISA index of economic, social and cultural status (ESCS).
 Note: All score-point differences are statistically significant (see Annex A3).
 Source: OECD, PISA 2022 Database, Table IV.B1.4.10.

Students who agreed or strongly agreed that they could spend small amounts of money independently, but had to ask their parents for permission to spend larger amounts of money scored 7 points higher in the PISA 2022 financial literacy assessment than students who disagreed or strongly disagreed with this statement, after accounting for student characteristics including gender, socio-economic status and immigrant background, and on average across OECD countries and economies. Being responsible for their own money matters was also associated with a 12-point improvement in students’ scores. In 13 of the 19 participating countries and economies with valid data, 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 Malaysia, after accounting for student characteristics. In

Denmark* however, students who agreed or strongly agreed that they were responsible for their own money matters had an average financial literacy score 15 points lower than those who disagreed with this statement, after accounting for student characteristics (Table IV.B1.4.10 and Figure IV.4.3).

Students who agreed or strongly agreed that young people should make their own decisions about how to spend money scored 9 points higher than those who disagreed, on average across OECD countries and economies and after accounting for gender, socio-economic status, and immigrant background. The difference was higher than 25 score points in Austria, Bulgaria, the Netherlands*, Malaysia, Poland and Saudi Arabia. In Portugal however, students who agreed with this statement scored on average 15 score points lower than those who disagreed with it (Table IV.B1.4.16).

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^[18]; Jariwala and Dziegielewski, 2017^[19]; Vosylis and Erentaitė, 2020^[20]; Endro et al., 2019^[21]). Further research in this area may be warranted.

Results related to the correlation between the index of parental involvement in matters of financial literacy and students' autonomy in handling money are available in Annex B.

Table IV.4.1. Students' interactions with their parents about money matters chapter figures

Figure IV.4.1	Frequency of discussing money matters with parents
Figure IV.4.2	Financial literacy performance, by frequency of discussing money matters with parents
Figure IV.4.3	Financial literacy performance, by students' autonomy in spending decisions

StatLink  <https://stat.link/py2036>

Notes

¹ In this chapter, the term “parents” is used to refer to parents, guardians or other adult relations.

² 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.

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5 Students' self-reported exposure to financial literacy in school

This chapter discusses three aspects that illustrate students' self-reported exposure to financial literacy in schools: the money-related terms that students report having learned, the money-related tasks that they report having encountered, and the classes in which they report having encountered these money-related tasks. These aspects are related to various student and school characteristics, and to performance in financial literacy.

While Chapter 4 discussed the role of parents in discussing money matters with their children, many students may also learn from their teachers and through schools. 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? The literature on the exact nature of financial education in secondary schools is sparse, and no comparative studies of financial education programmes in school across countries have been carried out. Instead, most studies have focused on evaluating the impact of specific school-based financial education programmes on financial literacy (Becchetti, Caiazza and Coviello, 2013^[1]; Kaiser and Menkhoff, 2020^[2]; Frisancho, 2020^[3]; Bover, Hospido and Villanueva, 2018^[4]; Coda Moscarola and Kalwij, 2021^[5]).

This chapter discusses students' self-reported 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

- More than two in three students, on average across OECD countries and economies, reported that they had learnt about a wage (73%), a budget (70%) or a bank loan (68%) in school over the preceding 12 months and still know what these terms mean. However, fewer than one in three 15-year-old students, on average across OECD countries and economies, reported that they had learnt about diversification (18%), depreciation (22%), dividend (24%), compound interest (25%) or return on investment (27%) and still know what they mean.
- Socio-economically advantaged students and students attending advantaged schools, reported more than their disadvantaged counterparts that they had learned about most of these terms and still know what they mean, on average across OECD countries and economies. More boys than girls reported having learned, and still knowing the meaning of, less familiar terms such as depreciation, compound interest, diversification, shares/stocks, exchange rate and return on investment.
- Students who reported that they had learned and still know these finance-related terms outperformed students who did not in the PISA 2022 financial literacy assessment, after accounting for student and school characteristics, and students' performance in mathematics and reading, on average across OECD countries and economies.
- On average across OECD countries and economies, roughly two thirds of students reported having been exposed sometimes or often to tasks exploring the difference between spending money on needs and wants (67%) and to tasks describing the purpose and uses of money (64%).
- Some 44% of students reported that they had seen personal finance-related tasks in their mathematics classes, on average across OECD countries and economies. Roughly one in three students reported that he or she had seen at least one of these personal finance-related tasks in another class, such as social sciences, citizenship, economics or business.

Self-reported exposure to financial education in schools

The PISA 2022 financial literacy questionnaire asked students about three 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 in school
- financial literacy tasks or activities that they had encountered in school
- classes in which they might have encountered these types of tasks about money.

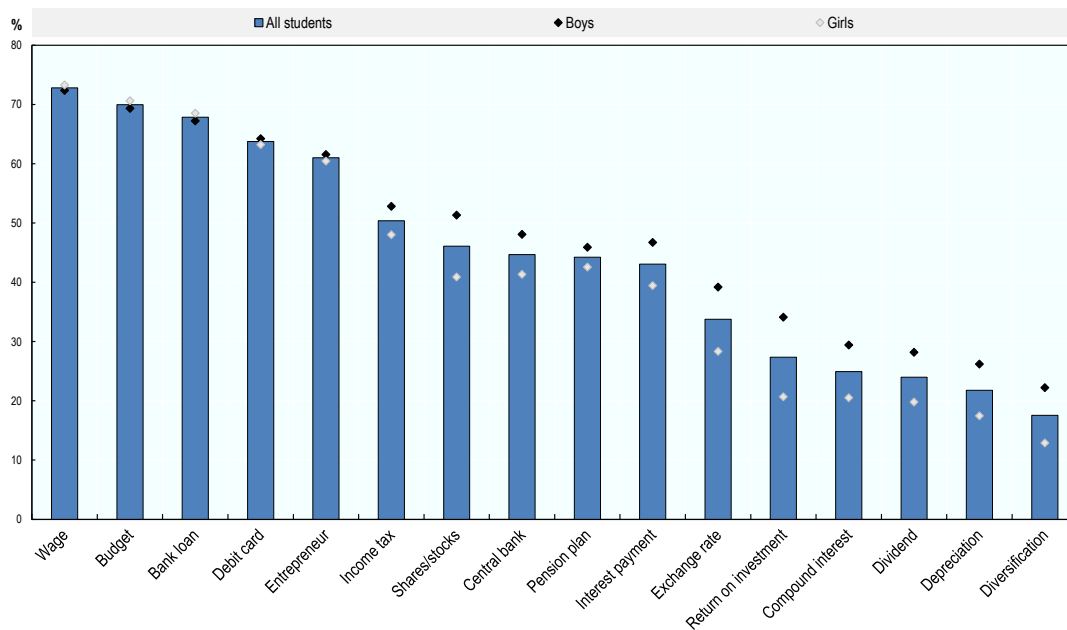
The PISA 2022 financial literacy questionnaire also asked students whether they had ever learned how to manage their money. More precisely, students were asked to specify whether this was in a school subject or course specifically about managing their money, in school as part of another subject or course or in an activity outside school. The results based on these questions are not qualitatively different from the results based on the three aspects mentioned above, and they are available in the tables in Annex B.

Across countries, students may have different notions about what it means to know a term or whether they have conducted financial literacy activities in school. 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 may be reflected in their reports.

Students were presented with a list of 16 terms related to finance and economics. More than two in three students, on average across OECD countries and economies, reported that they had heard about a wage (73%), a budget (70%) or a bank loan (68%) over the preceding 12 months and still knew what these terms meant. However, fewer than one in three 15-year-old students, on average across OECD countries and economies, reported that they had heard about diversification (18%), depreciation (22%), dividend (24%), compound interest (25%) or return on investment (27%) and still knew what they meant (Figure IV.5.1 and Table IV.B1.5.1). On average among all participating countries, slightly fewer students reported that they had learnt about a wage (67%), a budget (64%), a bank loan (63%) and still knew what these terms meant, and slightly more students reported they had learnt about return on investment (28%), compound interest (26%), dividend (26%) or diversification (19%) and still knew what they meant.

Figure IV.5.1. Students' self-reported 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



Note: All gender differences are statistically significant (see Annex A3). 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 2022 Database, Table IV.B1.5.1 and Table IV.B1.5.3.

The index of familiarity with concepts of finance was created to reflect how many of the 16 terms students reported learning about over the previous 12 months and whose meaning they still knew.¹ On average across OECD countries and economies, students reported that they had learned about and still knew just over 7 of the 16 terms. Students in the Netherlands* were the most knowledgeable, reporting that they knew about 9 of the 16 terms on average; they were followed by students in Austria and Denmark*, who reported knowing about 8 of the 16 terms, on average. At the other end of the index, students in Saudi Arabia reported knowing only just 3 of the 16 terms, followed by students in Bulgaria (about 5 of the terms on average) (Table IV.B1.5.1).

However, there was a wide distribution in the number of terms that students in each country and economy reported that they had learned about and whose meaning they still knew. Although on average across OECD countries and economies, the median student reported knowing roughly 7 of the 16 terms, at least 10% of students in every participating country and economy except Denmark* and the Netherlands* reported knowing none of the 16 terms. In Brazil, Bulgaria, Malaysia, Poland and Saudi Arabia, at least 25% of students reported knowing none of the 16 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.

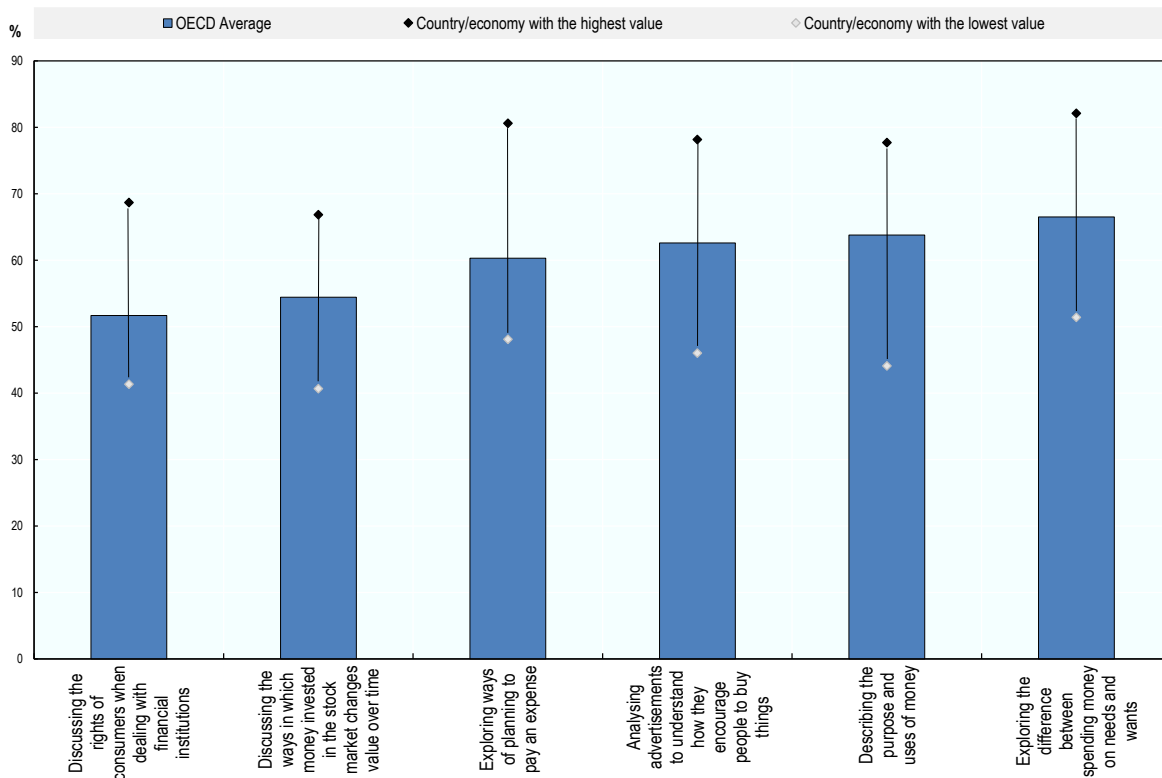
On average across OECD countries and economies, the percentage of students reporting that they had often encountered personal finance-related tasks over the previous 12 months ranged between 13% (for tasks discussing the rights of consumers when dealing with financial institutions) and 20% (for tasks exploring the difference between spending money on needs and wants). However, more students reported that they had sometimes encountered personal finance-related tasks over the previous 12 months, ranging between 39% (tasks discussing the rights of consumers when dealing with financial institutions) and 48% (tasks describing the purpose and uses of money) of students, on average across OECD countries and economies (Table IV.B1.5.9).

On average across OECD countries and economies, two thirds of students reported having been exposed sometimes or often to tasks exploring the difference between spending money on needs and wants (67%), ranging between 82% in Malaysia and 51% in Italy. Similarly, 64% of students reported having been exposed sometimes or often to tasks describing the purpose and uses of money, on average across OECD countries and economies (ranging between 78% in Denmark* and 44% in Italy). Fewer students reported having been exposed sometimes or often to tasks discussing the rights of consumers when dealing with financial institutions (52% on average across OECD countries and economies; 69% in Malaysia; and 41% in Italy).

The index of financial education in school lessons was created based on students' responses to how often they recalled having encountered these six tasks or activities. It was standardised so that the mean index across OECD countries and economies was 0 and the standard deviation across OECD countries and economies was 1. Students in the Canadian provinces* and the United Arab Emirates (0.35 for both) reported having been most exposed to financial education in school lessons, while students in Italy (-0.40) and the Flemish community of Belgium (-0.27) reported having been the least exposed over the prior 12 months (Figure IV.5.2 and Table IV.B1.5.9).

Figure IV.5.2. Students' self-reported exposure to financial literacy tasks 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; OECD average



Items are ranked in ascending order of the frequency with which students had encountered the personal finance-related tasks in a school lesson over the previous 12 months, on average across OECD countries.

Source: OECD, PISA 2022 Database, Table IV.B1.5.9.

Students were also asked in which classes or activities they had encountered these personal finance-related tasks.² They were permitted to state that they covered these tasks in more than one of these options:

- mathematics classes
- classes about social sciences
- classes about citizenship
- classes about economics or business
- another class
- a one-off lesson or activity during school time from an outside visitor (not a teacher)
- extracurricular activities outside of school time.

As shown in Figure IV.5.3, the types of classes or activities where students reported encountering personal finance-related tasks varied substantially across participating countries and economies. Some 44% of students reported that they had seen at least one of these tasks in their mathematics classes, on average across OECD countries and economies; this ranged from a low of 24% of students in the Flemish community of Belgium to a high of 82% of students in Peru.

On average across OECD countries and economies, roughly one in three students reported that he or she had encountered at least one of these personal finance-related tasks in another (non-mathematics) class. On average

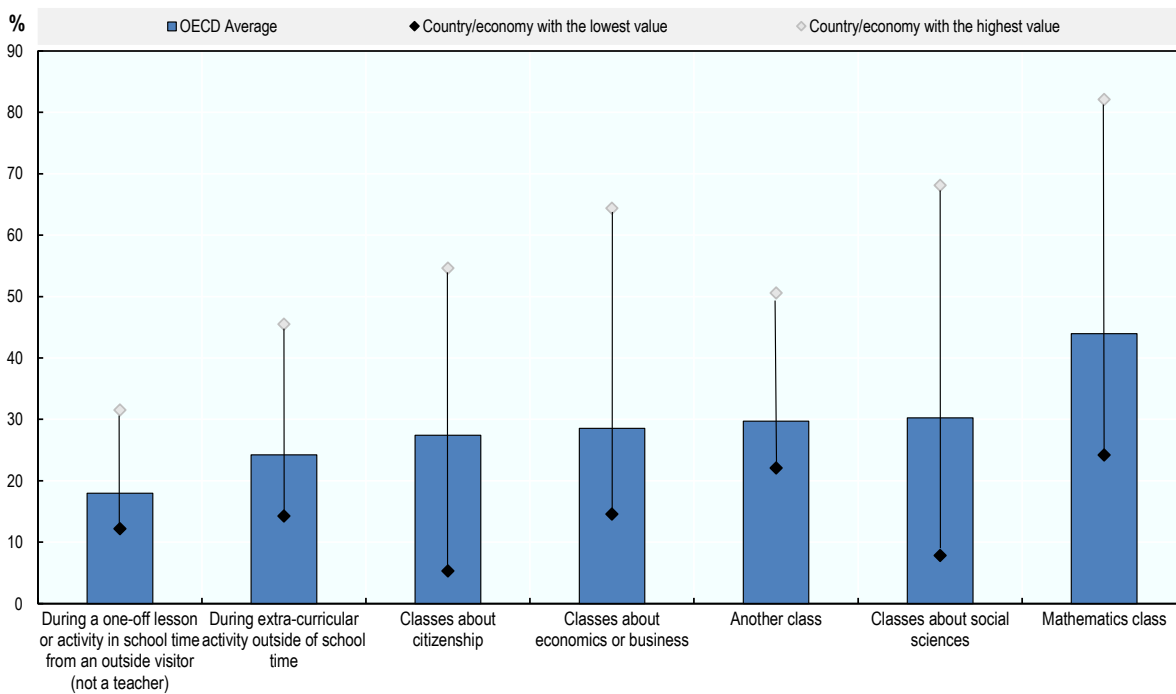
across OECD countries and economies, 30% of students reported encountering these tasks in classes about social sciences (ranging from 8% in Hungary to 68% in Denmark*); 29% in classes about economics or business (from 15% in Portugal to 64% in the Netherlands*); and 27% in classes about citizenship (from 5% in the Netherlands* to 55% in Czechia).

In addition to school classes, some students reported having seen at least one of these six personal finance-related tasks in other activities. Some 18% of students reported that they had seen at least one of these tasks in a one-off lesson or activity during school time from an outside visitor (not a teacher) and 24% reported that they had seen these tasks in extracurricular activities outside of school time (Figure IV.5.3 and Table IV.B1.5.16).

However, in interpreting these results it is important to take into account that results are based on self-reporting from students, which may differ from the actual exposure to financial education they received. For example, a considerable percentage of students reported that they did not know whether they had seen these tasks in their classes or other activities (between 12% for classes about economics or business, and 23% for one-off lessons from an outside visitor, on average across OECD countries and economies) or that they did not have a certain class or activity (for instance, 25% of students reported not having citizenship classes, and 41% reported not having economics or business classes, on average across OECD countries and economies) (Table IV.B1.5.16).

Figure IV.5.3. Students’ self-reported exposure to financial literacy tasks in different types of classes or activities

Percentage of students who had encountered personal finance-related tasks in the following classes or activities in the previous 12 months; OECD average



Items are ranked in ascending order of the percentage of students who had encountered personal finance-related tasks in the following classes or activities in the previous 12 months, on average across OECD countries.

Source: OECD, PISA 2022 Database, Table IV.B1.5.16.

Results related to whether students reported having learned how to manage money in a course are available in Annex B.

Variation in self-reported exposure to financial education programmes in school related to student and school characteristics

Gender

In most countries and 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 2022 financial literacy questionnaire show that girls reported somewhat less exposure to financial terms and personal finance-related tasks than boys.

On average across all participating as well as OECD countries and economies, girls reported knowing around 6 of the 16 finance terms while boys reported knowing closer to 7 of those terms (Table IV.B1.5.3).

As shown in Figure IV.5.1, 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 knew what the term meant – the greater the gender difference in familiarity in favour of boys, on average across OECD as well as all participating countries and economies. Indeed, the difference in the percentage of boys and girls who reported having learned, and still knowing the meaning of, the most familiar terms – “wage”, “budget”, “bank loan”, “debit card” and “entrepreneur” – was very small (roughly 1 percentage point, on average across OECD countries and economies). On the contrary, across OECD countries and economies, more boys than girls reported having learned, and still knowing the meaning of, less familiar terms such as “depreciation” (9 percentage points difference in favour of boys), “compound interest” (9 percentage points), “diversification” (9 percentage points), “shares/stocks” (10 percentage points), “exchange rate” (11 percentage points) and “return on investment” (13 percentage points). (Figure IV.5.1 and Table IV.B1.5.3).

Some gender differences in favour of boys were also observed in the proportion of students who reported having encountered the six personal finance-related tasks in school lessons over the previous 12 months. The gender differences was relatively limited in the proportion of students who reported having been exposed to some of the most frequently encountered tasks, such as exploring the difference between spending money on needs and wants (4 percentage points in favour of boys, on average across OECD countries and economies and 3 percentage points across all participating countries and economies) or describing the purpose and uses of money (5 percentage points favour of boys, on average across OECD countries and economies, compared to 4 percentage points on average across all countries and economies). However, the gender differences were relatively larger on some less frequently encountered tasks, such as discussing the rights of consumers when dealing with financial institutions (10 percentage points favour of boys, on average across OECD countries and economies, 9 percentage points among all participating countries and economies) (Table IV.B1.5.10).

Gender differences in self-reported exposure to the six personal finance-related tasks in the various types of classes (such as mathematics, social sciences or others) or activities were quite limited, on average across OECD countries and economies as well as among all participating countries and economies (Table IV.B1.5.17).

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, and tasks. 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 (Beyer and Bowden, 1997^[6]; Herbst, 2020^[7]; Aristei and Gallo, 2022^[8]). In addition, while they may attend the same schools, boys and girls may have different tendencies to enrol in certain programmes or courses, or they may have reported learning these terms in school even if they had in fact learnt them in other contexts. 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 – reported more than their disadvantaged peers that they know about terms related to economics and finance. According to students’ reports, advantaged students³ had

learned about and still knew the definitions of two more of the 16 terms than disadvantaged students had learned, on average across OECD countries and economies as well as among all participating countries and economies. The difference was statistically significant in each of the countries and economies that participated in the assessment, and exceeded three terms in Bulgaria and Malaysia. Indeed, in Malaysia, students' socio-economic status explained 6% of the variation in the number of terms that students knew. At the other end of the scale, in the Flemish community of Belgium, Italy, Portugal and Saudi Arabia, advantaged students knew roughly only one more term than disadvantaged students, according to students' reports (Table IV.B1.5.4).

Similar results are observed for students attending advantaged schools (measured as the average socio-economic background of students in the school)⁴ (Table IV.B1.5.5).

Significantly more advantaged than disadvantaged students reported knowing each of the 16 terms, on average across OECD and all participating countries and economies (Table IV.B1.5.4). 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 knew the definition of a term, was widest for the terms "shares/stocks" (a gap of 17 percentage points on average across OECD countries and economies), "entrepreneur" (13 percentage points), "exchange rate" (12 percentage points), "interest payment" (12 percentage points), "budget" (12 percentage points) (Table IV.B1.5.4). Students attending advantaged schools also reported more than their counterparts attending disadvantaged schools that they had learned about most of these terms in the previous 12 months and still knew what they meant, on average across OECD countries and economies as well as across all participating countries and economies. However, there was no significant difference for the term "diversification" (Table IV.B1.5.5).

In Austria, the Flemish community of Belgium, Bulgaria, Czechia, Hungary, Italy, Poland and Portugal, more disadvantaged students than advantaged students reported that they had sometimes or often encountered most of the six personal-finance related tasks described above over the 12 months prior to the PISA 2022 financial literacy assessment; by contrast, in Brazil, Denmark*, Malaysia, Peru and the United Arab Emirates, more advantaged students than disadvantaged students reported so. On average across OECD countries and economies, disadvantaged students reported more than their advantaged counterparts that they had encountered these financial literacy tasks (Table IV.B1.5.11). Similar patterns were observed between students attending advantaged and disadvantaged schools (Table IV.B1.5.12).

Results related to school location and to programme orientation (i.e. general vs. vocational/pre-vocational) are available in the tables in Annex B.

Self-reported exposure to financial education in schools and performance in financial literacy

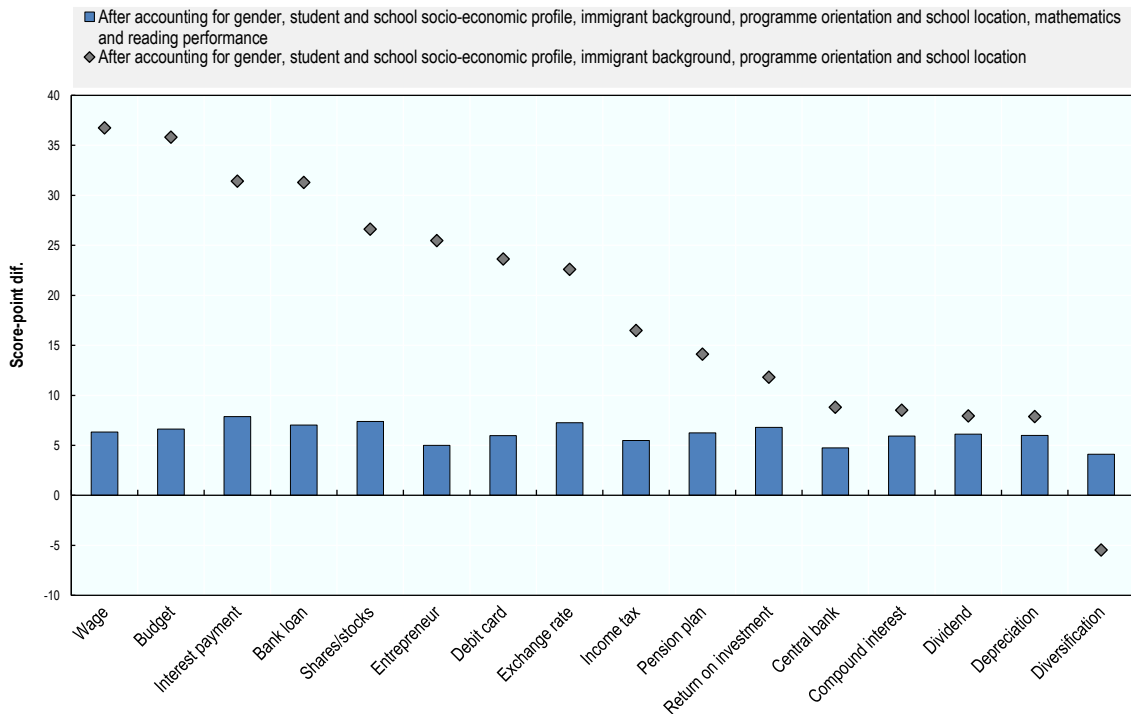
Some patterns in the relationship between self-reported exposure to financial education in schools and performance in financial literacy may be consistent with the fact that financial education is still starting to be introduced in formal school education, and that this is done in different ways in different countries or economies, as discussed in Chapter 1. Moreover, PISA data offer a cross-sectional overview of students' exposure to financial education in school and of its association with financial literacy performance, but cannot be used to draw causal conclusions about the direction of this relationship.

Students who reported having been more exposed to financial or economics-related terms were also more financially literate, as measured by the PISA 2022 financial literacy assessment. Each additional term, of the 16 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 both OECD countries and economies and all participating countries and economies, after accounting for student and school characteristics, such as gender, student and school socio-economic profile, immigrant background, programme orientation and school location (Table IV.B1.5.8).

In the Canadian provinces*, Czechia, Malaysia, the Netherlands* and the United Arab Emirates, 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 was about 5 score points per additional term the student still knew, after accounting for student and school characteristics.⁵ By contrast, in Portugal, reporting having learned an additional term was not associated with greater performance in the PISA 2022 financial literacy assessment. These differences were significant in all other countries and economies that participated in the assessment and had valid data, both before and after accounting for student and school characteristics (Table IV.B1.5.8).

Figure IV.5.4. Financial literacy performance, by students’ self-reported 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. The socio-economic profile is measured by the PISA index of economic, social and cultural status.
 Note: Score-point differences that are statistically significant are marked in a darker tone; all score-point differences after accounting for student and school characteristics are statistically significant (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 student and school characteristics.
 Source: OECD, PISA 2022 Database, Table IV.B1.5.8.

Self-reported exposure to 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 38 score points, on average across OECD countries and economies and after accounting for student and school characteristics), “budget” (37 points), “bank loan” (32 points) and “interest payment” (32 points). The performance gaps related to self-reported exposure to these individual terms were significant in every country and economy that participated in the PISA 2022 financial literacy assessment, after accounting for student and school characteristics. These terms were amongst those that were most commonly reported as known by 15-year-old students (Figure IV.5.1 and Figure IV.5.4 and Tables IV.B1.5.1 and IV.B1.5.8).

In interpreting these results, it is important to consider that high performing students may be more likely to recall having been exposed to these terms and still know what they mean than low performing students. Even after taking into account not only student and school characteristics, but also students' performance in mathematics and reading (indicating their overall ability in the main school subjects), self-reported exposure to each of the financial terms is associated with higher financial literacy performance, on average across OECD and all participating countries and economies. Financial literacy performance gaps associated with knowing the meaning of each of the various financial or economics-related terms, after taking into account student and school characteristics as well as student performance in math and reading, ranged from 4 to 8 score points, on average across OECD and all participating countries and economies (Table IV.B1.5.8).

While self-reported exposure to finance/economics-related terms was associated with greater financial literacy across most participating countries and economies, students' self-reported exposure to personal finance-related tasks in school lessons was associated in different ways to financial literacy in different countries. For instance, for each additional unit on the index of financial education in school lessons, students in the United States* scored 14 points lower in financial literacy and students in the Flemish community of Belgium scored 13 points lower, after accounting for student and school characteristics (gender, student and school socio-economic profile, immigrant background, programme orientation and school location). However, self-reported exposure to these tasks in school was associated with an improvement in financial literacy performance in Malaysia and Peru (an improvement of 8 points, after accounting for student and school characteristics) (Table IV.B1.5.15).

Also when looking at self-reported exposure to each of the six personal finance-related tasks in school, the direction of the performance gap was not consistent across countries and economies: while self-reported exposure to most of the personal finance-related tasks in school was associated with lower scores in financial literacy in most participating countries and economies, in Malaysia and Peru self-reported exposure to most tasks was associated with higher scores in financial literacy, after accounting for student and school characteristics. The negative association between self-reported exposure to these tasks and financial literacy performance was relatively larger for tasks that were less frequently encountered than for more frequent tasks, on average across OECD countries and economies. On average across OECD countries and economies, students who reported having been exposed to tasks discussing the rights of consumers when dealing with financial institutions, which was the least encountered task on average, scored 25 points lower than students who reported not having encountered these tasks, after accounting for student and school characteristics. Students who reported having been exposed to tasks describing the purpose and uses of money, which was among the most common tasks on average, scored 7 points lower than students who reported not having encountered these tasks, after accounting for student and school characteristics (Table IV.B1.5.15).

It is important to note that 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, several studies based on randomised control trials show a positive impact of school-based financial education programmes on students' financial knowledge (Becchetti, Caiazza and Coviello, 2013^[1]; Kaiser and Menkhoff, 2020^[2]; Frisanchi, 2018^[9]; Frisanchi, 2020^[3]; Bover, Hospido and Villanueva, 2018^[4]; Coda Moscarola and Kalwij, 2021^[5]; Amagir et al., 2018^[10]). The negative association between self-reported exposure to the six personal finance-related tasks in school and financial literacy performance assessed in PISA may be related to a variety of reasons. It is possible that students with poorer financial literacy skills (or poorer cognitive skills in general) might be those who attend classes where such tasks are presented. After taking into account not only student and school characteristics, but also students' performance in mathematics and reading (indicating their overall ability in the main school subjects), the difference in financial literacy performance between students who reported having been exposed or not to the six personal finance-related tasks becomes very small or null in all participating countries and economies (Table IV.B1.5.15). It may also be possible that financial education programmes are emphasised in schools whose students may be, a priori, less financially literate, as a way to address students who need these skills the most.

Students who reported having encountered the personal finance-related tasks in their mathematics classes scored 7 points higher in the PISA 2022 financial literacy assessment than students who reported not having encountered such tasks⁶ in their mathematics classes, on average across OECD countries and economies (8 points across all

participating countries and economies), after accounting for student and school characteristics. However, students who reported having encountered the personal finance-related tasks in their citizenship classes scored 11 points lower than students who reported not having encountered such tasks in their citizenship classes, on average across OECD countries and economies, and 12 points lower on average across all participating countries and economies, after accounting for student and school characteristics. Students' financial literacy performance was not related to students' reports of having encountered personal finance-related tasks in social sciences, economics or business classes, on average across OECD as well as all participating countries and economies, after accounting for student and school characteristics. In interpreting these results it is also important to note that the direction of the performance gap related to self-reported exposure to these personal finance-related tasks in school classes was, again, not consistent across countries and economies (Table IV.B1.5.22).

The OECD Recommendation on Financial Literacy insists on the importance of providing long-term and structural approaches to develop the financial literacy of youth, as opposed to one-off interventions (OECD, 2020^[11]). PISA 2022 data show that students who reported having encountered personal finance-related tasks in a one-off lesson or activity during school time from an outside visitor, or during extracurricular activities outside of school time, scored lower than students who reported not having encountered such tasks during these activities, on average across OECD countries and economies. The negative performance differences were observed in most countries and economies that participated in the assessment (Table IV.B1.5.22).

Furthermore, it cannot be inferred from these results that mathematics classes are the best vehicle for imparting knowledge about financial matters to students, or that citizenship classes are an ineffective way of teaching financial literacy. Students who reported having been exposed to personal finance-related tasks in different classes or venues might be different from those who reported having been exposed 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 certain classes or extracurricular activities to acquire those skills, or that certain classes and extracurricular activities on financial literacy might be targeted at students who need to acquire those skills the most. It might also be the case that money matters are only discussed in advanced mathematics classes, i.e. classes that are by definition attended by higher performing students. 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. Indeed, after taking into account students' performance in mathematics and reading (indicating their overall ability in the main school subjects), the difference in financial literacy performance between students who reported having been exposed or not to personal finance-related tasks in various classes and activities becomes very small or null in all participating countries and economies (Table IV.B1.5.22).

Again, it is important to remember that most studies to date have examined the effect of individual programmes on specific populations. Impact assessments of school-based financial literacy programmes in participating countries and economies evaluate the effectiveness of such programmes in improving students' levels of financial literacy (Box IV.5.1). PISA 2022 goes further than many other previous studies to provide a snapshot on students' self-reported exposure to financial terms and personal finance-related tasks in school. However, it is important to note that self-reported information should be interpreted with caution as it reflects students' recollection of what they learned through exposure to personal finance-related tasks, rather than an objective assessment of the quality and comparability of what was taught, of the accuracy of the information delivered, and of the effectiveness of these programmes. 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 or schools.

Box IV.5.1. Assessing the impact of school lessons on financial literacy

In 2010-2011, researchers conducted a randomised control trial (RCT) to evaluate the impact of a pilot financial education programme targeting high school students in **Brazil**. The programme integrated financial literacy lessons in the school curriculum via in school and take-home exercises, and covered about 25 000 students from 892 public high schools in six Brazilian states. Data were collected in schools through three surveys (one baseline

and two follow-up surveys), administrative data and interviews of teachers and school principals. Results indicate that students' financial knowledge, attitudes and graduation rates improved for those receiving the financial education course, and that parents' financial knowledge and behaviour also improved when their children had attended such course. Results on students' short-term financial behaviours were more nuanced, with positive treatment effects on some key areas of focus of the programme, such as saving for purchases, money management and budgeting, but also an increase in borrowing, late credit repayments and use of expensive financial products among students who had attended the financial education course (Bruhn et al., 2013^[12]; Bruhn et al., 2016^[13]).

Combining the experiment data with administrative datasets housed at the Brazilian Central Bank (BCB), Bruhn et al. (2022^[14]) show long-term behavioural effects by building a panel following 16 000 students for nine years after the intervention. In the long term, treatment students were less likely to borrow from expensive sources and to have loans with late payments than control students. The programme also affected students' occupational choice, steering them from working as formal employees towards entrepreneurship, which was one of the topics covered in the programme. A high proportion of students also acquired accounts in the financial system in the two years after starting high school, indicating that high school may be a teachable moment to ensure long-run effects.

Since the first study in 2010, financial education has increasingly been taught in schools in Brazil, thanks notably to the Aprender Valor programme promoted by the BCB. This is a nationwide initiative aiming to improve the financial literacy of primary and secondary school students through classroom projects integrating financial education within other subjects such as mathematics, Portuguese or human sciences. The programme offers three major elements: online training for teachers and other education professionals, school projects, which are ready-to-use materials to be used by teachers in class, and learning assessments through entry and exit tests, i.e. an assessment of financial literacy levels before and after the programme. In 2022, an external partner carried out an impact evaluation of the Aprender Valor programme in schools to assess how much both the training for teachers and the school projects actually affected students' financial literacy levels. A representative sample of 783 schools was selected and divided into a treatment and control group. The data showed that students from schools that participated in the programme presented a more significant evolution in their financial literacy (Banco Central do Brasil, 2024^[15]).

Evidence from experiments among about 20 000 pupils attending primary, lower secondary and high schools in **Italy** showed that financial education lessons in class improved financial knowledge among children, and that improvements were still observed one year after the lesson (Romagnoli and Trifilidis, 2013^[16]). In this study, financial education was integrated in other school subjects and voluntary teachers received a specific training prepared by the Bank of Italy. Additionally, a study comparing financial education delivery methods among 403 first-year university students studying mathematics showed that students receiving both in-class and online courses in financial education improved their levels of financial knowledge (Agasisti et al., 2023^[17]).

A study using a RCT among about 20 000 students in 300 high schools in **Peru** showed that in-class financial education improved children's levels of financial knowledge as well as their financial behaviour. Improvements in financial behaviour were also observed three years after the course, showing the potential long-lasting impact of financial education for children (Frisancho, 2023^[18]). The same data was used to study possible spillover effects from financial education programmes on parents' behaviour. In particular, parents in disadvantaged households whose children received a financial education course improved their credit scores by 5% and reduced their default probabilities by 26% on average (Frisancho, 2023^[19]).

Using an RCT, a study among about 3 000 students in 78 public and private high schools in **Spain** showed that those receiving a 10-hour financial education course improved their financial knowledge and financial behaviour, as well as their attitudes toward saving in an incentivised task. The course focused on saving, budgeting, responsible consumption, bank accounts and investment through pension funds and insurance companies. The share of students who reported talking about economies with their parents also increased among those having

received the course, suggesting an increased awareness of or interest in matters related to money (Bover, Hospido and Villanueva, 2018⁽⁴⁾).

Table IV.5.1. Students' self-reported exposure to financial literacy in school chapter figures

Figure IV.5.1	Students' self-reported exposure to financial terms in school
Figure IV.5.2	Students' self-reported exposure to financial literacy tasks in school lessons
Figure IV.5.3	Students' self-reported exposure to financial literacy tasks in different types of classes or activities
Figure IV.5.4	Financial literacy performance, by students' self-reported exposure to financial terms in school

StatLink  <https://stat.link/s4yq0f>

Notes

¹ The index of familiarity with concepts of finance therefore takes values between 0 and 16.

² Students in Saudi Arabia were not asked about citizenship classes, and students in Norway were not asked about economics or business classes.

³ In PISA, advantaged students are defined as those in the top quarter (25%) of the distribution of socio-economic status in their country or 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.

⁴ Advantaged schools are those in the top quarter (25%) of the distribution of school socio-economic profile in their country or 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.

⁵ Although caution should be used when interpreting results for the Canadian provinces* and the United Arab Emirates, as there were too few observations to provide reliable estimates, according to PISA methodology.

⁶ For the sake of this analysis, the category of students who reported that they had not seen such tasks in this class/activity includes students who reported that they do not know whether they had seen such tasks in this class/activity, and students who reported that they do not have this class/ activity.

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6 Students' attitudes towards money matters

This chapter discusses students' attitudes towards their own money matters. It begins by exploring whether students are interested in money matters. It then looks at whether such interest is linked to the exposure to financial education, and to students' performance in financial literacy. The chapter also examines students' self-assessment of their financial skills, and the extent to which this is related to their actual performance in financial literacy and to the exposure to financial education.

Motivation and self-belief influence how students learn and ultimately behave (Lo et al., 2022^[1]; Edgar et al., 2019^[2]; Zhao et al., 2021^[3]). 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., 2020^[4]; Serido et al., 2015^[5]; Hancock, Jorgensen and Swanson, 2013^[6]; Shah and Patel, 2020^[7]). Recent research confirms the link between financial attitudes and financial behaviours among children aged between 5 and 10 (Smith et al., 2018^[8]), however there is still a gap in the literature on adolescents' attitudes towards financial matters.

The PISA 2022 financial literacy assessment and questionnaire targeted 15-year-old students who do not yet – but may soon – face significant financial decisions. Their attitudes towards money matters today might be indicative of their behaviour tomorrow, of their readiness to take control of their own finances and of their willingness to improve their financial skills. These attitudes are so relevant to financial decision making that PISA includes the “skills and attitudes to apply” financial knowledge in its definition of financial literacy.

This chapter examines students' interest in handling money matters and students' confidence in their ability to do so, as measured by students' self-assessed level of financial knowledge. The chapter also investigates the extent to which these attitudes vary according to student characteristics, and how they are related to students' financial literacy and to their exposure to financial education in school and at home. While there is a wealth of resources aimed at helping teenagers manage their money, there is a lack 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 feel motivated and think they can do so.¹

What the data tell us

- On average across OECD countries and economies, 50% of students reported that they enjoy talking about money matters, but 36% of students reported that money matters are not relevant for them right now. More boys than girls (by 17 percentage points), and more advantaged students than disadvantaged students (by 6 percentage points) reported that they enjoy talking about money matters, on average across OECD countries and economies.
- On average across OECD countries and economies, 80% of students felt confident about their ability to manage their money.
- Exposure to financial education in school and parental involvement in financial matters were both associated with greater enjoyment in talking about money matters and greater confidence in one's ability to manage money.
- On average across OECD countries and economies, and after accounting for student characteristics and exposure to financial education at home and in school, students who reported that they enjoy talking about money matters scored 5 points higher in financial literacy than students who did not, and students who agreed that they know how to manage their money scored 25 points higher than students who did not.

Students' interest in money matters

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 2022 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 and economies, 50% of students agreed or strongly agreed² that they enjoy talking about money matters. This opinion was shared by 51% of students on average across all participating countries and economies, and was most prevalent amongst students in Costa Rica (61%), Peru (61%) and Portugal (62%). Students in Austria (40%), Italy (40%) and Czechia (41%) agreed with this statement the least across the 20 countries and economies that participated in the PISA 2022 financial literacy assessment (Table IV.B1.6.1).

Some 36% of students, on average across OECD countries and economies and 38% on average across all participating countries and economies, agreed that money matters are not relevant for them right now. Fewer than one in three students in Hungary, Peru and Portugal agreed that money matters are not relevant for them right now, as opposed to more than one in two students in Saudi Arabia (61%) and the United Arab Emirates (51%). (Table IV.B1.6.1).

On average across the OECD, students who indicated that money matters are relevant for them – by disagreeing with the statement that money matters are not relevant for them - (64% of all students) were split equally between those who enjoy talking about money matters, and those who do not enjoy talking about money matters (32% of all students each). This was also the case in Norway where 33% of students enjoy talking about money matters while also indicating that they are relevant for them (by disagreeing with the proposed statement), and another 33% of students do not enjoy talking about money matters although they indicated that this topic is relevant for them (Table IV.B1.6.1).

In 10 participating countries and economies (Austria, Brazil, Bulgaria, the Canadian provinces*, Czechia, Hungary, Italy, Malaysia, the Netherlands* and Poland), most students indicated that although they perceive money matters as relevant for them, they do not enjoy talking about these matters. In another seven countries and economies, most students indicated that they both enjoy talking about money matters and find these matters relevant for them. In two countries and economies, Saudi Arabia and the United Arab Emirates, the largest proportion of students agreed that they enjoy talking about money matters, while also agreeing that money matters are not relevant for them. This is not necessarily a contradiction – it is possible to enjoy talking about things that are not currently relevant to one's life (Table IV.B1.6.1).

More boys (58%) than girls (42%) agreed that they enjoy talking about money matters, by 17 percentage points on average across OECD countries and economies. The gender gap was significant in favour of boys in 16 of the 20 participating countries and economies and was widest in Denmark* (26 percentage points) and the Netherlands* (25 percentage points); it was slightly in favour of girls in Malaysia (4 percentage points) (Table IV.B1.6.2).

However, more boys (38%) than girls (33%) agreed that money matters are not relevant to them right now (by 5 percentage points, on average across OECD countries and economies). A gap in this direction was observed in 14 of the 20 participating countries and economies, reaching 13 percentage points in Norway. The gender difference was slightly in favour of girls in Saudi Arabia, by 6 percentage points (Table IV.B1.6.2).

Interest in money matters was positively associated with socio-economic status. Indeed, 6 percentage points more advantaged students than disadvantaged ones reported agreeing that they enjoy talking about money matters, on average across OECD countries and economies. This gap was wider than 10 percentage points in Brazil, Czechia, Denmark*, Norway and Peru, and was significant in a further 10 countries and economies. Likewise, 4 percentage points more advantaged students than disadvantaged ones reported disagreeing that money matters are not relevant

for them right now, on average across OECD countries/ economies. In Portugal, 10 percentage points more advantaged students than disadvantaged ones reported disagreeing that money matters are not relevant for them right now. The gap was not significant in 14 out of 20 countries and economies (Table IV.B1.6.3).

Students who are more exposed to financial education – whether at school or by their parents at home –, as measured through the index of familiarity with concepts of finance, agreed the most that they enjoy talking about money matters. On average across OECD countries and economies, students in the top quarter of the index of familiarity with concepts of finance agreed that they enjoy talking about money matters by 22 percentage points more than students in the bottom quarter of this index. A similar association was observed in all 20 participating countries and economies, with the gap ranging between over 25 percentage points in the Flemish community of Belgium, Denmark*, Hungary and the Netherlands*, and 7 percentage points in Saudi Arabia (Table IV.B1.6.5).

Likewise, students in the top quarter of the index of parental involvement in matters of financial literacy reported agreeing that they enjoy talking about money matters more (by 30 percentage points) than students in the bottom quarter of this index, on average across OECD countries and economies. Again, this association was observed across all participating countries and economies and ranged from 39 percentage points in Hungary and Portugal, to 21 percentage points in Austria (Table IV.B1.6.6).

Students who were more exposed to financial education at home and in school also disagreed the most that money matters are not relevant for them right now. Students in the top quarter of the index of familiarity with concepts of finance agreed that money matters are not relevant for them right now less (by 6 percentage points) than those in the bottom quarter of the index, on average across OECD countries and economies. A similar relationship was observed in 12 of the 20 participating countries and economies, and it was not significant in the remaining 8 countries and economies (Table IV.B1.6.5).

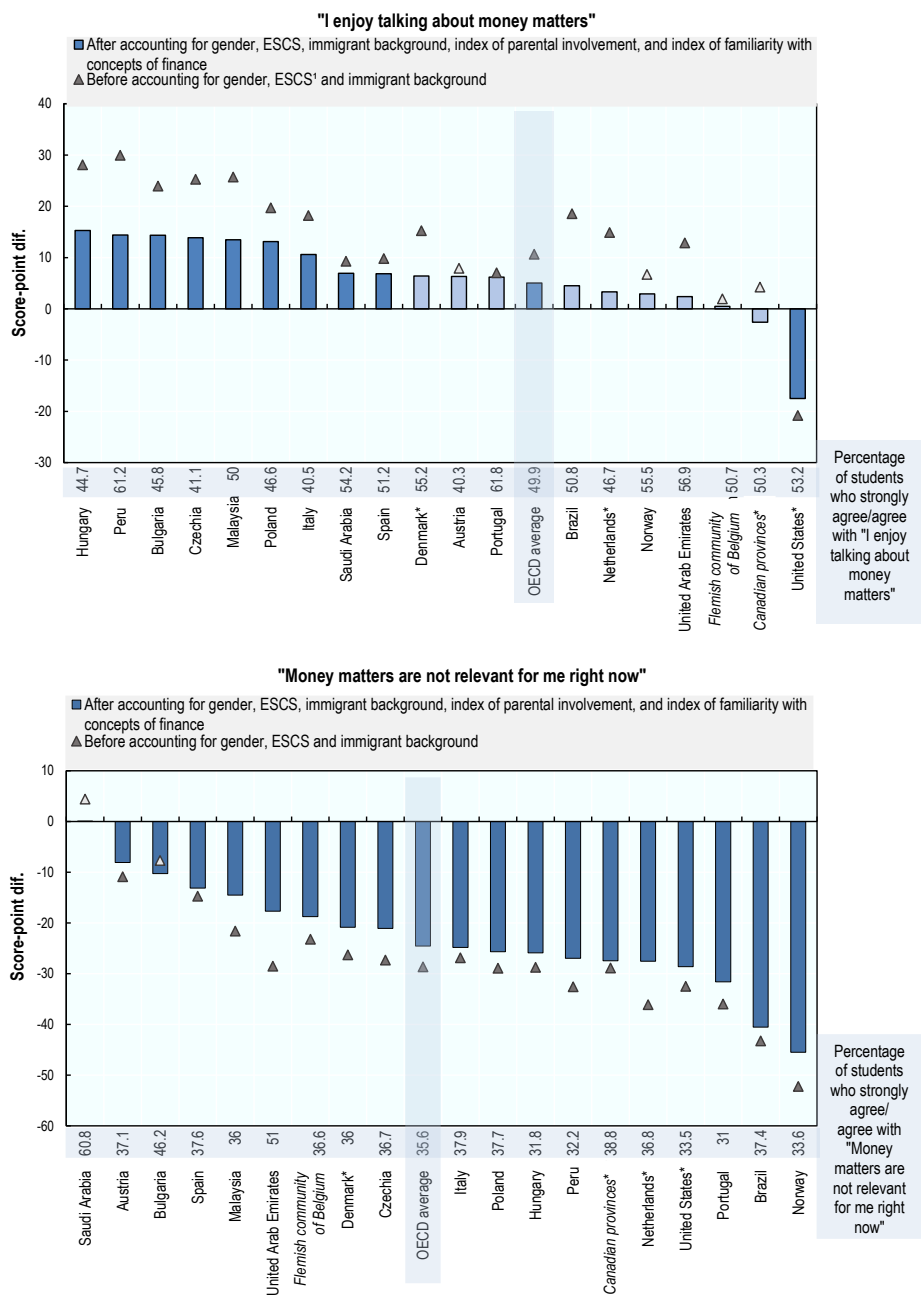
There was no difference in agreeing with the statement that money matters are not relevant right now between students in the top and bottom quarters of the index of parental involvement in matters of financial literacy, on average across OECD countries and economies. More students in the top quarter than in the bottom quarter of the index of parental involvement in matters of financial literacy reported that money matters are not relevant for them right now in Brazil, Bulgaria, the Canadian provinces*, Malaysia, Norway, Poland, Saudi Arabia, the United Arab Emirates and the United States*. However, the opposite was reported by students in the Flemish community of Belgium, Denmark* and Spain (Table IV.B1.6.6).

Performance in the financial literacy assessment and interest in money matters

Students who were more interested in money matters scored higher in the PISA 2022 financial literacy assessment. On average across OECD countries and economies, students who agreed that they enjoy talking about money matters scored 11 points higher in the assessment; after accounting for student characteristics, such as gender, socio-economic status and immigrant background, and exposure to financial education at home and in school, students who enjoy talking about money matters scored 5 points higher in the assessment (Figure IV.6.1 and Table IV.B1.6.7). Students who agreed that they enjoy talking about money matters scored higher in financial literacy in 9 out of 19 participating countries and economies with valid data, after accounting for student characteristics and exposure to financial education at home and in school. In Hungary, students who agreed that they enjoy talking about money scored 15 points higher in the PISA 2022 financial literacy assessment than students who disagreed with this statement, after accounting for student characteristics and exposure to financial education at home and in school. Gaps of over 10 score points (after accounting for student characteristics) were also observed in Bulgaria, Czechia, Italy, Malaysia, Peru and Poland. Only in the United States*, students who agreed that they enjoy talking about money scored lower (by 18 points, after accounting for student characteristics and exposure to financial education at home and in school) than students who disagreed with this statement (Figure IV.6.1Figure IV.5.2 and Table IV.B1.6.7).

Figure IV.6.1. Financial literacy performance, by students' interest in money matters

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



1. The socio-economic profile is measured by the PISA index of economic, social and cultural status.
 Note: Score-point differences that are statistically significant are marked in a darker tone (see Annex A3).
 For each graph, countries and economies 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, after accounting for student characteristics, index of parental involvement, and index of familiarity with concepts of finance.
 Source: OECD, PISA 2022 Database, Table IV.B1.6.1 and Table IV.B1.6.7.

The relationships between interest in money matters, exposure to financial education and financial literacy performance are complex ones. The results presented in this chapter indicate a positive relationship between interest in money matters and exposure to financial education, and between interest in money matters and financial literacy performance; based on this, it could be expected that self-reported exposure to financial education in school and financial literacy performance would also be positively associated, but this was not entirely supported by the results in Chapter 5. These results, however, are not necessarily contradictory, as PISA data do not allow to infer about their causality. It may be the case that students who are interested in money matters seek opportunities to learn through a variety of channels, including through optional school courses touching upon personal money matters, and that they end up improving their financial literacy – even if not necessarily via the teaching they receive in school. Further research may be needed to disentangle these relationships and identify their drivers.

Similarly, students who find money matters relevant to them achieve higher performance in financial literacy. Students who agreed that money matters are not significant for them right now scored lower in the financial literacy assessment – by 29 points before, and by 27 points after accounting for student characteristics and exposure to financial education at home and in school – on average across OECD countries and economies, compared to students who disagreed with this statement. This performance gap was observed in 17 of the 19 participating countries and economies with valid data, and was particularly large in Norway (49 points, after accounting for student characteristics) and Brazil (40 points) (and Table IV.B1.6.7).

Students' self-assessed financial skills

The preceding section examined whether students are interested in money matters. Interest is an important motivation for young people to make informed financial decisions; confidence in one's abilities is another.

The PISA 2022 financial literacy questionnaire asked students to self-assess their level of financial skills by indicating whether they strongly agreed, agreed, disagreed or strongly disagreed with the statement: "I know how to manage my money". Such a self-assessment can be taken as an indication of students' confidence in their ability to manage their money.

On average across OECD countries and economies, 80% of students agreed or strongly agreed that they know how to manage their money. Slightly fewer students believed so in partner countries, as on average across all participating countries and economies, 77% of students agreed that they know how to manage their money. This opinion was most prevalent amongst students in Portugal (86%), followed by students in the Netherlands* (85%). Students in Brazil (63%) agreed with this statement the least, followed by students in Bulgaria (67%) (Figure IV.6.2 and Table IV.B1.6.1). It may not be surprising to observe such high percentages of students who think that they know how to manage their money, as the personal finances of 15-year-old students are relatively simple to manage.

The association between self-assessed level of financial skills and gender was modest in most participating countries and economies. On average across OECD countries and economies, slightly more boys (81%) than girls (79%) felt that they have the appropriate skills to manage their money. The gender gap was significant in favour of boys in 8 of the 20 participating countries and economies and was widest in Denmark* and Spain (6 percentage points). The gender gap was significant in favour of girls in Malaysia (5 percentage points), Austria (5 percentage points) and Saudi Arabia (12 percentage points) (Table IV.B1.6.2).

Self-assessment of financial skills was positively associated with socio-economic status. Indeed, more advantaged students than disadvantaged students agreed that they know how to manage their money, by 5 percentage points on average across OECD countries and economies. This gap was wider than 10 percentage points in Brazil, Bulgaria, Czechia, Malaysia, Peru and the United Arab Emirates; it was not significant in six participating countries and economies (Table IV.B1.6.3).

Students who were more exposed to financial education – whether at school or at home – agreed that they know how to manage their money the most. On average across OECD countries and economies, students in the top quarter of the index of familiarity with concepts of finance agreed that they know how to manage their money more than students

in the bottom quarter of this index, by 18 percentage points. This positive association was observed in all participating countries and economies, with the gap being 20 percentage points or larger in, Brazil, Bulgaria, Costa Rica, Czechia, Malaysia, Norway, Peru, Spain, the United Arab Emirates and the United States* (Table IV.B1.6.5).

Likewise, students in the top quarter of the index of parental involvement in matters of financial literacy agreed that they know how to manage their money more than students in the bottom quarter of this index, 11 percentage points on average across OECD countries and economies. This association was observed across 19 out of 20 participating countries and economies and was larger than 20 percentage points in Brazil, Bulgaria, Costa Rica and the United Arab Emirates (Table IV.B1.6.6).

Performance in the financial literacy assessment and self-assessed financial skills

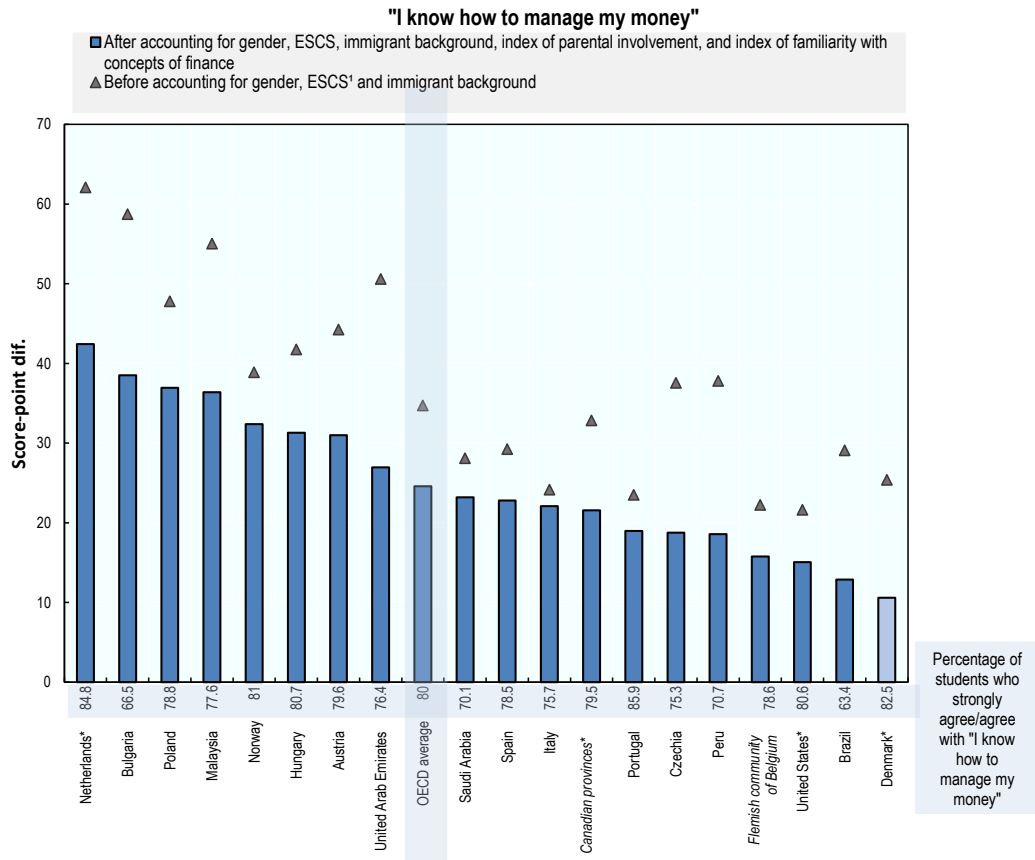
Students who assessed themselves as more knowledgeable about financial matters scored higher in the PISA 2022 financial literacy assessment. On average across OECD countries and economies, students who agreed that they know how to manage money scored 25 points higher in financial literacy after accounting for student characteristics, such as gender, socio-economic status and immigrant background and exposure to financial education at home and in school. This relationship was significant in 18 out of the 19 participating countries and economies with valid data, ranging from 13 points (after accounting for student characteristics and exposure to financial education at home and in school) in Brazil, to 42 points in the Netherlands*. Gaps of over 30 score points, after accounting for student characteristics and exposure to financial education at home and in school, were also observed in Austria, Bulgaria, Hungary, Malaysia, Norway and Poland (Figure IV.6.2 and Table IV.B1.6.7).³

These results do not imply causal relationships, meaning that greater confidence in one's financial skills may help students better perform in the PISA financial literacy assessment, or that high performing students may be aware of their high financial literacy skills. While it may be expected that self-assessed financial skills and performance in the financial literacy assessment are correlated, this correlation is not perfect, as both top and low performers in financial literacy may have a high assessment of their own financial skills (see Box IV.2.2 for further details).

It is also worth noting that the relationships between financial education in school, self-assessed financial skills and financial literacy performance are not straightforward, just as with interest in money matters. While exposure to financial education is associated with higher self-assessment of financial skills, and higher self-assessment of financial skills is associated with higher financial literacy performance, higher self-reported exposure to financial education in school is associated only to some extent with higher performance in financial literacy, as shown in Chapter 5. It may be the case that both being exposed to financial education in school and having greater financial skills help build confidence in one's money-related skills, i.e. increase self-assessed financial skills, even if financial skills are not necessarily obtained in school. Again, more research is warranted to pin down the direction of these relationships, or whether different groups of students are affected in different ways by these factors.

Figure IV.6.2. Financial literacy performance, by students' self-assessed financial skills

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



1. The socio-economic profile is measured by the PISA index of economic, social and cultural status.
 Note: Score-point differences that are statistically significant are marked in a darker tone (see Annex A3).
 For each graph, countries and economies 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, after accounting for student characteristics, index of parental involvement, and index of familiarity with concepts of finance.
 Source: OECD, PISA 2022 Database, Table IV.B1.6.1 and Table IV.B1.6.7.

Table IV.6.1. Students' attitudes towards money matters chapter figures

Figure IV.6.1	Financial literacy performance, by students' interest in money matters
Figure IV.6.2	Financial literacy performance, by students' self-assessed financial skills

StatLink <https://stat.link/13lyhg>

Notes

¹ On average across OECD countries and 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.

² In this chapter, the responses “strongly agree” and “agree” were combined when discussing the percentage of students who agreed with certain statements.

³ Although in Austria and Bulgaria, results should be interpreted with caution due to the limited number of observations, as indicated in Table IV.B1.6.7.

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7 Money and basic financial services: access, use and attitudes

This chapter explores various money-related activities that students might engage in, their attitudes towards these activities, and how they are related to financial literacy. It begins by discussing the basic financial products that students hold and use, before examining the sources from which students receive their money. It then looks into students' confidence in using traditional and digital financial services. For each of these items, the chapter explores the link between access, use, confidence and performance in financial literacy.

PISA defines financial literacy as not only the knowledge and understanding of, and attitudes towards, 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. 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? When they receive money, from work or gifts, should they put this money into a bank account? Should they spend this money and, if so, are they confident shopping on line?

This chapter explores students’ experiences with money and basic financial services, and how they are related to their financial literacy. The relationship between the two may run in both directions: students who are more experienced with handling money or using bank accounts might make better decisions through “learning by doing;” and students who do well on a financial literacy assessment might seek out more real-world opportunities to make financial decisions or use financial services. Which financial experiences are most common amongst 15-year-old students and most strongly related to their financial literacy?

What the data tell us

- Many 15-year-old students participate in the financial system. On average across OECD countries and economies, 63% of students reported holding an account at a bank, building society, post office or credit union, and 62% of students reported holding a payment card or a debit card. Over 80% of students in the Flemish community of Belgium, Denmark*, the Netherlands* and Norway reported holding either an account or a payment/debit card, while students in Peru were amongst the least likely to hold either of these products.
- Students aged 15 also have experience with digital financial transactions. Some 86% of students on average across OECD countries and economies 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 66% of students reported that they had made a payment using a mobile phone during that period, on average across OECD and all participating countries and economies.
- Students also reported receiving money from various sources. The most common source of money amongst 15-year-olds was gifts from friends or relatives: more than 80% of students received money in this way at least once a year, on average across OECD and all countries and economies.
- Holding an account at a bank or at another financial institution, having bought something on line (alone or with a family member), and receiving gifts of money from friends or relatives were associated with greater financial literacy performance than not engaging in these experiences, after accounting for student characteristics and other experiences with money and basic financial products.
- Students who reported that they are confident in performing several digital finance-related tasks also scored higher in the PISA 2022 financial literacy assessment, after accounting for student characteristics and their experiences with money and basic financial products.

Students' holding of basic financial products

The previous chapters looked at students' opportunities to improve their financial literacy through conversations with their parents or through financial education at school. This section explores students' holding of basic financial products, and whether this is related to their performance in the financial literacy assessment.

The PISA 2022 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.

Box IV.7.1 provides some context on the provision of basic financial products to 15-year-old people, including bank accounts and payments cards, in each of the participating countries and economies.

On average across OECD countries and economies in 2022, 63% of students reported that they held an account at a bank, building society, post office or credit union; on average across all countries and economies that participated in the assessment, 55% of students held such an account. Over 90% of students in Denmark*, the Netherlands* and Norway reported that they held an account at one of these institutions, compared to only 13% of students – fewer than 1 in 8 – in Peru, and fewer than one in three students in Brazil and the United Arab Emirates (Figure IV.7.1 and Table IV.B1.7.1).

Some 62% of students, on average across OECD countries and economies, reported that they held a payment card or a debit card; on average across all countries and economies that participated in the assessment, 53% of students held such a card. Some 90% or more students in Denmark*, the Netherlands* and Norway reported that they held one of these cards, while fewer than one in four students in Peru (14%), Malaysia (23%) and Spain (24%) reported holding a payment or debit card (Figure IV.7.1 and Table IV.B1.7.1).

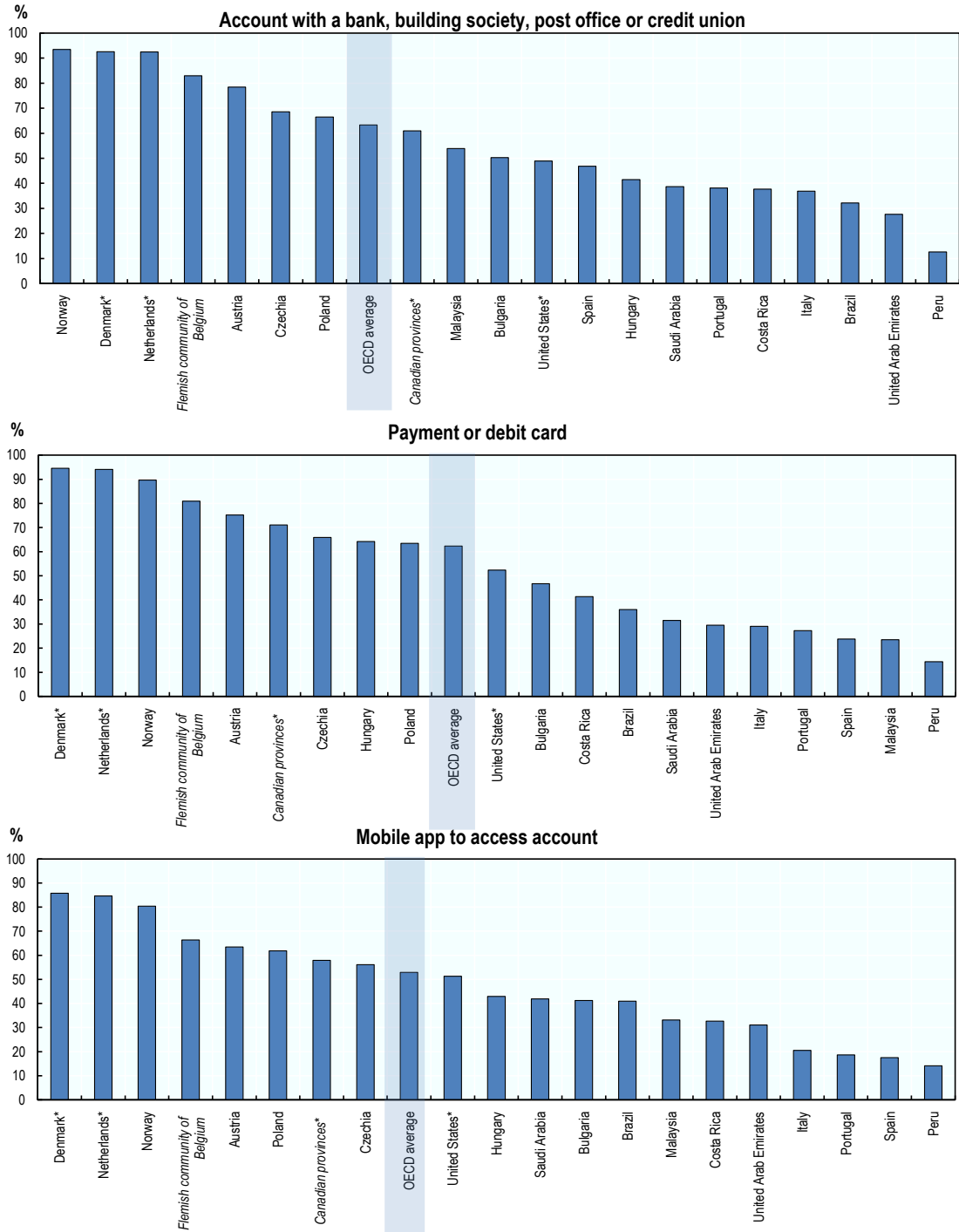
Holding an account at a bank, building society, post office or credit union and holding a payment or debit card tends to be positively associated within participating countries and economies. On average across OECD countries and economies, 53% of students reported that they held both an account and a card, and 24% of students reported that they held neither product, while fewer than 10% of students reported holding one product but not the other. In Denmark* and the Netherlands*, over 90% of students reported holding both an account and a card. This is not surprising as, in most cases, a payment or debit card is linked to an account. However, in Brazil, Hungary, Italy and the United States*, over 10% of students reported that they held a card but not an account (Table IV.B1.7.2). 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.

As a proportion of account holders, 80% or more students in Denmark*, Hungary, the Netherlands*, Norway and Poland reported that they had a mobile application ("mobile app") to access their account, compared to fewer than one in three 15-year-olds in Italy, Portugal and Spain (Table IV.B1.7.1).

Data regarding the holding of mobile apps should be interpreted with caution. For example, in Brazil, 14% of students reported that they did not hold an account, but also reported that they had a mobile app to access this (non-existent) account; and between 5% and 13% of students in another 12 countries and economies stated likewise (Table IV.B1.7.3). Students might have misinterpreted the question about mobile apps, and responded that they had a mobile app, in general, instead of a mobile 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 in Annex B.

Figure IV.7.1. Students' holding of 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 2022 Database, Table IV.B1.7.1.

Box IV.7.1. Differences in national contexts with regards to the holding of basic financial products by 15-year-olds

Children aged 15 can have a savings account in all 20 participating countries and economies, and a current account in all countries and economies except Costa Rica, Malaysia and Peru.

Most countries and economies require a child's parents to provide their consent to open a bank account. In Austria for example, children from the age of 10 can be authorised to hold an account with the consent of their legal guardians, while in Poland, it is from the age of 13, in Hungary, from the age of 14 and in Malaysia and Saudi Arabia, from the age of 15. In Costa Rica, Italy, the Netherlands*, Portugal and the United States*, parents can open an account for their child from birth. In Czechia by contrast, children can open an account independently, i.e. without their parents' consent, from the age of 15. In Denmark*, 15-year-olds can open an account and set up (debit) payment means independently only if they earn money from work; children who do not earn their own money must have their parents open the account and card for them in the bank. Similarly, in Bulgaria, parents must consent to their child opening a bank account, but children aged 14 to 18 may dispose of their own earnings.

In some countries and economies, only parents can operate bank accounts opened in a child's name, while in others, parents must consent to operations carried out on their child's account. In the Flemish community of Belgium, there is no minimum legal age to open an account and to deposit money, however withdrawals are only permitted from the age of 16, or even 18 depending on parents' consent. Conversely, in Brazil, children under the age of 16 must be assisted by their legal guardian to open any type of account but can hold and operate their account independently once it is open.

In many countries and economies, parents are ultimately responsible for activities carried out by their child on his/her bank account. In Peru, unless a child aged under 18 is emancipated, his/her parents are the legal owners of an account opened in the child's name. In the Canadian provinces*, the Netherlands*, Norway, Portugal and Spain, there is no minimum age set by law for opening a bank account so this may vary across financial institutions, but parents are held responsible for their child's account and have access to it until the child reaches the age of 18.

Other types of accounts held by 15-year-olds in participating countries include e-wallets in Malaysia, term-deposit accounts in Poland that can be opened from the age of 13, and securities accounts in Bulgaria.

In all participating countries and economies, except Costa Rica, Malaysia and Portugal, 15-year-olds can hold a payment card, but only in Brazil can they have a credit card linked to their account.

In Malaysia, children who have a savings account can obtain an ATM card to withdraw from their account. In Italy, parents can request the issuance of a debit card for their child from the age of 13 and can block certain categories of expenses or even request to approve transactions before they are completed. In the Netherlands*, parents are entitled to return items bought by their child with his/her debit card for a refund if the items can be considered expensive or falling outside of everyday purchases.

Most participating countries and economies, including the Flemish community of Belgium, Brazil, Bulgaria, the Canadian provinces*, Denmark*, Hungary, Italy, Malaysia, Poland, Portugal, Spain, Saudi Arabia and the United States*, allow children aged 15 to use prepaid cards, i.e. payment cards that are pre-loaded with a specified amount of money rather than linked to an account.

In all participating countries and economies, granting credit normally goes in hand with the age of majority. However, in Brazil, a credit card can be issued to an account holder below the age of 16, and in the Canadian provinces*, financial institutions may authorise 15-year-olds to be registered users on their parents' credit card.

More fifteen-year-old boys than girls indicated that they participated in the formal financial system in some participating countries and economies. On average across OECD countries and economies, 1 percentage point more boys than girls reported holding an account at a bank, building society, post office or credit union, as did 2 percentage points more boys than girls on average across all participating countries and economies. In Austria, Brazil, Costa Rica, Hungary, Peru, Saudi Arabia and the United Arab Emirates, more boys than girls reported that they held an account. Only in Norway and Spain did more girls than boys report that they held an account (Table IV.B1.7.6). Moreover, in Saudi Arabia, 12 percentage points more boys than girls reported holding a payment or debit card; a significant difference in favour of boys was observed in a further six countries and economies. However, more girls than boys in the Flemish community of Belgium, Denmark* and Norway reported holding one of these products (Table IV.B1.7.6).

More advantaged students than disadvantaged students tended to report participating in the formal financial system. Some 17 percentage points more advantaged students than disadvantaged ones reported holding an account at a bank, building society, post office or credit union on average across OECD countries and economies. This relationship was significant in all participating countries and economies with valid data. In the United States*, the gap between advantaged and disadvantaged students in holding a financial account was largest (31 percentage points) and socio-economic status explained 4% of the variation in whether students held an account. Some 13 percentage points more advantaged students than disadvantaged ones reported holding a payment or debit card, on average across OECD countries and economies. A 32 percentage-point gap between advantaged and disadvantaged students in holding a payment or debit card was observed in Bulgaria, where 4% of the variation in whether students held such a card was explained by socio-economic status (Table IV.B1.7.7).

These results are consistent with many previous studies that have found that girls and disadvantaged students participate less in the formal financial system in non-OECD countries (Maravalle and González Pandiella, 2022^[1]; Adegbite and Machethe, 2020^[2]; Northwood and Rhine, 2018^[3]; Devlin, 2005^[4]; Morsy et al., 2017^[5]).

Results for immigrant and non-immigrant students are available in Annex B.

Trends in the holding of basic financial products

The financial literacy questionnaire in both PISA 2012 and 2015 asked students whether they held a bank account, and whether they held a prepaid debit card. These questions differ slightly from the wording of the questions asked in the PISA 2018 and 2022 financial literacy questionnaires; trend comparisons should therefore be made with caution. In particular, the questions in the PISA 2018 and 2022 financial literacy questionnaires are broader and might be expected to lead to greater numbers of students saying that they hold such products. Furthermore, differences in how countries and economies translated or adapted the questionnaire to their own national financial landscape might make observed differences across years more or less important. This section therefore focuses on differences between 2022 and 2018, and differences with respect to 2015 and 2012 are presented in tables in Annex B.

On average across the OECD countries and economies that participated in both PISA 2018 and 2022 assessments, there was a 2-percentage point increase in the proportion of students who reported that they held an account with a bank, building society, post office or credit union. Across all countries and economies that participated in both assessments, the increase was of 4 percentage points. These modest average increases hide large differences across countries and economies, as more students reported holding an account in 2022 than in 2018 in Poland (by 32 percentage points), in Bulgaria (by 14 percentage points) and in Brazil (by 4 percentage points), whereas fewer students reported holding an account in 2022 than four years before in Italy and Portugal (by 7 percentage points) and in Spain (by 8 percentage points) (Table IV.B1.7.4).

In every country/economy that took part in PISA 2022 and 2018, more students reported holding a payment card or debit card in 2022 than in 2018, except for Italy. On average across the OECD countries and economies that participated in both PISA 2018 and 2022, more students reported holding a payment/debit card in 2018 than in 2022

(by 10 percentage points), with the largest increase observed in Poland (26% in 2018 and 63% in 2022) (Table IV.B1.7.5).

Students' use of basic financial products and digital transactions

In addition to exploring the holding of basic financial products by young people, PISA 2022 also attempts to understand how much they use them. On average across OECD countries and economies, 77% of students reported that they made a payment using a bank card in the 12 months prior to the survey. This percentage narrowed to 73% across all participating countries and economies, and ranged from 35% in Peru to 95% in the Netherlands* (Table IV.B1.7.9).

Young people also spend time on digital devices. 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 financial literacy questionnaire asked students whether they had, in the previous 12 months, carried out the following digital financial transactions:

- bought something on line (either alone or with a family member)
- made a payment using a mobile phone
- sent money to other people with a smartphone (i.e. mobile phone with Internet access).

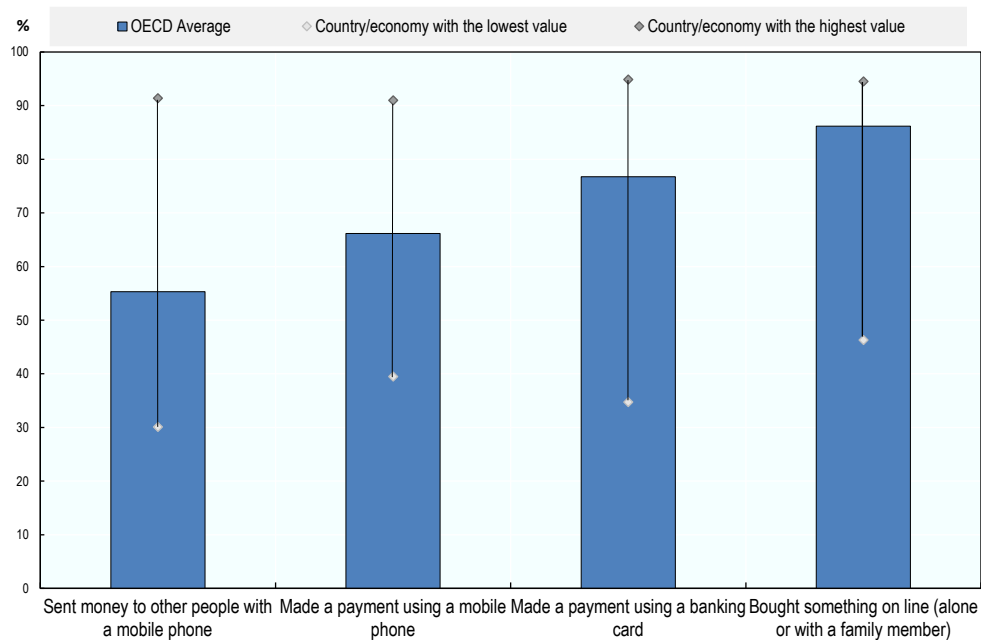
On average across OECD countries and economies in 2022, 86% of students reported they bought something on line, either alone or with a family member, over the previous 12 months (83% across all participating countries and economies). This proportion exceeded 80% in 16 of the 20 participating countries and economies and reached 95% of students in Denmark*. By contrast, only 46% of students in Peru reported that they bought something on line over the previous 12 months (Figure IV.7.2 and Table IV.B1.7.9).

Some 66% of students, on average across OECD as well as all participating countries and economies, reported they made payments using a mobile phone over the previous 12 months. Some 91% of students in Denmark* had made a payment using a mobile phone during that period, as did more than 50% of students in all other participating countries, except in Peru (40%) (Figure IV.7.2 and Table IV.B1.7.9).

Sending money to other people using a smartphone was less common amongst students: 55% of students on average across both OECD and all participating countries and economies had done so in the 12 months prior to the survey. There were large differences among countries, with fewer than one in three students in Italy, Peru, Portugal and Spain who reported having done so, compared to more than four in five students in Denmark*, the Netherlands* and Norway (Table IV.B1.7.9). However, caution may be required when analysing responses to this question as students from different countries and economies or from different socio-economic backgrounds may have interpreted it in different ways depending on the types of money transfers by smartphone that are available in their country/economy or that are common among their group, including possibly remittances.

Figure IV.7.2. Students with experience in digital financial transactions

Percentage of students reporting they have experience in the following types of digital financial transactions over the previous 12 months; OECD average



Bars are ranked in ascending order of the percentage of students who reported having experienced each type of digital financial transaction over the previous 12 months.

Source: OECD, PISA 2022 Database, Table IV.B1.7.9.

Students who reported holding an account with a bank, building society, post office or credit union reported having experience with digital financial transactions more than those without an account. On average across OECD countries and economies, students with an account reported having made a payment using a bank card in the 12 months prior to the survey more (by 20 percentage points), having sent money to others using a smartphone more (by 16 percentage points), having made a payment using a mobile phone more (by 12 percentage points) and having bought something on line more (by 8 percentage points). In no country/economy did more students without an account than those with an account report having experience in any of the digital financial transactions (Table IV.B1.7.10).

More boys than girls reported having experience with digital financial transactions such as making payments using a bank card or a mobile phone or sending money to others using a smartphone (Table IV.B1.7.11):

- Slightly fewer girls than boys reported having made a payment using a bank card on average across OECD countries and economies, by 1 percentage point. The difference was in favour of boys and significant in 10 countries and economies, and reached 14 percentage points in Peru and 11 percentage points in Costa Rica. However, this difference was in favour of girls in the Flemish community of Belgium, the Netherlands* and Norway, and not significant in the remaining seven countries and economies.
- More boys than girls (by 8 percentage points), on average across OECD countries and economies, reported having sent money to someone using a mobile phone over the previous 12 months. This difference was significant in favour of boys in 15 of the 20 participating countries and economies, and exceeded 15 percentage points in Austria, Bulgaria, Hungary, Italy, Saudi Arabia and the United Arab Emirates.
- More boys than girls (by 7 percentage points), on average across OECD countries and economies, reported having 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 in the Flemish community of Belgium and Denmark*, where the difference was not significant.

On average across OECD countries and economies, there was no gender difference in the frequency of having bought something on line (either alone or with a family member) over the previous 12 months. The gender gap was significant in favour of girls in 5 of the 20 countries and economies that participated in the PISA 2022 financial literacy assessment, it was in favour of boys in 4 more countries and economies and was not statistically significant in the other countries and economies. (Table IV.B1.7.11).

More advantaged students than disadvantaged ones (by 4 percentage points) on average across OECD countries and economies, reported having made a payment using a bank card. Across all participating countries, this difference was 8 percentage points, and reached 36 percentage points in Peru and 22 percentage points in Brazil. In Hungary however, 7 percentage points more disadvantaged students reported having made a payment using a bank card in the 12 months prior to the survey. (Table IV.B1.7.12).

More students from advantaged backgrounds than those from disadvantaged families reported having 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 8 percentage points, on average across OECD countries and 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 (25 percentage points or more) (Table IV.B1.7.12).

Slightly more advantaged students than disadvantaged ones (by 2 percentage points), on average across OECD countries, reported having made a payment using a mobile phone over the previous 12 months. A significant difference was observed in nine countries and economies in favour of advantaged students, including Brazil and Peru where it reached 20 percentage points or more. In Austria and Hungary, more disadvantaged students than advantaged ones – by between 6 and 8 percentage points - reported having made a payment using a mobile phone; no significant difference was observed in other participating countries or economies (Table IV.B1.7.12).

There was no clear association between socio-economic background and sending money to others using a smartphone over the 12 months prior to the survey. More advantaged students (by 3 percentage points) reported having done so on average across all participating countries and economies, and this difference was significant in favour of advantaged students in 10 countries and economies, but there was no significant difference on average across OECD countries and economies, and the difference was in favour of disadvantaged students in Bulgaria, Hungary and Italy (Table IV.B1.7.12).

Results for immigrant and non-immigrant students are available in Annex B.

Students' sources of money

Previous research, including from the PISA 2015 and 2018 financial literacy assessments, has shown that students receive money both as a gift from people they know and from their own work activity (Doss, Marlowe and Godwin, 1995^[6]; Institut pour l'Éducation Financière du Public, 2006^[7]; Mangleburg and Brown, 1995^[8]; IPSOS, 2017^[9]). In all countries and economies participating in the 2022 PISA financial literacy assessment, except Brazil (Ministerio do Trabalho e Previdência, 2020^[10]) and Spain (Servicio Público de Empleo Estatal, 2021^[11]), students aged 15 are allowed to work under certain conditions defined by national, provincial, regional or state labour laws. Furthermore, young people increasingly continue to receive financial support from their families well into adulthood (Rachel Minkin et al., 2024^[12]; Barroso, Parker and Fry, 2019^[13]; Fingerman, 2017^[14]; Fingerman et al., 2015^[15]). Looking at the sources of money received by students may also provide insights into the relationship between money and financial literacy for 15-year-olds.

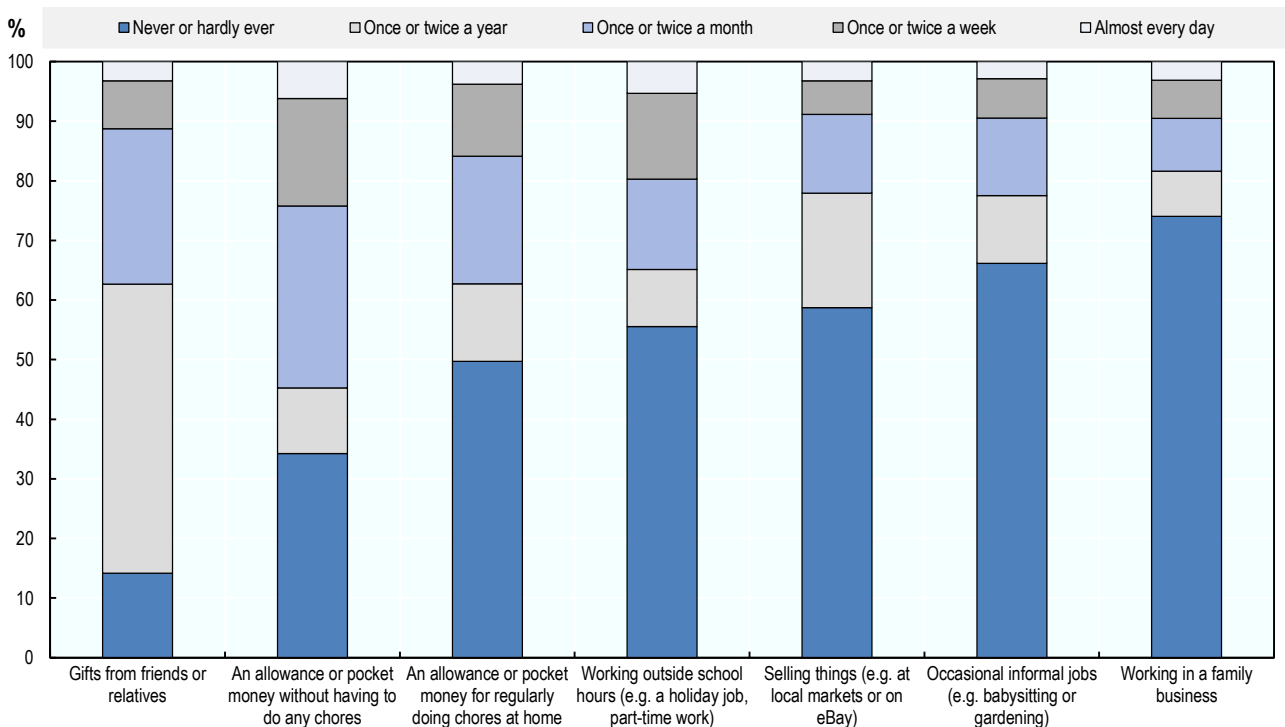
Students who sat the PISA 2022 financial literacy assessment were therefore asked about the frequency [never or almost never; about once or twice a year; about once or twice a month; about once or twice a week; every day or almost every day] with which they receive money from the following sources:¹

- 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).

On average across OECD and all countries and economies, the most common source of money amongst 15-year-olds was gifts from friends or relatives. Some 86% of students reported receiving money as a gift from friends or relatives at least once a year, on average across OECD countries and economies (82% of students on average across all participating countries and economies) (Figure IV.7.3 and Table IV.B1.7.14).

Figure IV.7.3. Students receiving money from various sources

Percentage of students who reported receiving money from the following sources; OECD average



Items are ranked in ascending order of the percentage of students reporting that they never or hardly ever receive money from each source. Source: OECD, PISA 2022 Database, Table IV.B1.7.14.

On average across OECD countries and economies, a majority of students reported receiving money at least once a year, as an allowance or pocket money (Figure IV.7.3 and Table IV.B1.7.14):

- almost two thirds (66%) of students without having to do any chores

- some 50% of students for regularly doing chores at home.

A minority of students received money at least once a year from working or related activities, on average across OECD countries and economies (Figure IV.7.3 and Table IV.B1.7.14):

- some 44% of students from working outside school hours (e.g. a holiday job or part-time work)
- some 34% of students from working at occasional informal jobs (e.g. babysitting or gardening)
- some 26% of students from working in a family business
- some 41% of students from selling things (e.g. at local markets or on eBay).

Receiving money from certain sources was associated with holding an account. On average across OECD countries and economies, more students who reported receiving money at least once a year from the following sources reported holding an account at a bank, building society, post office or credit union (Table IV.B1.7.15):

- Gifts from friends and relatives (by 8 percentage points): this difference was significant in 17 countries and economies and reached 18 percentage points in the Flemish community of Belgium.
- An allowance or pocket money without having to do any chores (by 5 percentage points): this difference was significant in 13 countries and economies, but fewer students receiving money at least once a year from this source in the Canadian provinces*, Denmark* and Norway reported holding an account.
- Working outside school hours (e.g. a holiday job or part-time work) by 4 percentage points: this difference was significant in 9 countries and economies and reached 21 percentage points in the United States*, but it was negative in Bulgaria, Norway and Poland.
- Selling things (e.g. at local markets or on eBay) by 4 percentage points: this difference was significant in 11 countries and economies, but fewer students receiving money at least once a year from selling things in Norway reported holding an account.

The link between receiving money at least once a year from working in the family business or from an allowance or pocket money for regularly doing chores at home and holding an account was less consistent across countries and economies (Table IV.B1.7.15).

On average across OECD countries and economies, more boys than girls reported receiving money (Table IV.B1.7.16):

- For their work in a family business (by 13 percentage points): more boys than girls reported receiving money by working for the family business in all 20 participating countries and economies, and the difference ranged from 31 percentage points in Saudi Arabia to 8 percentage points in Peru.
- For selling things (by 12 percentage points): this was observed in all participating countries, and the difference ranged from 31 percentage points in Saudi Arabia and 21 percentage points in Hungary to 5 percentage points or less in the Flemish community of Belgium and Poland.
- For their work outside school hours (by 9 percentage points): the gap was significant in 17 of the participating countries and economies, and was highest in Saudi Arabia (30 percentage points), Malaysia (21 percentage points) and Costa Rica (19 percentage points).
- From an allowance for regularly doing chores at home (by 5 percentage points): this was observed in 12 participating countries, the largest difference in favour of boys being observed in Hungary (12 percentage points) and Costa Rica (10 percentage points). In Norway, more girls than boys reported receiving money for doing chores at home (by 3 percentage points), and there was no significant gender difference in the Flemish community of Belgium, the Canadian provinces*, Denmark*, Malaysia, Peru, Spain and the United States*.
- From occasional informal jobs (by 4 percentage points): this was also observed in 12 countries, with differences reaching 29 percentage points in Saudi Arabia and 16 percentage points in Bulgaria. However, girls reported receiving money from occasional informal jobs more than boys in the Flemish community of Belgium (by 9 percentage points), Peru (by 6 percentage points), and the Netherlands* (by 6 percentage points) and the gender gap was not significant in 5 participating countries.

However, on average across OECD countries and economies, more girls than boys reported receiving money (Table IV.B1.7.16):

- From gifts (by 4 percentage points): girls in 13 participating countries reported receiving money from this source more than boys, and the difference was not significant in Brazil, Bulgaria, the Netherlands*, Peru, Poland, Portugal and Saudi Arabia.
- From an allowance without having to do any chores (by 3 percentage points): but there were large variations across countries –the gap was in favour of boys in Brazil and Italy - and the gender difference was not significant in 11 of the 20 participating countries.

Overall, these results suggest that more boys than girls receive money in exchange for work inside and outside the household, while in some countries and economies more girls than boys receive money without working, in the form of allowances or gifts. These results might indicate that boys begin to seek ways of becoming more financially independent by working either formally, informally or for the family business, at an earlier age than girls. Results might also indicate that more girls than boys do not get paid for their work, or a combination of both aspects. More data would be needed to understand the reason for these observed gender differences.

More advantaged students² than disadvantaged students reported receiving money from gifts (by 10 percentage points) and from an allowance without having to do any chores (by 4 percentage points), on average across OECD countries and economies. By contrast, disadvantaged students more frequently reported receiving money from working, either in the family business (by 7 percentage points), or outside school hours (by 5 percentage points), on average across OECD countries and economies (Table IV.B1.7.17).

Overall, the relationship between receiving money from different sources and students' socio-economic status suggests that advantaged students can receive money from their families, in the form of gifts or allowances, without the need to work, while disadvantaged students may need to earn money from work to pay for some of their own expenses.

Results for immigrant and non-immigrant students are available in Annex B.

Students' confidence in using financial services, including digital ones

The PISA 2022 financial literacy questionnaire asked students about their confidence in dealing with money matters, whether traditional or digital. In particular, it asked students whether they feel not at all confident, not very confident, confident or very confident about traditional money matters, such as:

- making a money transfer (e.g. paying a bill)
- filling in forms at the bank
- understanding bank statements
- keeping track of [their] account balance.

The PISA 2022 financial literacy questionnaire also asked students if they feel not at all confident, not very confident, confident, or very confident about dealing with the following digital financial services, i.e. when using digital or electronic devices outside of the 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 using cash
- ensuring the safety of sensitive information when making an electronic payment or using online banking.

For each set of questions, students' responses were aggregated into an overall index of confidence in dealing with traditional money matters³ or with digital financial services. Each index was standardised to have a mean of 0 and standard deviation of 1 across OECD countries and economies.

Students in Austria and the Netherlands* were the most confident⁴ in dealing with traditional money matters; at the other end of the scale, students in Italy, Malaysia, Peru and Spain reported particularly low levels of confidence in dealing with traditional money matters (Table IV.B1.7.19). Similarly, when looking at confidence using digital financial services,⁵ students in the Netherlands* were the most confident, followed by students in Denmark* and Norway. The least confident students in using digital financial services were found in Italy, Malaysia and Peru (Table IV.B1.7.23).

When looking at confidence in each of the four traditional money matters (Figure IV.7.4 and Table IV.B1.7.19):

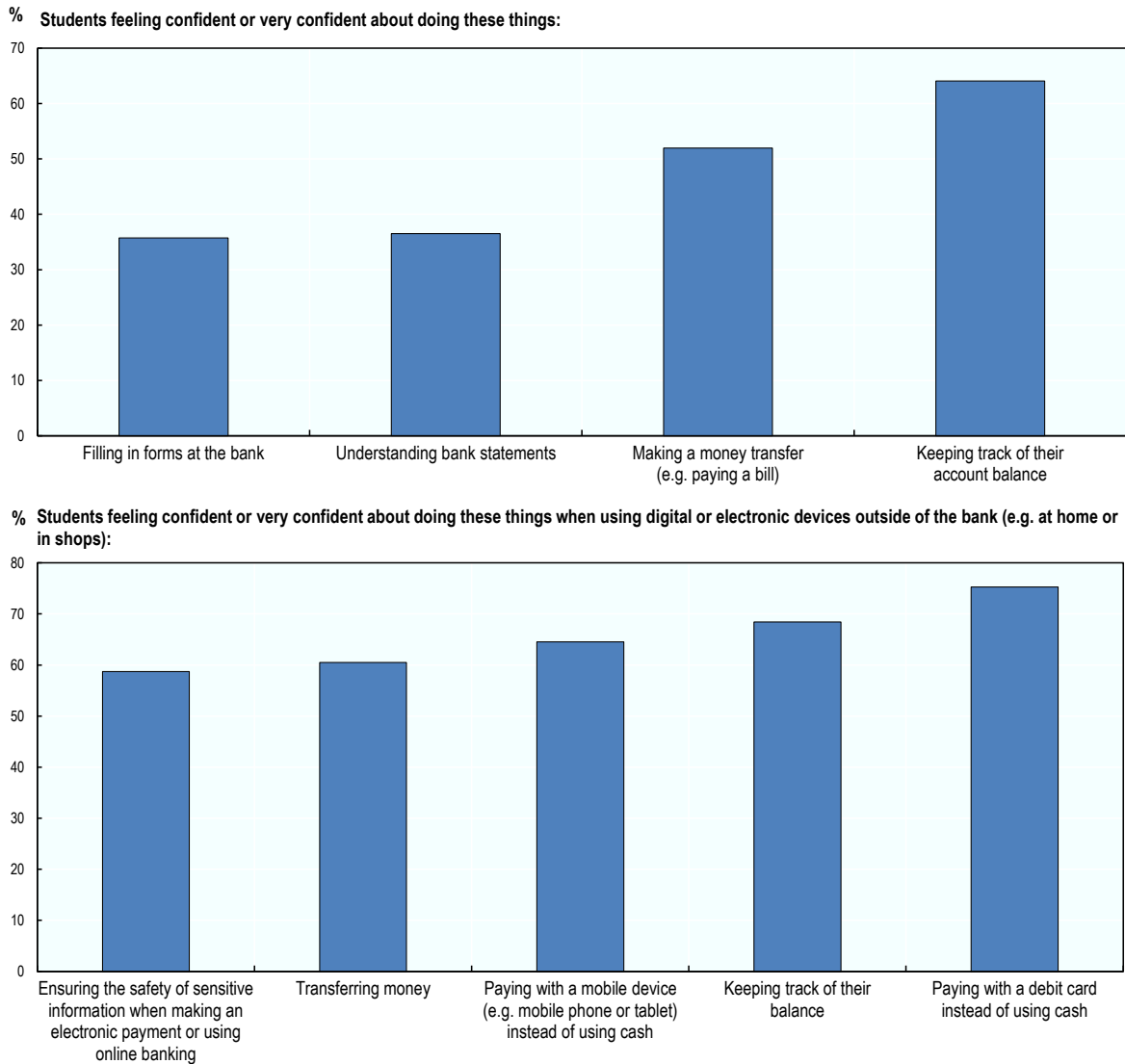
- Large majorities of students reported feeling confident in keeping track of their account balance (64% on average across OECD countries and economies, and 61% on average across all countries and economies). Over 70% of students in Austria, the Canadian provinces*, Czechia, Denmark*, the Netherlands* and the United States* reported feeling confident about keeping track of their account balance. However, less than 45% of students in Italy, Hungary and Peru were similarly confident.
- Some 52% of students, on average across OECD countries and economies, reported feeling confident in making a money transfer (e.g. paying a bill). Over 60% of students in the Flemish community of Belgium, the Netherlands* and Poland reported feeling confident in this task, compared to less than 40% of students in Italy, Malaysia, and Spain.
- Less than half of students reported feeling confident in dealing with bank documents on average across OECD countries and economies. On average across OECD countries and economies, 36% of students reported that they feel confident in understanding bank statements. Some 55% or more students in Austria and the Netherlands* reported feeling confident in understanding bank statements, but less than 30% of students in the Flemish community of Belgium, Denmark*, Hungary, Italy, Malaysia, Peru and Spain reported feeling confident in doing so. Similarly, 36% of students reported that they feel confident filling in forms at the bank, on average across OECD countries and economies. This ranged from 49% of students in the Netherlands* and Saudi Arabia to 25% of students in Peru.

When looking at confidence in using each of the five digital financial services (Figure IV.7.4 and Table IV.B1.7.23):

- Students were most confident in paying with a debit card instead of using cash (75%, on average across OECD countries and economies) and in keeping track of their balance when using digital or electronic devices (68%, on average across OECD countries and economies). Some 92% of students in the Netherlands* reported feeling confident in paying with a debit card instead of using cash, as did more than 75% of students in Austria, the Flemish community of Belgium, the Canadian provinces*, Denmark*, Norway, Poland and the United States*. However, only 31% of students in Peru and 34% of students in Malaysia reported so.
- More than half of all students, on average across OECD countries and economies, reported that they felt confident in ensuring the safety of sensitive information when making an electronic payment or using online banking (59%), transferring money (60%) and paying with a mobile device (e.g. a mobile phone or tablet) instead of using cash (65%). Roughly three in four students in the Netherlands* (76%) and Denmark* (74%) reported feeling confident in ensuring the safety of sensitive information, compared to 34% of students in Peru. Likewise, students in Denmark* (91%) and the Netherlands* (79%) were amongst the most confident in transferring money using digital or electronic devices, while those in Peru (37%), Malaysia and Italy (33%) were amongst the least confident. While only 37% of students in Peru and 42% of students in Malaysia reported feeling comfortable in paying with a mobile device instead of using cash, 90% of students in Denmark* and 79% of students in the Netherlands* reported the same.

Figure IV.7.4. Students’ confidence in dealing with traditional money matters and 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 ascending order of the percentage of students who reported feeling confident or very confident in performing them.

Source: OECD, PISA 2022 Database, Table IV.B1.7.19 and Table IV.B1.7.23.

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). By contrast, keeping track of their account balance is an activity that students can often do without parental involvement; indeed, this may be why close to 80% of students, on average across OECD and all participating countries and 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.B1.4.6).

Confidence in dealing with traditional money matters and in using digital financial services was associated with experience in holding and using basic financial products. A greater percentage of students who reported feeling confident both in dealing with traditional money matters and in using digital financial services reported holding an account at a bank, building society, post office or credit union. On average across OECD countries and economies, 15% more students in the top quarter than in the bottom quarter of confidence in dealing with traditional money matters reported holding an account, and this difference was significant in 17 of the 20 participating countries and economies. Likewise, 26% more students in the top quarter than in the bottom quarter of the index of confidence in using digital financial services reported holding an account, and this difference was significant in all participating countries and economies (Table IV.B1.7.27).

Similarly, students who were most confident in dealing with traditional money matters and in using digital financial services reported having more experience in digital financial transactions in the 12 months prior to the assessment than those who were least confident. On average across OECD countries and economies, 22% more students in the top quarter than in the bottom quarter of the index of confidence in dealing with traditional matters reported having made a payment using a bank card, and this difference was significant in all countries and economies except in Denmark*. Compared to the least confident students in dealing with traditional money matters, 30% more of the most confident students reported having sent money to others using a smartphone, and 28% more of the most confident students reported having made a payment using a mobile phone, on average across OECD countries and economies, and the difference between the most confident students and the least confident students was significant in all participating countries and economies for these digital financial transactions (Table IV.B1.7.28). Likewise, in all participating countries and economies, students who were more confident in using digital financial services reported having more experience in digital financial transactions. The difference between the most confident and the least confident students was greater than 30% for reports of having made a payment using a bank card, having sent money to others using a smartphone and having made a payment using a mobile phone, in the 12 months prior to the assessment, on average across OECD and all participating countries and economies (Table IV.B1.7.29).

Boys were more confident than girls in dealing with each of the four traditional money matters, on average across OECD countries and economies; and, in every participating country and economy, the average boy was significantly more confident than the average girl in dealing with traditional money matters (as measured by the index of confidence in dealing with traditional money matters) (Table IV.B1.7.20). 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 and economies and in 18 of the 20 countries and economies that participated in the PISA 2022 financial literacy assessment. The only exceptions were the Flemish community of Belgium and Saudi Arabia, where the gender difference was not significant. The gender difference, in favour of boys, was observed for each of the five digital financial services, on average across OECD countries and economies (Table IV.B1.7.24). Such gender differences in confidence in dealing with traditional money matters and in using digital financial services may be associated with the greater tendency to hold and use basic financial products among boys than girls (Table IV.B1.7.6 and Table IV.B1.7.11).

Students' confidence in dealing with traditional money matters generally increases with their socio-economic status, although the likelihood of feeling confident about traditional money matters does not increase across all countries and economies for all activities. While on average across OECD countries and economies, advantaged students had a greater likelihood of feeling confident about keeping track of their account balance and making a money transfer than disadvantaged students, they were also less likely to feel confident about filling forms at the bank (Table IV.B1.7.21). Advantaged students were also more likely than disadvantaged students to report that they are confident in using digital financial services. On average across OECD countries and economies, the index of confidence in using digital financial services was 0.2 of a unit higher amongst advantaged students than amongst disadvantaged students. This difference related to socio-economic status was also observed in 16 of the 20 countries and economies that examined this issue, reaching 0.7 of a unit in Peru. However, the difference was not significant in Hungary, Italy and Spain. The difference related to socio-economic status was also significant, in favour of advantaged students, for each of the five digital financial services, on average across OECD countries (Table IV.B1.7.25).

Results for immigrant and non-immigrant students are available in Annex B.

Performance in the financial literacy assessment, use and confidence in using financial products

This section examines the variations in performance in the PISA 2022 financial literacy assessment according to 15-year-old students' holding and use of financial products, the sources from which they receive money and their confidence in dealing with traditional money matters and in using digital financial services.

Performance in the financial literacy assessment, and students' experience with money and basic financial products

As discussed in the previous sections, students' different types of experience with money and basic financial products – in terms of holding traditional and digital financial products, using them, and receiving money from various sources – are related to each other (Table IV.B1.7.2, Table IV.B1.7.3, Table IV.B1.7.10 and Table IV.B1.7.15). This section, therefore, considers variations in performance in financial literacy across all these different types of experiences together, after accounting for student characteristics such as gender, socio-economic status and immigrant background.

Results related to variations in performance in financial literacy by each experience with money and basic financial products separately are available in Annex B.

Performance in the financial literacy assessment and students' holding of basic financial products

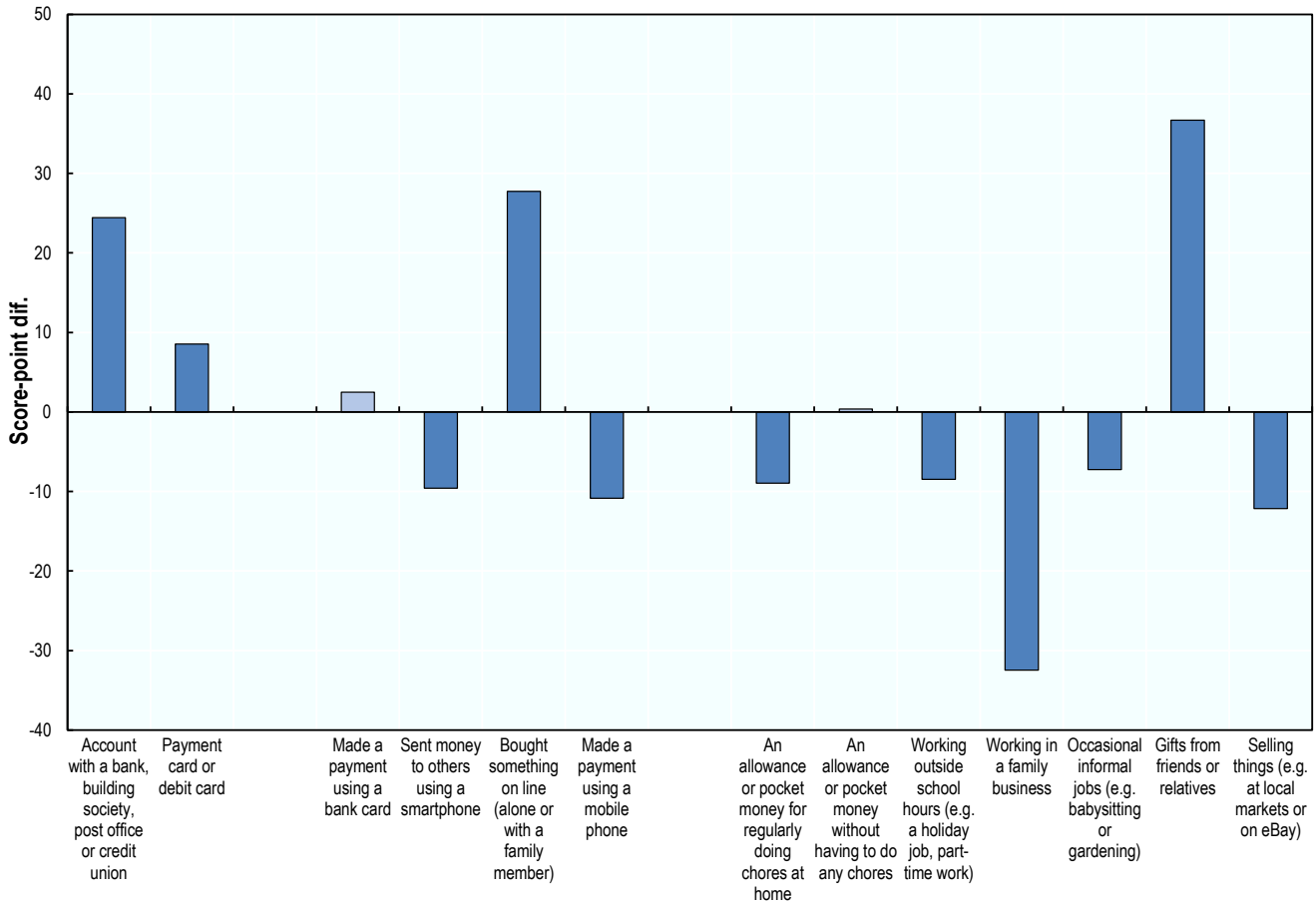
On average across OECD countries and economies participating in the 2022 PISA financial literacy assessment, students who held an account with a bank, building society, post office or credit union scored 24 points higher than students who did not hold such an account/did not know what an account is, after accounting for student characteristics, such as gender, socio-economic status, immigrant background and other experiences with money and basic financial products. This difference was positive and significant in 14 countries and economies, after accounting for student characteristics and other experiences with money. In the Netherlands*, the performance difference was 51 points wide and in Norway, it was 41 points wide. However, it is worth noting that in both countries more than 90% of students hold an account, hence the sample of students without an account is relatively small. By contrast, the performance difference was negative and significant in two countries: it reached 8 points in the United Arab Emirates and 16 points in Peru after accounting for students' characteristics and other experiences with money (Figure IV.7.5 and Table IV.B1.7.36).

Likewise, students who held a payment card or debit card scored 9 points higher in the PISA 2022 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 and economies, after accounting for student characteristics and other experiences with money and basic financial products. The performance difference reached 39 score points in the Netherlands* and 30 points in Bulgaria; it was significant in favour of students holding such a card in five more countries and economies. However, the performance gap was in favour of students who did not hold such a card/did not know what such a card is in Hungary, Malaysia and Peru, after accounting for student characteristics and other experiences with money (Table IV.B1.7.36).

The positive relationship between financial literacy and holding of basic financial products suggests that using a bank account may offer students the opportunity to learn about money, or that students with higher financial literacy may be more likely to engage with the formal financial system. Studies among high school students suggested that allowing students to experience with bank accounts as part of financial education school-based programmes provided an opportunity for learning (Loke, Choi and Libby, 2015^[16]; Sherraden et al., 2011^[17]).

Figure IV.7.5. Financial literacy performance, by students’ experience with money, basic financial products and digital transactions

Score-point difference between students who reported holding these products, having carried out these digital financial transactions, or having received money at least once a year from these sources, and students who did not, after accounting for student characteristics; OECD average



1. The socio-economic profile is measured by the PISA index of economic, social and cultural status.

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, or who reported receiving money at least once a year and those never/hardly ever receiving money from a source

Source: OECD, PISA 2022 Database, Table IV.B1.7.36.

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 2022 financial literacy assessment than students who had not bought something on line during the previous 12 months, on average across OECD countries and economies, after accounting for student characteristics and other experiences with money. Having bought something on line was associated with greater financial literacy in 16 of the 19 participating countries and economies with valid data. The performance difference was especially large in the Netherlands* (49 score points), Poland (45 score points) and the United States* (44 score points), after accounting for student characteristics and other experiences with money (Table IV.B1.7.36).

There was no clear association between students' performance in financial literacy and experience in having made a payment with a bank card, on average across OECD countries and economies, and after accounting for student characteristics and other experiences with money. Having made a payment with a bank card was associated with greater performance in financial literacy in 5 of the 19 participating countries and economies with valid data including Saudi Arabia (by 20 points), the Flemish community of Belgium (by 18 points), Brazil (by 16 points), the United Arab Emirates (by 12 points) and Hungary (by 9 points), and lower performance in financial literacy in Malaysia (by 12 points) (Table IV.B1.7.36).

Sending money to others using a smartphone and making payments using a mobile phone were both associated with lower performance in the assessment, on average across OECD countries and economies, and after accounting for student characteristics and other experiences with money. Students who had sent money to others using a mobile phone over the previous 12 months scored 10 points lower than those who had not, on average across OECD countries and economies. A difference in favour of students who had not sent money to others using mobile phones during that period was observed in 11 of the 19 participating countries and economies with valid data, after accounting for student characteristics and other experiences with money. The difference reached 30 score points or more in the United Arab Emirates and the United States*. In the Netherlands* and Norway however, students who had sent money to others using mobile phones scored higher in financial literacy than those who had not, by about 13 score points after accounting for student characteristics and other experiences with money (Table IV.B1.7.36).

On average across OECD countries and economies, students who had made a payment using a mobile phone over the previous 12 months scored 11 points lower than those who had not, after accounting for student characteristics and other experiences with money. A difference in favour of students who had not made payments using mobile phones during that period was observed in 11 of the 19 participating countries and economies with valid data, after accounting for student characteristics and other experiences with money. The difference exceeded 20 score points in the Netherlands* (Figure IV.7.5 and Table IV.B1.7.36).

These results suggest that the type of experiences that 15-year-old students have with basic financial products are varied across and within countries, and that the relationship between financial literacy and engaging with basic traditional and digital financial products is not straightforward. Depending on the financial products and services available to young people in different countries, it may be that using certain financial products, or that using them in certain ways, may provide an opportunity for students to develop their financial literacy, but that this may not be the case across using all basic financial products. It may also be that, depending on the country or local context, students with high financial literacy use basic financial products in certain ways (such as buying things on line with a family member) while low performing students use them in other ways (such as making payments using a mobile phone or sending money to others using a smartphone). It may also be that there are unobserved characteristics in the types of students who pay using bank cards or buy things on line and those who send money to others or make payments using a mobile phone, such as the fact that online shopping via a computer may provide an opportunity to discuss with parents and to learn from them to a greater extent than sending money via a smartphone. Recent studies in Australia and the United States* suggests that adults may use online shopping experiences and payment card usage as opportunities to teach their children about money matters (Williams and Willick, 2023^[18]; Thaichon, 2017^[19]). By contrast, a study in the United Kingdom shows that many parents are not aware of their children's spending behaviour on line (Virgin Media O2, 2023^[20]).

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

The relationship between performance in general (and financial literacy performance in particular) and earning money from small jobs is a complex one. As discussed in previous chapters, students' performance in financial literacy may be related to students' overall ability, to the extent to which they are exposed to formal financial education in school, and to any other opportunity for informal learning, such as discussions with parents and personal experience. Earning money from doing household chores or small jobs may be considered one such experience, as it allows young people to become familiar with the idea of work, wages and money management. At the same time, these activities may

take time away from learning during after-school hours, and students from different socio-economic backgrounds may need to earn money from work to different extents (Table IV.B1.7.17).

Students' financial literacy, as measured by performance in the PISA 2022 financial literacy assessment, was positively correlated with receiving money from only one of the seven sources investigated: gifts from friends or relatives, on average across OECD countries and economies. After accounting for student characteristics, such as gender, socio-economic status and immigrant background and experiences with money, students who received money as a gift from friends or relatives scored 37 points higher in the assessment than students who did not receive money in this way on average across OECD countries and economies, and 34 points higher on average across all participating countries and economies with valid data (Table IV.B1.7.36). Gifts may be related to higher financial literacy if they provide an occasion for students to think about their saving and spending decisions, but also if high-performing students receive money as a reward for school performance.

The direction of the relationship between receiving money from an allowance or pocket money without having to do any chores was not consistent across participating countries and economies. Students receiving money from an allowance or pocket money without having to do any chores scored higher than those who did not receive money from this source in 9 participating countries and economies, but scored lower in 4 participating countries and economies, after accounting for student characteristics and experiences with money. Receiving money from an allowance or pocket money for regularly doing chores was associated with lower financial literacy performance in 10 participating countries and economies (Table IV.B1.7.36).

Receiving money from working activities or selling things was associated with lower scores in financial literacy. The largest performance gap between receiving money from a given source at least once a year and never receiving it was observed amongst students who received money by working in a family business: these students scored 32 points lower than students who did not receive money in this way on average across OECD countries and economies and 30 points on average across all participating countries and economies, after accounting for student characteristics and experiences with money (Table IV.B1.7.36). However, it is worth noting that relatively few students reported earning money from working in a family business (26% on average across OECD countries and economies) (Table IV.B1.7.14).

Working outside school hours (e.g. a holiday job or part-time work), occasional informal jobs (e.g. babysitting or gardening) and selling things (e.g. at local markets or on eBay) were all associated with lower scores in financial literacy – between 7 and 12 score points lower – compared to students who did not receive money from these sources, on average across OECD countries and economies and after accounting for student characteristics and experience with money, and between 6 and 12 points on average across all participating countries and economies. The direction of the relationship between financial literacy performance and receiving money from an allowance or pocket money without having to do any chores was not consistent across participating countries and economies (Table IV.B1.7.36).

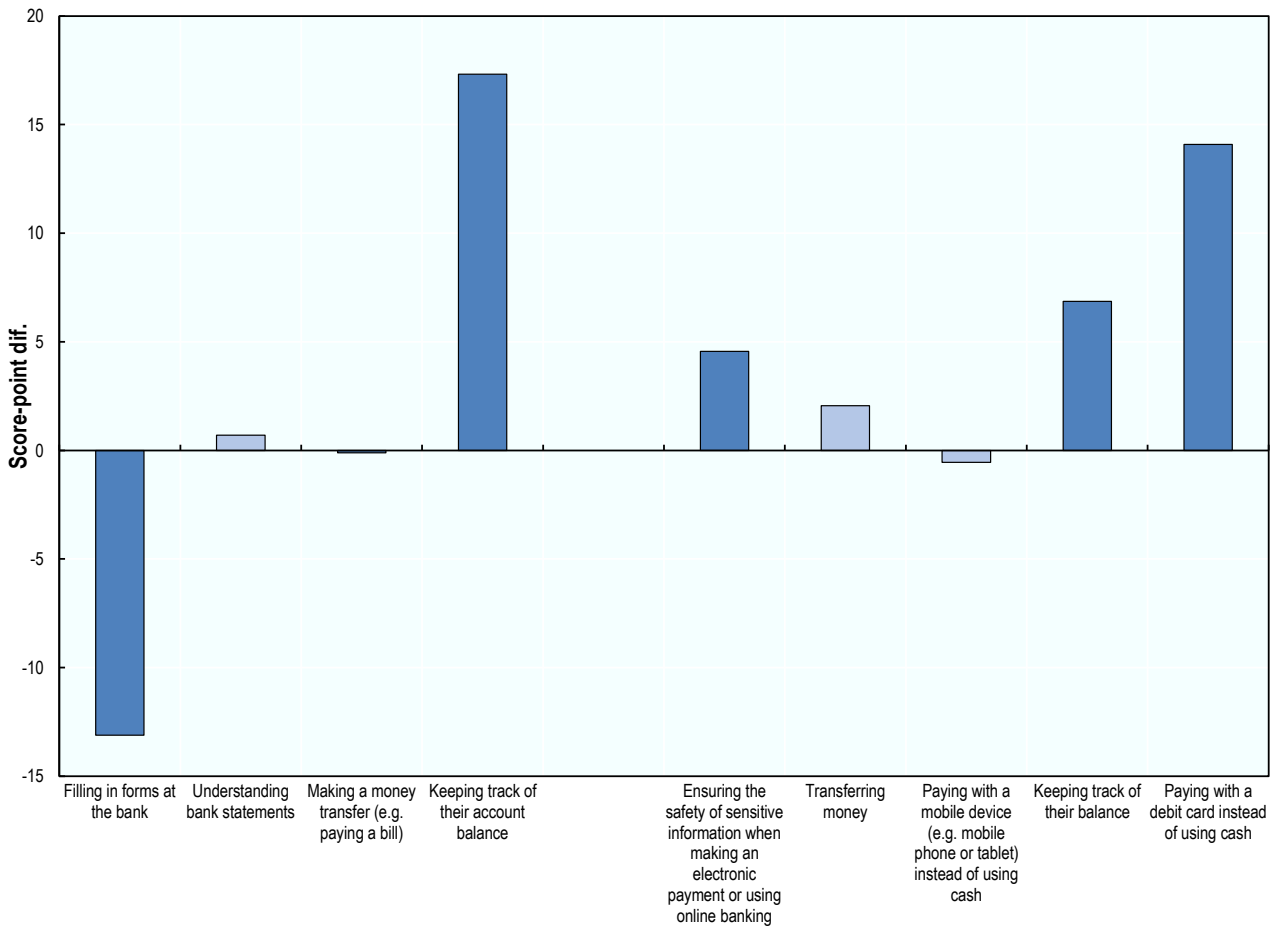
The negative relationship between financial literacy and receiving money from working activities or selling things may be related to students' overall ability, as there are no or very small differences in financial literacy performance associated with receiving money from any of these sources when students' performance in mathematics and reading is also taken into account, in addition to student characteristics (Table IV.B1.7.32). The negative relationship may also be related to the different situations of students undertaking these activities, the time they spend performing them which arguably diminishes the time they can spend studying or other characteristics not captured in the PISA assessment. Moreover, these results should be interpreted with caution also because the data do not say how much money students earn from these sources, and whether students engage in any quality discussion about the money they receive with knowledgeable adult relationships, such as parents or teachers. Future research could look further into the relationship between undertaking work activities, earning money, discussing about money with parents or teachers and financial literacy.

Performance in the financial literacy assessment and students’ confidence in using financial products

As discussed in the previous sections, students’ confidence in dealing with traditional matters and in using digital financial services is associated with their experience in using financial products and services (Table IV.B1.7.27, Table IV.B1.7.28 and Table IV.B1.7.29). This section, therefore, considers variations in performance in financial literacy across levels of confidence in dealing with traditional money matters and in using financial services, after taking into account students’ experience with money and basic financial products, as well as student characteristics such as gender, socio-economic status and immigrant background (Table IV.B1.7.37).

Figure IV.7.6. Financial literacy performance, by students’ confidence in dealing with traditional money matters and 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, after accounting for student characteristics and experiences with money; OECD average



1. The socio-economic profile is measured by the PISA index of economic, social and cultural status.
 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 2022 Database, Table IV.B1.7.38.

Students who reported that they are confident in dealing with certain traditional money matters and in using certain digital financial services also scored higher in the PISA 2022 financial literacy assessment than students who are not confident (Figure IV.7.6 and Table IV.B1.7.37). Students reporting that they are confident in traditional money matters such as keeping track of their account balance scored 7 points higher in the financial literacy assessment than those who reported they are not confident, on average across OECD countries and economies, after accounting for student characteristics and experiences with money.

When using digital or electronic devices outside of the bank, students who reported they are confident in using the following digital financial services scored higher than those who reported not feeling confident, on average across OECD countries and economies, after accounting for student characteristics and experiences with money (Figure IV.7.6 and Table IV.B1.7.37):

- paying with a debit card instead of using cash, by 14 points
- keeping track of their balance, by 7 points
- ensuring the safety of sensitive information when making an electronic payment or using online banking, by 5 points.

By contrast, students who reported that they are confident filling forms at the bank scored 13 points lower than those who reported not feeling confident performing this task, on average across OECD countries and economies, and after accounting for student characteristics and other experiences with money. This association was negative in 11 participating countries and economies. It is worth noting that only about a third of students reported feeling confident about filling forms at the bank, on average across OECD countries and economies. Further research may be needed to uncover any characteristics of students who perform this task to explain their lower financial literacy levels.

Feeling confident in transferring money digitally or in paying with a mobile device instead of cash was not associated with a difference in financial literacy performance, on average across OECD countries and economies, and after accounting for student characteristics and experiences with money (Figure IV.7.6 and Table IV.B1.7.37).

Table IV.7.1. Money and basic financial services: access, use and attitudes chapter figures

Figure IV.7.1	Students' holding of basic financial products
Figure IV.7.2	Students with experience in digital financial transactions
Figure IV.7.3	Students receiving money from various sources
Figure IV.7.4	Students' confidence in dealing with traditional money matters and in using digital financial services
Figure IV.7.5	Financial literacy performance, by students' experience with money and basic financial products
Figure IV.7.6	Financial literacy performance, by students' confidence in dealing with traditional money matters and in using digital financial services

StatLink  <https://stat.link/zhwcd0>

Notes

¹ The question about receiving money from different sources was asked in a different way in 2022 than it was asked in 2018 and previous cycles. In PISA 2022, students were asked “Thinking of the last 12 months, how often did you get money from any of these sources?” with the option of choosing among five frequency categories. In PISA 2018 and previous cycles, students were asked “Do you get money from any of these sources?”, with the option of replying Yes or No. Comparisons should therefore be made with caution.

² 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.

³ The index of confidence in dealing with traditional money matters refers to confidence making a money transfer (without specifying whether on line or in person), filling in forms at the bank, understanding bank statements (without specifying whether in paper or online format) and keeping track of one's account balance (without specifying whether in branch or using digital tools). By contrast, the index of confidence in using digital financial services only refers to the use of digital or electronic devices outside of the bank.

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 Countries and economies were given equal weight in the standardisation procedure.

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8

Students' spending and saving behaviours and attitudes

This chapter explores whether students practice basic behaviours and attitudes towards money that demonstrate responsibility in their spending and saving decisions. It also examines the role of friends in influencing students' financial attitudes and behaviours. It discusses whether such behaviours and attitudes are related to performance in the financial literacy assessment.

Research has shown that financial literacy is positively associated with better financial outcomes, in terms of spending, investment and debt (Deuflhard, Georgarakos and Inderst, 2019^[1]; Schützeichel, 2019^[2]; Lusardi and Tufano, 2015^[3]; Mitchell and Lusardi, 2015^[4]; Lusardi and Streeter, 2023^[5]). However, the existing literature has mostly examined financial outcomes amongst adults, and outcomes among 15-year-old students have only been studied to some extent in previous PISA assessments (OECD, 2014^[6]; 2017^[7]). Although 15-year-olds have only limited agency in their financial decisions – they are often legally restricted in signing their own sales contracts – there are still basic financial behaviours that they engage in on a regular basis, such as making small purchases or starting to save some money. 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.

The PISA 2022 financial literacy assessment offers the opportunity to analyse students' spending and saving behaviour in a deeper way than was done in previous assessments. The 2022 financial literacy questionnaire collected information on a wider range of aspects related to students spending and saving behaviour, and collected more information on attitudes related to such behaviours than in the past. Moreover, it also investigated the role of friends in influencing students' spending decisions, as prior research suggest friends can influence teenagers' risky and financial behaviours (Sasmito et al., 2023^[8]; McMillan, Felmlee and Osgood, 2018^[9]; Mangleburg, Doney and Bristol, 2004^[10]) as well as adults' financial behaviours (Shabbir Rana, 2022^[11]).

This chapter examines students' spending behaviours and attitudes, and whether such behaviours and attitudes are associated with financial literacy performance. It explores the influence of friends on students' attitudes and behaviours related to financial matters. The chapter also examines 15-year-old students' behaviours and attitudes towards saving and the long-term, and how they are related to financial literacy.

What the data tell us

- More than two in three students, on average across OECD countries and economies, reported that they sometimes or always compare prices in different shops (74%) or between a physical and an online shop (68%), when thinking about buying something using their allowance. Some 77% of students, on average across OECD countries and economies, reported that they had bought something that cost more money than they had intended to spend.
- Students who performed at Level 4 or 5 in financial literacy were almost 3 times as likely to report that they compare prices in different shops, and almost twice as likely to report that they compare prices between a physical shop and an online shop, as those who scored at Level 1 or below, on average across OECD countries and economies, and after accounting for student characteristics and spending attitudes.
- On average across OECD and all participating countries and economies, 60% of students reported having bought something because their friends had it, over the 12 months prior to the survey. Students who performed at Level 4 or 5 in financial literacy were 54% less likely than those scoring at Level 1 or below to report buying something because their friends had it, after accounting for student characteristics and attitudes, on average across OECD countries and economies.
- Some 93% of students, on average across OECD countries and economies, reported that they had saved money at least once a year in the 12 months before the survey, with 67% of students reporting that they had saved into an account and 88% of students reporting that they had saved at home.
- Students who performed at Level 4 or 5 in financial literacy were more than twice as likely as those performing at Level 1 or below to report having saved into an account or at home in the 12 months prior to the survey, after accounting for student characteristics, bank account holding and attitudes towards saving, on average across OECD countries and economies.

Students' spending behaviours, strategies and attitudes

The PISA 2022 financial literacy questionnaire examines students' behaviour and attitudes towards spending.

Students' spending behaviours

To assess how students behave towards spending, whether they keep track of their expenses and are in control of their finances, the PISA 2022 financial literacy questionnaire asked students whether they had, in the previous 12 months:

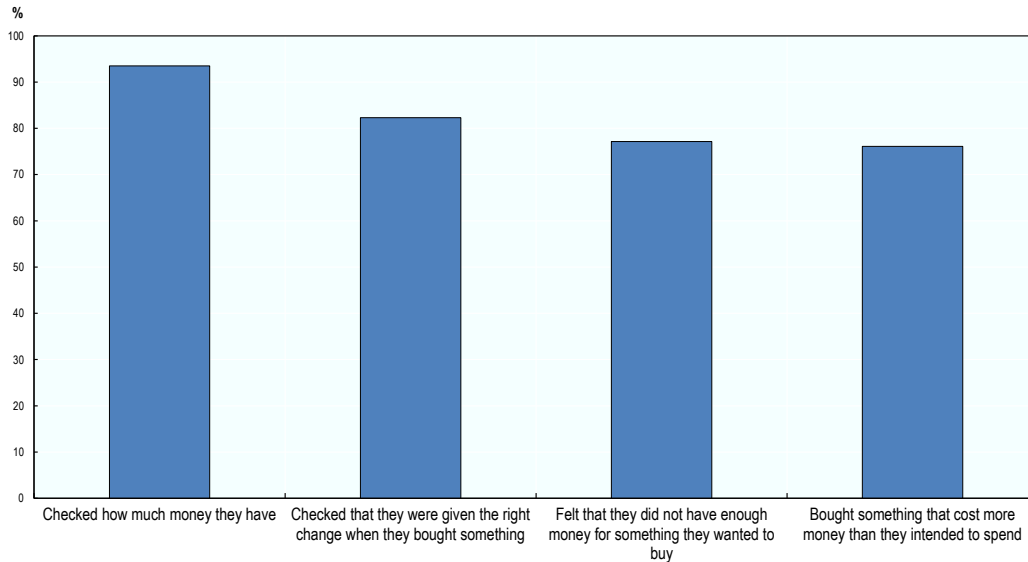
- checked how much money they had
- checked that they were given the right change when they bought something with cash
- complained that they did not have enough money for something they wanted to buy
- bought something that cost more money than they intended to spend.

On average across OECD countries and economies, 94% of students reported that they had checked how much money they have, 82% of students reported that they had checked that they were given the right change, 77% had bought something that cost more money than they intended to spend, and 76% complained that they did not have enough money for something they wanted to buy in the 12 months prior to the survey. These behaviours were commonplace amongst students in all the countries and economies that participated in the PISA 2022 financial literacy assessment (Figure IV.5.1 and Table IV.B1.8.1).

- Some 96% of students in Denmark*, Hungary and the Netherlands*, 95% of students in Norway and 94% of students in Austria, Czechia, Poland and the United States* had checked how much money they have in the 12 months prior to the survey, while even in the countries and economies where this behaviour was least common – Brazil, Saudi Arabia and the United Arab Emirates – over 84% of students had checked how much money they have (Figure IV.5.1 and Table IV.B1.8.1).
- Likewise, over 91% of students in Portugal reported that they had checked that they were given the right change when they bought something in the 12 months prior to the survey. In Austria, where this behaviour was least common, around three in four students (75%) had checked that they were given the right change, as did 84% of students in Poland and the United Arab Emirates, and 87% of students in Italy (Figure IV.5.1 and Table IV.B1.8.1).
- Some 85% of students in Poland reported that, over the previous 12 months, they had complained that they did not have enough money for something they wanted to buy, as did 83% of students in Costa Rica, Peru and the United States*. In Portugal, where this behaviour was least common, 63% of students reported having felt they lacked money to buy something (Figure IV.5.1 and Table IV.B1.8.1).
- On average across all participating countries and economies, 74% of students reported that they had bought something that cost more money than they intended to spend at some point in the 12 months prior to the survey. More than 80% students in Norway and Poland (84%), Bulgaria (82%), Czechia and Denmark* (81%) and the Netherlands* (80%) reported doing so. The smallest proportions of students who reported doing so were observed in Saudi Arabia (57%) and Peru (58%), where more than one in two students still reported they had spent more money than intended in the previous 12 months (Figure IV.5.1 and Table IV.B1.8.1).

Figure IV.8.1. Students' spending behaviour

Percentage of students who reported that they sometimes or always display the following spending behaviours; OECD average



Behaviours are ranked in descending order of the percentage of students who reported displaying them.

Source: OECD, PISA 2022 Database, Table IV.B1.8.1.

On average across OECD countries and economies, slightly more girls than boys reported having experienced each of the four spending behaviours in the 12 months prior to the survey:

- Four percentage points more girls than boys reported having complained that they did not have enough money for something they wanted to buy. This gap narrowed to 2 percentage points on average across all participating countries and economies, and was largest in Denmark* (10 percentage points), the Flemish community of Belgium (8 percentage points), the Netherlands* (6 percentage points), Costa Rica and Czechia (5 percentage points). However, in Hungary, Saudi Arabia and the United Arab Emirates, more boys than girls reported such behaviour, by between 3 and 6 percentage points (Table IV.B1.8.2).
- Three percentage points more girls than boys reported having bought something that cost more than they intended to spend. This difference was significant and positive in favour of girls in nine participating countries, but the reverse was true in three countries and economies, particularly in Saudi Arabia where 23 percentage points more boys than girls reported such behaviour (Table IV.B1.8.2).
- Two percentage points more girls than boys reported having checked that they were given the right change when buying something, and having checked how much money they have. In no country or economy were any of these behaviours more common amongst boys than girls (Table IV.B1.8.2).

On average across OECD countries and economies and all participating countries and economies, more students from advantaged backgrounds¹ than disadvantaged students reported two behaviours associated with keeping track of one's finances, such as checking that they were given the right change and checking how much money they have. In particular:

- More students from advantaged backgrounds than disadvantaged students reported having checked they were given the right change when purchasing something, by 5 percentage points on average across OECD countries and economies, and by 8 percentage points on average across all participating countries and economies. This association was positive and significant in 17 countries and economies, and the gap reached

19 percentage points in Peru. However, disadvantaged students reported 5 percentage points more often than advantaged ones having experienced such behaviour in Norway (Table IV.B1.8.3).

- More students from advantaged backgrounds than disadvantaged students reported having checked how much money they have, by 4 percentage points on average across OECD countries and economies, and by 7 percentage points on average across all participating countries and economies. The difference was significant in 18 countries and was highest in Peru (17 percentage points) and Brazil (15 percentage points) (Table IV.B1.8.3).

Moreover, on average across OECD countries and economies and all participating countries and economies, more students from advantaged backgrounds reported two other behaviours, having bought something that cost more money than they intended to spend and (not) complaining that they did not have enough money for something they wanted to buy, that may be the reflection of the greater availability of financial resources in their family compared to disadvantaged students. In particular:

- More students from advantaged backgrounds than disadvantaged students reported having bought something that cost more money than they intended to spend, by 1 percentage point on average across OECD countries and economies, and by 6 percentage points on average across all participating countries and economies. This difference was positive in 11 countries and economies and reached 34 percentage points in Peru and 19 percentage points in Brazil. However, more disadvantaged students reported such behaviour in Hungary, by 8 percentage points, and in Austria, by 4 percentage points (Table IV.B1.8.3).
- More students from disadvantaged backgrounds than advantaged students reported having complained that they did not have enough money for something they wanted to buy, by 4 percentage point on average across OECD countries and economies, and by 2 percentage points on average across all participating countries and economies. However, the direction of this difference was not consistent across countries and economies. In Austria, Denmark*, the Netherlands* and Norway, fewer advantaged students than disadvantaged students (by between 6 and 11 percentage points) reported having complained, while in Brazil, Malaysia and Peru, more advantaged students than disadvantaged ones (by between 6 and 9 percentage points) reported having complained (Table IV.B1.8.3).

Results for immigrant and non-immigrant students are available in Annex B.

Students' spending strategies

In addition to questions about how they manage their money when making purchases, students who sat the PISA 2022 financial literacy assessment were asked about their strategies when they think about buying a new product from their allowance. More specifically, students were asked whether they always, sometimes, rarely or never:

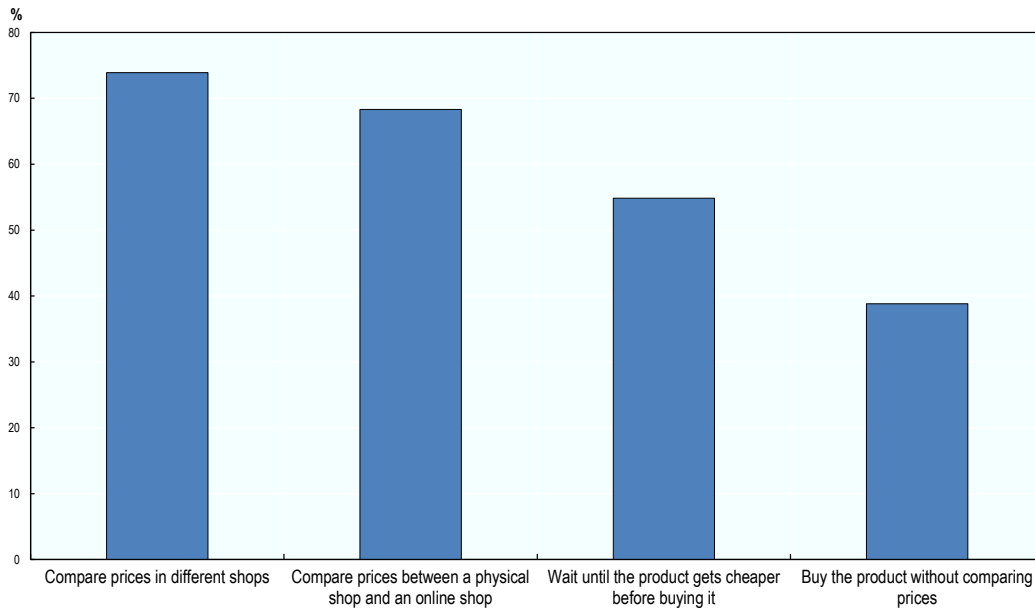
- compare prices in different shops
- compare prices between a shop and an online shop
- buy the product without comparing prices
- wait until the product becomes cheaper before buying it.

The most commonly used strategy was comparing prices in different shops. On average across OECD countries and economies, 74% of students reported always or sometimes² comparing prices in different shops. Some 80% of students in Denmark* and Portugal reported comparing prices in different shops, but two out of three or fewer students in Saudi Arabia (60%), Bulgaria (61%), and Austria (66%) reported doing so (Figure IV.8.2 and Table IV.B1.8.5).

Some 68% of students on average across OECD countries and economies reported comparing prices between a physical shop and an online shop. This strategy was used by at least three in four students in the Canadian provinces* and the United States* (76%), Italy and the United Arab Emirates (75%). However, just over one in two students in Peru reported that they compare prices between a physical shop and an online shop (53%), as did only 55% of students in Costa Rica. (Figure IV.8.2 and Table IV.B1.8.5).

Figure IV.8.2. 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 2022 Database, Table IV.B1.8.5.

Some 55% of students, on average across OECD countries and economies, reported that they wait until the product becomes cheaper before buying it. Two out of three students or more in the Canadian provinces* (67%) and Portugal (70%) reported using this strategy. By contrast, fewer than one in two students reported so in Czechia (40%), Costa Rica (42%) and Hungary (45%) (Figure IV.8.2 and Table IV.B1.8.5).

The least prudent spending strategy – buying the product without comparing prices – was also the least commonly reported. Only 39% of students, on average across OECD as well as all participating countries and economies, reported doing this. Buying a product without comparing prices was relatively less common amongst students in Costa Rica (28%), Peru and Portugal (31%), Czechia, Hungary and Italy (all 32%). However, 52% of students in Norway reported following this strategy (Figure IV.8.2 and Table IV.B1.8.5).

On average across OECD countries and economies, more girls than boys reported that they compare prices in different shops (by 4 percentage points), and this gender gap was significant in 11 countries and economies (Table IV.B1.8.6). However, more girls than boys also reported that they buy the product without comparing prices (by 3 percentage points), on average across OECD countries and economies. This apparent inconsistency is related to some extent to different gender patterns across countries and economies. For instance, in the Flemish community of Belgium, Brazil, Costa Rica, Italy, Malaysia, Poland, Portugal and Spain, more girls than boys reported comparing prices in different shops, and more boys than girls (or boys and girls in the same proportion) reported buying the product without comparing prices. On the contrary, in Denmark* more girls than boys reported buying the product without comparing prices (by 11 percentage points), with no gender difference in the percentage of boys and girls who reported comparing prices in different shops (Table IV.B1.8.6). Gender differences in the two other spending strategies were small and different across countries and economies.

More students from advantaged families than disadvantaged students reported comparing prices, either between physical shops or with an online shop. Ten percentage points more advantaged students than disadvantaged students reported comparing prices in different shops, on average across OECD countries and economies. The gap between the two groups of students was particularly large in Malaysia (22 percentage points), Bulgaria and Peru

(20 percentage points), and was significant in all countries and economies with valid data. Likewise, 8 percentage points more advantaged students than disadvantaged students reported comparing prices between a physical shop and an online shop, on average across OECD countries and economies. This gap was particularly pronounced in Peru (36 percentage points), Brazil (24 percentage points) and Malaysia (21 percentage points) but was not significant in the Flemish community of Belgium nor in the Netherlands* (Table IV.B1.8.7).

More advantaged students than disadvantaged students also reported waiting for a product to become cheaper before buying it. The gap amounted to 3 percentage points, on average across OECD countries and economies, and was between around 13 percentage points in Brazil and Malaysia. However, it was not significant in nine countries and economies. On average across OECD countries and economies, 2 percentage points more disadvantaged students reported buying a product without comparing prices, although at the country level, the difference related to socio-economic status was observed only amongst students in Bulgaria, Czechia, Hungary and Poland (Table IV.B1.8.7).

These results indicate that advantaged students, in general, tend to use responsible spending strategies more 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.

Results for immigrant and non-immigrant students are available in Annex B.

Students' spending attitudes

In addition to their financial behaviour and spending strategies, students who sat the PISA 2022 financial literacy assessment were asked about some of their attitudes to spending. More specifically, they were asked whether they felt not at all confident, not very confident, confident or very confident:

- understanding a sales contract
- planning [their] spending with consideration of [their] current financial situation.

Students were also asked whether they strongly disagreed, disagreed, agreed or strongly agreed that:

- [they] buy things according to how [they] feel in the moment
- it is easier to monitor [their] spending when paying by cash than with a bank card.

On average across OECD countries and economies, only 34% of students reported that they feel confident in understanding a sales contract. Just under half of students in Austria (49%) reported that they feel confident in this task, but only 22% of students in Malaysia reported the same (Table IV.B1.8.9).

On average across OECD countries and economies, most students reported that they were confident in planning their spending in consideration of their current financial situation (62%). Across all participating countries and economies, 60% of students were confident in this task, from 75% of students in the Netherlands*, to 50% of those in Malaysia (Table IV.B1.8.9). About half of students agreed or strongly agreed that they tend to buy things according to how they feel in the moment, on average across OECD and all participating countries (49% and 51% respectively). This attitude to spending was reported by 65% of students in Malaysia, compared to 37% of students in Hungary (Table IV.B1.8.9).

Over half of students agreed or strongly agreed that it is easier to monitor spending when paying with cash than with a bank card. On average across OECD countries and economies, 54% of students reported this attitude, compared to 58% on average across all participating countries and economies. This attitude towards paying by cash was

exhibited by between 66% and 71% of students in Costa Rica, Malaysia, Portugal, Saudi Arabia, Spain and the United Arab Emirates, but only by 32% of those in Denmark* (Table IV.B1.8.9).

Fewer girls than boys reported feeling confident understanding a sales contract (by 19 percentage points) and planning their spending in consideration of their current financial situation (by 8 percentage points), on average across OECD countries and economies. The gender gap in confidence understanding a sales contract was significant in all participating countries and economies, while the gap in confidence planning was significant in 16 of the 20 participating countries and economies (Table IV.B1.8.10).

More boys than girls reported finding it easier to monitor spending when paying by cash on average across OECD countries and economies (by 2 percentage points), but the gender gap was significant and in favour of boys in only eight countries and economies, while it was in favour of girls in another five countries and economies, and not significant in the remaining seven countries and economies (Table IV.B1.8.10). Slightly more girls than boys (by 1 percentage point) agreed that they buy things according to how they feel in the moment, on average across OECD countries and economies, but this difference was modest and observed only in three countries and economies (Hungary, Italy and Poland), and in Norway, more boys than girls reported this spending attitude (by 5 percentage points) (Table IV.B1.8.10).

More advantaged students reported feeling confident planning their spending based on their current financial situation on average across OECD countries and economies, by 10 percentage points. This attitude was observed in 16 participating countries and economies, and in no country or economy did more disadvantaged students report feeling confident planning their spending in consideration of their current financial situation. On average across all participating countries and economies, 3 percentage points more advantaged students than disadvantaged students reported feeling confident understanding a sales contract, although there was no clear pattern across OECD countries and economies (Table IV.B1.8.11).

On average across OECD countries and economies, more disadvantaged students than advantaged students reported buying things according to how they feel in the moment, by 5 percentage points. This was the case in Austria, the Flemish community of Belgium, Hungary, Portugal and the United States*, but more advantaged students reported such attitude in Peru (by 6 percentage points). Likewise, on average across OECD countries and economies, 4 percentage points more disadvantaged students than students from advantaged backgrounds agreed that monitoring one's spending is easier when paying by cash. However, this difference varied widely across countries and more advantaged students were reported such attitude in seven participating countries and economies (Table IV.B1.8.11).

Results for immigrant and non-immigrant students are available in Annex B.

Performance in the financial literacy assessment and students' spending attitudes

Students' attitudes towards spending were also associated with their performance in financial literacy. Students who reported that they were confident in planning their spending in consideration of their financial situation scored higher in financial literacy than students who did not feel confident by 28 score points, after accounting for student characteristics, on average across OECD countries and economies. This positive association was observed in all countries and economies with valid data (Table IV.B1.8.13).

By contrast, students who reported feeling confident understanding a sales contract performed 13 score points lower in financial literacy than those who did not report so, on average across OECD countries and economies and after accounting for student characteristics. This negative association was observed in 11 countries and economies, and students in the United States* who were confident understanding a sales contract scored 37 points lower on average than those who were not. In Czechia and Peru however, students who felt confident understanding a sales contract performed better than those who did not, by 8 and 20 score points respectively (Table IV.B1.8.13). Further research may be needed to uncover any characteristics of students who are confronted with sales contracts and feel confident in understanding them, to explain their lower financial literacy levels.

As can be expected, students who agreed that they buy things according to how they feel in the moment scored lower in financial literacy than those who disagreed (by 24 points on average across OECD countries and economies, after accounting for student characteristics) (Table IV.B1.8.13). This was true in 16 countries and economies, and the difference in financial literacy associated with this spending attitude was not significant in the remaining countries and economies.

On average across OECD countries and economies, students who find it easier to monitor their spending when paying by cash than with a bank card performed 21 score points lower in financial literacy than those who did not, after accounting for student characteristics. However this was not consistent across countries, as this negative relationship was observed in nine countries and economies (the Flemish community of Belgium, Brazil, the Canadian provinces*, Czechia, Denmark*, Hungary, the Netherlands*, Norway and the United States*) and the difference reached 60 score points in the Netherlands*, but the difference in performance was in favour of students who agreed that it is easier to monitor their spending when paying by cash in Malaysia, Peru and Spain, by between 7 and 21 score points (Table IV.B1.8.13).

Performance in the financial literacy assessment and students' spending behaviour and strategies

Responsible financial behaviours are positively associated with financial literacy. On average across OECD countries and economies, students scoring at Level 4 or 5 in the PISA 2022 financial literacy assessment were almost 4 times as likely as those who scored at Level 1 or below to report having checked how much money they have in the 12 months prior to the survey, after accounting for student characteristics, such as gender, socio-economic status, immigrant background and attitudes towards spending.³ This increased likelihood was significant in 15 countries and economies that participated in the assessment (Figure IV.8.3 and Table IV.B1.8.14).

Likewise, students who scored at Level 4 or 5 in financial literacy were more than twice as likely as those scoring at Level 1 or below to report having checked that they were given the right change after buying something, in the previous 12 months, on average across OECD countries and economies, after accounting for student characteristics and spending attitudes, and 3 times more so on average across all participating countries and economies. This increased likelihood was significant in 15 countries and economies (Figure IV.8.3 and Table IV.B1.8.14).

Checking how much money students have or checking that they were given the right change after buying something, were positively associated with financial literacy performance even after accounting for students' mathematics and reading performance (in addition to students' characteristics and spending attitudes). On average across OECD countries and economies, after accounting for their characteristics and performance in mathematics and reading, students who scored at Level 4 or 5 in financial literacy were 83% more likely to check how much money they had, and 31% more likely to check that they were given the right change after buying something than students scoring at Level 1 or below (Table IV.B1.8.14).

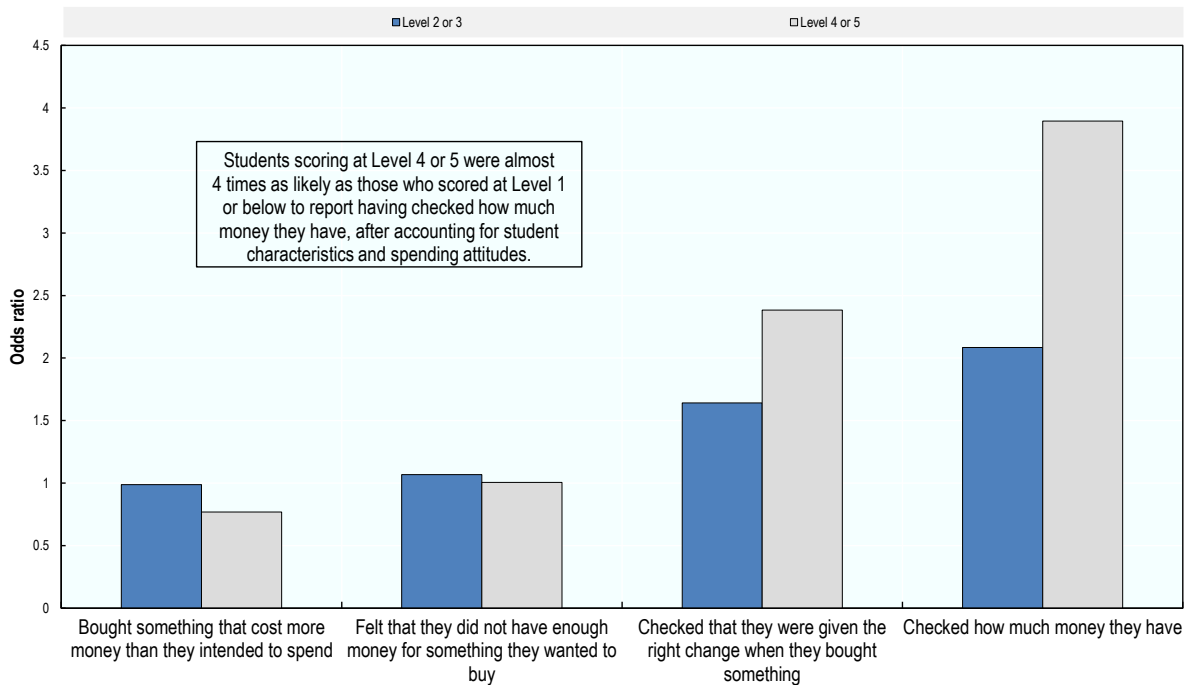
Students who scored at Level 4 or 5 in financial literacy were 23% less likely than those scoring at Level 1 or below to report having bought something that cost more money than they had intended to spend in the previous 12 months, on average across OECD countries and economies and after accounting for student characteristics and spending attitudes. This negative relationship was particularly large in Saudi Arabia (58% less likely) and Austria (54% less likely) but was not significant in 14 countries and economies. High-performing students in financial literacy in Peru were 48% more likely than low-performing ones to report such behaviour, after accounting for student characteristics and spending attitudes. On average across all participating countries and economies, students performing at Level 4 or 5 in financial literacy were equally likely than those performing at Level 1 or below to complain about not having enough money for something they wanted to buy, after accounting for student characteristics and spending attitudes. This relationship was inconsistent across countries and economies, and not significant in most participating countries and economies (Figure IV.8.3 and Table IV.B1.8.14).

As was the case with students' financial behaviours, using responsible spending strategies was positively associated with financial literacy performance. After accounting for student characteristics, such as gender, socio-economic

status, immigrant background and for their spending attitudes, students who performed at Level 4 or 5 in financial literacy were almost 3 times as likely as students performing at Level 1 or below to report that they compare prices in different shops when thinking about buying a product with their allowance, on average across OECD countries and economies. This positive association was observed in all countries and economies that participated in the assessment and had valid data, and the size of the likelihood increase ranged from 79% in the Canadian provinces* to almost 5 times as likely in Malaysia (Figure IV.8.4 and Table IV.B1.8.15).

Figure IV.8.3. Students’ spending behaviour, by performance in financial literacy

Increased likelihood of students at each proficiency level, compared with students at or below Level 1, to report that they have done the following at least once in the past 12 months instead of reporting that they did not do it, after accounting for student characteristics and spending attitudes; OECD average



Source: OECD, PISA 2022 Database, Table IV.B1.8.14.

Likewise, students who performed at Level 4 or 5 in the PISA 2022 financial literacy assessment were almost twice as likely as those performing at Level 1 or below to report that they compare prices between a physical shop and an online shop, on average across OECD countries and economies and after accounting for student characteristics and spending attitudes, and more than twice as likely on average across all countries and economies. The likelihood increase was significant in 15 countries and economies (Figure IV.8.4 and Table IV.B1.8.15).

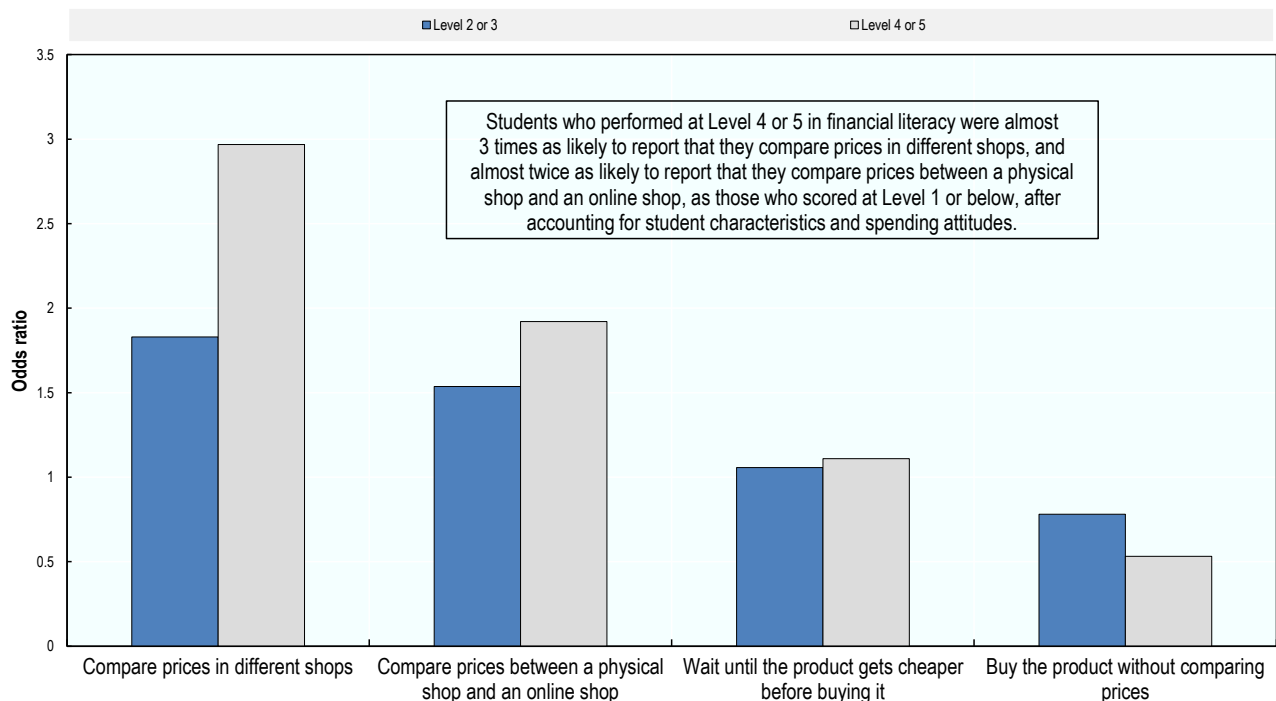
Comparing prices in different shops and comparing prices between a physical and an online shop, were positively associated with financial literacy performance even after accounting for students’ mathematics and reading performance (in addition to students’ characteristics and spending attitudes). On average across OECD countries and economies, after accounting for their characteristics and performance in mathematics and reading, students who scored at Level 4 or 5 in financial literacy were 50% more likely to compare prices in different shops, and 43% more likely to compare prices between a physical shop and an online shop than students scoring at Level 1 or below (Table IV.B1.8.15).

Students who performed at Level 4 or 5 in the PISA 2022 financial literacy assessment were 11% more likely than those performing at Level 1 or below to report that they wait until a product becomes cheaper before buying it, on average across OECD countries and economies and after accounting for student characteristics and spending attitudes, and 20% more likely on average across all countries and economies (Figure IV.8.4 and Table IV.B1.8.15).

Higher performance in financial literacy was negatively associated with buying a product without comparing prices. Students who scored at Level 4 or 5 in financial literacy were almost 50% less likely than those scoring at Level 1 or below to report that they buy a product without comparing prices, on average across both OECD and all participating countries and economies, after accounting for student characteristics and spending attitudes. The decline in likelihood associated with not comparing prices was significant in all participating countries and economies except Austria, the Flemish community of Belgium and the United States* (Figure IV.8.4 and Table IV.B1.8.15).

Figure IV.8.4. Students' spending strategies, by performance in financial literacy

Increased likelihood of students at each proficiency level, compared with students at or below Level 1, to report that they adopted the following spending strategy in the past 12 months instead of reporting that they did not adopt it, after accounting for student characteristics and spending attitudes; OECD average



Source: OECD, PISA 2022 Database, Table IV.B1.8.15.

Spending behaviours and attitudes: the influence of friends

Given the particular importance of social interactions for 15-year-old students, the PISA 2022 financial literacy assessment introduced new questions to assess the potential influence of friends on students' spending behaviour and attitudes.

On average across both OECD and all participating countries and economies, 60% of students reported having bought something because their friends had it, over the 12 months prior to the survey. Some 69% of students in Bulgaria and Norway reported having done so, compared to only 36% of students in Costa Rica (Figure IV.8.5 and Table IV.B1.8.16).

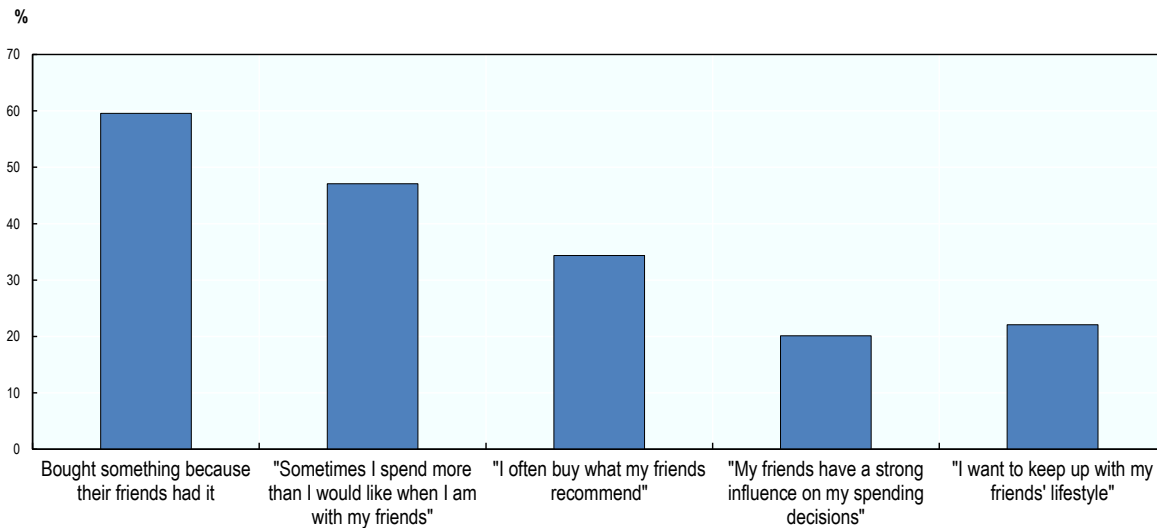
Students were also asked whether they strongly disagreed, disagreed, agreed or strongly agreed with the following attitude statements:

- [their] friends have a strong influence on [their] spending decisions
- [they] want to keep up with [their] friends' lifestyle
- Sometimes [they] spend more than [they] would like when [they are] with friends
- [they] often buy what [their] friends recommend.

Just under half (47%) of students reported that they sometimes spend more than they would like when they are with their friends, on average across OECD countries and economies. This ranged from 40% of students in Austria and Peru to 58% of those in Bulgaria (Figure IV.8.5 and Table IV.B1.8.16). About a third (34%) of students reported that they often buy what their friends recommend, on average across OECD countries and economies. Around half of students agreed with this statement in Saudi Arabia (51%) and the United Arab Emirates (48%), but less than one-in-five did in Peru (19%) (Figure IV.8.5 and Table IV.B1.8.16).

Figure IV.8.5. The influence of friends on students' spending behaviour and attitudes

Percentage of students who reported that they agree with the following statements; OECD average



Statements are ranked in descending order of the percentage of students who reported agreeing with them.

Source: OECD, PISA 2022 Database, Table IV.B1.8.16.

On average across OECD countries and economies, about one in five students agreed that their friends have a strong influence on their spending decisions (20%) and that they want to keep up with their friends' lifestyle (22%). Students in partner countries more frequently agreed with these statements, as the average across all participating countries and economies was 3 percentage points higher for both statements. More than a third of students in Malaysia, Saudi Arabia and the United Arab Emirates agreed that their friends have a strong influence on their spending decisions, and between 37% and 40% of students in Bulgaria, Saudi Arabia and the United Arab Emirates reported that they wanted to keep up with their friends' lifestyle (Figure IV.8.5 and Table IV.B1.8.16).

More boys than girls generally reported being influenced by their friends with respect to their spending attitudes and behaviours, even if gender differences were generally small. In no country did more girls than boys report having bought something because their friends had it, or wanting to keep up with their friends' lifestyle, or that their friends had a strong influence on their spending decisions (Table IV.B1.8.17):

- Eight percentage points more boys than girls reported they had bought something because their friends had it, on average across OECD countries and economies. This gender gap was observed in all participating countries and economies, except in Czechia and Poland where the difference was not significant. The gap ranged from 6 percentage points in Austria, the Flemish community of Belgium and Bulgaria to 20 percentage points in Saudi Arabia.
- Four percentage points more boys than girls reported wanting to keep up with their friends' lifestyle on average across OECD countries and economies. In 16 of the 20 participating countries and economies was this difference significant. In Saudi Arabia, 17 percentage points more boys than girls reported wanting to keep up with their friends' lifestyle, compared to only 3 percentage points in the Netherlands*.
- Four percentage points more boys than girls also reported that their friends have a strong influence on their spending decisions on average across OECD countries and economies. This gender difference was significant in 15 countries and economies, and was highest in Saudi Arabia (15 percentage points).
- More boys than girls reported that they often buy what their friends recommend (by 4 percentage points on average across OECD countries and economies). This difference was significant in 13 of the participating countries and economies. In Brazil, Costa Rica and Saudi Arabia, 10 percentage points more boys than girls reported such influence of friends on their spending attitude.

By contrast, more girls than boys – by 3 percentage points on average across OECD countries and economies – reported sometimes spending more than they would when they are with friends. Across all participating countries and economies, this difference narrows to 1 percentage point on average, and is only significant in seven countries and economies: the Flemish community of Belgium, Czechia, Denmark*, Hungary, Norway, Poland and Spain. More boys than girls reported overspending when with friends in Austria, Peru, Saudi Arabia and the United Arab Emirates (Table IV.B1.8.17).

On average across OECD countries and economies, slightly more advantaged students than disadvantaged students reported being influenced by their friends in their spending behaviours and attitudes (Table IV.B1.8.18).

- Some 2 percentage points more advantaged students reported having bought something because their friends had it. This varied greatly by country and economy, as 17 percentage points more advantaged students in Peru, and 16 percentage points in the United States* reported so, but in Austria, Bulgaria and Hungary, between 4 and 12 percentage points more disadvantaged students than students from advantaged backgrounds reported having bought something because their friends had it.
- Around 2 percentage points more advantaged students also reported sometimes spending more than intended when with friends, on average across OECD countries and economies. This was particularly the case in Brazil (14 percentage points) and Peru (13 percentage points). However, the reverse was true in Austria and Hungary.
- Two percentage points more students coming from an advantaged background than disadvantaged students reported often buying what their friends recommend, on average across OECD countries and economies. This difference was 11 percentage points in the United States*, and 9 percentage points in Saudi Arabia. But 10 percentage points more disadvantaged students agreed with this statement in Bulgaria, as did 7 percentage points more disadvantaged students in Hungary.
- There was no clear association between socio-economic status and the influence of friends on spending attitudes measured by the other statements. Full details can be found in Annex B.

Results for immigrant and non-immigrant students are available in Annex B.

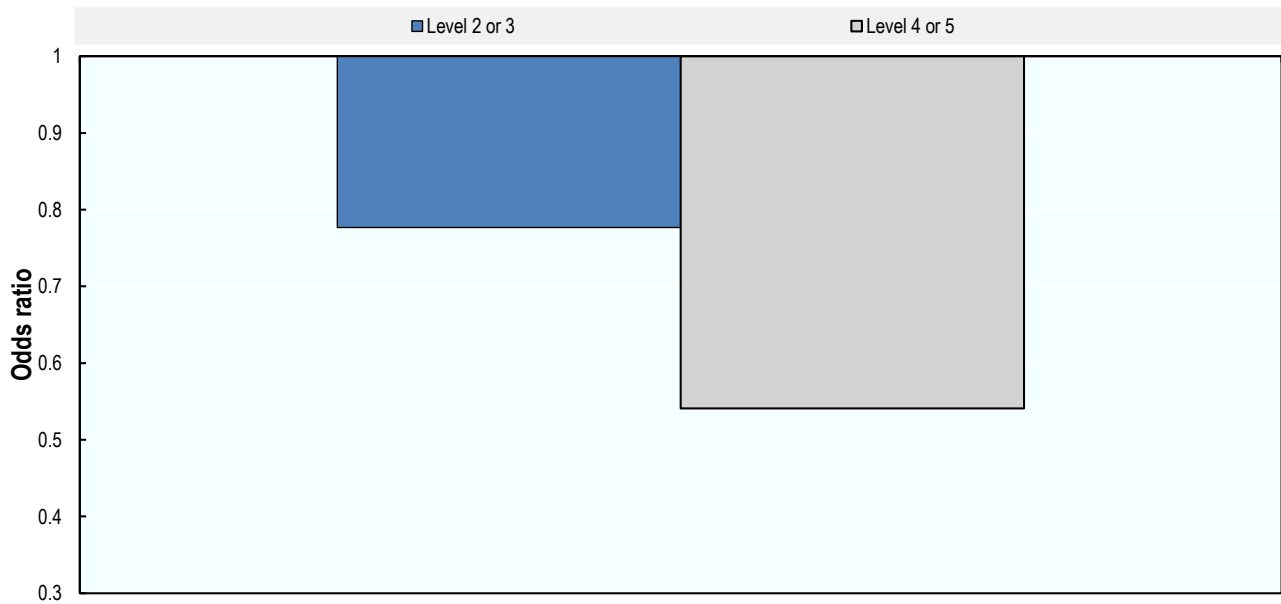
Performance in the financial literacy assessment and the role of friends

Financial literacy appeared to have a potentially moderating effect on friends' influence on spending behaviour. On average across OECD countries and economies, fifteen-year-old students who performed at Level 4 or 5 in financial literacy were almost 50% less likely than those scoring at Level 1 or below to report buying something because their

friends had it, after accounting for student characteristics such as gender, socio-economic status, immigrant background and attitudes about their relationship with friends.⁴ This decline in likelihood was significant in 17 countries and economies. After accounting for students' performance in mathematics and reading, the difference was no longer significant in any of the countries and economies (Figure IV.8.6 and Table IV.B1.8.20).

Figure IV.8.6. Buying something because friends have it, by performance in financial literacy

Decrease in likelihood of students at each proficiency level, compared with students at or below Level 1, to report that they bought something because their friends had it instead of reporting that they did not, after accounting for student characteristics and attitudes; OECD average



Source: OECD, PISA 2022 Database, Table IV.B1.8.20.

The influence of friends on students' spending attitudes and behaviours is negatively associated with financial literacy performance. In all participating countries and economies, fifteen-year-old students who reported being influenced by their friends when making financial decisions performed worse than those who did not report such influence, after accounting for student characteristics such as gender, socio-economic status and immigrant background (Table IV.B1.8.21):

- On average across OECD countries and economies, students who reported that their friends had a strong influence on their spending decisions scored 30 points lower than those who did not, after accounting for student characteristics. This trend was observed in all participating countries and economies. Students who agreed with this statement in Brazil scored 55 points lower on average than those who disagreed. The performance gap was 20 score points or less in Czechia, Denmark*, Poland and Saudi Arabia.
- Similarly, students who reported that they wanted to keep up with their friends' lifestyle scored 27 points lower than those who disagreed with this statement, on average across OECD countries and economies, after accounting for student characteristics. This performance gap was significant in all participating countries and economies with valid data, and reached 62 points in the Netherlands* and 40 points in Brazil and the United Arab Emirates.
- On average across OECD countries and economies, students who reported buying something because their friends had it scored 27 score points lower than those who did not report such influence, after accounting for

student characteristics. The performance gap was observed in all countries with valid data, except in Peru where it was not significant. The gap was highest in Bulgaria (36 points) and Austria (34 points), and lowest in Malaysia (9 points).

- Students who agreed that they often buy what their friends recommend scored 17 points lower than their peers who disagreed, after accounting for student characteristics, on average across OECD countries and economies. Only in the United States* was this performance gap not significant. The gap was widest in Bulgaria (32 points) and lowest in Austria (9 points).

Students' saving behaviours and attitudes

As a complement to their spending behaviour and attitudes, the PISA 2022 financial literacy assessment also asked students questions about their behaviour and attitudes towards saving and long-term planning.

Students' saving behaviours

Students were asked how often (never or almost never, about once or twice a year, about once or twice a month, about once or twice a week, every day or almost every day), they had saved in the 12 months prior to the survey, including whether they (Figure IV.8.7 and Table IV.B1.8.22):

- saved money into an account at a bank/online bank/building society/post office/credit union
- saved money at home.

Some 93% of students, on average across OECD countries and economies, reported that they had saved at least once a year in the 12 months before the survey.⁵ The percentage of students who reported that they had saved ranged between 85% in Saudi Arabia and 95% in Czechia (Table IV.B1.8.22).

On average across OECD countries and economies, 67% of students reported having saved money into an account in the 12 months prior to the survey. There were large differences across participating countries and economies, as more than four in five students in Norway (90%), the Netherlands* (89%), Denmark* (88%) and the Flemish community of Belgium (83%) saved into an account, compared to fewer than one in two students in Peru (26%), Hungary (44%), Portugal (45%), Italy (46%), Costa Rica (47%) and Spain (49%) (Table IV.B1.8.22).

On average across OECD as well as all participating countries and economies, 88% of students reported having saved money at home. This proportion ranged from 78% of students in Denmark* to 93% of students in Portugal (Table IV.B1.8.22). Given that not all students have an account, and the heterogeneity across countries regarding the rules to open an account at the age of 15 (see Box IV.7.1 for further detail), it is unsurprising that more students declared having saved money at home than into an account in the 12 months prior to the survey.

Most students who reported saving, did so both into an account and at home. On average across OECD countries and economies, 61% of students reported saving both into an account and at home, 27% reported saving only at home, and only 5% reported saving only into an account. More than 40% of students Costa Rica, Hungary, Italy, Portugal and Spain reported saving money only at home, as did about two thirds of students in Peru (65%) (Table IV.B1.8.23).

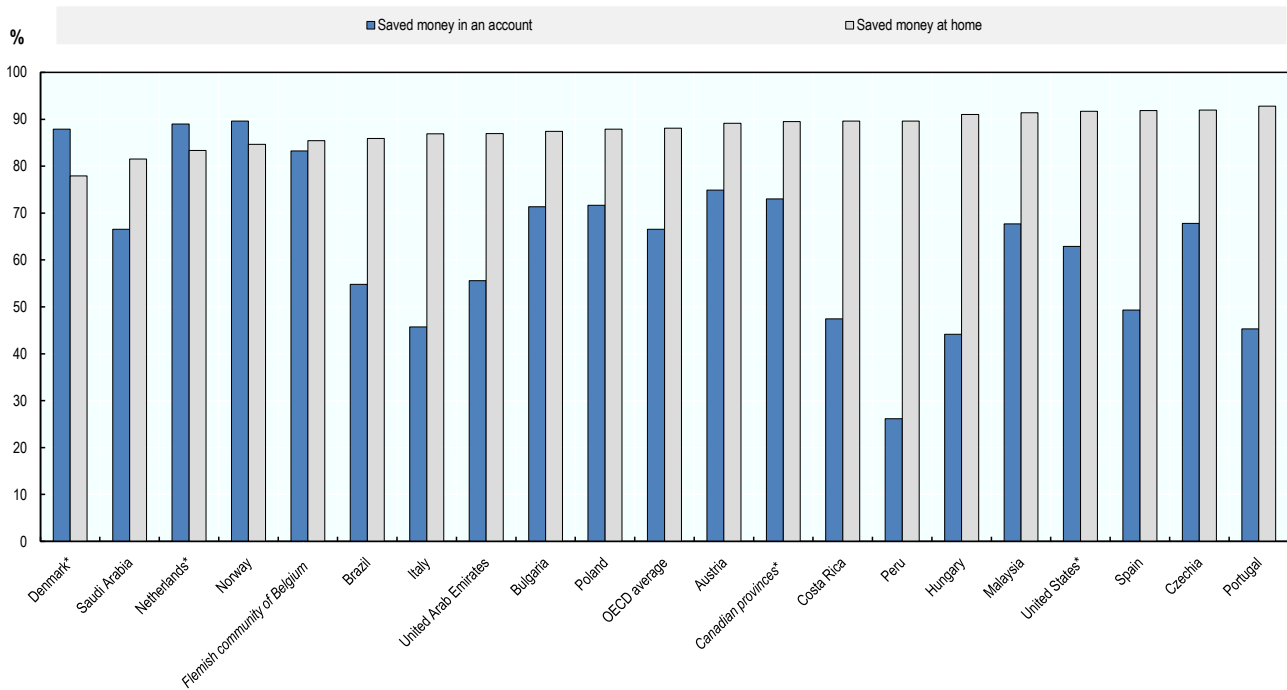
Seven percentage points more boys than girls, on average across OECD countries and economies, reported having saved into an account over the 12 months prior to the survey. This gender gap was significant in 16 of the 20 participating countries and economies, and was largest in Hungary (20 percentage points), Saudi Arabia (17 percentage points), Peru (16 percentage points) and the United Arab Emirates (15 percentage points). In no country or economy did more girls than boys report having saved into an account (Table IV.B1.8.24).

By contrast, slightly more girls than boys (by 1 percentage point) reported having saved money at home on average across OECD countries and economies. However, this gender difference in saving behaviour was only observed in

five countries and economies, and gender differences were not significant in other countries and economies (Table IV.B1.8.24).

Figure IV.8.7. Students’ saving behaviour

Percentage of students who reported having saved money in the following ways in the past 12 months



Statements are ranked in ascending order of the percentage of students who reported saving money at home. Source: OECD, PISA 2022 Database, Table IV.B1.8.22.

More students from an advantaged family background reported having saved money into an account (by 8 percentage points) or at home (by 1 percentage point) than disadvantaged students, on average across OECD countries and economies. This trend was observed in most participating countries and economies, and is consistent with the expectation that advantaged students may have more money to save than their disadvantaged peers. However, in Hungary, 14 percentage points more disadvantaged students than those from an advantaged background reported having saved into an account over the 12 months prior to the survey (Table IV.B1.8.25).

Results for immigrant and non-immigrant students are available in Annex B.

Students’ saving attitudes

Students were asked whether they strongly disagreed, disagreed, agreed or strongly agreed with the following attitude statements, aimed at capturing their long-term orientation and attitudes towards saving:

- saving is something [they] do only if [they] have money left over
- [they are] able to work effectively towards long-term goals
- [they] make savings goals for certain things [they] want to buy or to do.

Some 45% of students agreed that saving is something that they do only if they have money left over, on average across OECD countries and economies. This saving attitude differs strongly among countries and economies, as

over three in four students (76%) in Malaysia agreed with this statement, compared to fewer than one in three (32%) in Portugal (Table IV.B1.8.22).

Most 15-year-old students taking the PISA 2022 financial literacy assessment reported having a long-term attitude to saving (Table IV.B1.8.22):

- Some 74% of students on average across OECD countries and economies reported working towards long-term goals. More than four in five students in Costa Rica, Denmark* and Portugal agreed with this statement, as did about two thirds of students in Czechia (65%), Bulgaria (66%), Italy (67%), Hungary, Austria and Poland (68%).
- On average across OECD countries and economies, 73% of students reported making savings goals for certain things they want to buy or to do. This proportion ranged from around two in three students in Austria and the Flemish community of Belgium (66%) to 87% of students in Costa Rica.

Gender differences in saving attitudes were generally small or null. Slightly more boys than girls reported that saving is something that they do only if they have money left over and that they work towards long-term goals (each by 3 percentage points), on average across OECD countries and economies. Slightly more girls than boys (by 2 percentage points) reported making saving goals for certain things they want to buy or to do. There was no clear association between any of these three attitudes and gender, as the direction of the gender gap varied across countries and economies (Table IV.B1.8.24).

Advantaged students generally displayed attitudes oriented toward saving and the long-term to a greater extent than disadvantaged students. More advantaged students than disadvantaged students agreed with the statements “I am able to work effectively towards long-term goals” (by 10 percentage points) and “I make savings goals for certain things I want to buy or to do” (by 3 percentage points) on average across OECD countries and economies. However, 8 percentage points more disadvantaged students on average across OECD countries and economies agreed that “saving is something I do only if I have money left over”. This difference in attitude was significant in 11 countries and economies and was highest in the United States* (17 percentage points). In Saudi Arabia though, 7 percentage points more advantaged students reported agreeing that saving is what they do when they have money left over (Table IV.B1.8.25). This might reflect the fact that students from an advantaged family background may be in a position to save money more easily than disadvantaged students.

Results for immigrant and non-immigrant students are available in Annex B.

Long-term orientation and saving attitudes were generally positively correlated with students’ financial literacy (Table IV.B1.8.27):

- Students who agreed that they are able to work effectively towards long-term goals scored 22 points higher than those who did not, on average across OECD countries and economies, after accounting for student characteristics. This positive link was observed in all participating countries and economies with valid data.
- Students who agreed that they make savings goals for certain things they want to buy or do scored 9 points higher than those who did not, on average across OECD countries and economies, after accounting for student characteristics. This correlation was positive and significant in 14 countries and economies, including in Malaysia and Peru where the score-point difference exceeded 40 points. However, students in Denmark* who reported saving for big purchases scored 11 points lower than those who did not.
- Students who agreed that saving is something they do only if they have money left over generally scored lower (on average by 24 score points in OECD countries and economies) than those who disagreed with this statement, after accounting for student characteristics. The correlation was negative and significant in 14 countries and economies and was widest in the United States* (53 points) and the Canadian provinces* (45 points). In Malaysia, students who agreed with this attitude statement scored 17 points higher than those who disagreed.

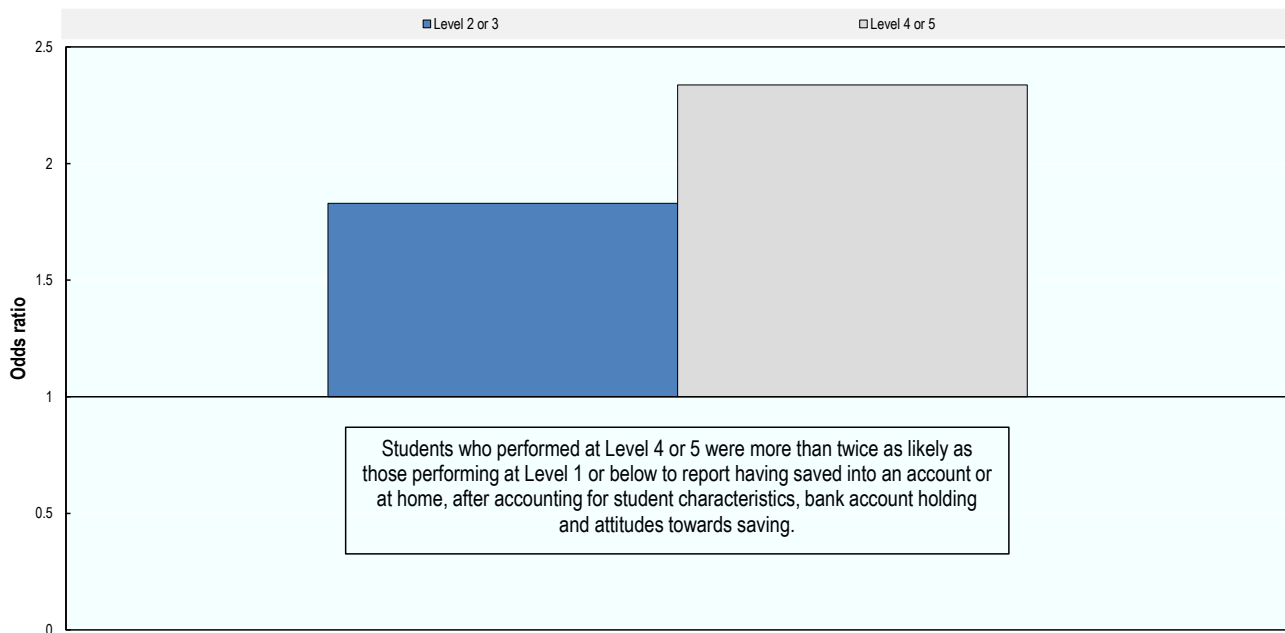
Performance in the financial literacy assessment and saving behaviour

PISA 2022 financial literacy assessment results indicate that saving (whether into an account or at home) was associated with higher performance in financial literacy. On average across OECD countries and economies, students who performed at Level 4 or 5 in financial literacy were more than twice as likely as those performing at Level 1 or below to report having saved into an account or at home in the 12 months prior to the survey, after accounting for student characteristics, such as gender, socio-economic status, immigration background, bank account holding and attitudes towards saving.⁶ This positive association was significant in 14 countries and economies (Table IV.B1.8.28).

PISA 2022 data indicate that higher performance in financial literacy was associated with saving behaviour (whether into an account or at home) also after accounting for students' performance in mathematics and reading, i.e. for their overall ability in the main school subjects. On average across OECD countries and economies and across all participating countries and economies, students performing at Level 4 or 5 in financial literacy were 72% more likely than those performing at Level 1 or below to report having saved into an account or at home in the 12 months prior to the assessment, after accounting for student characteristics, bank account holding, attitudes towards saving, and performance in mathematics and reading (Table IV.B1.8.28).

Figure IV.8.8. Students' saving behaviour, by performance in financial literacy

Increased likelihood of students at each proficiency level, compared with students at or below Level 1, to report having saved into an account or at home in the past 12 months instead of reporting not having saved, after accounting for student characteristics, bank account holding and attitudes towards saving; OECD average



Source: OECD, PISA 2022 Database, Table IV.B1.8.28.

Table IV.8.1. Students' spending and saving behaviour and attitudes chapter figures

Figure IV.8.1	Students' spending behaviour
Figure IV.8.2	Students' spending strategies
Figure IV.8.3	Students' spending behaviour, by performance in financial literacy
Figure IV.8.4	Students' spending strategies, by performance in financial literacy
Figure IV.8.5	The influence of friends on students' spending behaviour and attitudes

Figure IV.8.6	Buying something because friends have it, by performance in financial literacy
Figure IV.8.7	Students' saving behaviour
Figure IV.8.8	Students' saving behaviour, by performance in financial literacy

StatLink  <https://stat.link/12qpis>

Notes

¹ Advantaged students are defined as those who fall within the top quarter of the distribution of socio-economic status in their country and 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 and economy.

² 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.

³ These attitudes are captured by students' answers to the questions: How confident would you feel about doing the following things? “Understanding a sales contract” and “Planning my spending with consideration of my current financial situation”; and To what extent do you agree or disagree with the following statements? “I buy things according to how I feel at the moment”.

⁴ These attitudes are captured by students' answers to the questions: To what extent do you agree or disagree with the following statements? “My friends have a strong influence on my spending decisions”, “I want to keep up with my friends' lifestyle”, “Sometimes I spend more than I would like when I am with my friends”, “I often buy what my friends recommend”.

⁵ The remainder of this section refers to responses of “about once or twice a year”, “about once or twice a month”, “about once or twice a week”, “every day or almost every day” together when discussing students who have saved; and it refers to responses of “never” when discussing students who have not saved in the 12 months before the survey.

⁶ These attitudes are captured by students' answers to the questions: To what extent do you agree or disagree with the following statements? “Saving is something I do only if I have money left over”, “I work towards long-term goals”, “I make savings goals for certain things I want to buy or to do”.

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9 From data to insights

Most 15-year-old students already are financial consumers, although many still lack some of the skills, attitudes and knowledge that are necessary to make sound and independent financial decisions. Results from the PISA 2022 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 summarises the strengths and weaknesses of 15-year-old students' financial literacy, highlights variations in financial literacy across and within countries and economies and suggests how policies and practices can address these issues.

At the age of 15, many students in participating countries and economies already are users of financial products and services, including digital ones. As they grow older, they will need to have the appropriate skills, attitudes, and knowledge to navigate increasingly complex financial decisions and to protect themselves from growing risks of financial frauds and scams. Data from PISA 2022 show that many 15-year-old students already hold a bank account and/or a payment or debit card, and that in the vast majority of participating countries and 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.

The extent to which students engage in responsible financial behaviours and have long-term financial attitudes also vary according to students' level of financial literacy. PISA data allow to identify students' financial behaviours and attitudes that are positively associated with their level of financial literacy. These include saving money, comparing prices between shops before making a purchase, displaying saving-oriented attitudes, enjoying discussing about money or reporting a limited level of influence from friends on personal spending decisions. 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 students might be a way of equipping them with the skills they will need as they move into adulthood.

The PISA 2022 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 2022 assessment were broadly consistent with the results of the 2012, 2015 and 2018 assessments, which covered a somewhat different set of countries. However, the questionnaire in the 2022 assessment was more extensive than previous questionnaires, allowing for greater insight into students' financial lives, attitudes and behaviours. This chapter highlights some policy suggestions drawn from the results of the PISA 2022 financial literacy assessment.

Many policy interventions that improve performance in the core PISA subjects, as discussed in Volumes I and II of PISA 2022 Results (OECD, 2023^{[1]; [2]}) are also likely to improve performance in financial literacy, as basic reading and numerical abilities are necessary for students to fully express their financial skills, and given that performance in financial literacy is strongly correlated with performance in mathematics and reading. Nevertheless, a sizeable part of the variation in financial literacy performance is not explained by mathematics and reading performance, from 13% in Malaysia to 27% in Italy and Norway. This section will focus primarily on policy interventions that target skills that are unique to financial literacy.

Address the needs of low-performing students

Results from the PISA 2022 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, 18% 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 two in five students in Brazil, Bulgaria, Costa Rica, Malaysia, Peru and Saudi Arabia performed below Level 2; and even in the high-performing Flemish community of Belgium, the Canadian provinces* and Denmark*, between 11% and 13% 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.

More low-performing students in financial literacy are found among certain demographic groups. While there was a limited gender gap in mean financial literacy performance in favour of boys, more boys than girls were low performers in financial literacy in PISA 2022, on average across OECD countries and economies. More boys than girls scored below Level 1 in financial literacy in Brazil, Bulgaria, the Canadian provinces*, Malaysia, Norway, Saudi Arabia and the United Arab Emirates, by between 2 and 10 percentage points. Box IV.9.1 highlights gender differences in financial experiences, attitudes and behaviours in the PISA 2022 financial literacy assessment. These differences call for ensuring that financial literacy programmes and initiatives address the needs of both boys and girls.

Box IV.9.1 Gender differences in financial experiences, attitudes and behaviours

The gender gap in financial literacy performance was small on average across OECD countries and economies (5 score points in favour of boys) and there were no gender differences in performance in 10 out of 20 participating countries and economies. However, gender differences were observed in many aspects of financial experience, attitudes and behaviours. Difference in these aspects may be related to the opportunities that boys and girls have of improving their financial literacy. This box details those elements for which differences of at least 5 percentage points between girls and boys were observed on average across OECD countries and economies.

More boys than girls reported having exposure to money-related topics or tasks in their day-to-day lives, either at school or at home. On average across OECD countries and economies, more boys than girls reported discussing news related to economics or finance with their parents (by 9 percentage points), and knowing about several terms related to economics and finance, in particular the less familiar ones. More boys than girls reported learning and still knowing the meaning of the following terms: return on investment, exchange rate, shares/stocks, depreciation, diversification, compound interest, dividend, interest payment and central bank. More boys than girls also reported having encountered personal finance-related tasks in a school lesson, such as discussing the rights of consumers when dealing with financial institutions (by 10 percentage points), discussing the ways in which money invested in the stock market changes value over time (by 7 percentage points) and exploring ways of planning to pay an expense (by 6 percentage points). Additionally, 9 percentage points more boys than girls reported having learned how to manage money in an activity outside school.

More boys than girls also declared having actual experience in financial transactions, both traditional and digital. In the 12 months prior to the PISA assessment, on average across OECD countries and economies, more boys than girls (by 7 percentage points) reported having saved in an account, sent money to others using a smartphone (by 8 percentage points) and made a payment using a mobile phone (by 7 percentage points).

Boys displayed greater confidence than girls in performing a range of financial transactions and behaviours. On average across OECD countries and economies, more boys than girls declared feeling confident understanding a sales contract (by 19 percentage points) and planning their spending considering their current financial situation (by 8 percentage points). More boys than girls also declared feeling confident in dealing with traditional money matters such as understanding bank statements, filling forms at the bank, making a money transfer or keeping track of their account balance. Boys also declared feeling more confident than girls when using digital financial services, such as ensuring the safety of sensitive information when making an electronic payment or using online banking or when using digital or electronic devices outside of a bank to transfer money, to keep track of their balance or to pay with a mobile device.

More boys than girls reported enjoying talking about money matters, by 17 percentage points on average across OECD countries and economies.

However, more boys than girls reported earning money for work activities inside or outside of home, and receiving money for this work was negatively associated with financial literacy performance. Between 5 and 13 percentage points more boys declared receiving money from working in a family business, selling things

(e.g. at local markets or on eBay), working outside school hours (e.g. a holiday job or part-time work) or as an allowance or pocket money for regularly doing chores at home.

Boys also displayed less autonomy and independence in their spending decisions than girls, with 6 percentage points more boys than girls having to ask their parents for permission before spending any money on their own, and 8 percentage points more boys than girls having bought something because their friends had it, on average across OECD countries and economies.

Tackle socio-economic inequalities

Students who scored below Level 2 were over-represented amongst socio-economically disadvantaged groups. Disadvantaged students scored more than one proficiency level lower in the financial literacy assessment than advantaged students, on average across OECD countries and economies (462 points, near the top end of Level 2 performance, compared to 549 points, near the top end of Level 3 performance). Not only did students from advantaged socio-economic backgrounds display higher performance in financial literacy, they also appeared to have more opportunities to learn about money matters than their disadvantaged peers. Box IV.9.2 details differences in financial experiences, attitudes and behaviours, for which sizeable differences were observed across socio-economic groups.

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. 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 2022 shows that while at least three in four students in every participating country and 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 and 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 financial system as they become more independent.

This type of support was provided in 8 of the 20 participating countries and economies (Austria, the Flemish community of Belgium, Bulgaria, Czechia, Hungary, Italy, Norway and Poland), where more socio-economically disadvantaged students than advantaged students reported having encountered money-related tasks and activities in school lessons. 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.

Box IV.9.2 Differences in financial experiences, attitudes and behaviours associated with socio-economic background

Not only do students from advantaged socio-economic backgrounds perform better in financial literacy, they also appear to have more opportunities to learn about money matters than their disadvantaged peers.

More socio-economically advantaged students reported discussing money matters, holding and using financial products, and making autonomous financial decisions than disadvantaged students. On average across OECD countries and economies, more socio-economically advantaged students than disadvantaged ones declared discussing weekly or monthly with their parents about various financial topics, including news related to economics and finance (by 10 percentage points), their own spending decisions (by 7 percentage points) and shopping on line (by 7 percentage points). More advantaged students than disadvantaged ones reported holding basic financial products such as a bank account (by 17 percentage points) or a payment/debit card (by 13 percentage points) and having experience with digital financial transactions such as buying on line (by 8 percentage points), on average across OECD countries and economies. More advantaged than disadvantaged students also reported receiving money from gifts (by 10 percentage points), on average across OECD countries and economies, while more disadvantaged students than advantaged ones reported having to ask permission to their parents before spending any money on their own (by 7 percentage points).

Socio-economically advantaged students also reported enjoying discussing money matters and feeling confident in their skills to handle financial decisions more than disadvantaged students. More advantaged students than disadvantaged ones reported that they enjoy discussing money matters (by 6 percentage points) on average across OECD countries and economies, and more advantaged students were confident they know how to manage their money (by 5 percentage points). More advantaged students than disadvantaged ones also reported feeling confident dealing with traditional money matters such as keeping track of their account balance (by 6 percentage points), and using digital financial services to pay with a debit card instead of cash (by 10 percentage points), to keep track of their balance or to pay with a mobile device (each by 6 percentage points), and to transfer money or to ensure the safety of sensitive information when making an electronic payment or using online banking (each by 5 percentage points).

More socio-economically disadvantaged students than advantaged ones reported earning money from work activities, suggesting that they may spend more time in activities that can potentially be detrimental to their school attendance or school work. For example, on average across OECD countries and economies, more disadvantaged students than advantaged one reported earning money from working for the family business (by 7 percentage points) or by working outside school hours (by 5 percentage points).

More socio-economically advantaged students reported responsible financial behaviours and long-term attitudes than disadvantaged students. On average across OECD countries and economies, more advantaged students than disadvantaged ones reported checking that they were given the right change when buying something (by 5 percentage points), checking how much money they have (by 4 percentage points), and comparing prices, either between physical shops (by 10 percentage points) or with an online shop (by 8 percentage points). More advantaged students than disadvantaged ones also reported planning their spending considering their current financial situation (by 10 percentage points), and fewer advantaged students reported buying things according to how they feel in the moment (by 5 percentage points), on average across OECD countries and economies. Advantaged students also reported more than their disadvantaged peers having a long-term orientation by working towards long-term goals (by 10 percentage points), and making saving goals for things they want to buy or do (by 3 percentage points).

Focus on students' environment: parents and peers

What students know about financial literacy depends to a large extent on their families. In Austria, the Flemish community of Belgium, Bulgaria, Czechia, Hungary, Malaysia, Peru and Poland, 12% or more 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 can provide their children with more opportunities to acquire financial literacy skills than disadvantaged families.

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, in every participating country and economy, two in three or more students reported that they discuss with their parents at least once a month their own saving decisions or money for things they want to buy.

Given their role in their children's financial education, it is important that parents themselves are financially literate and can transmit accurate and appropriate information. Countries should continue to strengthen their initiatives targeting adults through national strategies for financial literacy, as advocated by the OECD Recommendation on Financial Literacy (OECD, 2020^[3]). 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.

Friends can also play an important role in shaping 15-year-olds' behaviours and attitudes towards financial matters. PISA 2022 data show that students who report being most influenced by their friends when making decisions such as what to spend their allowance on, also score lower in financial literacy. After accounting for students' characteristics and attitudes, students who declared that their friends had a strong influence on their spending decisions scored 30 points lower in financial literacy – i.e. about half a proficiency level - than those who did not report such influence, on average across OECD countries and economies. This finding highlights the importance of ensuring that all young people are equipped with the skills and knowledge necessary to make sound and independent financial decisions for themselves, and that targeting young people may have spillover effects through their peers.

Offer opportunities to acquire financial literacy in school to all

Schools may also be a channel through which financial education can be provided. Results from PISA 2022 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 reported having learned various financial or economics-related terms in school and still knowing their meaning displayed higher financial literacy performance than students who did not, after taking into account student and school characteristics as well as student performance in mathematics and reading, on average across OECD and all participating countries and economies.

Self-reported exposure appeared to vary across gender and socio-economic background. PISA 2022 data show that fewer girls than boys, and fewer students from disadvantaged socio-economic backgrounds than from advantaged ones reported having learned about financial and economics terms in school in the 12 months prior to taking the assessment. While motivation and experience in other contexts may affect students' recollection of their exposure to financial literacy in school, it is important that opportunities to learn basic financial skills in school are offered to all students and especially to those who need them the most.

Exposure to financial or economics-related terms in school was associated with higher financial literacy performance, but the correlations between financial literacy performance and other aspects of delivering financial education provided in schools were 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 and economies have enacted national strategies for financial literacy, 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, from global citizenship to coding, to be integrated into already overcrowded school curricula and students' timetables. Financial literacy is therefore often not yet part of the topics that are assessed in school or that contribute to students' graduation.

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, rigorous evaluations of financial education 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.

Ensure that opportunities to learn via access to and use of financial services is safe and age-appropriate

On average across OECD countries and economies, 63% of students hold an account at a financial institution, and 62% of students hold 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. PISA 2022 results suggest that some experience with basic financial products may provide an opportunity for developing financial skills, as holding an account at a bank or at another financial institution was associated with greater financial literacy performance than not holding such an account, after accounting for student characteristics and other experiences with money and basic financial products.

Moreover, digital financial transactions have become an essential and established component of everyday financial transactions; indeed, in almost every participating country and economy, a large 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 and economies, about one in three students was not confident using electronic devices to keep track of their balance or paying with a mobile device instead of using cash; and roughly two in five students were not confident using electronic devices to transfer money or ensuring the safety of sensitive information when making an electronic payment or using online banking. Digital financial products and services carry new risks, such as concerns about security and privacy, and a growing exposure to frauds and scams. 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. Access to online payment and credit services, including increasingly common "buy-now pay-later" schemes, means new risks related to hidden and potentially costly conditions. 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 such transactions confidently and securely.

More generally, access to basic financial products and services by students should not only be accompanied by adequate skills, they should also be promoted within a sound financial consumer protection framework (G20/OECD, 2022^[4]; OECD, 2024^[5]), to ensure that young people are offered quality and safe products. For young people, access to financial products and services should be age-appropriate and should be accompanied by oversight by parents or guardians as necessary.

Strengthen attitudes in addition to knowledge and skills

The PISA 2022 financial literacy assessment explored the role of attitudes to a greater extent than previous assessments, showing a robust correlation between greater confidence and motivation and financial literacy performance.

Students who enjoyed talking about money matters and who felt confident in engaging with traditional and digital money matters, such as paying with a debit card instead of using cash or keeping track of their account balance, performed better in financial literacy than students who were not motivated or confident, on average across OECD countries and economies. Further, students who felt confident in their financial skills performed better in financial literacy. On average across OECD countries and economies, students who agreed that they know how to manage their money scored 30 points higher in financial literacy than those who disagreed, after accounting for students' characteristics such as gender, socio-economic status and immigration background.

However, being overconfident may lead to poor financial decisions. Some 64% of low-performing students felt confident about knowing how to manage their money, on average across OECD countries and economies, suggesting that these students may need to be supported not only to develop their financial literacy skills to successfully manage their finances in the future, but also to develop a more realistic self-assessment of their knowledge.

Financial education programmes for children and young people should focus not only on imparting sound financial knowledge and prompting wise financial behaviours, but also on helping students develop the right attitudes towards money matters. Such programmes should offer students opportunities to experiment, learn by doing and confront real-life situations in order to help them grow their interest in money matters and confidence in their abilities, while at the same time not giving them unrealistic expectations about their abilities and ultimately helping them improve their financial literacy.

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Annex A1. The construction of reporting scales and indices

The construction of reporting scales

The results of the PISA 2022 test are reported in a numerical scale consisting of PISA score points. This section summarises the test-development and scaling procedures used to ensure that PISA score points are comparable across countries and with the results of previous PISA assessments.

Assessment framework and test development

The first step in defining a reporting scale in PISA is developing a framework for each domain assessed. This framework provides a definition of what it means to be proficient in the domain; delimits and organises the domain according to different dimensions; and suggests the kind of test items and tasks that can be used to measure what students can do in the domain within the constraints of the PISA design (OECD, 2023^[1]). These frameworks were developed by a group of international experts for each domain and agreed upon by the participating countries.

The second step is the development of the test questions (i.e. items) to assess proficiency in each domain. A consortium of testing organisations under contract to the OECD on behalf of participating governments develops new items and selects items from previous PISA tests (i.e. “trend items”) of the same domain. The expert group that developed the framework reviews these proposed items to confirm that they meet the requirements and specifications of the framework.

The third step is a qualitative review of the testing instruments by all participating countries and economies to ensure the items’ overall quality and appropriateness in their own national context. These ratings are considered when selecting the final pool of items for the assessment. Selected items are then translated and adapted to create national versions of the testing instruments. These national versions are verified by the PISA consortium.

The verified national versions of the items are then presented to a sample of 15-year-old students in all participating countries and economies as part of a field trial. This is to ensure that they meet stringent quantitative standards of technical quality and international comparability. In particular, the field trial serves to verify the psychometric equivalence of items across countries and economies (for more information, see Annex A6 of Volume I).

After the field trial, material is considered for rejection, revision or retention in the pool of potential items. The international expert group for each domain then formulates recommendations as to which items should be included in the main assessments. The final set of selected items is also subject to review by all countries and economies. This selection is balanced across the various dimensions specified in the framework and spans various levels of difficulty so that the entire pool of items measures performance across all component skills and a broad range of contexts and student abilities.

Proficiency scales

Proficiency scores in mathematics, reading, science and also in financial literacy are based on student responses to items that represent the assessment framework for each domain (see section above). While different students saw different questions, the test design, which ensured a significant overlap of items across different forms, made it

possible to construct proficiency scales that are common to all students for each domain. In general, the PISA frameworks assume that a single continuous scale can be used to report overall proficiency in a domain but this assumption is further verified during scaling (see section below).

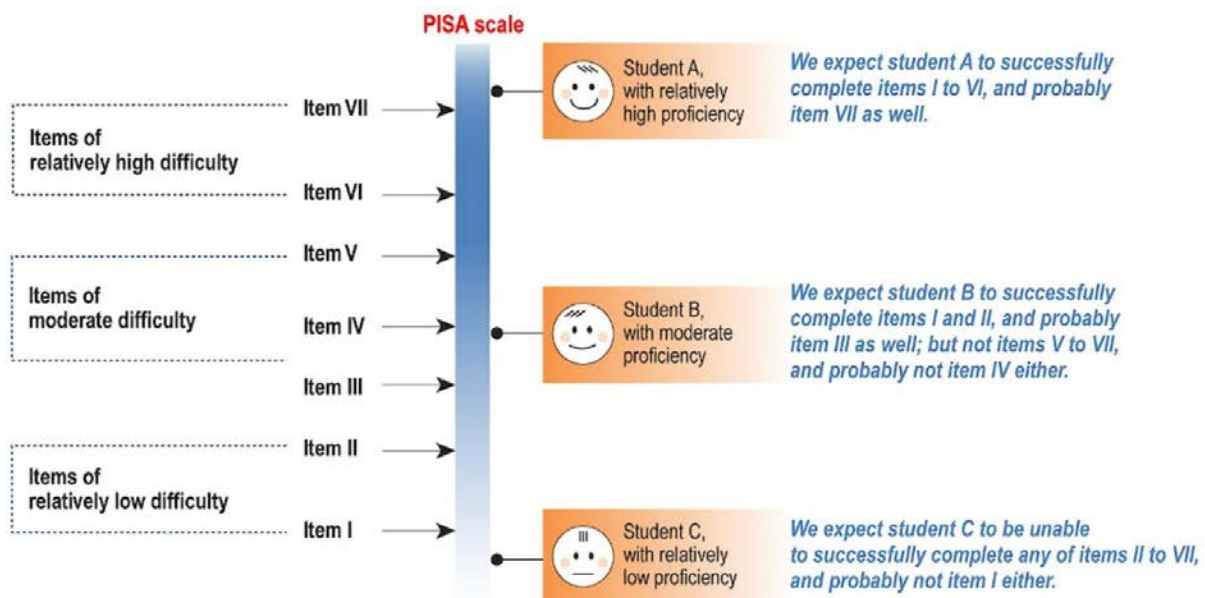
PISA proficiency scales are constructed using item-response-theory models in which the likelihood that the test-taker responds correctly to any question is a function of the question’s characteristics and of the test-taker’s position on the scale. In other words, the test-taker’s proficiency is associated with a particular point on the scale that indicates the likelihood that he or she responds correctly to any question. Higher values on the scale indicate greater proficiency, which is equivalent to a greater likelihood of responding correctly to any question. A description of the modelling technique used to construct proficiency scales can be found in the *PISA 2022 Technical Report*.

In the item-response-theory models used in PISA, the test items characteristics are summarised by two parameters that represent task difficulty and task discrimination. The first parameter, task difficulty, is the point on the scale where there is at least a 50% probability of a correct response by students who score at or above that point; higher values correspond to more difficult items. For the purpose of describing proficiency levels that represent mastery, PISA often reports the difficulty of a task as the point on the scale where there is at least a 62% probability of a correct response by students who score at or above that point.

The second parameter, task discrimination, represents the rate at which the proportion of correct responses increases as a function of student proficiency. For an idealised highly discriminating item, close to 0% of students respond correctly if their proficiency is below the item difficulty and close to 100% of students respond correctly as soon as their proficiency is above the item difficulty. In contrast, for weakly discriminating items, the probability of a correct response still increases as a function of student proficiency, but only gradually.

A single continuous scale can therefore show both the difficulty of questions and the proficiency of test-takers (see Figure IV.A1.1). By showing the difficulty of each question on this scale, it is possible to locate the level of proficiency in the domain that the question demands. By showing the proficiency of test-takers on the same scale, it is 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.

Figure IV.A1.1. Relationship between questions and student performance on a scale



Estimates of student proficiency are based on the kinds of tasks students are expected to perform successfully. This means that students are likely to be able to successfully answer questions located at or below the level of difficulty

associated with their own position on the scale. Conversely, they are unlikely to be able to successfully answer questions above the level of difficulty associated with their position on the scale.¹

The higher a student's proficiency level is located above a given test question, the more likely he or she can answer the question successfully. The discrimination parameter for this particular test question indicates how quickly the likelihood of a correct response increases. The further the student's proficiency is located below a given question, the less likely he or she is able to answer the question successfully. In this case, the discrimination parameter indicates how fast this likelihood decreases as the distance between the student's proficiency and the question's difficulty increases.

How reporting scales are set and linked across multiple assessments

The reporting scale for financial literacy was originally established when it was assessed in PISA for the first time, that is PISA 2012.

The item-response-theory models used in PISA describe the relationship between student proficiency, item difficulty and item discrimination, but do not set a measurement unit for any of these parameters. In PISA, this measurement unit was chosen the first time a reporting scale was established. The score of "500" on the scale was defined as the average proficiency of students across OECD countries; "100 score points" was defined as the standard deviation (a measure of the variability) of proficiency across OECD countries.²

To enable the measurement of trends, achievement data from successive assessments are reported on the same scale. It is possible to report results from different assessments on the same scale because in each assessment PISA retains a significant number of items from previous PISA assessments. These are known as trend items. A significant number of items used to assess financial literacy (41 out of 46) were developed and already used in earlier assessments. Their difficulty and discrimination parameters were therefore already estimated in previous PISA assessments.

The answers to the trend questions from students in earlier PISA cycles, together with the answers from students in PISA 2022, were both considered when scaling PISA 2022 data to determine student proficiency, item difficulty and item discrimination. In particular, when scaling PISA 2022 data, item parameters for new items were freely estimated, but item parameters for trend items were initially fixed to their PISA 2018 values, which, in turn, were based on a concurrent calibration involving response data from multiple cycles. All constraints on trend item parameters were evaluated and, in some cases, released in order to better describe student-response patterns. See the *PISA 2022 Technical Report* for details.

The extent to which the item characteristics estimated during the scaling of PISA 2018 data differ from those estimated in previous calibrations is summarised in the "link error", a quantity (expressed in score points) that reflects the uncertainty in comparing PISA results over time. A link error of zero indicates a perfect match in the parameters across calibrations, while a non-zero link error indicates that the relative difficulty of certain items or the ability of certain items to discriminate between high and low achievers has changed over time, introducing greater uncertainty in trend comparisons.

Summary descriptions of the proficiency levels of financial literacy

Table IV.A1.1 provides summary descriptions of proficiency levels of the financial literacy scale.

PISA 2022 results on financial literacy scales are included in Annex B1 (for countries and economies) and Annex B2 (for regions within countries).

Table IV.A1.1. Proficiency levels on the financial literacy scale

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	10.6	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	32.0	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	59.6	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	82.1	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	95.0	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.

Indices from the student context questionnaire

In addition to scale scores representing performance in financial literacy, this volume uses indices derived from the PISA student questionnaires to contextualise PISA 2022 results or to estimate trends that account for demographic changes over time. The following indices and database variables are used in this report.

The PISA index of economic, social and cultural status (ESCS)

The PISA index of economic, social and cultural status (ESCS) is a composite score derived, as in previous cycles, from three variables related to family background: parents' highest level of education in years (PAREDINT), parents' highest occupational status (HISEI) and home possessions (HOMEPOS).

Parents' highest level of education in years: Students' responses to questions ST005, ST006, ST007 and ST008 regarding their parents' education were classified using ISCED-11 (UNESCO Institute for Statistics., 2012^[2]) Indices on parental education were constructed by recoding educational qualifications into the following categories: (1) ISCED Level 02 (pre-primary education), (2) ISCED Level 1 (primary education), (3) ISCED Level 2 (lower secondary), (4) ISCED Level 3.3 (upper secondary education with no direct access to tertiary education), (5) ISCED Level 3.4 (upper secondary education with direct access to tertiary education), (6) ISCED Level 4 (post-secondary non-tertiary), (7) ISCED Level 5 (short-cycle tertiary education), (8) ISCED Level 6 (Bachelor's or equivalent), (9)

ISCED Level 7 (Master's or equivalent) and (10) ISCED Level 8 (Doctoral or equivalent). Indices with these categories were provided for a student's mother (MISCED) and father (FISCED). In the event that student responses between ST005 and ST006 (for mother's education) or between ST007 and ST008 (for father's education) conflicted (e.g. in ST006 if a student indicated their parent having a postsecondary qualification but indicated in ST005 the parent had not completed lower secondary education), the higher education value provided by the student was used. This differs from the PISA 2018 procedure where the lower value was used. 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 (PAREDINT). The conversion from ISCED levels to year of education is common to all countries. This international conversion was determined by using the cumulative years of education values assigned in PISA 2018 to each ISCED level. The correspondence is available in the *PISA 2022 Technical Report* (OECD, 2023^[3]).

To make PAREDINT scores for PISA 2012, PISA 2015 and PISA 2018 comparable to PAREDINT scores for PISA 2022, new PAREDINT scores were created for each student who participated in previous cycles using the coding scheme used in PISA 2022. These new PAREDINT scores were used in the computation of trend ESCS scores.

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^[4]). In PISA 2022, the ISCO and ISEI in their 2008 version were used. 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.

Home possessions (HOMEPOS) is a proxy measure for family wealth. In PISA 2022, students reported the availability of household items at home, including books at home and country-specific household items that were seen as appropriate measures of family wealth within the country's context. HOMEPOS is a summary index of all household and possession items (ST250, ST251, ST253, ST254, ST255, ST256). Some HOMEPOS items used in PISA 2018 were removed in PISA 2022 while new ones were added (e.g. new items developed specifically with low-income countries in mind). Furthermore, some HOMEPOS that were previously dichotomous (yes/no) items were revised to polytomous items (1, 2, 3, etc.) allowing for capturing a greater variation in responses.

For the purpose of computing the PISA index of economic, social and cultural status (ESCS), values for students with missing PAREDINT, 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 PISA 2022, ESCS was computed by attributing equal weight to the three standardised components. The three components were standardised across the OECD countries, with each OECD country contributing equally. 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.

Immigrant background (IMMIG)

Information on the country of birth of the students and their parents was 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 (ST022)

Students indicated what language they usually spoke at home, and the database includes an internationally comparable variable (ST022Q01TA) that 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.

The mappings of options provided in national versions of the student questionnaire for the two possible values for the “International Language at Home” variable (ST022Q01TA) are the responsibility of national PISA centres. For example, for students in the Flemish community of Belgium, “Flemish dialect” was considered (together with “Dutch”) as equivalent to the “Language of test”; for students in the French Community and German-speaking Community (respectively), Walloon (a French dialect) and a German dialect were considered to be equivalent to “Another language”.

Indices from the financial literacy questionnaire

In addition to the indices derived from the PISA student questionnaires, this volume also uses indices derived from the financial literacy questionnaire. The following indices and database variables are used in this report.

Familiarity with concepts of finance (FCFMLRTY)

Students were asked whether, for each of the 16 terms related to finance and economics, they had learned about the term in the 12 months prior to sitting the PISA assessment and still know its meaning (FL164). There were three response options (“Never heard of it,” “Heard of it, but I don’t recall the meaning,” “Learnt about it, and I know what it means”). 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,” and “income tax.” For each item, a value of 1 was assigned to “Learnt about it, and I know what it means” responses, and all other responses were assigned a value of 0. 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. Values range from 0 to 16.

Financial education in school lessons (FLSCHOOL)

The index of financial education in school lessons (FLSCHOOL) was constructed using students’ responses to a 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 and economies.

Parental involvement in matters of financial literacy (FLFAMILY)

The index of parental involvement in financial literacy (FLFAMILY) was constructed using students’ responses to a 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 and economies.

Confidence in dealing with traditional money matters (FLCONFIN)

The index of confidence in dealing with traditional money matters (FLCONFIN) was constructed using students' responses to a 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 traditional money matters than did the average student across OECD countries and economies.

Confidence in using digital financial services (FLCONICT)

The index of confidence in using digital financial services (FLCONICT) was constructed using students' responses to a 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 using 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 and economies.

School level 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"; schools in the top quarter are referred to as "socio-economically advantaged schools."

References

- Ganzeboom, H. and D. Treiman (2003), "Three Internationally Standardised Measures for Comparative Research on Occupational Status", in Hoffmeyer-Zlotnik J.H.P and Wolf C. (eds.), *Advance in Cross-National Comparison*, Springer, Boston, https://doi.org/10.1007/978-1-4419-9186-7_9. [4]
- OECD (2023), *PISA 2022 Assessment and Analytical Framework*, PISA, OECD Publishing, Paris, <https://doi.org/10.1787/df90bf9c-en>. [1]
- OECD (2023), *PISA 2022 Technical Report*. [3]
- UNESCO Institute for Statistics. (2012), *International standard classification of education : ISCED 2011*, UNESCO Institute for Statistics. [2]

Notes

¹ “Unlikely”, in this context, refers to a probability below 62%. “Likely”, in this context, refers to a probability of at least 62%.

² The standard deviation of 100 score points corresponds to the standard deviation in a pooled sample of students from OECD countries, where each national sample is equally weighted.

Annex A2. The PISA target population, the PISA samples and the definition of schools

This annex to the PISA 2022 results provides further technical details on how the assessment covered its target population of 15-year-olds, how its national samples represent this population across participating countries and economies, and how the sampling procedure was adapted to accurately represent diverse education systems worldwide. The information presented below is, for the most part, a summary of the information presented in Annex A2 of *PISA 2022 Results (Volume I): The State of Learning and Equity in Education* (OECD, 2023^[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 2022 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.

International surveys of education outcomes must guarantee the comparability of their target population across participating countries and economies. One way to do this is to assess students at the same grade level. However, differences between countries in the nature and extent of early childhood education and care, age at entry into primary education, and the overall 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 definition leads to a population particularly sensitive to the distribution of students across age and grade levels, where small changes – of assessment dates, or month of entry into primary education – can lead to the selection of different target grades. There also may be differences across or within 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.¹ PISA assesses students who are aged between 15 years and 3 (complete) months and 16 years and 2 (complete) months² at the beginning of the assessment period, plus or minus an allowed 1-month variation, and who are enrolled in an educational institution³ at grade 7 or higher. All students who met these criteria were eligible to sit the PISA test in 2022, regardless of the type of educational institution in which they were enrolled and whether they were enrolled in full- 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 been exposed to different educational experiences inside 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 and economies, or over different tracks or streams within their respective education systems. It is important to consider these differences when comparing PISA results across countries and economies. In addition, differences in performance observed when students are 15 may diminish or disappear entirely later in life.

If a country's mean scores in mathematics, reading, science or financial literacy are significantly higher than those of another, 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

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 results could be compared across countries and economies with confidence. Experts from the PISA Consortium selected the samples for most participating countries and economies and monitored the sample-selection process closely in those countries that opted to select their own samples.

All samples in PISA 2022 were designed as two-stage stratified samples. The first stage sampled schools in which 15-year-old students may be enrolled. Schools were sampled systematically with selection probabilities proportional to the estimated size of their (eligible) 15-year-old population. At least 150 schools⁵ 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.

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 when less than 42 eligible students were enrolled). The target number of students in a school who were to be sampled could deviate from 42 when agreed by PISA's sampling contractor but could not fall below 20 students.

Data-quality standards in PISA require minimum participation rates for schools and for students. These standards were established to minimise potential bias arising from non-response. Indeed, it was likely that any bias resulting from non-response would be negligible – typically smaller than the sampling error – in countries that met these standards.⁶

At least 85 % of the schools initially selected to take part in the PISA assessment were required to agree to conduct the test when accounting for the number of enrolled 15-year-olds. Where the initial response rate of schools was between 65% and 85%, however, an acceptable school-response rate could still be achieved using replacement schools.

Whenever a school is selected for PISA, two other schools – the most similar according to the statistical criteria used for sampling – are selected as replacement schools in case of non-response or other contingencies. However, statistical similarities notwithstanding, sampling bias is still possible if the replacement schools differ from sampled schools in ways that might not be considered for sampling. Therefore, countries and economies were encouraged to persuade as many of the schools in the original sample as possible to participate.

Schools that were included but where student participation rates of 25-50% were observed were not considered to be participating schools when determining participation rates; but data collected from these schools (from both the cognitive assessment and background questionnaires) were included in the database and contributed to the estimation of the various quantities derived from the assessment. Data from schools with a student participation rate of less than 25% were excluded from the database.

Among the countries and economies that participated in the PISA 2022 financial literacy assessment, five – the United States (51%), the Netherlands (66%), the Flemish community (Belgium) (72%), Brazil (81%), Canada (81%) – did not meet the standard of 85% weighted school participation rate; one did not meet the 65% threshold for schools initially selected for PISA. Even after replacement schools were included, three countries – the United States (63%),

Canada (86%) and the Netherlands (90%) still failed to reach target participation rates,⁷ all other participating countries and economies reached the threshold for an acceptable participation rate after including replacement schools.

PISA 2022 also required that at least 80% of the students chosen in participating schools sat the PISA test. 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 planned assessment sessions. Student-participation rates were calculated over all originally selected schools and over all participating schools, including replacement schools. Students who participated in either the planned or follow-up sessions were counted in these 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 either parent's occupation.

The standard of 80% student participation rate was not met by some countries and economies, including Canada (77%).

Table I.A2.6 in Volume I shows the response rate for students and schools, before and after including replacement schools.

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. As such, the technical standards used in PISA only allowed countries and economies to exclude up to 5% of the desired target population (i.e. 15-year-old students enrolled in educational institutions at grade 7 or higher) either by excluding schools or students within schools.

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Some countries and economies did not meet this standard in PISA 2022, including Denmark* (11.6%), the Netherlands* (8.4%), Norway (7.3%), the United States* (6.1%) and Canada* (5.8%). In 31 countries and economies, the overall exclusion rate was less than 2% (Table I.A2.1 in Volume I (OECD, 2023_[1])). When language exclusions⁸ were accounted for (i.e. removed from the overall exclusion rate), some countries, including the United States no longer had exclusion rates greater than 5%. More details can be found in the *PISA 2022 Technical Report* (OECD, 2023_[2]).

Exclusions that should remain within the above limits include:

- At the school level:
 - schools that were geographically inaccessible or where the implementation 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 students with special education needs.

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 for school-level exclusions are documented in the PISA 2022 Technical Report (OECD, 2023_[2]). In addition, due to differences in when schools re-opened and returned to full, in-person instruction after the COVID-19 pandemic, an additional code for student exclusions (Code 6) was used in PISA 2022 to account for those who were enrolled but received instruction virtually.

- At the student level:
 - students 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
 - students 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 were unable to overcome such a language barrier in the PISA testing environment; they were typically students who had received less than one year of instruction in the language of assessment)
 - students who were not attending in-person classes or going to school for tests/assessments during the PISA testing period but, rather, were receiving all of their instruction on line
 - 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.

Table I.A2.1 in Volume I describes the target population of the countries and economies that participated in PISA 2022. Further information on the target population and the implementation of PISA sampling standards can be found in the PISA 2022 Technical Report (OECD, 2023^[2]).

A 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 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).⁹

Given the significant disruption caused by COVID-19 global pandemic to education systems in general, and to the administration of the PISA 2022 Main Survey in particular, coverage is of particular concern in the 2022 cycle, as it is feasibly affected both by changes in student behaviour (e.g. not returning to school when those were reopened) and by operational factors of administering PISA itself (e.g. less participating students due to interference between PISA dates and a country/economy's school reopening plan).

Table I.A2.2 in Volume I provides an across-cycle perspective on the estimated size of the 15-year-old cohort in a given country/economy, the estimated population size of 15-year-olds enrolled at school in grade 7 or above, the number of students that sat PISA 2022 weighted by how much they represent the population, and the coverage of the 15-year-old population (Coverage Index 3).

A decrease in the Coverage Index 3 between PISA 2018 and PISA 2022 was observed for 23 countries and economies. However, in only five of them this decrease was larger than 5%, including the Netherlands*. Nonetheless, these elevated drops in coverage are to be interpreted with due caution: sampling outcomes for the Netherlands struggled to meet PISA sampling standards.

Conversely, all other participating countries and economies either kept or increased their coverage of the population between PISA 2018 and PISA 2022. Small increases, up to 5%, were observed in 31 countries and economies, with others showing quite elevated increase in coverage in the 2022 cycle compared to PISA 2018.

The PISA Adjudication Group, comprising the Technical Advisory Group and the Sampling Referee, reviewed the PISA 2022 data. Overall, the review found that national implementations of PISA generally adhered to PISA's technical standards despite the challenging circumstances that affected not only PISA operations but schooling more generally during the COVID-19 pandemic. Nevertheless, a number of deviations from the standards were noted and their consequences for data quality were reviewed in depth. The following overall patterns of deviations from sampling standards were identified:

- About one in five adjudicated entities had exclusion rates exceeding the limits set by the technical standards (Standard 1.7).
- Seven entities failed to meet the required school-response rates, with three of them failing to meet the stricter level of 65% before replacement (Standard 1.11). This is not inconsistent with earlier cycles of PISA, however.
- A significantly larger number of entities failed to meet the required student-response rates (Standard 1.12): ten entities did not meet this standard in PISA 2022, while only one entity did not meet the standard in PISA 2018.

Countries and economies that failed to meet the response-rate standards were requested to submit a non-response bias analysis (NRBA) report. These reports, evaluated by the PISA Adjudication Group, contained additional analyses using the national context and data sources to assess potential bias arising from school and student non-participation.

Details on the PISA Adjudication Group's assessments of the deviations from PISA standards are described in the Reader's Guide and Annex A4.

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 countries like Austria, schools with more than one programme of study were split into the units delivering these programmes. In the Netherlands, locations were listed as sampling units. In the Flemish community (Belgium), each campus of a multi-campus school was sampled independently, whereas the larger administrative unit of a multi-campus school was sampled as a whole in the French community (Belgium).

Schools in the Basque Country (Spain) that were divided into sections by language of instruction were split into sections for sampling based on those languages. Some schools in the United Arab Emirates were sampled as a whole unit, while others were divided by curriculum and sometimes by gender. 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

In all countries and economies, the default sampling design used for the PISA assessment was a two-stage stratified sample design. The first-stage sampling units consisted of individual schools having 15-year-old students, or the possibility of having such students at the time of assessment. The second-stage sampling units in countries and economies using the two-stage design were students within sampled schools.

While countries/economies that participated in the financial literacy assessment selected schools and students in the same manner as described above, these countries/economies were required to assess 1,650 additional students. This was typically achieved by increasing the number of students selected in the sampled schools.

Financial literacy was administered only as a computer-based assessment (CBA). In CBA countries/economies, a sample of students was selected with equal probability from each list of eligible students within a school. For sampled schools that contained more eligible students than the target cluster size (TCS, the number of students to sample in a school), a sample of TCS students was selected. For schools with fewer than TCS eligible students, all students on the list were selected. The students selected for financial literacy were an additional sample of students above and beyond those needed for PISA. To accomplish this, the TCS was usually increased for countries/economies participating in the financial literacy assessment in PISA 2022. For example, a county/economy that would have sampled 42 students in each school generally increased its TCS to 53 to accommodate the financial literacy sample. In some instances, the country/economy opted to increase the school sample size to achieve the required number of students selected for financial literacy.

As in PISA 2018, the financial literacy assessment was administered to a separate sample of PISA eligible students who took, in addition to the financial literacy assessment, a combination of reading or mathematics items. The total testing time for each student was two hours (120 minutes).

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, see Figure 2.5 of the PISA 2022 Technical Report); 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.A2.2 presents revised overall exclusion rates (analogue to the ones presented in Column 12 of Table I.A2.1 in Volume I) for the countries and economies that participated in the PISA 2022 financial literacy assessment. These revised overall exclusion rates take into account the fact that PISA *Une Heure* (UH) forms (i.e., a special one-hour test prepared for students with special needs) were not available for the financial literacy assessment, hence students answering UH forms were effectively excluded from the point of view of the financial literacy assessment. The table shows that the overall exclusion rates are above 5% in Belgium and Costa Rica, in addition to Canada*, Denmark*, the Netherlands*, Norway and the United States*. Estimates for all of these entities should therefore be interpreted with caution.

Table IV.A2.1. Sample size for the PISA financial literacy assessment

	Number of students who were part of the financial literacy assessment (unweighted)	Number of students who were part of the financial literacy assessment (weighted)
OECD		
Austria	4 538	75 720
Flemish community of Belgium	2 735	70 626
Canadian provinces*	9 474	257 422
Costa Rica	3 279	53 068
Czechia	4 947	98 220
Denmark*	3 621	55 889
Italy	6 268	495 624
Hungary	3 690	88 268
Netherlands*	2 886	150 143
Norway	4 882	58 641
Poland	3 526	336 936
Portugal	4 075	97 702
Spain	3 789	457 980
United States*	3 206	3 504 432
Partners		
Brazil	6 477	2 290 291
Bulgaria	3 614	53 249
Peru	4 092	493 760
Malaysia	4 161	387 945
Saudi Arabia	4 119	317 128
United Arab Emirates	14 604	60 848

Table IV.A2.2. Overall exclusion rates taking into account the percentage of students answering the PISA *Une Heure* forms

	Percentage of students answering the PISA <i>Une Heure</i> forms	Revised overall exclusion rates taking into account the percentage of students answering the PISA <i>Une Heure</i> forms
	%	%
OECD		
Austria	0.48	3.98
Belgium	3.43	5.77
Canada*	2.38	8.07
Costa Rica	7.34	7.40
Czechia	1.78	3.72
Denmark*	3.15	14.34
Hungary	0.00	4.68
Italy	0.00	3.07
Netherlands*	3.48	11.61
Norway	0.00	7.27
Poland	0.00	4.78
Portugal	0.00	4.02
Spain	0.00	4.02
United States*	4.62	10.48
Partners		
Brazil	0.00	3.17
Bulgaria	0.00	2.70
Malaysia	0.00	1.46
Peru	0.00	3.29
Saudi Arabia	0.00	3.22
United Arab Emirates	0.00	2.57

Notes

¹ To accommodate countries that requested grade-based results for the purpose of national analyses, PISA 2022 provided a sampling option to supplement the age-based sampling from the target population with an additional grade-based sample.

² 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 2022, as was the case in many countries and economies, all students born in 2006 would have been eligible.

³ 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.

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 or economy should be interpreted in the context of local student demographics. In addition, 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.

⁵ In education systems inherently too small (due to demographics for instance), all schools and all eligible students were included in the sample. In PISA 2022, all eligible schools were selected in North Macedonia and Qatar. All students in all schools were selected in Brunei Darussalam, Iceland, Macao (China) and Malta.

⁶ Non-response and other standards enforced to achieve consistent, precise, generalisable, and timely data collection in PISA 2022 are available on its Technical Standards (OECD, 2023^[2]).

⁷ The threshold for an acceptable participation rate after replacement varies between 85 % and 100 %, depending on the participation rate before replacement.

⁸ 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.

⁹ 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.

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Annex A3. Technical notes on 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 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 in samples, if there were actually no difference in corresponding population values. Throughout the report, significance tests were undertaken to assess the statistical significance of the comparisons made.

Some analyses explicitly report p-values (e.g. Table I.B1.5.4 in Volume I). P-values represent the probability, under a specified model, that a statistical summary of the data would be equal to or more extreme than its observed value (Wasserstein and Lazar, 2016^[1]). For example, in Table I.B1.5.4 in Volume I, the p-value represents the likelihood of observing, in PISA samples, a trend equal to or more extreme (in either direction) than what is reported, when in fact the true trend for the country is flat (equal to 0).

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.

Range of ranks (confidence interval for rankings of countries)

An estimate of the rank of a country mean, across all country means, can be derived from the estimates of the country means from student samples. However, because mean estimates have some degree of uncertainty, this uncertainty should also be reflected in the estimate of the rank. While mean estimates from samples follow a normal distribution, this is not the case of the rank estimates derived from these. Therefore, in order to construct a confidence interval for ranks, simulation methods were used.

Data are simulated assuming that alternative mean estimates for each relevant country follow a normal distribution around the estimated mean, with a standard deviation equal to the standard error of the mean. Some

1 000 simulations are carried out and, based on the alternative mean estimates in each of these simulations, 1 000 possible estimates for each country are produced.

There are two steps to estimating the confidence sets of ranks. For each country, all possible differences in score estimates are considered between the reference country and all other participating countries. Then for every country, confidence sets of ranks are computed with respect to all other participating countries (with respect to all other OECD countries in the case of the OECD country ranking). Using these individual confidence sets, a *simultaneous* confidence set is computed, covering all possible differences of the reference country with all other countries with a confidence level of 95%. Given this, the simultaneous confidence sets that are fully above or fully below zero (i.e. where differences are significantly different from zero) are used to determine confidence sets for the ranking of a country.

The ranking that results from these simultaneous confidence sets is obtained using a stepwise multiple testing procedure. This implies that first, some countries will be ranked higher or lower compared to the reference country as described above. In the following steps, the rank of the remaining countries accounts for the countries that were ranked higher or lower in previous steps, until all countries are ranked with respect to the reference country. These are the ranks reported in Table IV.2.2, see Chapter 2. For further details on this procedure, see (Mogstad et al., 2024^[2]).

The main difference between the range of ranks (Table IV.2.2) and the comparison of countries' mean performance (Table IV.2.1) is that the former takes into account the multiple comparisons involved in ranking countries/economies, while the latter does not. Therefore, sometimes there is a slight difference between the range of ranks and counting the number of countries above a given country, based on pairwise comparisons of the selected countries' performance. When interest lies in examining countries' rankings, this range of ranks should be used.

Statistics based on multilevel models

Statistics based on multilevel models include variance components (between- and within- school variance). Multilevel models are generally specified as two-level regression models (student and school levels), with normally distributed residuals and estimated with maximum likelihood estimation. Where the dependent variable is financial literacy performance, the estimate used 10 plausible values for each student's performance on the financial literacy scale. Models were estimated using the Stata (version 17) "mixed" module.

For statistics based on multilevel models (such as the estimates of variance components) the standard errors are not estimated with the usual replication method, which accounts for stratification and sampling rates from finite populations. Instead, standard errors are "model-based:" their computation assumes that schools and students within schools, are sampled at random (with sampling probabilities reflected in school and student weights) from a theoretical, infinite population of schools and students, which complies with the model's parametric assumptions.

Odds ratios

The odds ratio is a measure of the relative likelihood of a particular outcome across two groups. The odds ratio for observing the outcome when an antecedent is present is simply:

$$OR = (p_{11}/p_{12})/(p_{21}/p_{22})$$

Equation IV.A3.1

Where p_{11}/p_{12} represents the "odds" of observing the outcome when the antecedent is present, and p_{21}/p_{22} represents the "odds" of observing the outcome when the antecedent is not present.

Logistic regression can be used to estimate the log ratio: the exponentiated logit coefficient for a binary variable is equivalent to the odds ratio. A “generalised” odds ratio, after accounting for other differences across groups, can be estimated by introducing control variables in the logistic regression.

Figures in bold in the data tables presented in Annex B1 of this report indicate that the odds ratio is statistically significantly different from 1 at the 95% confidence level. To construct a 95% confidence interval for the odds ratio, the estimator is assumed to follow a log-normal distribution, rather than a normal distribution.

Use of student and school 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 2022, as in PISA 2018, 2015 and 2012, multilevel model 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 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.

References

- Mogstad, M. et al. (2024), “Inference for Ranks with Applications to Mobility across Neighbourhoods and Academic Achievement across Countries”, *Review of Economic Studies*, Vol. 91/1, pp. 476-518, <https://doi.org/10.1093/restud/rdad006>. [2]
- OECD (2023), *PISA 2022 Assessment and Analytical Framework*, PISA, OECD Publishing, Paris, <https://doi.org/10.1787/dfc0bf9c-en>. [3]
- Wasserstein, R. and N. Lazar (2016), *The ASA’s Statement on p-Values: Context, Process, and Purpose*, American Statistical Association, <https://doi.org/10.1080/00031305.2016.1154108>. [1]

Annex A4. Quality assurance

Quality-assurance procedures

Quality-assurance procedures were implemented in all parts of PISA 2022, as was done for all previous PISA surveys. The PISA 2022 Technical Standards (available at <https://www.oecd.org/pisa/>) specify the way in which PISA must be implemented in each country, economy and adjudicated region. The PISA Consortium monitors the implementation in each of these and adjudicates on their adherence to the standards.

The consistent quality and linguistic equivalence of the PISA 2022 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, i.e. two independent translations from the source language(s), with 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 2022 Technical Report* (OECD, 2023_[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 coordinators 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 training for test administrators.

Participating countries and economies were required to ensure that test administrators worked with the school coordinator 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 mathematics, reading and science assessments in PISA; and about four in ten in financial literacy. 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 2022 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 were collected by the PISA Consortium from each adjudicated entity (89 adjudication entities including countries, economies and regions) throughout the PISA 2022 assessment. These data were entered and collated in a central data-adjudication database on the quality of field operations, printing, translation, school and student sampling, and coding. This process identifies data issues that are in need of adjudication.

Comprehensive reports were then generated for the PISA Adjudication Group. This group is composed of 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 2022 Technical Report* (OECD, 2023^[11]).

Overall, the Adjudication Group's review suggests good adherence of national implementations of PISA to the technical standards in spite of the challenging circumstances that affected not only PISA operations but schooling more generally during the COVID-19 pandemic. Thanks to the reactivity and flexibility of participating countries and international contractors, to carefully constructed instruments, to a test design that is aligned to the main reporting goals and is supported by adequate sample design, and to the use of appropriate statistical methods for scaling, population estimates are highly reliable and comparable across countries and time, and particularly with 2018 results.

Nevertheless, a number of deviations from standards were noted and their consequences for data quality were reviewed in depth. The following overall patterns of deviations from standards were identified:

- About one in five of all adjudicated entities had exclusion rates exceeding the limits set by the technical standards (Standard 1.7).
- Seven entities failed to meet the required school response rates, with three of them failing to meet the stricter level of 65% before replacement (Standard 1.11). This is in line with earlier cycles of PISA.
- There was a significant increase in the number of entities that failed to meet the required student response rates (Standard 1.12): 10 entities did not meet this standard.
- There were delays in data submission in a significant number of entities (Standard 19.1): 14 entities did not meet this standard, and 13 only partially met it. The Adjudication Group noted that delayed submissions may affect the quality of the international contractors' work; and if shorter reporting timelines are expected, it may no longer be possible to accommodate such delays.
- A large number of entities did not conduct the field trial as intended (Standard 3.1) or did not attend all meetings (Standard 23.1). While this may also be a consequence of the pandemic, the Adjudication Group noted that these violations may be particularly consequential for new participants and for less-experienced teams. The Group underlined the importance of attendance at coder training sessions for ensuring comparability of the data.

At the international level, these frequent deviations should guide future efforts of the PISA Governing Board, the OECD Secretariat and Contractors to review the corresponding standards, prevent future deviations from standards, or mitigate the consequences of such violations.

At the level of individual adjudicated countries, economies and regions, in most cases, these issues did not result in major threats to the validity of reports, and the data could be declared fit for use. Where school or student participation rates fell short of the standard and created a potential threat for non-response/non-participation bias, countries and economies were requested to submit non-response-bias analyses. The evidence produced by countries and economies (and in some cases, by the sampling contractor) was reviewed by the Adjudication Group.

The Adjudication Group reviewed and discussed major adjudication issues in June 2023. The major adjudication issues that are relevant to the financial literacy assessment are listed below:

- Some adjudicated entities did not meet one or more PISA sampling standards. See the Reader’s Guide at the beginning of this volume for a detailed account of the sampling issues for these entities. The results of these countries and economies are reported with annotations. Two groups can be distinguished:
 - Entities that submitted technically strong analyses, which indicated that more than minimal bias was most likely introduced in the estimates due to low response rates (falling below PISA standards), including Canada among those that participated in the PISA 2022 financial literacy assessment.
 - Entities that did not meet one or more PISA sampling standards and it is not possible to exclude the possibility of more than minimal bias based on the information available at the time of data adjudication, including Denmark*, the Netherlands* and the United States* among those that participated in the PISA 2022 financial literacy assessment.

One other country, among those that participated in the PISA 2022 financial literacy assessment, also did not meet one of the sampling standards, but the Adjudication Group did not judge these deviations to be consequential: Norway (overall exclusion rate: 7.3%). No annotation is included when reporting data for these countries and economies in the international report.

While this could not be attributed to violations of the technical standards, the Adjudication Group also reviewed additional analyses conducted for Norway, which reported that some students who were taking the test on Chromebooks experienced difficulties moving through the cognitive assessment due to overload on the PISA Consortium’s server. While the PISA Consortium solved this problem during the testing period, 584 students in Norway (8.8%) were assessed on Chromebooks before the problem was solved. The Adjudication Group reviewed the results of the additional analyses conducted by the PISA Consortium and confirmed that, overall, the data, including those of students who sat the test in these circumstances, were considered to be fit for reporting as their responses did show good fit with the model, and were not remarkably different from the performance of students in other schools. However the group noted that it is not possible to exclude the possibility that the issue affected students’ engagement and motivation to give their best effort when they sat the test. See *PISA 2022 Technical Report* (OECD, 2023^[1]) for details.

In addition, it is important to consider that the PISA *Une Heure* (UH) forms (i.e., a special one-hour test prepared for students with special needs) were not available for the financial literacy assessment, hence students answering UH forms were effectively excluded from the point of view of the financial literacy assessment. Overall exclusion rates computed taking UH forms into account show that overall exclusion rates are above 5% in Belgium and Costa Rica, among the countries that participated in the PISA 2022 financial literacy assessment, in addition to Canada, Denmark*, the Netherlands*, Norway and the United States* (Annex A2 in this volume).

References

- OECD (2023), *PISA 2022 Assessment and Analytical Framework*, PISA, OECD Publishing, Paris, [2]
<https://doi.org/10.1787/dfe0bf9c-en>.
- OECD (2023), *PISA 2022 Technical Report*. [1]

Annex A5. Comparing financial literacy performance across PISA assessments

The methodology underpinning the analysis of trends in performance in international studies of education is complex. To ensure the comparability of PISA results across different assessment years, a number of conditions must be met.

In particular, successive assessments of the same subject must include a sufficient number of common assessment items, and these items must retain their measurement properties over time so that results can be reported on a common scale. The set of items included must adequately cover the different aspects of the framework.

Furthermore, the sample of students in different assessment cycles must be similarly representative of the target population; only results from samples that meet the strict standards set by PISA can be compared over time. Even though some countries and economies took part in successive PISA assessments, some of them cannot compare all their PISA results over time.

Comparisons over time can be affected by changes in assessment conditions or in the methods used to estimate students' performance on the PISA scale. 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 assessments. 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 assessments 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^[1]) 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, 2018 and 2022 assessments were all delivered on computers, no mode effects confounded the comparison of results between these years.

A major difference regarding the sampling design and the scheduling of the assessment took place between 2015 and the other three; this was specific to financial literacy and did not affect the assessment of the other domains. Students assessed in financial literacy in 2012, 2018 and 2022 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 assessment in a separate session after having been tested in mathematics, reading and science. In most participating countries/economies, the financial literacy assessment 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 assessment 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. 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 2022, where the major difference in implementation was in the mode of delivery; and between 2015 and 2022, where the major difference in implementation was in scheduling. It also presents changes in performance between 2018 and 2022, where no difference was observed in delivery nor scheduling.

From 2015 onward, PISA also adopted a more flexible model for scaling response data, and treated items that were left unanswered at the end of test forms as if they were not part of the test, rather than as incorrectly answered. Such items were considered incorrect in previous assessments for the purpose of estimating students' position on the PISA scale. Instead of re-estimating past results based on new methods, PISA incorporates the uncertainty associated with these changes when computing the statistical significance of trend estimates (see the section on "link errors" below).

Changes in enrolment rates do not affect the representative nature of the PISA sample with regards to its target population (15-year-olds enrolled in Grade 7 or above), nevertheless, such changes may affect the interpretation of trends.

Link errors

Link errors are estimates that quantify the uncertainty involved in comparisons that involve different calibrations of the same scale (e.g. the PISA 2012 and the PISA 2022 calibrations of the financial literacy scale). Standard errors for estimates of changes in performance and trends across PISA assessments take this uncertainty into account.

Similarly to past assessments, only the uncertainty around the location of scores from past PISA assessments on the 2022 reporting scale is reflected in the link error. Because this uncertainty about the position in the distribution (a change in the intercept) is cancelled out when looking at location-invariant estimates (such as estimates of the variance, the inter-quartile range, gender gaps, regression coefficients, correlation coefficients, etc.), standard errors for these estimates do not include the linking error.

Link error for scores between two PISA assessments

Link errors for PISA 2022 were estimated based on the comparison of rescaled country/economy means per domain with the corresponding means derived from public use files and produced under the original scaling of each assessment. This approach for estimating the link errors was used for the first time in PISA 2015 (OECD, 2017^[11]). The number of observations used for the computation of each link error equals the number of countries with results in both assessments. Because of the sparse nature of the data underlying the computation of the link error, a robust estimate of the standard deviation was used, based on the S_n statistic (Rousseeuw and Croux, 1993^[21]).

Table IV.A5.1. Robust link error for comparisons of performance between PISA 2022 and previous assessments

Comparison	Financial Literacy
PISA 2012 to 2022	4.05
PISA 2015 to 2022	3.47
PISA 2018 to 2022	2.20

Source: PISA 2022 Technical Report.

Link error for other types of comparisons of student performance

In PISA, link errors for comparisons across two assessments are considered to be the same across the scale: the link error is the same for a scale score of 400 as for a scale score of 600. However, not all quantities of interest are reported on the PISA scale and some comparisons involve more than two assessments. How is the proportion of students scoring above a particular cut-off value affected by the link error?

Comparisons of performance: Difference between two assessments

To evaluate how performance evolved over time, analyses report the change in performance between two assessment cycles.

Comparisons between two assessments (e.g. a country's/economy's change in performance between PISA 2018 and PISA 2022 or the change in performance of a subgroup) are calculated as:

$$\Delta_{2022-t} = PISA_{2022} - PISA_t \quad \text{Equation IV.A5.1}$$

Where Δ_{2022-t} is the difference in performance between PISA 2022 and a previous PISA assessment, $PISA_{2022}$ is the financial literacy score observed in PISA 2022, and $PISA_t$ is the financial literacy score observed in a previous assessment.

The standard error of the change in performance $\sigma(\Delta_{2022-t})$ is:

$$\sigma(\Delta_{2022-t}) = \sqrt{\sigma_{2022}^2 + \sigma_t^2 + error_{2022,t}^2} \quad \text{Equation IV.A5.2}$$

Where σ_{2022}^2 is the standard error observed for $PISA_{2022}$, σ_t^2 is the standard error observed for $PISA_t$, and $error_{2022,t}^2$ is the link error for comparisons of financial literacy performance between the PISA 2022 assessment and a previous (t) assessment. The value for $error_{2022,t}^2$ is shown in Table IV.A5.1.

Comparing the OECD average across PISA assessments

Throughout this report, the OECD average is used as a benchmark. It is calculated as the average across OECD countries, weighting each country equally. Some OECD countries did not participate in certain assessments; other OECD countries do not have comparable results for some assessments; still others did not include certain questions in their questionnaires or changed them substantially from assessment to assessment. In trend tables and figures, the OECD average is reported on consistent sets of OECD countries, and multiple averages may be included. For instance, the “OECD average - 2012” include only OECD countries that have non-missing observations for the years for which this average itself is non-missing. This restriction allows for valid comparisons of the OECD average over time and neutralises the effect of changing OECD membership and participation in PISA on the estimated trends.

References

- OECD (2023), *PISA 2022 Assessment and Analytical Framework*, PISA, OECD Publishing, Paris, <https://doi.org/10.1787/dfe0bf9c-en>. [3]
- OECD (2017), *PISA 2015 Technical Report*, https://www.oecd.org/pisa/data/2015-technical-report/PISA2015_TechRep_Final.pdf (accessed on 9 February 2024). [1]
- Rousseeuw, P. and C. Croux (1993), "Alternatives to the Median Absolute Deviation", *Journal of the American Statistical Association*, Vol. 88/424, pp. 1273-1283. [2]

Annex B1. Results for countries and economies

Please follow the StatLink at the bottom of the table below to access the data for all tables.

Table IV.B1.1. Students' performance in financial literacy in PISA 2022: Chapter 2 annex tables

WEB	Table IV.B1.2.1	Mean financial literacy scores in 2012, 2015, 2018 and 2022
WEB	Table IV.B1.2.2	Students' proficiency in financial literacy
WEB	Table IV.B1.2.3	Top performers in financial literacy, mathematics and reading
WEB	Table IV.B1.2.4	Low performers in financial literacy, mathematics and reading
WEB	Table IV.B1.2.5	Change over time in students' proficiency in financial literacy
WEB	Table IV.B1.2.6	Performance in financial literacy, and performance in mathematics and reading
WEB	Table IV.B1.2.7	Variation in financial literacy performance associated with mathematics and reading performance
WEB	Table IV.B1.2.8	Relative performance in financial literacy
WEB	Table IV.B1.2.9	Contexts of countries participating in the financial literacy assessment
WEB	Table IV.B1.2.10	"I know how to manage my money" by low/high performance in financial literacy

StatLink  <https://stat.link/4nx1lb>

Table IV.B1.2. Variations in students' performance in financial literacy within countries/economies: Chapter 3 annex tables

WEB	Table IV.B1.3.1	Mean score and variation in financial literacy performance, current cycle
WEB	Table IV.B1.3.2	Total variation in financial literacy performance, and variation between and within schools (with and without modal grade restriction)
WEB	Table IV.B1.3.3	Change over time in the distribution of financial literacy performance, percentiles
WEB	Table IV.B1.3.4	Change over time in the distribution of financial literacy performance
WEB	Table IV.B1.3.5	Percentage of boy and girl students in each country
WEB	Table IV.B1.3.6	Mean score and variation in financial literacy performance, by gender
WEB	Table IV.B1.3.7	Students at each proficiency level in financial literacy, by gender
WEB	Table IV.B1.3.8	Gender differences in financial literacy performance, by performance in other PISA subjects
WEB	Table IV.B1.3.9	Change over time in mean financial literacy scores, by gender
WEB	Table IV.B1.3.10	Change over time in the proportion of low and top performers in financial literacy, by gender
WEB	Table IV.B1.3.11	Mean scores in financial literacy, by students' socio-economic status
WEB	Table IV.B1.3.12	Students' socio-economic status and performance in financial literacy
WEB	Table IV.B1.3.13	Students' socio-economic status and performance in the core PISA subjects
WEB	Table IV.B1.3.14	Students and school location
WEB	Table IV.B1.3.15	Student performance in financial literacy, by school location
WEB	Table IV.B1.3.16	Differences in financial literacy performance, by school location
WEB	Table IV.B1.3.17	Students and school programme orientation
WEB	Table IV.B1.3.18	Student performance in financial literacy, by school programme orientation
WEB	Table IV.B1.3.19	Differences in financial literacy performance, by school location
WEB	Table IV.B1.3.20	Percentage of students with an immigrant background, current cycle
WEB	Table IV.B1.3.21	Students' immigrant background and performance in financial literacy

WEB	Table IV.B1.3.22	Student performance in financial literacy and the core PISA subjects, by immigrant background
WEB	Table IV.B1.3.23	Difference in financial literacy performance, by immigrant background
WEB	Table IV.B1.3.24	Language spoken at home
WEB	Table IV.B1.3.25	Student performance in financial literacy, by language spoken at home

StatLink  <https://stat.link/0w748c>

Table IV.B1.3. Students' interactions with their parents about money matters: Chapter 4 annex tables

WEB	Table IV.B1.4.1	Topics and frequency of discussion between students and their parents about money matters
WEB	Table IV.B1.4.2	Students discussing money matters with parents, by gender
WEB	Table IV.B1.4.3	Students discussing money matters with parents, by socio-economic status
WEB	Table IV.B1.4.4	Students discussing money matters with parents, by immigrant background
WEB	Table IV.B1.4.5	Performance in financial literacy, by frequency of discussion with parents about money matters
WEB	Table IV.B1.4.6	Students' autonomy in handling money
WEB	Table IV.B1.4.7	Students' autonomy in handling money, by gender
WEB	Table IV.B1.4.8	Students' autonomy in handling money, by socio-economic status
WEB	Table IV.B1.4.8	Students' autonomy in handling money, by immigrant background
WEB	Table IV.B1.4.10	Performance in financial literacy, by students' autonomy in handling money
WEB	Table IV.B1.4.11	Parental involvement in financial literacy and students' autonomy in handling money
WEB	Table IV.B1.4.12	Students' attitudes towards making their own decisions about money
WEB	Table IV.B1.4.13	Students' attitudes towards making their own decisions, by gender
WEB	Table IV.B1.4.14	Students' attitudes towards making their own decisions, by socio-economic status
WEB	Table IV.B1.4.15	Students' attitudes towards making their own decisions, by immigrant background
WEB	Table IV.B1.4.16	Performance in financial literacy, by students' attitudes towards making their own decisions


StatLink  <https://stat.link/tuh4fj>

Table IV.B1.4. Students' self-reported exposure to financial literacy in school: Chapter 5 annex tables

WEB	Table IV.B1.5.1	Learning about financial/economic terms in school
WEB	Table IV.B1.5.2	Mean and variation in the index of familiarity with concepts of finance
WEB	Table IV.B1.5.3	Learning about financial/economic terms in school, by gender
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 school socio-economic profile
WEB	Table IV.B1.5.6	Learning about financial/economic terms in school, by school location
WEB	Table IV.B1.5.7	Learning about financial/economic terms in school, by school orientation
WEB	Table IV.B1.5.8	Performance in financial literacy, by reporting having learned financial terms in school and knowing what they mean
WEB	Table IV.B1.5.9	Tasks and activities in school lessons
WEB	Table IV.B1.5.10	Tasks and activities in school lessons, by gender
WEB	Table IV.B1.5.11	Tasks and activities in school lessons and socio-economic status
WEB	Table IV.B1.5.12	Tasks and activities in school lessons and school socio-economic profile
WEB	Table IV.B1.5.13	Tasks and activities in school lessons, by school location
WEB	Table IV.B1.5.14	Tasks and activities in school lessons, by school orientation
WEB	Table IV.B1.5.15	Performance in financial literacy, by reporting having encountered tasks and activities in school lessons
WEB	Table IV.B1.5.16	Classes where students report encountering money-related tasks
WEB	Table IV.B1.5.17	Classes where students report encountering money-related tasks, by gender
WEB	Table IV.B1.5.18	Classes where students report encountering money-related tasks, and socio-economic status
WEB	Table IV.B1.5.19	Classes where students report encountering money-related tasks, and school socio-economic profile
WEB	Table IV.B1.5.20	Tasks and activities in school lessons, by school location

WEB	Table IV.B1.5.21	Classes where students report encountering money-related tasks, by school orientation
WEB	Table IV.B1.5.22	Performance in financial literacy, by where students report having encountered money-related tasks
WEB	Table IV.B1.5.23	Learning how to manage money in a course
WEB	Table IV.B1.5.24	Learning how to manage money in a course, by gender
WEB	Table IV.B1.5.25	Learning how to manage money in a course, by socio-economic status
WEB	Table IV.B1.5.26	Learning how to manage money in a course, by school socio-economic profile
WEB	Table IV.B1.5.27	Learning how to manage money in a course, by school location
WEB	Table IV.B1.5.28	Learning how to manage money in a course, by school orientation
WEB	Table IV.B1.5.29	Performance in financial literacy, by where students report having learned how to manage money

StatLink  <https://stat.link/ascw9e>

Table IV.B1.5. Students' attitudes towards money matters: Chapter 6 annex tables

WEB	Table IV.B1.6.1	Students' interest in money matters
WEB	Table IV.B1.6.2	Interest in money matters, by gender
WEB	Table IV.B1.6.3	Interest in money matters, by socio-economic status
WEB	Table IV.B1.6.4	Interest in money matters, by immigrant background
WEB	Table IV.B1.6.5	Interest in money matters and exposure to financial education in school (index of familiarity with concepts of finance)
WEB	Table IV.B1.6.6	Interest in money matters and parental involvement in financial matters
WEB	Table IV.B1.6.7	Performance in financial literacy, by students' attitudes


StatLink  <https://stat.link/9lax57>

Table IV.B1.6. Money and basic financial services: access, use, and attitudes: Chapter 7 annex tables

WEB	Table IV.B1.7.1	Students holding basic financial products
WEB	Table IV.B1.7.2	Students holding an account at a bank and holding a bank card
WEB	Table IV.B1.7.3	Students holding an account with a bank and/or a mobile app
WEB	Table IV.B1.7.4	Change over time in students holding bank accounts
WEB	Table IV.B1.7.5	Change over time in students holding payment or debit cards
WEB	Table IV.B1.7.6	Holding basic financial products, by gender
WEB	Table IV.B1.7.7	Holding basic financial products, by socio-economic status
WEB	Table IV.B1.7.8	Holding basic financial products, by immigrant background
WEB	Table IV.B1.7.9	Students' digital financial transactions
WEB	Table IV.B1.7.10	Digital financial transactions, by holding of an account with a bank, building society, post office or credit union
WEB	Table IV.B1.7.11	Digital financial transactions, by gender
WEB	Table IV.B1.7.12	Digital financial transactions, by socio-economic status
WEB	Table IV.B1.7.13	Digital financial transactions, by immigrant background
WEB	Table IV.B1.7.14	Students' sources of money
WEB	Table IV.B1.7.15	Holding basic financial products, by students' sources of money
WEB	Table IV.B1.7.16	Sources of money, by gender
WEB	Table IV.B1.7.17	Sources of money, by socio-economic status
WEB	Table IV.B1.7.18	Sources of money, by immigrant background
WEB	Table IV.B1.7.19	Students' confidence in dealing with traditional money matters
WEB	Table IV.B1.7.20	Confidence in dealing with traditional money matters, by gender
WEB	Table IV.B1.7.21	Confidence in dealing with traditional money matters, by socio-economic status
WEB	Table IV.B1.7.22	Confidence in dealing with traditional money matters, by immigrant background
WEB	Table IV.B1.7.23	Students' confidence in using digital financial services
WEB	Table IV.B1.7.24	Confidence in using digital financial services, by gender

WEB	Table IV.B1.7.25	Confidence in using digital financial services, by socio-economic status
WEB	Table IV.B1.7.26	Confidence in using digital financial services, by immigrant background
WEB	Table IV.B1.7.27	Holding of an account at a bank, by confidence in dealing with traditional money matters
WEB	Table IV.B1.7.28	Students' digital financial transactions, by confidence in dealing with traditional money matters
WEB	Table IV.B1.7.29	Students' digital financial transactions, by confidence in using digital financial services
WEB	Table IV.B1.7.30	Performance in financial literacy, by whether students hold basic financial products
WEB	Table IV.B1.7.31	Performance in financial literacy, by whether students had carried out digital financial transactions
WEB	Table IV.B1.7.32	Performance in financial literacy, by students' sources of money
WEB	Table IV.B1.7.33	Performance in financial literacy, by students' sources of money
WEB	Table IV.B1.7.34	Performance in financial literacy, by students' confidence in dealing with traditional money matters
WEB	Table IV.B1.7.35	Performance in financial literacy, by students' confidence in using digital financial services
WEB	Table IV.B1.7.36	Performance differences in financial literacy, by students' sources of money and digital financial transactions
WEB	Table IV.B1.7.37	Performance differences in financial literacy, by students' confidence in dealing with traditional money matters and using digital financial services

StatLink  <https://stat.link/5os9ux>

Table IV.B1.7. Students' spending and saving behaviour and attitudes: Chapter 8 annex tables

WEB	Table IV.B1.8.1	Students' spending behaviour
WEB	Table IV.B1.8.2	Spending behaviour, by gender
WEB	Table IV.B1.8.3	Spending behaviour, by socio-economic status
WEB	Table IV.B1.8.4	Spending behaviour, by immigrant background
WEB	Table IV.B1.8.5	Students' spending strategies
WEB	Table IV.B1.8.6	Spending strategies, by gender
WEB	Table IV.B1.8.7	Spending strategies, by socio-economic status
WEB	Table IV.B1.8.8	Spending strategies, by immigrant background
WEB	Table IV.B1.8.9	Students' spending attitudes
WEB	Table IV.B1.8.10	Spending attitudes, by gender
WEB	Table IV.B1.8.11	Spending attitude, by socio-economic status
WEB	Table IV.B1.8.12	Spending attitude, by immigrant background
WEB	Table IV.B1.8.13	Performance in financial literacy, by students' spending attitude
WEB	Table IV.B1.8.14	Students' spending behaviour, by performance in financial literacy
WEB	Table IV.B1.8.15	Students' spending strategies, by performance in financial literacy
WEB	Table IV.B1.8.16	Influence of friends on spending behaviour and attitudes
WEB	Table IV.B1.8.17	Influence of friends on spending behaviour and attitudes, by gender
WEB	Table IV.B1.8.18	Influence of friends on spending behaviour and attitudes, by socio-economic status
WEB	Table IV.B1.8.19	Influence of friends on spending behaviour and attitudes, by immigrant background
WEB	Table IV.B1.8.20	Influence of friends on spending behaviour and attitudes, by performance in financial literacy
WEB	Table IV.B1.8.21	Performance in financial literacy, by students' attitudes
WEB	Table IV.B1.8.22	Students' saving behaviour and attitudes
WEB	Table IV.B1.8.23	Students' saving behaviour
WEB	Table IV.B1.8.24	Students' saving behaviour and attitudes, by gender
WEB	Table IV.B1.8.25	Students' saving behaviour and attitudes, by socio-economic status
WEB	Table IV.B1.8.26	Students' saving behaviour and attitudes, by immigrant background
WEB	Table IV.B1.8.27	Performance in financial literacy, by students' saving attitudes
WEB	Table IV.B1.8.28	Students' saving behaviour, by performance in financial literacy

StatLink  <https://stat.link/uo46f1>

Annex B2. Results for regions within countries

Please follow the StatLink at the bottom of the table below to access the data for all tables.

Table IV.B2.1. Results for regions within countries: Annex B2 tables

WEB	Table IV.B2.1	Mean financial literacy scores in 2022
WEB	Table IV.B2.2	Mean score in financial literacy performance, by gender
WEB	Table IV.B2.3	Students' socio-economic status and performance in financial literacy
WEB	Table IV.B2.4	Learning about financial/economic terms in school
WEB	Table IV.B2.5	Tasks and activities in school lessons
WEB	Table IV.B2.6	Classes where students report encountering money-related tasks
WEB	Table IV.B2.7	Students holding basic financial products
WEB	Table IV.B2.8	Students' digital financial activities
WEB	Table IV.B2.9	Students' spending behaviour
WEB	Table IV.B2.10	Students' spending strategies
WEB	Table IV.B2.11	Students' saving behaviour

StatLink  <https://stat.link/sc875p>

Annex C. Financial literacy released items

This annex presents items released from the 2022 and previous PISA financial literacy assessments. These items are presented to illustrate the content, processes and contexts of items at a variety of proficiency levels.

A summary of framework dimensions and described proficiency scales is provided below for reference.

Framework dimensions

The financial literacy framework is organised into content, processes and contexts (OECD, 2023^[1]).

Content

The content of financial literacy is conceived of as the areas of knowledge and understanding that must be drawn upon in order to perform a particular task. The four content areas for PISA financial literacy are: *money and transactions, planning and managing finances, risk and reward, and financial landscape*.

Processes

The process categories relate to the cognitive processes that students apply to respond to the assessment. They are used to 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: *identify financial information, analyse financial information and situations, evaluate financial issues, and apply financial knowledge and understanding*.

Contexts

Decisions about financial issues are often dependent on the contexts or situations in which they are presented. By situating tasks in a variety of contexts the assessment offers the possibility of connecting with the broadest possible range of individual interests across a variety of situations in which individuals need to function in the 21st century. The contexts identified for the PISA financial literacy assessment are, then, *education and work, home and family, individual and societal*.

Proficiency levels in financial literacy

Table IV.C 1. Summary description of the financial literacy five proficiency levels

Level	Score range	Percentage of students able to perform tasks at each level or above (OECD average)	What students can typically do
1	326 to less than 400 points	95%	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.
2 Baseline	400 to less than 475 points	82.1%	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.
3	475 to less than 550 points	59.6%	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.
4	550 to less than 625 points	32%	Students can apply their understanding of less common financial concepts and terms to contexts that will be relevant to them as they move towards adulthood, such as bank account management and compound interest in saving 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.
5	Equal to or higher than 625 points	10.6%	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.

Source: OECD, PISA 2022 Database, Table IV.B1.2.2

Financial literacy items released from the PISA 2022 assessment

New bike



Mountain Bike
600 zeds cash!
 Don't have the cash? Ask about our great in-store finance deals.
Low interest rates available!

Greg buys a bike.
 He takes out a loan with the bike shop's in-store finance company.

Question 1

How much is Greg likely to pay?

- Less than 600 zeds.
- More than 600 zeds.
- Exactly 600 zeds.

Explain your answer.

This question asks students to understand that loans involve paying interests.

For full credit, students should:

- Select the second response (More than 600 zeds) AND explain that this is because Greg will pay interests/fees/establishment costs/etc.. on the loan, OR
- Select no response but imply the second response AND explain that Greg will pay more than 600 zeds because the sign says there is interest on the loan
- Select the third response (Exactly 600 zeds) AND explain that the cost of the bike is 600 zeds, and that there will be additional charges to pay (interests, extra fees, establishment costs, etc..)

For partial credit, students should:

- Select the second response (More than 600 zeds) and give no or insufficient explanation

Unit name	New Bike (Question 1)
Content	Money and transactions
Process	Identify financial information
Context	Individual
Item format	Open response – Human Coded

Level	3 – full credit 2 - partial credit
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Question 2

Several bikes have been stolen in the area where Greg lives.

What type of product will protect Greg financially if his bike is stolen from his garage?

- Home contents insurance.
- Travellers' cheques.
- Government bonds.
- Mortgage.

In this question, students should demonstrate their understanding of the concept and purpose of an insurance contract by selecting the first response (Home contents insurance).

Unit name	New Bike (Question 2)
Content	Risk and reward
Process	Identify financial information
Context	Home and family
Item format	Simple Multiple Choice - Computer Scored
Level	1

Selling online

Zelda is selling her tennis racket on a popular website for selling used goods to help with expenses when she goes to university.



<p>For Sale by Zelda</p> <p>Tennis Racket</p> <p>Condition: Used/Like New</p> <p>Price: 150 zeds</p>

The website where Zelda is selling her tennis racket provides a secure electronic payment system to transfer money from buyers to sellers.

Recently, Zelda had the following exchange with an interested buyer through the website's messaging system

NinaB2: Hi! Your tennis racket looks really nice, it's a great model.

Ze1dA: Thanks :) Are you interested in buying it?

NinaB2: Your racket is worth more than 150 zeds. If you give me your bank account details, I can make a bank transfer directly for 200 zeds and you can send me the tennis racket. What do you think?

Ze1dA: Thank you for the offer, but I'd prefer to use the website's payment system.

Question

Provide one reason why refusing NinaB2's offer may be a good financial decision for Zelda.

This question assesses students' awareness of the financial risks of a lack of data protection. It requires student to use critical thinking to assess the situation, taking into account elements that are not directly included in the question's text.

For full credit, students would need to provide a response acknowledging one of the following reasons:

- The offer looks too good to be true
- It is suspicious that NinaB2 would want to offer more money than what Zelda is asking for
- It may be a scam
- Using the website's own payment system would probably be more reliable and secure
- The website payment system is safer
- It is not safe to share your bank details with someone you do not know

Unit name	Selling Online
Content	Financial landscape
Process	Evaluate financial issues
Context	Individual
Item format	Open response – Human Coded
Level	2

Financial literacy items released from the PISA 2018 assessment

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 2011		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?

- Total bank fees in zeds:

This question asks students to interpret a financial document, 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
Content	Money and Transactions
Process	Identify financial information
Context	Home and family
Item format	Open Response - Computer Scored
Level estimated from 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, that is $2015.35 + 575 - 130 - 1.50$. Partial credit is given to students who give values in the range 2458 to 2459 inclusive (value rounded or truncated to 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
Content	Money and Transactions
Process	Analyse information in a financial context
Context	Home and family
Item format	Open Response - Computer Scored
Level estimated from 2018 Field Trial	5 – full & partial credit

Charitable giving

PISA 2018

Charitable Giving
Question 1 / 1

Refer to "Charitable Giving" on the right. Type your answer to the question.

Explain why Lisa has taken a financial risk by making this donation.

CHARITABLE GIVING

Lisa, did you decide what to do with your birthday money?

Oh really? I've never heard of WellBabies.

Actually, I donated most of it to the WellBabies charity yesterday.

No, I hadn't either, but they called me and asked for money, so I gave them a donation with my bank card.

Edward

Lisa

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	Evaluate financial issues
Context	Societal
Item format	Open Response - Human Coded
Level estimated from 2018 Field Trial	2

Full credit

Code 1: Indicates awareness of risk associated with giving card details to an unknown caller.

- 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 don't know.

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 car 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	Analyse information in a financial context
Context	Home and family
Item format	Complex Multiple Choice - Computer Scored
Level estimated from 2018 Field Trial	3

Mobile phone contract

Alan wants 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	Evaluate financial issues
Context	Home and family
Item format	Complex Multiple Choice - Computer Scored
Level estimated from 2018 Field Trial	2

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)	Total interest paid (zeds)
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 payments 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 calculation. 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	Analyse information in a financial context
Context	Individual
Item format	Complex Multiple Choice - Computer Scored
Level estimated from 2018 Field Trial	4

Online shopping

Question

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.

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	Evaluate financial issues
Context	Societal
Item format	Open Response - Human Coded
Level estimated from 2018 Field Trial	4

Full Credit

Code 11: Refers to using a secure computer rather than one in a public place.

- Use a personal (or private) computer.
- Do it at home.
- Use a computer where the cookies are disabled.
- Make sure no one is looking. [*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.

Code 12: Refers to using a more secure or safer method of online payment.

- Use PayPal.
- Use a trusted online method of third-party payment. [*This may be specific to your country.*]
- Buy a pre-paid bank card so his bank details won't be exposed.

Code 13: Refers to using a trusted/genuine/credible website.

- Check that the website has a security certificate before making a purchase.
- Check reviews on line to see whether the website can be trusted.
- Make sure it is a https site.
- Make sure it is a safe website.

Phone plans

Ben lives in Zedland and has a mobile phone. In Zedland there are two different kinds of phone plan available.

Plan 1	Plan 2
<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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
Content	Planning and Managing Finances
Process	Analyse information in a financial context
Context	Individual
Item format	Open Response - Human Coded
Level estimated from 2018 Field Trial	3

Full Credit

Code 11: Refers to ease of planning OR keeping to a specified budget.

- 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.

Code 12: Refers to no monthly fee (like Plan 1).

- 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 of text message (zeds)	0.02	0.02	free	0.01
Number of free text messages per month	200	100	unlimited	200

Question 2

Ben



I speak on the phone for about an hour each day, but I very rarely send text messages.

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
Content	Planning and Managing Finances
Process	Analyse information in a financial context
Context	Individual
Item format	Simple Multiple Choice - Computer Scored
Level estimated from 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 Apply 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 decision 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	Apply financial knowledge and understanding
Context	Individual
Item format	Open Response - Computer Scored
Level estimated from 2018 Field Trial	4

Zcycle

PISA 2018

ZCycle
Introduction

A new bike-sharing program called ZCycle was just introduced in Zedtown. Riders can pick up bikes at one bike station and then drop them off at another when they are finished riding.

In order to use ZCycle you must become a member and pay a membership fee.

Membership for ZCycle is handled through a smartphone app, as shown on the right.

To see the different prices for each plan:

- Click on "Annual" to see the annual membership fee.
- Click on "Monthly" to see the monthly membership fee.
- Select "1" ride at 61-120 minutes and "1" at 121 minutes or more to see those fees.
- Click on "Calculate Total" to see the total charge.
- Click on new selections and "Calculate Total" to see different options.

ZCycle Bike-Sharing

Membership Fee		Zeds
<input type="radio"/>	Annual	
<input type="radio"/>	Monthly	
Number of Months		
Number of Rides	Length of Rides (minutes)	
Unlimited	Up to 60	FREE
	61 - 120	
	121 or more	
TOTAL		

Calculate Total

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 variables 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

PISA 2018

ZCycle
Question 1 / 4

► How to Use the ZCycle App

Refer to the ZCycle app on the right. Using the number keys, type your answer to the question.

Julie would like to use ZCycle to commute to and from work during the week. It will take her 45 minutes to ride to work and the same to ride home.

She would also like to use the bike twice a month on the weekends for bike rides that will be more than three hours long.

What would be Julie's total cost for a one-month membership?

zeds

Membership Fee		Zeds
<input type="radio"/>	Annual	
<input type="radio"/>	Monthly	
	Number of Months	
Number of Rides	Length of Rides (minutes)	Zeds
Unlimited	Up to 60	FREE
<input type="text"/>	61 - 120	
<input type="text"/>	121 or more	
TOTAL		

Calculate Total

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* area because students need to demonstrate an ability to put together different pieces of information on the relevant fees to choose 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
Content	Planning and managing finances
Process	Apply financial knowledge and understanding
Context	Individual
Item format	Open Response – Computer Scored
Level estimated from 2018 Field Trial	4

Question 2

PISA 2018

ZCycle
Question 2 / 4

▶ How to Use the ZCycle App

Refer to the ZCycle app on the right. Click on a choice and then use the number keys to type your answer to the question.

Julie wants to know if it would be cheaper for her to purchase six monthly memberships or one annual membership if she is only going to use ZCycle for six months.

Remember that Julie wants to ride a bike to and from work every day (45 minutes each way) and twice a month for more than three hours.

Which membership is less expensive?

Annual Membership

6 Monthly Memberships

How much would the less expensive membership save Julie in six months?

zeds

ZCycle
Bike-Sharing

Membership Fee		Zeds
<input type="radio"/>	Annual	
<input type="radio"/>	Monthly	
	<input type="text"/> Number of Months	
Number of Rides	Length of Rides (minutes)	
Unlimited	Up to 60	FREE
<input type="text"/>	61 - 120	
<input type="text"/>	121 or more	
TOTAL		

Calculate Total

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 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
Content	Money and transactions
Process	Analyse information in a financial context
Context	Individual
Item format	Open Response – Computer Scored
Level estimated from 2018 Field Trial	5 – full & partial credit

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Question 3

PISA 2018

ZCycle
Question 3 / 4

Refer to Julie's bill on the right. Click on a choice and then use the number keys to type your answer to the question.

Julie decides to try the ZCycle bike-sharing program for one month. At the end of the month she receives the bill shown on the right from ZCycle on her smartphone.

She has kept careful records of the number of rides she has taken and how long each lasted. Therefore, she's sure that there is a mistake in the fees that she has been charged.

Which fee is incorrect?

- 1 Month Membership - 20 zeds
- 10 Rides Up to 60 Minutes - 10 zeds
- 0 Rides 61-120 minutes - 0 zeds
- 2 Rides 121 or more minutes - 12 zeds

What is the correct total amount due?

zeds

Membership Fee		Zeds
1	Month	20
Rides		Zeds
10	Up to 60 minutes	10
0	61 - 120 minutes	0
2	121 or more minutes	12
TOTAL AMOUNT DUE		42

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
Content	Money and transactions
Process	Identify financial information
Context	Individual
Item format	Open Response – Computer Scored
Level estimated from 2018 Field Trial	3 – partial credit - 4 – full credit

Question 4

PISA 2018

ZCycle
Question 4 / 4

► How to Use the ZCycle App

Refer to the ZCycle app on the right. Click on a choice and then type an explanation to answer the question.

Julie's friend Alex is starting a temporary job that will last for 8 months. He has enrolled in ZCycle with an annual membership so he can ride to and from work. The ride takes between 50 to 65 minutes depending on traffic conditions.

Was it a good financial choice for Alex to select the annual membership?

Yes
 No

Explain your answer.

ZCycle Bike-Sharing

Membership Fee		Zeds
<input type="radio"/> Annual		
<input type="radio"/> Monthly		
	<input type="text"/> Number of Months	
Number of Rides	Length of Rides (minutes)	
Unlimited	Up to 60	FREE
<input type="text"/>	61 - 120	
<input type="text"/>	121 or more	
TOTAL		

Calculate Total

In the fourth question of the 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 they 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
Content	Planning and managing finances
Process	Evaluate financial issues
Context	Individual
Item format	Open Response – Human Coded
Level estimated from 2018 Field Trial	5

Full Credit

Code 1: Response indicates that both the membership fee AND the possible costs associated with rides over 60 minutes have been taken into account.

Answers “Yes” and indicates that any time the commute goes over 60 minutes, Alex will have to pay an additional 4 zeds with the monthly membership.

Sample Responses:

- 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 5 rides 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.

Answers “No” and indicates that we can't be sure how many longer rides he 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.

Financial literacy items released from the PISA 2012 assessment

At the market

You can buy tomatoes by the kilogram or by the box.



2.75 zeds per kg



22 zeds for a 10 kg box

Question 2



The box of tomatoes is better value for money than the loose tomatoes.

Give a reason to support this statement.

Unit name	At the market – Question 2
Content	Money and transactions
Process	Analyse information in a financial context
Context	Home and family
Item format	Open Response – Human Coded
Level estimated from 2012 Field Trial	2

Scoring

Full Credit

Explicitly or implicitly recognises that the price per kilogram of boxed tomatoes is less than the price per kilogram for loose tomatoes.

- It is 2.75 zeds per kg for the loose tomatoes but only 2.20 zeds per kg for the boxed tomatoes.
- It is only 2.20 per kg for the box.
- Because 10kg of loose tomatoes would cost 27.50 zeds.
- There are more kilograms for every 1 zed you pay.
- Loose tomatoes cost 2.75 per kg but tomatoes in the box cost 2.2 per kg.
- It is cheaper per kilogram. *[Accept generalisation.]*
- It is cheaper per tomato. *[Accept assumption that tomatoes are the same size.]*
- You get more tomato per zed. *[Accept generalisation.]*

No Credit

Other responses.

- The box is always better value. *[No explanation.]*
- You get more for less. *[Vague.]*
- Bulk buying is better.
- The price per kilogram is different. *[Does not indicate that the box price is lower.]*

Missing.

Comment

This question requires students to apply the concept of value for money in a context familiar to 15-year-old students. Students are asked to make a logical comparison between boxed and loose tomatoes and to explain which option provides the best value for money. In order to support their argument, students can provide their answer in words or explain their idea with quantitative information by using the price (“Zed”) and weight (kilogram).

In this question, the unit of currency is the imaginary Zed. PISA questions often refer to situations that take place in the fictional country of Zedland, where the Zed is the unit of currency. This artificial currency has been introduced to enhance comparability across countries and is explained to the students before the test begins.

Using the context of shopping for groceries, which is a familiar, everyday context to 15-year-old students, this item assesses whether students can interpret and use financial and numeric information and explain their judgment based on proportional reasoning and single basic numerical operations (multiplication and division). Questions about the buying of goods are generally categorised as being in the content area of money and transactions. To gain credit for this item, students have to demonstrate that they have compared the two ways of buying tomatoes using a common point of comparison. The question is located at Level 2.

Question 3

Buying a box of tomatoes may be a bad financial decision for some people.

Explain why.

Unit name	At the market – Question 3
Content	Money and transactions
Process	Evaluate financial issues
Context	Home and family
Item format	Open Response – Human Coded
Level estimated from 2012 Field Trial	1

Scoring

Full Credit

Refers to wastage if a larger amount of tomatoes is not needed.

- The tomatoes might rot before you use them all.
- Because you may not need 10 kg of tomatoes.
- The ones at the bottom of the box might be bad so you are wasting money.

OR

Refers to the idea that some people cannot afford the higher absolute cost of buying in bulk.

- You may not be able to afford a whole box.
- You have to spend 22 zeds (rather than 2.75 or 5.50 for 1 or 2 kg) and you might not have that amount to spend.
- You might have to go without something else that you need to pay for the box of tomatoes.

No Credit

Other responses.

- It is a bad idea.
- Some people don't like tomatoes [*Irrelevant.*]

Missing.

Comment

This question asks students to evaluate financial information for decision making in shopping, which is a situation familiar to 15-year-old students. The question examines whether students can recognise that buying things in bulk may be wasteful if a large amount is not needed, and it may be unaffordable to bear the higher absolute cost of buying in bulk in the short term. Students are required to evaluate a financial issue in the situation presented and describe their quantitative information or by using numbers, with quantitative information of the price and weight. Full credit will be given if students can explain that buying more tomatoes at a cheaper price may not always be a good decision for some people. The question is located at Level 1.

Bank error

David banks with ZedBank. He receives this e-mail message.

Dear ZedBank member,

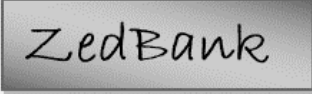
There has been an error on the ZedBank server and your Internet login details have been lost.

As a result, you have no access to Internet banking.

Most importantly your account is no longer secure.

Please click on the link below and follow the instructions to restore access. You will be asked to provide your Internet banking details.

<https://ZedBank.com/>



Question 1

Which of these statements would be good advice for David?

Circle “Yes” or “No” for each statement.

Statement	Is this statement good advice for David?
Reply to the e-mail message and provide his Internet banking details.	Yes / No
Contact his bank to inquire about the e-mail message.	Yes / No
If the link is the same as his bank’s website address, click on the link and follow the instructions.	Yes / No

Unit name	Bank error – Question 1
Content	Financial landscape
Process	Evaluate financial issues
Context	Societal
Item format	Complex multiple choice
Level estimated from 2012 Field Trial	5

Scoring

Full Credit

Three correct responses: No, Yes, No in that order.

No Credit

Fewer than three correct responses.

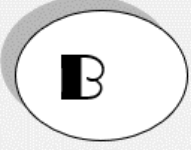
Missing.

Comment

This question asks students to evaluate a potential financial fraud in the context of Internet banking, which is part of the broader financial landscape in which students are likely to participate, either now or in the near future. The question investigates whether they know how to take appropriate precautions. Students are asked to respond appropriately to a financial scam e-mail message. They must evaluate the presented options and recognise which piece of advice can be considered as good advice. No numerical operations are required. The question is located at Level 5.

Invoice

Sarah receives this invoice in the mail.



Breezy Clothing

Invoice
 Invoice Number: 2034
 Date issued: 28 February

Sarah Johanson
 29 Worthill Rd
 Kensington
 Zedland 3122

Breezy Clothing
 498 Marple Lane
 Brightwell
 Zedland 2090

Product code	Description	Quantity	Unit cost	Total (excluding tax)
T011	T-shirt	3	20	60 zeds
J023	jeans	1	60	60 zeds
S002	scarf	1	10	10 zeds

Total Excluding Tax: 130 zeds
 Tax 10%: 13 zeds
 Postage: 10 zeds
 Total Including Tax: 153 zeds
 Already Paid: 0 zeds

Total due: 153 zeds
 Date due: 31 March

Question 1

Why was this invoice sent to Sarah?

- Because Sarah needs to pay the money to Breezy Clothing.
- Because Breezy Clothing needs to pay the money to Sarah.
- Because Sarah has paid the money to Breezy Clothing.
- Because Breezy Clothing has paid the money to Sarah.

Unit name	Invoice – Question 1
Content	Money and transactions
Process	Identify financial information
Context	Individual
Item format	Multiple choice
Level estimated from 2012 Field Trial	1

Scoring**Full Credit**

A. Because Sarah needs to pay the money to Breezy Clothing.

No Credit

Other responses.

Missing.

Comment

This multiple-choice question asks students to interpret a financial document, an invoice, identifying its purpose in the context of the individual. Questions about interpreting financial documents are generally categorised as being in the content area of money and transactions. Students are required to identify financial information by demonstrating a basic understanding of what an invoice is. Calculations are not required. The question is located at Level 1.

Question 2

How much has Breezy Clothing charged for delivering the clothes?

- Delivery charge in zeds:

Unit name	Invoice – Question 2
Content	Money and transactions
Process	Identify financial information
Context	Individual
Item format	Constructed response
Level estimated from 2012 Field Trial	2

Scoring

Full Credit

- 10
- ten
- tene [Unambiguous mis-spelling of correct numerical value.]

No Credit:

Other responses.

Missing.

Comment

This short, constructed response question asks students to identify a delivery cost in an invoice for clothing. It asks a specific question, and the relevant information is explicitly stated. To answer this question correctly, students need to identify the relevant information, understanding that postage refers to the delivery charge. This is an example of the types of interpretation that they may need to make frequently in adult life. This item is situated at Level 2.

Question 3

Sarah notices that Breezy Clothing made a mistake on the invoice.

Sarah ordered and received two T-shirts, **not** three.

The postage fee is a fixed charge.

What will be the total on the new invoice?

- Total in zeds:

Unit name	Invoice – Question 3
Content	Money and transactions
Process	Apply financial knowledge and understanding
Context	Individual
Item format	Constructed response
Level estimated from 2012 Field Trial	5 – Full credit 3 – Partial credit

Scoring

Full Credit

- 131
- One hundred and thirty-one
- One hundred and thirty-one [Unambiguous mis-spelling of 131]

Partial credit

- 133 [Leaves tax at 13 zeds] OR 121 [Omits postage]

- One hundred and thirty-three
- One hundred and thirty-three [unambiguous mis-spelling of 133]
- One hundred and twenty-one

No Credit

Other responses.

123 [Leaves tax at 13 zeds and omits postage.]

Missing.

Comment

This question asks students to interpret a financial document in a complicated situation that is likely to take place in real life. Students are required to calculate the correct amount due, given that the quantity described on the invoice is incorrect. In this task, full credit is given for the responses taking into account the tax change and postage, and partial credit is given to responses that only consider one of those factors. The partial-credit score is located at Level 3 while the full-credit score is located at Level 5. To get full credit, students need to interpret and use financial and numeric information in an unfamiliar context and solve a financial problem by using multiple numerical operations (i.e. addition, subtraction and calculation of percentages). To get partial credit, students need to interpret and use financial and numeric information and apply basic numerical operations (i.e. subtraction).

Motorbike insurance

Last year, Steve’s motorbike was insured with the PINSURA insurance company.

The insurance policy covered damage to the motorbike from accidents and theft of the motorbike.

Question 1

Steve plans to renew his insurance with PINSURA this year, but a number of factors in Steve’s life have changed since last year.

How is each of the factors in the table likely to affect the cost of Steve’s motorbike insurance this year?

Circle “Increases cost”, “Reduces cost” or “Has no effect on cost” for each factor.

Factor	How is the factor likely to affect the cost of Steve’s insurance?
Steve replaced his old motorbike with a much more powerful motorbike.	Increases cost / Reduces cost / Has no effect on cost
Steve has painted his motorbike a different colour.	Increases cost / Reduces cost / Has no effect on cost
Steve was responsible for two road accidents last year.	Increases cost / Reduces cost / Has no effect on cost

Unit name	Motorbike insurance – Question 1
Content	Risk and reward
Process	Analyse information in a financial context
Context	Individual
Item format	Complex multiple choice
Level estimated from 2012 Field Trial	4 3 – Third part of the question

Scoring

Full Credit

Three correct responses: Increases cost, Has no effect on cost, Increases cost, in that order.

No Credit

Fewer than three correct responses.

Missing.

Comment

The question relies on students understanding that the higher their risk exposure, with regards to measurable criteria, the more it will cost them to buy appropriate insurance. This question falls under the content area “risk and reward” because insurance is a product designed specifically to protect individuals against risks and financial losses that they would not otherwise be able to bear. To gain full credit on this question (situated at Level 4), students need to be able to identify which factors are likely to affect the cost of motorbike insurance under given circumstances. To answer correctly the third part of the question (situated at Level 3), students need to understand that being responsible for road accidents in the past will increase the cost of insurance in the future.

New offer

Mrs Jones has a loan of 8 000 zeds with FirstZed Finance. The annual interest rate on the loan is 15%. Her repayments each month are 150 zeds.

After one year Mrs Jones still owes 7400 zeds.

Another finance company called Zedbest will give Mrs Jones a loan of 10 000 zeds with an annual interest rate of 13%. Her repayments each month would also be 150 zeds

Question 2

What is one possible **negative** financial consequence for Mrs Jones if she agrees to the Zedbest loan?

Unit name	New offer – Question 2
Content	Planning and managing finances
Process	Evaluate financial issues
Context	Individual
Item format	Constructed response
Level estimated from 2012 Field Trial	4

Scoring

Full Credit

Refers to Mrs Jones having more debt.

- She will owe more money.
- She will be unable to control her spending.
- She is going deeper into debt.

Refers to paying more interest in total.

- 13% of 10 000 is greater than 15% of 8 000.

Refers to taking longer to pay the loan off.

- It might take longer to repay because the loan is bigger and the payments are the same.

Refers to the possibility of paying a cancellation fee with FirstZed.

- She may have a penalty fee for paying the FirstZed loan early.

No Credit

Other responses.

Missing.

Comment

This question asks students to evaluate two complex financial products (two different personal loans) with competing information to explain a negative financial consequence of changing to a larger loan. Students need to interpret financial and numeric information, and reason about the effect that different financial actions and variables have on financial well-being. In order to get full credit, students are required to describe a negative consequence of changing loans, such as the time taken to repay the money or the additional interest paid. No numerical operations are required. The question is located at Level 4.

Payslip

Each month, Jane's employer pays money into Jane's bank account.

This is Jane's pay slip for July.

EMPLOYEE PAY SLIP: Jane Citizen	
Position: Manager	1 July to 31 July
Gross salary	2800 zeds
Deductions	300 zeds
Net salary	2500 zeds
Gross salary to date this year	19 600 zeds

Question 1

How much money did Jane's employer pay into Jane's bank account on 31 July?

- 300 zeds
- 2500 zeds

- C. 2800 zeds
- D. 19 600 zeds

Unit name	Payslip– Question 1
Content	Money and transactions
Process	Identify financial information
Context	Education and work
Item format	Multiple choice
Level estimated from 2012 Field Trial	4

Scoring

Full Credit

B. 2 500 zeds

No Credit

Other responses.

Missing.

Comment

This multiple-choice question asks students to identify financial information on a pay slip. While a pay slip is a common financial document, it may provide an unfamiliar financial context to 15-year-old students. Students need to understand the difference between gross and net pay, that is, the difference between pay before and after any deductions have been made (such as deductions for health care or tax). Numeric operations are not required. The question is located at Level 4.

References

OECD (2023), *PISA 2022 Assessment and Analytical Framework*, PISA, OECD Publishing, Paris,
<https://doi.org/10.1787/dfe0bf9c-en>.

[1]

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 based on 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 place emphasis on 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 2022, the overall management of contractors and implementation was carried out Educational Testing Service (ETS) in the United States as the Core A contractor. Tasks under Core A also included the instrument development, development of the computer platform, survey operations and meetings, scaling, analysis and data products. These tasks were implemented in cooperation from 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-constructed items, iii) the International Association for Evaluation of Educational Achievement (IEA) in the Netherlands for the data management software, iv) Westat in the United States for survey operations, and v) HallStat SPRL in Belgium for translation referee.

The remaining tasks related to the implementation of PISA 2022 were implemented through three additional contractors – Cores B to DP. The development of the cognitive assessment frameworks for mathematics and creative thinking and of the framework for questionnaires was carried out by RTI in the United States as the Core B contractor. Core C focused on sampling and weighting 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 ACER Maple. 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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United Kingdom: Ali Pareas, Keith Dryburgh, Lorna Bertrand*

United States: Peggy Carr

Observers (Partner economies)

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Argentina: Paula Viotti, Bárbara Briscioli*, María Angela Cortelezzi*, Elena Duro*

Azerbaijan: Elnur Aliyev, Narmina Huseynova*, Emin Amrullayev*

Brunei Darussalam: Shamsiah Zuraini Kanchanawati Tajuddin, Hj Azman Bin Ahmad*

Bulgaria: Neda Oscar Kristanova

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Chinese Taipei: Yuan-Chuan Cheng, Chung-Hsi Lin*, Tian-Ming Sheu*

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Viet Nam: Huynh Van Chuong, Le My Phong*, Sai Cong HONG*

PISA 2022 National Project Managers

(*Former PISA 2022 NPM)

OECD Members and PISA Associates

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Belgium: Inge De Meyer, Anne Matoul

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Czechia: Simona Boudova, Radek Blazek*

Denmark: Vibeke Tornhøj Christensen, Ása Hansen, Magnus Bjørn Sørensen*

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Finland: Arto Ahonen, Mari-Pauliina Vainikainen

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Spain: Lis Cercadillo

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Switzerland: Andrea Erzinger

Thailand: Ekarin Achakunwisut

Türkiye: Umut Erkin Taş

United Kingdom: Grace Grima, David Thomas, Juliet Sizmur*

United States: Samantha Burg, Patrick Gonzales*

Observers (Partner economies)

Albania: Aurora Balliu, Rezana Vrapit*

Argentina: Maria Clara Radunsky, Paula Viotti*, Raul Volker*, Cecilia Beloqui*

Azerbaijan: Ulkar Zaidzada, Zinyat Amirova*, Leyla Abbasli*

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 Jennifer Schmidt (Michigan State University, United States)
 Arthur Stone (University of Southern California, United States)
 Roger Tourangeau (Westat, United States)
 Fons J.R. van de Vijver (Tilburg University/North-West University/University of Queensland)

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Eugenio Gonzalez (International Project Manager)

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Judy Mendez (Project Support and Contracts)

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Fred Robin (Manager, Psychometrics and Analysis)

Usama Ali (Psychometrics and Analysis)

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Jeff Haberstroh (Test Developer and Reviewer, Mathematical Literacy)

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Sipeng Wang (Sampling and Weighting)

Natalia Weil (Sampling and Weighting)

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Sergey Yagodin (Weighting)

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Elica Krajčeva (Lead Project Manager)

Shinoh Lee (Verification Management, Questionnaires)

Irene Liberati (Verification Management, Cognitive Units, Coding Guides)

Roberta Lizzi (Verification Management, Cognitive Units)

Adrien Mathot (Translation Technologist, Linguistic Quality Assurance Tools and Procedures)

Manuel Souto Pico (Lead Translation Technologist, Linguistic Quality Assurance Tools and Procedures)

Josiane Tyburn (Verification Management, Questionnaires, School Materials)

Australian Council for Educational Research (Australia) – Core E lead contractor

Jeaniene Spink, Maurice Walker (Project Directors)

Jennie Chainey

Jacqueline Cheng

Sandra Lambey

Naoko Tabata

Ursula Schwantner

PISA 2022 Contributors, working with Lead Contractors

Australian Council for Educational Research (Australia) – Core C contributor

Martin Murphy (Project Director)

Emma Cadman (School Sampling)

Emma Camus (School Sampling)

Martin Chai (Student Sampling)

Alex Daragonov (Student Sampling)

Jorge Fallas (Lead School Sampling)

Kathy He (Student Sampling)

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Nina Martinus (School Sampling)

Louise Ockwell (Student Sampling)

Claire Ozolins (School Sampling)

Anna Plotka (Student Sampling)

Alla Routitsky (Student Sampling)

Paul Tabet (School Sampling)

BranTra (Belgium) – Core D contributor

Eva Jacob (Translation Management, French Source Development)

Danina Lupsa (Translation Technologist, Linguistic Quality Assurance Tools and Procedures)

Ben Meessen (Translation Management, Development of Common Reference Versions for Spanish, Chinese, Arabic)

HallStat SPRL (Belgium) – Core A contributor as the translation referee

Beatrice Halleux (Consultant, Translation/Verification Referee, French Source Development)

WESTAT (United States) – Core A contributor on survey operations

Merl Robinson (Director of Core A Contractor for Survey Operations)

Michael Lemay (Manager of Core A Contractor for Survey Operations)

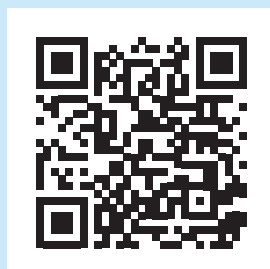
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