PISA 2018 Results

WHERE ALL STUDENTS CAN SUCCEED

VOLUME II

Programme for International Student Assessment

OECD

PISA 2018 Results (Volume II)

WHERE ALL STUDENTS CAN SUCCEED

OECD
BETTER POLICIES FOR BETTER LIVES

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Preface

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

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

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

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

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

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

Even across OECD countries, just about two in three students reported that they are satisfied with their lives, and that percentage shrank by five percentage points between 2015 and 2018. Some 6% of students reported always feeling sad. In almost every education system, girls expressed greater fear of failure than boys, even when they outperformed boys in reading by a large margin. Almost a quarter of students reported being bullied at least a few times a month. Perhaps most disturbingly, in one-third of countries and economies that participated in PISA 2018, including OECD countries such as Greece, Mexico and Poland, more than one in two students said that intelligence was something about them that they couldn't change very much. Those students are unlikely to make the investments in themselves that are necessary to succeed in school and in life. Importantly, having a growth mindset seems consistently associated with students' motivation to master tasks, general self-efficacy, setting learning goals and perceiving the value of school, and negatively associated with their fear of failure. Even if the well-being indicators examined by PISA do not refer specifically to the school context, students who sat the 2018 PISA test cited three main aspects of their lives that influence how they feel: life at school, their relationships with their parents, and how satisfied they are with the way they look.

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

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

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

Furthermore, in over half of the PISA-participating countries and economies, principals of disadvantaged schools were significantly more likely than those of advantaged schools to report that their school's capacity to provide instruction is hindered by a lack or inadequacy of educational material; and in 42 countries and economies, principals of disadvantaged schools were more likely than those of advantaged ones to report that a lack of teaching staff hinders instruction. In these systems, students face a double disadvantage: one that comes from their home background and another that is created by the school system. There can be numerous reasons why some students perform better than others, but those performance differences should never be related to the social background of students and schools.

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

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

PISA is not only the world's most comprehensive and reliable indicator of students' capabilities, it is also a powerful tool that countries and economies can use to fine-tune their education policies. Volume V of PISA 2018 Results, which will be published in June 2020, will highlight some of the policies and practices that predict the success of students, schools and education systems. That is why the OECD produces this triennial report on the state of education around the globe: to share evidence of the best policies and practices, and to offer our timely and targeted support to help countries provide the best education possible for all of their students.

Angel Gurría
OECD Secretary-General

Foreword

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

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

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

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

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

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

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

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

In the end, the laws of physics apply. If we stop pedalling, not only will we not move forward, our bicycles will stop moving at all and will fall over – and we will fall with them. Against strong headwinds, we need to push ourselves even harder. But in the face of challenges and opportunities as great as any that have gone before, human beings need not be passive or inert.

We have agency, the ability to anticipate and the power to frame our actions with purpose. The best-performing PISA countries show us that high-quality and equitable education is an attainable goal, that it is within our means to deliver a future for millions of learners who currently do not have one, and that our task is not to make the impossible possible, but to make the possible attainable.

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

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

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

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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), Jimin Cho (Korea) and Carmen Tovar Sánchez (Spain) as vice chairs. Annex D of this volume lists the members of the various PISA bodies, including Governing Board members and National Project Managers in participating countries and economies, the PISA Consortium, and the individual experts and consultants who have contributed to PISA 2018.

PISA

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Executive Summary

The principle that every person has a fair chance to improve his or her life, whatever his or her personal circumstances, lies at the heart of democratic political and economic institutions. Ensuring that all students have access to the best education opportunities is also a way of using resources effectively, and of improving education and social outcomes in general.

Equity in education is a central and long-standing focus of PISA and a major concern of countries around the world. The United Nations Sustainable Development Goals for 2030 advocate for "ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all" (United Nations, 2015).

Equity does not mean that all students have equal outcomes; rather it means that whatever variations there may be in education outcomes, they are not related to students' background, including socio-economic status, gender or immigrant background.

PISA measures equity by whether education outcomes, such as access to schooling, student performance, students' attitudes and beliefs, and students' expectations for their future, are related to student's personal background. The weaker the relationship, the more equitable the school system, as all students can flourish in such a system, regardless of their background.

WHERE ALL STUDENTS CAN SUCCEED: MAIN FINDINGS

Equity related to socio-economic status

- In 11 countries and economies, including the OECD countries Australia, Canada, Denmark, Estonia, Finland, Japan, Korea, Norway and the United Kingdom, average performance was higher than the OECD average while the relationship between socio-economic status and reading performance was weaker than the OECD average.
- In spite of socio-economic disadvantage, some students attain high levels of academic proficiency. On average across OECD countries, one in ten disadvantaged students was able to score in the top quarter of reading performance in their countries (known as academic resilience), indicating that disadvantage is not destiny. In Australia, Canada, Estonia, Hong Kong (China), Ireland, Macao (China) and the United Kingdom, all of which score above the OECD average, more than 13% of disadvantaged students were academically resilient.
- Disadvantaged students are more or less likely to attend the same schools as high achievers, depending on the school system. In Argentina, Bulgaria, Colombia, the Czech Republic, Hungary, Israel, Luxembourg, Peru, Romania, the Slovak Republic, the United Arab Emirates and Switzerland, a typical disadvantaged student has less than a one-in-eight chance of attending the same school as high achievers (those who scored in the top quarter of reading performance in PISA. By contrast, in Baku (Azerbaijan), Canada, Denmark, Estonia, Finland, Iceland, Ireland, Kosovo, Macao (China), Norway, Portugal, Spain and Sweden, disadvantaged students have at least a one-in-five chance of having high-achieving schoolmates.
- On average across OECD countries, 40% of teachers in disadvantaged schools compared with 48% of teachers in advantaged schools had at least a master's degree.
- In 42 countries and economies, principals of disadvantaged schools were significantly more likely than those of advantaged schools to report that their school's capacity to provide instruction is hindered by a shortage of education staff. In 46 countries and economies, principals of disadvantaged schools were also more likely to report that a lack or inadequacy of educational material and physical infrastructure hinders instruction.
- Many students, especially disadvantaged students, hold lower ambitions than would be expected given their academic achievement. On average across OECD countries, only seven in ten high-achieving disadvantaged students reported that they expect to complete tertiary education, while nine in ten high-achieving advantaged students reported so. In Austria, Finland, Germany, Hungary, Italy, Kazakhstan, Latvia, the Republic of Moldova, New Zealand, Norway, Poland, Sweden and Switzerland, the difference between the two groups was larger than 25 percentage points.
- On average across OECD countries, more than two in five disadvantaged students reported that they do not know how to find information about student financing (e.g. student loans or grants).

Equity related to gender

- In all countries and economies that participated in PISA 2018, girls significantly outperformed boys in reading – by 30 score points, on average across OECD countries. The narrowest gender gaps (less than 20 score points) were observed in Argentina, Beijing, Shanghai, Jiangsu and Zhejiang (China), Chile, Colombia, Costa Rica, Mexico, Panama and Peru; the widest (more than 50 score points) were observed in Finland, Jordan, the Republic of North Macedonia, Qatar, Saudi Arabia and the United Arab Emirates.
- In Estonia, Ireland, Macao (China), Peru and Singapore, the gender gap in reading performance narrowed between 2009 and 2018; and both boys and girls scored higher in 2018 than their counterparts did in 2009.
- Boys outperformed girls – by five score points – in mathematics, on average across OECD countries, but girls outperformed boys in science by two score points. While boys significantly outperformed girls in mathematics in 31 countries and economies, in 12 countries/economies the opposite pattern was observed. Only in Argentina, Beijing, Shanghai, Jiangsu and Zhejiang (China), Colombia, Costa Rica, Mexico and Peru did boys significantly outperform girls in science, while the opposite was true in 34 countries and economies.
- In all countries and economies, girls reported much greater enjoyment of reading than boys. The largest gender gap in enjoyment of reading was observed in Germany, Hungary and Italy and the smallest in Indonesia and Korea. On average across OECD countries in 2018, both boys and girls reported significantly less enjoyment of reading than their counterparts did in 2009.
- Only 1% of girls, on average across OECD countries, reported that they want to work in ICT-related occupations, compared with 8% of boys who so reported. In some countries, including Bulgaria, Estonia, Lithuania, Poland, Serbia and Ukraine, more than 15% of boys reported that they expect to work in an ICT-related profession; but in no PISA-participating country or economy did more than 3% of girls report so.

Equity related to immigrant background

- On average across OECD countries, 13% of students in 2018 had an immigrant background, up from 10% in 2009. In most countries, immigrant students tended to be socio-economically disadvantaged; in Austria, Denmark, Finland, France, Germany, Greece, Iceland, the Netherlands, Norway, Slovenia and Sweden, at least two out of five immigrant students were disadvantaged.
- Some 17% of immigrant students scored in the top quarter of reading performance in the country where they sat the PISA test, on average across OECD countries. In Brunei Darussalam, Jordan, Panama, Qatar, Saudi Arabia and the United Arab Emirates, more than 30% of immigrant students performed at that level.
- In 21 out of the 43 countries and economies where a relatively large proportion of students had an immigrant background, immigrant students were more likely than their native-born peers to report a goal-oriented attitude.

Table II.1 [1/2] **Snapshot of socio-economic disparities in academic performance**

Shading	Meaning
Blue	Countries/economies with a mean performance/strength of socio-economic gradient/share of resilient students above the OECD average
White	Countries/economies with a mean performance/strength of socio-economic gradient/share of resilient students not significantly different from the OECD average
Grey	Countries/economies with a mean performance/strength of socio-economic gradient/share of resilient students below the OECD average

	Mean reading score in PISA 2018	Coverage Index 3: Coverage of 15-year-old population	Strength: Percentage of variance in reading performance explained by ESCS[1] (R^2)	Difference between advantaged[2] and disadvantaged students in reading	Percentage of disadvantaged students who are academically resilient[3]
	Mean		%	Score dif.	%
OECD average	487	m	12.0	**89**	11
B-S-J-Z (China)	555	0.81	12.6	**82**	12
Singapore	549	0.95	13.2	**104**	10
Macao (China)	525	0.88	1.7	**31**	20
Hong Kong (China)	524	0.98	5.1	**59**	16
Estonia	523	0.93	6.2	**61**	16
Canada	520	0.86	6.7	**68**	14
Finland	520	0.96	9.2	**79**	13
Ireland	518	0.96	10.7	**75**	13
Korea	514	0.88	8.0	**75**	13
Poland	512	0.90	11.6	**90**	11
Sweden	506	0.86	10.7	**89**	11
New Zealand	506	0.89	12.9	**96**	12
United States	505	0.86	12.0	**99**	10
United Kingdom	504	0.85	9.3	**80**	14
Japan	504	0.91	8.0	**72**	12
Australia	503	0.89	10.1	**89**	13
Chinese Taipei	503	0.92	11.4	**89**	12
Denmark	501	0.88	9.9	**78**	12
Norway	499	0.91	7.5	**73**	12
Germany	498	0.99	17.2	**113**	10
Slovenia	495	0.98	12.1	**80**	12
Belgium	493	0.94	17.2	**109**	9
France	493	0.91	17.5	**107**	10
Portugal	492	0.87	13.5	**95**	10
Czech Republic	490	0.95	16.5	**105**	9
Netherlands	485	0.91	10.5	**88**	13
Austria	484	0.89	13.0	**93**	10
Switzerland	484	0.89	15.6	**104**	9
Croatia	479	0.89	7.7	**63**	15
Latvia	479	0.89	7.2	**65**	12
Russia	479	0.94	7.3	**67**	13
Italy	476	0.85	8.9	**75**	12
Hungary	476	0.90	19.1	**113**	8
Lithuania	476	0.90	13.2	**89**	11
Iceland	474	0.92	6.6	**72**	13
Belarus	474	0.88	19.8	**102**	9
Israel	470	0.81	14.0	**121**	8
Luxembourg	470	0.87	17.8	**122**	8
Ukraine	466	0.87	14.0	**90**	12
Turkey	466	0.73	11.4	**76**	15
Slovak Republic	458	0.86	17.5	**106**	9
Greece	457	0.93	10.9	**84**	12

1. ESCS refers to the PISA index of economic, social and cultural status.
2. A socio-economically advantaged (disadvantaged) student is a student in the top (bottom) quarter of ESCS in his or her own country/economy.
3. Academically resilient students are disadvantaged students who scored in the top quarter of performance in reading amongst students in their own country.

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

Results based on reading performance are reported as missing for Spain (see Annex A9 from PISA 2018 Results (Volume I): *What Students Know and Can Do*). The OECD average does not include Spain in these cases.

Countries and economies are ranked in descending order of the mean reading score in PISA 2018.

Source: OECD, PISA 2018 Database, Tables I.B1.10, II.B1.2.1, II.B1.2.3 and Table II.B1.3.1.

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Table II.1 [2/2] **Snapshot of socio-economic disparities in academic performance**

(blue)	Countries/economies with a mean performance/strength of socio-economic gradient/share of resilient students above the OECD average
(grey)	Countries/economies with a mean performance/strength of socio-economic gradient/share of resilient students not significantly different from the OECD average
(white)	Countries/economies with a mean performance/strength of socio-economic gradient/share of resilient students below the OECD average

	Mean reading score in PISA 2018	Coverage Index 3: Coverage of 15-year-old population	Strength: Percentage of variance in reading performance explained by ESCS[1] (R^2)	Difference between advantaged[2] and disadvantaged students in reading	Percentage of disadvantaged students who are academically resilient[3]
	Mean		%	Score dif.	%
Chile	452	0.89	12.7	**87**	11
Malta	448	0.97	7.6	**85**	13
Serbia	439	0.88	7.8	**73**	13
United Arab Emirates	432	0.92	11.1	**105**	7
Romania	428	0.71	18.1	**109**	9
Uruguay	427	0.77	16.0	**99**	9
Costa Rica	426	0.63	15.6	**83**	10
Cyprus	424	0.92	6.8	**69**	13
Moldova	424	0.95	17.3	**102**	8
Montenegro	421	0.95	5.8	**55**	14
Mexico	420	0.66	13.7	**81**	11
Bulgaria	420	0.72	15.0	**106**	6
Jordan	419	0.57	7.7	**64**	12
Malaysia	415	0.72	16.3	**89**	10
Brazil	413	0.56	14.0	**97**	10
Colombia	412	0.62	13.7	**86**	10
Brunei Darussalam	408	0.97	16.0	**103**	9
Qatar	407	0.92	8.6	**93**	9
Albania	405	0.46	7.8	**61**	12
Bosnia and Herzegovina	403	0.82	7.3	**58**	13
Argentina	402	0.81	17.1	**102**	8
Peru	401	0.73	21.5	**110**	6
Saudi Arabia	399	0.85	11.5	**74**	11
Thailand	393	0.72	12.0	**69**	13
North Macedonia	393	0.95	10.2	**80**	13
Baku (Azerbaijan)	389	0.46	4.3	**41**	17
Kazakhstan	387	0.92	4.3	**40**	16
Georgia	380	0.83	9.4	**68**	12
Panama	377	0.53	17.0	**95**	9
Indonesia	371	0.85	7.8	**52**	14
Morocco	359	0.64	7.1	**51**	13
Lebanon	353	0.87	12.2	**103**	9
Kosovo	353	0.84	4.9	**40**	17
Dominican Republic	342	0.73	8.9	**65**	12
Philippines	340	0.68	18.0	**88**	8
Spain	m	0.92	m	m	m

1. ESCS refers to the PISA index of economic, social and cultural status.
2. A socio-economically advantaged (disadvantaged) student is a student in the top (bottom) quarter of ESCS in his or her own country/economy.
3. Academically resilient students are disadvantaged students who scored in the top quarter of performance in reading amongst students in their own country.

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

Results based on reading performance are reported as missing for Spain (see Annex A9 from PISA 2018 Results (Volume I): *What Students Know and Can Do*).
The OECD average does not include Spain in these cases.

Countries and economies are ranked in descending order of the mean reading score in PISA 2018.

Source: OECD, PISA 2018 Database, Tables I.B1.10, II.B1.2.1, II.B1.2.3 and Table II.B1.3.1.

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Table II.2 [1/2] **Snapshot of expectations for the future, by gender and socio-economic status**

Legend	
(blue)	Countries/economies with share of top performers who do not expect to complete tertiary education below the OECD average or a share of top performers who expect to work in STEM occupations above the OECD average
(grey)	Countries/economies with a share of students not significantly different from the OECD average
(white)	Countries/economies with share of top performers who do not expect to complete tertiary education above the OECD average or a share of top performers who expect to work in STEM occupations below the OECD average

	Percentage of students who do not expect to complete tertiary education amongst those who have attained at least minimum academic proficiency (Level 2) in the three core PISA subjects and are high performers (Level 4) in at least one subject			Percentage of top performers in science or mathematics who expect to work as...					
				... science and engineering professionals when they are 30			... health professionals when they are 30		
	Advantaged students	Disadvantaged students	Difference between advantaged and disadvantaged students	Boys	Girls	Difference between girls and boys	Boys	Girls	Difference between girls and boys
	%	%	% dif.	%	%	% dif.	%	%	% dif.
OECD average	7.9	28.4	**-20.3**	26.0	14.5	**-11.5**	12.3	29.9	**17.4**
Germany	27.1	66.0	**-38.9**	22.6	12.4	**-10.2**	6.3	23.7	**17.4**
Poland	8.4	47.0	**-38.5**	14.0	11.9	-2.1	10.8	30.4	**19.6**
Hungary	7.8	46.0	**-38.3**	26.7	16.5	**-10.1**	10.3	23.1	**12.8**
Finland	13.5	43.5	**-30.1**	11.6	9.1	-2.5	15.2	35.9	**20.7**
New Zealand	12.1	41.7	**-29.6**	26.4	14.3	**-12.1**	14.8	35.1	**20.3**
Switzerland	15.4	44.9	**-29.5**	23.8	11.2	**-12.6**	8.9	27.1	**18.2**
Austria	20.8	50.2	**-29.4**	20.3	8.9	**-11.4**	10.7	24.5	**13.8**
Latvia	8.6	37.7	**-29.1**	20.4	12.2	**-8.3**	9.2	24.9	**15.7**
Italy	11.7	40.5	**-28.9**	26.0	12.5	**-13.6**	10.7	22.7	**12.0**
Norway	7.1	35.4	**-28.3**	32.7	11.6	**-21.0**	6.7	26.8	**20.1**
Kazakhstan	7.3	35.0	**-27.6**	28.3	14.2	**-14.1**	10.4	16.7	6.3
Sweden	5.7	31.5	**-25.8**	36.7	20.4	**-16.4**	6.6	22.2	**15.6**
Moldova	9.9	35.3	**-25.3**	6.3	11.0	4.6	11.9	21.3	9.4
Slovak Republic	5.4	30.0	**-24.6**	12.6	10.7	-1.9	14.7	33.2	**18.5**
United Kingdom	8.0	32.3	**-24.3**	27.7	20.0	**-7.6**	10.9	26.2	**15.2**
Czech Republic	5.3	29.6	**-24.3**	14.5	8.2	-6.2	11.2	28.0	**16.8**
Bulgaria	7.3	31.5	**-24.1**	14.1	11.5	-2.7	14.7	22.7	8.0
Slovenia	8.1	31.7	**-23.6**	22.8	14.5	-8.3	11.8	31.3	**19.6**
Jordan	6.0	29.1	**-23.1**	27.1	11.1	-16.0	44.2	67.5	23.3
Russia	9.6	31.9	**-22.3**	20.3	12.3	-8.0	8.5	16.3	**7.8**
Iceland	14.1	36.2	**-22.1**	21.1	14.1	-7.0	9.6	32.9	**23.3**
Portugal	3.1	25.0	**-21.9**	47.9	15.1	**-32.8**	15.0	46.6	**31.6**
Japan	7.3	28.0	**-20.8**	7.5	3.4	**-4.0**	12.0	25.0	**12.9**
Australia	6.2	26.9	**-20.7**	33.2	19.2	**-14.0**	17.5	34.1	**16.6**
Albania	5.1	25.6	**-20.5**	37.8	23.2	-14.6	24.9	34.7	9.8
Croatia	12.9	33.3	**-20.4**	20.1	16.5	-3.6	12.9	32.0	**19.1**
Estonia	8.0	27.7	**-19.8**	17.3	15.2	-2.0	11.2	21.3	**10.1**
Romania	3.1	22.7	**-19.6**	13.4	11.4	-2.0	8.1	34.5	**26.4**
Hong Kong (China)	5.5	24.9	**-19.4**	19.7	6.4	**-13.3**	13.7	23.7	**10.1**
B-S-J-Z (China)	3.8	22.7	**-18.9**	15.1	9.1	**-6.0**	11.1	12.3	1.2
Brunei Darussalam	8.0	25.8	**-17.8**	36.6	18.4	**-18.2**	21.6	29.6	8.0
Luxembourg	14.0	31.7	**-17.8**	25.0	14.6	**-10.5**	10.0	25.2	**15.2**
Thailand	0.8	17.6	**-16.9**	19.4	14.5	-4.9	20.5	45.2	**24.7**
Chinese Taipei	4.8	21.4	**-16.6**	23.8	8.7	**-15.0**	12.4	24.0	**11.6**
Malta	8.6	24.5	**-15.9**	26.6	14.6	**-12.0**	17.2	31.0	**13.8**
Belgium	6.2	22.1	**-15.9**	30.9	16.3	**-14.6**	13.3	25.0	**11.7**
Macao (China)	7.8	23.5	**-15.6**	15.1	7.7	**-7.4**	10.5	26.3	**15.9**

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

Results based on reading performance are reported as missing for Spain (see Annex A9 from PISA 2018 Results (Volume I): *What Students Know and Can Do*). The OECD average does not include Spain in these cases.

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

Source: OECD, PISA 2018 Database, Tables II.B1.6.7, II.B1.8.22 and II.B1.8.23.

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Table II.2 [2/2] Snapshot of expectations for the future, by gender and socio-economic status

Shading	Meaning
Blue	Countries/economies with share of top performers who do not expect to complete tertiary education below the OECD average or a share of top performers who expect to work in STEM occupations above the OECD average
Grey	Countries/economies with a share of students not significantly different from the OECD average
White	Countries/economies with share of top performers who do not expect to complete tertiary education above the OECD average or a share of top performers who expect to work in STEM occupations below the OECD average

	Percentage of students who do not expect to complete tertiary education amongst those who have attained at least minimum academic proficiency (Level 2) in the three core PISA subjects and are high performers (Level 4) in at least one subject			Percentage of top performers in science or mathematics who expect to work as...					
				... science and engineering professionals when they are 30			... health professionals when they are 30		
	Advantaged students	Disadvantaged students	Difference between advantaged and disadvantaged students	Boys	Girls	Difference between girls and boys	Boys	Girls	Difference between girls and boys
	%	%	% dif.	%	%	% dif.	%	%	% dif.
Netherlands	8.6	22.8	**-14.2**	19.0	8.2	**-10.7**	9.5	28.7	**19.2**
Uruguay	10.1	24.1	-14.1	47.0	31.3	-15.8	11.4	c	c
Denmark	12.5	26.2	**-13.7**	32.3	16.9	**-15.4**	10.6	29.8	**19.2**
France	7.5	20.5	**-13.0**	33.1	16.9	**-16.2**	12.6	27.6	**15.0**
Lithuania	3.3	15.9	**-12.7**	17.9	13.5	-4.4	6.7	31.8	**25.1**
Canada	2.6	15.0	**-12.4**	31.4	14.1	**-17.3**	18.5	39.4	**20.9**
Belarus	4.7	16.7	**-12.0**	14.1	10.9	-3.2	11.0	19.9	**9.0**
Qatar	3.1	14.9	**-11.9**	34.9	22.3	**-12.6**	22.2	37.1	**14.9**
Bosnia and Herzegovina	2.9	13.7	-10.8	29.9	21.1	-8.9	7.3	c	c
Ireland	2.6	13.4	**-10.8**	29.6	16.7	**-12.9**	17.0	30.4	**13.4**
Israel	9.5	20.0	**-10.4**	23.6	16.2	-7.3	10.2	26.7	**16.5**
Serbia	2.2	12.1	**-9.9**	14.8	16.9	2.1	14.1	21.5	7.3
North Macedonia	5.3	14.8	-9.6	14.0	20.0	5.9	6.4	14.0	7.6
Korea	1.6	11.0	**-9.5**	18.5	7.2	**-11.3**	10.3	15.2	**4.9**
United States	1.4	10.5	**-9.1**	27.8	10.4	**-17.4**	14.5	37.7	**23.1**
Greece	2.1	11.0	**-8.9**	23.1	23.4	0.3	15.4	27.7	12.3
Argentina	4.6	10.6	-6.0	42.2	27.0	-15.2	7.3	19.3	12.0
Mexico	1.4	7.3	-5.9	43.2	27.0	-16.2	10.7	c	c
Chile	3.1	8.9	-5.8	38.1	22.7	-15.4	25.6	46.4	20.8
Cyprus	1.1	6.6	-5.6	26.3	21.6	-4.8	22.2	26.7	4.6
Brazil	3.5	9.1	-5.6	34.2	20.2	-14.0	22.9	39.5	16.6
Montenegro	3.4	8.5	-5.1	9.8	17.5	7.8	13.3	17.0	3.7
United Arab Emirates	3.0	6.8	-3.8	31.5	16.2	**-15.3**	19.3	38.5	**19.3**
Turkey	1.8	5.1	**-3.3**	32.7	21.7	**-11.0**	27.4	52.3	**25.0**
Malaysia	6.4	9.5	-3.1	38.2	14.7	**-23.5**	9.7	39.0	**29.2**
Baku (Azerbaijan)	9.7	12.0	-2.3	13.4	13.2	-0.2	15.5	27.7	12.2
Singapore	1.8	2.8	-1.0	27.0	11.9	**-15.1**	15.4	29.9	**14.6**
Ukraine	10.5	8.6	1.9	11.2	5.0	-6.2	5.2	14.5	**9.3**
Morocco	37.6	c	c	40.4	45.2	4.8	c	c	c
Lebanon	16.5	c	c	46.6	26.7	-20.0	21.1	42.5	21.4
Kosovo	10.7	c	c	19.9	m	m	c	m	m
Saudi Arabia	9.0	c	c	30.0	11.7	-18.3	c	c	c
Costa Rica	2.8	c	c	39.1	29.8	-9.3	c	c	c
Peru	2.7	c	c	34.2	12.5	-21.7	8.3	c	c
Colombia	2.5	c	c	36.2	9.0	-27.3	8.4	c	c
Georgia	1.8	c	c	22.2	16.3	-5.9	6.9	c	c
Indonesia	0.5	c	c	12.5	5.0	-7.5	17.7	33.0	15.3
Panama	6.0	m	m	9.8	m	m	c	m	m
Philippines	4.8	m	m	35.8	17.3	-18.5	c	c	c
Dominican Republic	2.9	m	m	m	m	m	m	m	m
Spain	m	m	m	34.2	19.4	**-14.7**	11.9	28.3	**16.4**

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

Results based on reading performance are reported as missing for Spain (see Annex A9 from PISA 2018 Results (Volume I): *What Students Know and Can Do*). The OECD average does not include Spain in these cases.

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

Source: OECD, PISA 2018 Database, Tables II.B1.6.7, II.B1.8.22 and II.B1.8.23.

StatLink https://doi.org/10.1787/888934037032

Table II.3 [1/2] **Snapshot of immigrant students**

Legend	
(blue)	Countries/economies with a mean score in reading or a share of students above the OECD average
(white)	Countries/economies with a mean score in reading or a share of students not significantly different from the OECD average
(grey)	Countries/economies with a mean score in reading or a share of students below the OECD average

	Percentage of immigrant students	Performance in reading			Score-point difference in reading performance associated with immigrant background	Academically resilient immigrant students[1]
		Non-immigrant students	Second-generation immigrant students	First-generation immigrant students	After accounting for gender, and students' and schools' socio-economic profile	
	%	Mean score	Mean score	Mean score	Score dif.	%
OECD average	13.0	494	465	440	**-24**	16.8
Macao (China)	62.9	512	528	540	**26**	27.3
Qatar	56.8	368	423	454	**63**	36.4
United Arab Emirates	55.8	386	465	484	**64**	38.5
Luxembourg	54.9	491	450	461	**-17**	21.8
Hong Kong (China)	37.9	529	533	502	**9**	24.0
Canada	35.0	525	535	508	-1	26.2
Switzerland	33.9	503	453	448	**-25**	15.7
Australia	27.7	504	523	501	**7**	29.1
New Zealand	26.5	510	518	500	**-8**	26.5
Singapore	24.8	546	587	554	**-9**	28.9
United States	23.0	510	512	479	**16**	24.5
Austria	22.7	500	446	421	**-33**	11.2
Germany	22.2	519	477	405	**-17**	16.0
Sweden	20.5	525	471	410	**-54**	10.3
United Kingdom	19.8	511	493	488	-4	20.5
Belgium	18.1	506	459	427	**-21**	12.0
Ireland	17.9	522	509	508	**-9**	21.6
Israel	16.4	481	493	398	6	24.3
Cyprus	14.8	426	420	436	9	27.9
France	14.3	502	461	425	**-13**	13.4
Netherlands	13.8	498	433	399	**-23**	8.9
Norway	12.4	509	463	451	**-33**	13.9
Saudi Arabia	11.9	400	435	437	**32**	38.8
Greece	11.7	465	420	397	**-22**	12.1
Jordan	11.6	421	433	434	**14**	31.3
Denmark	10.7	509	447	435	**-34**	9.3
Estonia	10.4	528	492	453	**-35**	13.6
Italy	10.0	482	445	433	**-22**	14.1
Costa Rica	10.0	430	408	404	**-12**	17.5
Serbia	9.3	441	447	449	2	26.9
Croatia	9.1	481	473	464	-3	21.2
Slovenia	8.9	502	464	422	**-28**	8.8
Malta	8.8	452	433	457	-12	27.6
Kazakhstan	8.2	389	389	366	-3	20.3
Brunei Darussalam	8.2	403	460	485	**25**	53.3
Portugal	7.0	495	483	436	**-26**	17.1
Lebanon	6.0	364	306	316	**-44**	14.6
Panama	6.0	381	375	426	-12	41.4

1. Immigrant students who scored in the top quarter of performance in reading amongst students in their own country.

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

Results based on reading performance are reported as missing for Spain (see Annex A9 from PISA 2018 Results (Volume I): *What Students Know and Can Do*). The OECD average does not include Spain in these cases.

Countries and economies are ranked in descending order of the percentage of immigrant students.

Source: OECD, PISA 2018 Database, Tables II.B1.9.1 and II.B1.9.3.

StatLink https://doi.org/10.1787/888934037051

Table II.3 [2/2] **Snapshot of immigrant students**

Countries/economies with a mean score in reading or a share of students above the OECD average
Countries/economies with a mean score in reading or a share of students not significantly different from the OECD average
Countries/economies with a mean score in reading or a share of students below the OECD average

	Percentage of immigrant students	Performance in reading			Score-point difference in reading performance associated with immigrant background	Academically resilient immigrant students[1]
		Non-immigrant students	Second-generation immigrant students	First-generation immigrant students	After accounting for gender, and students' and schools' socio-economic profile	
	%	Mean score	Mean score	Mean score	Score dif.	%
Montenegro	5.8	422	438	415	-7	29.6
Finland	5.8	527	456	420	**-74**	7.9
Russia	5.8	480	491	457	-7	25.8
Iceland	5.6	481	412	402	**-55**	7.0
Baku (Azerbaijan)	5.2	393	386	369	**-13**	19.8
Argentina	4.6	404	414	395	**12**	23.0
Latvia	4.4	480	467	515	-7	27.5
Belarus	4.1	475	461	447	-9	22.6
Czech Republic	4.1	493	459	421	**-34**	12.3
Chile	3.4	456	447	435	**-14**	18.6
Dominican Republic	2.9	347	323	322	-17	20.0
Bosnia and Herzegovina	2.8	405	403	369	**-23**	20.1
Hungary	2.6	477	510	468	-7	31.0
Ukraine	2.3	468	456	419	**-25**	15.3
Malaysia	1.6	417	413	c	-3	25.7
North Macedonia	1.6	397	372	c	**-27**	18.7
Mexico	1.6	424	332	324	**-80**	7.3
Lithuania	1.6	478	454	469	**-27**	20.3
Moldova	1.4	428	433	c	-14	31.5
Georgia	1.4	384	328	c	**-47**	12.5
Uruguay	1.3	429	399	404	**-42**	22.3
Slovak Republic	1.2	460	424	387	**-40**	12.6
Bulgaria	1.1	425	c	c	**-34**	16.8
Kosovo	1.1	355	339	c	**-31**	14.6
Thailand	1.1	394	348	c	-2	17.4
Philippines	1.0	344	c	261	**-64**	11.9
Turkey	0.9	467	474	c	**-27**	25.1
Morocco	0.8	361	c	c	**-55**	7.6
Romania	0.8	431	c	c	c	m
Chinese Taipei	0.7	504	c	c	-82	17.3
Poland	0.6	514	c	c	c	m
Japan	0.6	w	w	w	w	w
Albania	0.6	407	c	c	**-68**	3.0
Brazil	0.6	418	332	c	**-74**	4.6
Colombia	0.6	414	c	c	**-46**	13.5
Peru	0.5	403	c	c	c	m
Indonesia	0.3	373	c	c	**-89**	0.6
Korea	0.2	515	c	c	c	m
B-S-J-Z (China)	0.2	556	c	c	c	m
Spain	12.2	m	m	m	m	m

1. Immigrant students who scored in the top quarter of performance in reading amongst students in their own country.
Notes: Values that are statistically significant are marked in bold (see Annex A3).
Results based on reading performance are reported as missing for Spain (see Annex A9 from PISA 2018 Results (Volume I): *What Students Know and Can Do*). The OECD average does not include Spain in these cases.
Countries and economies are ranked in descending order of the percentage of immigrant students.
Source: OECD, PISA 2018 Database, Tables II.B1.9.1 and II.B1.9.3.
StatLink https://doi.org/10.1787/888934037051

Table II.4 [1/2] **Snapshot of enrolment and resources allocated to schools**

Shading	Meaning
Blue	Countries/economies with segregation across schools below the OECD average or resources allocated above the OECD average
Grey	Countries/economies with segregation across schools or resources allocated to schools not significantly different from the OECD average
White	Countries/economies with segregation across schools above the OECD average or resources allocated below the OECD average

	Index of social inclusion[1]	Isolation[2] of disadvantaged students[3] from high-achieving students[4] in reading	Segregation of immigrant students (isolation index)[2]	Proportion of students in schools whose teachers hold at least a master's degree			Proportion of students in schools whose principal reported a lack in educational material		
				Advantaged students	Disadvantaged students	Difference between advantaged and disadvantaged students	Advantaged students	Disadvantaged students	Difference between advantaged and disadvantaged students
	%	Mean index	Mean index	%	%	% dif.	%	%	% dif.
OECD average	76.1	0.67	0.45	47.8	40.1	7.7	20.6	34.0	**-13.5**
Norway	91.4	0.56	0.36	m	m	m	16.7	24.0	-7.3
Kosovo	88.4	0.59	0.66	36.6	52.5	**-15.9**	75.3	94.1	**-18.8**
Finland	87.5	0.56	0.49	84.5	92.4	-7.9	20.6	19.2	1.4
Iceland	87.3	0.59	0.40	15.5	19.4	**-4.0**	10.9	21.6	**-10.7**
Montenegro	85.7	0.65	0.31	12.1	3.8	8.3	43.7	31.7	**12.0**
Sweden	85.6	0.60	0.39	49.9	30.7	19.2	5.8	11.6	-5.8
Denmark	85.6	0.59	0.49	5.8	2.7	3.1	2.7	13.9	**-11.2**
Cyprus	84.9	0.61	0.34	54.2	45.0	**9.1**	0.0	53.4	**-53.4**
Canada	84.9	0.58	0.38	19.7	18.9	0.8	3.1	21.1	**-18.1**
Bosnia and Herzegovina	83.8	0.64	0.47	15.4	4.7	**10.7**	47.4	66.8	-19.3
Ireland	83.0	0.60	0.26	31.1	29.8	1.3	15.3	40.9	**-25.6**
New Zealand	82.4	0.62	0.32	15.4	17.4	-2.0	4.4	16.7	-12.4
Switzerland	82.3	0.70	0.24	78.2	63.9	14.3	14.2	21.0	-6.9
Malta	81.9	0.61	0.47	20.1	20.9	-0.8	0.7	40.6	**-39.9**
Croatia	81.5	0.66	0.32	93.5	85.0	**8.5**	52.8	56.2	-3.4
Baku (Azerbaijan)	80.9	0.58	0.37	39.4	43.6	-4.3	15.1	17.8	-2.7
Georgia	80.7	0.67	0.77	58.7	65.2	-6.4	32.6	47.8	-15.2
Russia	80.6	0.66	0.41	58.1	40.2	17.9	26.2	55.0	**-28.9**
North Macedonia	80.2	0.67	0.50	6.2	4.8	1.4	48.8	81.9	**-33.2**
Chinese Taipei	80.0	0.68	0.83	56.9	51.5	5.4	5.5	15.7	-10.3
Estonia	79.5	0.60	0.48	84.0	78.1	5.9	19.8	39.3	**-19.5**
Korea	78.9	0.66	0.00	44.1	35.4	8.6	41.8	53.7	-11.9
Kazakhstan	78.7	0.64	0.48	46.1	32.7	13.4	35.2	57.4	**-22.2**
Brunei Darussalam	78.4	0.70	0.52	41.0	18.4	22.5	37.8	44.0	**-6.1**
Poland	78.3	0.64	0.00	98.3	95.4	2.9	18.0	27.2	-9.2
Greece	78.2	0.66	0.33	38.3	19.1	**19.2**	46.3	62.6	-16.3
Netherlands	78.2	0.72	0.44	41.9	14.6	**27.3**	20.9	7.1	13.8
Italy	78.1	0.72	0.41	63.5	72.3	-8.9	15.2	40.8	**-25.7**
Qatar	77.5	0.69	0.22	39.4	19.0	20.3	5.3	0.0	**5.3**
Latvia	77.1	0.67	0.61	56.3	46.6	**9.7**	15.1	22.8	-7.7
Japan	76.8	0.72	w	m	m	m	42.2	67.4	**-25.2**
France	76.8	0.67	0.43	44.7	42.4	2.3	11.0	16.3	-5.3
Portugal	76.7	0.60	0.48	19.3	16.7	2.6	34.8	39.7	-4.9
United Kingdom	76.6	0.62	0.45	27.0	13.5	**13.5**	18.5	26.3	-7.8
Serbia	76.6	0.70	0.32	44.7	26.0	18.6	40.0	68.3	**-28.3**
Belgium	76.1	0.72	0.42	52.1	31.6	**20.5**	18.0	36.7	**-18.7**
Spain	75.8	m	0.38	36.9	40.6	-3.7	22.6	53.0	**-30.4**
Australia	75.6	0.63	0.34	24.3	12.6	**11.7**	1.3	20.9	**-19.6**

1. The index of social inclusion is calculated as 100*(1-rho), where rho stands for the intra-class correlation of socio-economic status. The intra-class correlation, in turn, is the variation in student socio-economic status between schools, divided by the sum of the variation in student socio-economic status between schools and the variation in student socio-economic status within schools, and multiplied by 100.

2. The isolation index measures whether students of type (a) are more concentrated in some schools. The index is related to the likelihood of a representative type (a) student to be enrolled in schools that enrol students of another type. It ranges from 0 to 1, with 0 corresponding to no segregation and 1 to full segregation.

3. A socio-economically disadvantaged student is a student in the bottom quarter of the PISA index of economic, social and cultural status (ESCS) in his or her own country/economy.

4. High-achieving students are students who score amongst the top 25% of students, within their country or economy, on the PISA test.

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

Results based on reading performance are reported as missing for Spain (see Annex A9 from PISA 2018 Results (Volume I): *What Students Know and Can Do*).
The OECD average does not include Spain in these cases.

Countries and economies are ranked in descending order of the index of social inclusion.

Source: OECD, PISA 2018 Database, Tables II.B1.4.6, II.B1.4.8, II.B1.5.4, II.B1.5.15 and II.B1.9.11.

StatLink https://doi.org/10.1787/888934037070

Table II.4 [2/2] **Snapshot of enrolment and resources allocated to schools**

Legend	
(blue)	Countries/economies with segregation across schools below the OECD average or resources allocated above the OECD average
(grey)	Countries/economies with segregation across schools or resources allocated to schools not significantly different from the OECD average
(white)	Countries/economies with segregation across schools above the OECD average or resources allocated below the OECD average

	Index of social inclusion[1]	Isolation[2] of disadvantaged students[3] from high-achieving students[4] in reading	Segregation of immigrant students (isolation index)[2]	Proportion of students in schools whose teachers hold at least a master's degree			Proportion of students in schools whose principal reported a lack in educational material		
				Advantaged students	Disadvantaged students	Difference between advantaged and disadvantaged students	Advantaged students	Disadvantaged students	Difference between advantaged and disadvantaged students
	%	Mean index	Mean index	%	%	% dif.	%	%	% dif.
Slovenia	75.5	0.73	0.43	13.2	7.2	**6.0**	12.3	41.0	**-28.6**
Ukraine	75.2	0.68	0.56	73.7	68.8	5.0	73.4	80.8	-7.4
Saudi Arabia	75.1	0.65	0.52	4.5	3.1	1.4	25.6	50.5	**-24.9**
Singapore	74.9	0.70	0.23	37.1	17.6	**19.5**	0.0	0.0	0.0
Lithuania	74.6	0.71	0.79	53.8	37.4	**16.4**	31.9	21.9	**10.0**
United States	74.2	0.64	0.43	67.5	43.1	**24.4**	13.1	17.6	-4.4
Dominican Republic	74.1	0.69	0.61	15.5	5.5	10.0	19.8	69.7	**-49.9**
Germany	74.0	0.72	0.33	91.3	80.7	10.6	37.5	42.9	-5.4
Belarus	73.4	0.71	0.42	2.3	2.2	0.1	25.6	49.0	**-23.4**
Jordan	73.0	0.62	0.38	11.7	10.0	1.8	34.5	62.1	**-27.6**
Czech Republic	72.3	0.76	0.54	98.3	80.9	**17.4**	25.0	37.9	-12.9
Luxembourg	72.2	0.74	0.15	85.0	74.6	10.4	0.0	0.0	0.0
Moldova	72.1	0.70	0.73	30.4	10.2	**20.2**	58.9	65.3	-6.4
Israel	71.6	0.75	0.39	32.4	36.5	-4.1	31.8	37.2	-5.4
Macao (China)	71.3	0.56	0.10	m	m	m	16.2	10.6	**5.6**
Romania	70.5	0.75	0.00	69.1	40.8	28.4	22.6	51.6	**-29.0**
Albania	70.0	0.68	0.88	56.8	57.0	-0.2	40.7	70.7	**-30.0**
United Arab Emirates	69.4	0.78	0.30	26.4	34.8	-8.4	4.5	30.6	**-26.1**
Malaysia	69.0	0.69	0.72	10.0	5.4	**4.6**	13.5	27.8	-14.3
Lebanon	67.8	0.73	0.50	24.8	20.9	3.9	5.2	39.8	**-34.6**
Hong Kong (China)	67.4	0.67	0.18	56.9	44.7	**12.1**	6.5	24.1	-17.6
Turkey	67.2	0.69	0.77	11.1	18.9	-7.9	2.7	27.0	**-24.3**
Philippines	66.8	0.72	0.70	24.1	14.2	10.0	15.9	70.0	**-54.1**
Morocco	66.0	0.70	0.76	8.4	9.6	-1.2	54.3	75.1	-20.9
Uruguay	64.2	0.73	0.75	2.9	0.8	**2.1**	14.5	35.8	**-21.3**
Argentina	63.7	0.77	0.59	39.5	24.5	15.0	23.0	58.2	**-35.2**
Hungary	63.6	0.80	0.53	89.2	58.9	**30.2**	45.8	52.6	-6.8
B-S-J-Z (China)	63.2	0.72	0.00	17.8	3.5	**14.3**	12.5	32.4	**-19.9**
Costa Rica	63.1	0.73	0.42	26.1	27.9	-1.8	51.1	56.7	-5.6
Slovak Republic	63.0	0.76	0.83	98.0	91.4	**6.6**	49.8	63.2	-13.4
Bulgaria	62.9	0.82	0.79	88.3	81.8	6.4	17.2	29.5	-12.3
Indonesia	62.3	0.70	0.95	13.7	5.5	**8.2**	36.9	69.4	**-32.5**
Thailand	62.1	0.73	0.88	27.8	34.5	-6.7	23.9	84.3	**-60.4**
Mexico	61.7	0.70	0.81	28.9	21.8	7.1	24.7	69.2	**-44.5**
Panama	61.0	0.73	0.57	13.2	17.5	-4.3	26.6	71.3	**-44.7**
Brazil	60.8	0.69	0.92	16.5	4.6	**11.9**	6.2	52.0	**-45.8**
Colombia	59.5	0.74	0.85	12.5	9.8	2.7	29.0	85.2	**-56.2**
Chile	56.3	0.74	0.60	14.5	8.2	**6.2**	18.0	25.6	-7.6
Peru	48.8	0.82	0.00	12.4	9.5	2.9	19.6	74.6	**-55.0**

1. The index of social inclusion is calculated as 100*(1-rho), where rho stands for the intra-class correlation of socio-economic status. The intra-class correlation, in turn, is the variation in student socio-economic status between schools, divided by the sum of the variation in student socio-economic status between schools and the variation in student socio-economic status within schools, and multiplied by 100.

2. The isolation index measures whether students of type (a) are more concentrated in some schools. The index is related to the likelihood of a representative type (a) student to be enrolled in schools that enrol students of another type. It ranges from 0 to 1, with 0 corresponding to no segregation and 1 to full segregation.

3. A socio-economically disadvantaged student is a student in the bottom quarter of the PISA index of economic, social and cultural status (ESCS) in his or her own country/economy.

4. High-achieving students are students who score amongst the top 25% of students, within their country or economy, on the PISA test.

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

Results based on reading performance are reported as missing for Spain (see Annex A9 from PISA 2018 Results (Volume I): *What Students Know and Can Do*). The OECD average does not include Spain in these cases.

Countries and economies are ranked in descending order of the index of social inclusion.

Source: OECD, PISA 2018 Database, Tables II.B1.4.6, II.B1.4.8, II.B1.5.4, II.B1.5.15 and II.B1.9.11.

StatLink https://doi.org/10.1787/888934037070

Table II.5 [1/2] Snapshot of gender gaps in performance

Countries/economies with a mean score above the OECD average
Countries/economies with a mean score not significantly different from the OECD average
Countries/economies with a mean score below the OECD average

	Reading performance			Mathematics performance			Science performance		
	Boys	Girls	Difference between girls and boys	Boys	Girls	Difference between girls and boys	Boys	Girls	Difference between girls and boys
	Mean score	Mean score	Score dif.	Mean score	Mean score	Score dif.	Mean score	Mean score	Score dif.
OECD average	472	502	**30**	492	487	**-5**	488	490	**2**
Colombia	407	417	**10**	401	381	**-20**	420	407	**-12**
Peru	395	406	**11**	408	392	**-16**	411	397	**-13**
Mexico	415	426	**11**	415	403	**-12**	424	415	**-9**
B-S-J-Z (China)	549	562	**13**	597	586	**-11**	596	584	**-12**
Panama	370	384	**14**	357	349	**-8**	365	364	0
Costa Rica	419	434	**14**	411	394	**-18**	420	411	**-9**
Argentina	393	409	**16**	387	372	**-15**	409	399	**-10**
Chile	442	462	**20**	421	414	**-7**	445	442	-3
United Kingdom	494	514	**20**	508	496	**-12**	506	503	-2
Japan	493	514	**20**	532	522	**-10**	531	528	-3
Belgium	482	504	**22**	514	502	**-12**	501	496	-5
Chinese Taipei	492	514	**22**	533	529	-4	516	515	-1
Macao (China)	514	536	**22**	560	556	-4	543	545	2
Belarus	463	486	**23**	475	469	-6	473	470	-3
Uruguay	415	438	**23**	422	414	**-8**	428	424	-3
Singapore	538	561	**23**	571	567	-4	553	549	-4
Ireland	506	530	**23**	503	497	-6	495	497	1
United States	494	517	**24**	482	474	**-9**	503	502	-1
Korea	503	526	**24**	528	524	-4	521	517	-4
Portugal	480	504	**24**	497	488	**-9**	494	489	-5
Italy	464	489	**25**	494	479	**-16**	470	466	-3
France	480	505	**25**	499	492	**-6**	493	493	1
Kosovo	340	366	**25**	368	364	-4	362	368	**6**
Russia	466	491	**25**	490	485	**-5**	477	478	1
Turkey	453	478	**25**	456	451	-5	465	472	**7**
Indonesia	358	383	**25**	374	383	**10**	393	399	**7**
Baku (Azerbaijan)	377	403	**26**	423	416	**-8**	395	400	**5**
Brazil	400	426	**26**	388	379	**-9**	403	404	2
Germany	486	512	**26**	503	496	**-7**	502	504	1
Morocco	347	373	**26**	368	367	-1	372	381	**9**
Malaysia	402	428	**26**	437	443	**7**	434	441	**6**
Hungary	463	489	**26**	486	477	**-9**	484	478	-6
Kazakhstan	374	401	**27**	424	422	-1	394	401	**7**
Philippines	325	352	**27**	346	358	**12**	355	359	3
Lebanon	338	366	**28**	394	393	0	381	386	5
Austria	471	499	**28**	505	492	**-13**	491	489	-2
New Zealand	491	520	**29**	499	490	**-9**	509	508	-2
Netherlands	470	499	**29**	520	519	-1	499	508	**8**

Notes: Values that are statistically significant are marked in bold (see Annex A3).
Results based on reading performance are reported as missing for Spain (see Annex A9 from Volume I). The OECD average does not include Spain in these cases.
Countries and economies are ranked in ascending order of the gender gap in reading performance.
Source: OECD, PISA 2018 Database, Tables II.B1.7.1, II.B1.7.3 and II.B1.7.5.
StatLink https://doi.org/10.1787/888934037089

Table II.5 [2/2] Snapshot of gender gaps in performance

Countries/economies with a mean score above the OECD average
Countries/economies with a mean score not significantly different from the OECD average
Countries/economies with a mean score below the OECD average

	Reading performance			Mathematics performance			Science performance		
	Boys	Girls	Difference between girls and boys	Boys	Girls	Difference between girls and boys	Boys	Girls	Difference between girls and boys
	Mean score	Mean score	Score dif.	Mean score	Mean score	Score dif.	Mean score	Mean score	Score dif.
Canada	506	535	**29**	514	510	**-5**	516	520	3
Luxembourg	456	485	**29**	487	480	**-7**	475	479	**5**
Denmark	486	516	**29**	511	507	-4	492	494	2
Bosnia and Herzegovina	389	418	**30**	408	405	-3	398	399	1
Brunei Darussalam	393	423	**30**	426	434	**8**	427	435	**7**
Montenegro	407	437	**30**	434	425	**-8**	413	418	5
Switzerland	469	500	**31**	519	512	**-7**	495	495	0
Estonia	508	538	**31**	528	519	**-8**	528	533	**5**
Dominican Republic	326	357	**31**	324	327	3	331	340	**10**
Australia	487	519	**31**	494	488	**-6**	504	502	-2
Poland	495	528	**33**	516	515	-1	511	511	0
Latvia	462	495	**33**	500	493	**-7**	483	491	**8**
Croatia	462	495	**33**	469	460	**-9**	470	474	4
Czech Republic	474	507	**33**	501	498	-4	496	498	2
Ukraine	450	484	**33**	456	449	-7	470	468	-2
Romania	411	445	**34**	432	427	-5	425	426	1
Sweden	489	523	**34**	502	503	1	496	503	**8**
Slovak Republic	441	475	**34**	488	484	-5	461	467	6
Hong Kong (China)	507	542	**35**	548	554	6	512	521	**9**
Serbia	422	458	**36**	450	447	-3	437	442	5
Albania	387	425	**38**	435	440	5	409	425	**16**
Georgia	362	399	**38**	396	400	4	376	390	**14**
Lithuania	457	496	**39**	480	482	2	479	485	**6**
Thailand	372	411	**39**	410	426	**16**	415	435	**20**
Moldova	404	445	**40**	420	422	2	423	434	**11**
Bulgaria	401	441	**40**	435	437	2	417	432	**15**
Iceland	454	494	**41**	490	500	**10**	471	479	**8**
Slovenia	475	517	**42**	509	509	-1	502	512	**10**
Greece	437	479	**42**	452	451	0	446	457	**11**
Norway	476	523	**47**	497	505	**7**	485	496	**11**
Cyprus	401	448	**47**	447	455	**8**	429	450	**21**
Israel	445	493	**48**	458	467	9	452	471	**19**
Malta	425	474	**49**	466	478	**13**	447	468	**21**
Jordan	393	444	**51**	397	403	6	414	444	**29**
Finland	495	546	**52**	504	510	**6**	510	534	**24**
North Macedonia	368	420	**52**	391	398	**7**	404	423	**19**
Saudi Arabia	373	427	**54**	367	380	**13**	372	401	**29**
United Arab Emirates	403	460	**57**	430	439	**9**	420	447	**26**
Qatar	375	440	**65**	402	426	**24**	400	439	**39**
Spain	m	m	m	485	478	**-6**	484	482	-2

Notes: Values that are statistically significant are marked in bold (see Annex A3).
Results based on reading performance are reported as missing for Spain (see Annex A9 from Volume I). The OECD average does not include Spain in these cases.
Countries and economies are ranked in ascending order of the gender gap in reading performance.
Source: OECD, PISA 2018 Database, Tables II.B1.7.1, II.B1.7.3 and II.B1.7.5.
StatLink https://doi.org/10.1787/888934037089

Equity in education

Around **1/10** **disadvantaged students scored in the top quarter** of reading performance in their country

&

Around **2/10** **immigrant students scored in the top quarter** of reading performance in their country

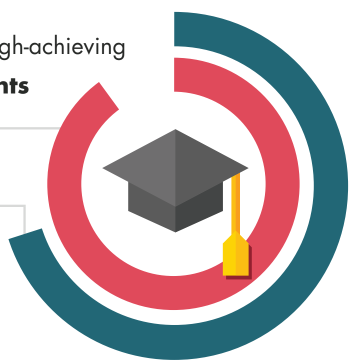
In 23 countries more than **1 in 3** **disadvantaged boys did not attain a minimum level of proficiency in reading**

The following number of high-achieving students reported that they expect to **complete higher education**

9 in 10 high-achieving **advantaged students**

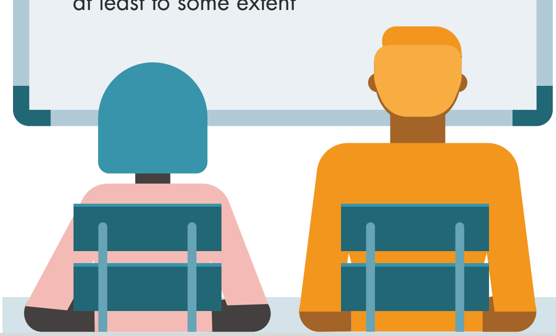
compared to only

7 in 10 high-achieving **disadvantaged students**



Disadvantaged students have only a **1 in 6** chance to be **enrolled in a school with high-achieving students**

Students in disadvantaged schools were **twice as likely** as students in advantaged schools to attend a school where **a lack of teaching staff hinders instruction** at least to some extent



In 11 countries and economies

average reading performance was higher than the OECD average

while the **relationship between socio-economic status and performance was weaker** than the OECD average

PISA

Reader's Guide

Data underlying the figures

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

Five symbols are used to denote missing data:

a The category does not apply in the country or 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 or 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 or 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 79 countries and economies, including all OECD Member countries and more than 40 non-OECD Member countries and economies (see map of PISA countries and economies in "What is PISA?").

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Notes on Cyprus:

- **Note by Turkey:** The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".
- **Note by all the European Union Member States of the OECD and the European Union:** The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

B-S-J-Z (China) refers to the four PISA-participating provinces/municipalities of the People's Republic of China (hereafter "China"): Beijing, Shanghai, Jiangsu and Zhejiang.

Data for Viet Nam are included in most tables in Annex B, but not included in tables, figures and texts that report comparisons of performance with other countries and economies or over time, because full international comparability of results could not be assured at the time this report was published (see Annexes A4 and A6 from Volume I).

International averages

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

The OECD total takes the OECD Member countries as a single entity, to which each country contributes in proportion to the number of 15-year-olds enrolled in its schools. It can be used to assess how an OECD Member country compares with the OECD area as a whole.

On 25 May 2018, the OECD Council invited Colombia to become a Member. While Colombia is included in the OECD averages reported in this publication, at the time of its preparation, Colombia was in the process of completing its domestic procedures for ratification and the deposit of Colombia's instrument of accession to the OECD Convention was pending.

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

In analyses involving data from multiple years, the OECD average is always reported on consistent sets of OECD Member countries, and several averages may be reported in the same table. For instance, the "OECD average-37" refers to the average across all 36 OECD Member countries (and Colombia), and is reported as missing if fewer than 36 OECD Member countries (and Colombia) have comparable data; the "OECD average-30" includes only 30 OECD Member countries that have non-missing values across all the assessments for which this average itself is non-missing. This restriction allows for valid comparisons of the OECD average over time.

The number in the label used in figures and tables indicates the number of countries included in the average:

- **OECD average-37**: Arithmetic mean across all OECD Member countries (and Colombia).
- **OECD average-36a**: Arithmetic mean across all OECD Member countries (and Colombia), excluding Spain.
- **OECD average-36b**: Arithmetic mean across all OECD Member countries (and Colombia), excluding Austria.
- **OECD average-35a**: Arithmetic mean across all OECD Member countries (and Colombia), excluding Austria and Spain.
- **OECD average-35b**: Arithmetic mean across all OECD Member countries (and Colombia), excluding 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
ICT	Information and communications technology
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
PPP	Purchasing power parity
Score dif.	Score-point difference
S.D.	Standard deviation
S.E.	Standard error
STEM	Science, technology, engineering and mathematics
% dif.	Percentage-point difference

Further documentation

For further information on the PISA assessment instruments and the methods used in PISA, see the *PISA 2018 Technical Report* (OECD, forthcoming[1]).

StatLink

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

Reference

OECD (forthcoming), *PISA 2018 Technical Report,* OECD Publishing, Paris. [1]

What is PISA?

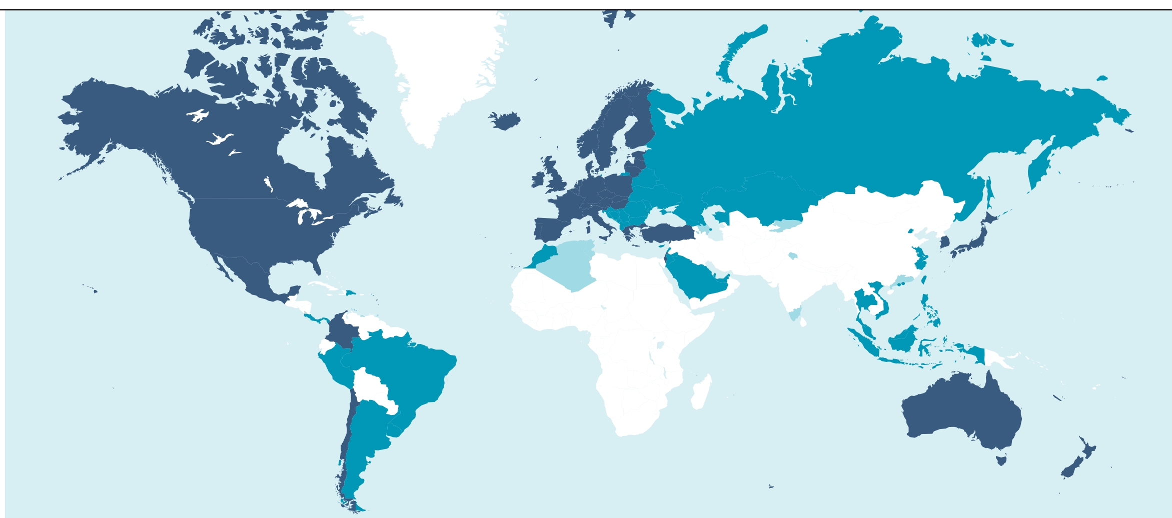
PISA is a triennial survey of 15-year-old students around the world that assesses the extent to which they have acquired key knowledge and skills essential for full participation in social and economic life. PISA assessments do not just ascertain whether students near the end of their compulsory education 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.

WHAT IS UNIQUE ABOUT PISA?

PISA is unique because of its:

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

Map of PISA countries and economies



OECD member countries

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

Partner countries and economies in PISA 2018

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

Partner countries and economies in previous cycles

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

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

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

WHICH COUNTRIES AND ECONOMIES PARTICIPATE IN PISA?

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

WHAT DOES THE TEST MEASURE?

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

The *PISA 2018 Assessment and Analytical Framework* (OECD, 2019$_{[11]}$) presents definitions and more detailed descriptions of the subjects assessed in PISA 2018:

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

Box A **Key features of PISA 2018**

The content

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

The students

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

The assessment

- Computer-based tests were used in most countries, with assessments lasting a total of two hours. In reading, a multi-stage adaptive approach was applied in computer-based tests whereby students were assigned a block of test items based on their performance in preceding blocks.
- Test items were a mixture of multiple-choice questions and questions requiring students to construct their own responses. The items were organised into groups based on a passage of text describing a real-life situation. More than 15 hours of test items for reading, mathematics, science and global competence were covered, with different students taking different combinations of test items.
- Students also answered a background questionnaire, which took about 35 minutes to complete. The questionnaire sought information about the students themselves, their attitudes, dispositions and beliefs, their homes, and their school and learning experiences. School principals completed a questionnaire that covered school management and organisation, and the learning environment.
- Some countries/economies also distributed additional questionnaires to elicit more information. These included: in 19 countries/economies, a questionnaire for teachers asking about themselves and their teaching practices; and in 17 countries/economies, a questionnaire for parents asking them to provide information about their perceptions of and involvement in their child's school and learning.
- Countries/economies could also choose to distribute three other optional questionnaires for students: 52 countries/economies distributed a questionnaire about students' familiarity with computers; 32 countries/economies distributed a questionnaire about students' expectations for further education; and 9 countries/economies distributed a questionnaire, developed for PISA 2018, about students' well-being.

HOW IS THE ASSESSMENT CONDUCTED?

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

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

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

The assessment of financial literacy was offered as an option in PISA 2018. It was based on the same framework as that developed for PISA 2012, which was also used in PISA 2015. The financial literacy assessment lasted one hour (in addition to the regular PISA assessment) and comprised two clusters distributed to a subsample of students in combination with the reading and mathematics assessments.

To gather contextual information, PISA 2018 asked students and the principal of their school to respond to questionnaires. The student questionnaire took about 35 minutes to complete; the questionnaire for principals took about 45 minutes to complete. The responses to the questionnaires were analysed with the assessment results to provide both a broader and more nuanced picture of student, school and system performance. The *PISA 2018 Assessment and Analytical Framework* (OECD, 2019[1]) describes the genesis of the questionnaires in detail. The questionnaires from all assessments since PISA's inception are available on the PISA website: www.oecd.org/pisa.

The questionnaires seek information about:

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

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

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

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

WHO ARE THE PISA STUDENTS?

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

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

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

WHERE CAN YOU FIND THE RESULTS?

The initial PISA 2018 results are released in six volumes:

- ***Volume I: What Students Know and Can Do*** (OECD, 2019[2]) provides a detailed examination of student performance in reading, mathematics and science, and describes how performance has changed over time.
- ***Volume II: Where All Students Can Succeed*** (OECD, 2019[3]) examines gender differences in student performance, the link between students' socio-economic status and immigrant background, on the one hand, and their performance and other outcomes, on the other, and the relationship between all of these variables and students' well-being. Trends in these indicators over time are examined when comparable data are available.
- ***Volume III: What School Life Means for Students' Lives*** (OECD, 2019[4]) focuses on the physical and emotional health of students, the role of teachers and parents in shaping the school climate, and the social life at school. The volume also examines indicators of student well-being, and how these are related to school climate.
- ***Volume IV: Are Students Smart about Money?*** (OECD, forthcoming[5]) examines 15-year-old students' understanding about money matters in the 21 countries and economies that participated in this optional assessment. The volume explores how the financial literacy of 15-year-old students is associated with their competencies in reading and mathematics, with their socio-economic status, and with their previous experiences with money. It also offers an overview of financial education in schools in the participating countries and economies, and provides case studies.
- ***Volume V: Effective Policies, Successful Schools*** (OECD, forthcoming[6]) analyses schools and school systems and their relationship with education outcomes more generally. The volume covers school governance, selecting and grouping students, and the human, financial, educational and time resources allocated to teaching and learning. Trends in these indicators are examined when comparable data are available.
- ***Volume VI: Are Students Ready to Thrive in Global Societies?*** (OECD, forthcoming[7]) examines students' ability to consider local, global and intercultural issues, understand and appreciate different perspectives and world views, interact respectfully with others, and take responsible action towards sustainability and collective well-being. It does so through both an assessment completed by students and questionnaires completed by students and school principals.

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

The frameworks for assessing reading, mathematics, science, financial literacy and global competence in 2018 are described in the *PISA 2018 Assessment and Analytical Framework* (OECD, 2019[1]). The framework for reading is also summarised in Volume I.

Technical annexes at the end of this volume describe how questionnaire indices were constructed and discuss sampling issues, quality-assurance procedures and the process followed for developing the assessment instruments. Many of the issues covered in the technical annexes are elaborated in greater detail in the *PISA 2018 Technical Report* (OECD, forthcoming[8]).

A selection of key tables referred to in the analyses are included at the end of the respective volume in Annex B1, and a set of additional data tables is available on line (www.oecd.org/pisa). A Reader's Guide is also provided in each volume to aid in interpreting the tables and figures that accompany the report. Data from regions within the participating countries are included in Annex B2.

PISA

1

How PISA examines equity in education: Inclusion and fairness

This chapter discusses how PISA defines and measures equity in education through two related principles: inclusion and fairness. Inclusion means ensuring that all students acquire essential foundation skills. Fairness relates to students' access to a quality education and, more specifically, to the degree to which background circumstances influence students' education outcomes. The chapter specifies the types of students who are most at risk when education systems do not give all students the same chances to succeed, and discusses how school systems can provide equal opportunities to all students.

Equity in education is a central and long-standing focus of PISA and a major concern of countries around the world. The United Nations Sustainable Development Goals (SDGs) advocate for "ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all" (United Nations, 2015). The principle that every person has a fair chance to improve his or her life, whatever his or her personal circumstances, lies at the heart of democratic political and economic institutions. Ensuring that all students have access to the best education opportunities is also a way of using resources effectively, and of improving education and social outcomes in general.

SHAPING A SUSTAINABLE FUTURE AND A BETTER WORLD

By measuring the skills of 15-year-old students over a range of subjects, PISA provides an indication of how well a country is preparing for its future. Education systems should equip young people with the knowledge and tools needed to address the many challenges facing our modern societies: fast-changing labour markets, ongoing digitalisation of economies and societies, social mobility, growing inequality within countries, large international migration flows, and climate change.

Equity in education is key to achieving sustainable and inclusive growth. Analysis shows that school policies that aim to ensure that all students attain at least a minimum level of proficiency in the core subjects assessed by PISA (i.e. reading, mathematics and science), and not only universal enrolment, may have a significant and long-lasting impact on a country's economic development (OECD, 2015[1]). Given that many predictions warn of a shortage in the supply of skills needed in a more automated world, education systems can respond by preparing all young people for lifelong learning, as the risk of skills mismatch may jeopardise economic growth (OECD, 2019[2]). When only a few individuals at the top benefit from the best learning opportunities, the labour force may be deprived of the talent that could fuel economic growth.

Today more than ever it is essential for young people to master a wide range of skills and to have the capacity to update them continuously; these are the keys to a successful career and active engagement in society. To keep pace with technological changes, knowledge-based economies require workers with a high level of digital proficiency, who can handle non-routine tasks, and understand new concepts and ideas. However, too often, children are not given the same opportunities to succeed, to pursue their interests, or to develop their talents and skills. The place where students are born, the language they speak at home or their parents' occupations are often strong predictors of achievement in school. In many places, girls' and boys' aspirations are limited by a lack of role models. These individual circumstances, over which students have no control, too often affect the quality of the schooling provided, the educational path students choose, and even the shape of students' dreams for their future.

Many education systems try to support those children who start school at a disadvantage. However, the ways in which education systems are organised, how students are allocated to schools, the learning environment, and teaching practices are all factors that may reinforce, rather than reduce, the education gap between advantaged and disadvantaged students. Inclusive and equitable school systems should provide equal learning opportunities to all students, disseminate a common knowledge base, promote civic values and help all students realise their potential. Meeting these objectives is essential for ensuring not only social cohesion but also a country's capacity to compete in a global economy.

HOW PISA EXAMINES EQUITY IN EDUCATION

Equity is a complex concept. Consistent with previous PISA reports (OECD, 2016[3]), this volume concentrates on two related principles: inclusion and fairness. Inclusion refers to the objective of ensuring that all students, particularly those from disadvantaged backgrounds or from traditionally marginalised groups, have access to high-quality education and attain a minimum level of skills. Fairness refers to the goal of fully realising every student's potential by removing obstacles over which individual students have no control, such as unequal access to educational resources and school environments.

Equity does not mean that all students achieve the same results, but that every student has acquired the skills he or she needs to participate fully in society, and has been given an equal opportunity to realise his or her potential. Equality of opportunity means that performance should not depend on personal circumstances that stem from the randomness of birth, but to individual effort (Roemer and Trannoy, 2016[4]).

A large body of evidence shows that, in many places, socio-economic status (OECD, 2018[5]), gender (OECD, 2015[6]) and immigrant background are strong predictors of academic achievement and education outcomes. These individual circumstances may contribute to shaping students' aspirations, motivation and attitudes, with consequences for their cognitive outcomes. Some children, from birth, benefit from cultural and financial resources at home that will underpin future achievement, notably at school. Equitable school systems are those that are able to weaken the link between individual circumstances and education outcomes. While some degree of variation in education outcomes is to be expected in any school system, equity means that whatever variations there may be in education outcomes, they are not related to students' background, including socio-economic status, gender or immigrant background. Furthermore, equity does not imply that every student is exposed to a "one-size-fits-all" approach to teaching and learning. Rather, it corresponds to the objective of creating the conditions that minimise any adverse impact of a student's background on his or her performance so that all students are given the opportunity to reach or maximise their own potential. This involves allocating resources to meet students' specific needs.

Equity in PISA is measured by whether education outcomes, such as access to schooling, student performance, students' attitudes and beliefs, and students' expectations for their future, are related to a student's personal background. The weaker the relationship, the more a school system is able to compensate for unfavourable learning environments outside of school, and thus may be considered to be more equitable.

EDUCATION OUTCOMES

This volume examines the following four aspects of education outcomes: access to schooling, student performance, students' attitudes and beliefs, and students' expectations for their future.

School enrolment rates

Access to schooling can be seen as a precondition for children to benefit from education. Access is mainly reflected in school enrolment rates. More equitable and inclusive systems succeed in minimising the share of the school-age children who have dropped out early or are significantly delayed in their progression through school. While PISA is not designed to estimate enrolment rates *per se*, it provides a range of indices that measure its coverage of the population of 15-year-olds enrolled in grade 7 or above in each country and economy (also known as the "target population"). PISA relies on an age-based definition of its target population to overcome comparability problems that arise from differences in the structures of national education systems. To be eligible to participate in PISA, students must be between 15 years and 3 months and 16 years and 2 months of age at the beginning of the assessment period, and enrolled in an educational institution in grade 7 or higher (see *PISA 2018 Results [Volume I]: What Students Know and Can Do* (OECD, 2019[7]), for a detailed description). Specifically, Coverage Index 3 in PISA reflects the proportion of the national population of 15-year-olds (enrolled and not enrolled in school) who are represented by the PISA sample. Low values of Coverage Index 3 may be attributed to 15-year-olds who were no longer enrolled in school or who had been held back in primary school. *PISA 2018 Results (Volume I): What Students Know and Can Do* (OECD, 2019[7]) provides some details on this issue, while Chapter 2 of this volume summarises the main results.

Student performance

Variations in performance related to students' individual characteristics provide a measure of equity in education. Equity in education should not come at the expense of excellence; no one should be satisfied with a school system where everyone, whatever their personal background, performs equally but poorly. PISA consistently finds that high performance and equity in education are not mutually exclusive (OECD, 2016[8]): some school systems have been able to weaken the relationship between individual circumstances and student performance while maintaining ambitious standards for school achievement. Recent evidence suggests that school systems that show the greatest improvements in average performance are those that are also able to reduce inequalities in performance (Parker et al., 2018[9]). Excellence in education may be achieved by providing an opportunity for all students to attain high levels of performance, rather than by selecting the most promising students while leaving the weakest behind.

Previous evidence has shown that some students can break the cycle of disadvantage, beat the odds against them and achieve better performance in PISA than would have been expected given their socio-economic status (OECD, 2018[5]). In this volume, resilient students are defined as those who are socio-economically disadvantaged, or from an immigrant background, and who score amongst the highest performers in PISA in their own country/economy.

Students' attitudes and beliefs

Schools are not only places where students acquire academic skills; they are also where children develop many of the social and emotional skills they need to thrive. Schools that nurture children's development in these ways help students attain a sense of control over – and satisfaction with – their lives. Schools can help students become more resilient in the face of adversity, feel more connected with the people around them, and aim higher in their aspirations for their future. In other words, what happens in school is crucial for students' well-being. PISA helps document many factors related to the well-being of students, notably students' satisfaction with lives, their motivation to achieve, how they perceive themselves, their relationships with peers, teachers and parents, and how they spend their time outside of school (OECD, 2017[10]).

Previous evidence from PISA suggests that disadvantaged students and immigrant students are more likely to have poorer socio-emotional outcomes (OECD, 2018[11]). This volume describes those school systems that provide sufficient support to all students so that they are resilient in the face of adversity, they feel satisfied with their lives, they feel they belong at school, and they do not lack confidence when they face challenging tests and tasks. In addition, as attitudes towards learning, motivation to achieve and self-perceived feelings of competence have been shown to be strong predictors of future outcomes, the volume also examines how these dispositions may vary, depending on the circumstances of individual 15-year-old students.

Students' expectations for their future

It is commonplace to say that the education of today will shape the future of our society. But are students prepared for their future? School systems that aim to narrow, rather than reproduce, social inequalities should help students make informed and realistic decisions about their future careers by nurturing their aspirations, goals and expectations, regardless of their background. PISA not only assesses students' proficiency in reading, mathematics and science, but also asks them about their expectations of future education and employment and, in some countries, whether and how they prepare themselves for their future career.

Technological advances and increasing globalisation are changing labour markets around the world. Some jobs are likely to be completely or partially automated in the future, while new occupations will be created. These transformations are, in turn, changing the types of skills demanded of the workforce. This may result in mismatches between the skills demanded by the labour market and the skills available amongst working-age adults. Thus, education needs to ensure that young people have acquired the kinds of fundamental skills and attitudes towards learning – including motivation and self-efficacy – that will enable them to benefit from lifelong learning (OECD, 2017[12]). The ability to acquire new skills throughout a lifetime is not only essential for thriving in constantly changing labour markets, it can help people update their skills, or learn new ones, regardless of their age.

Accurate knowledge about labour market conditions may help students make appropriate choices for future education. But existing evidence suggests that young people often have little understanding of labour market demands (OECD, 2017[13]). While today's teenagers will enter a very different labour market than that in which their parents worked, their career expectations are often informed by and reflect what they observe in their close circle of family and friends (Howard et al., 2011[14]; OECD, 2015[6]). Students whose parents had not participated in higher education often underestimate the net benefits of tertiary education (OECD, 2018[5]). Children from disadvantaged backgrounds, and from first- and second-generation immigrant families are less likely to enrol in higher education (OECD, 2018[15]). While girls are more likely than boys to pursue higher education, the career expectations of 15-year-old girls tend to reflect the gender stereotypes that they have absorbed – and that reinforces gender-related inequalities (OECD, 2015[6]). Education systems should thus provide students with sufficient information to help them get a fuller picture of possible future careers, and the education and skills needed to pursue and succeed in them.

MEDIATING STUDENT BACKGROUND AND EDUCATION OUTCOMES

Several factors may mediate the statistical relationships between personal background circumstances and education outcomes. The equity framework in PISA 2018 focuses on access to educational resources, and on academic and social segregation between schools.

In order to achieve fairness in education, all students should have access to the educational resources they need. Fairness requires that all students, especially disadvantaged students and those with special learning needs, receive sufficient support so that they may have a fair chance to realise their full potential. PISA provides information on how school systems allocate their resources for education and whether that allocation is related to student and school characteristics, such as socio-economic status, immigrant background and school location. School systems may choose to allocate additional resources, such as educational material and staff, to struggling schools; however, quantity may not always compensate for quality. While effective teaching is considered to be one of the most important school-related factors contributing to student performance, of prime importance is not only the number of teachers allocated to the schools that need them most, but also the quality of those teachers (OECD, 2018[16]).

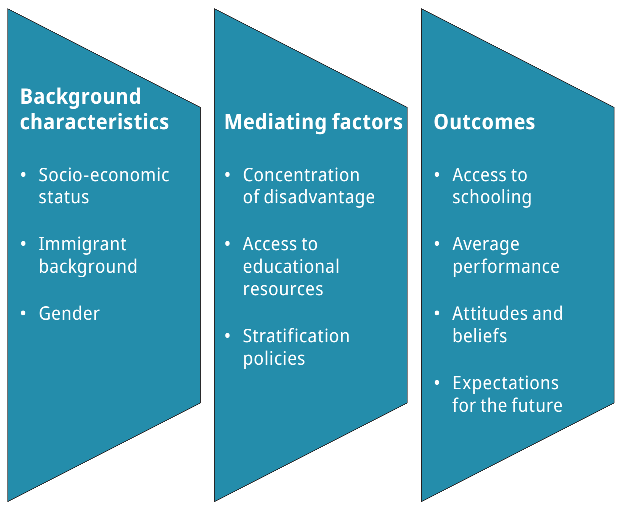
Previous results from PISA suggest that equity in education may be related to whether or not students are tracked into different streams based on their prior performance. Comprehensive education systems, where all students follow a similar path through education, regardless of their academic performance, often perform better and are more equitable than education systems that rely on horizontal stratification (e.g. tracking students based on ability or interests) or on grade repetition (OECD, 2016[17]). The more stratified an education system, the more likely it is that disadvantaged students are placed in the least academically oriented or demanding learning environments if the education system behind early tracking is not well-structured, well-resourced, and does not includes various opportunities along students' path through education to correct some obvious socio-economic imbalances (Iannelli, Smyth and Klein, 2015[18]; Van de Werfhorst and Mijs, 2010[19]; Brunello and Checchi, 2007[20]; van Elk, van der Steeg and Webbink, 2011[21]; Neugebauer and Schindler, 2012[22]; Horn, 2009[23]).

Both academic and social segregation between schools are negatively related to equity in education. PISA results have shown that countries where schools are less socially diverse also have less-equitable education systems (OECD, 2019[24]). Disadvantaged students do not always benefit from the same high levels of parental support as their more advantaged peers, and being enrolled in a school with a high concentration of other disadvantaged students is often an additional barrier to success (OECD, 2018[25]). For instance, some teachers may be dissuaded from applying to work in disadvantaged schools as they anticipate more difficult working conditions. When many students in the same class perform poorly at school, some of their peers may be deprived of the attention they deserve to achieve their potential. School admissions policies and the degree of freedom for parents to choose a school for their child may also affect both the academic and socio-economic diversity of schools (OECD, 2019[24]).

EXAMINING EQUITY IN THIS REPORT

Figure II.1.1 provides a general framework for the analyses discussed in this report. These analyses aim to describe how certain student outcomes, namely performance in PISA, attitudes towards learning, and expectations for future education and careers, are related to several individual characteristics: socio-economic status (Chapters 2 through 6), gender (Chapters 7 and 8), and immigrant background (Chapters 9 and 10). The analyses focus mainly on performance in reading, which was the main subject assessed in PISA 2018 (Chapters 2, 7 and 9). Relative performance amongst boys and girls in mathematics and science, in addition to reading, is examined in Chapter 7. The volume also highlights those socio-economically disadvantaged students (Chapter 3) and students with an immigrant background (Chapter 9) who were able to beat the odds against them and performed at high levels in PISA. In addition to cognitive outcomes, the volume discusses students' attitudes and well-being (Chapter 3, 8 and 10), and their expectations for their future (Chapters 6 and 8). While most of these analyses are considered at the student level, between-school differences in performance and socio-economic profile (Chapter 4), and differences in how resources are allocated to schools, depending on the schools' socio-economic profile, are also examined (Chapter 5).

Figure II.1.1 **A conceptual framework for examining equity in education in PISA 2018**



This is not the only volume of the *PISA 2018 Results* that covers the issue of equity in education. *PISA 2018 Results (Volume I): What Students Know and Can Do* (OECD, 2019[7]), provides an in-depth analysis of the proportion of the population of 15-year-olds who were not enrolled in grade 7 or higher (the "target population" of the sample in PISA) when the 2018 assessment was conducted. It also describes the range of student performance in each country and economy. These are amongst the main measures of inclusive education.

PISA 2018 Results (Volume III): What School Life Means for Students' Lives (OECD, 2019[26]) analyses some of the attitudes, behaviours and approaches to learning amongst 15-year-old students, and whether they may differ across gender and family characteristics. These factors, too, are associated with inequities in the acquisition of knowledge and skills.

PISA 2018 Results (Volume V): Effective Policies, Successful Schools (OECD, forthcoming[27]) examines how the policies and practices adopted in schools and school systems are related to performance and equity, including school organisation (such as vertical and horizontal organisation), material and staff allocated to education, time devoted to learning in school, and the types of evaluations used in school. While some of these policies are introduced in this volume, Volume V discusses them in greater depth.

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2

Students' socio-economic status and performance

This chapter shows how strongly socio-economic status is associated with performance in the countries and economies that participated in PISA 2018. It first examines the large heterogeneity in socio-economic status observed both between and within countries. It also discusses how student performance varies, even amongst students of similar socio-economic status, depending on the country/economy in which the students are enrolled in school. The chapter also illustrates how some school systems achieve excellence and weaken the association between students' socio-economic status and performance in PISA.

Many modern societies suffer from rising inequality and low social mobility (OECD, 2018[1]). Income inequality in OECD countries today is at its highest level since the 1980s (OECD, 2015[2]), and the economic recovery observed since 2010 has not reversed this trend. Rising inequality and low social mobility not only threaten long-term growth (Cingano, 2014[3]) but more fundamentally endanger democratic societies. Young people may lack confidence in political institutions if they feel that they have to limit their expectations for their future because of their family's or their own financial situation.

Long-standing research finds that the most reliable predictor of a child's future success at school – and, in many cases, of access to well-paid and high-status occupations – is his or her family. Children from low-income and low-educated families usually face many barriers to learning. Less household wealth often translates into fewer educational resources, such as books, games and interactive learning materials in the home. From the beginning, parents of higher socio-economic status are more likely to provide their children with the financial support and home resources for individual learning. As they are likely to have higher levels of education, they are also more likely to provide a more stimulating home environment to promote cognitive development (Sirin, 2005[4]; Thomson, 2018[5]). These parents may be more at ease teaching their child the specific behaviours and cultural references that are the most valued at school. Advantaged parents may also provide greater psychological support for their child in environments that encourage the development of the skills necessary for success at school (Evans et al., 2010[6]).

However, results from previous rounds of PISA suggest that school systems may be able to help mitigate the impact of families' socio-economic status on their child's life outcomes. Schools can serve to channel resources towards disadvantaged children and thus help create a more equitable distribution of learning opportunities and outcomes (Downey and Condron, 2016[7]).

What the data tell us

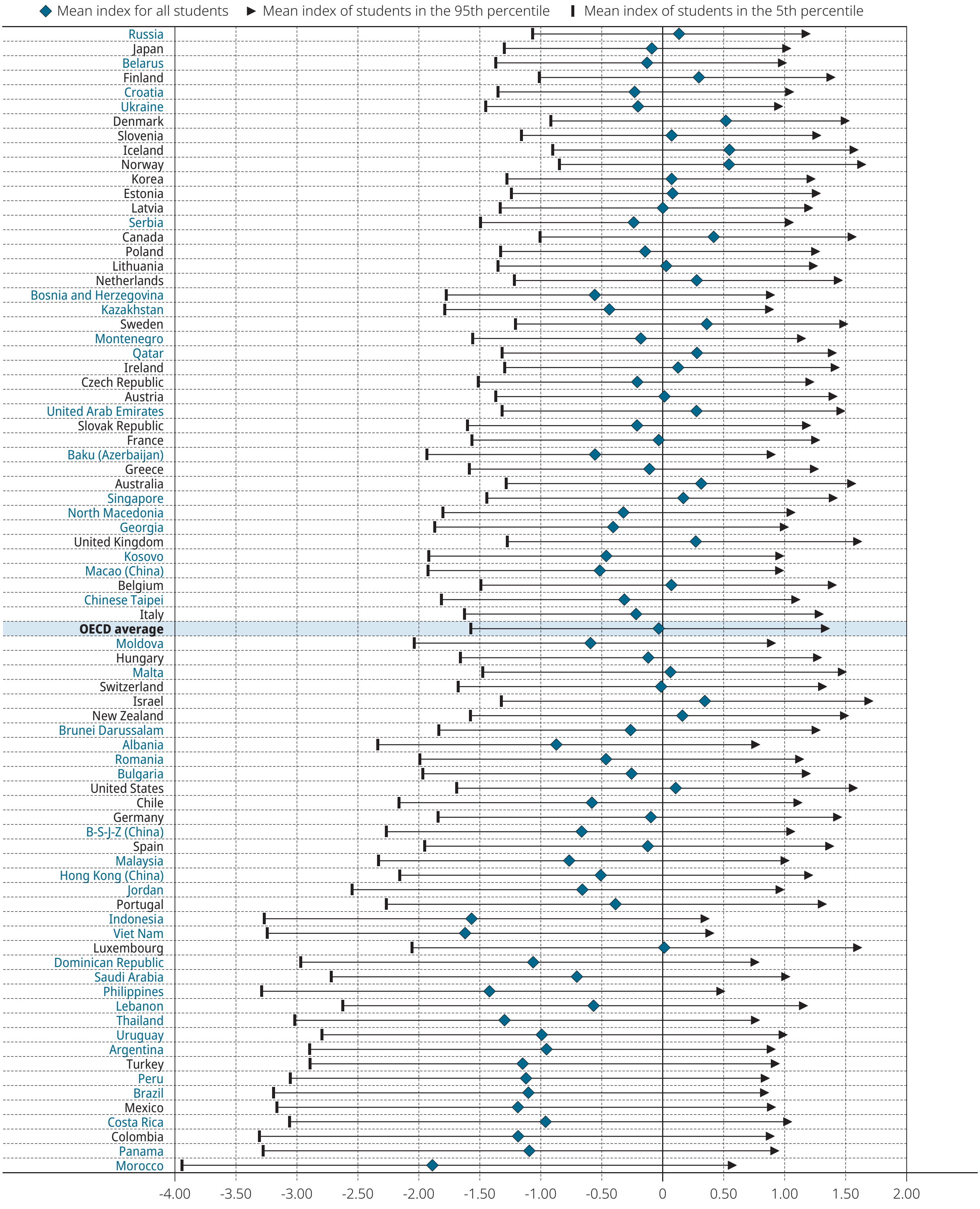
- Socio-economically advantaged students usually perform better in PISA than disadvantaged students, but the gap in reading performance related to socio-economic status varies considerably across countries. In PISA 2018, advantaged students outperformed disadvantaged students in reading by 89 score points. Nine years earlier, in PISA 2009, this gap related to socio-economic status, was 87 score points.
- On average across OECD countries, 12% of reading performance was accounted for by the PISA index of economic, social and cultural status.
- In 11 countries and economies, including the OECD countries Australia, Canada, Denmark, Estonia, Finland, Japan, Korea, Norway and the United Kingdom, average performance was higher than the OECD average while the relationship between socio-economic status and reading performance was weaker than the OECD average.
- On average across OECD countries, 17.4% of advantaged students, but only 2.9% of disadvantaged students were top performers in reading, meaning that they attained Level 5 or 6 in the PISA reading test. Amongst the 23 countries and economies where the proportions of top performers were larger than the OECD average, the socio-economic disparities in top performance were smallest in Macao (China) and largest in France.

VARIATION IN STUDENTS' SOCIO-ECONOMIC STATUS AND IN THEIR PERFORMANCE

In PISA, a student's socio-economic status is estimated by the PISA index of economic, social and cultural status, a composite measure that combines into a single score the financial, social, cultural and human capital resources available to students (see Box II.2.1). The socio-economic status of students varies between countries/economies (Figure II.2.1); but in the vast majority of cases, differences in socio-economic status, which may be seen as a proxy of the socio-economic inequalities in the countries,[1] are larger within than between countries/economies. In only 7 countries, namely Belarus, Denmark, Finland, Japan, the Russian Federation (hereafter "Russia"), Slovenia and Ukraine, the within-country gap between the most- and least-advantaged students (i.e. the difference between the 95th and 5th percentiles of the distribution of socio-economic status) is narrower than the gap between the highest and lowest mean socio-economic status measured at the country/economy level. Particularly wide within-country gaps in socio-economic status were observed in Morocco, Panama, Colombia, Mexico, Costa Rica, Brazil and Viet Nam (in descending order). In contrast, in Russia, Japan, Belarus, Finland and Croatia (in ascending order), these gaps were relatively narrow.

Figure II.2.1 **Heterogeneity in socio-economic status within countries**

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



Note: All differences between the 95th and the 5th percentiles are statistically significant (see Annex A3).

Countries and economies are ranked in ascending order of the difference between the mean PISA index of economic, social and cultural status of students in the 95th percentile and the 5th percentile.

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

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Variations in socio-economic status within and between countries/economies should be taken into account when comparing students' performance. This can be achieved by measuring students on the same scale, which allows for a comparison of the performance of groups of students of similar socio-economic status across countries and economies.

Figure II.2.2 shows performance differences by international deciles of the PISA index of economic, social and cultural status. Countries and economies differ substantially in their national wealth and socio-economic heterogeneity; thus the proportion of 15-year-old students at each decile on the international scale varies considerably (see Table II.B1.2.2 available on line). For example, in Denmark, Iceland and Norway, more than 20% of 15-year-old students were in the top decile of the international distribution of socio-economic status, while in 16 countries (Albania, Argentina, Brazil, Colombia, Costa Rica, the Dominican Republic, Indonesia, Mexico, Morocco, Panama, Peru, the Philippines, Thailand, Turkey, Saudi Arabia and Uruguay) more than 20% of students were in the bottom decile of this distribution. In all of these countries where there were large proportions of disadvantaged students, except Argentina, Indonesia and Saudi Arabia, less than 80% of 15-year-olds were eligible to sit the PISA test (see Box II.2.2 on the coverage of the PISA sample).

Box II.2.1. **Definition of socio-economic status in PISA**

Socio-economic status is a broad concept that aims to reflect the financial, social, cultural and human-capital resources available to students (Cowan et al., 2012[8]). Socio-economic status may also be referred to as "the relative position for the family or individual on a hierarchical social structure, based on their access to, or control over, wealth, prestige and power" (see Willms and Tramonte, 2015[9] quoting (Mueller and Parcel, 1981[10]). Socio-economic status is thus a measure of students' access to family resources (financial capital, social capital, cultural capital and human capital) and the social position of the student's family/household.

In PISA, a student's socio-economic status is estimated by the PISA index of economic, social and cultural status (ESCS), a composite measure that combines into a single score the financial, social, cultural and human-capital resources available to students (see *PISA 2018 Technical Report* (OECD, forthcoming[11])). In practice, it is derived from several variables related to students' family background that are then grouped into three components: parents' education, parents' occupations, and an index summarising a number of home possessions that can be taken as proxies for material wealth or cultural capital, such as possession of a car, the existence of a quiet room to work, access to the Internet, the number of books and other educational resources available in the home.

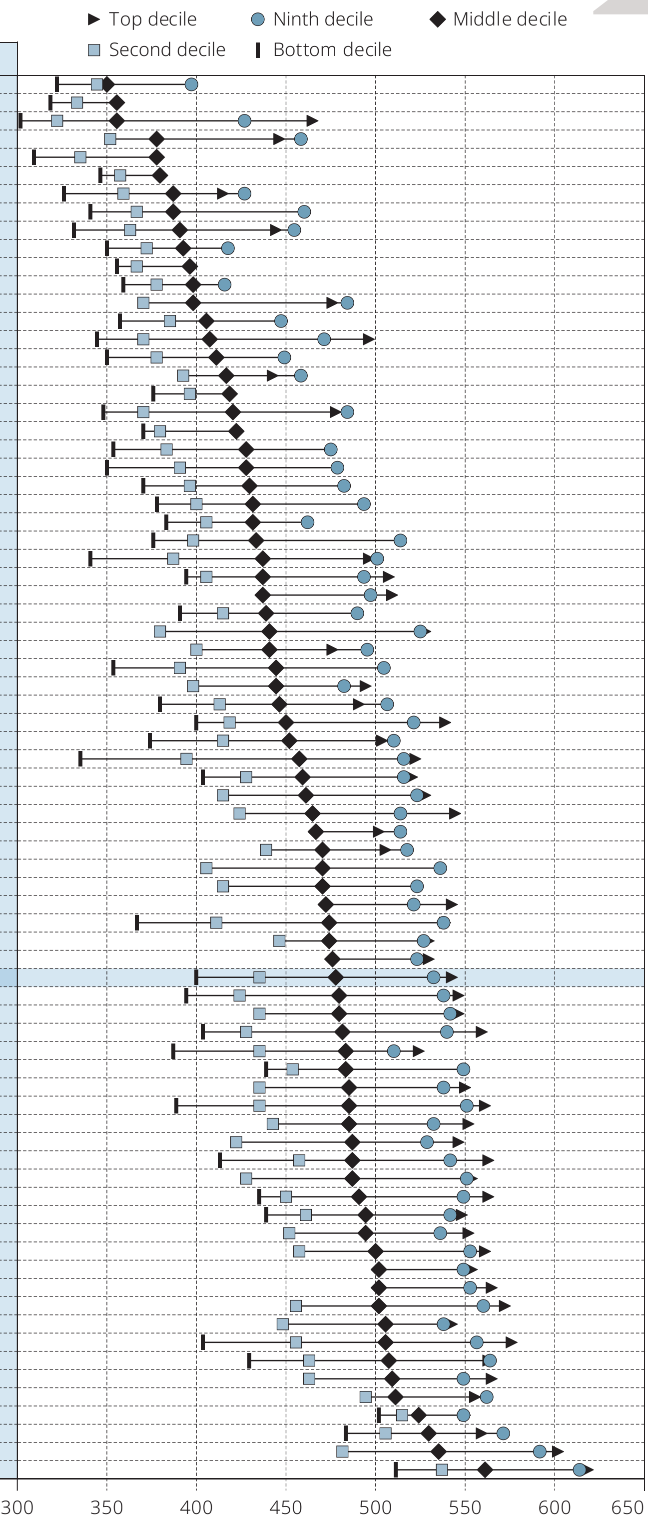
The comparability of these indicators across countries and over time raises several challenges (Rutkowski and Rutkowski, 2013[12]; Rutkowski and Rutkowski, 2017[13]; Pokropek, Borgonovi and McCormick, 2017[14]). The more serious concerns are related to the items proxied by home possessions, as the meaning and the national examples included in the items may vary significantly across countries, undermining cross-country comparability. In addition, the prevalence of access to technological goods and services, such mobile phones, has increased over time, thus these items convey distinct information at different times. For example, use of a mobile phone shortly after the technology was introduced could be a proxy for high social status; later on, mobile phones may be regarded as a basic resource, accessible to nearly everyone. For this reason, the index summarising home possessions is computed in a different way for all new cycles, and some items may be included in a way specific to each country, in order to take into account distinctive use by countries.

In PISA 2018, the three components (parents' education, parents' occupation and the index of home possessions) are weighted equally. As in 2015, all countries and economies contributed equally to the estimation of ESCS values. Analyses were systematically conducted in order to identify those items that may have been interpreted differently across countries. For these items, country-specific parameters were assigned (OECD, 2017[15]). For the purpose of reporting, the ESCS scale was transformed with 0 as the value of an average OECD student and 1 the standard deviation across equally weighted OECD countries.

Figure II.2.2 illustrates how the performance of students of similar socio-economic status varied, depending on the country/economy in which they live. The figure also shows, for individual countries/economies, the proportions of students in the top and bottom international deciles of socio-economic status and the PISA coverage indices, which should be taken into account when interpreting the figure.

Figure II.2.2 **Mean performance in reading, by international decile of socio-economic status**

Country / Economy	Coverage (%)	Bottom (%)	Top (%)
Kosovo	84	7	2
Dominican Republic	73	26	1
Lebanon	87	17	5
Qatar	92	3	11
Philippines	68	38	1
Morocco	64	56	1
Georgia	83	7	3
Panama	53	32	3
North Macedonia	95	6	4
Kazakhstan	92	5	2
Indonesia	85	45	0
Baku (Azerbaijan)	46	8	2
United Arab Emirates	92	2	14
Saudi Arabia	85	21	3
Brunei Darussalam	97	6	7
Bosnia and Herzegovina	82	5	2
Montenegro	95	3	5
Albania	76	20	1
Bulgaria	72	7	6
Thailand	72	38	2
Argentina	81	27	2
Peru	73	30	2
Malaysia	72	16	3
Colombia	62	33	2
Jordan	54	17	3
Brazil	65	30	2
Romania	73	8	5
Costa Rica	63	30	3
Iceland	92	1	24
Mexico	66	36	3
Israel	81	2	19
Serbia	88	2	3
Moldova	95	9	1
Malta	97	2	15
Uruguay	78	27	3
Luxembourg	87	8	18
Greece	93	3	8
Slovak Republic	86	4	6
Chile	89	12	5
Lithuania	90	2	8
Netherlands	91	2	16
Russia	94	1	6
Latvia	89	1	7
Belarus	88	2	2
Ukraine	87	2	2
Denmark	88	1	21
Hungary	90	4	8
Croatia	89	1	3
Norway	91	1	24
OECD average	**88**	**6**	**12**
Switzerland	89	4	10
Slovenia	98	1	8
Belgium	94	3	12
Italy	85	3	8
Turkey	73	34	3
Sweden	86	2	19
France	91	3	8
Australia	89	2	20
Austria	89	2	11
New Zealand	89	3	17
Czech Republic	95	3	6
United States	86	5	15
Portugal	87	14	10
United Kingdom	85	1	18
Korea	88	1	7
Canada	86	1	20
Finland	96	1	13
Poland	90	1	8
Japan	91	1	3
Germany	99	6	12
Chinese Taipei	92	6	4
Ireland	96	2	12
Estonia	93	1	9
Macao (China)	88	7	3
Hong Kong (China)	98	11	6
Singapore	95	3	13
B-S-J-Z (China)	81	16	4



Notes: Percentage of students who are in the top/bottom international decile of the PISA index of economic, social and cultural status are shown next to the country/economy name.

Bottom, second, ninth and top deciles correspond to the average performance of students who are in the corresponding deciles of the distribution of the PISA index of economic, social and cultural status across all countries and economies; the middle decile corresponds to students whose socio-economic status ranges from the 45th to the 55th percentile of this distribution.

Coverage Index 3 is shown next to the country/economy name.

Only results of countries and economies with at least 3% of students in each international decile are shown.

Countries and economies are ranked in ascending order of the mean reading performance of students in the international middle decile of socio-economic status.

Source: OECD, PISA 2018 Database, Table II.B1.2.2.

StatLink https://doi.org/10.1787/888934037127

For instance, while Thailand and Turkey show similar proportions of students in the bottom decile of socio-economic status (38% in Thailand and 34% in Turkey) and the two countries have similar shares of 15-year-olds who were enrolled in school in 2018 (around three in four), the average reading score of the students in the bottom international decile was higher in Turkey (440 points) than in Thailand (370 points).

In Denmark, Iceland and Norway, three high-income countries where more than 20% of students are in the top international decile of socio-economic status and more than 87% of 15-year-olds were eligible to sit the PISA test, the average score amongst students in the top international decile of socio-economic status was 510 points in Iceland, 531 points in Norway and 542 points in Denmark. Amongst those students whose socio-economic status was close to the median decile of the international distribution, average reading scores were 438 points in Iceland, 476 points in Norway and 473 points in Denmark.

Box II.2.2. **Inclusive education: Attaining minimum proficiency, regardless of students' socio-economic status**

Ensuring that all children, whatever their personal circumstances, have access to education is the main requirement for achieving equity in education. Chapter 3 of *PISA 2018 Results (Volume I): What Students Know and Can Do* (OECD, 2019[16]) analyses in detail how enrolment in secondary education has evolved over the different cycles of PISA, notably through the proportion of the population of 15-year-olds who were not enrolled in grade 7 or higher (the "target population" of the sample in PISA).

As discussed in that chapter, the proportion of 15-year-olds in each country/economy who were covered by the PISA 2018 sample, known as Coverage Index 3, exceeded 80% in most OECD countries. However, Colombia (62%), Mexico (66%) and Turkey (73%) did not reach this threshold. In addition, while the coverage index was over 99% in Germany, over 98% in Hong Kong (China), and over 97% in Brunei Darussalam, Malta and Slovenia, in 18 countries it was below 75%. In Brazil, Jordan and Panama, Coverage Index 3 was below 65% and in Albania and Baku (Azerbaijan) it was below 50% (see Table II.B1.2.1).

For these countries, results showing the link between socio-economic status and performance need to be interpreted with caution. For instance, if only teenagers from low-income families drop out of school early because of poor school performance, only those disadvantaged students with the highest performance would be sampled for the PISA assessment. In this hypothetical case, the relationship between socio-economic status and performance as estimated in PISA may be weaker than would be observed if measured across the entire population of 15-year-olds.

Chapter 10 of Volume I (OECD, 2019[16]) also discusses how the proportion of students who scored at or above the minimum level of proficiency on the PISA scales – Level 2 – has evolved over time. This level of proficiency may be equated with the "minimum proficiency level" defined in the first target of the United Nations Sustainable Development Goal 4, which was adopted by the 70th General Assembly of the United Nations in 2015. On average across OECD countries in 2018, 22.6% of 15-year-olds scored below Level 2 in reading. However, this proportion was strongly associated with students' socio-economic status. Some 35.6% of students in the bottom quarter of the PISA index of economic, social and cultural status (see Box II.2.3 for details) scored at that level, while only 10.7% of students in the top quarter of the index did (Table II.B1.2.6 available on line). Disadvantaged students were 2.7 times more likely than advantaged students not to attain the minimum level of proficiency in reading. While there were significant variations in the magnitude of this difference, the association between socio-economic disadvantage and low performance was statistically significant in all PISA-participating countries and economies, except Macao (China). In 25 of the 79 PISA-participating countries and economies, disadvantaged students were at least three times as likely as advantaged students to be low achievers in reading (Table II.B1.2.6 available on line).

SOCIO-ECONOMIC DISPARITIES IN PISA PERFORMANCE

The strength and slope of the socio-economic gradient

The sections above show that in all countries and economies, student performance in PISA is related to socio-economic status; but they also emphasise that this relationship is far from deterministic. While countries and economies differ widely in terms of economic development and socio-economic structure, an analysis of the socio-economic disparities in academic performance at the national level provides an indication of whether a school system helps promote social mobility. While socio-economic status in

PISA can be seen as a proxy of the "rank" of students' access to family resources within their country/economy, a strong relationship between socio-economic status and performance in PISA may indicate low social mobility within the country/economy.

In PISA, the socio-economic gradient is traditionally used to examine the relationship between students' socio-economic status and their performance (OECD, 2016[17]). More specifically, the slope of the gradient summarises the differences in performance observed across socio-economic groups, while the strength of the gradient refers to how well socio-economic status predicts performance. For a detailed discussion, see (OECD, 2016[17]; OECD, 2018[18]; OECD, 2013[19]).

The slope of the socio-economic gradient indicates the degree of the disparity in average performance between two students whose socio-economic status differs by one unit in the PISA index of economic, social and cultural status. A positive value for the slope of the socio-economic gradient signals that advantaged students generally performed better than disadvantaged students in PISA 2018. On average across OECD countries in 2018, a one-unit increase in the PISA index of economic, social and cultural status was associated with an increase of 37 score points in the reading assessment. The performance gap related to students' socio-economic status was widest in Belarus, where a one-unit increase in the index was associated with a difference of as much as 51 score points in reading. In Belgium, the Czech Republic, France, Hungary, Israel, the Slovak Republic and Ukraine, the increase in the index was associated with a difference of between 45 and 50 score points. By contrast, in 15 countries and economies, the associated change in performance amounted to less than 25 score points (Table II.B1.2.3 available on line).

However, the slope of the socio-economic gradient does not describe the magnitude of the gap in performance related to socio-economic status that may be observed between the most and the least advantaged students within a country/economy. On average across OECD countries, the difference in the average index of socio-economic status between disadvantaged students (defined as those in the bottom quarter of the distribution in the PISA index of economic, social and cultural status within their countries/economies; see Box II.2.3) and advantaged students (those in the top quarter of the distribution) corresponded to 2.36 standard deviations in the index. But in 9 countries, namely Belarus, Croatia, Denmark, Finland, Iceland Japan, Korea, Russia and Ukraine, this difference is less than 2 standard deviations in the index, while in 11 countries/economies, namely Argentina, Brazil, Colombia, Costa Rica, Mexico, Morocco, Panama, Peru, Portugal, Saudi Arabia and Turkey, it is greater than 3 standard deviations in the index (Table II.B1.2.1).

Box II.2.3. **Definition of disadvantaged and advantaged students in PISA**

The PISA index of economic, social and cultural status (ESCS) makes it possible to draw comparisons between students and schools with different socio-economic profiles. In this report, students are considered socio-economically advantaged if they are amongst the 25% of students with the highest values in the ESCS index in their country or economy; students are classified as socio-economically disadvantaged if their values in the index are amongst the bottom 25% within their country or economy. Students whose values in the ESCS index are in the middle 50% within their country or economy are classified as having average socio-economic status. Following the same logic, schools are classified as socio-economically advantaged, disadvantaged or average within each country or economy, based on their students' mean values in the ESCS index.

One may compare how these categories are characterised in relation to the variables that are used to estimate the three components of the ESCS index: parents' educational attainment, the status of their occupation and home possessions.

On average across OECD countries, parents of socio-economically advantaged students are highly educated: a large majority attained tertiary education (98%) and works in a skilled, white-collar occupation (72%).[2] By contrast, the parents of socio-economically disadvantaged students have much lower educational attainment. Across OECD countries, 53% of parents of disadvantaged students attained some post-secondary non-tertiary education as their highest level of formal schooling, 33% attained lower secondary education or less, and only 14% attained tertiary education. Few disadvantaged students have a parent working in a skilled occupation (5%). Many parents of these students work in semi-skilled, white-collar occupations (11%); the majority (84%) work in elementary occupations or semi-skilled, blue-collar occupations.

One of the home possessions that most clearly distinguishes students of different socio-economic status is the number of books at home. While 46% of advantaged students reported having more than 200 books at home, on average, this is the case for only 6% of their disadvantaged peers. Advantaged students also reported a greater availability of other educational resources, such as educational software. In addition, more than 90% of advantaged students but only 69% of disadvantaged students, on average across OECD countries, reported having a quiet place to study at home and a computer that they can use for schoolwork.

In order to have an idea of the magnitude of the performance gap related to socio-economic status within countries/economies, after taking into account variations in socio-economic status, one may compare the average performance of the least-advantaged students with that of the most-advantaged students. On average across OECD countries in 2018, advantaged students scored 89 points higher in reading than disadvantaged students. The gap between the two groups of students was larger than 100 score points in 19 countries, including the OECD countries Belgium, the Czech Republic, France, Germany, Hungary, Israel, Luxembourg, the Slovak Republic and Switzerland (Table II.B1.2.3 available on line).

Some countries were able to combine higher average performance in reading with smaller socio-economic gaps in performance. In 13 countries and economies, including the OECD countries Canada, Denmark, Estonia, Finland, Ireland, Japan, Korea, Norway, Slovenia and the United Kingdom, average performance was higher than the OECD average while the performance difference between advantaged and disadvantaged was smaller than the OECD average (Table II.B1.2.3 available on line).

The strength of the gradient is measured by the proportion of the variation in performance that is accounted for by differences in socio-economic status. When the relationship between socio-economic status and performance is strong, socio-economic status is a good predictor of performance. On average across OECD countries in 2018, students' socio-economic status accounted for a significant share of the variation in their performance in the core PISA subjects (reading, mathematics and science). In reading, 12% of the variation in student performance within each country was associated with socio-economic status. In 20 of the 79 countries and economies that participated in PISA 2018 students' socio-economic status predicted 15% or more of the variation in performance. By contrast, in 31 countries the strength of the gradient predicted less than 10% of this variation (Table II.B1.2.3 available on line).

Socio-economic status is even more related to mathematics and science performance. On average across OECD countries, students' socio-economic status predicted 13.8% of their performance in mathematics, and 12.8% of their performance in science. In Argentina, Belarus, Belgium, France, Hungary, Peru and the Slovak Republic, more than 20% of mathematics performance was related to students' socio-economic status (Table II.B1.2.4 available on line).

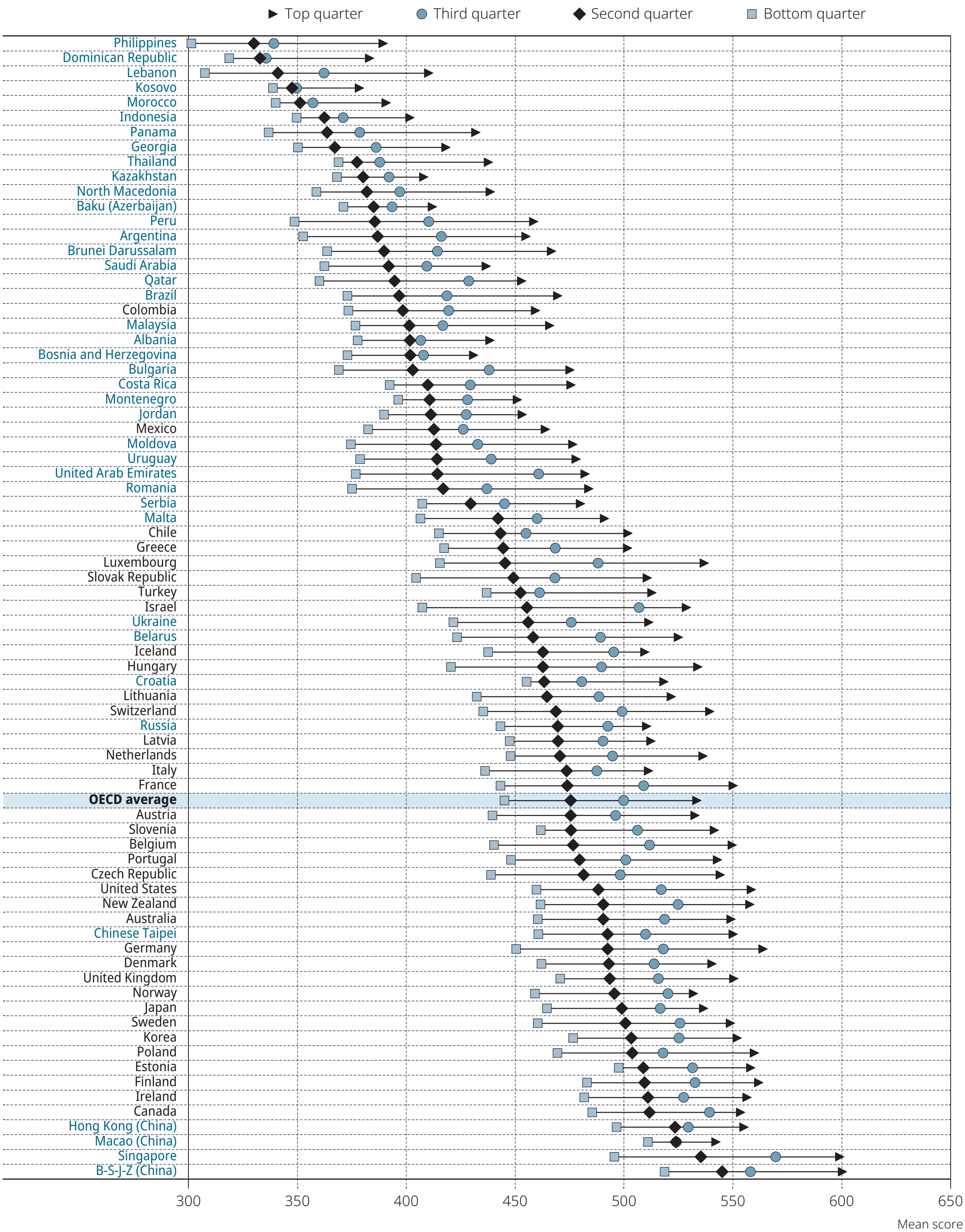
A weak gradient means that the relationship between socio-economic status and performance is not accurately described by a linear relationship; it may be multidimensional and cannot be fully captured by socio-economic indicators. This may also happen when the relative disadvantage of being at the bottom of the national distribution of socio-economic status is greater than the relative advantage of being at the top of this distribution – or the opposite. Both patterns are illustrated in Figure II.2.3, which shows the average performance of students by their socio-economic status.

In all countries, average performance improved with each successive quarter of socio-economic status. However, in some countries, differences in performance were more marked at the bottom of the distribution of socio-economic status, as disadvantaged students scored much lower in reading than students in the three higher quarters of socio-economic status – amongst whom differences in performance were comparatively small. This was the case in Bosnia and Herzegovina, the Czech Republic, Hong Kong (China), Italy, Japan, Macao (China), Malta, Norway, the Slovak Republic and Sweden, where the gap in average reading performance between students in bottom quarter of socio-economic status and those in the next-highest quarter accounted for 40% to 50% of the performance difference between the most-advantaged and least-advantaged students in these countries.[3] By contrast, in some countries, such as Croatia, the Dominican Republic, Kosovo, Morocco, Thailand and Turkey, socio-economic disparities in performance were observed at the top of the distribution of the socio-economic index, as most of the link between socio-economic status and performance was related to the fact that advantaged students outperformed students in the three lower quarters of socio-economic status by a wide margin. Identifying these complex patterns may be useful for designing policies that aim to tackle both underperformance and inequity in education (Table II.B1.2.3 available on line).

Changes in socio-economic inequities in performance

One may compare differences in performance related to socio-economic status in PISA 2018 with those that were observed in 2009. Comparing the most disadvantaged students with the most advantaged in their country/economy, as defined in 2009 and 2018, no significant changes were observed in the vast majority of countries (see Table II.2.1).[4] In only six countries and economies, namely Bulgaria, Georgia, Kazakhstan, Malta and Montenegro, the socio-economic gap shrank. Only in Georgia and Montenegro was this due to a significant improvement in the performance of disadvantaged students, while the performance of advantaged students remained unchanged. However, in Kazakhstan, the narrowing of the performance gap was due to both a significant decline in the performance of advantaged students and significant improvements in the performance of disadvantaged students; in Bulgaria only the performance of advantaged students declined. In the Czech Republic, Finland, Malaysia, the Republic of Moldova (hereafter "Moldova"), Qatar and the Slovak Republic, disparities in performance related to socio-economic status increased over the period. In Moldova and Qatar, the performance of advantaged students improved at a faster rate than that of disadvantaged students; in Finland and the Slovak Republic, the performance of disadvantaged students declined while the performance of advantaged students did not change significantly over the period.

Figure II.2.3 **Mean performance in reading, by national quarter of socio-economic status**



Countries and economies are ranked in ascending order of mean reading performance for students in the second quarter of ESCS.

Source: OECD, PISA 2018 Database, Table II.B1.2.3.

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Table II.2.1 **Change between 2009 and 2018 in reading performance related to socio-economic status**

The socio-economic gap in reading narrowed significantly between 2009 and 2018
The socio-economic gap in reading did not change significantly between 2009 and 2018
The socio-economic gap in reading widened significantly between 2009 and 2018

	Advantaged students' performance significantly declined and...	**Advantaged students' performance did not change significantly and...**	**Advantaged students' performance improved significantly and...**
... disadvantaged students' performance declined significantly	Japan Australia Iceland Korea New Zealand Belgium Thailand Costa Rica Indonesia Greece	Switzerland Netherlands Finland Slovak Republic	Malaysia
... disadvantaged students' performance did not change significantly	Hungary Italy Bulgaria	Chile Mexico France Canada Serbia United States Argentina Denmark Israel Norway Panama Malta Sweden Latvia Hong Kong (China) Colombia Lithuania Romania Poland Portugal Brazil Uruguay	Germany Czech Republic Chinese Taipei Luxembourg
... disadvantaged students' performance improved significantly	Kazakhstan	Montenegro Jordan Slovenia Croatia Russia Albania Turkey Georgia United Kingdom	Macao (China) Ireland Qatar Peru Estonia Singapore Moldova

Source: OECD, PISA 2018 Database, Table II.B1.2.5.

Top performers and socio-economic status

Differences in achievement related to socio-economic status are even more pronounced when one compares not only average performance, but the attainment of the highest levels of proficiency (as described in *PISA 2018 Results [Volume I]: What Students Know and Can Do* (OECD, 2019[16])). On average across OECD countries, 8.6% of students were top performers in reading in PISA 2018, meaning that they attained Level 5 or 6 in the PISA reading test. At these levels, students can comprehend lengthy texts, deal with concepts that are abstract or counterintuitive, and establish distinctions between fact and opinion, based on implicit cues pertaining to the content or source of the information.

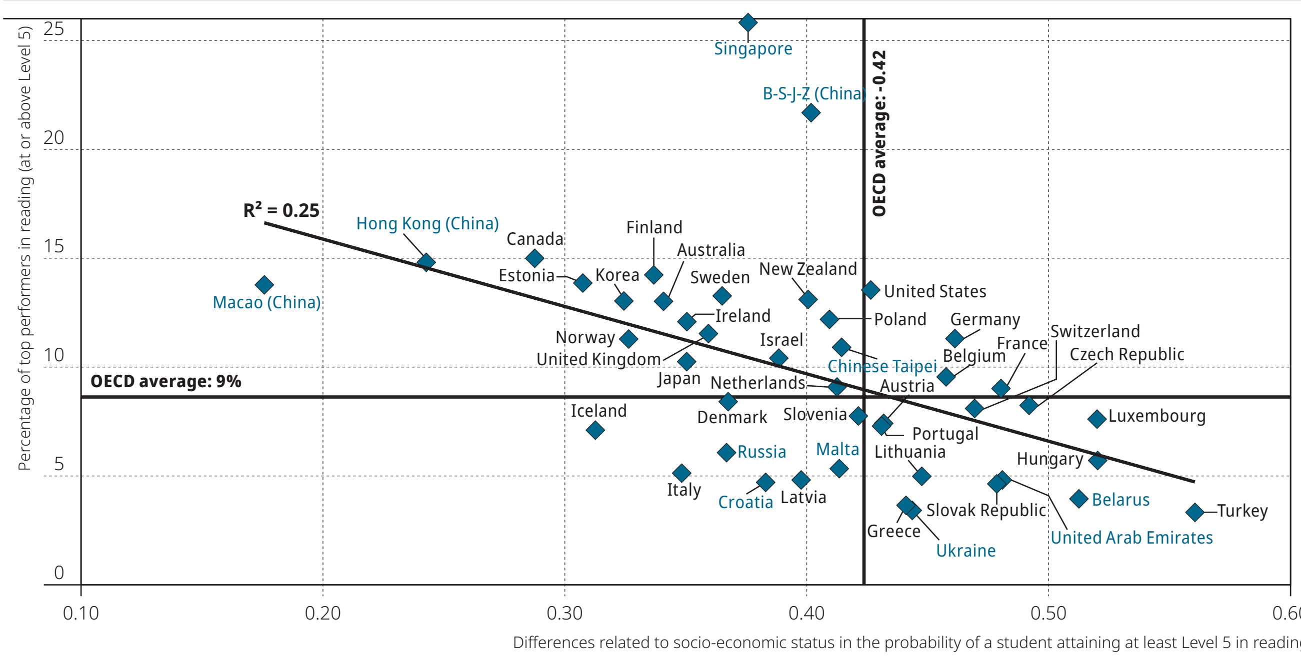
Only 2.9% of disadvantaged students, compared with 17.4% of advantaged students, attained these levels of performance, on average across OECD countries. In 51 countries and economies, less than 2% of disadvantaged students were top performers; in only 10 countries and economies, namely Australia, Beijing, Shanghai, Jiangsu and Zhejiang (China) (hereafter "B-S-J-Z [China]), Canada, Estonia, Finland, Hong Kong (China), Ireland, Korea, Macao (China) and Singapore, were more than 5% of disadvantaged students top performers. In all countries, the proportion of top performers amongst advantaged students largely exceeded that amongst disadvantaged students (Table II.B1.2.6 available on line).

The countries with the largest proportions of top performers were also those that achieved high levels of performance amongst all of their students. However, within countries, there were large differences, related to socio-economic status, in the probability of achieving the highest levels of performance. For instance, while around 10% of disadvantaged students in B-S-J-Z (China) and Singapore were top performers in reading (the largest proportions observed amongst all participating countries and economies), four times as many advantaged students attained that level of performance. This suggests that even in high-performing school systems social inequities may be perpetuated.

The index of inequality in the probability of attaining the highest levels of reading performance provides an indication of the link between top performance and socio-economic status. This indicator measures how top performers are concentrated along the national distribution of socio-economic status, by "ranking" all students by their level of socio-economic status (Erreygers, Clarke and Van Ourti, 2012[20]; Wagstaff, 2011[21]; Kjellsson and Gerdtham, 2013[22]). It considers only the relationship between the probability of being a top performer and where the student is located in the distribution of socio-economic status within his or her country/economy; it does not consider the variability of socio-economic status or the degree of socio-economic inequality within the country/economy (see Annex A3 for details).[5] The index ranges from -1 to 1. The more the index shifts from 0, the more performance is strongly related to socio-economic status. A negative value means that those students at the bottom of the socio-economic distribution are over-represented amongst top performers in reading; a positive value means that students at the top of the socio-economic distribution in their countries/economies are over-represented amongst top performers.

Figure II.2.4 shows this index alongside the proportion of top performers in the country/economy, in school systems where at least 3% of 15-year-old students were top performers in reading. In all countries, the index is positive, meaning that the top performers were more often amongst those at the top of the socio-economic distribution in their country/economy. The extent of socio-economic disparities in the probability of being a top performer was also negatively related to the proportion of top performers in the school system (the R2 is 0.25). On average across OECD countries, the value of the index was 0.42. The highest level of the index, 0.56, was observed in Turkey, where only 3% of students were top performers in reading. However, the socio-economic disparities in top performance were far from perfectly predicted by the proportions of top performers amongst the population of 15-year-old students: amongst the 23 countries and economies where the proportions of top performers were larger than the OECD average, the index of socio-economic disparities ranged from 0.18 in Macao (China) to 0.47 in France.

Figure II.2.4 **Differences in top performance related to socio-economic status and percentage of top performers**



Notes: Only countries and economies with at least 3% of top performers in reading (students performing at Level 5 or above) are shown. Socio-economic status is measured by the PISA index of economic, social and cultural status.

The differences related to socio-economic status in the probability of a student attaining Level 5 in reading in corresponds to the relative concentration of high performers by socio-economic status (ESCS). The higher the indice, the more prevalent are most advantaged students amongst high performers (see Annex A3).

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

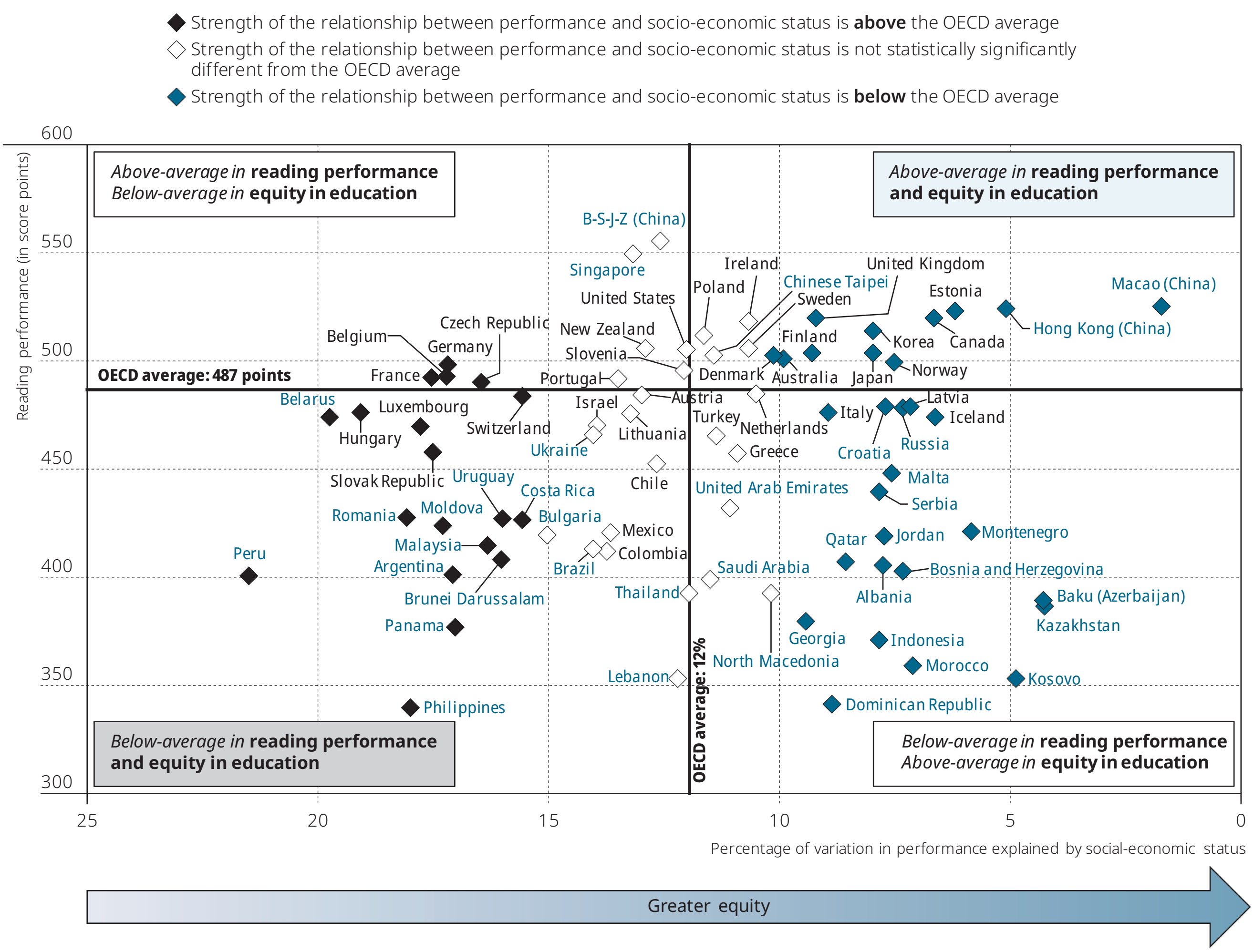
StatLink https://doi.org/10.1787/888934037165

PERFORMANCE AND FAIRNESS IN EDUCATION

No one should be satisfied with a school system where everyone performs equally, but poorly. PISA consistently finds that strong performance and a weak relationship between socio-economic status and education outcomes are not mutually exclusive: some education systems manage to attain both a high level of average performance and equity in education (OECD, 2016[17]).

In 11 of the 25 countries and economies that scored above the OECD average in reading in PISA 2018, the strength of the relationship between student performance and socio-economic status was significantly below the OECD average. School systems in Australia, Canada, Denmark, Estonia, Finland, Hong Kong (China), Japan, Korea, Macao (China), Norway and the United Kingdom achieved high performance in reading while socio-economic status was less predictive of performance than average (Figure II.2.5).

Figure II.2.5 **Strength of the socio-economic gradient and reading performance**



Note: Socio-economic status is measured by the PISA index of economic, social and cultural status.
Source: OECD, PISA 2018 Database, Table II.B1.2.3.
StatLink https://doi.org/10.1787/888934037184

Notes

1. A correlation of 0.79 is observed with this indicator and an index of inequalities in incomes (World Bank GINI index) measured in 2015 across the 50 PISA-participating countries with available data.

2. Defined by the first three major groups of the ISCO 08 (managers, professionals, technicians and associated professionals). Semi-skilled, white-collar occupations are defined by the major groups 4 and 5 (clerical support workers, and service and sales workers) and elementary occupations or semi-skilled, blue-collar occupations by the major groups 6 to 9 (skilled agricultural, forestry and fishery workers, craft and related trades workers, plant and machine operators, and assemblers, elementary occupations).

3. See Table II.B1.2.3 available on line; for instance, the average score of students in the bottom quarter of the distribution of ESCS in Italy was 474 points, the average score of students in the second quarter was 474 points and the average score of those in the top quarter was 511 points, so: (474-436)/(511-436)=0.51.

4. In order to measure changes in fairness in education over time, this report compares how students who are ranked similarly in the distribution of socio-economic status in the same country/economy, but at different time periods, perform in PISA. This approach relies on an indicator that measures the performance difference between the most-advantaged 25% of students and the least-advantaged 25% in the country, as defined at the time of the assessment. This means that a change in this indicator from one to another PISA assessment may be due to a change in the way students' socio-economic status is related to performance in PISA; and/or a change in the variation of students' socio-economic status in the country. As emphasised by (Hanushek et al., 2019[23]), an advantage of this approach is that it makes it possible to compare the relative position of students in the distribution of socio-economic status at the time of the assessment. This approach does not assume that an index of home possessions, which is measured by the same set of items, is invariant across time; nor does it assume that individual items have the same meaning when they are used to measure students' socio-economic status over time. Even within the same country, some items, such as "access to the Internet", may not mean the same today as they did ten years ago.

5. This indicator is similar to the "concentration index" commonly used to measure inequality in health outcomes.

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PISA

3

Academic resilience and well-being amongst disadvantaged students

This chapter explores the capacity of students to perform well in school in spite of socio-economic adversity. In particular, the chapter examines the factors that are related to student academic resilience, such as support from parents and teachers, positive school climate and students' beliefs in their own abilities. It also investigates how academic resilience is related to positive attitudes and dispositions.

Socio-economic disadvantage is a major predictor of poor education and well-being outcomes. However, in spite of the odds, some disadvantaged students exhibit a remarkable capacity to reach adequate levels of academic achievement and social adjustment. The degree to which students succumb to adversity is influenced by environmental factors that foster or hinder resilience (Mostafa, Gambaro and Joshi, 2018[1]). For instance, parents' and teachers' support may help students cultivate resilience, while having a fixed mindset may impede students from doing so (Yeager and Dweck, 2012[2]).

This chapter explores the capacity of students to perform well in school in spite of socio-economic adversity. In particular, the chapter examines the factors that are related to students' academic resilience, such as support from parents and teachers, positive school climate and students' beliefs in their own abilities. It also investigates how academic resilience is related to positive attitudes and dispositions, such as enjoyment of reading, goal orientation, work mastery and students' well-being. Students' well-being at school is considered to be an important education outcome in itself. In this sense, it is not sufficient for students to attain high levels of proficiency in academic subjects; it is also important for them to do so while enjoying high levels of well-being.

What the data tell us

- In spite of socio-economic disadvantage, some students are capable of attaining high levels of academic proficiency. On average across OECD countries, one in ten disadvantaged students was able to perform in the top quarter of reading performance in their country, indicating that disadvantage is not destiny. In Australia, Canada, Estonia, Hong-Kong (China), Ireland , Macao (China) and the United Kingdom, all of which scored above the OECD average, more than 13% of disadvantaged students were academically resilient.
- Academic resilience was found to be positively related to parental support, teacher enthusiasm, student self-efficacy and a positive disciplinary climate at school. In some countries, resilient students were also found to enjoy reading more, to have higher motivation to master tasks and to have a greater ability to set and pursue goals.
- In 35 out of 76 countries and economies, a greater proportion of academically resilient students reported that they feel they belong at school compared with students who are not academically resilient. Associations were strong in Bulgaria, France, Jordan, Morocco, Panama and the Philippines. Academic resilience was associated with other measures of student well-being, such as life satisfaction and lack of self-doubt when facing failure, but to a lesser extent.

HOW PISA DEFINES ACADEMIC RESILIENCE

Although some students may have the emotional and social support they need, others live in chronically adverse circumstances (Roffey, 2016[3]; Roffey, 2015[4]) that inevitably affect these students' learning and well-being, and, ultimately, their future (Bradley and Corwyn, 2002[5]; Farah et al., 2006[6]; Mani et al., 2013[7]). However, not all students succumb to adversity; some exhibit a strong capacity to adapt to – and overcome – the challenges they face (Martin and Marsh, 2006[8]; Howard and Johnson, 2000[9]). PISA refers to this capacity as resilience.

Academically resilient students are those who, in spite of socio-economic disadvantage, are able to beat the odds against them and sustain high academic performance. While all students face difficulties of one sort or another, disadvantaged students are more likely to be low performers at school (OECD, 2018[10]; OECD, 2016[11]). Disadvantaged students often have low-educated parents who work in lower-paid and less-prestigious jobs; they often lack educational and material resources at home. These students are also more likely to attend disadvantaged schools that are equipped with fewer resources and to speak at home a language that is different from the language spoken at school (OECD, 2017[12]).

While Chapter 2 mainly examines students' performance in the context of their socio-economic status on an international scale, this chapter focuses on a country-specific definition of academic resilience. Chapter 2 shows that in all countries/economies, socio-economically advantaged students outperformed their disadvantaged peers, but performance gaps between disadvantaged and advantaged students varied across countries/economies.

Where are disadvantaged students more likely to beat the odds and score at the highest level in their own country/economy? This chapter attempts to answer that question.

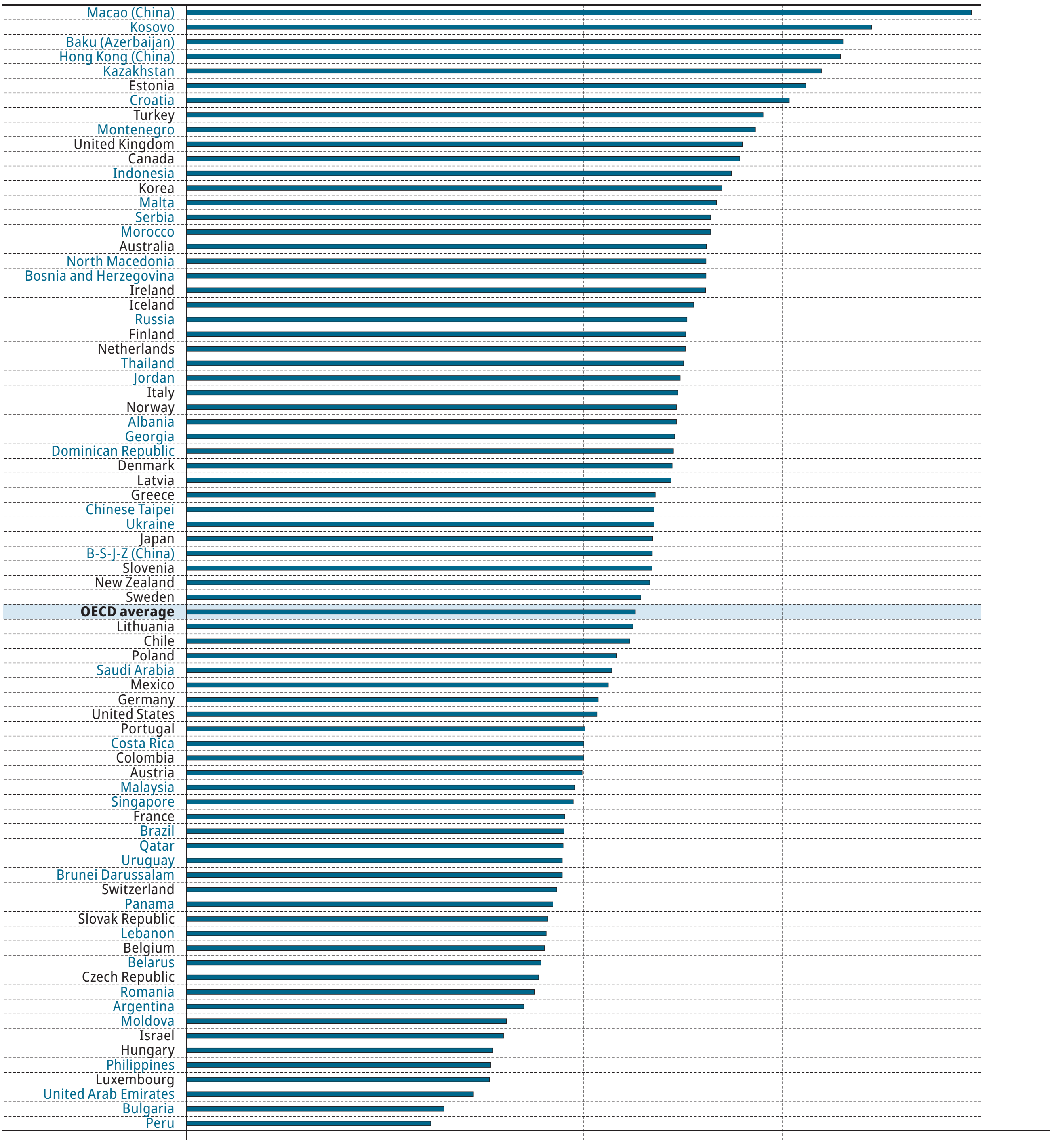
Academically resilient students are disadvantaged students who are in the bottom quarter of the PISA index of economic, social and cultural status (ESCS) in their own country/economy but who score in the top quarter of reading in that country/economy. These students are academically resilient because, in spite of their socio-economic disadvantage, they attain educational excellence by national standards. Academic resilience is a relative measure, with both socio-economic disadvantage and performance thresholds defined within each country/economy.[1]

ACADEMIC RESILIENCE ACROSS COUNTRIES

Figure II.3.1 shows that some disadvantaged students were able to attain the top quarter of performance in reading in their country. On average across all OECD countries, 11.3% of disadvantaged students were academically resilient. In Baku (Azerbaijan), Croatia, Estonia, Hong Kong (China), Kazakhstan, Kosovo and Macao (China), more than 15% of disadvantaged students were academically resilient. By contrast, in Bulgaria, Hungary, Israel, Luxembourg, Peru, the Philippines and the United Arab Emirates, less than 8% of disadvantaged students were (Table II.B1.3.1).

Figure II.3.1 **Academic resilience**

Percentage of disadvantaged students who scored in the top quarter of reading performance in their own country



Countries and economies are ranked in descending order of the percentage of academically resilient students.

Source: OECD, PISA 2018 Database, Table II.B1.3.1.

StatLink https://doi.org/10.1787/888934037203

Differences between countries in the proportion of resilient students are generally small since academic resilience relies on a relative definition of socio-economic disadvantage and academic performance that is specific to each country's context. The smallest proportion of academically resilient students was observed in Peru, where 6% of students were resilient; the largest proportion – 20% – was observed in Macao (China). Academic resilience reflects the extent to which performance is associated with socio-economic disadvantage. The weaker the association, the larger the proportion of disadvantaged students who end up performing in the top quarter of reading proficiency.

FACTORS RELATED TO ACADEMIC RESILIENCE

Children do not acquire resilience on their own; resilience develops as the product of multiple factors that reflect the interdependence amongst families, communities and schools (Doll, 2012[13]). Resilience is related to parents and teachers, co-operation at school, a positive school climate and a student mindset that acknowledges the potential for improvement and growth (Stewart et al., 2004[14]; Claro, Paunesku and Dweck, 2016[15]; Haimovitz and Dweck, 2017[16]). This subsection explores factors that are associated with academic resilience.

Support from parents and teachers

Children need the support of their parents and their teachers to thrive. Both parents and teachers play an important role in students' lives as role models, and as a source of secure and healthy attachment (Marzano, 2003[17]).

PISA 2018 asked students three questions about whether they receive support from their parents. Students responded on a four-point scale ranging from "strongly disagree" to "strongly agree". Similarly, students were asked four questions about the frequency with which they receive support from their teachers. Again, students responded on a four-point scale ranging from "every lesson" to "never or hardly ever". Two scaled indices were constructed based on the questions. Higher values on the indices indicate greater parental or teacher support.

Figure II.3.2 shows the difference in the proportions of academically resilient students between those who receive the most support from their parents and those who receive the least. In 25 countries and economies, larger proportions of academically resilient students were observed amongst those students in the top quarter of the index of parents' emotional support. For instance, in Kosovo, amongst students who reported receiving strong support from their parents, 29% were academically resilient – a share 20 percentage -points larger than the share of academically resilient students who reported weak parental support (Table II.B1.3.2). This difference was larger than 10 percentage points in Baku (Azerbaijan), Brazil, Georgia, Jordan, Kosovo, Malta, Montenegro, the Philippines and Serbia. Table II.B1.3.2 presents the proportions of resilient students amongst disadvantaged students in each quarter of the index.

When considering teachers' support, there was no difference in the proportion of resilient students amongst those who received more support from their teachers and those who received less. Further findings concerning the index of teacher support can be found in Table II.B1.3.2.

School climate

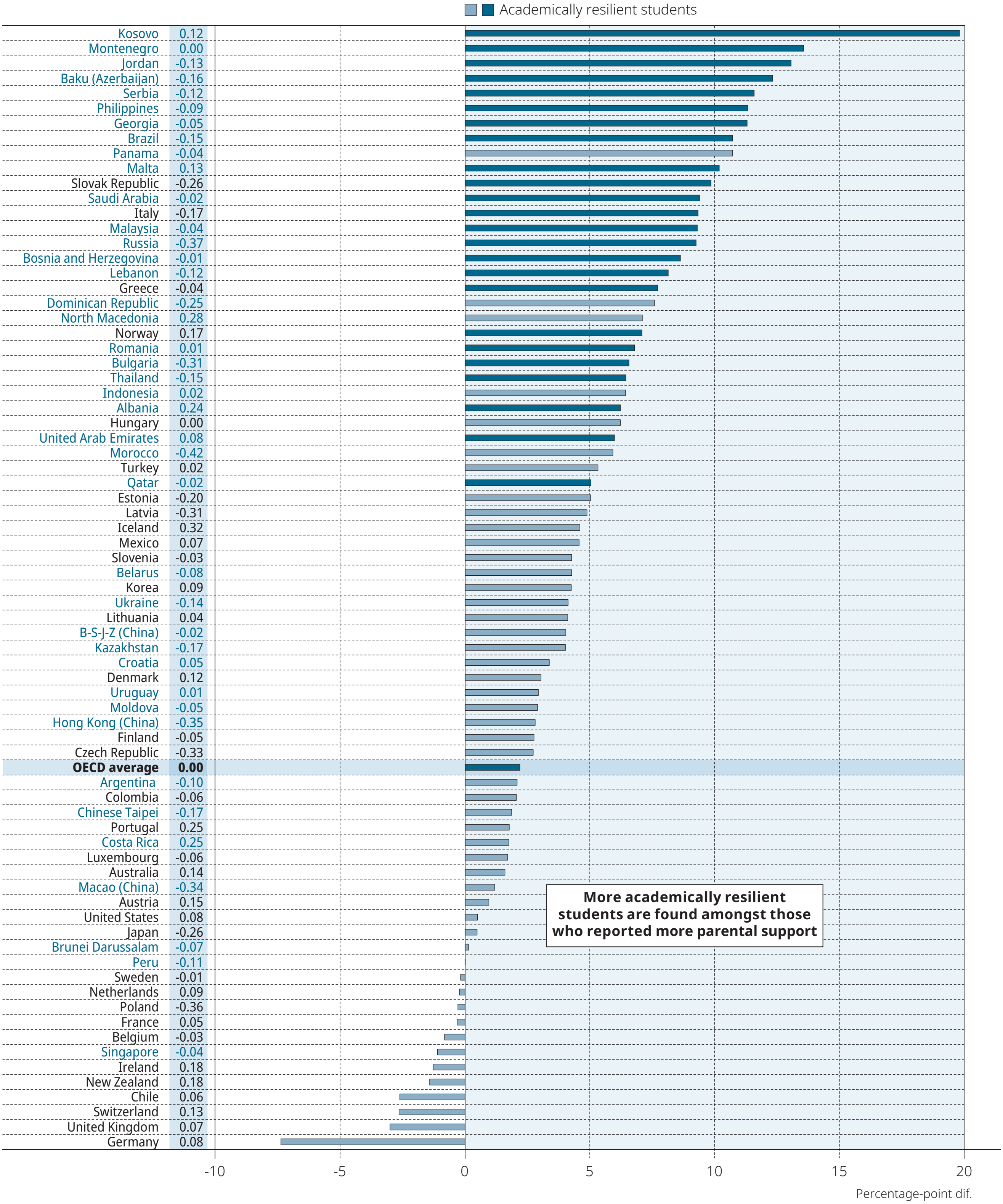
A positive school climate has been shown to be a prerequisite for student achievement and a strong predictor of social and emotional outcomes (Aldridge et al., 2015[18]; Loukas and Robinson, 2004[19]; Roeser, Eccles and Sameroff, 2000[20]). Evidence shows that a positive school climate can nurture resilience while a negative climate is associated with increased behavioural problems (Wang et al., 2010[21]). In this section, three indicators of school climate, as perceived by students, are explored: disciplinary climate, student co-operation and student competition at school. These indicators are explored in *PISA 2018 Results (Volume III): What School Life Means for Students' Lives* (OECD, 2019[22]), with a focus on student outcomes other than resilience.

Students who participated in PISA were asked to describe the frequency ("every lesson", "most lessons", "some lessons", "never or hardly ever") with which the following disruptive activities occur in their language-of-instruction lessons: "Students don't listen to what the teacher says"; "There is noise and disorder"; "The teacher has to wait a long time for students to quiet down"; "Students cannot work well"; and "Students don't start working for a long time after the lesson begins". Students' responses were used to construct the index of disciplinary climate. Higher values in the index indicate better perception of discipline in language-of-instruction lessons.

In addition, students were asked about their perceptions of co-operation and competition at school, They were asked to indicate whether the following statements are true ("not at all true", "slightly true", "very true", "extremely true"): "Students seem to value co-operation"; "It seems that students are co-operating with each other"; "Students seem to share the feeling that co-operating with each other is important"; "Students feel that they are encouraged to co-operate with others"; "Students seem to value competition"; "It seems that students are competing with each other"; "Students seem to share the feeling that competing with each other is important"; and "Students feel that they are being compared with others". Students' responses were used to construct the indices of student co-operation and competition at school. Higher values in the indices indicate a greater perception of student co-operation or competition at school.

Figure II.3.2 **Parents' support and student resilience**

Percentage-point difference between the top and bottom quarters of the index of parents' emotional support



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

Resilient students are disadvantaged students who score in the top quarter of performance in reading amongst students in their own country.

The average of the index of parents' emotional support is shown next to the country/economy name.

Countries and economies are ranked in descending order of the percentage-point difference in academically resilient students between the top and bottom quarters of the index of parents' emotional support.

Source: OECD, PISA 2018 Database, Table II.B1.3.2 and Table II.B1.3.6.

StatLink https://doi.org/10.1787/888934037222

The findings show that, in 35 countries, the share of academically resilient students was larger amongst those who reported a better school climate (Figure II.3.3). The difference in the proportions of resilient students between students in the top quarter of the index of disciplinary climate at school and those in the bottom quarter of that index was 6 percentage points, on average across OECD countries. Differences of more than 12 percentage points were observed in Bosnia and Herzegovina, Italy and Malaysia.

Differences in the shares of academically resilient students were also observed when considering other dimensions of school climate, such as student competition and co-operation, as perceived by the students themselves. In general, a larger share of academically resilient students was found amongst students who perceive greater co-operation at school. On average across OECD countries, the share of academically resilient students was 3 percentage points larger (significant differences found in 12 countries and economies) amongst students in the top quarter of the index of student co-operation than amongst students in the bottom quarter of that index. In other words, there were slightly more academically resilient students amongst those who perceive more co-operation amongst students in their school.

When considering the perception of competition amongst students, in 11 countries and economies the share of academically resilient students was larger amongst students in the top quarter of the index than amongst those in the bottom quarter. The largest differences were observed in Albania, Brunei Darussalam, Korea, Malaysia and Malta, with a difference larger than 8 percentage points. The opposite was found to be true in only two countries (Table II.B1.3.2).

In general, these findings show that more academically resilient students are found amongst those who reported better discipline in their schools. In a few countries, co-operation and competition amongst students seem to be positively related to a greater likelihood of a student being academically resilient.

Beliefs in one's own abilities

When students have a fixed mindset, they tend to believe that their abilities are unchangeable (Hong et al., 1999[23]; Nussbaum and Dweck, 2008[24]). In this context, adolescents may feel that they are not intelligent enough or that they lack personal capacity to meet certain challenges (Yeager et al., 2011[25]). In contrast, students with a growth mindset recognise that these challenges are external, and can thus be confronted and tackled. As such, a growth mindset can contribute to resilience. Even if students have the intellectual and social skills they need, they may not use them unless and until they believe that they can overcome academic, social and emotional adversities (Blackwell, Trzesniewski and Dweck, 2007[26]; Yeager, Trzesniewski and Dweck, 2012[27]).

PISA 2018 asked students whether or not they agree with the statement: "Your intelligence is something about you that you cannot change very much". Answers were given on a four-point scale ranging from "strongly agree" to "strongly disagree", and were combined into a binary indicator of whether or not the student has a growth mindset.

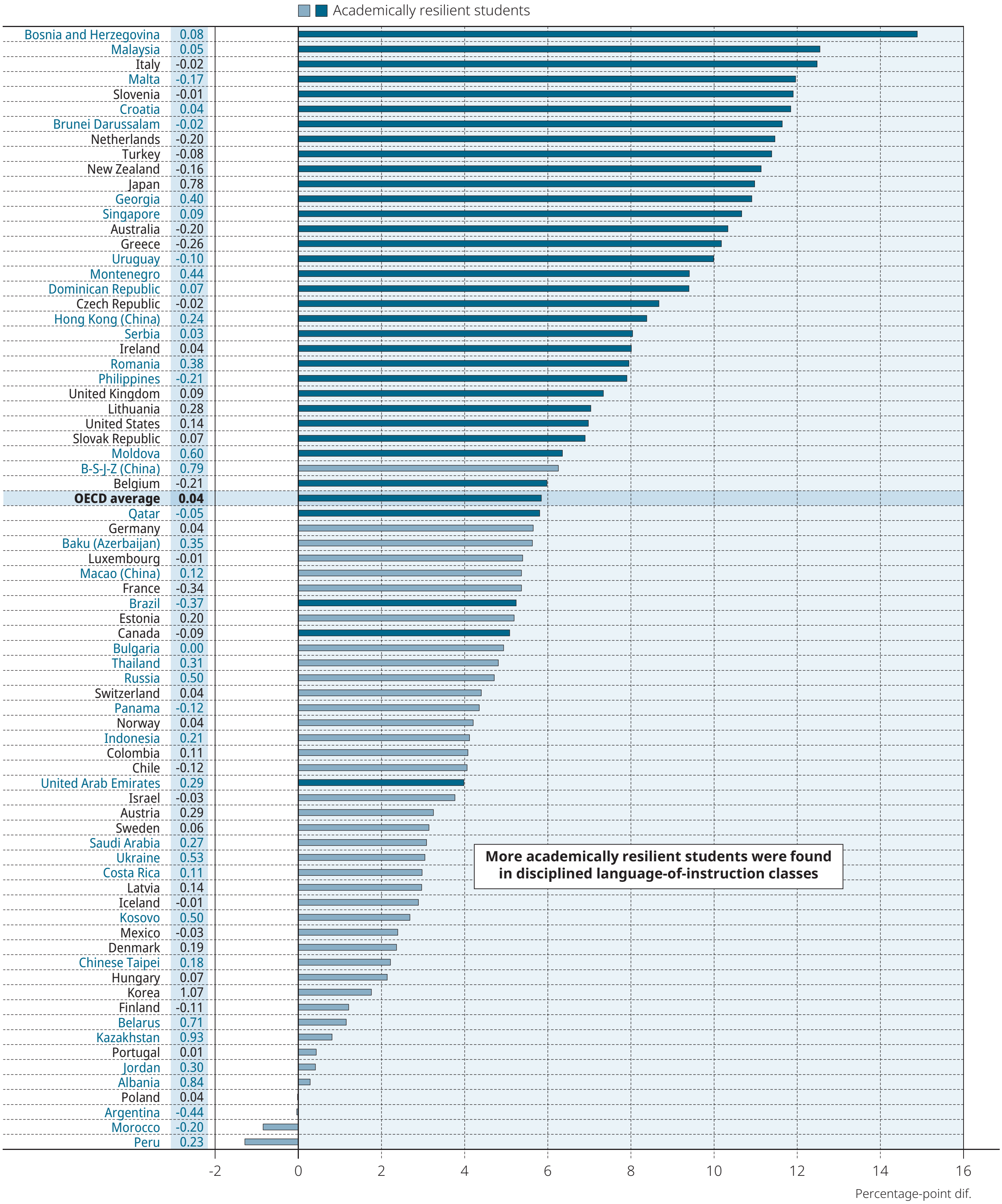
Figure II.3.4 shows the proportion of students who exhibited a growth mindset across countries. The proportion was large and exceeded 70% in Austria, Denmark, Germany, Iceland, Ireland, Latvia, Lithuania and the United Kingdom; the largest proportion – 77% – was observed in Estonia. Proportions were smaller than 30% in Indonesia, Kosovo, the Republic of North Macedonia and Panama. On average across all OECD countries, about 63% of students exhibited a growth mindset. The growth mindset is examined in more detail in Chapter 14 of *PISA 2018 Results (Volume III)*: *What School Life Means for Students' Lives* (OECD, 2019[22]).

The findings in Figure II.3.5 show that in 64 of 77 countries and economies, there were more academically resilient students amongst those students who exhibited a growth mindset than amongst those who exhibited the opposite. Amongst the students in Baku (Azerbaijan), Brunei Darussalam, Colombia, Kazakhstan, Malta, Mexico, Morocco, New Zealand and Uruguay who exhibited a growth mindset, at least 12% more were academically resilient when compared with students who did not exhibit a growth mindset.

Based on all the results reported in this section, students are more likely to be academically resilient when they receive support from their parents, when they perceive a more positive climate at school and when they have a growth mindset.

Figure II.3.3 **Disciplinary climate at school and student resilience**

Percentage-point difference between the top and bottom quarters of the index of disciplinary climate



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

Resilient students are disadvantaged students who score in the top quarter of performance in reading amongst students in their own country.

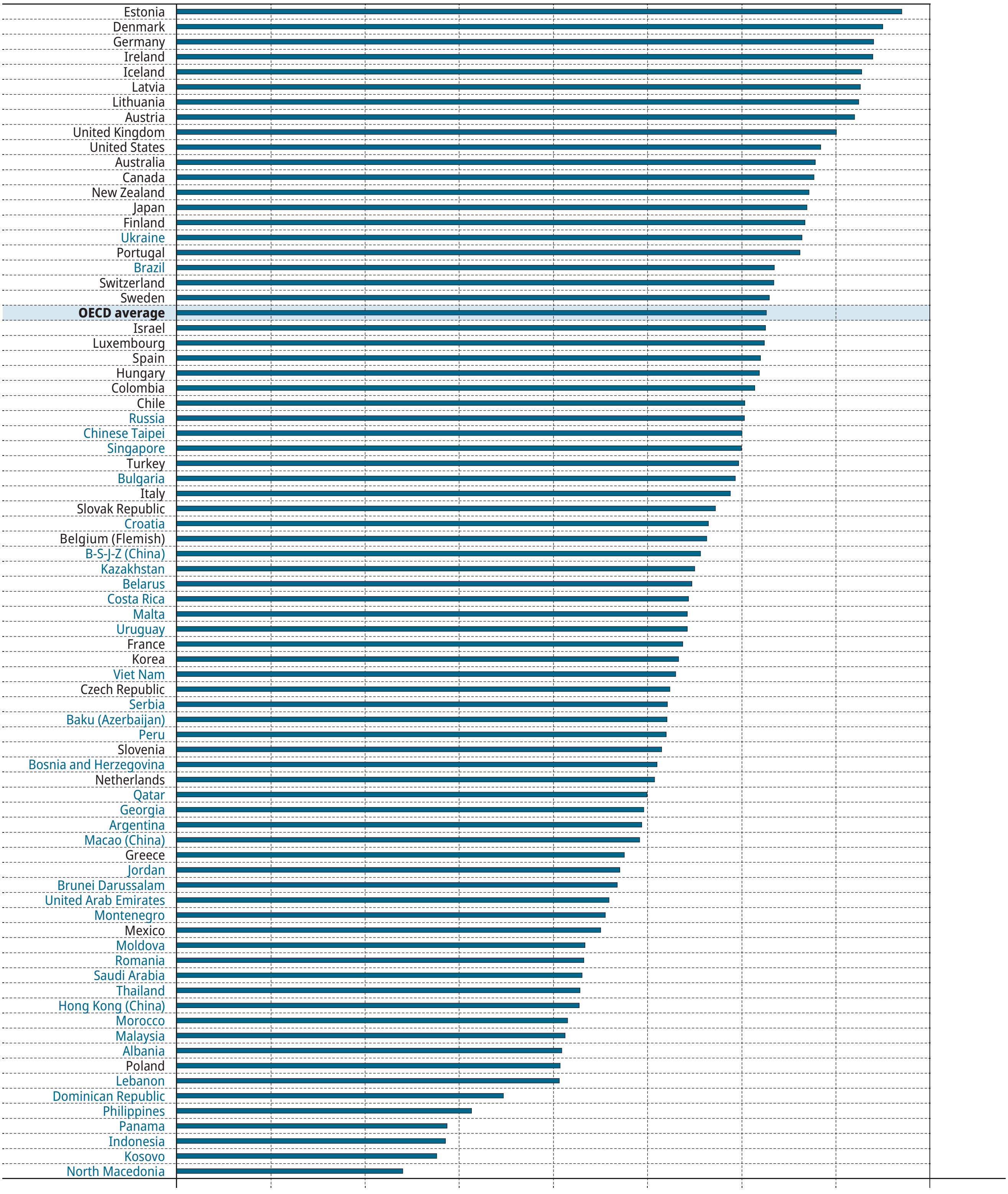
The average index of disciplinary climate is shown next to the country/economy name.

Countries and economies are ranked in descending order of the percentage-point difference in academically resilient students between the top and bottom quarters of the index of disciplinary climate.

Source: OECD, PISA 2018 Database, Table II.B1.3.2 and Table II.B1.3.6.

StatLink https://doi.org/10.1787/888934037241

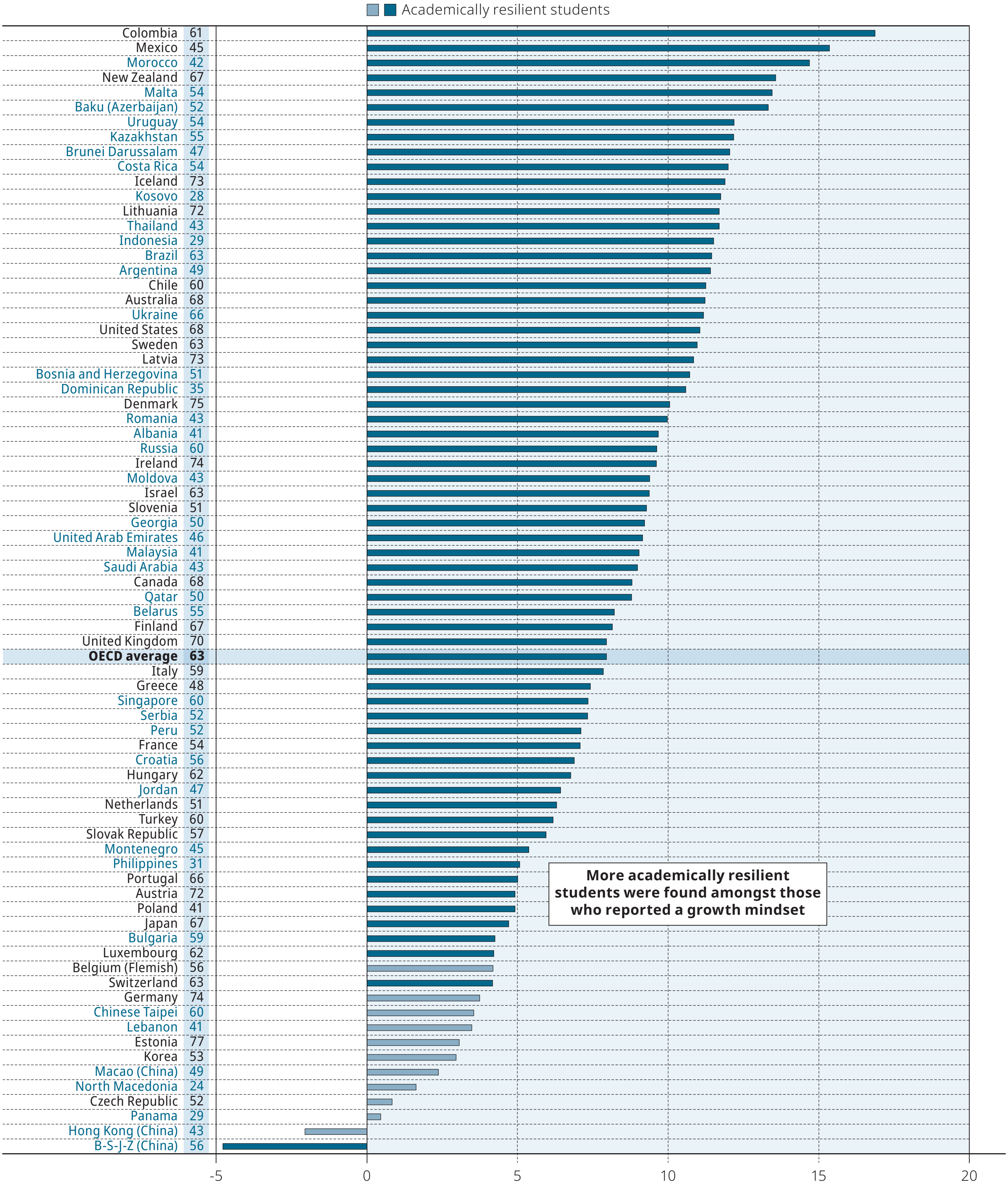
Figure II.3.4 **Proportion of students exhibiting a growth mindset**



Note: Students with a growth mindset are those who believe that their abilities and circumstances are not fixed and can be changed.
Countries and economies are ranked in descending order of the percentage of students who exhibited a growth mindset.
Source: OECD, PISA 2018 Database, Table II.B1.3.6.
StatLink https://doi.org/10.1787/888934037260

Figure II.3.5 **Growth mindset and student resilience**

Percentage-point difference between those who exhibited a growth mindset and those who did not



Notes: Statistically significant differences are shown in a darker tone (see Annex A3).
The percentage of students who exhibited a growth mindset is shown next to the country/economy name.
Students with a growth mindset are those who believe that their abilities and circumstances are not fixed and can be changed.
Resilient students are disadvantaged students who score in the top quarter of performance in reading amongst students in their own country.
Countries and economies are ranked in descending order of the percentage-point difference in academically resilient students between those who exhibited a growth mindset and those who did not.
Source: OECD, PISA 2018 Database, Tables II.B1.3.2 and II.B1.3.6.
StatLink https://doi.org/10.1787/888934037279

HOW ACADEMIC RESILIENCE IS RELATED TO STUDENTS' ATTITUDES AND DISPOSITIONS

Results in the previous section shed light on factors that are positively associated with academic resilience. This subsection explores the association between students' academic resilience, on the one hand, and their attitudes, dispositions and expectations, on the other. The working assumption is that resilient students, who are capable of overcoming adversity, are likely to exhibit positive attitudes and dispositions, such as greater enjoyment of learning, well-being, goal orientation and positive expectations for the future.

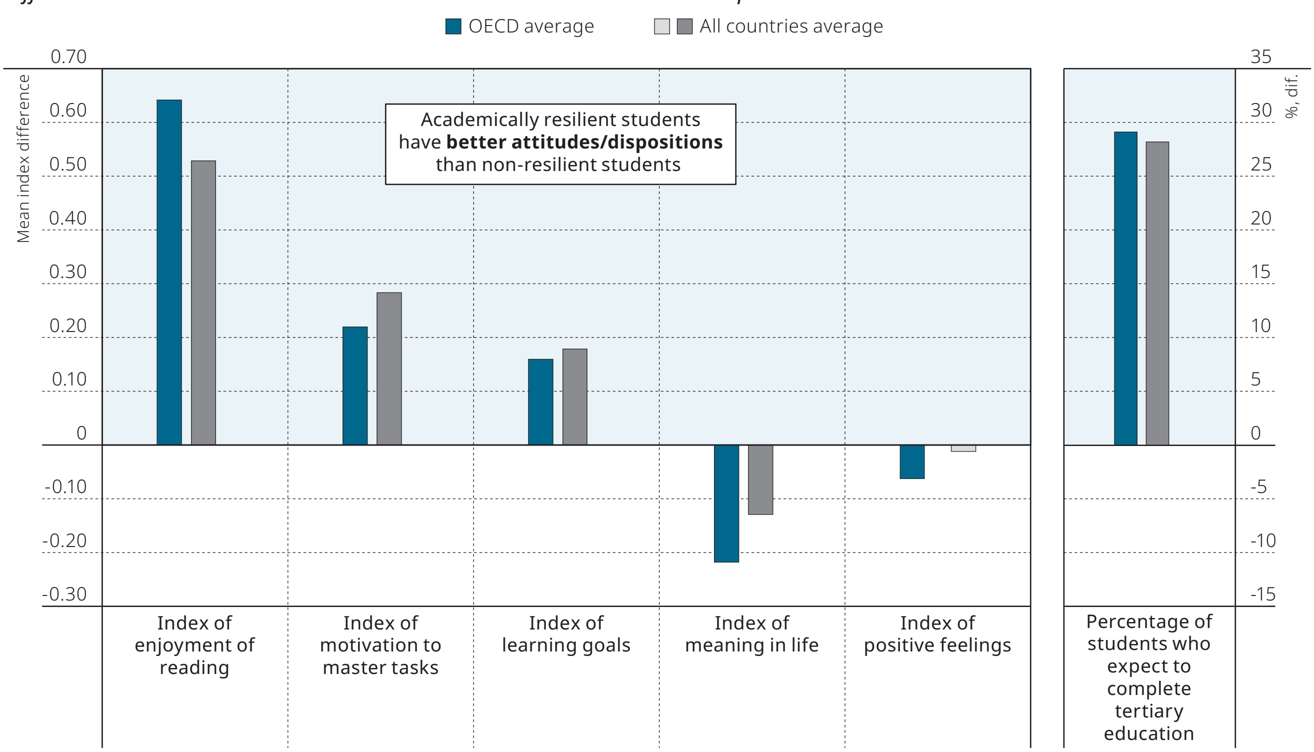
Learning to read is a challenging task that requires persistence in the face of failure (McTigue, Washburn and Liew, 2009[28]). As students persist and ultimately overcome the obstacles to learning they face, they learn to associate effort with better academic performance; ultimately they may start enjoying the fruits of their labour. In this sense, enjoyment of reading and mastery of tasks may be two manifestations of academic resilience. These students do not only overcome adversity, they also take pleasure in doing so (Martin and Marsh, 2006[8]).

Moreover, in an ideal world, students would not only be equipped to overcome unfavourable circumstances but would be motivated to achieve their academic and personal goals (Martin, 2002[29]). Goal-oriented students tend to be resilient and confident in their abilities; they are likely to seek challenges and to be highly persistent (Dweck, 1986[30]). This section explores the associations between goal orientation, expectations of further education and student resilience.

PISA assessed students' enjoyment of reading using five questions about students' attitudes towards the subject. Students' mastery of tasks was measured using four questions exploring whether students derive personal satisfaction from investing effort. Students responded on a four-point scale ranging from "strongly disagree" to "strongly agree". Two scaled indices for enjoyment of reading and mastery of tasks were constructed using the data.

Figure II.3.6 **Resilience and students' attitudes and dispositions**

Differences between resilient and non-resilient students in attitudes and dispositions



Notes: All differences are statistically significant for OECD average, and statistically significant differences are shown in a darker tone for All countries average (see Annex A3).
Resilient students are disadvantaged students who score in the top quarter of performance in reading amongst students in their own country.
Non-resilient students are disadvantaged students who do not score in the top quarter of performance in reading.
For the index of meaning in life, data are only available for the Flemish community in Belgium.
Source: OECD, PISA 2018 Database, Table II.B1.3.3.
StatLink https://doi.org/10.1787/888934037298

Goal orientation was assessed using three statements asking students about their academic goals. Responses were given on a five-point scale ranging from "not at all true of me" to "extremely true of me" and were combined into a scaled index called the index of learning goals. The index of meaning in life, explored in more detail in Chapter 11 of *PISA 2018 Results (Volume III): What School Life Means for Students' Lives* (OECD, 2019[22]), was assessed using three questions with a four-point response scale ranging from "strongly disagree" to "strongly agree". The construction of those indices is described in more detail in Annex A1 of this report.

Figure II.3.6 shows the average difference, across OECD countries, in students' attitudes and dispositions between academically resilient students and those who are not (i.e. disadvantaged students who do not perform in the top quarter of reading proficiency). The findings show that, on average, academically resilient students tended to enjoy reading more, were willing to work hard to master tasks, and indicated a greater ability to set and pursue their goals. However, these students reported having less of sense of meaning in life than students who were not resilient, and there was a minor difference between the two groups of students in their expression of positive feelings. Results for each country are provided in Table II.B1.3.3.

ACADEMIC RESILIENCE AND STUDENTS' WELL-BEING

Schools are not only places where students acquire academic skills, they are also places where they develop the social and emotional skills they need to thrive (OECD, 2017[12]). In this sense, it is not enough for students to reach high levels of proficiency in academic subjects; but it is also important for them to feel happy, confident and integrated. This subsection explores three dimensions of students' well-being: the sense of belonging at school, the ability to overcome failure without doubting future plans, and satisfaction with life. The three factors were chosen because they represent a mix of the quality of relationships students have, a lack of self-doubt, and ultimately overall satisfaction with and a positive appraisal of their own lives. This subsection examines those well-being dimensions in light of academic resilience. For a detailed description of these well-being outcomes beyond academic resilience, see Chapters 9, 11 and 13 in *PISA 2018 Results (Volume III): What School Life Means for Students' Lives* (OECD, 2019[22]).

The first component of student well-being is social integration at school. Students were asked to respond, on a four-point scale, whether they agree or disagree with the statement: "I feel like an outsider (or left out of things) at school". Students who disagreed with the statement were considered to feel socially integrated at school.

The second component is the lack of maladjustment following a failure. Students were asked to respond, on a four-point scale, whether they agree or disagree with the statement: "When I am failing, this makes me doubt my plans for the future". Students who disagreed with the statement were considered to be capable of adjusting positively after experiencing failure.

The third component of students' well-being is based on the following question: "Overall, how satisfied are you with your life these days?" Students were asked to assign a number ranging from 0 to 10, with higher numbers indicating greater satisfaction with life. Students who responded with a value of seven or higher were considered to be satisfied with their lives.

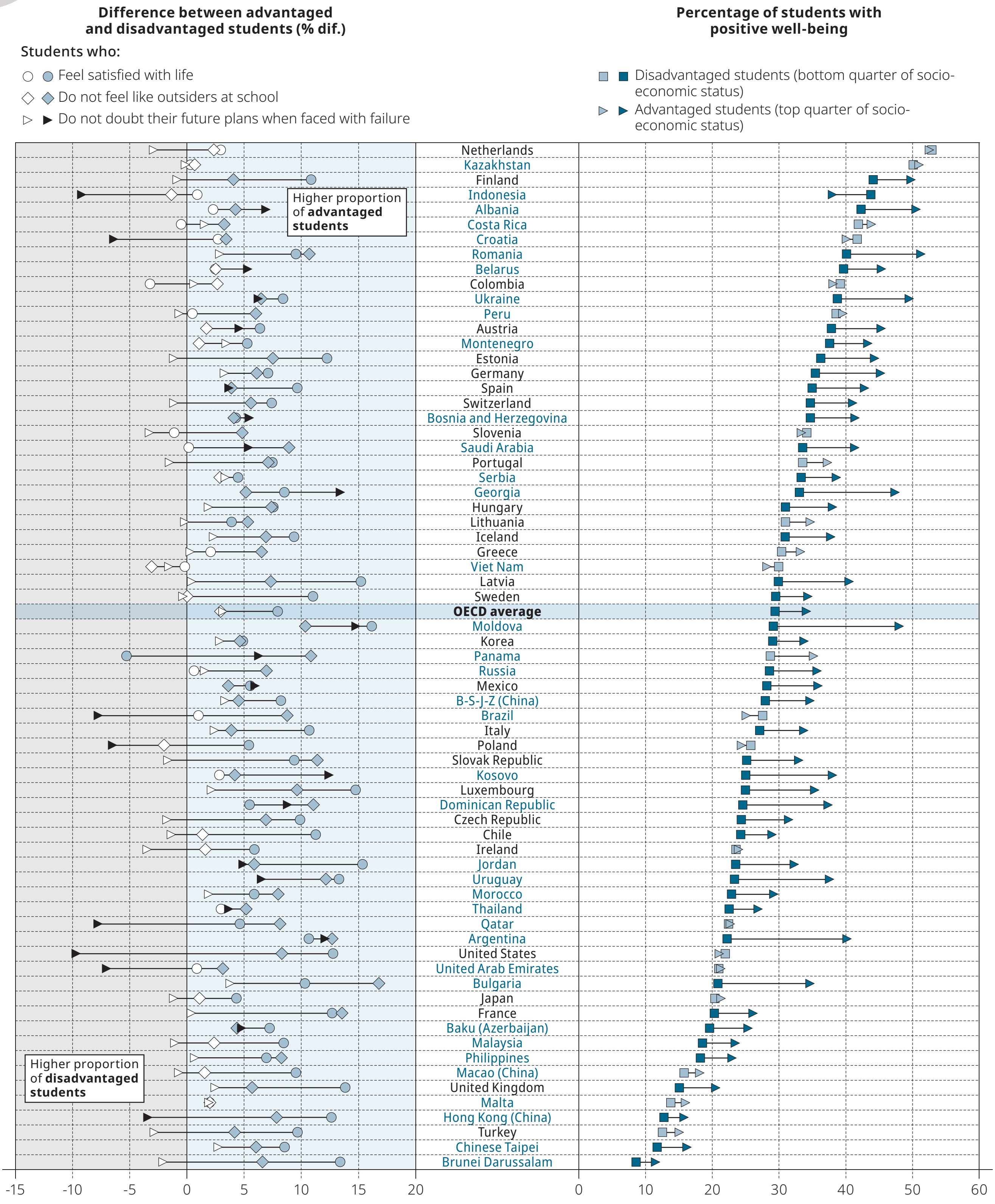
Thus, students who exhibited adequate socio-emotional adjustment and well-being were those who are satisfied with their lives, feel socially integrated at school and do not react negatively to failure (e.g. do not experience self-doubt). In addition to those three binary well-being indicators, a third binary indicator that takes account of all three dimensions was constructed.

Students' well-being and socio-economic status

How is students' socio-economic status related to well-being? Is the relationship negative, as is the case with academic performance? Figure II.3.7 shows the proportion of socio-economically advantaged and disadvantaged students who are satisfied with their lives, do not feel like outsiders in their school and do not doubt their future prospects when confronting failure. As expected, advantaged students were more likely to report greater well-being than their disadvantaged peers. Across all OECD countries, 34% of advantaged students showed positive socio-emotional outcomes across the three dimensions of well-being while only 30% of disadvantaged students did so. Differences between advantaged and disadvantaged students were statistically non-significant in 22 countries and economies.

When each of the well-being measures was considered separately, the findings show that in Jordan, Latvia, Lebanon and the Republic of Moldova (hereafter "Moldova") the share of advantaged students who reported being satisfied with their lives was at least 15 percentage points larger than the share of disadvantaged students who so reported. In Bosnia and Herzegovina, Japan and Lithuania the difference between the two groups of students amounted to around 4 percentage points; and in 20 participating countries/economies, the difference was not significant (Table II.B1.3.4).

Figure II.3.7 **Students' well-being, by socio-economic status**



Notes: Statistically significant differences between advantaged and disadvantaged students are shown in a darker tone (see Annex A3).

Students with positive well-being refers to students who reported that they are satisfied with their lives, do not feel like outsiders at school and do not doubt their future plans when facing failure.

For the index of do not doubt their future plans when faced with failure, data are only available for the Flemish community in Belgium.

Countries and economies are ranked in descending order of the percentage of students in the bottom quarter of socio-economic status.

Source: OECD, PISA 2018 Database, Table II.B1.3.4.

StatLink https://doi.org/10.1787/888934037317

Smaller shares of advantaged students than disadvantaged students reported that they feel like an outsider at school. The difference between the two groups of students exceeded 10 percentage points in Argentina, Bulgaria, the Dominican Republic, France, Moldova, Panama, Romania, the Slovak Republic and Uruguay, compared to the OECD average difference of 5 percentage points. In no country or economy did more advantaged students than disadvantaged students report feeling like an outsider at school.

PISA also shows that more advantaged students than disadvantaged students reported that they do not doubt their plans for the future when facing failure. In 21 countries, including Argentina, Georgia, Kosovo and Moldova, the difference between the two groups exceeded 10 percentage points and was statistically significant. However, in 8 countries/economies, namely Brazil, Croatia, Hong Kong (China), Indonesia, Poland, Qatar, the United Arab Emirates and the United States, larger shares of disadvantaged students reported that they do not doubt their plans for the future when facing failure. On average across OECD countries, the difference between the two groups was not significant.

In summary, the results show some differences in well-being in favour of socio-economically advantaged students. However, those differences tend to be smaller than differences in academic performance between advantaged and disadvantaged groups. The following subsection examines the association between well-being and academic resilience.

Do academically resilient students enjoy greater well-being?

This section explores students' well-being in the context of academic resilience. Figure II.3.8 presents the percentage-point difference in well-being between students who are academically resilient and those who are not.

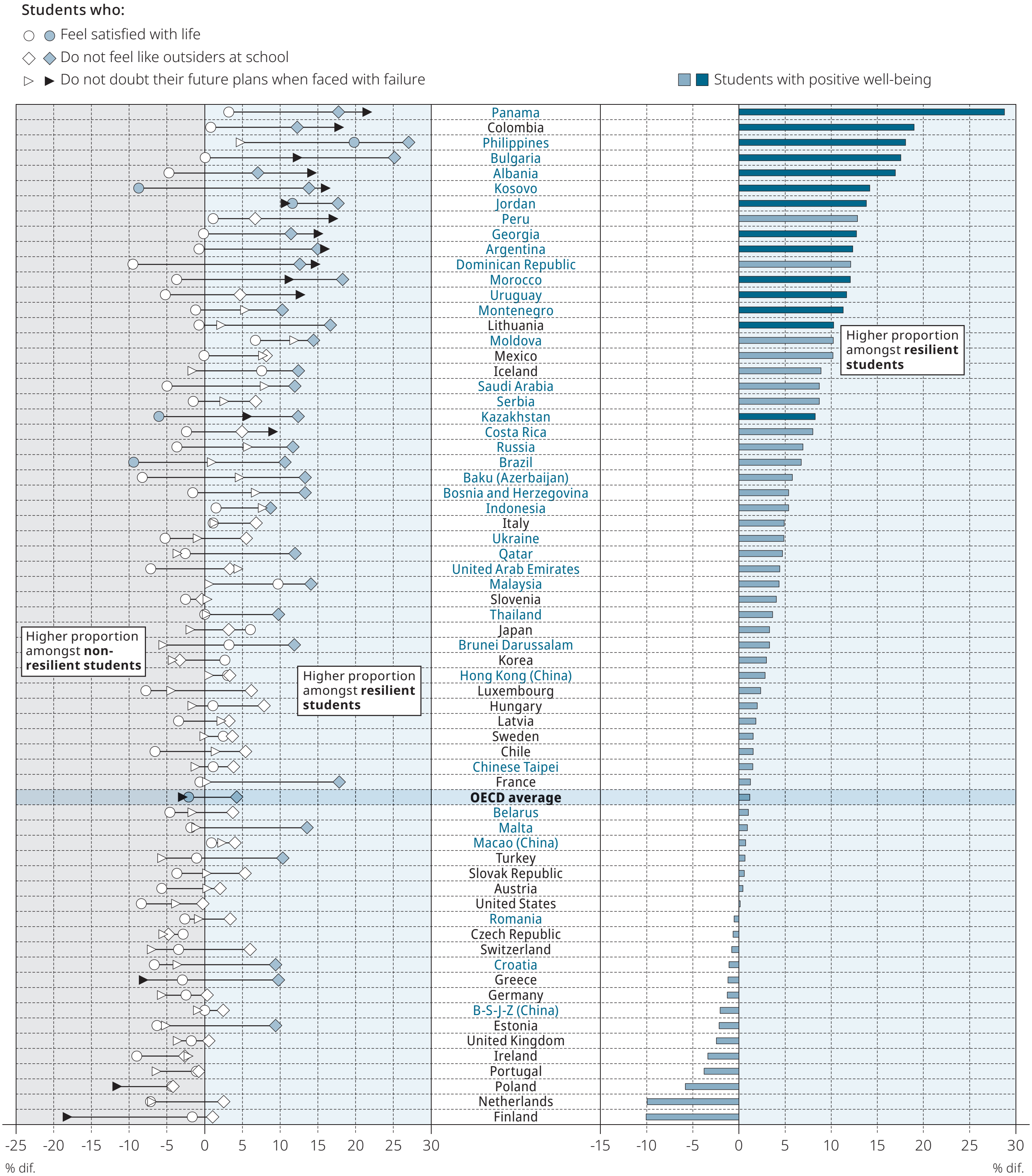
In general, there was no significant difference in well-being between academically resilient students and students who were not academically resilient. However, there were a number of exceptions. The findings show that in 14 of 67 countries and economies, when the three dimensions of well-being were considered together, more academically resilient students than non-resilient students reported positive well-being (i.e. students are satisfied with their lives, do not feel like outsiders at school and do not doubt their future plans when facing failure). The difference between the two groups of students in the proportion of those who reported more positive well-being exceeded 14 percentage points in Albania, Bulgaria, Colombia, Kosovo, Panama and the Philippines. On average across OECD countries, the difference is non-significant (Table II.B1.3.5).

When the three dimensions of well-being were considered separately, a larger proportion of academically resilient students were found to be satisfied with their lives compared with non-resilient students. This was the case in Jordan, Lebanon and the Philippines. The reverse was observed in Brazil, Kazakhstan, Kosovo, and on average across OECD countries. When it comes to sense of belonging at school, academically resilient students were more likely not to feel like outsiders at school. This was observed in 34 of 74 countries and economies. On average across OECD countries, the proportion of students who reported that they do not feel like outsiders at school was four percentage points larger amongst resilient students than amongst their non-resilient peers. Differences exceeded 15 percentage points in Bulgaria, France, Jordan, Lithuania, Morocco, Panama and the Philippines. In 14 of 75 countries and economies, a higher percentage of academically resilient students than non-resilient students reported that they do not doubt their plans after experiencing a failure. The opposite was observed in seven countries and on average across OECD countries, with a difference of three percentage points between the two groups of students.

In summary, the findings show that in a few countries, students who are academically resilient tend to have more positive well-being outcomes. In spite of their relative socio-economic disadvantage, those students are capable of attaining academic excellence by national standards, and exhibiting strong social and emotional adjustment.

Figure II.3.8 **Students' well-being, by academic resilience**

Percentage-point difference between students who are academically resilient and those who are not



Notes: Statistically significant differences between students who are resilient and those who are not are shown in a darker tone (see Annex A3).

Resilient students are disadvantaged students who score in the top quarter of performance in reading amongst students in their own country.

Non-resilient students are disadvantaged students who do not score in the top quarter of performance in reading.

Students with positive well-being refers to students who reported that they are satisfied with their lives, do not feel like outsiders at school and do not doubt their future plans when facing failure.

For the index do not doubt their future plans when faced with failure, data are only available for the Flemish community in Belgium.

Countries and economies are ranked in descending order of the percentage-point difference between students who are academically resilient and those who are not.

Source: OECD, PISA 2018 Database, Table II.B1.3.5.

StatLink https://doi.org/10.1787/888934037336

Notes

1. Two other forms of resilience were used in PISA: international and core-skills resilience. They both rely on an international definition of academic performance that is not country specific. A full description of the different forms of resilience can be found in the PISA thematic report, *Equity in Education: Breaking Down Barriers to Social Mobility* (OECD, 2018[10]).

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PISA

4

Social diversity and equity in learning outcomes

This chapter discusses how academic and socio-economic stratification between schools is related to equity and performance in a school system. It describes how performance varies between schools and how students are sorted across schools depending on their socio-economic status and ability. The chapter examines how the social mix in schools may be related to school-enrolment practices, and compares the degree of social diversity between public and private schools.

When education is "fair", all children can benefit from the teaching that suits them best. Yet too often, the type of school a child attends depends on his or her family's resources and conditions rather than his or her specific education needs. A school's intake at least partially reflects the social mix of the area in which the school is located, and thus residential segregation based on income may result in social homogeneity in schools.[1] Moreover, social segregation across schools may arise from families' choices, when, for example, only the most informed and educated families choose to opt out of a local school, or if the schools most in demand are allowed to "cream skim" the brightest students or charge high fees (OECD, 2019[1]). As academic performance is often related to family background, school systems that favour ability sorting between schools, such as by tracking students into different streams, may also reinforce social stratification between schools.

High levels of social and ability stratification between schools can have an impact on the learning opportunities available to students and thus on education outcomes (Reardon and Owens, 2014[2]). The socio-economic composition of a school often determines the availability of certain "resources" that matter for student learning, such as the quality and quantity of teachers (see Chapter 5). Limited social and ethnic diversity in schools implies that disadvantaged students are more likely to be enrolled in schools that have disproportionately large concentrations of low achievers – which also affects their performance. Unless disadvantaged schools are allocated sufficient resources to compensate for their shortfalls, social and academic segregation between schools may thus widen the gaps in outcomes related to socio-economic status.

What the data tell us

- In PISA 2018, 29% of the OECD average variation in reading performance was observed between schools; the remaining part of the variation was observed within schools. In Baku (Azerbaijan), Canada, Denmark, Finland, Iceland, Ireland, Norway and Portugal between-school differences accounted for less than 15% of the total variation in performance. In Bulgaria, Germany, Israel, Lebanon, the Netherlands and the United Arab Emirates, differences between schools accounted for more than 50% of the total variation in the country's/economy's performance.
- Amongst those countries and economies that participated in PISA 2018, the least social diversity within schools was observed in Albania, Argentina, Brazil, Chile, Colombia, Indonesia, Mexico, Peru and the Slovak Republic.
- Disadvantaged students are more or less likely to attend the same schools as high achievers, depending on the school system. In Argentina, Bulgaria, Colombia, the Czech Republic, Hungary, Israel, Luxembourg, Peru, Romania, the Slovak Republic, the United Arab Emirates and Switzerland, a typical disadvantaged student has less than a one-in-eight chance of attending the same school as high achievers (those who score in the top quarter of reading performance in PISA). By contrast, in Baku (Azerbaijan), Canada, Denmark, Estonia, Finland, Iceland, Ireland, Kosovo, Macao (China), Norway, Portugal and Sweden, disadvantaged students have at least a one-in-five chance of having high-achieving schoolmates.

ACADEMIC STRATIFICATION OF SCHOOLS

PISA results consistently show that in many education systems, average performance measured at the school level varies within and between schools. Academic stratification across schools may arise because of differences in schools' ability to support their students in their schoolwork. This, in turn, may signal differences in how resources are distributed across schools, or in how productively those resources are used. Variations in performance between schools may also arise because of the way students are allocated to schools. As high-achieving students are more likely to continue to succeed in school, schools that enrol a majority of high achievers are also more likely to obtain good average results without having to exert any particular effort (Deming, 2014[3]; Reardon and Raudenbush, 2009[4]; Raudenbush and Willms, 1995[5]).

Sorting students by ability may be related to system-level features, such as the use of tracking into separate streams, or admissions policies that allow schools to select students based on ability. Comprehensive school systems, i.e. those that do not sort students into programmes or schools based on ability, are expected to show smaller between-school variations in performance (see *PISA 2018 Results [Volume V]: Effective Policies, Successful Schools* (OECD, forthcoming[6]), which examines in detail how system- and school-level policies vary and are related to performance differences between students and schools). The systems that try to meet the needs of diverse students by creating different tracks or pathways through education and inviting students to choose amongst them tend to show larger between-school variations, especially if tracking is based on academic performance.

Stratification of schools by ability may also be the result of the way students are allocated to schools based on their prior achievement. Some "elite schools" aim specifically to serve academically gifted students. These include public boarding selective schools in China (Shi, 2019[7]), "exam high schools" in some cities in the United States (Pathak, Angrist and Abdulkadiroglu, 2014[8]; Dobbie and Fryer, 2014[9]; AbdulkadIroğlu et al., 2017[10]) and grammar schools in the United Kingdom (Clark, 2010[11]). Ability-based allocation may not be limited to the existence of these kinds of schools; it can also result from large-scale school-choice programmes that encourage the allocation of students to schools based on students' academic record. Such programmes are in place for instance for public secondary schools in Romania (Pop-Eleches and Urquiola, 2013[12]) and in Paris, France (Fack, Grenet and He, 2019[13]).

The consequences of sorting by ability on performance and equity are difficult to measure (Manski, 1993[14]). They are related to the magnitude and direction of "peer effects" at school – the extent to which the performance of one student is affected by that of his or her classmates. The issue of peer effects has been long and hotly debated (for a survey, see Sacerdote, 2011[15]). However, over the past two decades, some consensus has emerged on the detriment to a student's performance of being surrounded by struggling classmates (Burke and Sass, 2013[16]; Hanushek et al., 2003[17]; Lavy, Silva and Weinhardt, 2012[18]; Burke and Sass, 2013[16]).[2] Low achievers may require more of the teacher's attention than other children, especially as struggling students are also more likely to be disruptive (Lavy, Paserman and Schlosser, 2011[19]). In turn, this may result in reduced teaching time, or in teachers deciding to adapt their teaching to the needs of the lowest performers – often at the expense of the other students in the class.

In addition, some studies suggest that students who are themselves low achievers may be the most sensitive to the composition of their classes (Mendolia, Paloyo and Walker, 2018[20]; Lavy, Silva and Weinhardt, 2012[18]; Burke and Sass, 2013[16]). By contrast, high-performing students tend to be less affected than their low-achieving peers by the composition of their classes.[3] Stratification by ability may thus widen pre-existing disparities in performance. At the aggregate level, the impact on average performance is unknown, as it will depend on whether high achievers benefit more from attending school with other high achievers than low achievers are harmed by being surrounded with other struggling students (Lavy, Silva and Weinhardt, 2012[18]; Sacerdote, 2011[15]). In any case, the magnitude of the benefit or detriment to students depends on how the school is organised, including whether disadvantaged schools are allocated more resources, and the teaching practices that are used, notably regarding the ability of teachers to teach heterogeneous classes.

Between- and within-school variation in performance

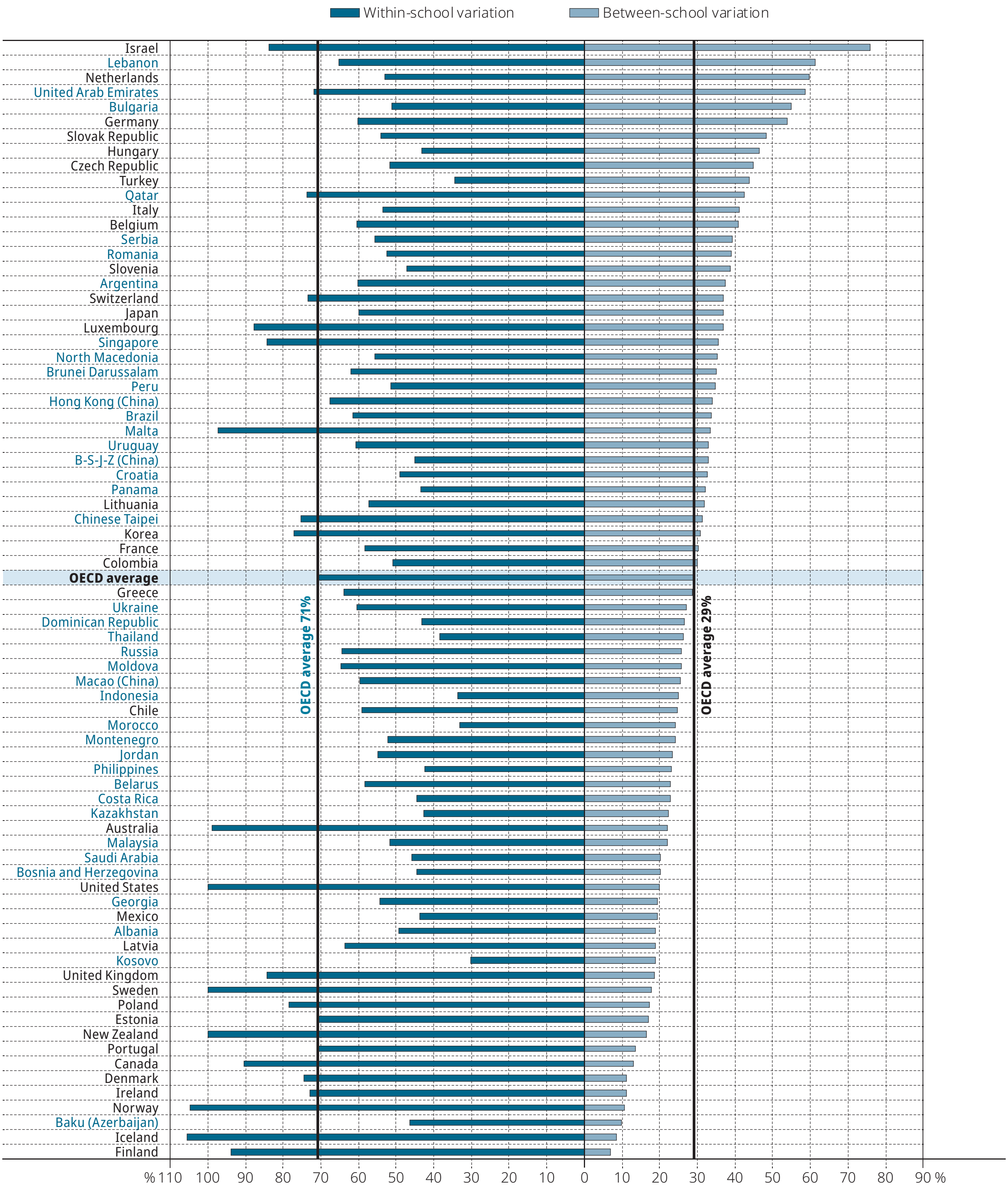
For the sake of comparability between countries, all analyses in this chapter (and in the following chapter) are restricted to schools with the modal ISCED level for 15-year-old students. PISA assesses 15-year-old students enrolled in grade 7 or higher (for details, see Chapter 3 of *PISA 2018 Results [Volume I]: What Students Know and Can Do* (OECD, 2019[21])). This makes cross-country comparisons at the student level more accurate than selecting students in the same grade. Depending on the institutional features of the education system (notably the age at entry into compulsory schooling or pre-primary schooling and grade-retention policies), students in the same grade may have different education histories, making comparisons between school systems unfair.

However, 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]

In PISA 2018, 29% of the OECD average variation in reading performance was observed between schools (right side of Figure II.4.1); the remaining part of the variation was observed within schools (left side of the figure). The extent of between-school variation in reading performance differed widely across school systems, though. In Canada, Denmark, Finland, Ireland, Norway and Portugal,[5] between-school differences accounted for less than 15% of the total variation in performance, while average reading performance in these countries is higher than the OECD average (Table II.B1.4.1). By contrast, in Bulgaria, Germany, Israel, Lebanon,[6] the Netherlands and the United Arab Emirates, differences between schools accounted for more than 50% of the total variation in the country's/economy's performance. In these countries except Germany, the variation in performance was greater than the OECD average, while average performance was lower than the OECD average.[7]

The between-school variation in performance is positively related to the total variation in performance observed at school-system level (Figure II.4.11, available on line). However, the strength of the relationship is weak (the R^2 = 0.23). For instance, in Australia, Canada, Finland, Iceland, New Zealand, Norway, Sweden, the United Kingdom and the United States, the level of variation in performance is high compared to the OECD average, while the variation between schools is low.

Figure II.4.1 **Variation in reading performance between and within schools**



Note: In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students (see Annex A3).

Countries and economies are ranked in descending order of the between-school variation in reading performance, as a percentage of the total variation in performance across OECD countries.

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

StatLink https://doi.org/10.1787/888934037355

Isolation indices of high and low achievers

The performance distribution within a country may affect both equity and average achievement at the country level level (for more discussion see OECD, 2019[1]); for a discussion, see OECD, 2019[1]). A student's performance may be at least partially influenced by that of his or her schoolmates. Schoolmates can motivate each other and help each other overcome learning difficulties; but they can also disrupt instruction, require disproportionate attention from teachers, and be a source of anxiety. However, much recent empirical evidence emphasises that, depending on their own level of ability, some students are more sensitive than others to the composition of their classes (Mendolia, Paloyo and Walker, 2018[20]; Lavy, Silva and Weinhardt, 2012[18]; Burke and Sass, 2013[16]). Measuring the concentration of high and low performers in a school thus provides a more accurate and informative indication of the degree of stratification between schools.

Isolation indices provide an indication of whether school systems create "clusters" of students based on their academic performance (see Box II.4.1). Higher values in the indices mean that low achievers are more often isolated in certain schools with students of similar ability; lower values in the indices correspond to a more varied distribution of student abilities within schools. From these indices, one may calculate the opportunities available for a student from one particular group to interact at school with students who do not belong to the same group (see Annex A3 for a more complete description). For instance, a value of 0.30 in the isolation index of low achievers means that a student who scores in the bottom quarter of the distribution of PISA performance within a country has around one-in-two chance of attending the same school as students who are also low achievers, while this likelihood would have been only one in four if students had been uniformly distributed across schools.[8] Similarly, the isolation index of high achievers measures the concentration in certain schools of those students who score in the top quarter of the distribution of PISA performance in their country, i.e. whether these students are isolated in certain schools with other high-performing students (high values in the index) or are more often "mixed" with students of lower ability (low values in the index).

Box II.4.1. **The isolation index: An illustration**

There are a variety of ways to measure residential or school segregation; for a review, see, for instance (Frankel and Volij, 2011[22]). A first family of measures focuses on the interactions between groups of students. The "isolation index" used in this chapter is related to the probability that an average student from group A will be in contact at school with members of group B (see Annex A3 for details on computation). This index ranges from 0 (no segregation) to 1 (full segregation).

The following schemas provides an illustration, in very simplified cases.

Figure II.4.2 **Complete vs no segregation cases (illustrative example 1)**

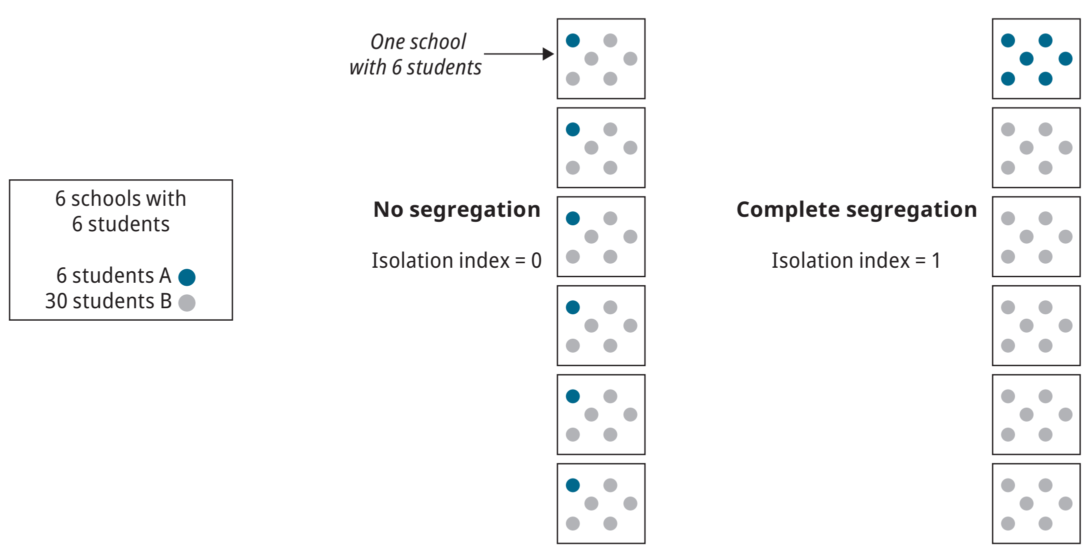


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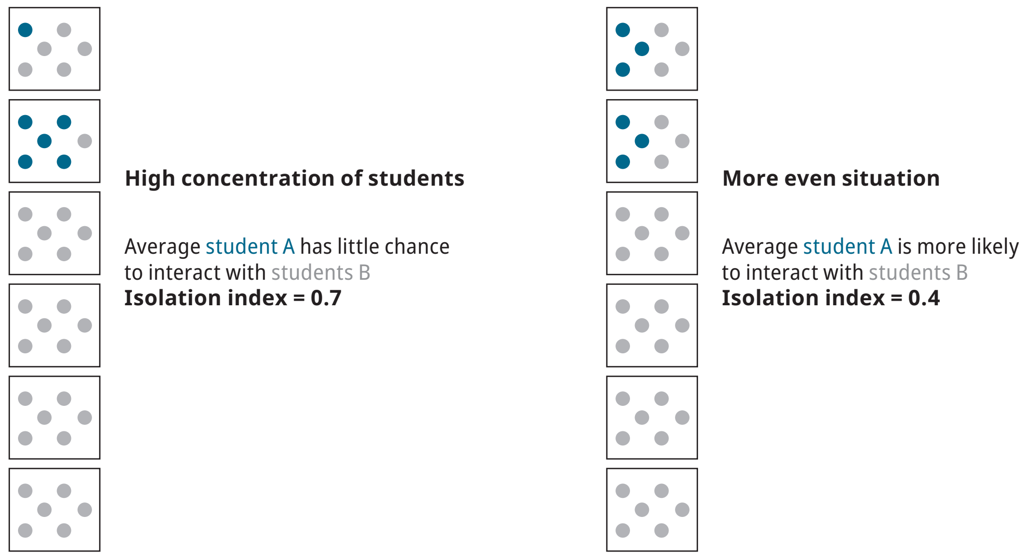
Figure II.4.3 **Complete vs no segregation cases (illustrative example 2)**



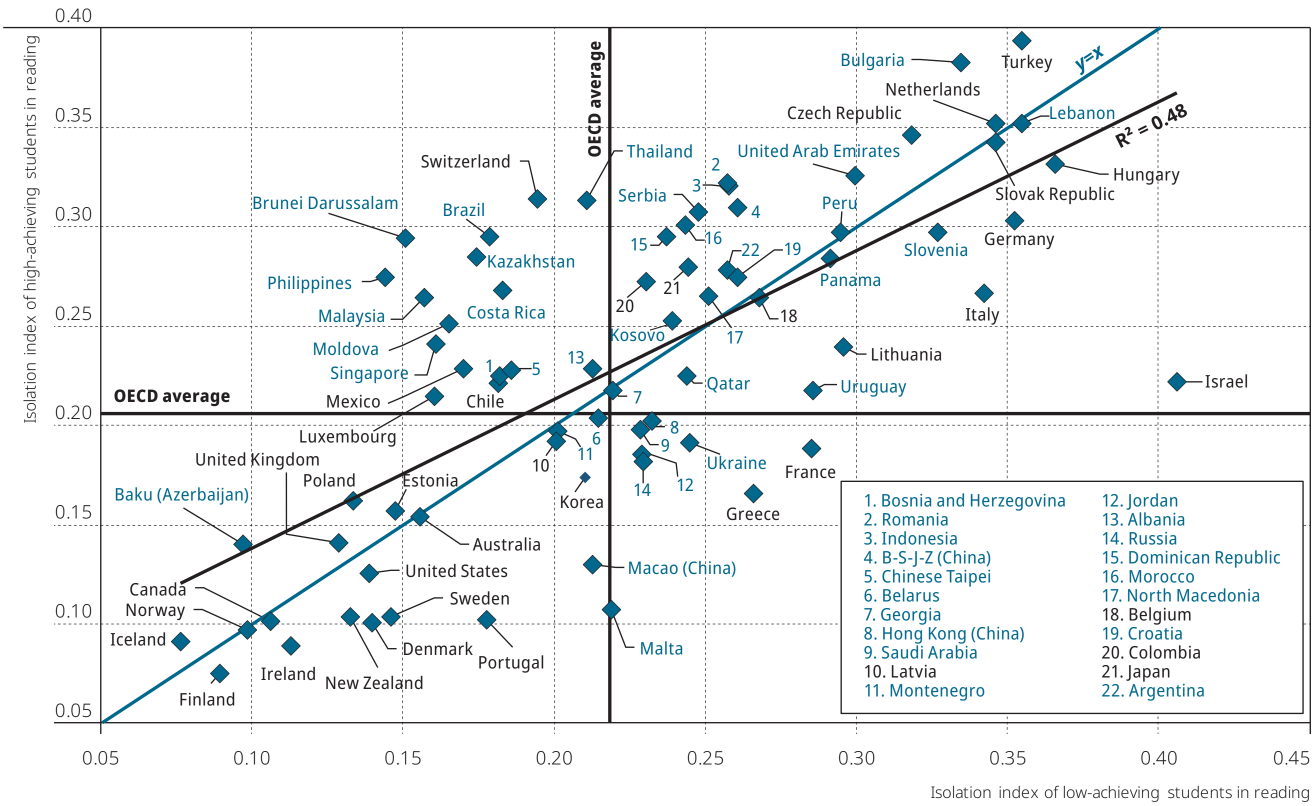
One may also calculate a version of the isolation index using two categories that do not constitute a division of the population – for example, when measuring disadvantaged students' exposure to high achievers in the country. In this case, the two groups taken together may not constitute the entire population, and in this example may partially overlap, as some disadvantaged students may be also high achievers. The lowest value (0) is observed when the two subgroups are clustered in the same schools; the highest value (1) is observed when they are both clustered but in different schools. Medium values (0.5) are observed when the two populations are randomly mixed within the schools.

Isolation indices are adequate when one singles out one group of students (for instance, disadvantaged students) from all other students (for instance, all non-disadvantaged students, including advantaged students and those of average socio-economic status). The no social diversity index (see Annex A3 for a description), referred to as the "mutual information index" or the "entropy index" (Frankel and Volij, 2011[22]; Reardon and Firebaugh, 2002[23]), may be measured using a partition related to the four quarters of the national distribution of socio-economic status. The no social diversity index goes from 0 (no segregation) to 1 (full segregation). Unlike the isolation index, it is additively decomposable, for example, depending on the type of school (public or private).

In 2018, the indices of isolation of low and high achievers were strongly correlated, as expected. Higher concentrations of both low- and high-achieving students in distinct schools were observed in Bulgaria, the Czech Republic, Germany, Hungary, Lebanon, the Netherlands, the Slovak Republic, Slovenia, Turkey and the United Arab Emirates, where both indices were greater than 0.30 (Figure II.4.4). This means that in these countries low achievers are concentrated in some schools and high achievers are concentrated in others. This may be the result of variations in school efficiency: some schools succeed in helping all their students achieve at high levels, while others have little or no impact on students' performance. Such variability in efficiency may be due to differences in the allocation of resources to schools (see Chapter 5); it may also result from policies that allocate students to schools based on students' abilities. By contrast, the values in both indices were lower than 0.15 in Baku (Azerbaijan), Canada, Denmark, Finland, Iceland, Ireland, New Zealand, Norway, Sweden, the United Kingdom and the United States. In these countries/economies, students of varying ability were likely to attend the same school.

The degrees of isolation of high and low achievers did not always coincide, though. For instance, in Brazil,[9] Brunei Darussalam, Kazakhstan, Malaysia, the Philippines, Switzerland and Thailand the concentration of high-performing students in some schools was much greater than the concentration of low achievers in certain schools. This kind of academic segregation "at the top" may be the result of explicit tracking of the best students into some "elite schools", based on their previous academic record; see, for instance, Pathak, Angrist and Abdulkadiroglu, 2014[8]; Dobbie and Fryer, 2014[9]; AbdulkadIroğlu et al., 2017[10]; Shi, 2019[7]; Clark, 2010[11]. In almost all of these countries/economies, more than one in three students were in schools whose principal reported that "a student's record of academic performance, including placement tests, are always used for admission" (Table II.B1.4.3).

Figure II.4.4 **Isolation index of low- and high-achieving students in reading**



Notes: In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students (see Annex A3).

The isolation index measures whether students of type A are more concentrated in some schools. The index is related to the likelihood of a representative type A student to be enrolled in schools that enrol students of another type. It ranges from 0 to 1, with 0 corresponding to no segregation and 1 to full segregation (see Annex A3 for a more complete description).

Low-achieving students are students who scored amongst the bottom 25% of students within their country or economy on the PISA test.

High-achieving students are students who scored amongst the top 25% of students within their country or economy on the PISA test.

Source: OECD, PISA 2018 Database, Table II.B1.4.2.

StatLink https://doi.org/10.1787/888934037374

By contrast, in France, Greece, Israel and Malta, the concentration of low achievers in a limited set of schools was much greater than that of high achievers.[10] In France, more than 15% of students were enrolled in vocational education (Table II.B1.4.4) and the observed performance of students in vocational education appeared to be much lower than that of students in general or modular education (by 110 score points; see Table II.B1.4.5). These two observations combined may explain why higher concentrations of low performers were observed in some schools.

SOCIAL SEGREGATION ACROSS SCHOOLS

Between- and within-school variations

How the variation in performance is distributed between and within schools is often related to the degree of socio-economic diversity across schools. On average across OECD countries in 2018, 76% of the variation in the PISA index of economic, social and cultural status of students in the modal grade for 15-year-olds was observed within schools, as indicated by the value in the index of social inclusion. The remainder of the variation in students' socio-economic status was observed between schools (Table II.B1.4.6). This implies that, on average, one may observe more socio-economic diversity amongst students who attend the same schools than amongst students attending different schools.

As discussed above, academic segregation may be the result of differences in schools' efficiency, or of the deliberate policy of streaming, either into different tracks of education, such as vocational or academic, or into "elite schools". In the latter case, social segregation is often a by-product of these policies. Social segregation across schools may reflect academic segregation, given that achievement and socio-economic status are positively related in all countries and economies.

Socio-economic segregation may also be related to contextual factors, such as residential segregation. The social composition of a school partially reflects that of the area in which the school is located. In countries where families of different socio-economic status live in separate neighbourhoods, students are likely to attend school with peers of similar socio-economic status. Socio-economic segregation may also be amplified, or mitigated, by the freedom given to families to attend a school other than the one in their neighbourhood (OECD, 2019[1]).

Isolation indices of disadvantaged and advantaged students

As with academic segregation, one may analyse whether social segregation between schools is better explained "at the bottom", by the concentration of disadvantaged students in some schools, or "at the top", by the concentration of advantaged students in some schools. This can be done using isolation indices of disadvantaged and advantaged students, respectively. Higher values in the indices mean that students are more often isolated in certain schools, based on their socio-economic status.

In 58 of the 79 countries and economies that participated in PISA 2018, advantaged students were less likely, on average, to attend the same schools as average or disadvantaged students than disadvantaged students were likely to attend the same school as more advantaged students. In other words, the isolation index of advantaged students was higher than the isolation index of disadvantaged students (Figure II.4.5). This situation was especially marked in Beijing, Shanghai, Jiangsu and Zhejiang (China) (hereafter "B-S-J-Z [China]"), Chile, Costa Rica, Hong Kong (China), Macao (China), Panama, Thailand and Turkey. High concentrations of advantaged students in some schools may result if, for instance, some private schools charge high tuition fees, thereby discouraging all but the most affluent families from enrolling their children in these schools.

Figure II.4.5 **Isolation index of advantaged and disadvantaged students**

Notes: In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students (see Annex A3).

The isolation index measures whether students of type A are more concentrated in some schools. The index is related to the likelihood of a representative type A student to be enrolled in schools that enrol students of another type. It ranges from 0 to 1, with 0 corresponding to no segregation and 1 to full segregation (see Annex A3 for a more complete description).

A socio-economically advantaged student is a student in the top quarter of the PISA index of economic, social and cultural status (ESCS) in his or her own country/economy.

A socio-economically disadvantaged student is a student in the bottom quarter of the PISA index of economic, social and cultural status (ESCS) in his or her own country/economy.

Source: OECD, PISA 2018 Database, Table II.B1.4.7.

StatLink https://doi.org/10.1787/888934037393

In B-S-J-Z (China), Costa Rica, Montenegro, Norway and Thailand, both advantaged and disadvantaged students were much less isolated than the OECD average. By contrast, in Peru both indices were much higher than the OECD average. This situation may result from both a prevalence of private schooling in the country and a high degree of residential segregation.

Social segregation across schools deprives children of opportunities to interact with children from different social, cultural and ethnic backgrounds, thus threatening social cohesion.[11] It can also widen inequities in education (OECD, 2019[1]). When socio-economic segregation between schools is high, disadvantaged students are more at risk of being "left behind" in schools with high concentrations of low performers – which may affect their own academic performance. Achievement may suffer if a student's classmates include a large proportion of low-achieving peers (Mendolia, Paloyo and Walker, 2018[20]; Lavy, Silva and Weinhardt, 2012[18]; Hanushek et al., 2003[17]; Burke and Sass, 2013[16]; Sacerdote, 2011[15]). When students from disadvantaged families attend schools that concentrate disadvantage, they are more likely to perform poorly in school.

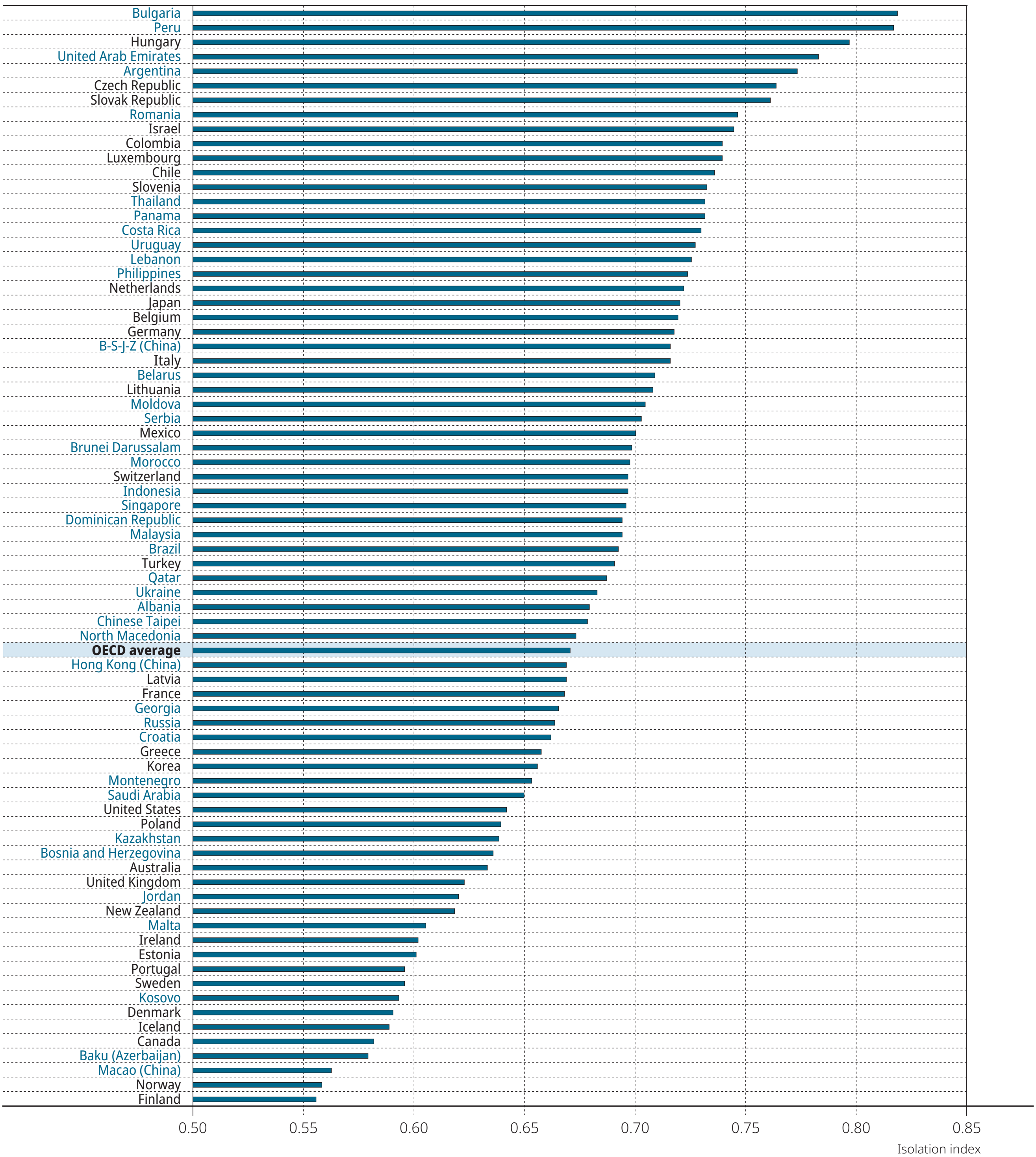
Social segregation may also have consequences for the extent to which disadvantaged students are exposed to students who are high achievers in PISA (defined as students who score in the top quartile of performance). An index was created to measure the extent to which a typical disadvantaged student in a country/economy is unlikely to be in a school that enrols high-achieving students. The index has a value close to 1 when disadvantaged students are clustered in schools that do not enrol high-achieving students; it has lower values when disadvantaged students and high achievers are spread relatively evenly across schools (for more details, see Annex A3).

Index of isolation of disadvantaged students from high achievers

There are large disparities across countries and economies in the isolation of disadvantaged students from high-achieving students (Figure II.4.6). On average across OECD countries, the index value was 0.67. This means that a typical disadvantaged student has a one-in-six chance of being enrolled in the same school as high achievers, while this likelihood would be one in four if both populations had been randomly mixed in the schools.[12] But in Argentina, Bulgaria, the Czech Republic, Hungary, Peru, the Slovak Republic and the United Arab Emirates, the index was higher than 0.75, meaning that disadvantaged students were more often concentrated in schools with a small proportion of high achievers (the probability that a typical disadvantaged student was enrolled in the same school as high achievers was less than one in eight). By contrast, in Baku (Azerbaijan), Canada, Denmark, Estonia, Finland, Iceland, Kosovo,[13] Macao (China), Norway, Portugal and Sweden, the index was at or below 0.60, meaning that disadvantaged students were comparatively more likely to be enrolled in schools with high achievers.

The index of isolation of disadvantaged students from high achievers is also expected to be lower in school systems where socio-economic status is weakly associated with performance and where disadvantaged students are more likely to overcome the odds against them and perform well at school. In countries and economies where the percentage of "resilient students" (see Chapter 3) is high, the index of isolation of disadvantaged students from high achievers may thus be lower than in countries with a similar level of concentration of disadvantaged students in schools. This is especially the case when admission to school is based on proven ability, as resilient disadvantaged students are more likely to be enrolled in "good" schools. As discussed in Chapter 3, on average across OECD countries, around one in ten disadvantaged students scored in the top quarter of the performance distribution in their own country/economy in PISA 2018.

Figure II.4.6 **Isolation of disadvantaged students from high-achieving students in reading**



Notes: In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students (see Annex A3).

The isolation index of disadvantaged students from high-achieving students measures whether socio-economically disadvantaged students are concentrated in schools distinct from those that enrol high-achieving students. The index is related to the likelihood that a representative disadvantaged student attends a school that enrols high-achieving students. It ranges from 0 to 1, with 0 corresponding to no segregation and 1 to full segregation (see Annex A3 for a more complete description).

A socio-economically disadvantaged student is a student in the bottom quarter of the PISA index of economic, social and cultural status (ESCS) in his or her own country/economy.

High-achieving students are students who scored amongst the top 25% of students within their country or economy on the PISA test.

Countries and economies are ranked in descending order of the isolation of disadvantaged students from high-achieving students in reading.

Source: OECD, PISA 2018 Database, Table II.B1.4.8.

StatLink https://doi.org/10.1787/888934037412

HOW SCHOOL CHOICE AND PRIVATE SCHOOLING ARE RELATED TO SOCIAL SEGREGATION

The degree of social and academic diversity in schools depends on how students are allocated across schools. In almost all school systems, students are assigned to public schools based, at least partly, on their home address. Through this policy, students are typically allocated to the school closest to their home, usually to avoid long and possibly costly commutes. Only in a very limited number of countries/economies that participated in PISA 2018 – namely Argentina, Bulgaria, Belgium (Fr.), Chile, Ireland, Italy, Lebanon, Macao (China), the Netherlands, Peru and Singapore – did system-level education authorities report that the "initial assignment to public schools is *not* based on geographical area" for lower secondary schools (Table II.B1.4.9). This does not imply that, in other countries and economies, school admissions were strictly based on where the student lives. For instance, in some countries the modal grade for 15-year-olds corresponds to upper secondary school, which often do not use residence as a criterion for admission (OECD, 2019[1]). Even when residence is a criterion, the extent to which it is applied locally may vary from one place to another.

On average across OECD countries in 2018, two in five students were enrolled in a modal grade school whose principal reported that residence in a particular area is always used as a criterion for enrolment (Table II.B1.4.3). This criterion was used much less often in private schools. On average across OECD countries, almost one in two students was enrolled in a modal grade public school that always uses the residence-based criterion, while only one in ten students attended a modal grade private school that always uses that criterion.

Box II.4.2. **Public schools, and government-dependent and independent privately managed schools**

Public schools, as defined in PISA, are those managed by a public education authority, government agency, or governing board appointed by a government or elected by public franchise. Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments and local, regional, state and national government).

PISA classifies school type based on the principal's report. In some instances, the principal may consider a privately managed school public if the funding comes mainly from the government. For instance, charter schools in the United States, which are publicly funded schools that operate independently of the state-run system and should be defined as government-dependent private schools in PISA, are commonly defined as public schools.

Government-dependent private schools are usually required to comply with government regulations to a greater extent than independent private schools. Nevertheless, conditions under which private providers are eligible for public funding vary considerably across OECD countries. In some countries, publicly funded private schools do not only enjoy greater pedagogical freedom than their publicly managed counterparts, they also have greater autonomy in their admissions and tuition policies.

Some systems impose strict eligibility criteria on private schools that seek to qualify for public funding. For instance, education authorities may oblige these schools to follow national curricula and assessment procedures, prohibit for-profit operators or restrict the ability of these schools to charge add-on fees and engage in selective admissions (Boeskens, 2016[24]). In Belgium, for example, subsidised private schools are not permitted to select students on the basis of their academic achievement, in order to guarantee parents' right to exercise free school choice. In the Netherlands, government-dependent private schools need to comply with the same regulations governing school admissions and tuition fees as public schools. The situation in the United Kingdom is similar, as private dependent schools (mainly academies or free schools) are more like public schools when it comes to funding than private independent schools. Other systems use targeted-funding schemes designed exclusively to benefit or provide additional support to disadvantaged students in private schools (Musset, 2012[25]).

While it is relatively common for oversubscribed public schools to take into account non-academic factors, such as the proximity of a student's home or a sibling's enrolment in the school, in some countries publicly funded private schools are permitted to select students on the basis of academic achievement, aptitude tests and parent interviews (see also Bergman and McFarlin, 2018[26]). These differential selection practices can restrict the exercise of school choice and risk increasing student segregation across schools.

Source: OECD (2017), *The Funding of School Education: Connecting Resources and Learning*, OECD Reviews of School Resources, OECD Publishing, Paris, https://doi.org/10.1787/9789264276147-en; Boeskens (2016), *Regulating Publicly Funded Private Schools: A Literature Review on Equity and Effectiveness*, https://dx.doi.org/10.1787/5jln6jcg80r4-en; Musset, P. (2012), *School Choice and Equity: Current Policies in OECD Countries and a Literature Review*, https://dx.doi.org/10.1787/5k9fq23507vc-en; Bergman et McFarlin (2018), https://doi.org/110.3386/w25396

Large differences in enrolment policies, particularly across public schools, were observed. For instance, in Brunei Darussalam, Finland, France, Greece, Malta, Poland, Qatar and Switzerland, amongst students enrolled in public schools, at least three in four were enrolled in a school that relies on residence-based assignment. By contrast, in Bosnia and Herzegovina, Croatia, Kosovo, Macao (China), Mexico, the Republic of North Macedonia (hereafter "North Macedonia"), Serbia, Singapore, Slovenia and Romania, fewer than one in ten students were enrolled in a school according to this criterion.[14] This proportion was usually larger in private dependent schools than in private independent schools. However, whatever the type of private school considered, amongst those students enrolled in private schools, the proportion of students in a school whose principal reported that the school always bases admissions on residence was never higher than 60%. The largest proportions of students in private schools that use residence as a criterion for admissions were observed in Indonesia, Spain and, for government-dependent schools, the United Kingdom. But in almost all countries and economies, the share of students enrolled in a school that uses residence-based criteria for admissions was at least 15 percentage points larger when restricting the sample to students enrolled in public schools than when restricted to students in private schools.

The aims and effects of school choice

Over the past few decades, many countries have implemented reforms that provide more school options to families (Musset, 2012[25]; OECD, 2019[1]). These programmes may have several distinct objectives. Promoting competition between schools is seen as a way to stimulate innovation and foster efficiency. School choice may also respond to parents' demand for access to more diverse pedagogical offerings in order to select the school that best suits their child's learning needs. Offering a choice of schools may also be a way of reducing school segregation. Strict geographic assignment may have the unintended consequence of reproducing, and even reinforcing, patterns of residential segregation. Socio-economically disadvantaged students may get "stuck" in low-quality schools because their families cannot afford to live close to the highest-quality schools.

Promoting school choice may be accomplished in several ways. In 37 of the 50 countries and economies that provided system-level information on school choice in 2018, public authorities affirmed families' right to enrol in another public school apart from the one geographically closest to them (Table II.B1.4.9). In addition, governments may give families a tuition certificate that can be used to pay tuition at any "approved" school (which could be private or public, depending on the programme). For instance, in 24 countries and economies, school vouchers (also referred to as scholarships) were available to students enrolled in schools (in 15 countries/economies, the vouchers could be used for admission to public schools; in 19 countries/economies, they could be used for admission to private schools). In 14 countries/economies, tuition tax credits were available to help families offset the costs of private schooling (in 9 of them, for students enrolled in private independent schools; in 4 others, for students enrolled in private dependent schools).

Weakening the link between school assignment and home address could give parents more freedom to choose their child's school; it could also have a significant impact on the social composition of schools. On the one hand, disadvantaged students may be able to enrol in schools with a more affluent intake than their "neighbourhood" school. On the other hand, previous evidence has shown that it is often the most highly educated and well-off parents who take advantage of these programmes because they have more or better resources to identify and select the highest-quality schools, or because of the complexity of the admissions and enrolment procedures in these schools. Financial considerations (school fees, transportation costs or time constraints) may limit the options available to some students from low-income families. Even where vouchers or similar programmes reduce the cost of publicly funded private schools, top-up fees or "hidden" parental contributions (for extracurricular activities, school uniforms, etc.) might make these schools unaffordable in practice (Boeskens, 2016[24]). If these latter mechanisms prevail, school-choice programmes may exacerbate, rather than mitigate, socio-economic segregation between schools.

Social segregation across public schools may be due to residential segregation, when home address is primarily used for enrolment, but also when parents are given more options and schools compete to attract the best students. Private schooling may exacerbate socio-economic segregation within the school system, for instance, if only high-income families can afford private school. In addition, private schools, especially those that are independently funded and managed, may offer certain educational resources that may be attractive to some families and not others; this can also result in stratification.

The no social diversity index

The contribution of private schooling to the overall degree of social segregation within a country is expected to vary with the size of private school sector. This can be measured through the no social diversity index. The index measures the extent to which social diversity, as observed at the country level, is mirrored at the school level. It ranges from 0, which corresponds to an even distribution of students across schools, regardless of their socio-economic status, to 1, which would be observed if schools in a country never enrolled students of diverse socio-economic status.

Amongst those countries and economies that participated in PISA 2018, the highest levels of social segregation according to this indicator (i.e. the lowest degree of social diversity within schools) were observed in Albania, Argentina, Brazil, Chile, Colombia, Indonesia, Mexico, Peru and the Slovak Republic (Table II.B1.4.10). In these countries/economies, the no social diversity index was at least 0.20 – twice as high as the level of segregation that prevails in Brunei Darussalam, Canada, Croatia, Finland, Ireland, Korea,[15] Malta, North Macedonia, Norway, Sweden and Chinese Taipei, for instance.

The no social diversity index can be decomposed into three distinct components: the social segregation observed between public and private schools; the social segregation across public schools, weighted by the share of students in public schools; and the social segregation across private schools, weighted by the share of students in private schools. In this analysis, government-dependent and independent private schools were analysed jointly, as in many countries the number of students/schools in the private government-dependent or private independent categories was insufficient to be used for the estimates.[16]

The first component measures the extent to which the social composition of private schools, as a whole, differs from the social composition of public schools, as a whole. The difference is expected to be sizeable if, for example, private schools tend to select more affluent students because of tuition fees. In a few countries, the difference between public and private schools in their social composition had a substantial impact on the level of social diversity within schools at the aggregated level (see Figure II.4.7). For instance, in Argentina, Brazil, Brunei Darussalam, Colombia, Costa Rica, the Dominican Republic, Malta, Panama, Peru, the Philippines and Uruguay, this difference, which is greater than the OECD average, accounts for more than a quarter of the overall level of segregation. In the majority of countries and economies, however, this difference does not account for more than 10% of the degree of social segregation across schools. In these cases, the level of social segregation depends not only on the difference in social composition between private and public schools, but also on the social sorting that may occur across public or private schools.

In general, social segregation is greater across private schools than public schools (see online Figure II.4.12). But after taking into account the respective weights of the private and public school sectors within a country/economy, the segregation observed across private schools does not contribute much to the overall level of segregation in the country/economy. Since most students in most countries were enrolled in public schools in 2018, the contribution of public schools to overall segregation was usually greater (see Figure II.4.7) than that of private schools (see Figure II.4.7). On average across OECD countries, social segregation across public schools, weighted by the proportion of students enrolled in public schools, accounted for two-thirds of overall social segregation, as measured by the no social diversity index. The exceptions are countries/economies where the share of private schools was particularly large, such as Chile, Hong Kong (China), Lebanon, Macao (China), the Netherlands, the United Arab Emirates and the United Kingdom, where segregation across private schools accounted for more than half of the overall level of segregation.

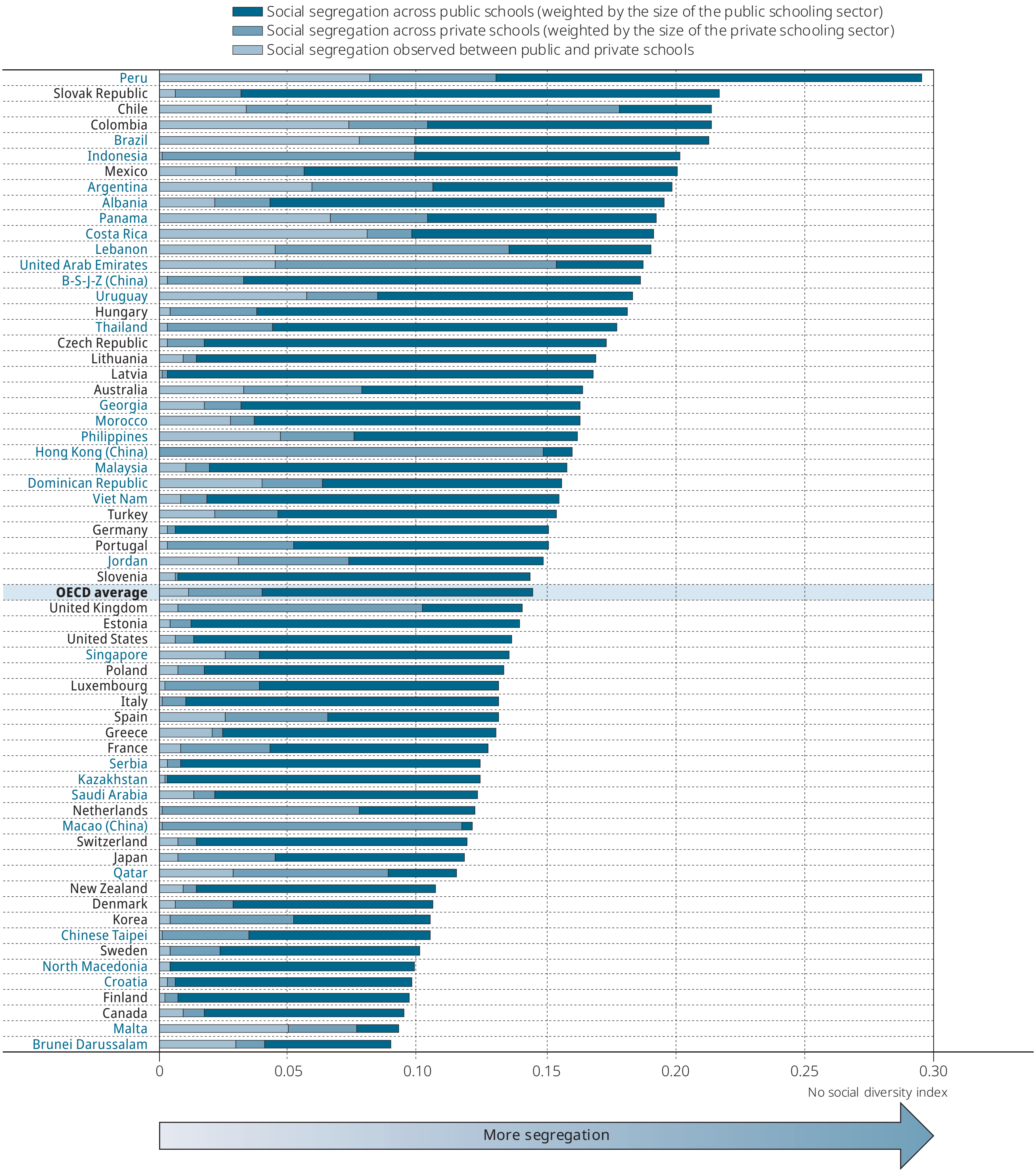
Segregation within the public or private sector may reflect the relationship between grade repetition and streaming into different education tracks, on the one hand, and students' socio-economic status, on the other. Competition between schools within the same sector, i.e. public or private, may also result in segregation across schools. For instance, schools may choose to limit their offerings to specific conditions (such as providing remedial education for low achievers who struggle in the traditional school system, or proposing a programme for "gifted" children). Even in the absence of competition, enrolment is expected to reflect residential segregation, and this may be reinforced over time, as parents' decisions about where to live are partly based on the profile of the schools – and the schools' student population – that are available to them. In 16 countries that participated in PISA 2018, Chile, Costa Rica, Italy, Jordan, Lebanon, Luxembourg, Macao (China), Malta, Norway, Panama, the Philippines, Poland, Portugal, Qatar, the United Arab Emirates and Uruguay, the index of no social diversity across private schools was twice as large as that across public schools (Table II.B1.4.11).[17]

In some countries, private schools are expected to offer a more differentiated education (for instance, distinct curriculum or pedagogical practices) than public education does – and thus may attract different types of students. This is especially true when families are offered financial support – either directly or indirectly through public funding to schools – to send their child to a private school. The private schools where middle- or even low-income students enrol may not be the same as those where the most advantaged students are enrolled. For instance, recent evidence from a US school voucher plan suggests that in some cases, when disadvantaged families are offered financial support to send their child to a private school, they may choose low-quality private schools. This results in poorer performance amongst the disadvantaged children who "benefitted" from the programme (Abdulkadiroğlu, Pathak and Walters, 2018[27]).

Greater social segregation across private schools may be related to the use of selective admissions. On average across OECD countries, amongst 15-year-old students enrolled in private schools, half attended a school whose principal reported that "a student's record of academic performance, including placement tests, are always used for admission"; the proportion of students in public schools whose principal so reported is 20 percentage points smaller (Figure II.4.8). In 35 of the 79 countries and economies that participated in PISA 2018, private schools were significantly more selective than public schools. In 26 of those countries and economies, more than 3 in 4 students in private school attended a school whose principal reported that the school always uses performance-based criteria for enrolment.

Figure II.4.7 **Public and private schools, and social segregation across schools**

Decomposition of the no social diversity index based on the contributions of public and private schools



Notes: In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students (see Annex A3).

The no social diversity index measures whether the diversity of students observed within schools reflects the diversity of students observed at the country/economy level. The index ranges from 0 to 1, with 0 corresponding to no segregation and 1 to full segregation (see Annex A3 for a more complete description).

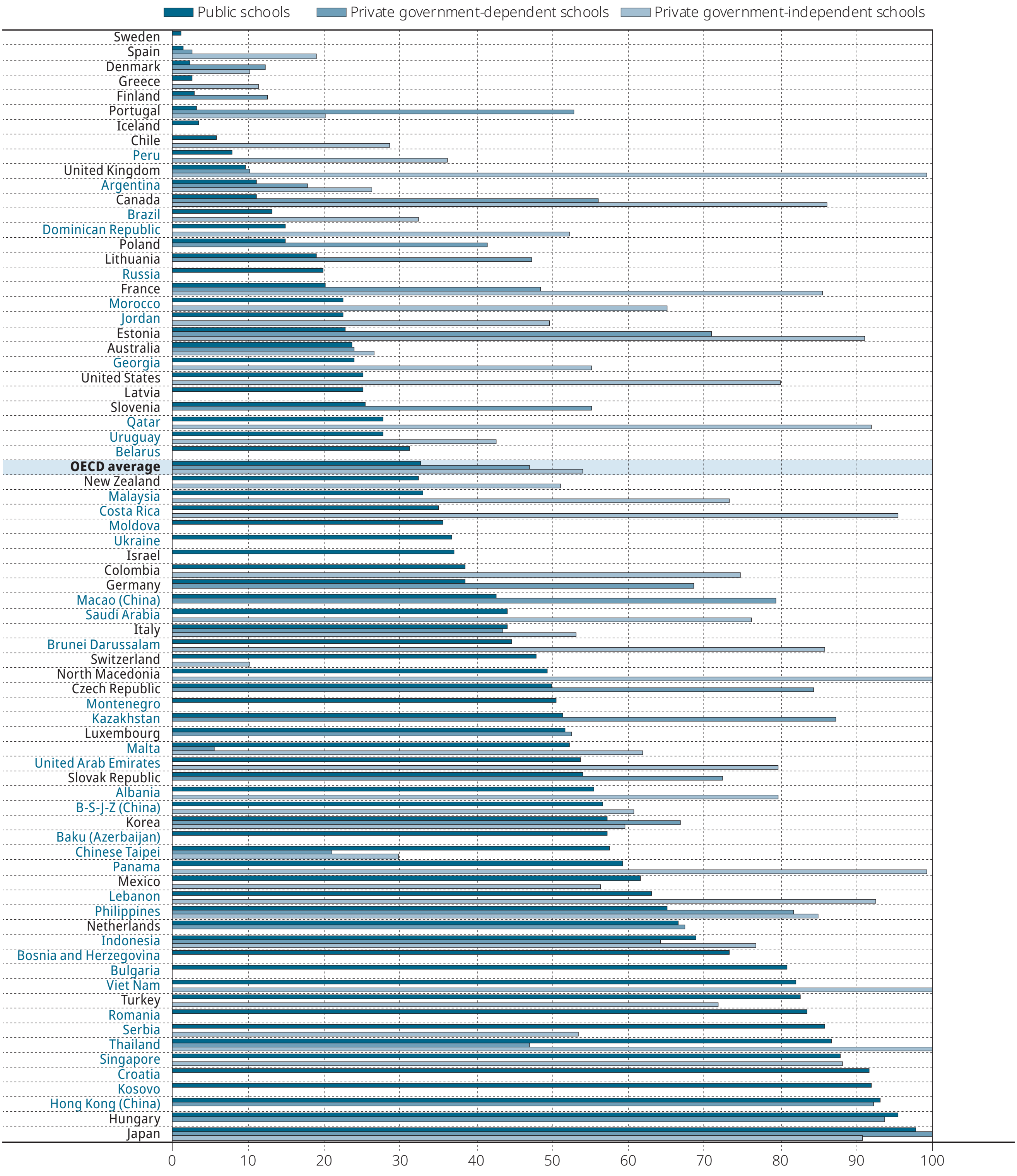
Countries and economies are ranked in descending order of the overall level of segregation.

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

StatLink https://doi.org/10.1787/888934037431

Figure II.4.8 **School selectivity, by school type**

Percentage of students in schools whose principal reported that academic performance (including placement tests) is "always" considered for admission to school



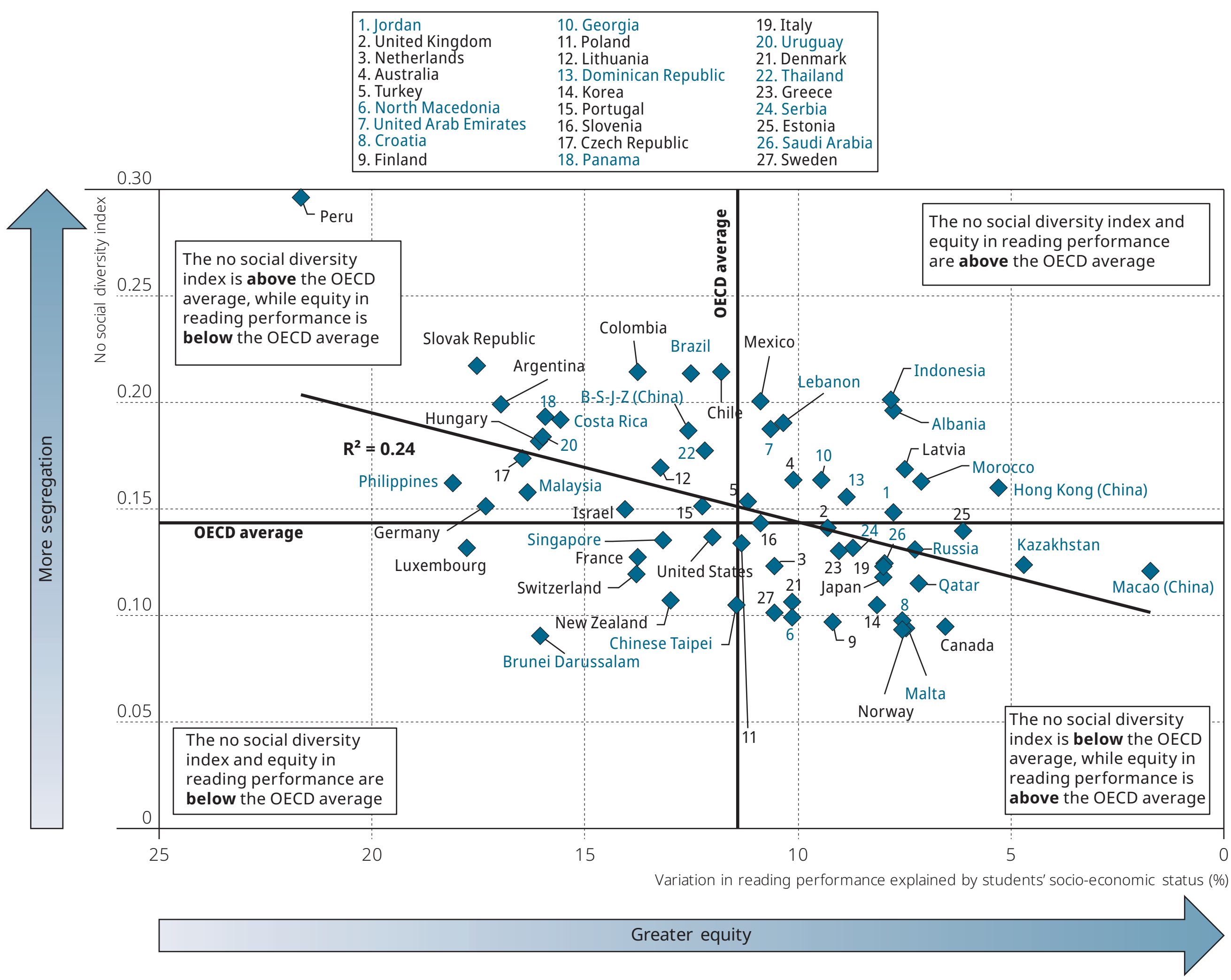
Note: In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students (see Annex A3).
Countries and economies are ranked in ascending order of the social segregation in public schools.
Source: OECD, PISA 2018 Database, Table II.B1.4.3.
StatLink https://doi.org/10.1787/888934037450

SOCIAL SEGREGATION AND EQUITY IN EDUCATION

A high degree of social segregation across schools means that children are less likely to communicate with peers from diverse backgrounds, and this may undermine future social cohesion. As discussed above, students, especially those from disadvantaged families, may be harmed by a lack of social and academic diversity in schools, which, in turn, renders equity in education elusive. When disadvantaged students are clustered in a limited number of schools, these students tend to be exposed to less-favourable learning conditions. As discussed in detail in Chapter 5, disadvantaged schools often lack adequate educational material, and qualified and experienced teachers. As disadvantaged students are often over-represented amongst low achievers, schools that concentrate a large proportion of disadvantaged students generally also have high concentrations of struggling students, and this may have additional detrimental effects on academic achievement.

Social segregation is thus likely to reinforce the link between socio-economic disadvantage and poor academic achievement. The PISA-participating countries/economies where schools were less socially diverse also tended to have the strongest relationship between socio-economic status and performance (Figure II.4.9). The most extreme case was Peru, which had one of the highest levels of social segregation across schools – and was also one of the countries where the association between students' socio-economic status and performance in PISA was one of the strongest amongst all PISA-participating countries and economies. By contrast, Canada, Croatia, Korea, Malta and Norway showed low levels of segregation, and the association between performance in PISA and socio-economic status was weak.

Figure II.4.9 **Equity in reading performance and no social diversity index**

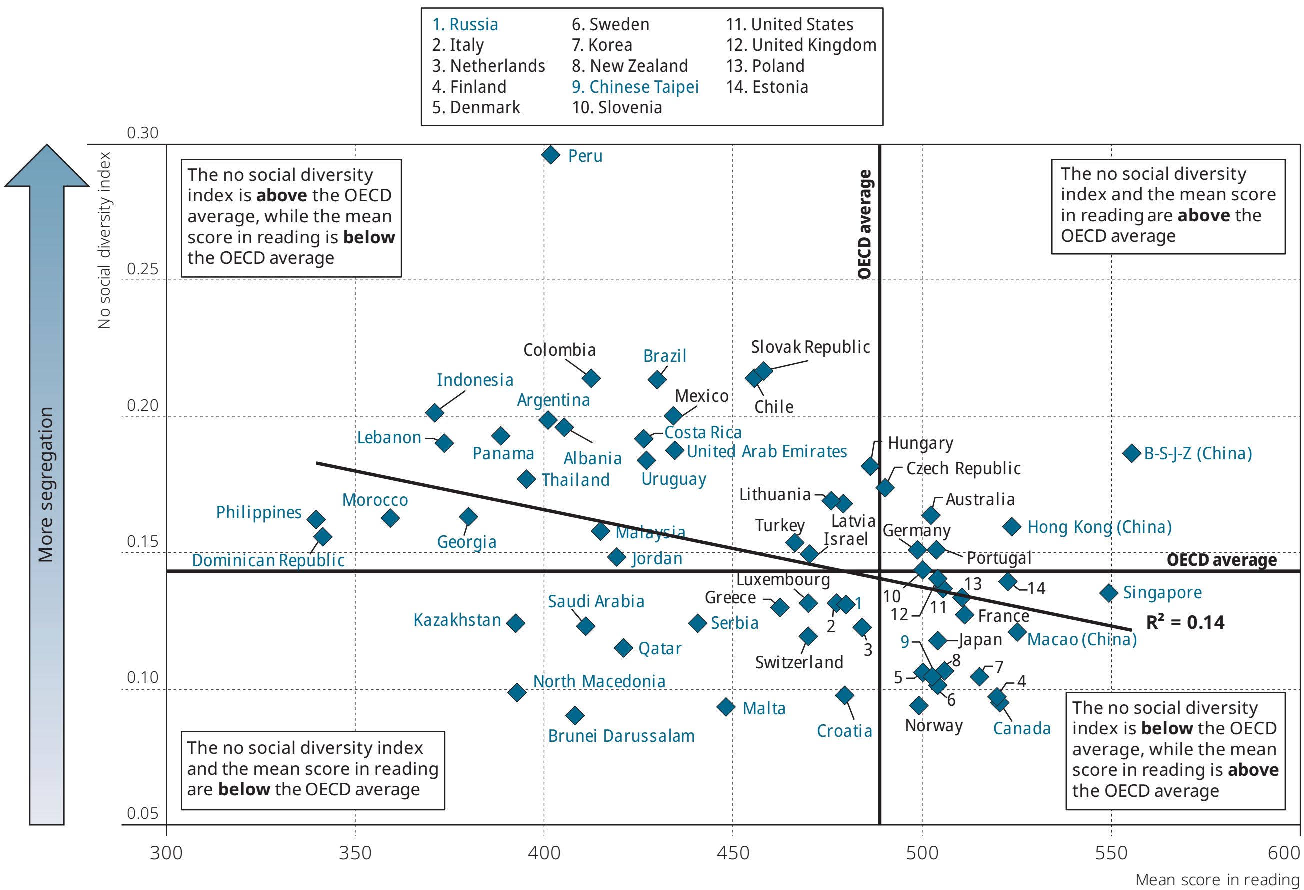


Notes: In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students (see Annex A3).
The no social diversity index measures whether the diversity of students observed within schools reflects the diversity of students observed at the country/economy level. The index ranges from 0 to 1, with 0 corresponding to no segregation and 1 to full segregation (see Annex A3 for details).
Source: OECD, PISA 2018 Database, Table II.B1.4.10.
StatLink https://doi.org/10.1787/888934037469

Previous analyses using data from successive cycles of PISA, from 2009 to 2015, also found a negative relationship between student sorting across schools and equity in education (OECD, 2019[1]). An increase in social segregation at the country level was related to a decrease in equity in learning outcomes, even when the specifics of the school system, such as tracking policies, were taken into account. However, the strength of the relationship was weak: the R^2 value was only 0.25, meaning that the observed level of equity in education varied greatly amongst countries that show the same level of social segregation across schools.

PISA 2018 also found a negative, albeit weak (the R^2 was only 0.14), relationship between average performance in reading and socio-economic segregation across schools (see Figure II.4.10). For instance, amongst those countries with reading performance higher than the OECD average, Australia, B-S-J-Z (China), the Czech Republic, Germany, Hong Kong (China) and Portugal showed less diversity across schools than the OECD average, while Denmark, Finland, Japan, Macao (China), New Zealand, Sweden and Chinese Taipei showed greater diversity.[18]

Figure II.4.10 **Reading performance and no social diversity index**



Notes: In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students (see Annex A3).

The no social diversity index measures whether the diversity of students observed within schools reflects the diversity of students observed at the country/economy level. The index ranges from 0 to 1, with 0 corresponding to no segregation and 1 to full segregation (see Annex A3 for details).

Source: OECD, PISA 2018 Database, Tables II.B1.4.1 and II.B1.4.10.

StatLink https://doi.org/10.1787/888934037488

Notes

1. In addition, the social composition of schools may, in turn, influence a family's choice of where to live, meaning that residential and school segregation are mutually reinforcing (Epple and Romano, 2000[28]).
2. An exception is Antecol, Eren and Ozbeklik, (2016[29]) who, using experimental data on primary disadvantaged schools in the United States, observed that the proportion of low achievers in school had a significant positive effect on the reading performance of the other low achievers (and no significant impact on the reading performance of other students), and a significant positive impact on the mathematics performance of middle and top achievers.
3. This is illustrated, for instance, in the results obtained by comparing the achievement of students just below or just above a threshold of admissions in Boston and New York high schools (Abdulkadiroğlu, Angrist and Pathak, 2014[30]). The achievement outcomes of those who had attended these so-called "elite" schools did not differ from those who just failed the entrance exam. Similar results have also been observed by Dobbie and Fryer, (2014[9]) and in Kenyan high schools by Lucas and Mbiti, (2014[31]). The validity of this result may depend on the type of student studied. For instance, recent evidence on "gifted students" in US primary schools suggests that being tracked with other high-ability students has a positive impact on achievement only for minority students, without any significant impact on achievement for white students (Card and Giuliano, 2016[32]).
4. The "modal ISCED level" is defined here as the level attended by at least one-third of the PISA sample. In Albania, Argentina, Baku (Azerbaijan), Belarus, B-S-J-Z (China), Colombia, Costa Rica, the Czech Republic, the Dominican Republic, Indonesia, Ireland, Kazakhstan, Luxembourg, Macao (China), Morocco, the Slovak Republic, Chinese Taipei and Uruguay, both lower secondary (ISCED level 2) and upper secondary (ISCED level 3) schools meet this definition. In all other countries, analyses are restricted to either lower secondary or upper secondary schools (see Table II.C.1 in Annex C for details). In several countries, lower and upper secondary education are provided in the same school. As the restriction is made at the school level, some students from a grade other than the modal grade in the country may also be used in the analysis.
5. In Portugal, only 88.5% of 15-year-old students with non-missing information for estimating the indices were enrolled in schools with the modal grade (Table II.B1.4.1); therefore, comparisons should be interpreted with caution.
6. In Lebanon, only 80.2% of 15-year-old students with non-missing information for estimating the indices were enrolled in schools with the modal grade (Table II.B1.4.2); therefore, comparisons should be interpreted with caution.
7. In general, between-school variability was lower in school systems where the modal grade corresponded to lower secondary education (ISCED 2), which may be related to the fact that sorting by ability is more prevalent in upper secondary than lower secondary schools (OECD, 2019[1]). But amongst the countries with the lowest between-school variations, the modal grade in Canada and Portugal is ISCED 3 while amongst those with the highest school variations, the modal grade in Germany and the Netherlands is ISCED 2 (see Annex C).
8. The precise calculation when the value of the index is 0.30 is (0.30-1)*3/4-1 = 0.47 for the probability of a typical student of one group interacting with another student of the same group. In the absence of any clustering, the index is 0 and this probability corresponds to the proportion of students of this group, 0.25 here. See Annex A3 for details.
9. In Brazil, only 82.7% of 15-year-old students with non-missing information for estimating the indices were enrolled in schools with the modal grade (Table II.B1.4.2); therefore, comparisons should be interpreted with caution.
10. In Saudi Arabia, only 81% and in France, only 85% of 15-year-old students with non-missing information for estimating the indices were enrolled in schools with the modal grade (Table II.B1.4.2); therefore, comparisons should be interpreted with caution.
11. For instance, recent evidence from experimental data in Indian schools suggests that having classmates from low-income families may make wealthier students more prosocial, generous and egalitarian, and less likely to discriminate against poor sudents, and more willing to socialise with them (Rao, 2019[33]).
12. The calculation is given by (1-0.67)/2 = 0.165; see Annex A3 for details.
13. In Kosovo, only 75.6% of 15-year-old students with non-missing information for estimating the indices were enrolled in schools with the modal grade (Table II.B1.4.7); therefore, comparisons should be interpreted with caution.
14. In Kosovo, Mexico and Switzerland, less than 80% of 15-year-old students with non-missing information for estimating the indices were enrolled in schools with the modal grade (Table II.B1.4.3); therefore, comparisons should be interpreted with caution.
15. In Korea, only 83.6% of 15-year-old students with non-missing information for estimating the indices were enrolled in schools with the modal grade (Table II.B1.4.10); therefore, comparisons should be interpreted with caution.
16. Formally $H = H^{Priv/Pub} + \theta^{Public} H^{Public} + \theta^{Private} H^{Private}$ with $H^{Priv/Pub}$ is the no social diversity index, measured by comparing the populations of 15-year-old students in private and public schools (taken as only two big entities); H^{Public} and $H^{Private}$ the no social diversity indices estimated amongst public and private schools, respectively; $\theta^{Private}$ and θ^{Public} the proportion of 15-year-old students in public and private schools.
17. In Lebanon, only 56.8%, in Qatar, only 84% and in Portugal, only 82.8% of 15-year-old students with non-missing information for estimating the indices were enrolled in schools with the modal grade (Table II.B1.4.11); therefore, comparisons should be interpreted with caution.
18. Similar conclusions hold when analysing academic segregation and education outcomes at the system level (see online Figures II.4.13 and II.4.14). The relationship between the index of isolation of high performers with both reading performance and equity in education were negative but weak (the R^2 = 0.17 for average performance and R^2 = 0.13 for the strength of the socio-economic gradient).

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PISA

5

How do schools compensate for socio-economic disadvantage?

This chapter provides a comparative assessment of the allocation of resources to schools depending on their socio-economic profile. It describes how teacher resources, both in quantity and quality, are distributed across more- and less-advantaged schools. It also examines the relationships between indicators of inequity in sorting teachers across schools and in student performance.

A high degree of socio-economic and ethnic segregation across schools poses additional challenges to ensuring equity in education. A concentration of socio-economically disadvantaged students in some schools can negatively affect their education (see Chapter 4). While having high-quality teachers is essential if schools aim to give all students a chance to succeed (Rivkin, Hanushek and Kain, 2005[1]; Chetty, Friedman and Rockoff, 2014[2]; Hanushek, 2011[3]), schools with a high concentration of disadvantaged students may have difficulties attracting the most effective and experienced teachers. According to the most recent OECD Teaching and Learning International Survey (TALIS), conducted in 2018, in most countries, teachers with only a few years of experience tend to work in schools that have higher concentrations of disadvantaged students (OECD, 2019[4]). Recent analyses suggest that teachers prefer working with higher-achieving students (Pop-Eleches and Urquiola, 2013[5]).

Education policies may partially compensate for disadvantage in schools. They can, for instance, provide more educational resources and staff to these schools, or offer incentives to the best teachers to encourage them to work and remain in the schools where they are most needed. This chapter analyses how school systems compensate for disadvantage in schools. It compares the actual allocation of resources, both material and human, based on the socio-economic profile of schools. It specifically contrasts the situation of disadvantaged schools, defined as those whose average intake of students falls in the bottom quarter of the PISA index of economic, social and cultural status within the relevant country/economy, and advantaged schools, defined as those whose average intake of students falls in the top quarter of that index.

The indicators of resources are constructed using principals' responses to the PISA school questionnaire, distributed in all PISA-participating countries and economies. These indicators provide subjective measures of the lack of adequate resources, as perceived by school principals, as well as more objective measures related to the qualifications and training of the teachers in their schools. In 19 countries and economies, information on teachers' experience and qualifications was gathered through an optional teacher questionnaire. In order to ensure that the characteristics of students sampled for PISA represent the typical profile of students attending the same school (because this profile informs the indicators related to the socio-economic profile of the school), all analyses are restricted to principals and teachers working in schools that include the modal grade for 15-year-old students (see Chapter 4).[1]

What the data tell us

- In 41 countries and economies that participated in PISA 2018, smaller classes were more often observed in disadvantaged schools than in advantaged schools. On average across OECD countries, the average class in disadvantaged schools had 24 students while the average class in advantaged schools had 27 students. But in Beijing, Shanghai, Jiangsu and Zhejiang (China), the Philippines, the United Arab Emirates and the United Kingdom, it was more common to observe both larger classes and higher student-teacher ratios in disadvantaged schools than in advantaged schools.
- On average across OECD countries, 40% of teachers in disadvantaged schools and 48% of teachers in advantaged schools had at least a master's degree.
- In 42 countries and economies, principals of disadvantaged schools were significantly more likely than those of advantaged schools to report that their school's capacity to provide instruction was hindered by a staff shortage teaching. Similarly, in 46 countries and economies, principals of disadvantaged schools were significantly more likely than principals of advantaged schools to report that their school's capacity to provide instruction was hindered by a lack or inadequacy of educational material and physical infrastructure.

CHARACTERISTICS OF DISADVANTAGED SCHOOLS

PISA 2018 asked school principals to report the average size of language-of-instruction classes in the national modal grade for 15-year-old students. They were also asked about the total number of students enrolled in their school and the number of teachers. The average student-teacher ratio in schools was computed using the responses to these last two questions (see Annex A3 for details). The indicators measuring class size and student-teacher ratios, respectively, were expected to be positively linked; but in some countries, including Japan and Singapore, both large classes and low or average student-teacher ratios were observed (see Tables II.B1.5.1 and II.B1.5.2).

Having more teachers in a school may be related to the curriculum and how many subjects a typical student is expected to learn. The number of teachers in a school may also be related to the amount of time teachers are required to spend actually teaching (compared to time devoted to preparing lessons or doing administrative tasks).

Table II.5.1 [1/2] **Teacher quality and quantity, by schools' socio-economic profile**

Results based on principals' reports

- Disadvantaged schools are better off compared to advantaged schools
- Disadvantaged schools are worse off compared to advantaged schools
- Difference not significant
- Missing values

		Student-teacher ratio	Class size	Proportion of teachers with a qualification lower than a master's degree[1]	Proportion of teachers not fully certified
OECD	Australia	Difference not significant	Difference not significant	Worse off	Difference not significant
	Austria	Missing values	Missing values	Missing values	Missing values
	Belgium	Better off	Better off	Worse off	Difference not significant
	Canada	Difference not significant	Difference not significant	Difference not significant	Difference not significant
	Chile	Better off	Difference not significant	Worse off	Difference not significant
	Colombia	Worse off	Difference not significant	Difference not significant	Difference not significant
	Czech Republic	Difference not significant	Better off	Worse off	Difference not significant
	Denmark	Difference not significant	Better off	Difference not significant	Missing values
	Estonia	Better off	Better off	Difference not significant	Difference not significant
	Finland	Difference not significant	Better off	Difference not significant	Difference not significant
	France	Better off	Better off	Difference not significant	Worse off
	Germany	Difference not significant	Better off	Difference not significant	Difference not significant
	Greece	Difference not significant	Better off	Worse off	Difference not significant
	Hungary	Difference not significant	Better off	Worse off	Worse off
	Iceland	Better off	Better off	Better off	Worse off
	Ireland	Better off	Better off	Difference not significant	Difference not significant
	Israel	Difference not significant	Better off	Difference not significant	Difference not significant
	Italy	Better off	Better off	Difference not significant	Difference not significant
	Japan	Better off	Better off	Difference not significant	Worse off
	Korea	Better off	Better off	Difference not significant	Difference not significant
	Latvia	Better off	Better off	Worse off	Missing values
	Lithuania	Better off	Better off	Worse off	Worse off
	Luxembourg	Difference not significant	Better off	Difference not significant	Difference not significant
	Mexico	Difference not significant	Difference not significant	Difference not significant	Difference not significant
	Netherlands	Better off	Better off	Worse off	Difference not significant
	New Zealand	Difference not significant	Difference not significant	Difference not significant	Difference not significant
	Norway	Better off	Better off	Difference not significant	Difference not significant
	Poland	Worse off	Better off	Difference not significant	Difference not significant
	Portugal	Better off	Better off	Difference not significant	Difference not significant
	Slovak Republic	Better off	Better off	Worse off	Difference not significant
	Slovenia	Better off	Better off	Worse off	Worse off
	Spain	Better off	Difference not significant	Difference not significant	Better off
	Sweden	Better off	Better off	Difference not significant	Worse off
	Switzerland	Difference not significant	Difference not significant	Difference not significant	Difference not significant
	Turkey	Worse off	Difference not significant	Difference not significant	Better off
	United Kingdom	Worse off	Worse off	Worse off	Difference not significant
	United States	Difference not significant	Difference not significant	Worse off	Difference not significant

1. Education levels correspond to level 5A master's degree and level 6 of the International Standard Classification of Education (ISCED-1997).

Notes: The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).

For this analysis, the sample is restricted to schools with the modal ISCED level for 15-year-old students: (see Annex A3).

Source: OECD, PISA 2018 Database, Tables II.B1.5.1-II.B1.5.4.

StatLink https://doi.org/10.1787/888934037583

Table II.5.1 [2/2] Teacher quality and quantity, by schools' socio-economic profile

Results based on principals' reports

Disadvantaged schools are better off compared to advantaged schools
Disadvantaged schools are worse off compared to advantaged schools
Difference not significant
Missing values

	Student-teacher ratio	Class size	Proportion of teachers with a qualification lower than a master's degree[1]	Proportion of teachers not fully certified
Partners				
Albania				
Argentina				
Baku (Azerbaijan)				
Belarus				
Bosnia and Herzegovina				
Brazil				
Brunei Darussalam				
B-S-J-Z (China)				
Bulgaria				
Costa Rica				
Croatia				
Dominican Republic				
Georgia				
Hong Kong (China)				
Indonesia				
Jordan				
Kazakhstan				
Kosovo				
Lebanon				
Macao (China)				
Malaysia				
Malta				
Moldova				
Montenegro				
Morocco				
North Macedonia				
Panama				
Peru				
Philippines				
Qatar				
Romania				
Russia				
Saudi Arabia				
Serbia				
Singapore				
Chinese Taipei				
Thailand				
Ukraine				
United Arab Emirates				
Uruguay				
Viet Nam				
Education systems where disadvantaged schools are better off than advantaged schools	30	41	2	10
Education systems with no difference	37	28	48	47
Education systems where disadvantaged schools are worse off than advantaged schools	8	7	24	15

1. Education levels correspond to level 5A master's degree and level 6 of the International Standard Classification of Education (ISCED-1997).

Notes: The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).

For this analysis, the sample is restricted to schools with the modal ISCED level for 15-year-old students: (see Annex A3).

Source: OECD, PISA 2018 Database, Tables II.B1.51-II.B1.5.4.

StatLink https://doi.org/10.1787/888934037583

In 41 countries and economies that participated in PISA 2018, smaller classes were more often observed in disadvantaged schools than in advantaged schools (Table II.5.1). On average across OECD countries, the average class in disadvantaged schools had 24 students while the average class in advantaged schools had 27 students. The student-teacher ratio was smaller by one student in disadvantaged schools than in advantaged schools (where the ratio was, on average, 12.4 students per teacher). Only in Beijing, Shanghai, Jiangsu and Zhejiang (China) (hereafter "B-S-J-Z [China]"), the Philippines, the United Arab Emirates and the United Kingdom was it more common to observe both larger classes and higher student-teacher ratios in disadvantaged schools than in advantaged schools. In the United Kingdom, this could be because private independent schools are over-represented amongst advantaged schools, and these schools have a small student-teacher ratios (8.5 students per teacher compared to 14.4 students per teacher in public schools) and smaller classes (17.6 students per class in private independent schools compared to 25 students per class in public schools).

Previous findings from PISA show that in schools with smaller classes, students were more likely to report that their teachers adapt their lessons to students' needs and knowledge, provide individual help to struggling students, and change the structure of the lesson if students find it difficult to follow (OECD, 2016[6]). In general, the evaluation of the causal link between class size and performance is complicated by the fact that, in several contexts, disadvantaged schools have lower student-teacher ratios. It may thus be difficult to separate what results from these composition effects (disadvantaged students often perform worse than their more advantaged peers) and what results from the impact of class size. The empirical evidence of the effectiveness of policies to reduce class size on student achievement is mixed. Several studies using sound and robust methodologies suggest that smaller classes may be of particular benefit to primary school pupils (Angrist and Lavy, 1999[7]; Chetty et al., 2011[8]; Vaag Iversen and Bonesrønning, 2013[9]; Fredriksson, Öckert and Oosterbeek, 2012[10]), with some exceptions (Hoxby, 2000[11]). However, while the cost of these programmes is high, the evidence is more scant and less certain for lower and upper secondary students, with large differences across countries (Wößmann and West, 2006[12]). While it is challenging to examine the impact of class size on performance based on a cross-sectional large scale survey such as PISA, the existing PISA results suggests that the observed small class size in disadvantaged schools does not fully compensate the negative impact of the concentration of disadvantage within a school. Allocating more teachers to schools may not be sufficient for enhancing the learning environment.

Analyses that focused on the intertwined relationship between class size and the quality of teachers showed that reducing class size, while costly, may not always have a significant impact on achievement, especially when teachers are not experienced (Mueller, 2013[13]). For instance, the evaluation of an ambitious class-size reduction scheme – from 30 to 20 students in first and second grade in California at the end of the 1990s – suggests that while the reduction in class size positively affected student achievement, most of the gains realised were offset by the need to fill 25,000 new teaching posts in order to effectuate the change. Most of the new teaching positions were filled by teachers without certification or prior teaching experience, especially in schools with large shares of disadvantaged students (Jepsen and Rivkin, 2009[14]). These results suggest that increasing the number of teachers in a school may be ineffective if doing so comes at the expense of the average quality of those teachers.[2]

TEACHERS' CHARACTERISTICS AND SCHOOLS' SOCIO-ECONOMIC PROFILE

While it may be difficult to define precisely what makes a good teacher, the most effective teachers tend to have at least two things in common: experience and solid training. Previous research shows that each additional year of teaching experience is related to higher student achievement, especially during a teacher's first five years in the profession (Rockoff, 2004[15]; Harris and Sass, 2011[16]; Rivkin, Hanushek and Kain, 2005[1]). Results from TALIS 2018 show that, early in their careers, teachers often feel less confident in their ability to teach, in their classroom management skills and in their capacity to use a wide range of effective instruction approaches (OECD, 2019[4]).

The content and the quality of teachers' education can also affect student learning (Clotfelter, Ladd and Vigdor, 2007[17]; Clotfelter, Ladd and Vigdor, 2010[18]; Darling-Hammond, 2004[19]; Monk, 1994[20]; Ronfeldt and Reininger, 2012[21]). Teachers' pre-service education and training, which usually includes work on subject content, pedagogy and classroom practice, aims to equip teachers with the skills necessary to help students learn (OECD, 2019[4]).

Attracting the most effective teachers to the schools in which large shares of struggling students are enrolled may compensate, at least partially, for these students' disadvantage.[3]

To evaluate the sorting of teachers across schools based on their qualifications, PISA 2018 asked school principals to report the number of teachers in their schools (distinguishing between full-time and part-time teachers), the number of teachers who are "fully certified by an appropriate authority", and the number of teachers at each level of qualification (for instance, bachelor's degree, master's degree, doctoral degree). These questions were combined to calculate the proportion of fully certified teachers and the proportion of teachers with at least a master's degree, respectively.

The credentials defined for "full" certification depend on school systems, but they may also depend on whether a teacher received a credential from a teacher-education programme, accumulated a minimum number of hours of student-teaching, passed an exam, or some combination of these. In some countries, there is no such certification. This is the case in Chile, where principals were asked to report the number of teachers who "are authorised or enabled by the Ministry of Education".

On average across OECD countries in 2018, 86% of teachers in modal grade schools were "fully certified", according to school principals; in most countries, more than 80% of teachers were. These proportions may reflect the fact that, in many countries/economies, a professional qualification is commonly required for teaching. However, whatever the level that prevails at the country/economy level, in several school systems, the proportion of fully certified teachers varied markedly, depending on the socio-economic profile of the school (Table II.B1.5.3). In Argentina, France,[4] Indonesia and Uruguay, the proportion of fully certified teachers was much smaller – by at least 15 percentage points – in disadvantaged schools than in advantaged schools. The opposite was observed in Costa Rica, Malaysia, Morocco, Peru, the Philippines, Singapore and Turkey where schools serving more affluent students appeared to employ smaller shares of fully certified teachers.

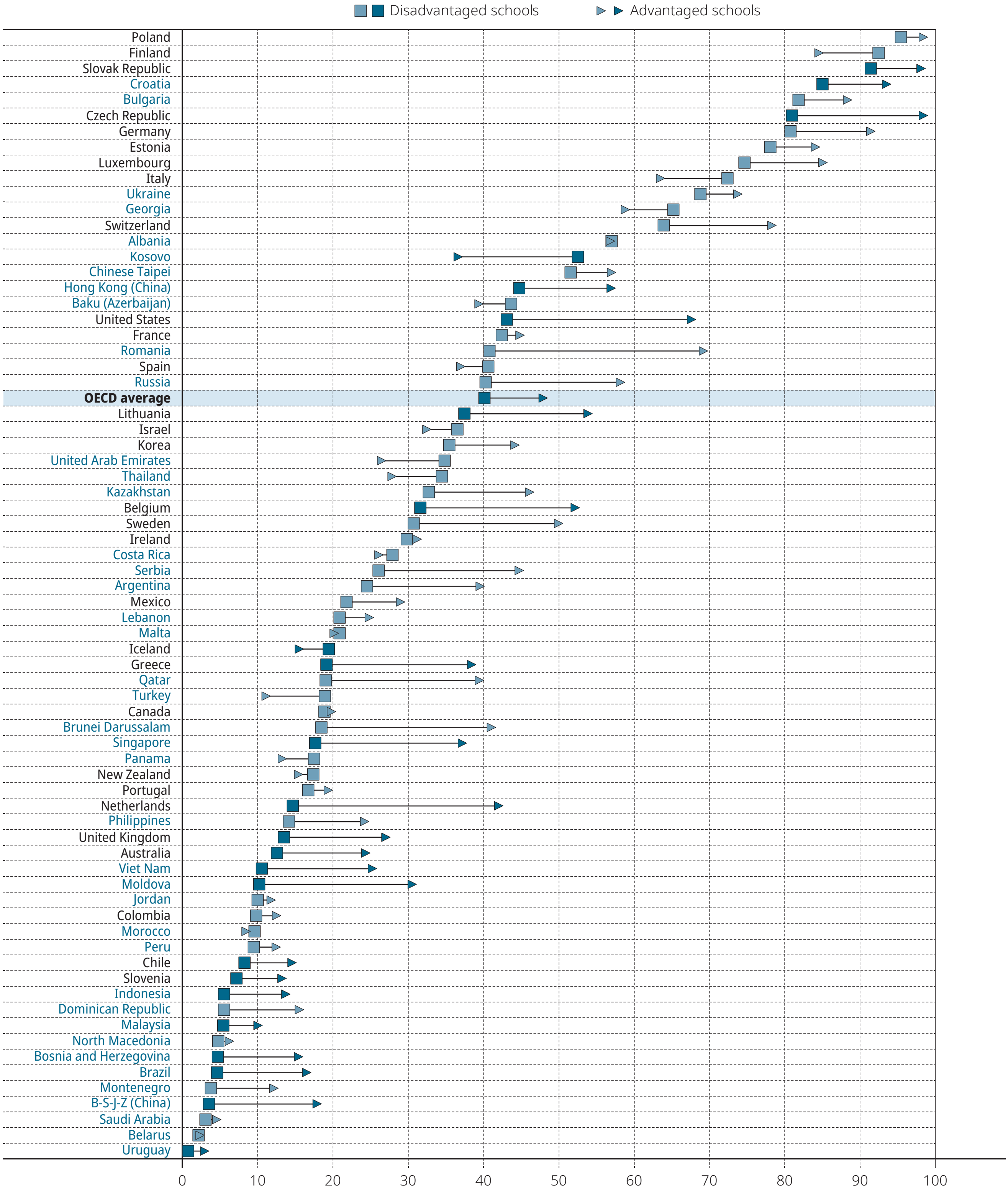
These variations in the proportion of fully certified teachers, both between and within countries and economies, may be difficult to interpret, though. The level of qualifications required of educators (e.g. bachelor's degree, master's degree or doctoral degree) or the area of expertise (e.g. pedagogical or subject-matter) varies widely across school systems (Guerriero, 2017[22]). For this reason, the actual effectiveness of teachers may not be completely related to certification.[5] For instance, in some countries, vocational schools tend to recruit teachers with an expertise in a specific curriculum area instead of the one required in general education (OECD, 2018[23]). By contrast, private independent schools (privately managed schools with at least 50% of funding from private sources; see Box II.4.1 in Chapter 4), which often serve more affluent students than public schools do, may have more freedom to hire teachers with experience teaching a specific curriculum instead of that required for government-dependant schools – as long as the candidates also have proven pedagogical skills. This explains why, in many countries, the proportion of fully certified teachers was much smaller in these schools (Table II.B1.5.3). Depending on the size of the vocational education and private independent school sectors, one may thus expect that the gap in teacher qualifications between disadvantaged and advantaged schools varies in both magnitude and direction.

According to PISA 2018 results, 44% of teachers in modal grade schools had a master's or doctoral degree, on average across OECD countries. Given that the definition of "full certification" varies across countries, the average proportion of teachers at one or another level of qualification differs significantly at the country level. In Croatia, the Czech Republic, Finland, Poland and the Slovak Republic, school principals reported that 90% of the teachers in their school had attained a master's or doctoral degree, while in Belarus, Denmark, Saudi Arabia and Uruguay, less than 5% of teachers had done so. This reflects differences observed in the requirements for entry into the teaching profession (OECD, 2018[23]),

Large differences were also observed within countries and economies. In general, the proportion of teachers with at least a master's degree grew with the average socio-economic profile of the school. On average across OECD countries, 40% of teachers in disadvantaged schools (schools in the bottom quarter of the distribution of average socio-economic status), and 48% of teachers in advantaged schools (schools in the top quarter of that distribution) had at least a master's degree (Figure II.5.1). In 25 countries and economies, the proportion of highly qualified teachers in disadvantaged schools was significantly smaller than that in advantaged schools. In Belgium, Hungary, the Republic of Moldova, the Netherlands and the United States, the difference was greater than 20 percentage points. The only exceptions were Iceland and Kosovo, where there was a 4 and 16 percentage-point difference, respectively, in favour of disadvantaged schools. Significant differences in favour of advantaged schools in the proportion of teachers with at least a master's degree were negatively related to socio-economic differences in performance (Figure II.5.2).

Figure II.5.1 **Percentage of teachers with at least a masters' degree, by schools' socio-economic profile**

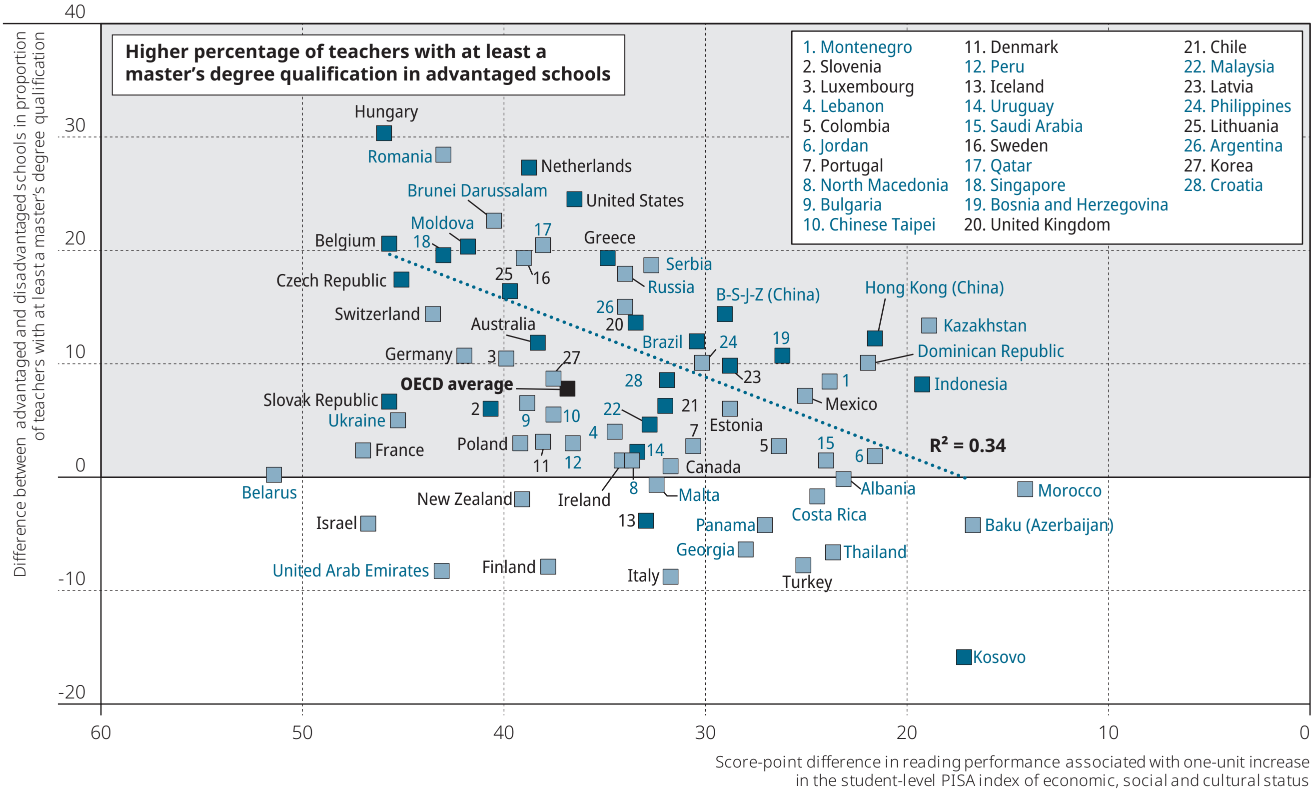
Results based on principals' reports



Notes: Statistically significant differences are shown in a darker tone (see Annex A3).
Education levels correspond to level 5A master's degree and level 6 of the International Standard Classification of Education (ISCED-1997).
The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS), see Annex A1.
For this analysis, the sample is restricted to schools with the modal ISCED level for 15-year-old students (see Annex A3).
Countries and economies are ranked in descending order of the percentage of teachers in disadvantaged schools with at least an ISCED 5A qualification.
Source: OECD, PISA 2018 Database, Table II.B1.5.4.
StatLink https://doi.org/10.1787/888934037602

Figure II.5.2 **Under-representation of qualified teachers in disadvantaged schools and difference in reading performance**

Compared to advantaged schools



Notes: Statistically significant differences are show in darker town (see Annex A3)
Regression line only uses significant differences.
The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).
For this analysis, the sample is restricted to schools with the modal ISCED level for 15-year-old students (see Annex A3).
Source: OECD, PISA 2018 Database, Tables II.B1.2.3 and II.B1.5.4.
StatLink https://doi.org/10.1787/888934037621

SORTING EXPERIENCED TEACHERS ACROSS SCHOOLS

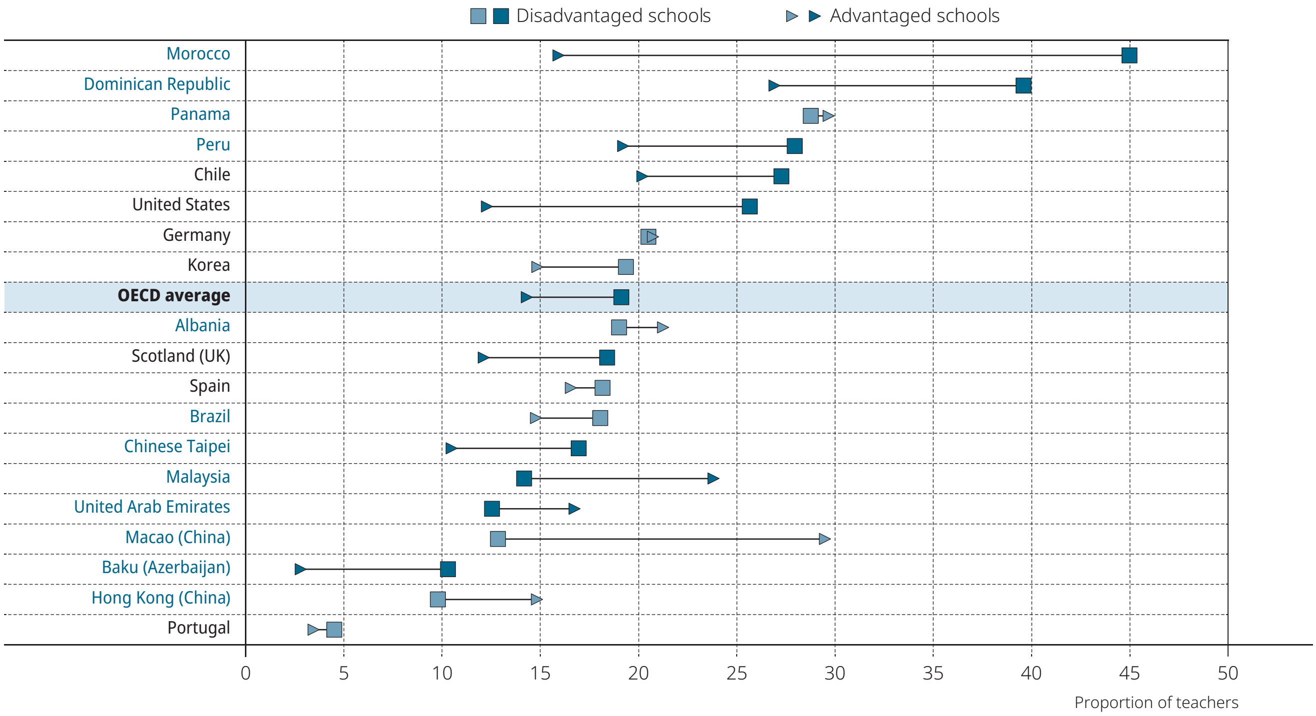
Some 19 countries and economies that participated in PISA 2018 also distributed an optional questionnaire for teachers. As in PISA 2015, responses to this questionnaire provide detailed information on teacher demographics, instruction, teaching strategies, teacher well-being and school contexts (OECD, 2018[23]).[6] As teachers were specifically asked about their professional experience, one can identify "novice" teachers, defined as those with less than five years of experience.

Of the 19 countries/economies that distributed the optional teacher questionnaire, in Baku (Azerbaijan), Chile, the Dominican Republic, Morocco, Peru, Chinese Taipei, Scotland (the United Kingdom) and the United States, the proportion of teachers with less than five years of experience was larger in disadvantaged schools than in advantaged schools (Figure II.5.3). Only in Malaysia and the United Arab Emirates were teachers in disadvantaged schools significantly more experienced than those in advantaged schools. On average across the OECD countries that distributed the optional teacher questionnaire, around 20% of teachers in disadvantaged schools had less than five years of experience – a proportion significantly smaller (by 5 percentage points) than that in advantaged schools. In Morocco, the difference between these shares was around 29 percentage points, and almost one in two teachers in disadvantaged schools in Morocco had less than five years of experience.

Employing mainly less-experienced teachers in schools with high concentrations of disadvantaged students may compound the academic difficulties these students face because novice teachers tend to be less effective, on average, than teachers with several years of experience (Rockoff, 2004[15]; Harris and Sass, 2011[16]; Rivkin, Hanushek and Kain, 2005[1]). As illustrated in Figure II.5.4, the countries/economies where the proportion of novice teachers is larger in disadvantaged than advantaged schools are also often the countries/economies where socio-economic differences in performance are greater.

Figure II.5.3 **Percentage of novice teachers, by schools' socio-economic profile**

Results based on teachers' reports



Notes: Statistically significant differences are shown in s darker tone (see Annex A3).
The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).
For this analysis, the sample is restricted to schools with the modal ISCED level for 15-year-old (see Annex A3).
The OECD average is an average of the seven OECD countries that distributed the teacher questionnaire.
A novice teacher is a teacher with less than 5 years of experience as a teacher.
Countries and economies are ranked in descending order of the percentage of novice teachers in disadvantaged schools.
Source: OECD, PISA 2018 Database, Table II.B1.5.5.
StatLink https://doi.org/10.1787/888934037640

Participation in ongoing, in-service professional development is a crucial component of professionalism amongst teachers (Guerriero, 2017[22]). Continuous professional development activities are also expected to increase teachers' self-efficacy and satisfaction with their job. According to TALIS 2018 results, most teachers reported a positive impact on their teaching practices, self-efficacy and job satisfaction when they participated in such programmes.

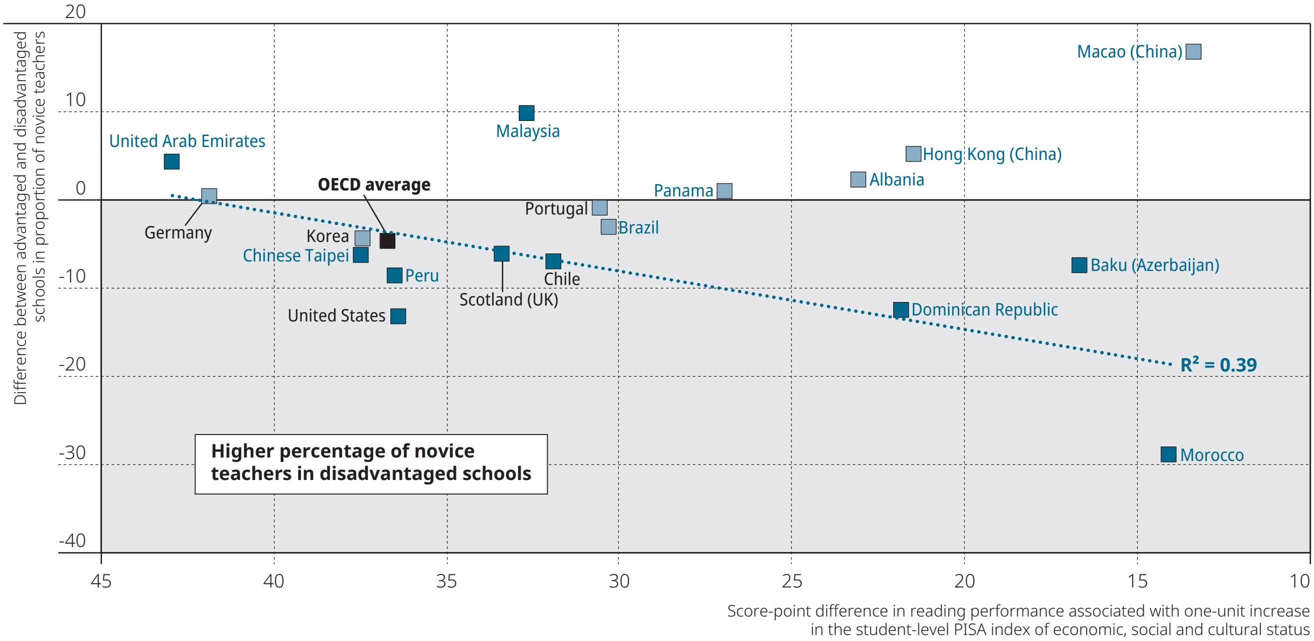
PISA 2018 also asked principals to report the percentage of all teaching staff in their school who had attended a programme of professional development in the three months prior to the PISA test. PISA defines a programme of professional development as a formal initiative, lasting at least one day, that focuses on teaching and education, and is designed to enhance teachers' teaching skills or pedagogical practices. Such a programme may or may not lead to a recognised qualification.

According to school principals, more than one in two teachers in their school had attended such a programme, on average across OECD countries (Table II.B1.5.6).[7] But this proportion varied widely between and within education systems. In 8 countries that participated in PISA 2018, the proportion of teachers in advantaged schools who had attended a professional development programme was smaller than the proportion of teachers in disadvantaged schools who had attended such a programme. The largest differences – of more than 20 percentage points – between the two groups of teachers were observed in Malta and Singapore. Teachers working in the most deprived schools may benefit most from such programmes, given that they often lack professional experience, and work with large numbers of low-achieving and struggling children.

However, in 18 countries, the proportion of teachers who had attended such a programme was smaller amongst teachers working in schools that serve mostly disadvantaged students than amongst those in schools with a more affluent intake. The difference in the proportions between the two groups of teachers was greater than 20 percentage points in Colombia, Panama, Qatar and Saudi Arabia.[8]

Figure II.5.4 **Over-representation of novice teachers in disadvantaged schools and difference in reading performance**

Compared to advantaged schools



Notes: Statistically significant differences are shown in a darker tone (see Annex A3).
Regression line only uses significant differences.
The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).
For this analysis, the sample is restricted to schools with the modal ISCED level for 15-year-old students (see Annex A3).
The OECD average is an average of the six OECD countries that distributed the teacher questionnaire.
Source: OECD, PISA 2018 Database, Tables II.B1.2.3 and II.B1.5.5.
StatLink https://doi.org/10.1787/888934037659

TEACHER ABSENTEEISM

Whatever the qualifications and experience of teachers in a school, the quality of teaching may be undercut if there is a high rate of teacher absenteeism. Teacher absenteeism may result in a loss of instruction time and disruption in student learning. Empirical evidence shows that teacher absenteeism has a considerable negative impact on student achievement (Miller, Murmane and Willett, 2008[24]; Clotfelter, Ladd and Vigdor, 2009[25]; Duflo, Hanna and Ryan, 2012[26]; Herrmann and Rockoff, 2012[27]).

On average across OECD countries in 2018, 21% of students in disadvantaged schools compared to 15% of students in advantaged schools were enrolled in a school whose principal reported that instruction is hindered at least to some extent by teacher absenteeism (Table II.B1.5.7). But in many countries/economies, differences in the rate of teacher absenteeism between advantaged and disadvantaged schools were much greater. For example, in 13 countries/economies the difference was more than 20 percentage points; amongst those countries, in Brunei Darussalam, Colombia, Costa Rica, Panama, Sweden and Uruguay, the difference was larger than 30 percentage points.

These differences may be related to working conditions, as perceived by teachers. In the absence of sufficient compensation, working in a challenging and stressful environment is expected to lead to increases in the rate of absenteeism (Ose, 2005[28]).

In the optional teacher questionnaire, PISA 2018 asked teachers how they feel about their job, in general, and specifically the degree to which they agree or disagree ("strongly agree", "agree", "disagree", "strongly disagree") with the following statements: "The advantages of being a teacher clearly outweigh the disadvantages"; "If I could decide again, I would still choose to work as a teacher"; "I regret that I decided to become a teacher"; "I wonder whether it would have been better to choose another profession"; "I enjoy working at this school"; "I would recommend my school as a good place to work"; "I am satisfied with my performance in this school"; and "All in all, I am satisfied with my job". Teachers' responses to the first four items were used to create an index of satisfaction with the teaching profession, while responses to the last four items were used to create an index of satisfaction with the current job. Both indices were standardised to have a mean of 0 and a standard deviation of 1 across OECD countries that distributed the optional teacher questionnaire. Higher values in the indices correspond to greater satisfaction.

On average across the OECD countries that distributed the teacher questionnaire, teachers in advantaged and disadvantaged schools reported similar levels of satisfaction with the teaching profession. Patterns varied, though, across countries. In

Hong Kong (China) and Peru, and to a lesser extent in Macao (China) and the United Arab Emirates, teachers in disadvantaged schools were less satisfied with the teaching profession than their colleagues in advantaged schools; the opposite was observed in Albania and the Dominican Republic. The high levels of satisfaction indicated by the index of satisfaction with the teaching profession may reflect the respondents' motivation for becoming a teacher. In nearly all countries that participated in TALIS 2018, teaching was the first-choice career for most teachers. Most cited the opportunity to influence children's development and contribute to society as their motivation to become a teacher (OECD, 2019[4]).

However, in eight of the countries/economies that distributed the optional teacher questionnaire, teachers who work in schools that serve predominantly disadvantaged students were much less likely to report being satisfied with their current job environment, than those who work in more advantaged schools (Table II.B1.5.8). The difference was especially marked in Chile, Germany, Hong Kong (China), Scotland (the United Kingdom), Chinese Taipei and the United States. Only in Macao (China) and the United Arab Emirates did teachers in disadvantaged schools report greater satisfaction with their working conditions that those in advantaged schools. This aligns with the results of PISA 2015 indicating that teachers tend to be more satisfied with their job when they work in advantaged schools, even after accounting for school performance (Mostafa and Pál, 2018[29]). In almost all countries where the optional teacher questionnaire was distributed, teachers in disadvantaged schools tended to report less self-efficacy in maintaining positive relations with students (Table II.B1.5.10), in classroom management (Table II.B1.5.11) and in instructional settings (Table II.B1.5.12). Results from TALIS 2018 indicate that teachers spend less time on actual teaching and learning in those schools with a large share of disadvantaged students (OECD, 2019[4]).

EDUCATIONAL RESOURCES AND STAFF SHORTAGES

Teachers' experience and the type of diploma teachers hold are incomplete measures of the actual effectiveness of teachers to help their students learn. Certifications and qualifications may be poor indications of teaching effectiveness, and they are often not comparable across countries. To better measure how students' learning may be affected by the way resources are allocated to schools, PISA 2018 asked school principals to report the extent to which their school's capacity to provide instruction is hindered ("not at all", "very little", "to some extent", "a lot") by a lack or inadequacy of teaching and assisting staff; a shortage or inadequacy of physical infrastructure, such as school buildings, heating and cooling systems, and instructional space; and educational material, such as textbooks, laboratory equipment, instructional material and computers. The responses were combined to create an index of shortage of educational materials. Principals were also asked whether the lack or quality of teaching and assisting staff hinders the capacity to provide instruction in the school. Their responses were combined to create an index of shortage of education staff. The average in both indices is 0 and the standard deviation is 1 across OECD countries. Positive values reflect principals' perceptions that the shortage of staff or educational material hinders the school's capacity to provide instruction to a greater extent than the OECD average; negative values indicate that school principals believe the shortage hinders the school's capacity to provide instruction to a lesser extent.

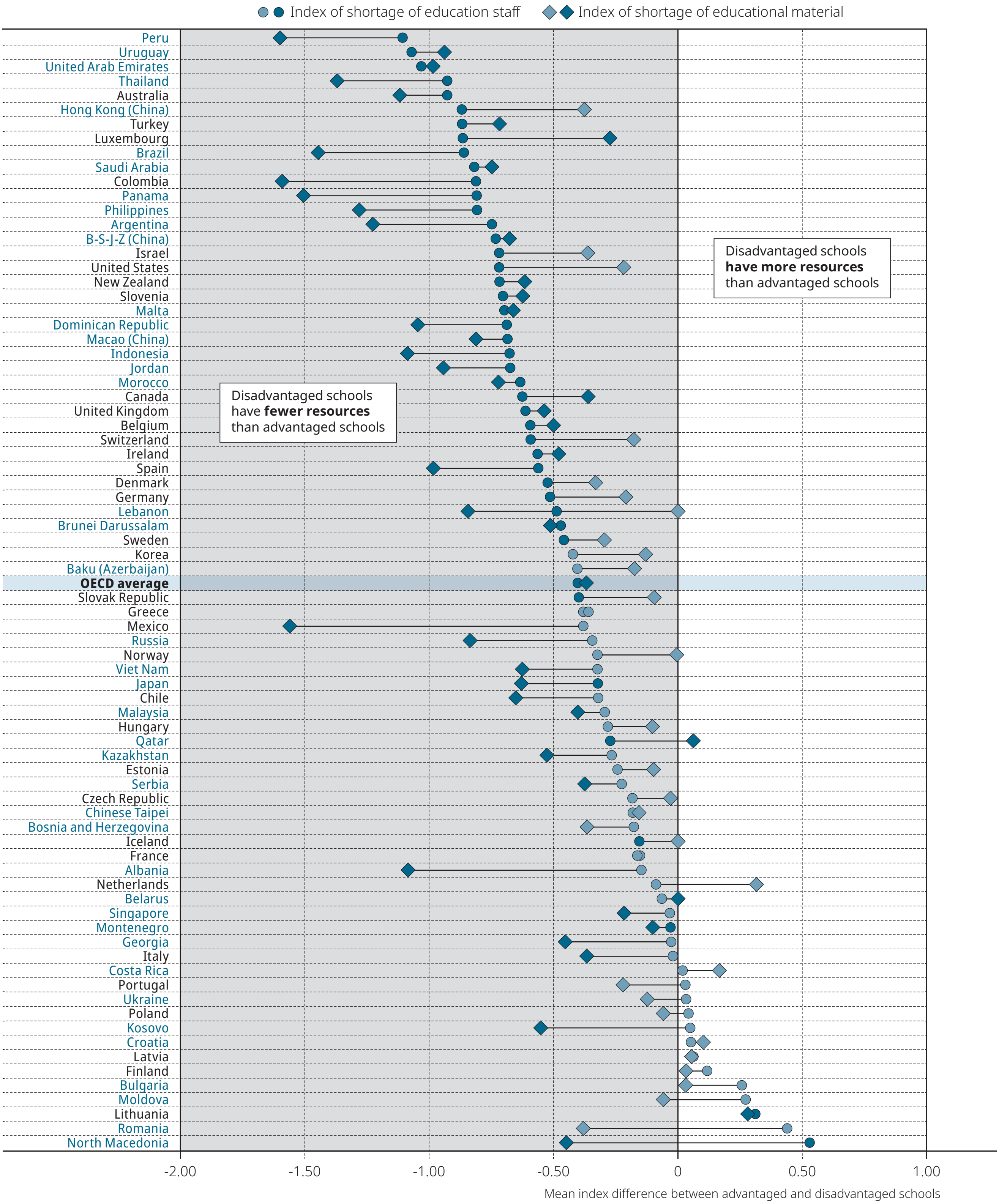
Figure II.5.5 presents the differences in these two indices between advantaged and disadvantaged schools. A negative value in this difference indicates that disadvantaged schools are worse off with respect to shortages of staff or material; a positive value indicates that disadvantaged schools are better off. In 41 PISA-participating countries and economies, principals of disadvantaged schools were significantly more likely than principals of advantaged schools to report that their school's capacity to provide instruction was hindered by a lack or inadequacy of educational material and physical infrastructure. In 45 countries and economies, principals of disadvantaged schools were significantly more likely than principals of advantaged schools to report shortages of education staff.

An analysis of the different components of these indices shows that amongst students enrolled in disadvantaged schools, 34% attended a school whose principal reported that instruction is hindered, at least to some extent, by a lack of educational material. This share was 13.5 percentage-points larger than the share of students enrolled in advantaged schools whose principal reported the same. This difference between advantaged and disadvantaged schools is not significant in 34 of the 79 PISA-participating countries and economies (Table II.B1.5.15). Only in Lithuania, Montenegro and Qatar did advantaged schools appear to suffer more than disadvantaged schools from a lack of educational material.

On average across OECD countries, principals of advantaged schools were much less likely than principals of disadvantaged schools to report that their school's capacity to provide instruction was hindered, at least to some extent, by a lack of teaching staff. Only 19% of students in advantaged schools attended a school whose principal so reported, while these proportions ranged from 28% amongst students who attended schools in the second quarter of socio-economic status, to 34% amongst students who attended the most disadvantaged schools (Table II.B1.5.16). Similar patterns were observed in several countries. In Belgium, Germany, Indonesia, Ireland, Japan, Luxembourg, the Russian Federation and Saudi Arabia, more than one in two students in a disadvantaged school attended a school whose principal reported that a lack of teaching staff hinders the school's capacity to provide instruction.

Figure II.5.5 **Difference in shortage of educational material and staff, by schools' socio-economic profile**

Results based on principals' reports



Notes: Statistically significant differences are shown in a darker tone (see Annex A3).
The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).
For this analysis, the sample is restricted to schools with the modal ISCED level for 15-year-old students (see Annex A3).
Countries and economies are ranked in ascending order of the difference in the mean index of shortage of education staff.
Source: OECD, PISA 2018 Database, Tables II.B1.5.13 and II.B1.5.14.
StatLink https://doi.org/10.1787/888934037678

In most education systems, the consolidated reports of principals of disadvantaged schools were reflected in a positive value in the index of shortage of teaching staff, suggesting a higher incidence of shortage than on average across OECD countries. By contrast, the consolidated reports of principals of advantaged schools were reflected in a negative value in the index, implying a lower incidence of shortage than the OECD average. On average across OECD countries, only one in five disadvantaged students attended a school whose principal reported that their school's capacity to provide instruction is hindered, at least to some extent, by a lack of adequate teaching staff (Table II.B1.5.19).

Principals of disadvantaged schools were less likely than principals of advantaged schools to report that their school's capacity to provide instruction is hindered by insufficiently qualified teachers (10% of students enrolled in advantaged schools attended a school whose principal so reported). Similarly, 37% of students in disadvantaged schools attended a school whose principal reported that a lack of assisting staff hinders their school's capacity to provide instruction to some extent, compared with 27% of students in advantaged schools whose principal so reported (Table II.B1.5.20). And 20% of students in disadvantaged schools attended a school whose principal reported that inadequate or poorly qualified assisting staff hinders instruction to some extent, compared with 12% of students in advantaged schools whose principal so reported (Table II.B1.5.21).

Notes

1. See discussion in Chapter 4. The "modal ISCED level" is defined here as the level attended by at least one-third of the PISA sample. In Albania, Argentina, Baku (Azerbaijan), Belarus, B-S-J-Z (China), Colombia, Costa Rica, the Czech Republic, the Dominican Republic, Indonesia, Ireland, Kazakhstan, Luxembourg, Macao (China), Morocco, the Slovak Republic, Chinese Taipei and Uruguay, both lower secondary (ISCED level 2) and upper secondary (ISCED level 3) schools meet this definition. In all other countries, analyses are restricted to either lower secondary or upper secondary schools (see Annex C for details). In several countries, lower and upper secondary education are provided in the same school. As the restriction is made at the school level, results from some students from a grade other than the modal grade in the country may also be used in the analysis.

2. Research also emphasises that teacher quality may matter more than class size for student performance (Hoekstra, Mouganie and Wang, 2018$_{[30]}$), in the specific context of selective high schools in China.

3. For instance, the evaluation of the Talent Transfer Initiative (TTI), a programme implemented in 10 school districts in seven states of the United States, suggests that providing financial incentives may be an effective way of attracting high-performing teachers to low-performing schools (Glazerman et al., 2013$_{[31]}$). Student performance improves in these schools, at least in elementary school, but no significant impact on middle-school students was observed. This result is at odds with that in France, where financial incentives (but much smaller than those provided in the TTI programme) provided to teachers working in disadvantaged schools failed to attract more experienced teachers. According to a survey across a large sample of Australian teachers, the most effective teachers placed considerably more importance on professional factors (such as having leadership positions) when deciding to transfer to a different school (Rice, 2010$_{[32]}$).

4. In France, only 84.9% of 15-year-old students with non-missing information for estimating the indices were enrolled in schools with the modal grade (Table II.B1.4.11); therefore, comparisons should be interpreted with caution.

5. For instance, evidence from the US Teach For America programme, which aims to attract graduates of the nation's top colleges to teach at least two years in low-income schools, finds that the programme's novice teachers may be at least as effective, or even more so, than traditionally prepared teachers (Penner, 2016$_{[33]}$; Glazerman, Mayer and Decker, 2005$_{[34]}$).

6. The sampled population included only teachers who were eligible to teach the modal grade of 15-year-old students, whether they were teaching that grade currently, had done so before or will/could do so in the future. Up to ten teachers who teach the test language (the main domain in PISA 2018) and up to ten teachers who teach any other subject were surveyed. The questionnaires for these two subpopulations were slightly different (OECD, 2018$_{[23]}$), but in this chapter they are considered jointly. In order to compute averages and shares based on teachers' responses, teacher weights were generated so that the sum of teacher weights in each school is equal to the sum of student weights in the same school (see Annex A3 for details).

7. However, over a longer period of time, in 19 countries/economies that distributed the optional teacher questionnaire, almost all teachers reported that they had participated in professional development activities during the previous 12 months (see Table.II.B1.5.25). In the vast majority of cases, the reported activity was "courses/workshops (e.g. on subject matter or methods and/or other education-related topics)".

8. In Panama, only 84.8%, in Qatar, only 84% and in Saudi Arabia, only 81.3% of 15-year-old students with non-missing information for estimating the indices were enrolled in schools with the modal grade (Table II.B1.4.11).

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6

How school systems prepare students for their future

This chapter analyses the extent to which the education and career expectations of 15-year-old students are shaped by their socio-economic status, and whether these expectations are aligned with students' academic performance. The chapter also reviews the kinds of career guidance provided to 15-year-old students in schools, and what teenagers do to find out more about their possible future studies and careers.

Adolescence is a period when young people start to prepare for adult life. Teenagers have to make important decisions relevant to their working lives later on, such as what field of study or type of education they will pursue. But young people often lack sufficient knowledge about the breadth of job opportunities and careers open to them; their career and education aspirations are often shaped more by their personal background. Previous analyses find that socio-economic background is a strong and reliable predictor of students' aspirations for further education (Guyon et al., 2016[1]; Wicht and Ludwig-Mayerhofer, 2014[2]; Brown, Ortiz-Nuñez and Taylor, 2011[3]; Buchmann and Park, 2009[4]; Dupriez et al., 2012[5]) – which means that, if the link between socio-economic status and students' aspirations for their future is not broken, inequalities may be perpetuated, or even widened in the labour force and in society in general.

Digitalisation and globalisation have already profoundly changed the demand for skills in the labour market. Given the pace of technological change, today's students may have to meet very different demands in just five or ten years. A lack of accurate information about the prospects of employment in different jobs, and the type qualifications that may be required for accessing those jobs, may result in students developing education and career expectations that are misaligned with their academic performance, with potential negative consequences for their future insertion into the labour market (Yates et al., 2010[6]; Khattab, 2015[7]). Students who have a good, and reasonable, idea of the kind of work they would like to do as adults are more likely to invest greater effort in school than students who do not clearly see the purpose of what they learn in school (Beal and Crockett, 2010[8]; Khattab, 2015[9]). Without the appropriate skills, young people may find the transition from school to work particularly difficult (OECD, 2015[10]).

The employment prospects of young people without a tertiary degree have worsened in most countries in recent years (OECD, 2019[11]). Concerned about the growing mismatch between labour market needs and prospective employees' skill sets, countries are working to adapt the supply of skills in order to fuel economic prosperity and ensure that no one is left behind. Education systems can play a crucial role in channelling skills and talent into the labour market, and helping young people develop a fair assessment of their future opportunities. In doing so, they can ensure that students' skills, interests and aptitudes find a suitable match in the economy (Musset and Kurekova, 2018[12]).

What the data tell us

- Many students, especially disadvantaged students, hold lower ambitions than would be expected given their academic achievement. On average across OECD countries, only seven in ten high-achieving disadvantaged students reported that they expect to complete tertiary education, while nine in ten high-achieving advantaged students reported so.
- A large proportion of students, particularly disadvantaged students, held expectations of a future career that were not aligned with their expectations of further education. At least one in three disadvantaged students who saw themselves working as professionals or managers at the age of 30 did not expect to attain a tertiary degree.
- In all but nine countries that participated in PISA 2018, more than eight in ten students were enrolled in a school where some type of career guidance was offered, according to principals.
- Schools that enrol more disadvantaged students, on average, are less likely than schools that enrol advantaged students to provide opportunities for students to discuss their career plans with a dedicated career guidance counsellor.
- On average across OECD countries, more than two in five disadvantaged students reported that they do not know how to find information about student financing (e.g. student loans or grants).

STUDENTS' CAREER EXPECTATIONS

PISA 2018 asked students which education level they expect to complete and what occupation they expect to be working in when they are 30 years old. For the latter question, students could enter any job title or description in an open-entry field; their answers were classified according to the International Standard Classification of Occupations (ISCO-08). In addition, a subset of 32 countries and economies distributed an optional Educational Career questionnaire that asked students about their motivation and preparation for their future career.

On average across OECD countries, almost one in four students who answered the question about career expectations gave vague answers (such as "a good job", "in a hospital") or explicitly indicated that they were undecided ("I do not know"). In Belgium (Fr.), Bulgaria, Denmark, the Dominican Republic, Germany, Israel, Lebanon and Panama, more than one in three 15-year-old students had no clear idea of the type of occupation they want for their future (Table II.B1.6.1); in Belgium (Fr.), 66% of students had no clear idea of their future occupation. By contrast, in Albania, Indonesia, Turkey and Viet Nam, fewer than one in ten students had no clear idea of the kind of career they wanted. In almost all countries and economies, disadvantaged students were less likely than advantaged students to provide an answer to the question about what they want to do in the future. In the Dominican Republic, Lebanon, Mexico, Panama and Peru, the gap between the two groups of students was wider than 15 percentage points.

Surprisingly, on average across OECD countries, the proportions of teenagers without a clear idea of what they want to do in the future did not differ between students enrolled in vocational education and those enrolled in general or modular education.

The fact that such a sizeable proportion of 15-year-old students was still undecided about the type of career they want is not unexpected. At that age, many teenagers may be just beginning to think about what they want to do later on. They may be weighing two or more options, or they may feel that they have insufficient knowledge about careers to answer the question in anything but the most general terms.

When they did have a clear idea about their future career, students cited jobs in a narrow set of occupations. On average across OECD countries, 36% of students who had a clear idea of what career they expected to have at the age of 30 cited one of only 10 of the most popular occupations in their country/economy (Figure II.6.1) The concentration of career expectations was especially marked in Brunei Darussalam, the Dominican Republic, Indonesia, Jordan, Morocco, the Philippines, Qatar, Saudi Arabia and the United Arab Emirates, where at least 60% of students cited one of only ten occupations. The smallest proportions of students (between 25% and 30%) who cited one of only ten occupations were observed in the Austria, Czech Republic, France, Hungary, the Netherlands, Slovenia, Switzerland and Chinese Taipei.

Students' career expectations also tended to reflect gender stereotyping. For instance, amongst the top ten occupations that girls reported to expect for themselves when they are around 30 (see Table II.6.1), seven were health-related occupations; the remaining three were "teaching professionals", "lawyers" and "policy and planning managers". Boys reported a wider range of occupations, including athletes, engineering professionals, motor-vehicle mechanics and police officers. In general, even when boys and girls showed similar performance, a smaller proportion of girls than boys reported that they want to pursue a STEM (science, technology, engineering, mathematics) career (see Figure II.8.6 in Chapter 8).

Table II.6.1 **Top 10 career expectations of 15-year-old students, by gender**

	Boys	Girls
1st	Police officers	Specialist medical practitioners
2nd	Athletes and sports players	Generalist medical practitioners
3rd	Engineering professionals	Lawyers
4th	Generalist medical practitioners	Teaching professionals
5th	Business services and administration managers	Nursing professionals
6th	Motor vehicle mechanics and repairers	Medical doctors
7th	Armed forces occupations, other ranks	Psychologists
8th	Policy and planning managers	Police officers
9th	Lawyers	Veterinarians
10th	Teaching professionals	Policy and planning managers

Source: OECD, PISA 2018 Database.

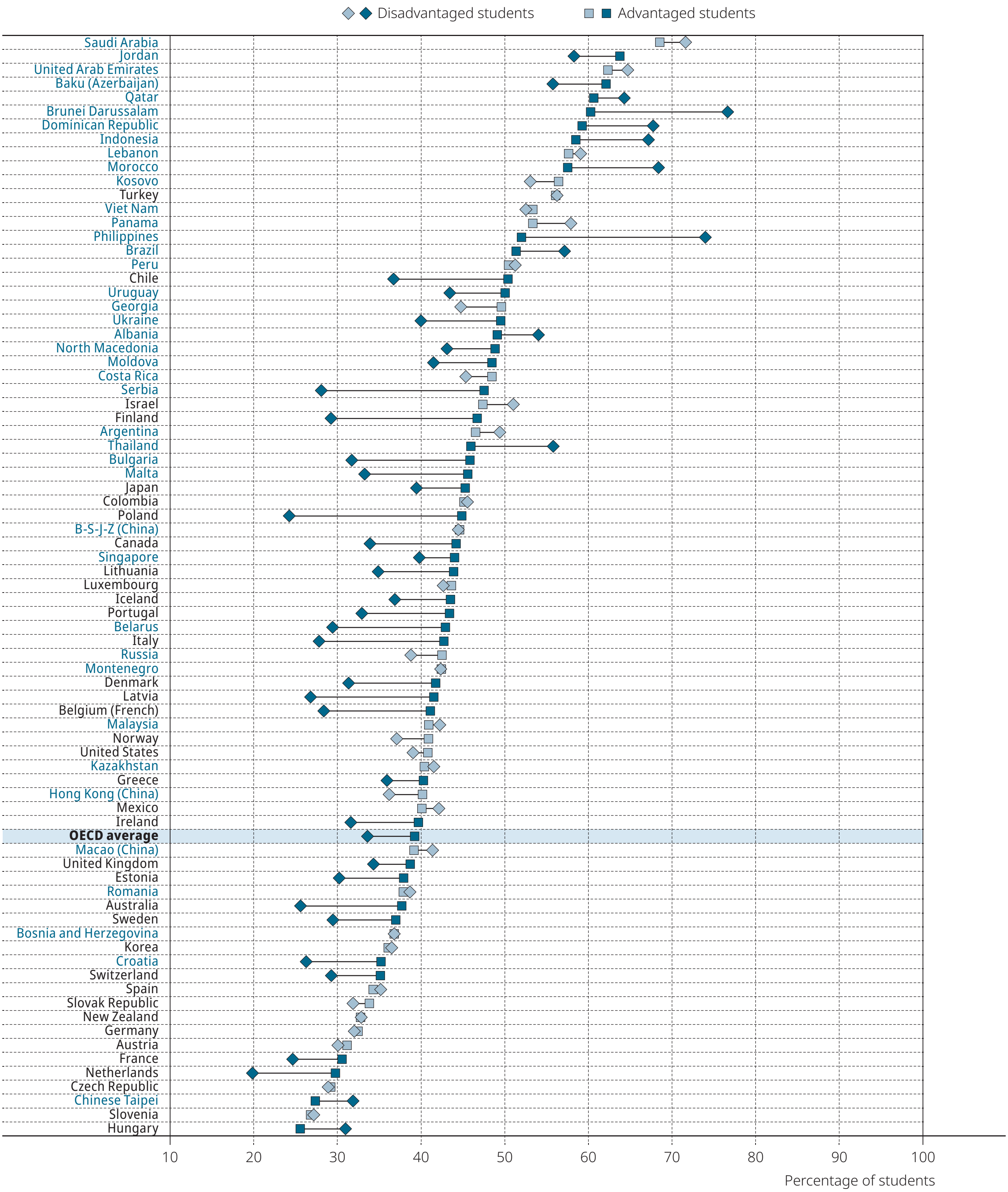
Young people's aspirations are mostly shaped by what they see within their close social network. Research suggests that adolescents' expectations for further education and careers are strongly related to socio-economic status, which may be mediated through their family's aspirations for them and the composition of the school they attend (Howard et al., 2015[13]; van Tuijl and van der Molen, 2015[14]; Schoon and Parsons, 2002[15]; Dupriez et al., 2012[5]). In addition to perpetuating existing inequalities in the labour market, this may lead to expectations that are not aligned with the needs of the job market these students will soon enter, particularly in the context of rapid technological advances. A recent study of the aspirations of young British students finds that teenagers' career expectations have little in common with the expected patterns of demands within the labour market (Mann et al., 2013[16]).

In addition, teenagers may not have a clear notion of what they need to do to achieve their goal. On average across OECD countries, 76% of students held high expectations for their career, envisioning themselves as managers or professionals (ISCO groups 1 to 3; see Table II.B1.6.2). However, in many cases, students expected to attain a much lower level of education than the one that is usually required for these kinds of occupations. On average across OECD countries, 20% of students who saw themselves as professionals or managers at the age of 30 did not expect to attain a tertiary degree, defined as a short-cycle tertiary diploma, a bachelor's degree or equivalent, a master's degree or equivalent, or a doctoral degree or equivalent (see Table II.B1.6.3).

This kind of misalignment between education and career expectations was observed in PISA 2018 more frequently amongst socio-economically disadvantaged students than advantaged students. In 44 out of 79 countries/economies, fewer than one in ten advantaged students who reported that they expect to work in a high-skilled occupation also reported that they do not expect to complete a tertiary degree (Figure II.6.2). By contrast, disadvantaged students who held the same high career expectations often reported that they did not expect to complete a tertiary degree, which would make access to these occupations more difficult. On average across OECD countries in 2018, at least one in three disadvantaged students who expected to work in a high-skilled career held expectations of future education that were not on par with their career goals.

Figure II.6.1 **Students who expect to work in one of the ten most-cited occupations**

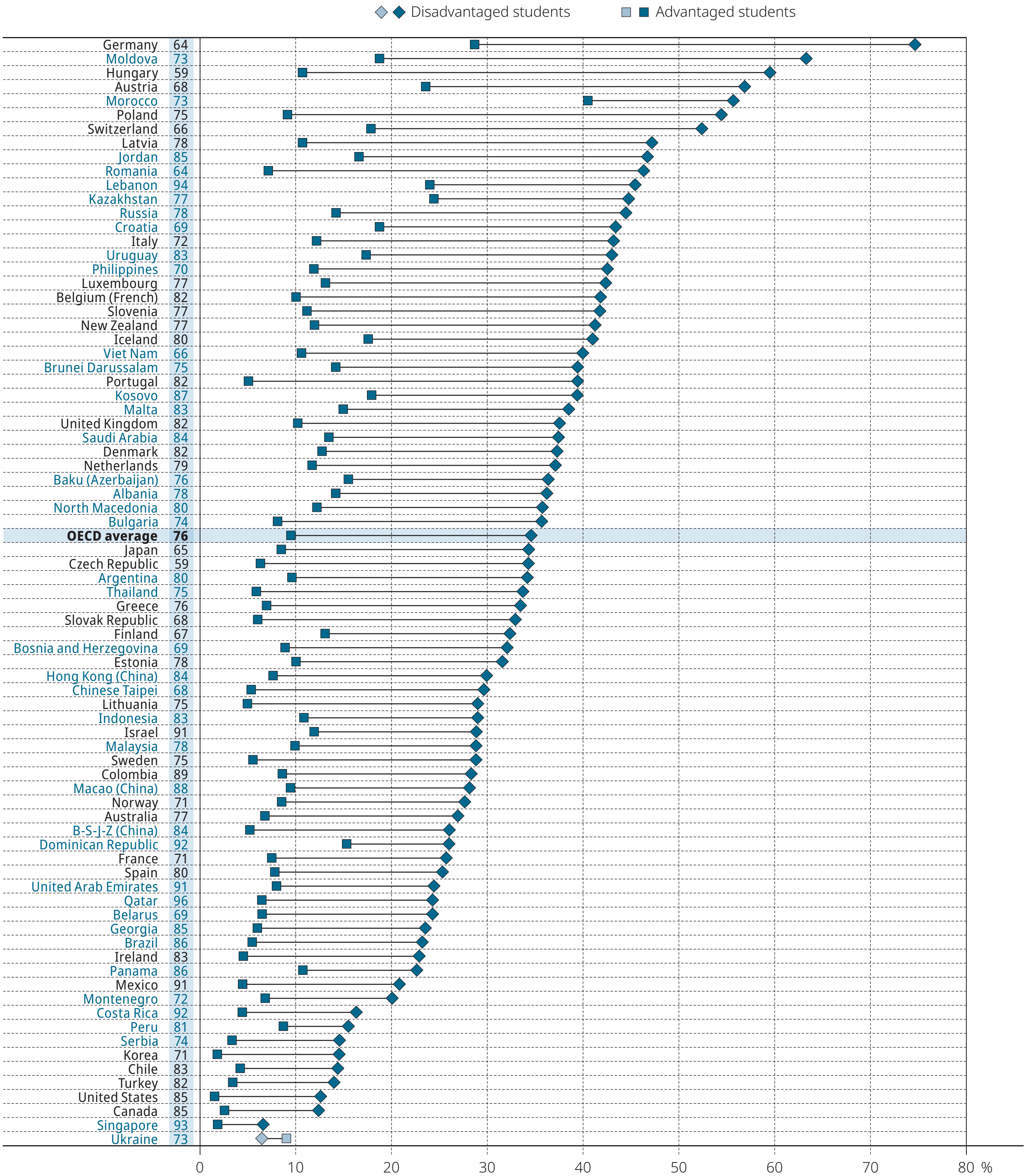
Ten occupations most frequently cited in the relevant country/economy



Notes: Statistically significant differences are marked in a darker tone (see Annex A3).
Vague and invalid answers (smileys for instance) are excluded.
Countries and economies are ranked in descending order of the percentage of advantaged students.
Source: OECD, PISA 2018 Database, Table II.B1.6.1.
StatLink https://doi.org/10.1787/888934037697

Figure II.6.2 **Students whose education and career expectations are not aligned, by socio-economic status**

Percentage of students who do not aspire to complete a tertiary degree amongst those who expect to work in a high-skilled occupation



Notes: The percentage of students who expect to work in a high-skilled occupation is shown next to the country/economy name.

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

Tertiary education corresponds to ISCED levels 5A, 5B or 6 according to the International Standard Classification of Education (ISCED-1997).

Countries and economies are ranked in descending order of the percentage of disadvantaged students.

Source: OECD, PISA 2018 Database, Table II.B1.6.3.

StatLink https://doi.org/10.1787/888934037716

Such misalignment may be due to anticipated difficulty in financing a long and costly education or a lack of information about the common pathway towards the career they aspire to, or both (see Box II.6.1). This misalignment can be detrimental to future economies and societies. Longitudinal studies based on data from the United Kingdom suggest that individuals who, at age 16, underestimated the level of education required for their desired profession are more likely to end up being neither in employment nor in education or training (NEET) before the age of 20 (Musset and Kurekova, 2018[12]; Yates et al., 2010[6]). In several countries, the proportion of young people who are NEET has become a major policy concern. These were the young adults who were hit hardest during the global economic turmoil over the past two decades (OECD, 2015[10]).

Box II.6.1. **How to improve disadvantaged students' understanding of the costs of – and returns to – tertiary education**

Despite the expansion of higher education in recent decades, socio-economically disadvantaged students are under-represented in tertiary educational institutions. This is often the result of a lack of information about the actual costs of tertiary education, the financial aid available to prospective students, and the future returns to tertiary education. A randomised experiment conducted in the Dominican Republic (Jensen, 2010[17]) suggests that eighth-grade boys from poor backgrounds largely underestimate the returns to higher education, and that providing them with accurate information has a positive impact on their schooling. These findings are supported by the results of the Mexican antipoverty programme, PROGRESA, which shows that simply being exposed to highly educated professionals, such as doctors and nurses, raises the aspirations of poor families for their children's education, and has a positive impact on students' achievement at school (Chiapa, Garrido and Prina, 2012[18]).

Even in countries with large enrolments in tertiary education, disadvantaged students may lack adequate and accurate information about higher education; but evidence suggests that it would not be costly to change this. A randomised experiment in disadvantaged high schools in Toronto, Canada, finds that watching a video about the benefits of post-secondary education and being invited to try out a financial-aid calculator significantly assuaged the concerns of disadvantaged high school students about the costs of higher education, and raised their expectations to complete higher education. Results from a randomised, controlled trial conducted in German high schools suggest that similar low-cost interventions may eventually lead to greater tertiary enrolment amongst students whose parents did not attain tertiary education. Students in selected schools who had benefitted from a simple in-class presentation on the benefits and costs of higher education, and on possible funding options, more often applied to university and were more often enrolled than students who had not been exposed to these interventions (Peter, Spiess and Zambre, 2018[19]).

Students from low-income families are also less likely to graduate from the most prestigious institutions. A study in the United States finds that high-achieving disadvantaged students are much less likely to apply to selective tertiary educational institutions, even though these selective institutions may cost them less than the non-selective, four-year institutions to which they actually apply (Hoxby and Avery, 2012[20]). According to Hoxby and Avery, information based on college campus visits, or college-access programmes, which are often based in local high schools, may be ineffective for a certain type of high-performing disadvantaged student. This type of student is often found in small districts where selective public high schools do not receive adequate support. He or she is generally not enrolled in a school that has a critical mass of fellow high achievers, and is unlikely to encounter a teacher who attended a selective college.

Another study in the United States (Castleman and Goodman, 2018[21]) shows the potential of intensive college counselling provided to college-aspiring, low-income students. These interventions are typically run by community-based non-profit organisations, and provide personalised guidance to students throughout the college search, application and financial aid processes. These interventions shift the focus towards enrolment in four-year colleges that are less expensive and have higher graduation rates than the alternatives that students would otherwise choose. Counselling also improves students' persistence through at least the second year of college, suggesting a potential to increase the rate of degree completion amongst disadvantaged students. Similar results are observed with another intervention tested by Hoxby and Turner, (2013[22]). They show that mailing high-achieving seniors an information packet and application fee waivers makes low-income students more likely to enrol in colleges that have stronger academic records and higher graduation rates than those to which students with similar profiles would normally apply.

...

Carrell and Sacedote (2017[23]) find that mentoring programmes have a significant impact on college attendance and persistence for these students, especially amongst women. They interpret these results as evidence that mentoring can substitute for a lack of parent or teacher time and encouragement to students to apply to an institution of higher education. For this target population, neither financial incentives nor information alone appears to be effective. This also confirms the results shown by Carruthers and Fox (2016[24]) who evaluate a large-scale coaching programme for prospective tertiary students and observe that financial aid *per se* is not sufficient to increase participation rates (Peter, Spiess and Zambre, 2018[19]).

Source: Jensen R. (2010), "The (perceived) returns to education and the demand for schooling", https://doi.org/10.1162/qjec.2010.125.2.515; Chiapa C. et al. (2012), "The effect of social programs and exposure to professionals on the educational aspirations of the poor", https://doi.org/10.1016/j.econedurev.2012.05.006; Carrell, S. and B. Sacerdote (2017), "Why do college-going interventions work?" https://doi.org/10.1257/app.20150530; Hoxby C. and C. Avery (2012), "The missing 'one-offs': The hidden supply of high-achieving, low-income students", https://doi.org/10.3386/w18586; Castleman B. and J. Goodman (2018), "Intensive college counseling and the enrollment and persistence of low-income students", https://doi.org/10.1162/EDFP_a_00204; Peter. et al. (2018), "Informing students about college: An efficient way to decrease the socio-economic gap in Enrollment: Evidence from a randomized field experiment", http://dx.doi.org/10.2139/ssrn.3287800; Caroline Hoxby C. and S. Turner (2012), "Expanding college opportunities for high-achieving, low-income students"; Carruthers, C. K. and W.F. Fox (2016), "Aid for all: College coaching, financial aid, and post-secondary persistence in Tennessee", https://doi.org/10.1016/j.econedurev.2015.06.001.

EDUCATION AND CAREER EXPECTATIONS AMONGST DISADVANTAGED STUDENTS

In PISA 2018, 69% of students across OECD countries reported that they expect to complete a tertiary degree, regardless of their career plan. Students' expectations are partially shaped by the direct financial and opportunity costs of participating in higher education. The economic returns to higher education usually depend on the structure of the local labour force. One should expect that the proportion of adolescents who expect to complete tertiary education reflects the proportion of highly educated employees in the labour force, and the employment prospects of university graduates in these countries.

All of these indicators vary considerably from one country to another. For instance, amongst PISA-participating countries that are also included in the World Indicators of Skills for Employment (WISE) database, the percentage of employed adults with tertiary education ranges from 9% in Indonesia to 58% in the Russian Federation (hereafter "Russia") (Figure II.6.3 and Table II.B1.6.8). In all countries with data available in the WISE database, in 2013, more than one in four adults who had not attained upper secondary education were not employed, while this proportion was smaller than one in ten amongst adults who held a degree from an institution of higher education. Even if the structure of the labour force may change in the future, current adult employment rates suggest that the prospects for employment should be much better for the most educated adults. By contrast, in many countries, fewer than two in five low-educated adults are employed, suggesting a precarious future for this group.

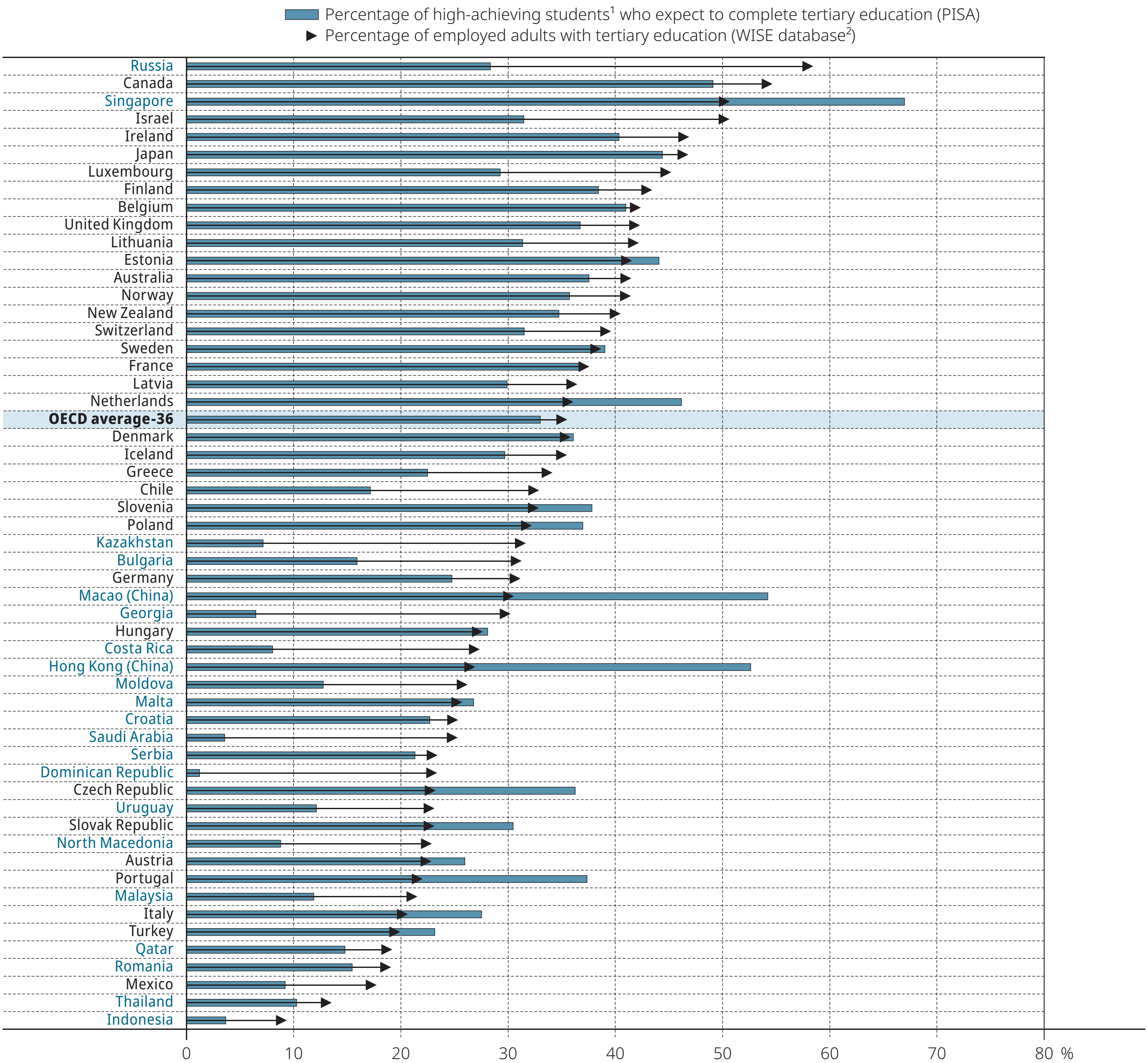
However, in 2018, the proportion of students who held high expectations for further education varied not only between, but also within, countries and economies, and particularly when considering students' socio-economic status. In all countries/economies, disadvantaged students held less-ambitious expectations than advantaged students (Figure II.6.4). This is consistent with observations that show that disadvantaged students are often under-represented at every level of higher education (OECD, 2018[25]). On average across OECD countries in 2018, only five in ten disadvantaged students, compared with nine in ten advantaged students, expected to complete tertiary education. The difference in education expectations between these two groups of students was especially large – greater than 50 percentage points – in the Czech Republic, Hungary, the Republic of Moldova (hereafter "Moldova"), Poland, Romania and the Slovak Republic. By contrast, the difference was less than 10 percentage points in Peru and Singapore, and even negative (by 3 percentage points) in Ukraine.

Performance and expectations

That disadvantaged students are more likely than advantaged students to hold low ambitions for their future education reflects, to some extent, the fact that disadvantaged students are more likely than their advantaged peers to struggle at school. The expectation to complete tertiary education builds on a student's belief about his or her likelihood of successfully completing the programme, and in a reasonable amount of time. As advantaged students tend to outperform their disadvantaged peers (see Chapter 2), they are also more likely to believe that they can succeed in further academic studies. The analysis of longitudinal data based on PISA samples (from 2000 and 2003) in five countries (Australia, Canada, Denmark, Switzerland and the United States) suggests that performance at age 15 is a strong predictor of higher education and early career outcomes (OECD, 2018[26]).

Figure II.6.3 **Proportion of high-skilled employees in the labour force and students with realistic and ambitious expectations**

Based on students' reports in PISA and WISE database



1. Students who attain at least Level 2 in all three core domains and Level 4 in one of them.

2. WISE refers to the World Indicators of Skills for Employment; for more information, please refer to https://www.oecd.org/employment/skills-for-employment-indicators.htm.

Notes: Only countries and economies with available data are shown in this figure.

Tertiary education corresponds to ISCED levels 5A, 5B or 6 according to the International Standard Classification of Education (ISCED-1997).

Countries and economies are ranked in descending order of the percentage of employed adults with tertiary education.

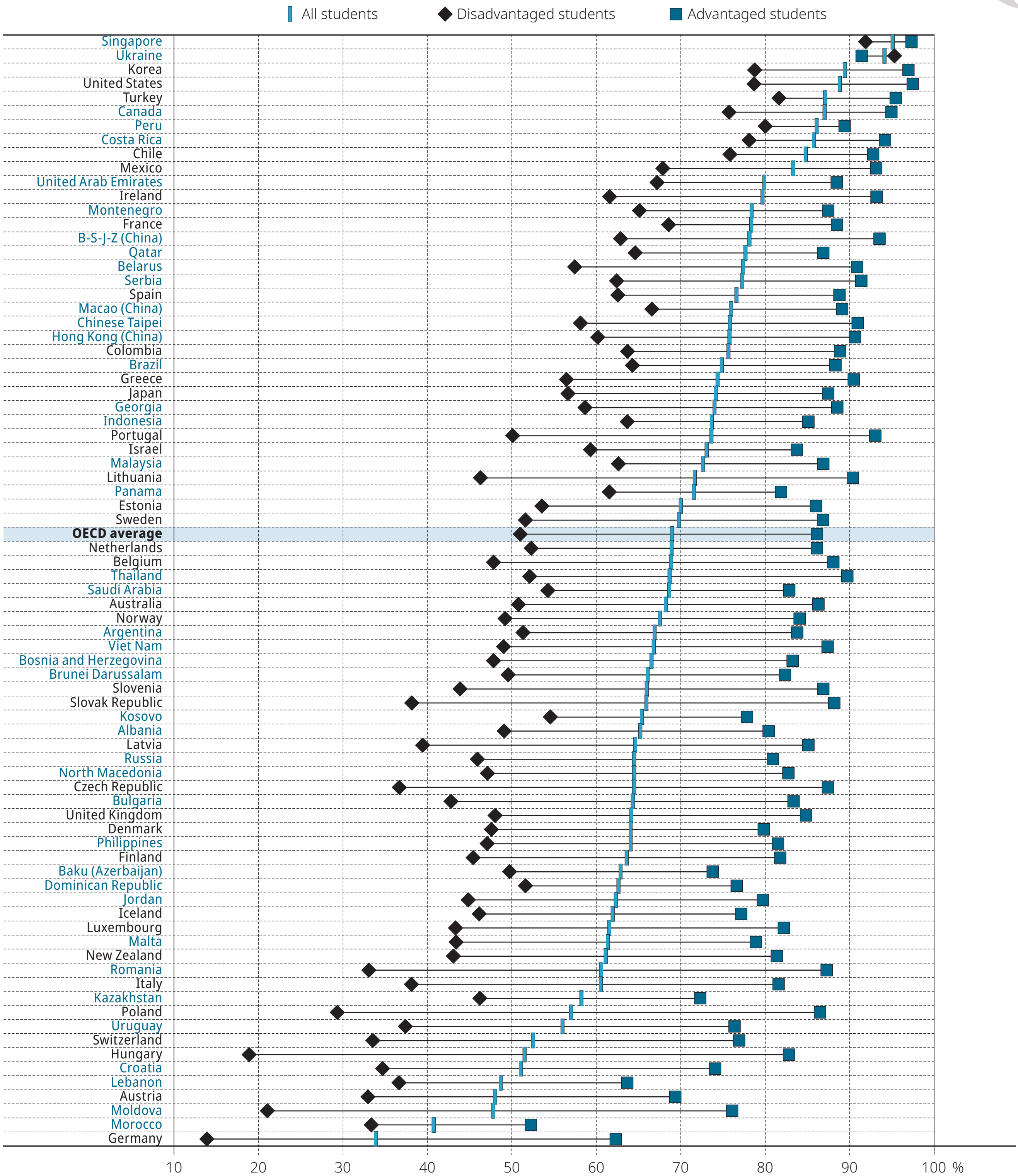
OECD average-36 refers to the arithmetic mean across OECD countries (and Colombia), excluding Spain.

Source: OECD, PISA 2018 Database, Table II.B1.6.8.

StatLink https://doi.org/10.1787/888934037735

In the subset of 32 countries and economies that distributed the optional Educational Career questionnaire, students were asked to describe ("not important", "somewhat important", "important", "very important") the factors that influenced the decisions they made about their future occupation. More than three in four students reported that getting good grades is important or very important in their decision about their future occupation, and eight in ten reported that the school subject they are good at is important or very important (Table II.B1.6.5).

Figure II.6.4 **Students who expect to complete tertiary education**



Note: Differences between advantaged and disadvantaged students are all statistically significant (see Annex A3).

Countries and economies are ranked in descending order of the percentage of all students who expect to complete tertiary education.

Source: OECD, PISA 2018 Database, Table II.B1.6.5.

StatLink https://doi.org/10.1787/888934037754

However, even though performance is closely associated with expectations of further education, sizeable proportions of students who performed poorly in PISA still held ambitious expectations about their future education. On average across OECD countries in 2018, of those students who scored below Level 2 in at least one of the core PISA subjects (reading, mathematics and science), 49% reported that they expect to complete tertiary education. In Chile, Costa Rica, Korea, Mexico, Peru, Singapore, Turkey, Ukraine and the United States, more than three in four low-performing students reported so (Table II.B1.6.6).

In contrast, many students, especially disadvantaged students, hold lower ambitions than would be expected given their academic achievement. In almost all countries/economies, of the high-achieving students who attained proficiency Level 4 in at least one of the three core PISA subjects and attained at least proficiency Level 2 in the other two, less than 8% of advantaged students did not expected to complete tertiary education (Figure II.6.5). But high-achieving disadvantaged students were less likely than high-achieving advantaged students to expect to complete higher education. On average across OECD countries, 28% of high-achieving disadvantaged students reported that they do not expect to complete tertiary education. In Austria, Finland, Germany, Hungary, Italy, Kazakhstan, Latvia, Moldova, New Zealand, Norway, Poland, Sweden and Switzerland, the difference in expectations related to socio-economic status was larger than 25 percentage points. Previous results suggest that the influence of socio-economic status on aspirations for further education was often stronger in highly differentiated systems, where students are tracked early into different streams, than in more comprehensive ones, where all students follow a similar path through education; but this relationship is not deterministic (Buchmann and Park, 2009[4]; Dupriez et al., 2012[5]). However, amongst this set of countries/economies with the highest differences in expectations related to socio-economic status, only 4 use early tracking (before the age of 12), but in 7, students are not tracked before the age of 16.

Holding expectations of future education that are not aligned with academic performance may be damaging at both the personal and societal levels. Students on an education track who do not have adequate skills may take longer to complete their degree or even drop out before they earn one. Such failures have a high social and economic cost, apart from the frustration these students feel in not meeting their goals (Sabates, Harris and Staff, 2011[27]; Yates et al., 2010[6]; Musset and Kurekova, 2018[12]).

Even more worrying is the proportion of students who, despite high performance, appear to have low expectations for their future education. These low expectations, which may be due to low self-esteem or financial constraints, may deprive societies and economies of valuable and much-needed talent. As technologies continue to advance, the demand for highly educated workers will increase. While the employment rate amongst low-skilled adults (those with less than upper secondary education) was not higher than 72% in 2014, across PISA-participating countries included in the WISE database, 67% to 90% of tertiary-educated adults in these countries were employed that year (Table II.B1.6.8).

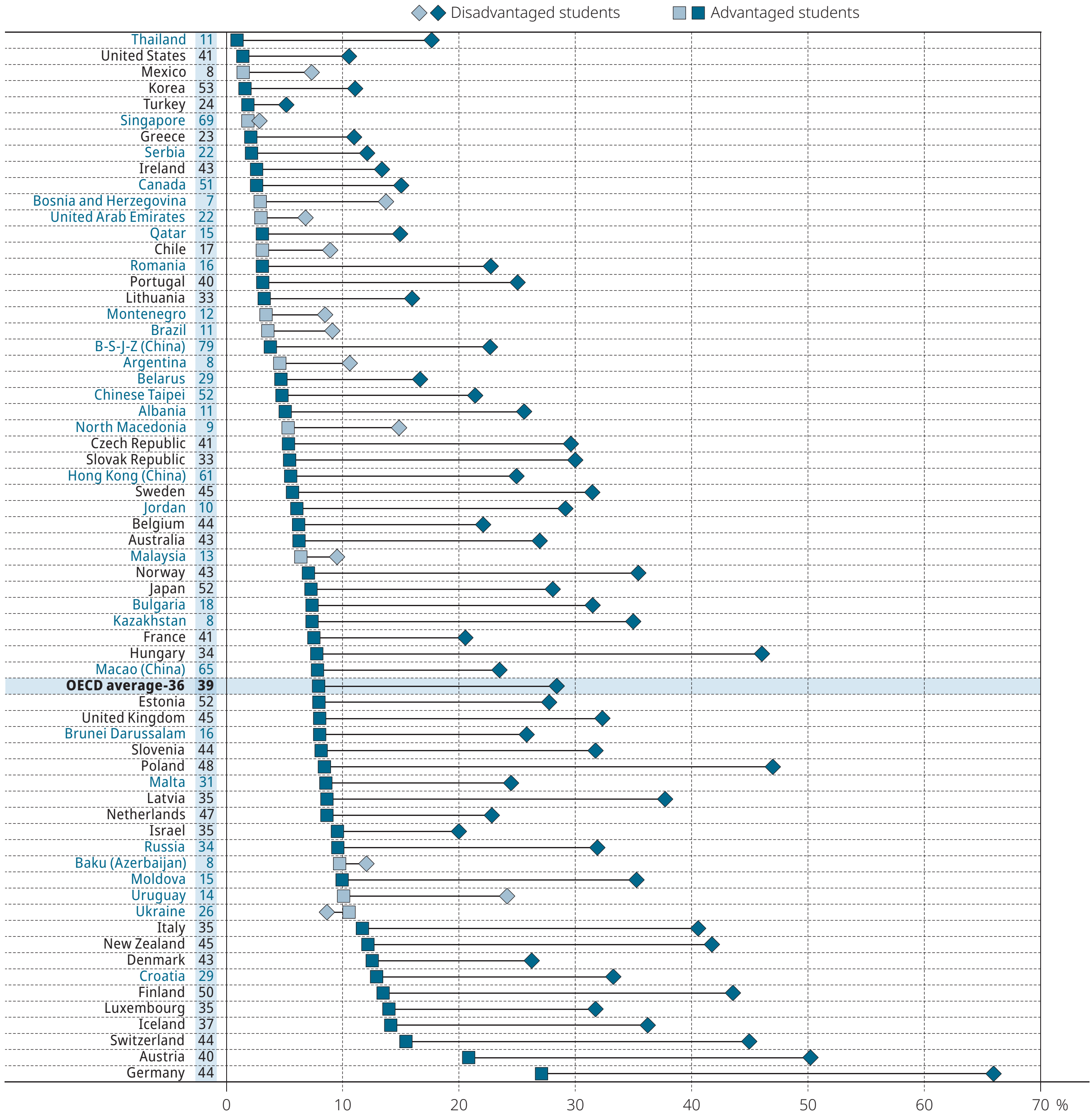
It is obviously difficult to predict the number of tertiary-educated adults that will be needed in the future workforce, and the strength of this demand is likely to vary across countries, depending on the economy's structure and technological advances. Nonetheless, it seems clear that the need for qualified workers is likely to continue and probably grow in the coming years. In all countries with available data, the proportion of employed adults with tertiary education grew between 2003 and 2013 (the longest period with comparable data). In almost all of these countries, the annual growth rate increased in the second part of the period, ranging from 1% to 7% a year between 2009 and 2013.

To get a sense of the alignment of students' expectations of further education with the realities of the labour market, one may compare the proportion of students who reported, in PISA 2018, that they expect to complete tertiary education, and who attained proficiency Level 4 in at least one of the three core PISA subjects and attained at least proficiency Level 2 in the other two, with the proportion of highly educated employees in the labour force in their countries, as observed in the WISE database (for 2013). Across the 57 PISA-participating countries with available data, students' expectations about their future education appeared to be mostly in line with the share of tertiary-educated employees in their country. However, several countries show high levels of mismatch between students' expectations and the reality on the ground. For example, in Bulgaria, Chile, Costa Rica, the Dominican Republic, Georgia, Israel, Kazakhstan, Luxembourg, Russia and Saudi Arabia, the proportion of students who expected to complete tertiary education, and were high achievers, was much smaller than the proportion of highly qualified employees. This situation may result in a shortage of adequately qualified workers in the labour force.

Encouraging students, especially those from low-educated families, to set high, yet realistic, expectations for future education and work is not only a way of promoting social mobility, it is necessary to fuel economic prosperity. Given that they can reach many young people in a systematic way, schools are a key access point for formal career guidance (Musset and Mytna Kurekova, 2018[28]). Such career guidance should help teenagers from all backgrounds broaden their aspirations to include a larger set of options than those their family and social network may suggest, and help them make informed decisions.

Figure II.6.5 **High performers who do not expect to complete tertiary education, by socio-economic status**

Percentage of students amongst those who have attained at least minimum proficiency (Level 2) in the three core PISA subjects and are high performers (Level 4) in at least one subject



Notes: The percentage of high performers is shown next to the country/economy name.

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

Only countries and economies with sufficient proportions of high performers amongst advantaged/disadvantaged students are shown in this figure.

Countries and economies are ranked in ascending order of the percentage of advantaged students.

OECD average-36 refers to the arithmetic mean across OECD countries (and Colombia), excluding Spain.

Source: OECD, PISA 2018 Database, Table II.B1.6.7.

StatLink https://doi.org/10.1787/888934037773

CAREER GUIDANCE AT SCHOOL

The results described in the previous sections suggest that students, especially those from disadvantaged families, have misaligned perceptions about performance at school and their expectations of future education and work. This incoherence is often due to a lack of accurate information. The family is often the most easily available source of advice and influence on a teenager's career plans; but parents are not always aware of the range of career options available to their child. They often prefer general education over vocational programmes (Musset and Kurekova, 2018[12]), even if for some students an alternative pathway may lead to better education outcomes (Goux, Gurgand and Maurin, 2016[29]).

Some parents, especially low-educated parents, may also lack sufficient information about higher education. They may overestimate the academic prerequisites for university education, and underestimate the economic returns to completing a university degree, such as the likelihood of finding a job after graduation. Existing evidence suggests that students from disadvantaged families have less knowledge about the choices of tertiary programmes available to them (Giustinelli and Pavoni, 2017[30]; Hoxby and Turner, 2015[31]) and are not always aware of the financial aid they could receive to help them meet the cost of tertiary education (Bettinger et al., 2012[32]).

Providing career guidance or job shadowing experiences in school may be one way to help all teenagers, whatever their talents and aptitudes, to develop ambitious and realistic expectations about their future.

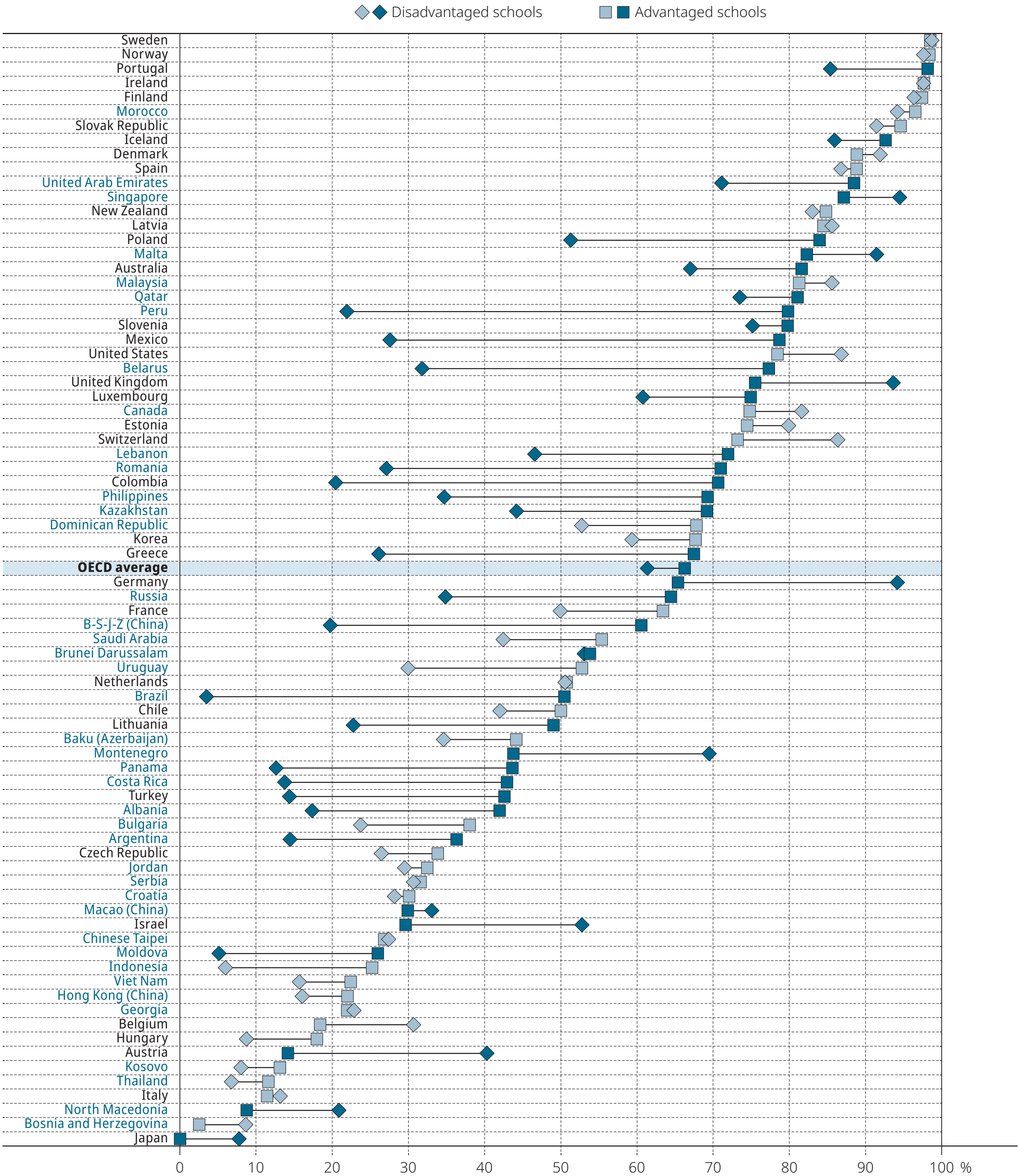
PISA 2018 asked school principals whether career guidance for students was available in their school and, if so, who was responsible for providing it: several or one principal or teacher, a dedicated career guidance counsellor, or other. According to school principals in almost all countries, students enrolled in a modal grade school benefited from some kind of career guidance (Table II.B1.6.9).[1] More than eight in ten students in all but nine PISA-participating countries and economies (the exceptions were Argentina, Baku [Azerbaijan], Belgium, Bosnia and Herzegovina, Brazil, Croatia, Greece, Italy and Uruguay) were enrolled in a school where some type of career guidance is offered. However, the modality and the provider varied significantly across countries, and this may affect the quality and relevance of the type of advice provided to students.

On average across OECD countries, amongst students enrolled in a school that offers career guidance, two in three of them attended a school where career guidance is formally scheduled into the students' time, not just when students seek such advice (Table II.B1.6.10). In 10 of the 79 PISA-participating countries/economies, namely Denmark, Finland, Iceland, Ireland, Morocco, Norway, Portugal, Singapore, the Slovak Republic and Sweden, more than nine in ten students attended schools where guidance is provided by dedicated guidance counsellors who are either employed by the school or regularly visit the school. In 3 countries, namely Bosnia and Herzegovina, Japan and Thailand, fewer than one in ten students received advice from a dedicated guidance counsellor (Table II.B1.6.9). In these countries, almost all students were enrolled in a school where teachers are responsible for providing career guidance to students. On average across OECD countries, dedicated counsellors were more frequently found in general and modular schools than in vocational ones. Amongst countries where more than 5% of students were enrolled in vocational schools, only in Albania, Germany, Montenegro, the Republic of North Macedonia and the United Kingdom was the proportion of students who have the opportunity to discuss their career plans with an expert significantly larger amongst students enrolled in vocational education than amongst students enrolled in general or modular education. In 10 countries/economies where more than 5% of students were enrolled in vocational schools, the opposite was observed.

Socio-economically disadvantaged students are often most at risk of lacking relevant information about future education and career choices. However, in most countries, schools that enrol more disadvantaged students were less likely, on average, to provide opportunities for students to discuss their career plans with a specialised adviser. Only in ten countries that participated in PISA 2018 were students in disadvantaged schools significantly more likely to benefit from career guidance provided by a dedicated counsellor (Figure II.6.6). In 29 countries, the opposite was true, meaning that students in disadvantaged schools had fewer opportunities to discuss their future with an expert. The gap between advantaged and disadvantaged schools was especially large – greater than 40 percentage points – in Beijing, Shanghai, Jiangsu and Zhejiang (China) (hereafter "B-S-J-Z [China]"), Belarus, Brazil, Colombia, Greece, Mexico, Peru and Romania.

Figure II.6.6 **Advantaged/disadvantaged schools where one or more dedicated counsellor(s) provide career guidance**

Percentage of students in schools that provide career guidance



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

For this analysis, the sample is restricted to schools with the modal ISCED level for 15-year-old students (see Annex A3).

Countries and economies are ranked in descending order of the percentage of students in advantaged schools.

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

StatLink https://doi.org/10.1787/888934037792

HOW TEENAGERS LEARN ABOUT PROSPECTIVE CAREERS

In the subset of 32 countries and economies that distributed the Educational Career questionnaire, students were asked whether they have done any of the following to find out about future study or types of work: did an internship; attended job shadowing or work-site visits; visited a job fair; spoke to a career adviser at school; spoke to an adviser outside of school; completed a questionnaire to find out about [his/her] interests and abilities; researched the Internet for information about careers; went to an organised tour in a higher education institution; or researched the Internet about higher education programmes.

Working as interns, shadowing workers in their jobs and visiting job fairs are all "employer-led activities" that may help students gain a better understanding of the labour market. Such activities may be useful for all students as they may help students define their career aspirations more clearly, using concrete ideas that are not limited to the knowledge – or lack thereof – of their close connections and families.[2] On average across the 18 OECD countries where students were asked what they did to find out more about possible future studies or careers, almost two in three students reported that they had engaged in at least one of these activities (Table II.B1.6.11). Differences between and within countries were large, though. In Austria, Denmark, Germany and Malta, more than four in five students reported that they had engaged in such activities, while in Belgium and Hong Kong (China), less than half as many students so reported.

On average across OECD countries, disadvantaged students were less likely to report that they had worked as interns, shadowed workers in their jobs or visited a job fair in order to prepare for their future career or work. The gap related to socio-economic status was especially large – more than 20 percentage points – in Brazil and Morocco; in Costa Rica, Kazakhstan, Korea, Lithuania and Spain, the gap ranged from 10 to 15 percentage points. Austria, Germany, Hungary, Serbia, the Slovak Republic and Chinese Taipei were the exceptions. In these countries, advantaged students were less likely to report that they had engaged in one of those employer-led activities.

More specifically, disadvantaged students more often job shadowed or visited a job fair than advantaged students. In a few countries, such as France, Hungary, the Slovak Republic, Slovenia and Chinese Taipei, the percentage of disadvantaged students who had worked as an intern was much higher than the percentage of advantaged students who had done so. In some of these countries, disadvantaged students were more likely to be enrolled in vocational schools. In these schools, education is more openly oriented towards eventual insertion into the labour force, and it is more likely to include a mandatory training period.

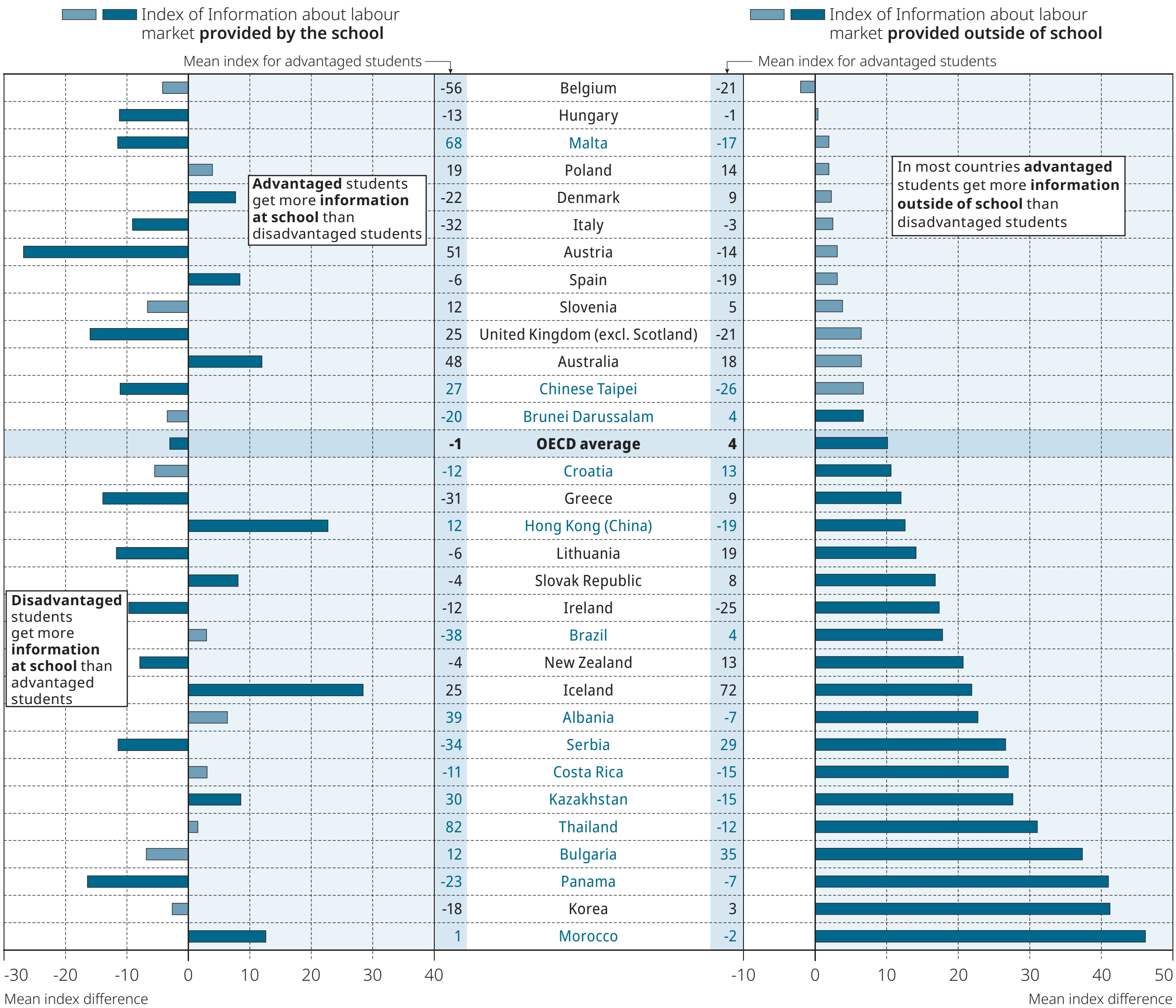
In the same vein, in 12 of the countries that distributed the optional Educational Career questionnaire, the proportion of students who reported that they had met with a career guidance adviser outside of school was significantly larger amongst advantaged than disadvantaged students. Such a service may be prohibitively expensive for low-income families. But disadvantaged students were also less likely to have participated in activities that do not require a financial investment. In these 12 countries, disadvantaged students were less likely to report that they had seen an adviser in their school, or had answered a questionnaire to find out about their interests and abilities. Disadvantaged students were also less likely than advantaged students to report that they had browsed the Internet for information about careers or education programmes. In most countries that distributed the optional Educational Career questionnaire, at least 75% of advantaged students reported that they had used the Internet to search for information about careers or about higher education programmes; the percentage of disadvantaged students who so reported was at least 10 percentage points lower (Table II.B1.6.11).

The Educational Career questionnaire was also used to find out which skills students had acquired in or outside of school that could help them make decisions about continuing their education and may be useful for the transition from school to work. For example, the questionnaire asked students whether they had acquired skills, at or outside of school, related to finding information about jobs they are interested in; searching for a job; writing a résumé or a summary of their qualifications; preparing for a job interview; or finding information about financing higher education (e.g. student loans or grants). These skills may be considered as useful for helping students navigate the job-search process, apply for a particular job, and succeed in job interviews. Students' responses were summarised to create two indices measuring whether students considered themselves as having acquired a set of skills at or outside of school. Both indices were standardised to have a mean of 0 and a standard deviation of 1 across OECD countries.

Based on students' reports, PISA finds that, in most countries, disadvantaged students were more likely than advantaged students to have acquired, at school, the skills that may be useful for the transition from school to work, while advantaged students were more likely to have acquired such skills outside of school (Figure II.6.7).

Figure II.6.7 **How students get information about the labour market**

Difference between advantaged and disadvantaged students in the following indices



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

Only countries and economies with available data are shown in this figure.

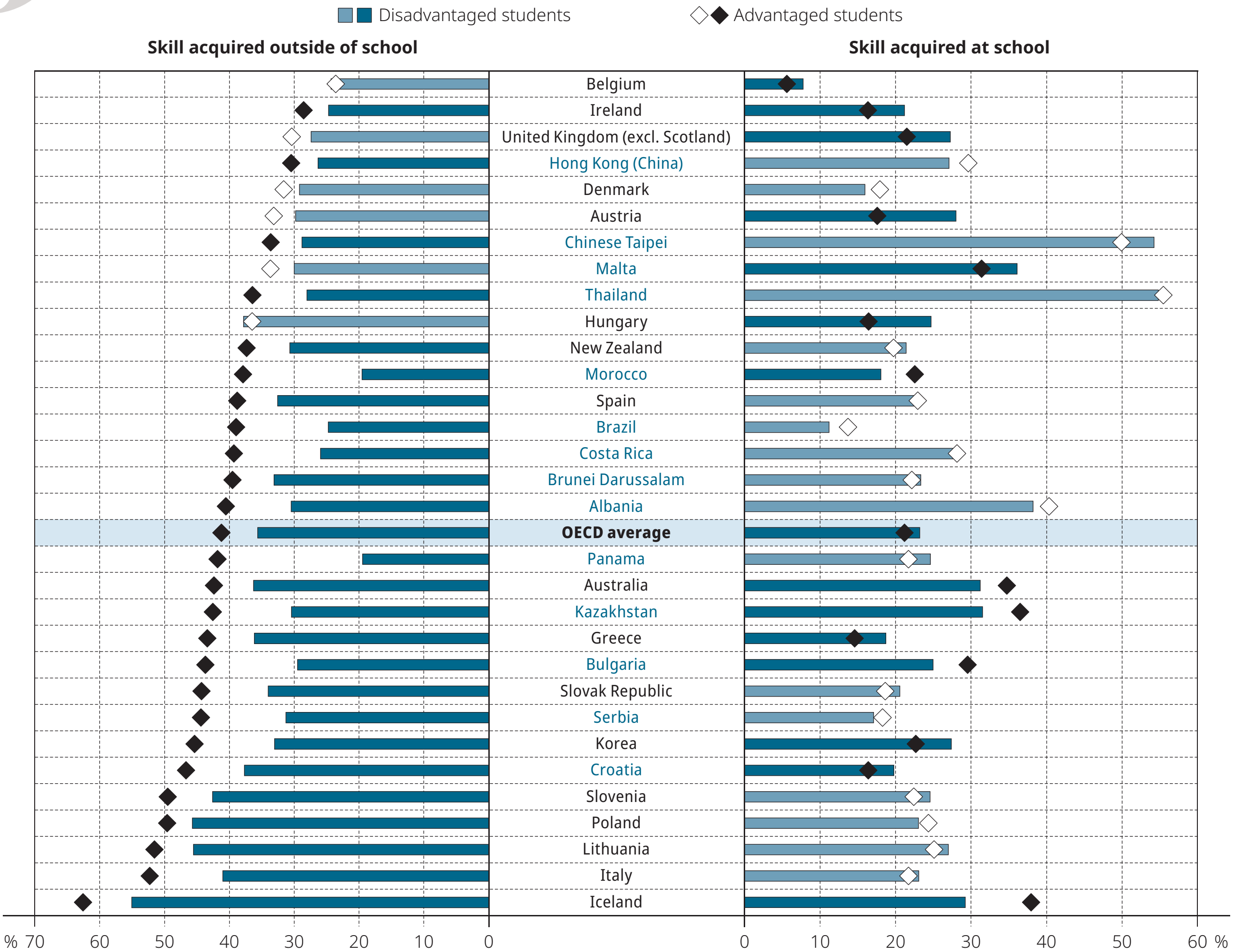
Countries and economies are ranked in ascending order of the difference between advantaged and disadvantaged students in the index of information about labour market provided outside of school.

Source: OECD, PISA 2018 Database, Table II.B1.6.12.

StatLink https://doi.org/10.1787/888934037811

But a particularly worrying finding is that only a small proportion of disadvantaged students reported knowing how to get information about student financing (e.g. student loans or grants). On average across OECD countries that distributed the optional Educational Career questionnaire, 42.5% of disadvantaged students reported that they had not acquired such skills (see Table II.B1.6.13). When they had acquired such skills, more of them had done so outside of school (35.6%) than at school (23.2%) (see Figure II.6.8). In Bulgaria and Thailand, fewer than one in four disadvantaged students reported that they had not acquired these skills; but in Belgium, Denmark, Hong Kong (China), Ireland, Morocco and New Zealand, more than one in two disadvantaged students had not acquired such skills. Financial constraints may limit access to tertiary education, so having access to information about financial aid could help capable students from low-income families overcome that particular barrier. Recent evidence suggests that providing both information about existing student aid for college enrolment and assistance in completing the application may have a considerable impact on college enrolment. See Box II.6.2 and for a review, see Herbaut and Geven, 2019[37].

Figure II.6.8 **Students who reported knowing how to find information about student financing, by socio-economic status**



Notes: Statistically significant differences are marked in a darker tone (see Annex A3).
Only countries and economies with available data are shown in this figure.
Countries and economies are ranked in ascending order of the percentage of advantaged students who acquired skills outside of school.
Source: OECD, PISA 2018 Database, Table II.B1.6.13.
StatLink https://doi.org/10.1787/888934037830

Box II.6.2. **How needs-based interventions may narrow the socio-economic gap in tertiary enrolment**

While access to tertiary education has increased dramatically in most countries over the past few decades, large inequities in access to higher education remain. Young people with low-educated parents are much less likely to complete higher education than those with highly educated parents. These differences in educational attainment translate into persistent earnings inequalities (OECD, 2018[26]).

In order to reduce this socio-economic gap in enrolment in post-secondary education, several countries have implemented financial aid programmes targeted to students from low-income families. The evaluation of a large-scale, needs-based public programme in France (*"Bourse sur critères sociaux*") suggest that these programmes may be effective in increasing college enrolment rates, students' perseverance, and completion rates (Fack and Grenet, 2015[33]). Similar conclusions were drawn from a randomised experiment assessing the impact of a private needs-based grant programme in Wisconsin in the United States (Goldrick-Rab et al., 2016[34]). Previous evidence from the United States suggests that low-income families may indeed be highly sensitive to all financial costs implied in the admissions procedures for tertiary education. For instance, a marginal decrease in the cost of applications to colleges significantly widened the range of college students who applied, and eventually increased the number of low-income students who enrolled in more selective colleges (Pallais, 2015[35]).

...

However, the impact of these needs-based programmes may be weakened if disadvantaged secondary school students do not have a clear understanding of the financial aid opportunities available to them, and of the conditions of eligibility. A randomised experiment conducted in three US states shows that providing assistance in navigating through the complex application process, notably filling out the Free Application for Federal Student Aid (FAFSA), has a considerable impact on college enrolment and future retention in college amongst secondary school students (Bettinger et al., 2012[32]). This research also suggests that, for this population, providing information only about costs and financial aid may not be sufficient to raise college-enrolment rates. However, another randomised experiment conducted in Santiago, Chile, showed that giving direct information about loans and scholarships four years before the application process begins can lead to more positive behaviours towards education amongst eighth graders (Dinkelman and Martínez A., 2014[36]).

Source: Fack, G. and J. Grenet (2015), "Improving college access and success for low-income students: Evidence from a large need-based grant program", http://dx.doi.org/10.1257/app.20130423; Goldrick-Rab et al. (2016), "Reducing income inequality in educational attainment: Experimental evidence on the impact of financial aid on college completion", http://dx.doi.org/10.1086/685442; Dinkelman and Martínez (2014), "Investing in schooling in Chile: The role of information about financial aid for higher education", http://dx.doi.org/10.1162/rest_a_00384; Bettinger at al. (2012), "The role of application assistance and information in college decisions: Results from the H&R Block Fafsa experiment", http://dx.doi.org/10.1093/qje/qjs017; Pallais (2015), "Small differences that matter: Mistakes in applying to college", http://dx.doi.org/10.1086/678520.

Notes

1. For this analysis, as in Chapters 4 and 5 in this volume, the sample was restricted to the schools that enrolled students in "modal ISCED level", defined here as the level attended by at least one-third of the PISA sample. In Albania, Argentina, Baku (Azerbaijan), B-S-J-Z (China), Belarus, Colombia, Costa Rica, the Czech Republic, the Dominican Republic, Indonesia, Ireland, Kazakhstan, Luxembourg, Macao (China), Morocco, the Slovak Republic, Chinese Taipei and Uruguay, both lower secondary (ISCED level 2) and upper secondary (ISCED level 3) schools meet this definition. In all other countries, analyses are restricted to either lower secondary or upper secondary schools (see Table II.C.1. in Annex C for details). In several countries, lower and upper secondary education is provided in the same school. As the restriction is made at the school level, some students from a grade other than the modal grade in the country may also be included in the analysis.
2. Results from longitudinal data suggest that, once the selection effects are taken into account, participation in internships or apprenticeships has a positive impact on college enrolment or employment amongst low-ability students or those from low-educated families (Neumark and Rothstein, 2006[38]). The results of other programmes appear more mixed, however see also Mann, Huddleston and Kashefpakdel, 2019[39].

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PISA

7

Girls' and boys' performance in PISA

This chapter analyses performance differences between boys and girls in the three core PISA subjects – reading, mathematics and science – in 2018. It identifies those countries where these disparities shrank over the past decade. It also discusses the variations in performance amongst boys and girls, and their relationship with students' socio-economic status.

PISA has consistently found that girls outperform boys in reading and, to a lesser extent, that boys outperform girls in mathematics, on average across all participating countries and economies (OECD, 2016[1]; OECD, 2015[2]). Gender disparities in achievement are a matter of considerable concern, as they may have long-term consequences for girls' and boys' personal and professional future. Those boys who lag behind and lack basic proficiency in reading may face serious difficulties in their further education, in the labour market and in everyday life. Equally, the under-representation of girls amongst top performers in science and mathematics can at least partly explain the persistent gender gap in careers in science, technology, engineering and mathematics (STEM) fields – which are often amongst the highest-paying occupations.

However, the magnitude, pervasiveness and practical significance of the gender gap in student performance vary across countries. Over the past few decades many countries have made significant progress in narrowing, and even closing, the gender gap in educational attainment (OECD, 2015[2]). Gender-related disparities in achievement thus appear to be neither innate nor inevitable.

Scientific debates about gender inequalities in education have highlighted several explanations for the variations in the educational attainment of girls and boys across countries and over time. Some suggest that differences in achievement may be partly related to differences in how girls and boys are socialised, both at home and in school; for a survey, see for instance Hadjar et al., 2014[3]. Identifying which countries and economies have been able to narrow or close the gender gap in student performance may help determine the conditions and practices that allow both boys and girls to realise their potential.

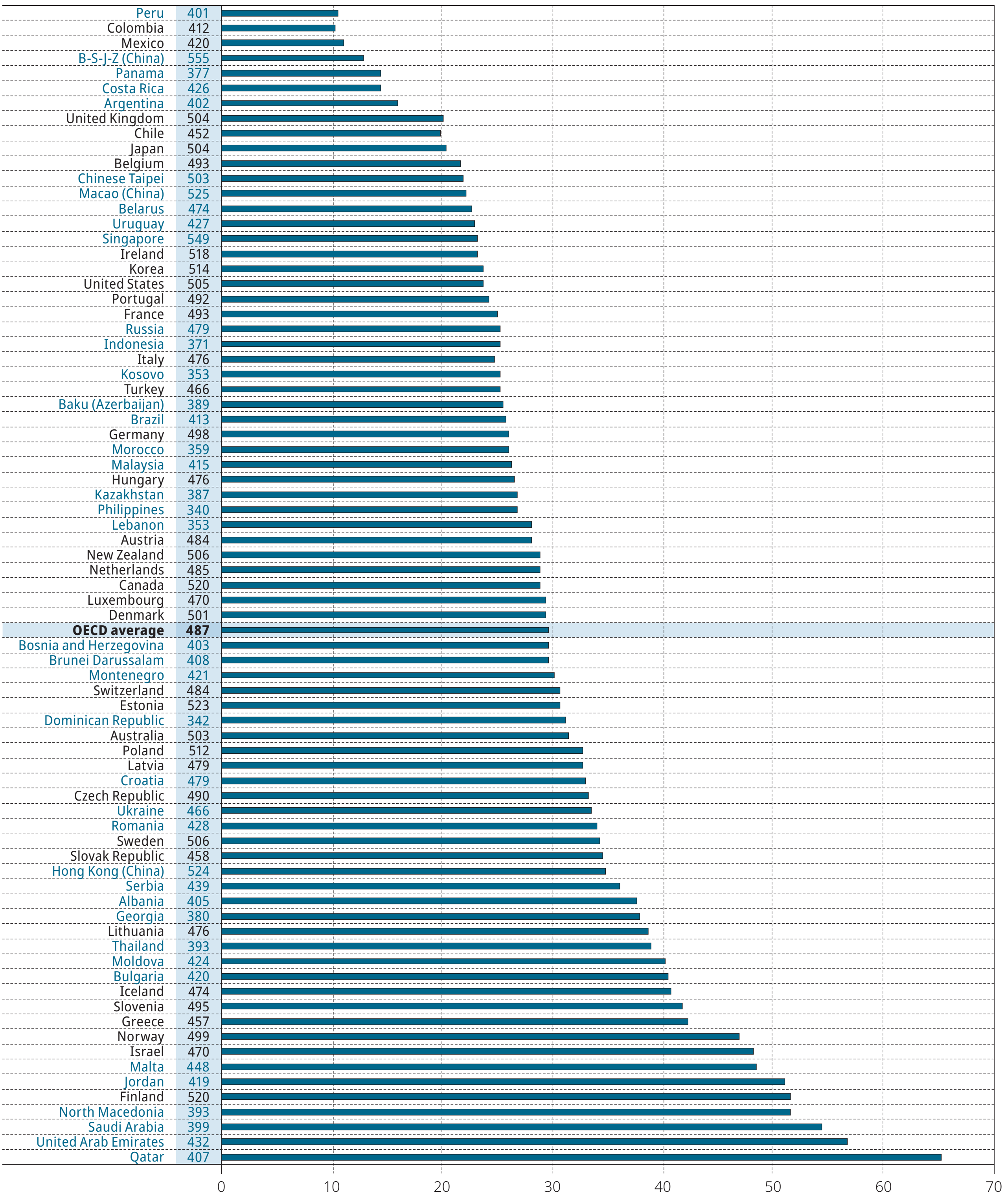
What the data tell us

- In all countries and economies that participated in PISA 2018, girls significantly outperformed boys in reading – by almost 30 score points, on average across OECD countries. The narrowest gender gaps (less than 20 score points) were observed in Argentina, Beijing, Shanghai, Jiangsu and Zhejiang (China), Chile, Colombia, Costa Rica, Mexico, Panama and Peru; the widest (more than 50 score points) were observed in Finland, Jordan, the Republic of North Macedonia, Qatar, Saudi Arabia and the United Arab Emirates.
- In Estonia, Ireland, Macao (China), Peru and Singapore, the gender gap in reading performance narrowed between 2009 and 2018; and both boys and girls scored higher in 2018 than their counterparts did in 2009.
- On average across OECD countries in 2018, 28% of boys did not reach proficiency Level 2 in reading. Only in five PISA-participating countries and economies – Beijing, Shanghai, Jiangsu and Zhejiang (China), Estonia, Hong Kong (China), Ireland and Macao (China) – did more than one in four disadvantaged boys attain Level 2 in reading. In 19 countries and economies, more than three in four disadvantaged boys scored below Level 2 in reading.
- Boys outperformed girls – but by only five score points – in mathematics, on average across OECD countries. While boys significantly outperformed girls in mathematics in 32 countries and economies, in 14 countries/economies the opposite pattern was observed. The largest gender gap in mathematics performance was observed in Qatar, where girls scored around 24 points higher than boys.
- Girls slightly outperformed boys in science, by only two score points, on average across OECD countries. In only six countries/economies – Argentina, Beijing, Shanghai, Jiangsu and Zhejiang (China), Colombia, Costa Rica, Mexico and Peru – did boys significantly outperform girls in science, while the opposite was true in 34 countries and economies.

THE GENDER GAP IN PISA PERFORMANCE

In PISA 2018, girls outperformed boys in reading by almost 30 score points, on average across OECD countries (Figure II.7.1). While girls outperformed boys in reading in every participating country and economy, the gap was much wider in some countries than in others. The narrowest gender gaps (less than 20 score points) were observed in Argentina, Beijing, Shanghai, Jiangsu and Zhejiang (China) (hereafter "B-S-J-Z [China]"), Chile, Colombia, Costa Rica, Mexico, Panama and Peru; the widest (more than 50 score points) were observed in Finland, Jordan, the Republic of North Macedonia (hereafter "North Macedonia"), Qatar, Saudi Arabia and the United Arab Emirates.

Figure II.7.1 **Gender gap in reading performance**



Notes: The mean score in reading is shown next to the country/economy name.

All difference are statistically significant (see Annex A3).

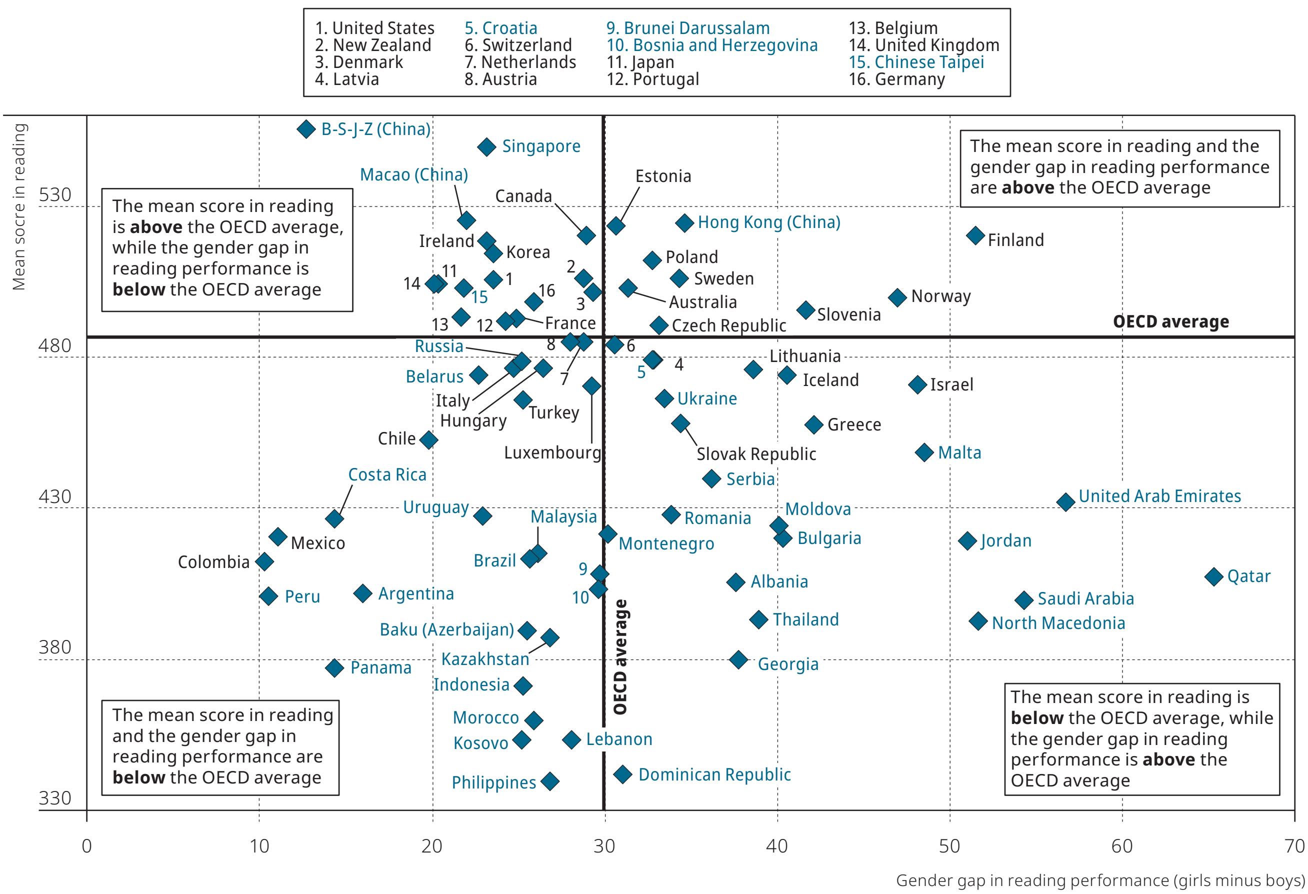
Countries and economies are ranked in ascending order of the score-point difference related to gender (girls minus boys).

Source: OECD, PISA 2018 Database, Tables I.B1.4 and II.B1.7.1.

StatLink https://doi.org/10.1787/888934037849

The size of the gender gap in reading does not appear to be related to average performance (Figure II.7.2). However, in 16 of the 25 countries and economies whose mean score in reading was higher than the OECD average, the difference in reading performance between boys and girls was smaller than the average gender gap in reading across OECD countries. Amongst this set of high-performing countries, differences in reading performance between boys and girls ranged from 13 score points in B-S-J-Z (China) to 52 score points in Finland.

Figure II.7.2 **Mean score and gender gap in reading performance**



Source: OECD, PISA 2018 Database, Tables I.B1.4 and II.B1.7.1.
StatLink https://doi.org/10.1787/888934037868

Boys outperformed girls in mathematics by a much smaller margin than girls outperformed boys in reading. The average gender gap in mathematics amounted to only five score points, in favour of boys, on average across OECD countries. Despite the stereotype that boys are better than girls at mathematics, boys significantly outperformed girls in mathematics in only 32 of the 79 countries and economies that participated in PISA 2018. The largest difference in scores between boys and girls, in favour of boys, was seen in Colombia, where boys scored around 20 points higher than girls (Table II.B1.7.3 and Figure II.7.2, available on line). In Argentina, Costa Rica, Italy and Peru, the difference amounted to between 15 and 18 points. However, in 14 countries and economies, including Brunei Darussalam, Finland, Iceland, Indonesia, Malaysia, Malta, North Macedonia, Norway, the Philippines, Qatar, Saudi Arabia, Thailand and the United Arab Emirates, girls significantly outperformed boys in mathematics.

The gender gap in science performance was narrower than that observed in mathematics and reading. On average across OECD countries in 2018, girls outperformed boys in science by two score points; and in around half of the countries/economies assessed, the performance difference between boys and girls was not statistically significant (Table II.B1.7.5 and Figure II.7.3, available on line). In only 6 countries/economies was boys' performance in science significantly higher than that of girls; the opposite was observed in 34 countries and economies. The widest gender gaps in science performance, in favour of girls, were observed in Qatar (by 39 points), Jordan (by 29 points), Saudi Arabia (by 29 points) and the United Arab Emirates (by 26 points). In Albania, Bulgaria, Finland, Georgia, Greece, Israel, Malta, the Republic of Moldova, North Macedonia, Norway and Thailand, the gender gap in science performance, in favour of girls, ranged from 10 to 24 score points. By contrast, boys significantly outperformed girls in science in Argentina, B-S-J-Z (China), Colombia, Costa Rica, Mexico and Peru, where there was a 9 to 13 score-point difference between boys and girls.

Box II.7.1. **Gender gap in reading subscales**

The PISA 2018 reading literacy framework, while similar in many respects to the PISA 2009 reading literacy framework, put greater emphasis on multiple-source texts, i.e. texts composed of several units of text, created separately by different authors (for a detailed description, see Chapters 1 and 5 in *PISA 2018 Results [Volume I], What Students Know and Can Do* (OECD, 2019[4])). These types of text are more prevalent in digital media, and the computer delivery of the PISA reading test made it easier to assess students' proficiency in reading them. While a text of multiple sources is not necessarily more difficult to read, the inclusion of multiple-source units helped expand the range of higher-level reading processes and strategies measured by PISA. In 2018 these included searching for information across multiple documents, integrating across texts to generate inferences, assessing the quality and credibility of sources, and handling conflicts across sources.

Two sets of reading subscales were developed. One set is related to sources, distinguishing between single-source texts and multiple-source texts. The other is related to processes, and distinguishes amongst three skills: locating information, understanding, and evaluating and reflecting. It is usually inadvisable to compare subscales related to different framework components, i.e. comparisons between a process subscale and a source subscale, but comparisons across subscales within a particular classification of assessment task is considered as sufficiently reliable.

In general, scores on any section of the PISA reading assessment are highly correlated with the overall reading score and with scores in other subscales (see Chapter 5 in *PISA 2018 Results [Volume I], What Students Know and Can Do* (OECD, 2019[4])). Students who perform well in one aspect of reading also tend to perform well in other areas of reading. However, Chapter 5 of *Volume I* (OECD, 2019[4]) also shows variations in performance across different subscales at the country level; these may reflect differences in emphasis in education systems' curriculum and teaching. One may also identify differences related to gender, as boys and girls differ in how they spend their leisure time (see Chapter 8 in this volume), for example, reading or using the Internet, which may affect performance on one or another of the subscales.

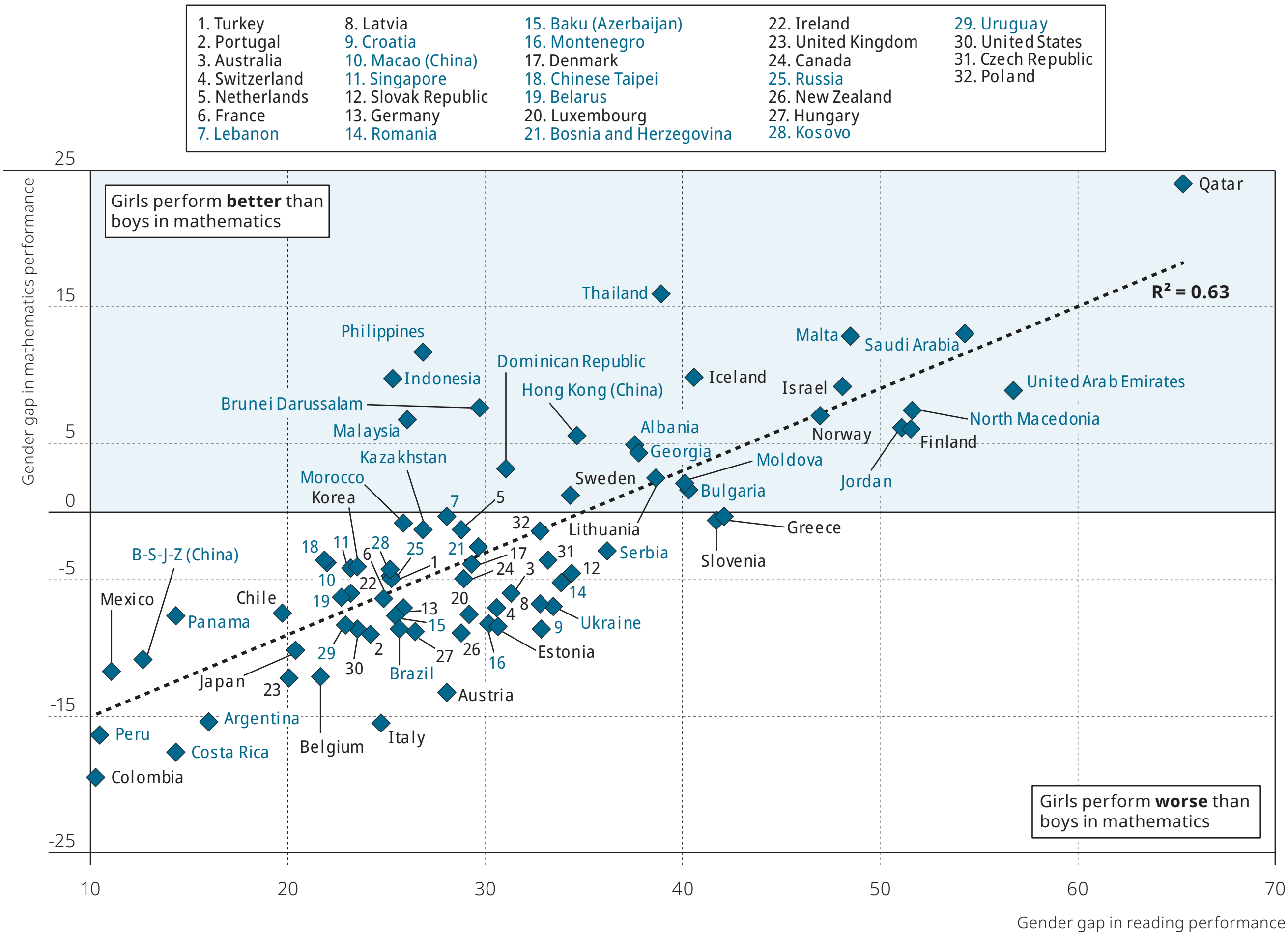
In general, the gender gaps in the subscales were consistently of the same magnitude. For the subscales related to text source, the gender gap in favour of girls appeared to be slightly smaller for multiple-source texts than for single-source text; but the differences appear relatively small compared to the gender gap in these subscales. On average across OECD countries, the gender gap in favour of girls in reading single-source texts was 32 score points (Table II.B1.7.10) but 26 score points in reading multiple-source texts (Table II.B1.7.11).

The gender gaps in favour of girls in the process subscales (locating information, understanding, and evaluating and reflecting) are large and significant in all countries; but the magnitude of girls' advantage in these subscales varies across countries/economies (see Tables II.B1.7.7, II.B1.7.8 and II.B1.7.9).

In general, and as shown in Figure II.7.3, the magnitude of the gender gap in reading can predict the size and direction of the gender gap in mathematics (the R^2 value in the figure is 0.63). In countries and economies with the widest gender gaps in reading in favour of girls, including Finland, North Macedonia, Qatar, Saudi Arabia and the United Arab Emirates, girls also outperformed boys in mathematics. By contrast, in countries and economies where the gender gap in reading was narrowest, including Argentina, B-S-J-Z (China), Chile, Colombia, Costa Rica, Mexico, Panama and Peru, boys outperformed girls in mathematics by a larger margin than the OECD average.

However, the relationship is not deterministic. For instance, while the gender gap in reading in favour of girls was around 25 score points in France, Indonesia, Italy, Kosovo, the Russian Federation and Turkey, the gender gap in mathematics performance in these countries ranged from 16 points in favour of boys in Italy to 10 points in favour of girls in Indonesia.

Figure II.7.3 **Gender gap in reading and mathematics performance**



Note: Gender gap refers to the difference between girls and boys (girls minus boys).
Source: OECD, PISA 2018 Database, Tables II.B1.7.1 and II.B1.7.3.
StatLink https://doi.org/10.1787/888934037887

Trends in the gender gap

How have the gender gaps in student performance evolved over the past decade? A comparison of results in reading performance between 2009, when reading was also the main subject assessed in PISA, and 2018 shows that, in several countries/economies, the gender gap in reading performance narrowed over time. It shrank significantly in 36 of the 64 countries and economies that participated in both the 2009 and 2018 PISA assessments (Table II.7.1). In 17 of those countries/economies, the narrowing of the gender gap in reading performance was due to an improvement in the performance of boys. In five of those countries/economies, namely Estonia, Ireland, Macao (China), Peru and Singapore, boys and girls in 2018 scored higher in reading than their counterparts did in 2009, even as the gender gap between them shrank during the period.

However, in 11 countries, namely Bulgaria, Hungary, Indonesia, Italy, Japan, Kazakhstan, Latvia, Mexico, New Zealand, the Slovak Republic and Switzerland, the narrowing of the gender gap in reading performance was due not to an improvement in boys' performance but to a decline in girls' performance. On average across OECD countries, the gender gap in reading performance narrowed by ten score points between 2009 and 2018, but this can be attributed to a decline in the average performance of girls while boys' performance was unchanged on average.[1]

In 43 out of 64 countries and economies, the gender gap in mathematics performance in favour of boys did not change significantly between 2009 and 2018. In Colombia, Denmark, Israel, Macao (China) and Qatar, this gender gap shrank due to improvements in girls' performance in mathematics. However, in Canada, Finland, Greece, Iceland, Luxembourg, the Netherlands, Switzerland and the United States, the narrowing of the gender gap in mathematics performance was due to a significant decline in boys' performance in mathematics (see Figure II.7.20, available on line, and Table II.B1.7.34). Over the same period, the gender gap in science narrowed by 2 score points, on average across OECD countries (Table II.B1.7.41); but this is because boys' performance in science declined more (by 10 score points) than girls' performance did (by 8 score points) between 2009 and 2018.

Table II.7.1 **Change between 2009 and 2018 in the gender gap in favour of girls in reading performance**

↓ The gender gap in reading narrowed significantly between 2009 and 2018
= The gender gap in reading did not change significantly between 2009 and 2018
↑ The gender gap in reading widened significantly between 2009 and 2018

	Boys' performance declined significantly and...		Boys' performance did not change significantly and...		Boys' performance improved significantly and...	
... girls' performance declined significantly	Hungary	↓	Japan	↓		
	Switzerland	↓	Mexico	↓		
	Indonesia	↓	Kazakhstan	↓		
	Iceland	=	Italy	↓		
	Korea	=	Bulgaria	↓		
	Netherlands	=	Latvia	↓		
	Thailand	=	New Zealand	↓		
	Finland	=	Slovak Republic	↓		
	Costa Rica	=	Australia	=		
	Greece	=	Belgium	=		
... girls' performance did not change significantly			France	↓	Montenegro	↓
			Malaysia	↓	Argentina	↓
			Croatia	↓	Slovenia	↓
			Germany	↓	Malta	↓
			Panama	↓	Russia	↓
			Turkey	↓	Albania	↓
			Portugal	↓	Czech Republic	↓
			Luxembourg	↓	Sweden	↓
			Chile	=	Lithuania	↓
			Canada	=	Georgia	↓
			Serbia	=	Poland	↓
			United States	=	Uruguay	↓
			Denmark	=	Jordan	=
			Israel	=	Chinese Taipei	=
			Norway	=	United Kingdom	=
			Hong Kong (China)	=		
			Colombia	=		
			Romania	=		
			Brazil	=		
			United Arab Emirates	=		
... girls' performance improved significantly					Macao (China)	↓
					Ireland	↓
					Peru	↓
					Estonia	↓
					Singapore	↓
					Moldova	=
					Qatar	↑

Source: OECD, PISA 2018 Database, Table II.B1.7.29.

VARIATION IN PERFORMANCE AMONGST BOYS AND GIRLS

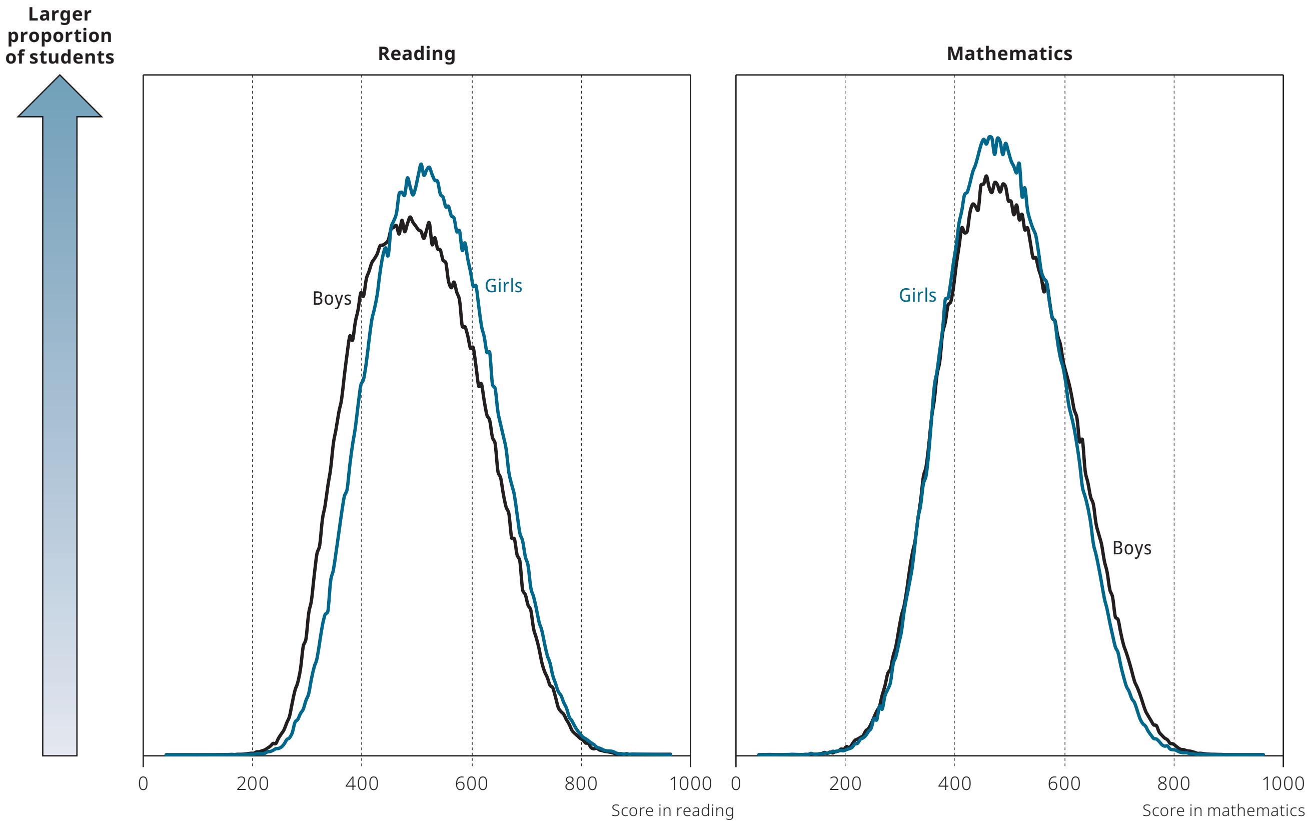
The average performance of boys and girls masks wide variations amongst students of the same gender, as there is no such thing as a "typical" girl or a "typical" boy. Some students may score far below, or far above, the average performance of their peers of the same gender. For instance, using data from several large-scale international surveys, including previous cycles of PISA (from 2000 to 2012), (Baye and Monseur, 2016[5]) show that gender differences vary largely by students' proficiency level, and that the gender differences at the extreme ends of the performance distribution are often more substantial than gender differences at the mean.

This variability in boys' and girls' performance was also observed in PISA 2018. In almost all PISA-participating countries and economies, the variation in performance in reading, mathematics and science (see Tables II.B1.7.1, II.B1.7.3 and II.B1.7.5) was larger amongst boys than amongst girls.

A larger standard deviation and lower mean reading performance amongst boys strongly implies that more boys than girls would be expected to score towards the bottom of the performance scale. This can be seen in the left panel of Figure II.7.5, which plots the distribution of boys' and girls' reading scores in OECD countries. Boys are over-represented amongst students who scored below 450 points, while the opposite is observed amongst students who scored higher.

Figure II.7.4 **Distribution of proficiency in reading and mathematics, by gender**

All PISA countries and economies average



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

Source: OECD, PISA 2018 Database.

StatLink https://doi.org/10.1787/888934037906

At the country/economy level, a larger variation in scores implies that the difference between the highest- and lowest-performing boys was often larger than that amongst the highest- and lowest-performing girls. On average across OECD countries, the 10% lowest-performing girls scored 42 points higher than the 10% lowest-performing boys, while the 10% highest-performing girls scored "only" 18 points higher than the 10% highest-performing boys (Figure II.7.4). In 11 PISA-participating countries and economies, namely B-S-J-Z (China), Chile, Colombia, Costa Rica, Japan, Korea, Mexico, Panama, Peru, Chinese Taipei and the United States, there was no difference between boys and girls at the top of the distribution of reading performance. But in all countries/economies, the first decile of the performance distribution amongst boys was significantly lower than that amongst girls. In Finland, Israel, Jordan, Malta, Norway, Qatar, Saudi Arabia and the United Arab Emirates, the 10% lowest-performing boys scored at least 60 points lower than the 10% lowest-performing girls.

Given these results, the reading performance amongst the weakest boys, also observed in previous PISA assessments (Baye and Monseur, 2016[5]), should be a matter of considerable concern in several countries. On average across OECD countries, 28% of boys and "only" 18% of girls did not reach Level 2 proficiency in reading, which is considered to be a "minimum" proficiency level; see Chapter 2 in this volume; and for more details, see *PISA 2018 Results [Volume I], What Students Know and Can Do* (OECD, 2019[4]). In 26 PISA-participating countries and economies, more than one in two boys did not reach Level 2 proficiency in reading (Table II.B1.7.12). Only in B-S-J-Z (China), Canada, Estonia, Finland, Hong Kong (China), Ireland, Korea, Macao (China), Poland and Singapore did more than four in five boys attain Level 2 proficiency in reading. By contrast, in 36 countries and economies, more than four in five girls attained at least this level of proficiency in reading.

While boys were over-represented at the bottom of the performance distribution, girls were over-represented at the top. In 45 of 77 participating countries/economies with available data, significantly more girls than boys attained the highest levels of performance (Level 5 or 6) (Table II.B1.7.12). The largest gender gap amongst top performers was observed in Finland, where almost 20% of girls, but only 9% of boys attained proficiency Level 5 or 6 in reading. The shares of these students were much larger than those observed in most other countries and economies, though. On average across OECD countries, only 7% of boys and 10% of girls were top performers in reading.

The picture was more complex in mathematics and science performance. Boys were generally over-represented at both the bottom and the top of the performance distributions in these two subjects. For example, in many countries girls' scores at the first decile of the distribution of mathematics performance were higher than boys' scores, meaning that the lowest-performing girls scored above the lowest-performing boys in their countries (Table II.B1.7.3). In 16 countries and economies, more boys than girls did not attain Level 2 proficiency in mathematics (Table II.B1.7.17); in only 8 countries/economies was the opposite observed.

However, the largest differences were observed at the top of the distribution of mathematics performance, meaning that amongst the highest performers of both genders, boys usually outperformed girls. This is illustrated in the right panel of Figure II.7.4, which shows the distribution of mathematics performance, amongst boys and girls, in all countries. Boys were slightly over-represented both amongst those who scored below 350 points and those who scored above 620 points. On average across OECD countries, almost 24% of both boys and girls did not attain Level 2 proficiency in mathematics; but 12.3% of boys and 9.5% of girls attained the highest levels of mathematics performance (Level 5 or 6), while 7.3% of boys and 6.2% of girls were top performers in science. But some education systems showed little or no gender gaps at the highest levels of performance. In 35 countries and economies, including those where the average score in mathematics performance was amongst the highest of all PISA-participating countries and economies, including Hong Kong (China), Korea and Chinese Taipei, gender gaps at the top of the distribution of mathematics performance were not significant (see Table II.B1.7.17).

THE GENDER GAP AND SOCIO-ECONOMIC STATUS

Scientific research that aims to describe and account for disparities in the magnitude of the gender gap across countries and over time generally highlights the role of socialisation. Parents and teachers may interact differently with boys and girls, which can lead to disparities in learning outcomes (Rodríguez-Planas and Nollenberger, 2018[6]; Nollenberger, Rodríguez-Planas and Sevilla, 2016[7]). For instance, teachers may hold certain beliefs about boys' and girls' interests and abilities that may affect their evaluations of student performance, which, in turn, may reinforce, or reduce, gender disparities in achievement (Hadjar et al., 2014[3]). These beliefs may also vary from country to country, depending on the prevailing social norms and economic conditions in a given period. One long-term analysis involving a large number of countries suggests that greater participation in the labour force amongst women is associated with higher performance in education amongst girls (van Hek, Kraaykamp and Wolbers, 2016[8]). In economies where women's participation in the labour market is low, the returns to education are expected to be lower for girls than boys, and this may partly explain why parents invest less time, money and effort in educating their daughters.

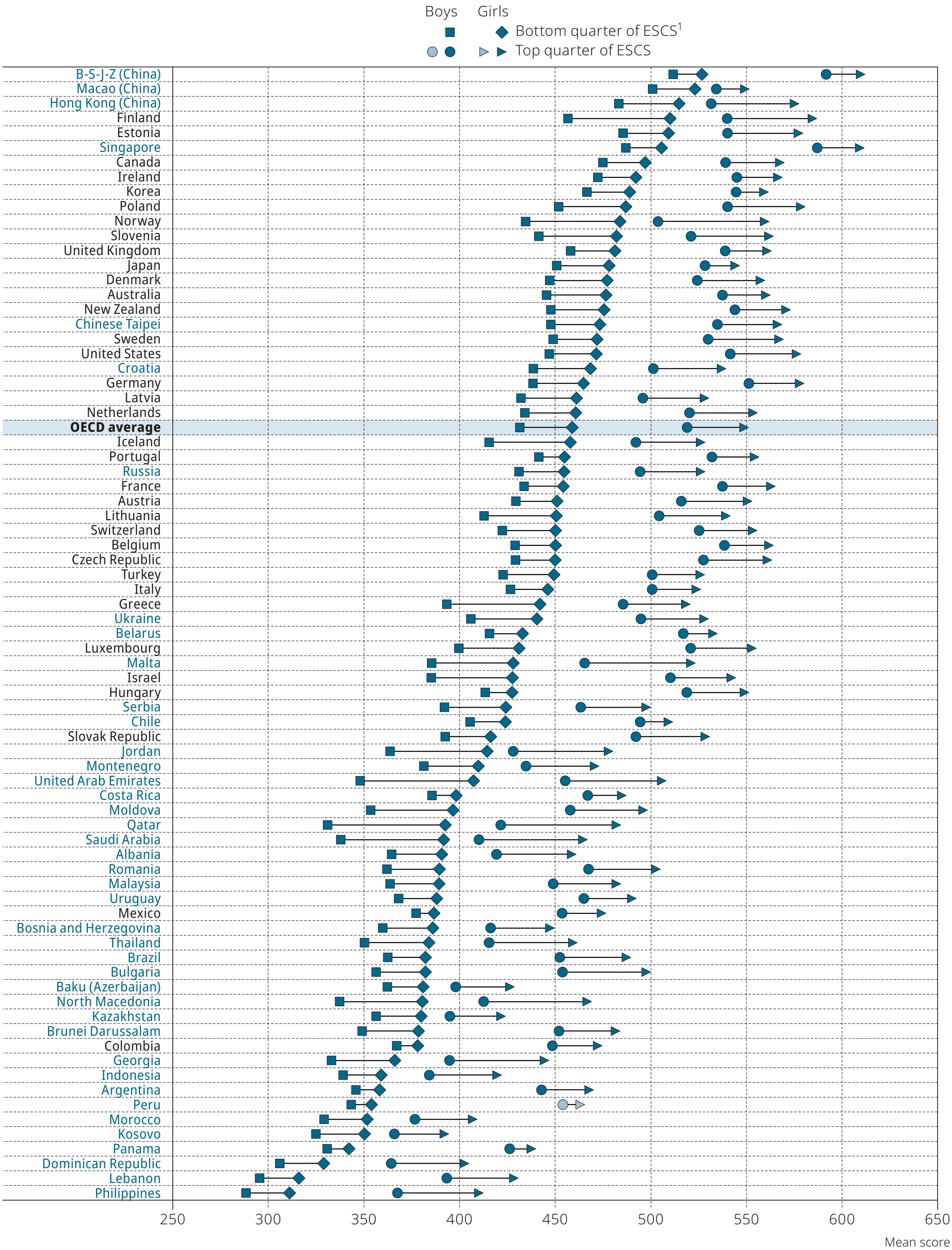
But large disparities in the magnitude of the gender gap may also be observed between different social groups within the same country, notably related to socio-economic status. Socio-economic status is often reflected in the resources, both social and economic, that parents can provide for the cognitive development of their children. The PISA index of economic, social and cultural status appears to be strongly correlated with education outcomes (see Chapters 2 through 6 in this volume). However, recent studies suggest that boys and girls may be affected differently by the quantity and quality of the resources provided by both families and schools (Autor et al., 2016[9]). Some recent research suggests that boys born to disadvantaged families have lower achievement scores and are less likely to complete high school than girls from similar backgrounds (Autor et al., 2019[10]; Brenøe and Lundberg, 2018[11]).

Describing the inter-relationship amongst gender, socio-economic status and performance, including differences within and between groups, may help identify key population groups and the points at which interventions should be targeted to address inequalities in education outcomes. This section examines how the association between students' socio-economic status and their performance varies between boys and girls.

While the gender gap in reading performance is large and significant, in all countries and economies it was much smaller than the differences in performance related to socio-economic status. On average across OECD countries, advantaged students (those in the top quarter of the PISA index of economic, social and cultural status in their country/economy) scored 88 points higher, on average, than disadvantaged students (those in the bottom quarter of the index in their country/economy; see Chapter 2). By comparison, the gender gap in reading performance amounted to "only" 30 score points.[2] In all countries and economies, performance in PISA appeared more strongly associated with socio-economic status than with gender.

When comparing the reading performance of boys and girls by socio-economic group, in all PISA-participating countries and economies, socio-economically advantaged boys outperformed disadvantaged girls in reading (see Figure II.7.6). But in all countries, advantaged girls significantly outperformed advantaged boys in reading, while disadvantaged girls significantly outperformed disadvantaged boys. The only exception is Peru, where advantaged boys and girls performed at a similar level, on average.

Figure II.7.5 **Reading performance, by gender and socio-economic status**



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

Note: All differences between girls and boys in the bottom quarters of socio-economic status are statistically significant. And statistically significant differences in the top quarter are marked in a darker tone (see Annex A3).

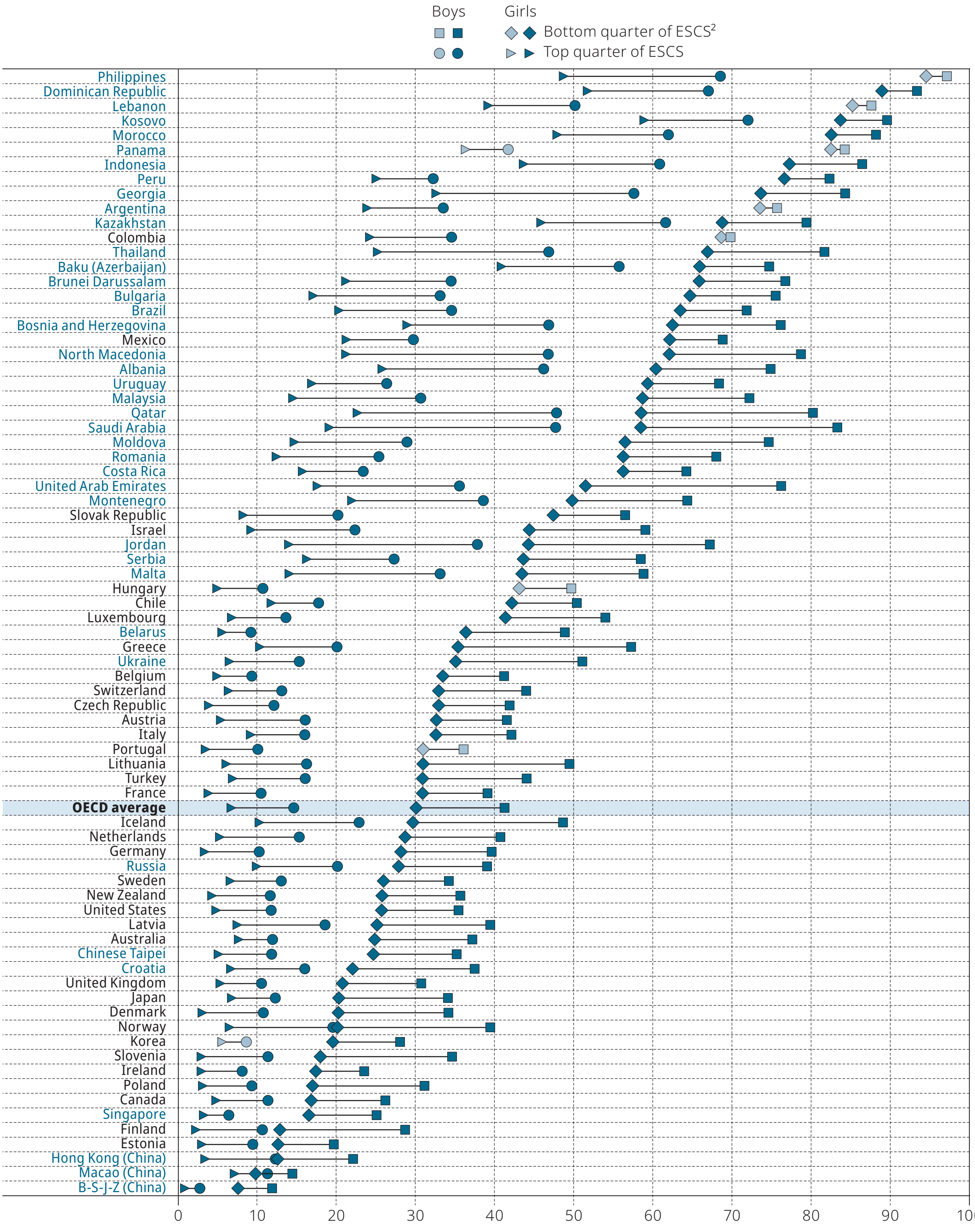
Countries and economies are ranked in descending order of the mean score of girls in the bottom quarter of socio-economic status.

Source: OECD, PISA 2018 Database, Table II.B1.7.43.

StatLink https://doi.org/10.1787/888934037925

Figure II.7.6 **Proportion of low achievers in reading, by gender and socio-economic status**

Percentage of low achievers[1] in reading



1. Low achievers are students who performed below Level 2.
2. ESCS refers to the PISA index of economic, social and cultural status.

Note: Statistically significant differences between girls and boys in the top and/or bottom quarters of socio-economic status are marked in a darker tone (see Annex A3).

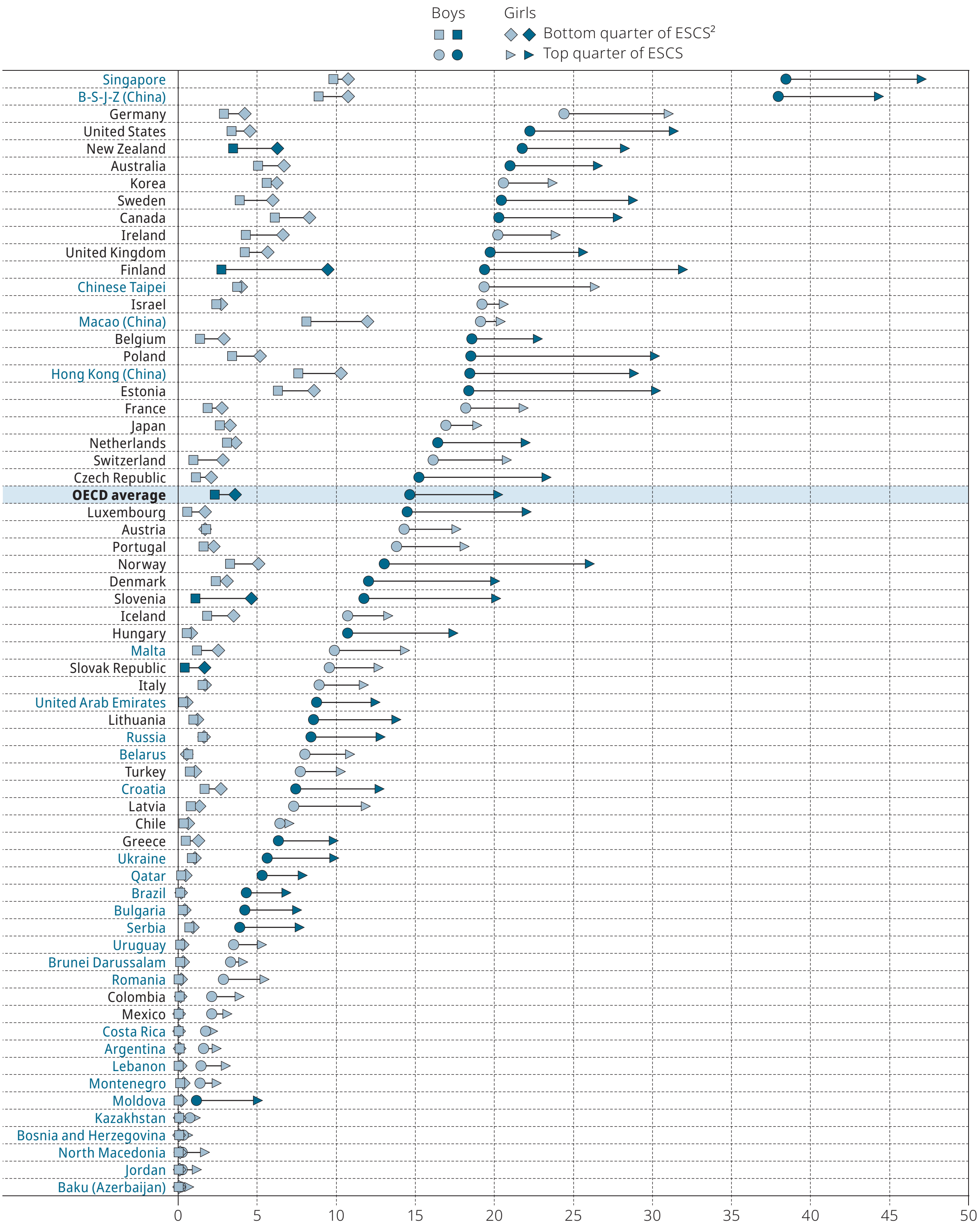
Countries and economies are ranked in descending order of the percentage of girls in the bottom quarter of socio-economic status who are low performers.

Source: OECD, PISA 2018 Database, Table II.B1.7.46.

StatLink https://doi.org/10.1787/888934037944

Figure II.7.7 **Proportion of top performers in reading, by gender and socio-economic status**

Percentage of top perfomers[1] in reading



1. Top performers are students who performed at or above Level 5.
2. ESCS refers to the PISA index of economic, social and cultural status.

Note: Statistically significant differences between girls and boys in the top and/or bottom quarters of socio-economic status are marked in a darker tone (see Annex A3).

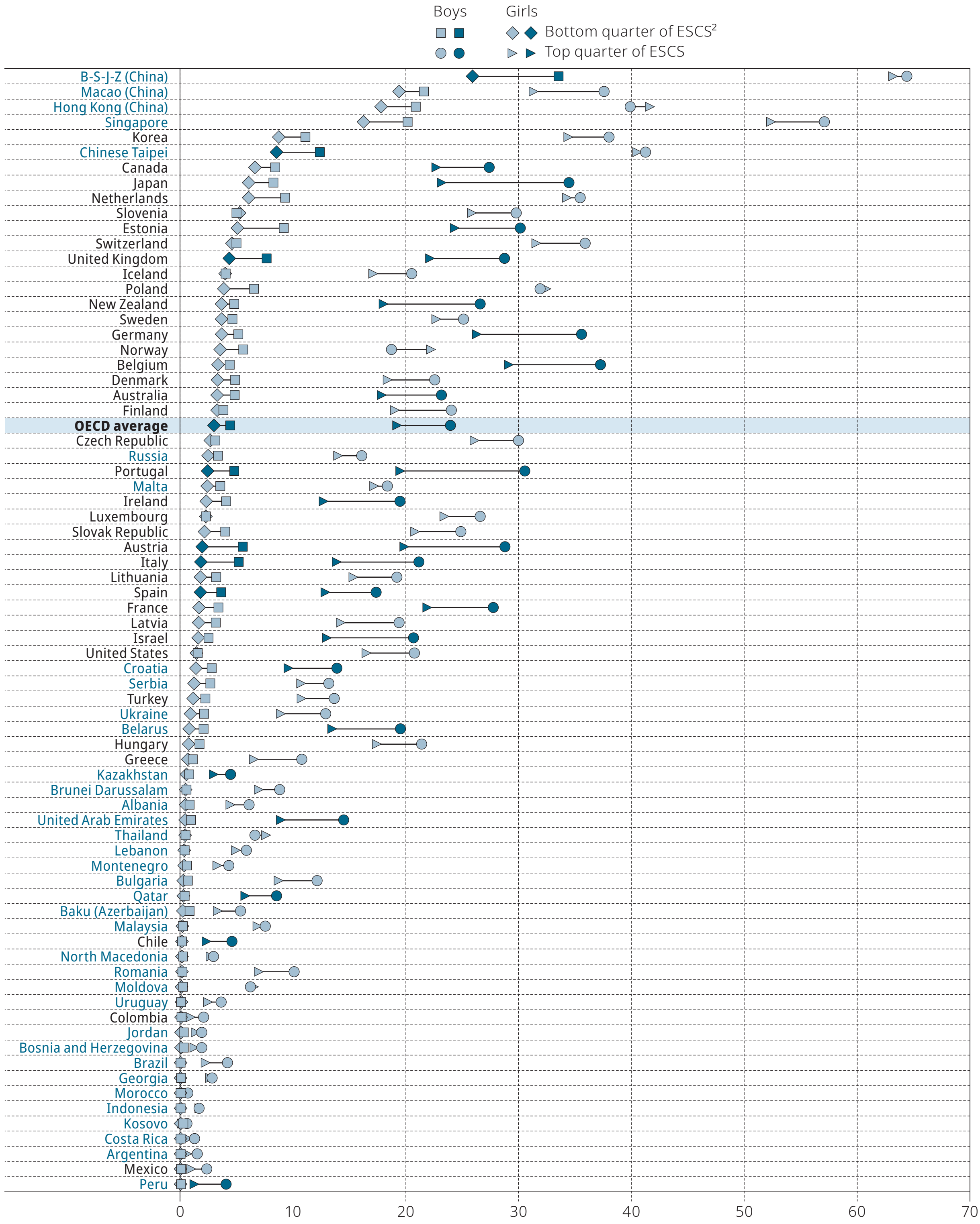
Countries and economies are ranked in descending order of the percentage of boys in the top quarter of socio-economic status who are top performers.

Source: OECD, PISA 2018 Database, Table II.B1.7.46.

StatLink https://doi.org/10.1787/888934037963

Figure II.7.8 **Proportion of top performers in mathematics, by gender and socio-economic status**

Percentage of top performers[1] in mathematics



1. Top performers are students who performed at or above Level 5.
2. ESCS refers to the PISA index of economic, social and cultural status.

Note: Statistically significant differences between girls and boys in the top and/or bottom quarters of socio-economic status are marked in a darker tone (see Annex A3).

Countries and economies are ranked in descending order of the percentage of girls in the bottom quarter of socio-economic status who are top performers.

Source: OECD, PISA 2018 Database, Table II.B1.7.47.

StatLink https://doi.org/10.1787/888934037982

The underperformance of disadvantaged boys is confirmed when looking at the level of proficiency attained by boys and girls. Only in five countries/economies – B-S-J-Z (China), Estonia, Hong Kong (China), Ireland and Macao (China) – did more than one in four disadvantaged boys attain Level 2 in reading. In 19 countries and economies, more than three in four disadvantaged boys scored below Level 2 in reading (Figure II.7.10). In 40 countries and economies, more than 50% of disadvantaged boys were low performers, while in 48 countries/economies, less than 50% of disadvantaged girls scored below Level 2 in reading. Socio-economic status appears to be a much more reliable predictor of low performance in reading than gender.

At the other end of the performance distribution, advantaged girls often outnumbered advantaged boys amongst top performers. On average across OECD countries, 20.2% of advantaged girls and 14.6% of advantaged boys attained Level 5 or 6 in reading, and this difference was significant in 32 countries and economies (Figure II.7.8). By contrast, in most countries and economies, the shares of top performers amongst disadvantaged girls and boys were similar – and small. On average across OECD countries, only 3.6% of disadvantaged girls and 2.3% of disadvantaged boys attained proficiency Level 5 or 6 in reading.

In mathematics and science, the gender gap in performance between boys and girls of similar socio-economic status was not significant; but the gap related to socio-economic status was large in all PISA-participating countries and economies (see Figures II.7.5 and II.7.6, available on line). In most countries, the proportions of disadvantaged girls and boys who were top performers in mathematics were not significantly different (Figure II.7.9). Only in 22 countries and economies was the gender gap significant amongst advantaged students who were top performers in mathematics. On average across OECD countries, only 4.4% of disadvantaged boys and 3% of disadvantaged girls were top performers in mathematics, while 23.9% of advantaged boys and 19.2% of advantaged girls attained proficiency Level 5 or 6 in mathematics.

Notes

1. The PISA 2018 framework, while similar to the 2009 assessment framework, also differs from its predecessor. The 2009 assessment was conducted on paper while the 2018 assessment was conducted (by default) on computer, allowing for the use of adaptive testing (whereby the test form that a student saw depended on his or her answers to earlier questions), which improved the precision of measurement at both ends of the performance distribution. In addition, the 2018 assessment emphasised multiple-source texts to a greater extent than in previous cycles. For details, see Chapter 1 of PISA 2018 Results (Volume I): What Students Know and Can Do (OECD, 2019[4]).

2. These estimates are computed on different populations, as the gender gap is computed on the entire sample while the socio-economic gap is computed only on the subsamples composed of the most and least socio-economically advantaged students. Effect sizes, which are scale-free and not sensitive to the relative sample size in these subsamples, confirmed that socio-economic gaps are more strongly related to academic performance than gender is. On average across OECD countries, the standardised difference in performance between boys and girls was 0.29 (= 30/99 the ratio of the gender gap and the standard deviation in the population) while the standardised difference between the most and least advantaged students was 0.86 (=89/103 the ratio of the socio-economic gap and the subpopulation of disadvantaged and advantaged students).

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PISA

8

Do boys and girls differ in their attitudes towards school and learning?

This chapter discusses differences in boys' and girls' behaviour and attitudes. It examines how teenagers spend their time outside of school, notably regarding reading and the use of digital devices. It then explores gender differences in self-regulation and attitudes towards learning, such as competitiveness. The chapter also focuses on gender gaps in the expectation of pursuing a science-related career.

Results from previous PISA cycles consistently show the pervasive over-representation of boys amongst low achievers in reading (see Chapter 7). Evidence suggests that women are more likely than men to graduate from tertiary education and less likely to leave school early (OECD, 2015[1]). However, while in most countries women attain higher levels of education than men, on average, they are less likely than men to be employed and they earn less, even when they have attained the same level of education (OECD, 2017[2]). In most countries/economies, girls usually outperform boys academically; but women are less likely than men to choose the pathways through education and fields of studies that lead to the highest-paid professions, such as science, mathematics or computing (OECD, 2017[2]; OECD, 2018[3]). This can have negative consequences for women's labour market prospects (Machin and Puhani, 2003[4]; OECD, 2015[1]).

In many places, boys and girls are often raised differently, based on two distinct models of socialisation. This may affect the types of activities they favour, with potential impact on achievement at school (Hadjar et al., 2014[5]), the types of skills they acquire and develop, and what they expect for their future – all of which, in turn, reinforce gender stereotypes and disparities in labour market outcomes.

Motivation and self-confidence can affect students' quality of life during their adolescence and may influence whether they pursue further education or work later on. For example, women's relative lack of self-confidence, compared to men, and their relative discomfort with competition may explain the pervasive gender gap in wages and in the under-representation of women in high-wage positions (Lackner, 2016[6]).[1] Closing the gender gaps in both achievement at school and in the labour market requires identifying the factors that shape students' motivation and aspirations.

Previous analyses show that gender gaps in both performance and the aspirations of young people vary substantially across countries, and that in some countries these gaps have narrowed over the decades (OECD, 2015[1]; Stoet and Geary, 2018[7]). This suggests that social factors play a large role in explaining these differences between boys and girls. Parents' and teachers' support of and interest in their students, and school policies and practices, may help shape students' behaviour and dispositions towards learning; students' behaviour and dispositions, in turn, may affect the type and degree of support that parents and teacher provide. Such support can thus go a long way towards addressing the underperformance of boys at school and reducing bias, based on gender stereotypes, in girls' choice of further education and careers.

What the data tell us

- In all countries and economies, girls reported much greater enjoyment of reading than boys. The largest gender gap in enjoyment of reading was observed in Germany, Hungary and Italy and the smallest in Indonesia and Korea. On average across OECD countries in 2018, both boys and girls reported significantly less enjoyment of reading than their counterparts did in 2009.
- In the majority of countries and economies that participated in PISA 2018, boys were more likely to express more positive attitudes towards competition than girls, with the largest gender differences observed in France, Portugal, the United Kingdom and Uruguay. However, in Albania, Brunei Darussalam, Georgia, Indonesia, Jordan, Malaysia, Morocco, Qatar, Saudi Arabia and the United Arab Emirates, girls reported significantly more positive attitudes towards competition than boys; and in Bulgaria, Japan and Kazakhstan, both girls and boys had predominantly negative, and similar, attitudes towards competition.
- In 2018, on average across OECD countries, only 1% of girls reported that they want to work in ICT-related occupations, compared with 8% of boys who so reported. In some countries, including Bulgaria, Estonia, Lithuania, Poland, Serbia and Ukraine, more than 15% of boys reported that they expect to work in an ICT-related profession; but in no PISA-participating country or economy did more than 3% of girls so report.
- On average across OECD countries, only 14% of girls who were top performers in science or mathematics reported that they expect to work as professionals in science or engineering compared with 26% of top-performing boys who so reported. However, in several countries, including Estonia, Finland, Poland and Slovenia, top-performing boys and girls were equally likely to report that they expect to work in such occupations.

READING, GAMING AND CHATTING: HOW BOYS AND GIRLS SPEND THEIR LEISURE TIME IN THE AGE OF SOCIAL MEDIA

Reading for enjoyment

Previous evidence suggests that the association between academic performance and enjoyment of reading is strong (OECD, 2010[8]; Mol and Jolles, 2014[9]; OECD, 2015[1]; Guthrie, Schafer and Huang, 2001[10]), and that the influence runs in both directions (Mol and Bus, 2011[11]).[2] Students who enjoy reading, and make it a regular part of their lives, are able to improve their reading skills through practice. Better readers tend to read more because they are more motivated to read, which, in turn, leads to improved vocabulary and comprehension skills (Sullivan and Brown, 2015[12]).

As in previous cycles of PISA, the contextual questionnaire distributed in PISA 2018 allowed for measuring the proportion of students who read for enjoyment. It asked students whether they agree ("strongly disagree", "disagree", "agree", "strongly agree") with several statements about their attitudes towards reading, including "I only read if I have to"; "Reading is one of my favourite hobbies"; and "I read only to get information that I need." Students' responses to these questions were summarised in an index of enjoyment of reading. The index is standardised to have a mean of 0 and a standard deviation of 1 across OECD countries.

In all PISA-participating countries and economies in 2018, girls reported much higher levels of enjoyment of reading than boys (Figure II.8.1). On average across OECD countries, the difference in reading enjoyment between boys and girls was larger than half a standard deviation, even after accounting for students' reading performance. The largest gender gap in enjoyment of reading was observed in Germany, Hungary and Italy, where it was larger than 0.8 of a standard deviation. The smallest gender gaps were observed in Indonesia and Korea, where the difference between girls and boys corresponded "only" to 0.2 of a standard deviation.

On average across OECD countries, 24% of 15-year-old boys and 44% of girls the same age agreed that "Reading is one of my favourite hobbies", while 60% of boys but 39% of girls agreed that "I read only to get information that I need". In 2009, on average across OECD countries, a similar proportion of girls, and a slightly smaller proportion of boys, agreed that "reading is one of my favourite hobbies". But compared with 2009 results, in 2018 larger proportions of both boys (an increase of 7 percentage points) and girls (an increase of 9 percentage points) agreed that "I read only if I have to".

When asked how much time they usually spend reading for enjoyment, more than 75% of boys reported either none at all or less than 30 minutes a day, on average across OECD countries; less than 3% reported that they read more than two hours a day. By contrast, 43% of girls reported that they read at least 30 minutes a day, and 8% of them reported reading more than 2 hours a day.

Previous PISA assessments show that, in the majority of OECD countries, the share of 15-year-old students who reported that they read for enjoyment shrank between 2000 and 2009 (OECD, 2010[13]). That trend continued over the following decade. On average across OECD countries, the index of enjoyment of reading decreased significantly amongst both boys (by 0.05 of a standard deviation) and girls (by 0.1 of a standard deviation) (Table II.B1.8.5). In 15 countries and economies, both boys and girls reported significantly less enjoyment of reading. The most dramatic declines in enjoyment of reading between 2009 and 2018 were observed in Finland, Germany and Sweden, where the index of enjoyment of reading shrank by 0.4 of a standard deviation for girls – and by 0.2 to 0.3 of a standard deviation for boys.

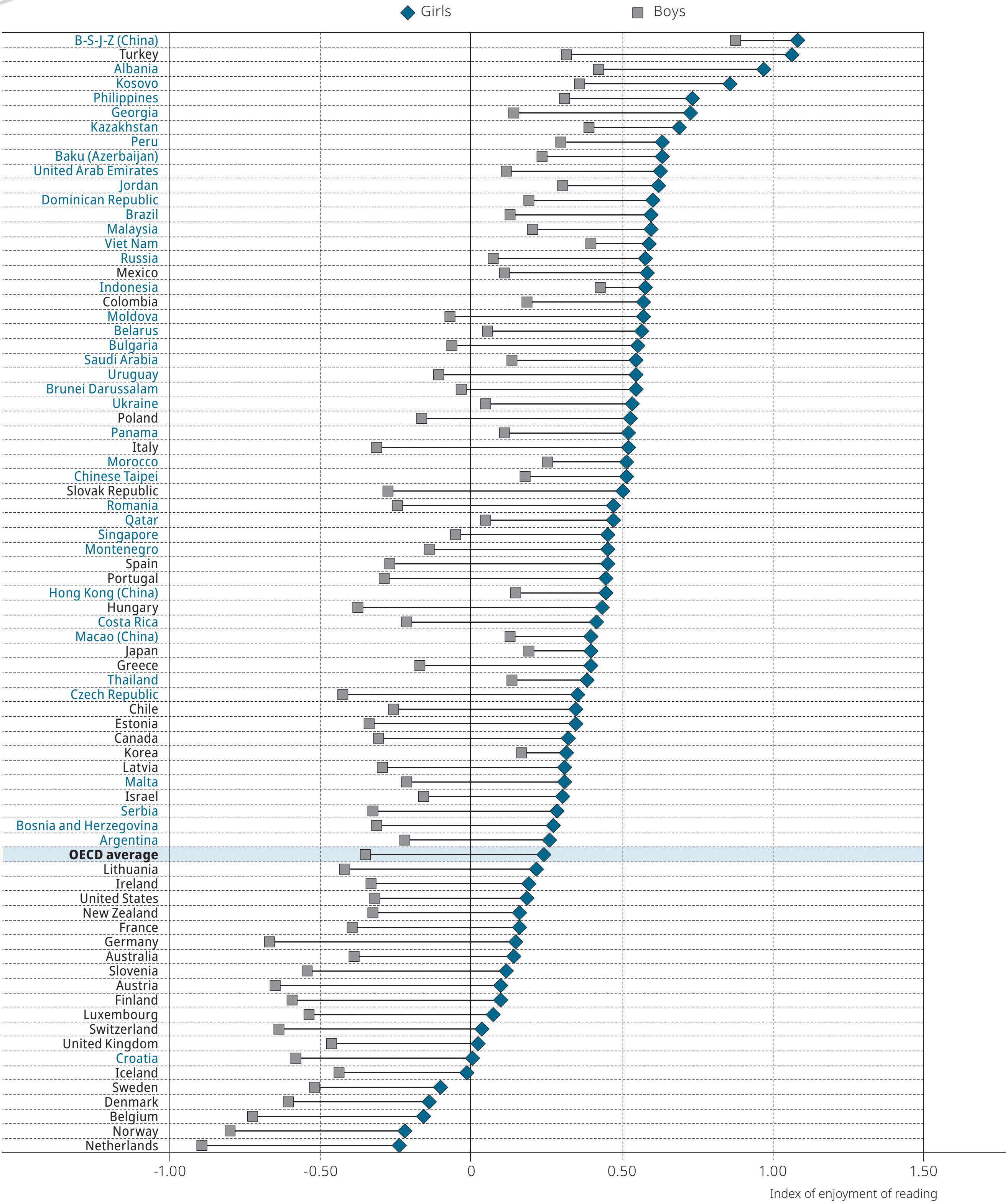
However, in 15 countries in 2018, both boys and girls reported greater enjoyment of reading than their counterparts did in 2009. The largest increases were observed in Bulgaria, Colombia, Costa Rica, the Russian Federation (hereafter "Russia") and Uruguay, where the index of enjoyment of reading rose by at least 0.2 of a standard deviation amongst both boys and girls. This trend in enjoyment of reading may be also related to a change in what students are reading. In this age of digital media, students may be reading fewer books, magazines and newspapers, but they may be reading more on line – whether "chats" with their friends, articles on online news sites, or websites offering practical information; see *PISA 2018 Results [Volume I], What Students Know and Can Do* (OECD, 2019[14]).

Use of digital devices

The 15-year-olds who were assessed in the most recent cycle of PISA were raised in an environment of rapid technological advances and increasing reliance on digital devices. Being "connected" is an integral part of their lives. It provides an avenue for entertainment and a way of communicating with their peers anytime, anywhere.

The Internet has become an everyday tool for most 15-year-old students. Most digital devices are connected to the Internet and so provide access to web-based services, such as social networking sites, cloud computing services and video games. Many of these services support formal and informal learning, provide information on almost anything, offer entertainment, and help maintain connections with friends, family and teachers. In 2018, almost every student in most OECD countries reported that they had a link to the Internet at home; see *PISA 2018 Results [Volume I], What Students Know and Can Do* (OECD, 2019[14])

Figure II.8.1 **Gender gap in enjoyment of reading**



Note: All differences between girls and boys are statistically significant (see Annex A3).

Countries and economies are ranked in descending order of the mean index of enjoyment of reading amongst girls.

Source: OECD, PISA 2018 Database, Table II.B1.8.1.

StatLink https://doi.org/10.1787/888934038077

With children having greater access, and at ever-younger ages, to smartphones, teenagers' online activities are increasingly unsupervised. This has raised concern amongst parents and teachers. For instance, previous results from PISA suggest that students who use the Internet intensively (more than six hours a day) perform worse academically, particularly when they use the Internet intensively on school days (Echazarra, 2018[15]); and extreme Internet users often report less well-being; see Chapter 13 of *PISA 2018 Results (Volume III): What School Life means for Students' Lives* (OECD, 2019[16]).

But intensive use of the Internet may be a symptom, rather than a cause, of poor school performance or social unease (Spada, 2014[17]; Brunet et al., 2014[18]; Marchant et al., 2017[19]). Using these technologies also gives teenagers an opportunity to acquire essential skills. The types of information literacy required both at work and in social interactions have changed profoundly with digitalisation, and adolescents must be equipped with the skills needed to thrive in knowledge economies.

To better understand students' use of the Internet, an optional ICT familiarity questionnaire was distributed in 53 countries and economies that participated in PISA 2018. It included questions about how teenagers use digital devices. Specifically, 15-year-old students were asked to report how frequently ("never or hardly ever", "once or twice a month", "once or twice a week", "every day") they use digital devices for specific activities, such as playing games, chatting on line, reading news on the Internet (e.g. current affairs) or obtaining practical information from the Internet (e.g. locations, dates of events, etc.). Students' answers to these questions were summarised in an index measuring the frequency of ICT use outside of school for leisure. The index was standardised to have a mean of 0 and a standard deviation of 1 across OECD countries.

In all countries where the optional ICT questionnaire was distributed in PISA 2018, boys reported greater frequency of ICT use outside of school for leisure than girls (Table II.B1.8.6). In almost all countries, except the Dominican Republic, Iceland, Israel, Japan, Korea, Mexico, Morocco, Panama and Slovenia, the index was positive for boys, meaning that they reported greater frequency of ICT use during their leisure time than the OECD average. By contrast, girls usually reported less-frequent use of digital devices outside of school than the OECD average – except in Bulgaria, Greece, Hong Kong (China), Italy, Lithuania, Macao (China), Malta, Russia, Serbia and Thailand.

Girls and boys also differed in what they use digital devices for (Figure II.8.2). On average across OECD countries, the proportion of girls who reported using digital devices every day or almost every day for participating in social media was larger – by 10 percentage points – than that of boys; and girls were slightly more likely than boys (a difference of 4 percentage points) to report using these devices frequently for chatting on line. But the largest gender gap regarding ICT activities concerned video games. For teenagers in 2018, the "gaming divide" was wide. On average across OECD countries, 53% of 15-year-old boys, but only 10% of girls that age reported that they play collaborative online games every day or almost every day; and 28% of boys, but 14% of girls reported that they play online games via social networks.

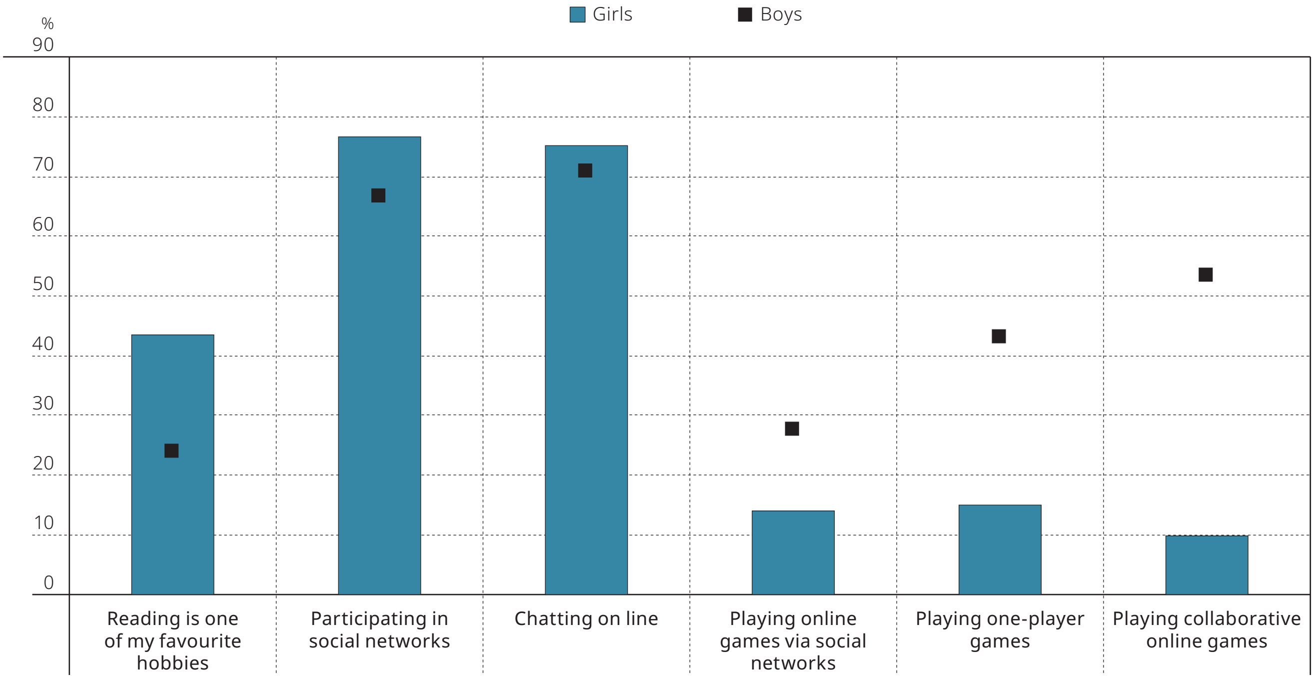
The impact of videogaming on academic performance is a hotly debated topic, and recent large meta-analyses suggest that the influences of videogaming, itself, on mental health and academic performance are weak (Ferguson, 2015[20]). However, previous evidence from PISA finds a negative relationship between intensive, online collaborative videogaming and academic performance (OECD, 2015[1]) – similar to spending too much time on the Internet during school days (Echazarra, 2018[15]). Recent research shows that too much time spent in front of a screen, especially before bedtime, may reduce sleep duration and quality, with potentially negative effects on health and cognitive performance (Billari, Giuntella and Stella, 2018[21]; Parent, Sanders and Forehand, 2016[22]). Yet different intensity in the use of ICT devices does not explain the gender differences in attitudes towards reading. The magnitude of the gender gap in enjoyment of reading appears similar, even when one compares boys and girls who use ICT devices with similar intensity (see Table II.B1.8.1).

Doing homework

While boys and girls often differ in how they spend their leisure time, the amount of time they spend on these activities and the amount of time they devote to homework, may also differ. Previous PISA cycles show that, in general, the amount of time students reported spending on homework varied significantly across countries and over time, as it may depend on the organisation of schooling and the type of homework assigned (OECD, 2013[23]). While there may be no system-level relationship between the amount of time students devote to homework and overall performance in PISA, at the individual level, in several countries and economies homework time was correlated with student performance (OECD, 2014[24]). This should not be interpreted in causal way. Doing homework regularly may help students consolidate their learning, or it may simply be a sign of engagement, defined as behavioural displays of effort, time and persistence in attaining desired outcomes (Klauda and Guthrie, 2014[25]). Analyses of PISA 2012 results suggest that girls tend to spend more time than boys doing homework (OECD, 2015[1]); was this still true in 2018?

Figure II.8.2 **Gender gap in reading and ICT hobbies**

Percentage of students engaging in the following activities every day or almost every day; OECD average



Notes: All differences between girls and boys are statistically significant (see Annex A3).
Categories related on ITC use was based on optional ICT familiarity questionnaire distributed in 31 OECD participating countries.
Categories are ranked in descending order of the difference between girls and boys.
Source: OECD, PISA 2018 Database, Tables II.B1.8.1 and II.B1.8.6.
StatLink https://doi.org/10.1787/888934038096

In a subset of 32 countries and economies that participated in PISA 2018, students were asked how long they studied before going to school and after school on the most recent day prior to the PISA test (response choices included "I did not study" and "I do not remember"). Students' answers were averaged to measure the percentage of students who responded that they "did not study at all at home on the most recent day prior to the PISA test", "studied at home but less than one hour", and "studied at home more than one hour".

On average across OECD countries where this optional questionnaire was distributed, 64% of boys and 73% of girls reported that they had studied at home for more than one hour on the day immediately prior to the PISA test (Table II.B1.8.13). On average across OECD countries, some 24% of boys and 18% of girls reported that they had not studied at home at all that day. In Albania, Italy, Kazakhstan, Korea, Malta and Panama, more than 75% of both boys and girls reported that they had studied at home for more than one hour on the day prior to the PISA test. By contrast, in Brazil, Denmark, Iceland and Ireland, more than 25% of both boys and girls reported that they had not studied at all during that day. But in almost all countries/economies with comparable data, girls were more likely than boys to report that they had studied at home. The largest differences were observed in Belgium, Croatia, Denmark, Lithuania, Poland and the United Kingdom, where the proportion of girls who reported that they had studied at home at least one hour during the most recent day prior to the PISA test was more than 10 percentage-points larger than the proportion of boys who reported so.

BOYS, GIRLS AND MOTIVATION TO ACHIEVE

Competition and motivation to master tasks

One of the most important factors related to achievement, both in school and in life, is the motivation to achieve (OECD, 2013[26]). In many cases, people with less talent, but greater motivation to reach their goals, are more likely to succeed than those who have talent but are not capable of setting goals for themselves and staying focused on achieving them (Eccles and Wigfield, 2001[27]; Duckworth et al., 2011[28]). This drive may come from an internal or external source. Achievement motivation is intrinsic when it is sparked by an interest or enjoyment in the task itself. It is organic to the person, not a product of external pressure or a drive for external rewards. Achievement motivation is extrinsic when it comes from outside the person. Extrinsic motivation may come from social concerns, such as not wanting to disappoint a parent, or from a craving for rewards, like good marks or praise from teachers.

Research shows that internal motivation and achievement are mutually reinforcing (Schiefele, Stutz and Schaffner, 2016[29]; Retelsdorf, Köller and Möller, 2011[30]). Intrinsic motives increase engagement and may be related to the concept of work mastery, defined as the desire to work hard to master tasks. By contrast, external motivation has an ambiguous impact on achievement.

For instance, excessive emphasis on competition may undermine intrinsic motivation and generate anxiety. The pressure to get higher marks and the concern about receiving poor grades are some of the sources of stress most often cited by school-age children and adolescents; see Chapter 9 of *PISA 2018 Results (Volume III): What School Life means for Students' Lives* (OECD, 2019[16]).

The degree to which students are motivated by intrinsic or extrinsic drives may vary depending on gender. As noted in the previous section, girls usually report greater enjoyment of reading, a component of intrinsic motivation. Meanwhile, boys tend to hold more positive attitudes towards competition.

Empirical evidence indicates that gender differences in attitudes towards competition may be formed early and persist (Gneezy and Rustichini, 2004[31]; Niederle and Vesterlund, 2011[32]; Lackner, 2016[6]), even if the magnitude of these differences in attitudes towards competition is related to the prevailing social norms in a country/economy (Andersen et al., 2013[33]).

PISA 2018 asked students whether they agree ("agree", "strongly agree", "disagree", "strongly disagree") with the following statements: "I enjoy working in situations involving competition with others"; "It is important for me to perform better than other people on a task"; and "I try harder when I'm in competition with other people". Students' responses were used to create an index of attitudes towards competition. Students were also asked whether they agree with the statements: "I find satisfaction in working as hard as I can"; "Once I start a task, I persist until it is finished"; "Part of the enjoyment I get from doing things is when I improve on my past performance"; and "If I am not good at something, I would rather keep struggling to master it than move on to something I may be good at". Students' responses were used to create an index of motivation to master tasks. These indices were standardised to have a mean of 0 and a standard deviation of 1 across OECD countries.

In this analysis, a positive attitude towards competition is defined as the dispositional desire to outperform others, while the motivation to master tasks is defined as the dispositional desire to work hard to achieve a goal (OECD, 2019[34]). Research shows that these two components of approach-oriented achievement motivation are linked to different sets of antecedents and consequences. When assessing achievement motivation, it is important to measure these constructs separately (Baranik, Barron and Finney, 2007[35]; Murayama and Elliot, 2012[36]).

Generally, results from PISA 2018 confirm that girls are less likely than boys to report positive attitudes towards competition. On average across OECD countries in 2018, boys and girls differed in their attitudes towards competition by 0.27 of a standard deviation. In 64 of the 79 countries and economies that participated in PISA 2018, girls expressed less positive attitudes towards competition than boys did (Figure II.8.3). However, cross-country comparisons show large variations in the magnitude, and even the direction, of the gender gap. In France, Portugal, the United Kingdom and Uruguay, boys were much more likely than girls (by more than 0.4 of a standard deviation) to express positive attitudes towards competition. By contrast, in Albania, Brunei Darussalam, Georgia, Indonesia, Jordan, Malaysia, Morocco, Qatar, Saudi Arabia and the United Arab Emirates, girls reported significantly more positive attitudes towards competition than boys. In Bulgaria, Japan and Kazakhstan, girls and boys reported similar, and negative, attitudes towards competition.

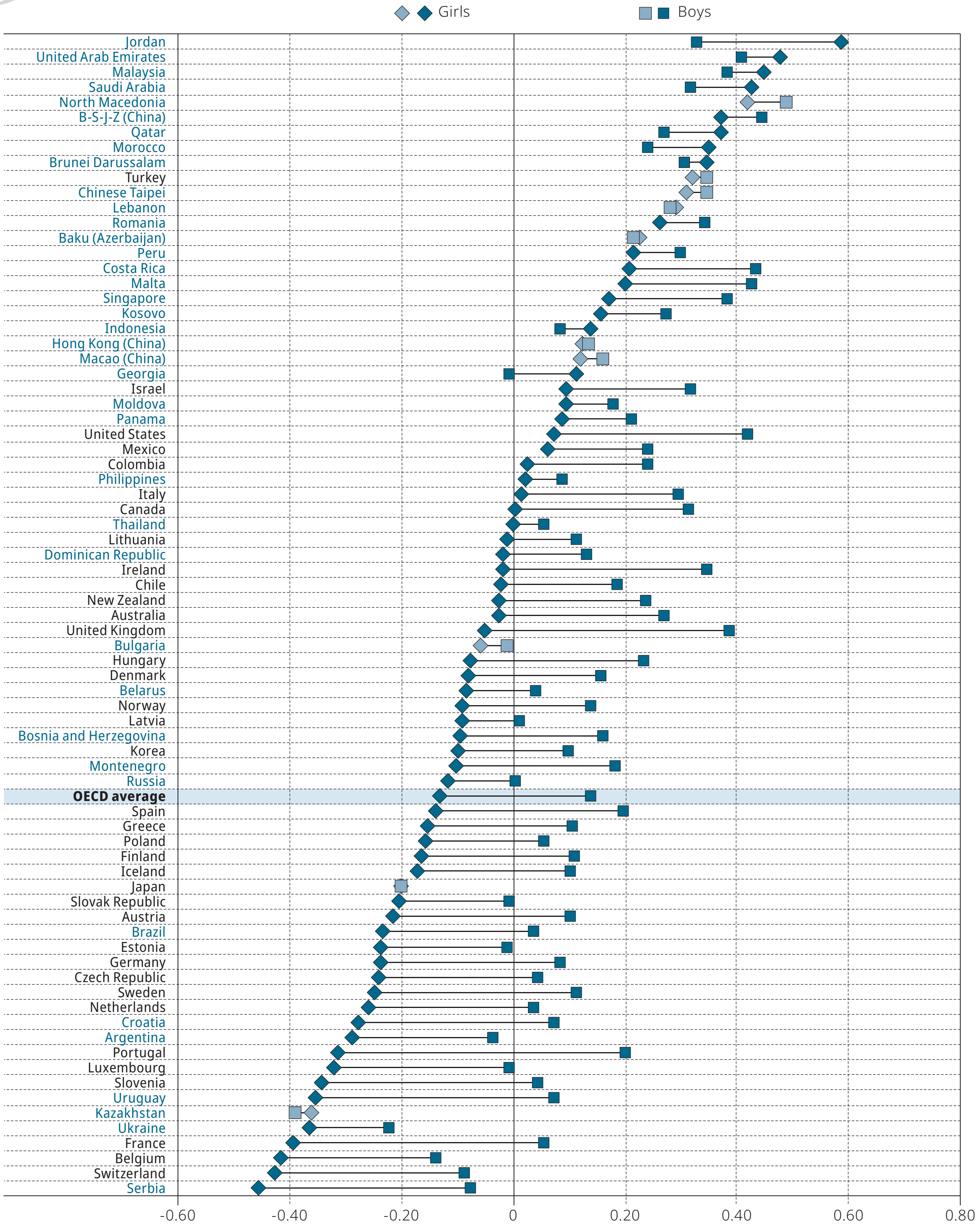
Girls were more likely than boys to report positive attitudes towards mastering tasks. On average across OECD countries, the index of motivation to master tasks was higher amongst girls than amongst boys by 0.14 of a standard deviation. Only in 10 of the 79 PISA-participating countries/economies, namely Beijing, Shanghai, Jiangsu and Zhejiang (China) (hereafter "B-S-J-Z [China]"), Belarus, Hong Kong (China), Hungary, Iceland, Korea, the Netherlands, Russia, Sweden and Chinese Taipei, were these differences not significantly positive (Figure II.8.4). Korea is the only country where boys were more likely than girls to report greater motivation to master tasks.

Perceived competence and difficulty in reading

Adolescence is a time when people play with their sense of self, when they experiment with their identity, compare themselves with others, and develop the basis of a self-concept that may last the rest of their lives. Students' self-concept, or their belief in their own abilities, is an important outcome of education and strongly related to successful learning (Marsh and O'Mara, 2008[37]; Guo et al., 2016[38]). Longitudinal studies of self-concept and achievement show that they are mutually reinforcing over time (Marsh and Martin, 2011[39]; Niepel, Brunner and Preckel, 2014[40]; Arens, Schmidt and Preckel, 2019[41]). Self-concept can also affect well-being and personality development. Students' beliefs in their own competence can also be affected by gender stereotypes perpetuated by parents, peers or teachers (Retelsdorf, Schwartz and Asbrock, 2015[42]).

PISA 2018 measured students' reading self-concept through self-reports on whether students agree ("strongly agree", "agree", "disagree", "strongly disagree") that they are good readers; that they are able to understand difficult texts; that they read fluently; that they have always had difficulty with reading; that they have to read a text several times before completely understanding it; and that they find it difficult to answer questions about a text. Students' responses were summarised in two indices of reading self-concept: one measuring the perception of competence and the other measuring the perception of difficulty with reading. Both indices were standardised to have a mean of 0 and a standard deviation of 1 across OECD countries.

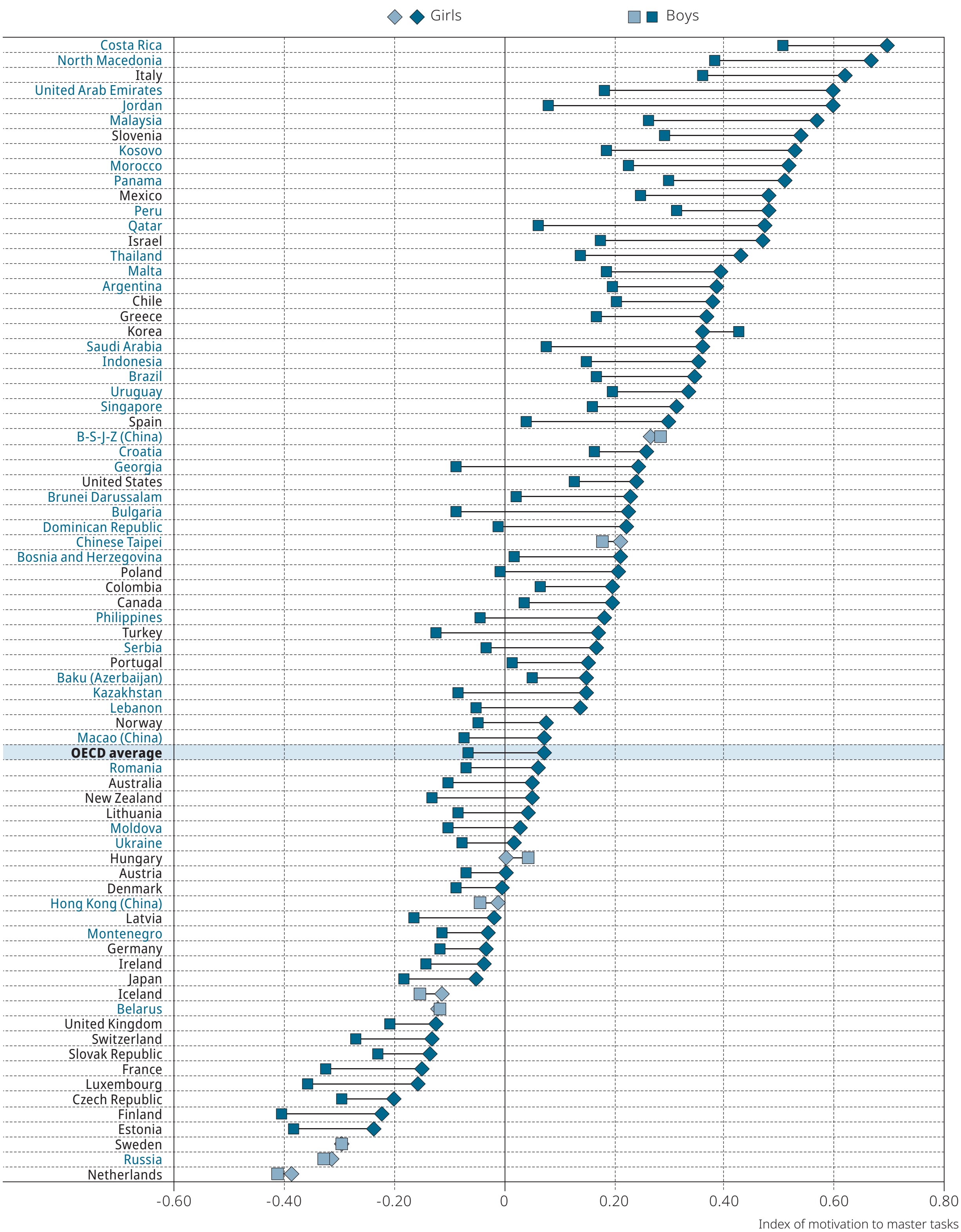
Figure II.8.3 **Gender gap in attitudes towards competition**



Notes: Statistically significant differences between girls and boys are marked in a darker tone (see Annex A3).
"Attitudes towards competition" represents the competitiveness of the student and not the perception of competitiveness at school.
Countries and economies are ranked in descending order of the mean index of attitudes towards competition amongst girls.
Source: OECD, PISA 2018 Database, Table II.B1.8.14.

StatLink https://doi.org/10.1787/888934038115

Figure II.8.4 **Gender gap in motivation to master tasks**



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

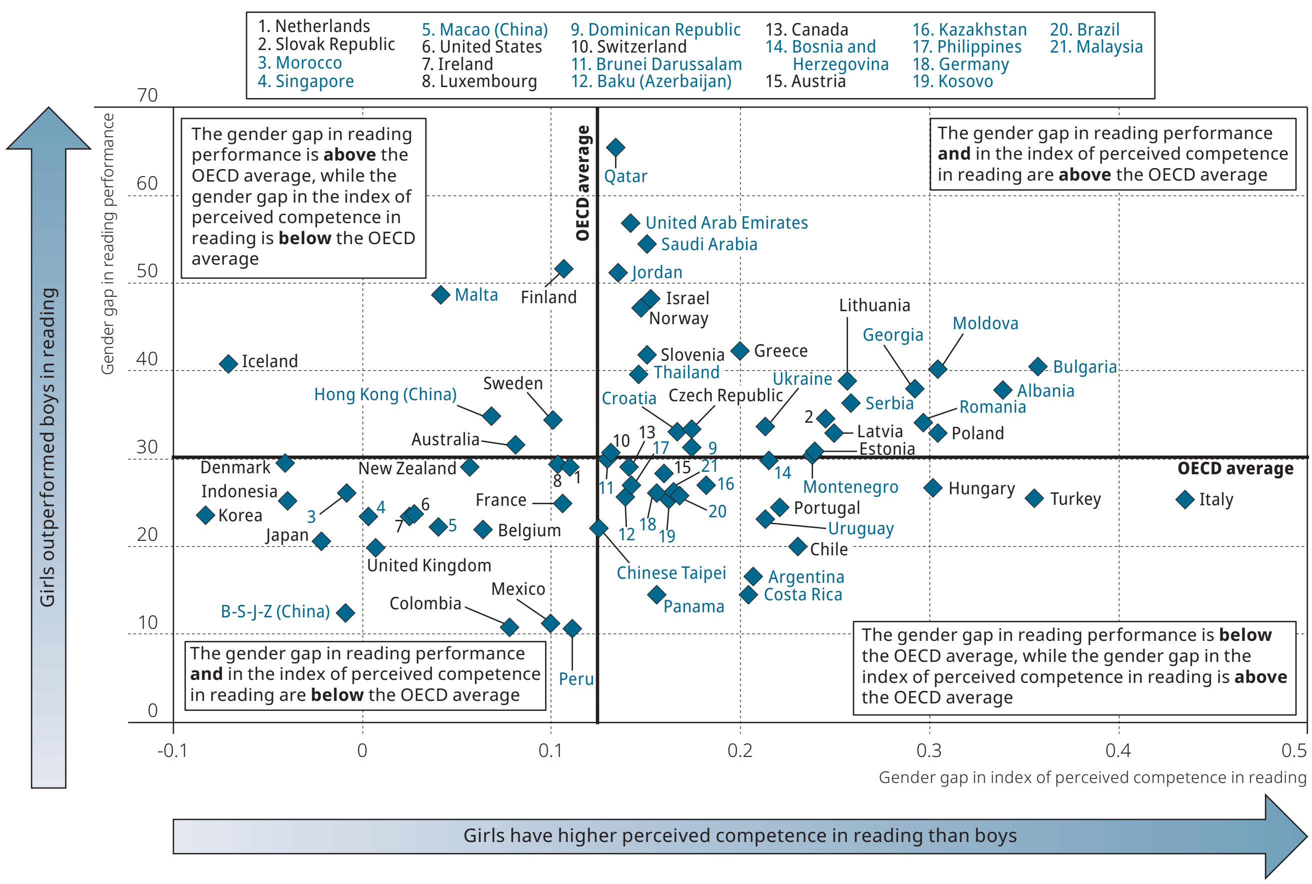
Countries and economies are ranked in descending order of the mean index of motivation to master tasks amongst girls.

Source: OECD, PISA 2018 Database, Table II.B1.8.14.

StatLink https://doi.org/10.1787/888934038134

In general, girls were more likely than boys to report greater perceived competence in reading (Table II.B1.8.15). On average across OECD countries, the gender gap in perceived reading competence was around 0.1 of a standard deviation. Only in Korea did girls report less competence in reading than boys did. On average, girls were much more likely than boys to describe themselves as "good readers". This is not surprising, given girls' better performance in reading (see Chapter 7). However, the gender gap in perceived competence in reading did not seem to be statistically associated with the gender gap in reading performance (Figure II.8.5). In Denmark, Finland, Iceland, Ireland, Japan, Korea, Malta, Morocco, New Zealand, Singapore and the United Kingdom, when comparing boys and girls with similar scores in reading, girls reported significantly less competence in reading than boys, on average. In 30 countries and economies, girls were more likely than boys, on average, to report that they had difficulty reading – even though they were more often top performers in reading. While girls reported more often than boys that they read fluently, they were also less likely than boys to report that they can understand difficult texts. All of the above may suggest that girls tend to lack confidence in their own abilities.

Figure II.8.5 **Gender gap in reading performance and perceived competence in reading**



Note: The gender gap refers to the difference between girls and boys (girls minus boys).
Source: OECD, PISA 2018 Database, Tables II.B1.7.1 and II.B1.8.16.
StatLink https://doi.org/10.1787/888934038153

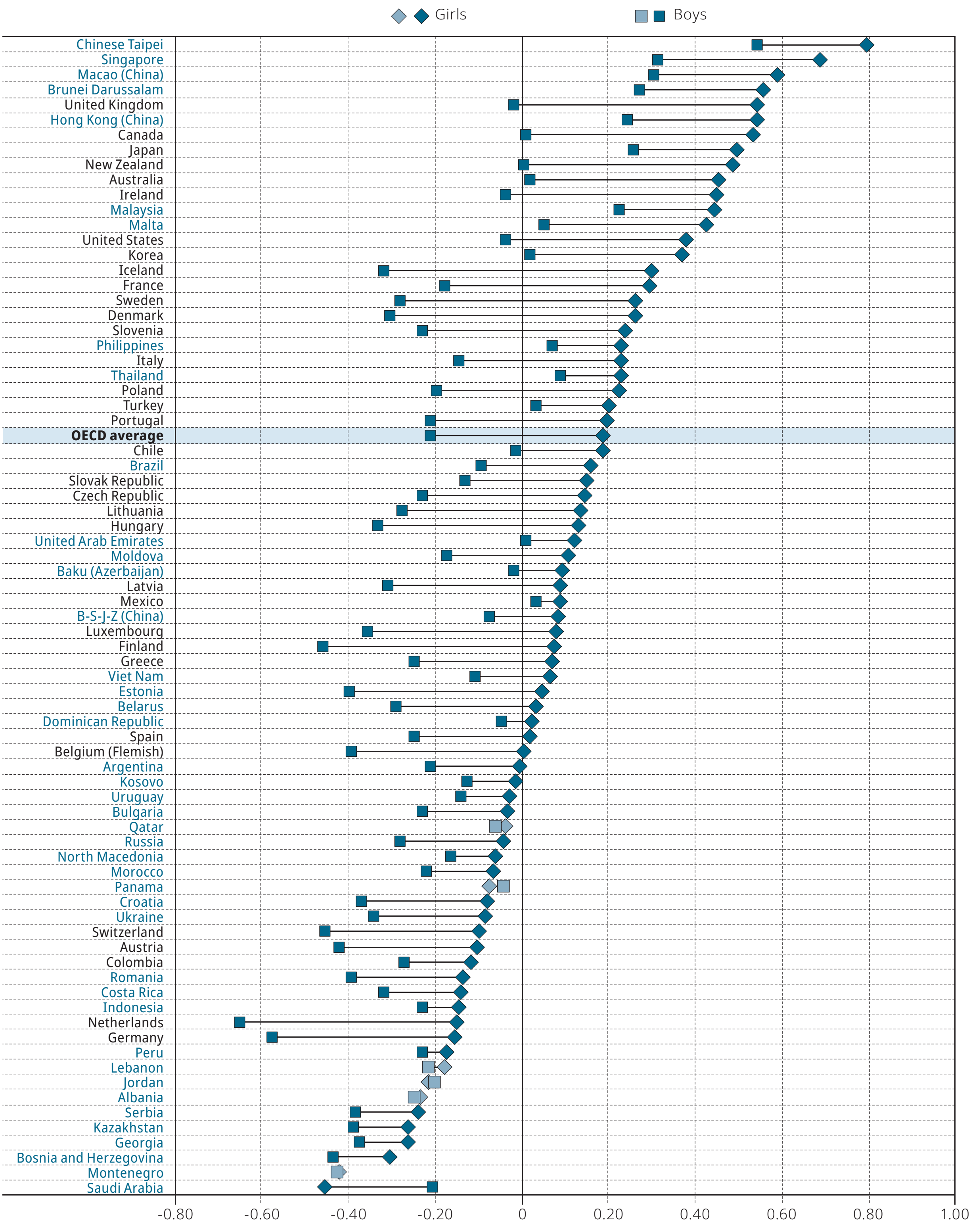
Fear of failure

Fear of failure may prompt teenagers to avoid taking calculated risks because failure to achieve their goal may be regarded as shameful. Research has shown that fear of failure leads students to be self-protective and thus avoid challenging situations and opportunities that are essential for learning and development (Conroy, Kaye and Fifer, 2007[43]; De Castella, Byrne and Covington, 2013[44]). Previous results from PISA suggest that countries where students have high motivation to achieve also tend to be those where many students feel anxious about sitting a test, even if they are well-prepared for it (OECD, 2017[45]).

PISA 2018 asked students whether they agree ("strongly agree", "agree", "disagree", "strongly disagree") with the following statements: "When I am failing, I worry about what others think of me"; "When I am failing, I am afraid that I might not have enough talent"; and "When I am failing, this makes me doubt my plans for the future". Students' responses were used to create an index of fear of failure. The index was standardised to have a mean of 0 and a standard deviation of 1 across OECD countries.

In general, boys and girls reported experiencing the fear of failure differently. In 70 countries and economies that participated in PISA 2018, girls reported more often, and to a larger extent, than boys that they fear failure (Figure 1.6). On average across OECD countries, the magnitude of the gender gap in fear of failure was as large as 0.4 of a standard deviation. In 22 PISA-participating countries and economies, the gender gap in the fear of failure was larger than the overall OECD average gender gap; in another 26 countries/economies, the difference in fear of failure ranged from 0.2 to 0.4 of a standard deviation.

Figure II.8.6 **Gender gap in fear of failure**



Note: Statistically significant differences between girls and boys are marked in a darker tone (see Annex A3).
Countries and economies are ranked in descending order of the mean index of fear of failure amongst girls.
Source: OECD, PISA 2018 Database, Table II.B1.8.18.
StatLink https://doi.org/10.1787/888934038172

On average across OECD countries, 51% of boys but 61% of girls agreed or strongly agreed with the statement: "When I am failing, I worry about what others think of me". But while slightly less than one in two boys reported that when they fail, it makes them afraid that they might not have enough talent, or doubt about their future, almost two in three girls reported so. Analyses on how students' satisfaction with life and other feelings about their environment differ between boys and girls are presented in more detail in Chapter 13 of *PISA 2018 Results (Volume III): What School Life Means for Students' Lives* (OECD, 2019[16]).

Prepared for tomorrow? Boys' and girls' expectations about their future career

Children and adolescents are exposed to stereotyped gender roles in their immediate environment through their families, at school, and also through educational resources, the media and popular culture (Olsson and Martiny, 2018[46]). In most Western countries, men are under-represented in "nurturing" roles, such as those in the healthcare, elementary education and domestic sectors, whereas women are under-represented in high-status roles, such as leadership positions (Croft, Schmader and Block, 2015[47]), and in the science, technology, engineering and mathematics (STEM) fields. In this context, it is not surprising to observe that teenagers' expectations for their careers as young adults mirror these stereotypes (see Table II.6.1 in Chapter 6).

Promoting more equal representation of men and women in different occupations is not only a way to reduce the gender gap in the labour market and improve gender equality, it is also a prerequisite for meeting the many challenges facing societies around the world. STEM jobs contribute to innovation and productivity growth in most advanced economies; shortages of workers for these jobs are damaging to society. Labour shortages in healthcare are also a concern, especially in ageing societies. Gender-related biases in teenagers' aspirations may thus have adverse consequences not only for the individual, but for society too. For this reason, several countries are implementing various initiatives and interventions to encourage boys and girls to consider non-traditional occupational choices. How is this reflected in boys' and girls' career expectations?

PISA 2018 asked students about the level of education they expect to complete and what occupation they expect to be working in when they are around 30 years old (Chapter 6). For the latter question, students could enter any job title or description in an open-entry field; their answers were classified according to the International Standard Classification of Occupations (ISCO-08). One may thus identify "science and engineering professional", "health professional", "information and communication technology (ICT) professional" and "science technicians and associate professional" from amongst the careers they cite (see Annex A1 for details).

On average across OECD countries in 2018, around one in three students reported that they expect to work in a science-related occupation when they are around 30 (Table II.B1.8.19). Large variations were observed between countries/economics, though. In Baku (Azerbaijan), B-S-J-Z (China), the Czech Republic, Germany, Indonesia, Korea, Switzerland, Ukraine and Viet Nam, less than 25% of students reported that they expect to work in a science-related occupation, while in Brazil, Canada, Costa Rica, the Dominican Republic, Jordan, Lebanon, Mexico, Qatar, the United Arab Emirates and the United States, more than 45% of students so reported.

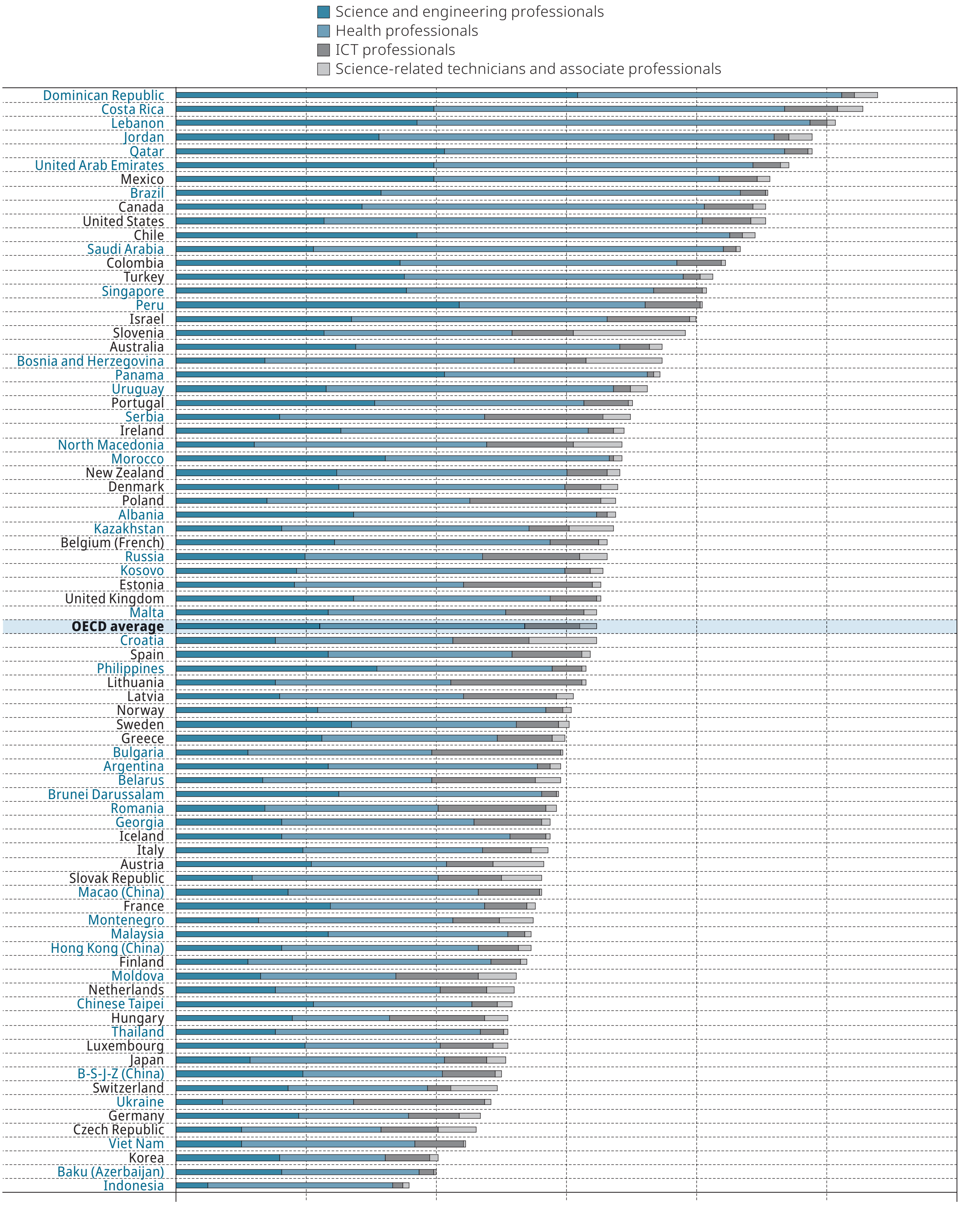
In general, similar proportions of girls and boys reported that they are interested in a science-related career. However, decompositions by type of occupation show much more differentiated patterns between the genders. Specifically, 15% of boys but only 7% of girls reported that they expect to work as professionals who use science and engineering training (e.g. engineer, architect, physicist, astronomer); and in all PISA-participating countries/economies, more boys than girls reported that they expect to work in these types of occupations. The gender gap in expectations to become an engineer (or any related occupation) was especially wide in Colombia, the Dominican Republic, Mexico, Portugal and Singapore, where it exceeded 15 percentage points. These were also countries where more than one in five boys reported that they expect to work as an engineer or in a similar occupation. By contrast, in Greece and Morocco more than 10% of students (the OECD average share) reported that they expect to work as professionals who use science and engineering training, while the gender gap in expectations of working in these occupations was smaller than 5 percentage points.

Expectations about working in ICT-related occupations also appear to be highly gender-biased. Only a tiny share of girls – 1% – reported that they want to work as ICT professionals (e.g. software developer, applications programmer) compared with 8% of boys who so reported. While in some countries, such as Bulgaria, Estonia, Lithuania, Poland, Serbia and Ukraine, more than 15% of boys reported that they expect to work in an ICT-related profession, in no PISA-participating country or economy did this share exceed 3% amongst girls.

In addition, the gender gap in interest in these occupations tended to widen over the past few years. The proportion of boys who reported that they expect to work as ICT professionals had increased between 2015 and 2018 by 1.1 percentage points, but the proportion of girls who reported so increased by only 0.2 of a percentage point during the same period (Table II.B1.8.21). In Israel, Lithuania and Poland, the share of boys who reported that they expect to work in these occupations grew by more than five percentage points between 2015 and 2018; but nowhere did the share of girls who so reported grow by more than two percentage points. In some countries the gender gap in favour of boys narrowed, but not because of a greater interest amongst girls. Rather, in Australia, Austria, Colombia, the Dominican Republic, Iceland, Ireland, Switzerland, Chinese Taipei and Uruguay, boys lost interest in these professions.

Figure II.8.7 **Expectation to work in science-related occupations**

Percentage of students who reported that they expect to work in science-related occupations and technical occupations when they are 30



Countries and economies are ranked in descending order of the percentage of students who reported that they expect to work in a science-related occupation.

Source: OECD, PISA 2018 Database, Table II.B1.8.19.

StatLink https://doi.org/10.1787/888934038191

When considering the "care" professions, the picture looks much different. On average across OECD countries, only 8% of boys but as much as 23% of girls reported that they expect to work as a health professional (e.g. medical doctor, nurse, veterinarian, physiotherapist). In Brazil, Saudi Arabia and the United States, about 40% of 15-year-old girls reported so, compared to less than 20% of boys. In B-S-J-Z (China), Georgia, Germany, Hungary, Italy, Korea, Luxembourg, Malta, the Republic of Moldova, Panama, Ukraine and Viet Nam, the gender gap in expectations of a career in health amounted to less than 10 percentage points, mainly because girls in these countries/economies were less likely to expect to work in such careers.

Students' expectations about their future work partly reflect the opportunities and support available to them, in their country and in their local environment, to turn their aspirations into reality. This may partly explain the large variations in the gender gap in career expectations observed between countries (Stoet and Geary, 2018[7]). Students' career expectations also tend to be shaped by what students consider to be their academic strengths (see, for instance, Table II.B1.6.5 in Chapter 6). However, previous analyses also suggest that girls are less likely than boys to believe in their abilities, especially in mathematics. This lack of self-confidence may be one of the first fissures that widen into the gender gap in students' pathways towards science-related careers (Perez-Felkner, Nix and Thomas, 2017[48]).

On average across OECD countries, only 14% of girls but more than 26% of boys, amongst students who had attained Level 2 of proficiency in all three core PISA subjects (reading, mathematics and science), and a high level of proficiency in science or mathematics (PISA proficiency Level 5 or 6), reported that they expect to work as professionals who use science and engineering training (see Figure II.8.8). In several countries, the gender gap is not significant, including those countries with high proportions of top performers in science or mathematics, such as Estonia, Finland, Poland and Slovenia, where 15% of boys and girls were top performers and they were equally likely to report that they expect to work in such occupations. But in 22 countries and economies, the gender gap in the expectation to work as an engineer amongst high achievers in science or mathematics was larger than 15 percentage points; and in Colombia, Malaysia, Norway, Peru and Portugal, the gap was larger than 20 percentage points.

Box II.8.1. **How to narrow, if not close, the gender gap in STEM**

The absence of role models is often cited as one reason for the persistent under-representation of women in science, technology, engineering and mathematics – even as the gender gap in mathematics and science performance has almost closed in many countries. Society, and notably parents and teachers, may convey stereotypes and social norms that influence the choices girls and boys make about their future. The dearth of women in science means that girls may feel that a career in science is somehow "inappropriate" for them. Making female role models more visible could help change this.

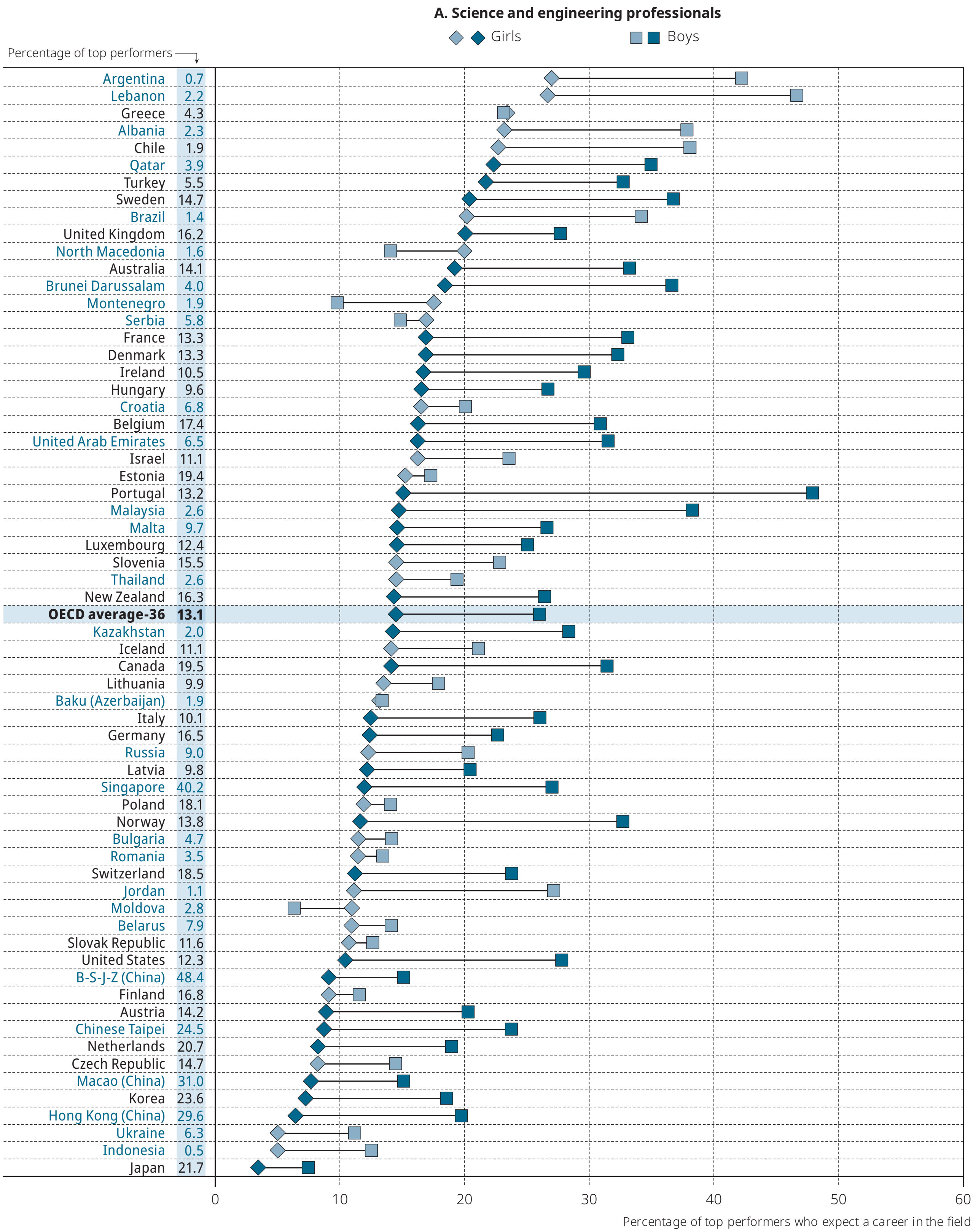
Research on students in the US Air Force Academy shows that being (randomly) assigned to a female instructor in mandatory introductory mathematics and science courses had no impact amongst male students on their decision to continue studying these subjects in the future; but it increased the likelihood that female students, especially the highest achievers, would take mathematics and science courses the following year (Carrell, Page and West, 2010[49]). These results are mirrored in a large-scale experiment conducted in the Paris area that showed that a single, one-hour discussion with female engineers significantly increased the proportion of high-performing girls in grade 12 who decided to enrol in (male-dominated) selective STEM studies in France (Breda et al., 2018[50]).

Fighting stereotypes about the relative strengths of boys and girls in certain fields of study may also be an effective way to narrow gender gaps in preferred occupations. For instance, a study measuring the gender-bias behaviour of teachers in primary schools in Tel-Aviv, Israel (estimated by comparing the average marks boys and girls were awarded in a "non-blind" exam to the gender means in a anonymously marked "blind" national exam) suggests that being assigned to a teacher with a greater bias in favour of one gender has a significant positive impact on the further achievement of students of that gender, and on enrolment in advanced mathematics courses in high school (Lavy and Sand, 2018[51]).

While computer science is one the fields with the smallest representation of women, providing girls with opportunities to interact with technology at the earliest ages may increase their sense of self-efficacy and strengthen their engagement with science. For instance, a recent study shows that six-year-olds expressed stereotyped views about boys being better than girls at robots and programming. The authors also show that first-grade girls who were given an opportunity to try programming showed greater interest in technology and self-efficacy in programming than randomly selected girls of a similar age, and that the experience eliminated gender differences in interest and self-efficacy in technology (Master et al., 2017[52]).

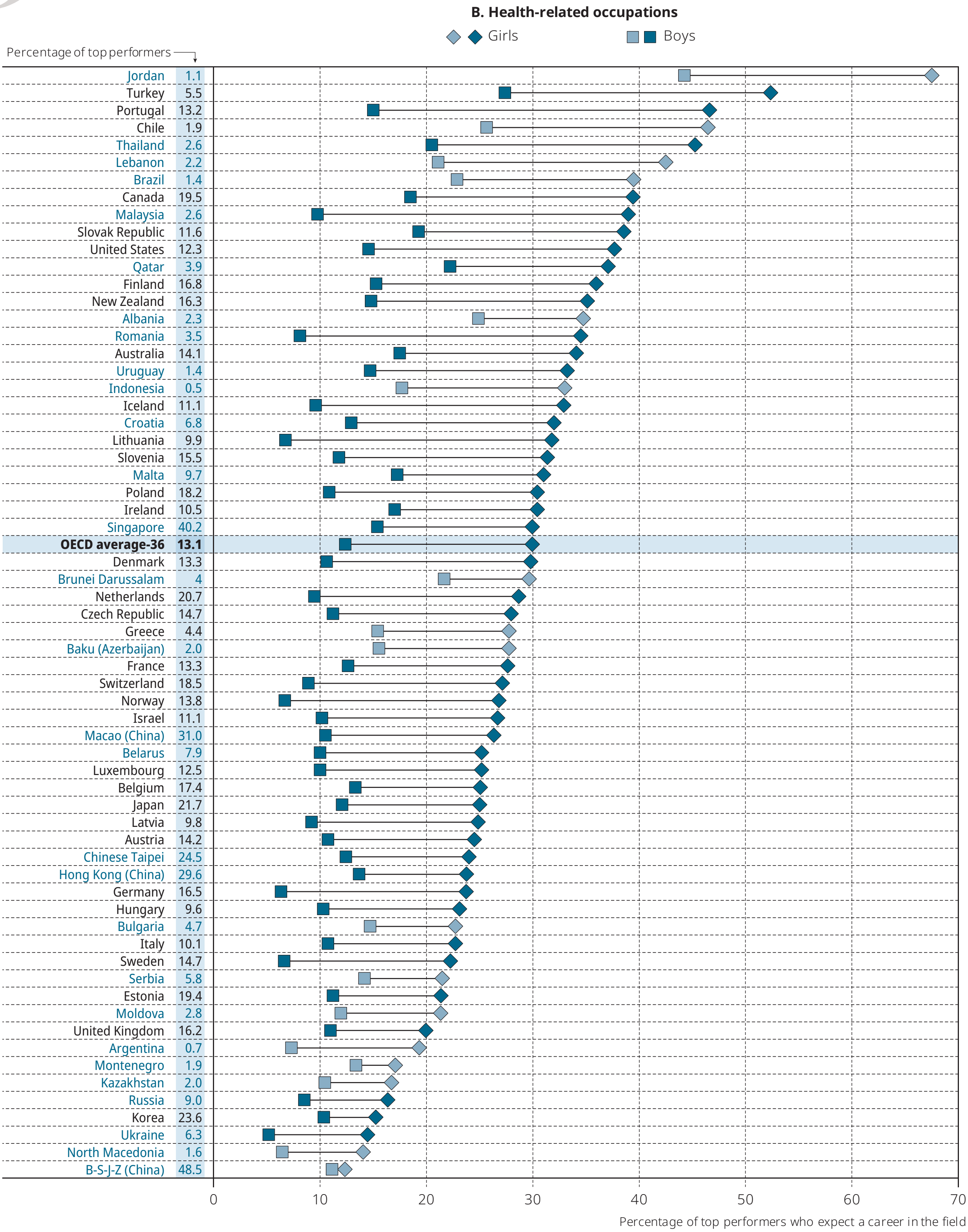
Source: Carrel et al. (2010), "Sex and science: how professor gender perpetuates the gender gap", https://doi.org/10.1162/qjec.2010.125.3.1101; Breda et al. (2018), "Can female role models reduce the gender gap in science? Evidence from classroom interventions in French high schools", https://halshs.archives-ouvertes.fr/halshs-01713068; Lavy and Sand (2018), "On the origins of gender gaps in human capital: Short- and long-term consequences of teachers' biases", https://doi.org/10.1016/j.jpubeco.2018.09.007; Master et al. (2017), "Programming experience promotes higher STEM motivation among first-grade girls" http://dx.doi.org/10.1016/j.jecp.2017.03.013

Figure II.8.8 [1/2] **Gender gap in career expectations amongst top performers in mathematics and/or science**



Notes: Statistically significant differences between girls and boys are show in a darker tone (see Annex A3).
For students' career expectations, results are only available for the French community in Belgium.
In this figure, "top performers" refers to students who attain at least Level 2 in all three core subjects and Level 5 or 6 in mathematics and/or science.
Countries and economies are ranked in descending order of the percentage of top performing girls who expect a career in the field.
OECD average-36 refers to the arithmetic mean across OECD countries (and Colombia), excluding Spain.
Source: OECD, PISA 2018 Database, Tables II.B1.8.22 and II.B1.8.23.
StatLink https://doi.org/10.1787/888934038210

Figure II.8.8 [2/2] **Gender gap in career expectations amongst top performers in mathematics and/or science**



Notes: Statistically significant differences between girls and boys are show in a darker tone (see Annex A3).
For students' career expectations, results are only available for the French community in Belgium.
In this figure, "top performers" refers to students who attain at least Level 2 in all three core subjects and Level 5 or 6 in mathematics and/or science.
OECD average-36 refers to the arithmetic mean across OECD countries (and Colombia), excluding Spain.
Countries and economies are ranked in descending order of the percentage of top performing girls who expect a career in the field.
Source: OECD, PISA 2018 Database, Tables II.B1.8.22 and II.B1.8.23.
StatLink https://doi.org/10.1787/888934038210

Notes

1. For a meta-review of the no cognitive skills impact on educational achievement see also Koch, Nafziger and Nielsen, 2015[56].

2. Enjoyment of reading is usually strongly related to reading achievement – for a meta-review see Petscher, 2009[57] – but evidence on the causal link between these two constructs is scarce. A longitudinal analysis over a sample of 150 students enrolled in second grade in one school in the United States suggests that reading attitudes and achievement appear unrelated at the early stages of reading, but they become more closely linked over time, as both primary reading attitudes and primary reading achievement are predictors of reading achievement in the 7th grade (Kush, Watkins and Brookhart, 2005[58]).

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PISA

9

Performance and academic resilience amongst students with an immigrant background

This chapter examines the reading performance of immigrant students across PISA-participating countries and economies. It investigates how these students' circumstances are related to their performance in reading. The chapter also explores the factors that are associated with academic resilience, and shows how resilience is related to students' well-being.

The number of students with an immigrant background has grown considerably over the past 20 years in most OECD countries. In 2015 alone, an estimated 4.8 million immigrants arrived in OECD countries, a wave that reinforced a long and steady upward trend (OECD, 2018[1]). How schools and education systems respond to the challenges and opportunities that arise with immigrant flows has profound implications for the economic and social well-being of all members of society, including immigrants themselves.

In the majority of countries, non-immigrant students outperformed their first- and second-generation immigrant peers. This finding has held true across previous cycles of PISA, and has been shown to be related to the socio-demographic circumstances of immigrant students (OECD, 2016[2]). However, this pattern was not observed in all countries. For example, in Australia and Canada, immigrant students performed as well as their non-immigrant peers; and across many countries a sizeable proportion of immigrant students were able to attain at least minimum levels of performance despite the overwhelming odds against them. So how do immigrant students in some education systems manage to score as high as their non-immigrant peers? What makes immigrant students academically resilient?

What the data tell us

- On average across OECD countries, 13% of students in 2018 had an immigrant background, up from 10% in 2009. In most countries, immigrant students tended to be socio-economically disadvantaged, with the largest proportions in Austria, Denmark, Finland, France, Germany, Greece, Iceland, the Netherlands, Norway, Slovenia and Sweden, where at least 45% of immigrant students were disadvantaged.
- The average difference in reading performance between immigrant and non-immigrant students across OECD countries is 41 score points in favour of non-immigrant students. The difference shrinks to 24 score points after accounting for students' and schools' socio-economic profile.
- Across all countries with a relatively large proportion of immigrant students, segregation of immigrant students across schools is the most prevalent in Brunei Darussalam, Denmark, Estonia, Finland, Kazakhstan, Lebanon, Malta, Panama, Portugal, Saudi Arabia and the United Kingdom.
- Even though, in some countries, immigrant students tend to be disadvantaged, some are able to attain academic excellence. On average across OECD countries, 17% of immigrant students scored in the top quarter of reading performance in the country where they sat the PISA test. In Brunei Darussalam, Jordan, Panama, Qatar, Saudi Arabia and the United Arab Emirates, more than 30% of immigrant students performed at that level.

This chapter highlights the association between students' immigrant background and their academic performance, and explores immigrant students' academic resilience and well-being. It examines two dimensions of equity: inclusion, which refers to the objective of ensuring that all students acquire a minimum level of skills, regardless of their socio-economic status and immigrant background; and fairness, which involves removing barriers to student achievement that arise from circumstances over which students have no control, such as their immigrant background.

The following sections examine the reading performance of immigrant students across PISA-participating countries and economies. They investigate whether and how some of the circumstances surrounding these students (e.g. socio-demographic background, language spoken at home, engagement with reading, support at school, and personal attitudes and dispositions) are related to their performance in reading. The chapter also examines the factors that are related to academic resilience, and shows how resilience is related to students' well-being.

When examining the outcomes of immigrant students across countries, it is important to keep in mind that countries' immigration policies vary widely. Moreover, within each country, immigrant students are a diverse group, coming from different countries, cultures and socio-economic circumstances, and speaking different languages. While immigrant students tend to be socio-economically disadvantaged, this is not always the case. Existing evidence suggests that immigrant students' performance is shaped by a plethora of factors. For example, family circumstances affect the amount of resources students have at their disposal, and how much parental attention and support they receive. At the school level, education policies determine the characteristics of the schools immigrant students attend (Buchmann and Parrado, 2006[3]). At the country level, social policies define the environment in which immigrant students, schools and communities evolve and ultimately determine how successfully immigrant students integrate into their host communities.

Thus, when conducting cross-country analyses it is important to take into account the nature and selectivity of national immigration policies, which affect the composition of the immigrant student population. In addition, given the nature of a country's immigration system, comparisons between first- and second-generation immigrant students and their non-immigrant peers are essential for exploring the association between student background and school profile on performance at school. Box II.9.2 shows how immigration policies vary across PISA-participating countries and economies.

Box II.9.1. **Who is an immigrant student?**

In PISA 2018, students were classified into several categories based on their and their parents' immigrant background. This chapter is concerned with three categories of students:

Non-immigrant students, who are students whose mother or father (or both) was/were born in the country/economy where the student sat the PISA test, regardless of whether the student him/herself was born in that country or economy.

Immigrant students, who are students whose mother and father were born in a country/economy other than that where the student sat the PISA test. Amongst immigrant students, a distinction was made between first- and second-generation students, based on whether the student was born in or outside the country/economy of assessment.

- **First-generation immigrant students** are foreign-born students whose parents are both foreign-born
- **Second-generation immigrant students** are students born in the country of assessment but whose parents are both foreign-born.

In some analyses, these two groups of immigrant students are considered separately; in others, the two groups are combined.

Box II.9.2. **Immigration policies and the composition of the immigrant student population**

In most PISA-participating countries/economies, immigrant students perform worse than their non-immigrant peers. However, these performance differences must be interpreted within the context of each country's population of immigrant students, which is shaped by each country's/economy's immigration policies. For example, immigration is a relatively new phenomenon in some countries, while it has been a feature of other countries for decades. In the latter cases, many immigrant students may be second- or third-generation immigrants, and there may be social and economic policies in place to help them integrate into their host societies, something that might be absent in countries where immigrants have only recently begun to arrive.

The criteria used for admitting immigrants into countries vary considerably. Some countries give preferential admissions to highly educated immigrants, while others accept a greater share of low-skilled immigrants or humanitarian migrants, refugees and asylum-seekers. Parents who are more educated might value education more for their own children and may be better placed to assist with homework or navigate the destination country's education system, facilitating their children's academic success.

In addition, countries/economies differ markedly in the composition of their immigrant populations. Migrants often choose destinations that have colonial, linguistic or cultural links with their home country or where there is a large community of their compatriots; some may choose to move to countries closer to home.

Across most countries and economies, immigrant populations are far from homogeneous. The diversity of immigrants' geographic and cultural origins is usually mirrored in linguistic diversity: large numbers of immigrant students speak a language at home that is different from the language of instruction in the host community's schools.

OECD countries (and several partner countries and economies) can be grouped into a few categories according to the characteristics of their immigrant populations. Amongst countries with large immigrant populations, five such groups can be identified:

1. **Settlement countries**, where immigration has contributed to the country's development and is considered to be part of its heritage and history. In these countries, around one in two people is either foreign-born or has at least one foreign-born parent, and there are large proportions of highly educated immigrants. These countries include Australia, Canada, Israel and New Zealand.

...

2. **Long-standing destination countries with many recent and highly educated immigrants**, including Luxembourg, Switzerland and the United Kingdom, where many recent immigrants arrived through free movement in the EU/EFTA for labour purposes. The United States can also be included in this group of countries, although its more recent arrivals include large numbers of low-educated immigrants from Latin America. In some of these countries there are also many settled, low-educated immigrants with second-generation immigrant children.

3. **Long-standing destination countries with many settled, low-educated immigrants.** Guest workers came to these countries after World War II for what were often supposed to be temporary stays, but many settled permanently. There are many second- and third-generation immigrant children and relatively fewer new immigrants in these countries. Immigrant adults have relatively poor employment rates and are socio-economically disadvantaged compared to the native population. This group of countries includes Austria, Belgium, France, Germany and the Netherlands. In recent years, some of these countries have welcomed a substantial number of new humanitarian immigrants in addition to low-qualified workers moving across member countries of the European Union.

4. **Countries with large populations of recent immigrants and humanitarian migrants.** Much of the immigrant population arrived after 2000 and the vast majority did not speak the language of the destination country upon arrival. Immigrants in these countries tend to be disadvantaged compared to the non-immigrant population, but these destination countries have strong integration policies. These countries include Denmark, Finland, Norway and Sweden.

5. **New destination countries with large populations of low-educated immigrants.** These immigrants came to fill low-skilled, manual labour jobs and arrived in significant numbers in the early 2000s. Most of them are either young and childless or have left their children in their home countries. The immigrant children who have grown up in these destination countries tend to have poorer outcomes than their native-born peers. Greece, Italy, Portugal and Spain are included in this group.

Amongst countries with smaller shares of immigrants, relative to the native-born population, another three groups can be distinguished:

6. **New destination countries with many recent, highly educated immigrants**. These countries have received increasing numbers of labour migrants, especially over the past decade, many of whom are highly skilled and come from high-income countries. Overall integration outcomes tend to be good relative to other new destination countries, although many highly educated immigrants are considered to be overqualified in the labour market. These countries include Iceland, Ireland and Malta.

7. **Countries with an immigrant population shaped by border changes and/or by national minorities**, where the majority of the foreign-born population “arrived” as a result of border changes or nation-building in the late 20th century. This immigrant population is an ageing group with social and economic outcomes that are often similar to, if not better than, those of their native-born peers. Most of these countries are located in Central and Eastern Europe. They include Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, the Slovak Republic and Slovenia.

8. **Emerging destination countries with small immigrant populations.** This group of countries is composed of OECD countries where less than 2% of the population is foreign-born, but where the share of foreign-born residents has more than doubled since 2000 and where integration outcomes vary widely. Countries in this group include Bulgaria, Chile, Japan, Korea, Mexico, Romania and Turkey.

Even within groups of countries in similar circumstances, there are wide disparities in integration outcomes. This suggests that policies have a key role to play. Integration policies, and extra support targeted towards immigrant families and children, can make a significant difference in how immigrant students fare in their host communities.

In this chapter and in Chapter 10, the typology of immigration systems is used to inform the interpretation of findings whenever it helps. However, in many instances the results do not fit the typology neatly. In such cases, results are interpreted with caution and without making generalisations about groups of countries. Moreover, some countries may fit into more than one group or may have changed group over time.

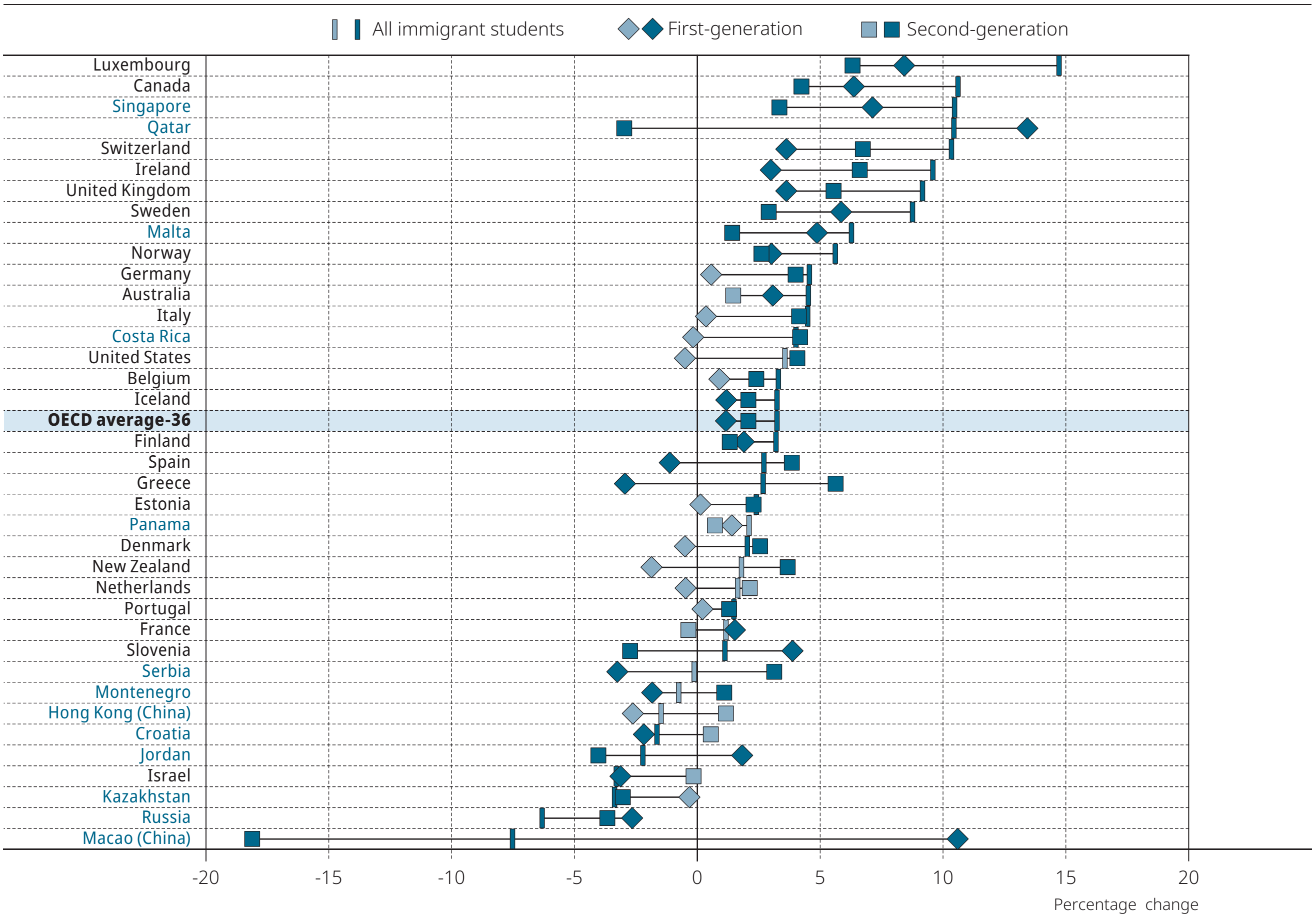
Sources: (OECD/EU, 2018[4])

In the following sections, the figures show results only for countries where, in 2018, more than 5% of 15-year-old students had an immigrant background. This threshold is equal to half of the average percentage of immigrant students across all OECD countries. The countries where more than 5% of students had an immigrant background are, in descending order of this proportion: Macao (China), Qatar, the United Arab Emirates, Luxembourg, Hong Kong (China), Canada, Switzerland, Australia, New Zealand, Singapore, the United States, Austria, Germany, Sweden, the United Kingdom, Belgium, Ireland, Israel, France, the Netherlands, Norway, Spain, Saudi Arabia, Greece, Jordan, Denmark, Estonia, Italy, Costa Rica, Serbia, Croatia, Slovenia, Malta, Kazakhstan, Brunei Darussalam, Portugal, Lebanon, Panama, Montenegro, Finland, the Russian Federation (hereafter "Russia"), Iceland and Baku (Azerbaijan). More than 50% of students in Luxembourg, Macao (China), Qatar and the United Arab Emirates had an immigrant background.

A PROFILE OF IMMIGRANT STUDENTS

Figure II.9.1 shows the change between 2009 and 2018 in the percentage of first- and second-generation immigrant students. On average across OECD countries, the proportion of students who reported an immigrant background increased by 3 percentage points – from 10% to 13% – during that period. Amongst countries and economies where, in 2018, more than 5% of students had an immigrant background, the largest increases occurred in Canada, Ireland, Luxembourg, Malta, Norway, Qatar, Singapore, Sweden, Switzerland and the United Kingdom, with a minimum increase of 5 percentage points. In Luxembourg the proportion of immigrant students increased by 14.7 percentage points, followed by Canada with an increase of 10.6 percentage points and Singapore with a rise of 10.5 percentage points. Most of these countries are long-standing immigration destinations. Some, especially those in Europe, have witnessed two trends: a recent trend of humanitarian migration since 2015 and a historic trend of workers moving from other parts of the European Union. The increases in Ireland, Switzerland and the United Kingdom mostly involved second-generation immigrants. This could reflect historic migration waves amongst the parents of students who reached 15 years of age in 2018.

Figure II.9.1 **Change between 2009 and 2018 in the percentage of students with an immigrant background**



Notes: Statistically significant changes are shown in a darker tone (see Annex A3).

Only countries and economies that participated in both PISA 2009 and PISA 2018 and where the percentage of immigrant students was higher than 5% in 2018 are shown.

OECD average-36 refers to the arithmetic mean across OECD countries (and Colombia), excluding Austria.

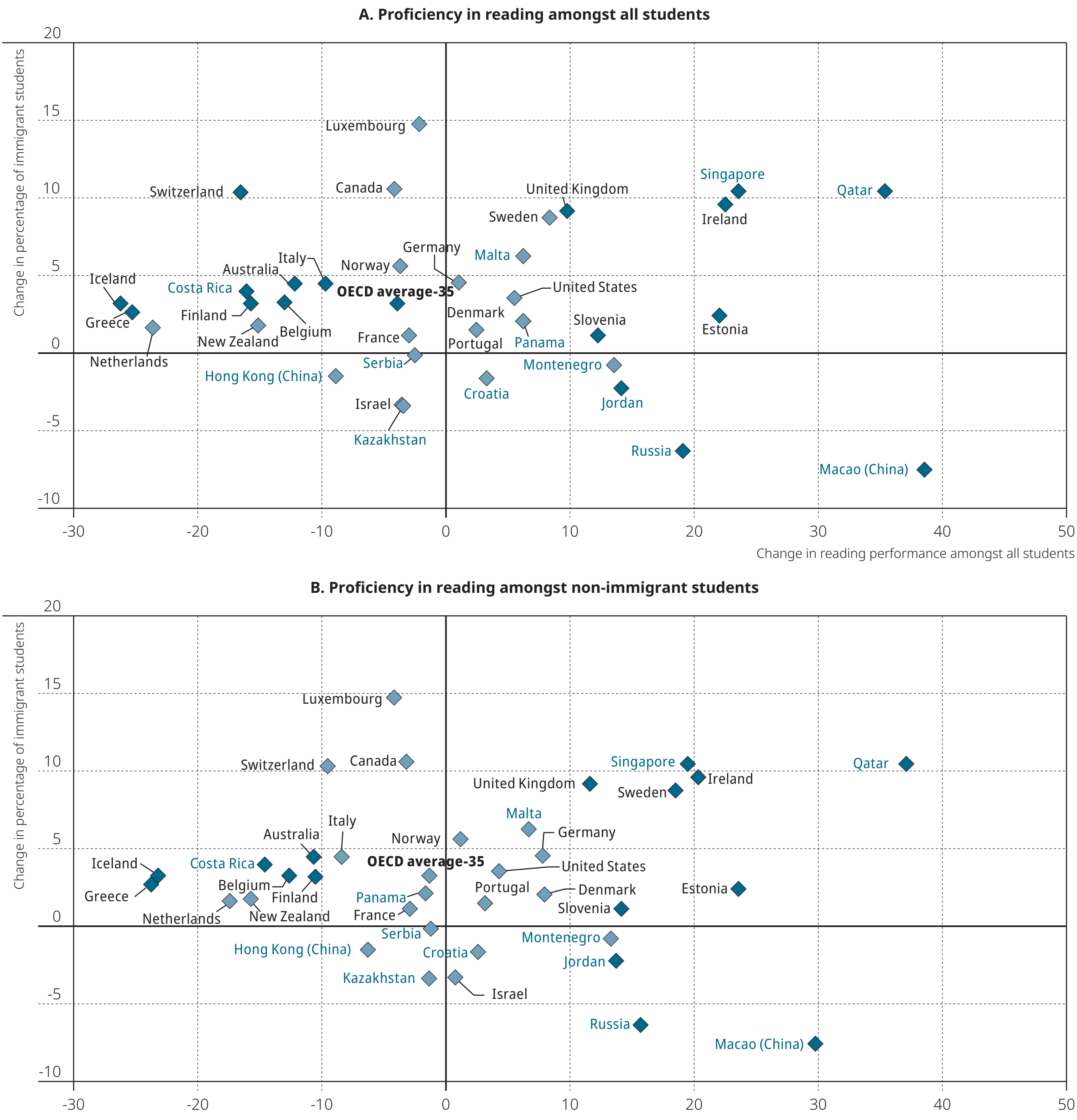
Countries and economies are ranked in descending order of the percentage change in the share of students with an immigrant background.

Source: OECD, PISA 2018 Database., Table II.B1.9.9.

StatLink https://doi.org/10.1787/888934038229

The results presented in Figure II.9.2 show the change in the proportion of students with an immigrant background between 2009 and 2018 against the change in reading performance amongst immigrant students (left side) and non-immigrant students (right side) over the same period. The figure shows no clear association between the change in the proportion of immigrant students and the change in average reading proficiency, for either group, in each country. In a few countries, a substantial increase in the proportion of immigrant students coincided with a decline in reading proficiency. However, in most countries the decline in reading performance was too small to suggest a direct effect of immigration on performance. Furthermore, countries whose performance declined considerably did not show a major increase in the proportion of immigrant students.

Figure II.9.2 **Change in proportion of immigrant students and change in reading proficiency**



Notes: Statistically significant changes in both the proportion of immigrant students and the score difference are shown in a darker tone (see Annex A3).

Only countries and economies that participated in both PISA 2009 and PISA 2018 and where the percentage of immigrant students is higher than 5% in 2018 are shown.

OECD average-35 refers to the arithmetic mean across OECD countries (and Colombia), excluding Austria and Spain.

Source: OECD, PISA 2018 Database, Table II.B1.9.9 and Table II.B1.9.10.

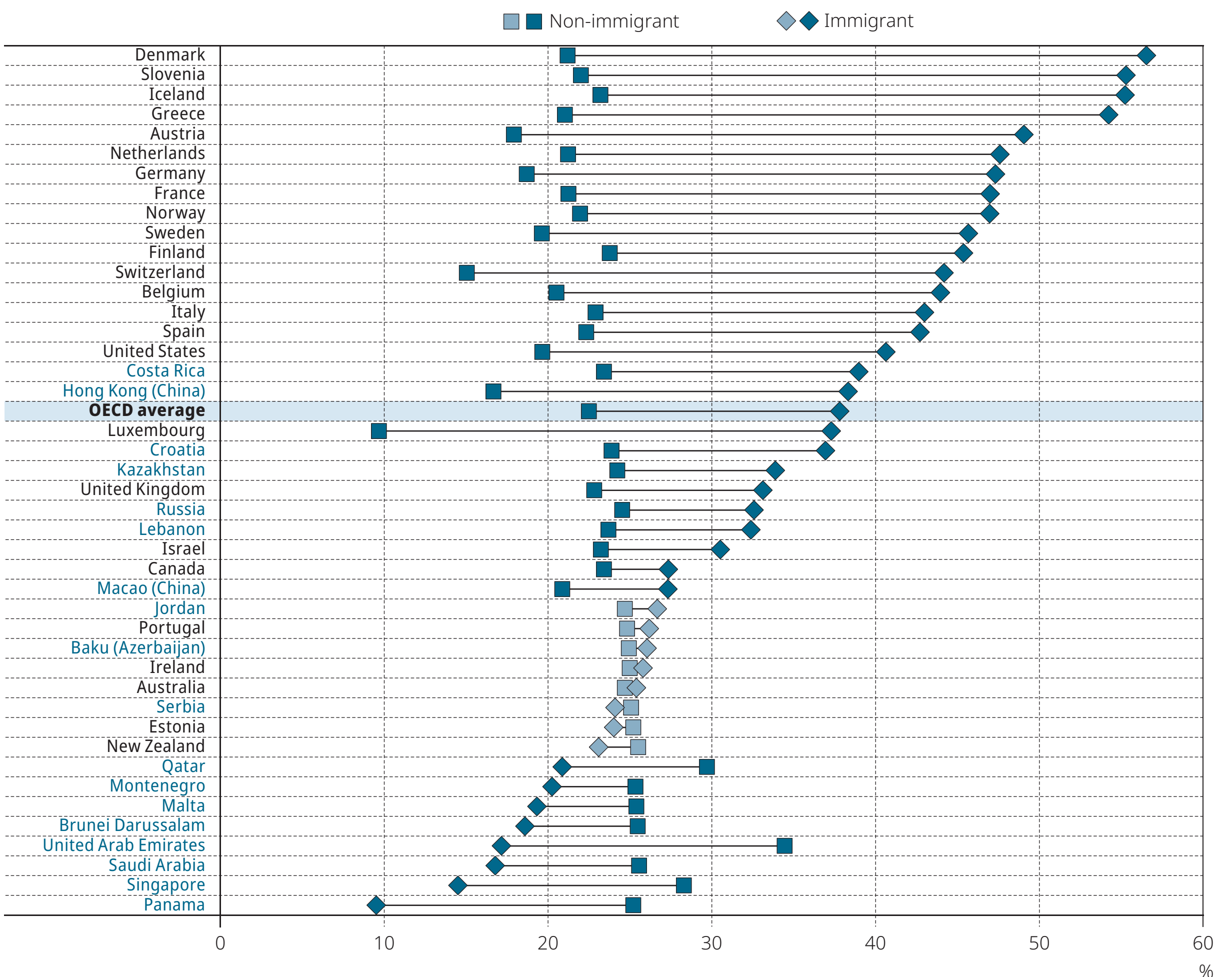
StatLink https://doi.org/10.1787/888934038248

While migration is commonly associated with a desire to improve living standards, in an increasing number of cases it is taking place under even more unfavourable, if not life-threatening, circumstances. In 2015, and in the years that followed, a large number of immigrants fled war in their home countries in the hope of finding refuge elsewhere. This phenomenon was particularly notable with recent migration to Europe. As such, it is not surprising that immigrant students in most countries and economies are more likely to be socio-economically disadvantaged (i.e. in the bottom quarter of the PISA index of economic, social and cultural status) than their native-born peers.

As shown in Figure II.9.3, the largest proportions of disadvantaged immigrant students were found in Austria, Denmark, Finland, France, Germany, Greece, Iceland, the Netherlands, Norway, Slovenia and Sweden, with more than 45% of first- and second-generation immigrant students in these countries/economies in the bottom quarter of socio-economic status in their country. These countries are mostly long-standing destination countries with old, low-educated immigrant populations or countries with large shares of recent migrants who were granted admission on humanitarian grounds. In this group of countries, the proportion of non-immigrant students who were disadvantaged was smaller, ranging between 17.9% in Austria and 23.7% in Finland.

Figure II.9.3 **Percentage of disadvantaged students, by immigrant background**

Percentage of students in the bottom quarter of the PISA index of economic, social and cultural status



Notes: Statistically significant differences between the percentage of immigrant and non-immigrant students are shown in a darker tone (see Annex A3).
Only countries and economies where the percentage of immigrant students is higher than 5% are shown.
Countries and economies are ranked in descending order of the percentage of disadvantaged students with an immigrant background.
Source: OECD, PISA 2018 Database, Table II.B1.9.1.
StatLink https://doi.org/10.1787/888934038267

The largest differences in the proportion of disadvantaged students amongst students with an immigrant background, on the one hand, and those without an immigrant background, on the other, were observed in Austria, Denmark, Greece, Iceland and Slovenia. In these countries/economies, the difference in the share of disadvantaged students between the two groups of students ranged between 30 and 35 percentage points. This finding was also confirmed by similar differences in average socio-economic status (Table II.B1.9.1).

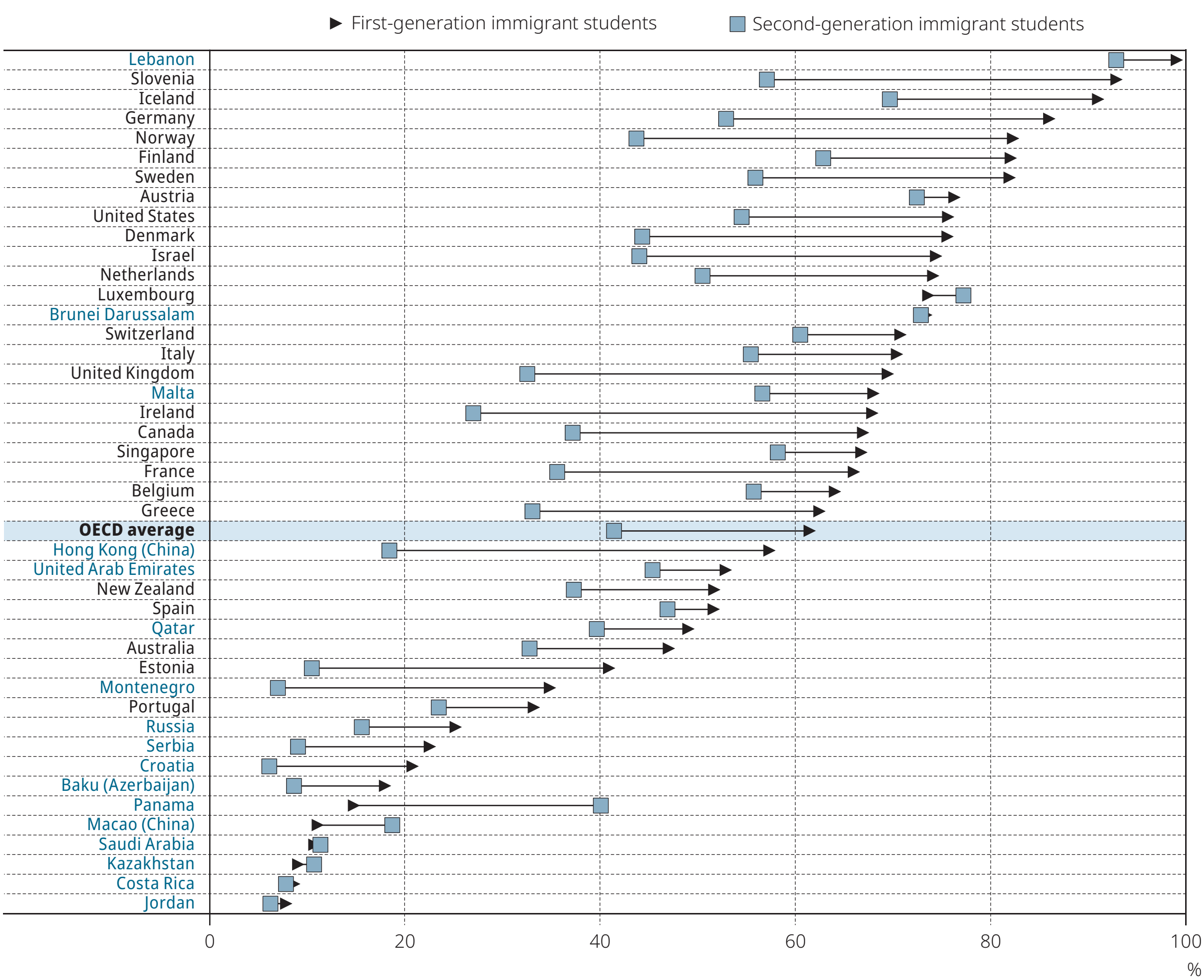
But this picture is changing in some countries as more highly skilled workers are migrating too. In Brunei Darussalam, Panama, Qatar, Saudi Arabia, Singapore and the United Arab Emirates, immigrant students in 2018 tended to be of higher socio-economic status than their non-immigrant peers. In these countries, immigrants tended to be the children of educated and well-paid expatriate professionals.

Migration flows also imply greater linguistic diversity and the need for immigrant students to learn the language of the destination country. On average across OECD countries in 2018, 48% of 15-year-old first- and second-generation immigrant students did not speak the language of the PISA assessment at home. Amongst the countries where more than 5% of students had an immigrant background, the proportion of those who did not speak the language of instruction at home was largest (i.e. more than 70%) in Austria, Brunei Darussalam, Finland, Iceland, Lebanon, Luxembourg and Slovenia. These countries had a variety of immigration systems. By contrast, in Costa Rica, Croatia, Jordan and Kazakhstan, less than 10% of immigrant students spoke a language at home that was different from the language of instruction (Table II.B1.9.2).

When considering linguistic differences between first- and second-generation immigrant students, it is clear that in most countries a smaller proportion of second-generation than first-generation immigrant students spoke a language at home that was different from the language of instruction. In Hong Kong (China), Ireland, Norway, Slovenia and the United Kingdom, the difference between first- and second-generation immigrant students in this measure exceeded 35 percentage points. In spite of the different immigration systems in these countries, immigrants were well-integrated linguistically (Figure II.9.4).

The two previous figures (II.9.3 and II.9.4) show that immigrant students are at a clear disadvantage in most countries when it comes to their socio-economic status and their use of the destination-country language. However, the results vary considerably between countries and between first- and second-generation immigrant students.

Figure II.9.4 **Percentage of immigrant students who do not speak the language of instruction at home**



Note: Countries where less than 5% of students had an immigrant background are not represented in the figure.

Countries and economies are ranked in descending order of the percentage of first-generation immigrant students who do not speak the language of instruction at home.

Source: OECD, PISA 2018 Database, Table II.B1.9.2.

StatLink https://doi.org/10.1787/888934038286

IMMIGRANT BACKGROUND AND PERFORMANCE IN READING

National and international studies show that immigrant students perform less well in school than their native-born peers (Marks, 2005[5]; Mostafa, 2010[6]). Reasons for these results vary widely. Some argue that immigrant students tend to lack the resources that their non-immigrant peers enjoy. For example, in many countries, the parents of immigrant students tend to be less educated, work in lower status jobs, earn lower incomes, hold less wealth, and are less proficient in the language of the destination country. Socio-economic disadvantages are also compounded by other factors, such as the students' own aspirations, parental attitudes towards schoolwork and academic success, and student behaviour (Kao and Thompson, 2003[7]). In the sections that follow, immigrant students' achievement in the PISA reading test is presented and discussed in the context of key student characteristics.

Average reading performance amongst immigrant students

Figure II.9.5 shows the reading performance amongst immigrant students and that of their non-immigrant peers. As expected, the findings show that, in most countries and economies, immigrant students scored worse in PISA 2018 than non-immigrants. The average score in reading amongst immigrant students across OECD countries was 452 points; non-immigrant students averaged 42 points higher. First-generation immigrant students scored 440 points in reading, on average, while second-generation immigrant students scored 465 points, on average (Table II.B1.9.3).

Amongst those countries where, in 2018, at least 5% of students had an immigrant background, the largest differences in performance between immigrant and non-immigrant students were observed in Austria, Belgium, Denmark, Finland, Germany, Iceland, the Netherlands, Slovenia and Sweden, with a gap of more than 60 score points in favour of non-immigrant students. Most of the countries in this group are long-standing destination countries with old populations of disadvantaged and low-educated immigrants; some had more recent inflows of immigrants admitted on humanitarian grounds.

By contrast, in Australia, Brunei Darussalam, Jordan, Macao (China), Panama, Qatar, Saudi Arabia, Singapore and the United Arab Emirates, immigrant students scored higher than or at least at the same level as their native-born peers. In some of these countries/economies, immigrant students tended to be of higher socio-economic status and have better-educated parents than their non-immigrant peers. The largest differences in favour of second-generation immigrant students compared with first-generation immigrants were observed in Germany, Israel, Portugal, Slovenia and Sweden.

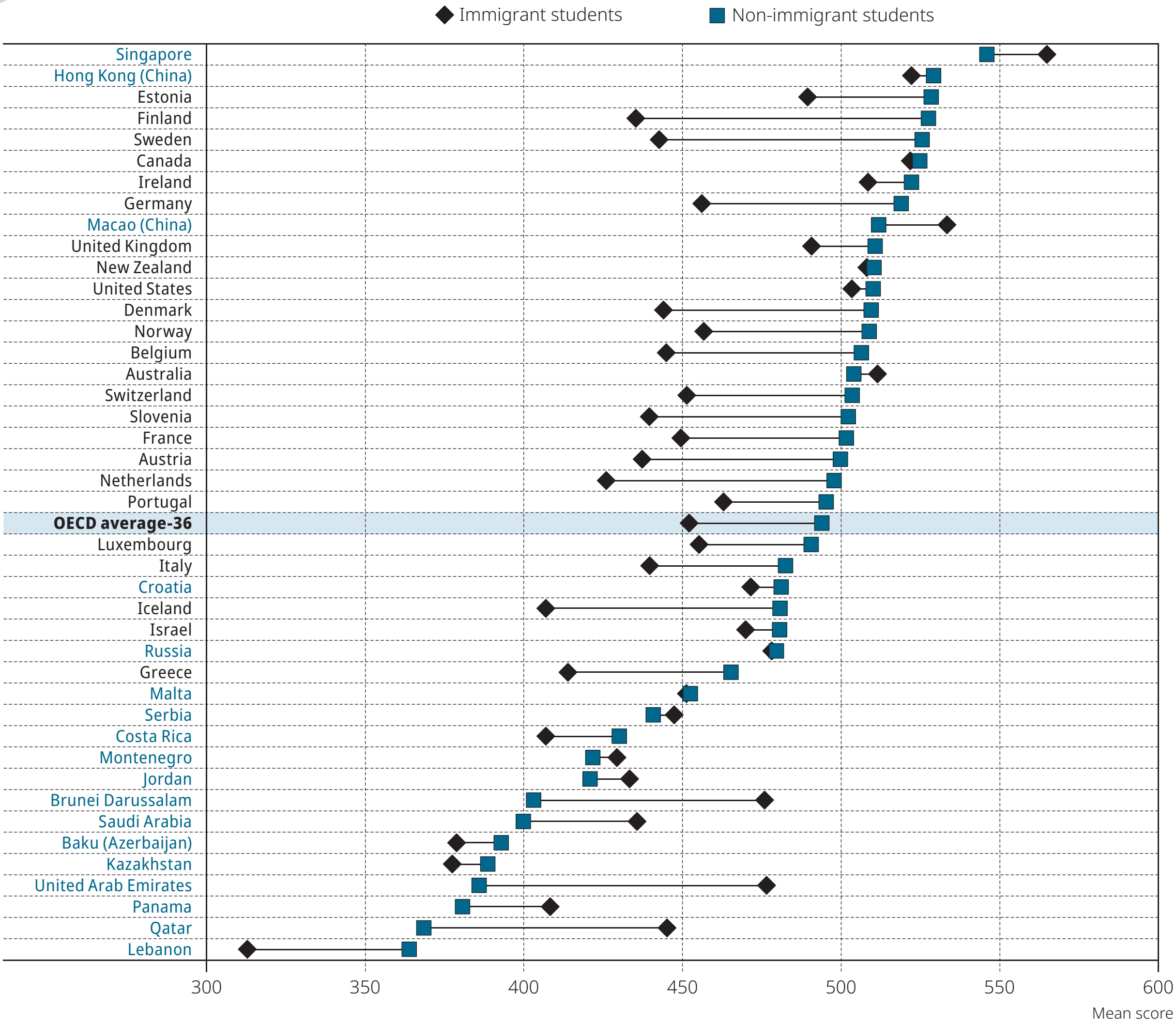
The findings also show that, even though immigrant students scored lower, in general, than students without an immigrant background, in some countries and economies their average score corresponded to high levels of proficiency. For instance, in Canada, Estonia, Hong Kong (China), Ireland, New Zealand, the United Kingdom and the United States, first- and second-generation immigrant students attained proficiency Level 3 in reading (480 score points on the reading scale), on average. This shows that in some of these high-performing education systems even disadvantaged groups exceeded minimum levels of proficiency in reading. When considering language spoken at home, the findings show that in many countries immigrant students who speak the language of instruction at home scored higher in reading than those who do not. The difference in their favour exceeds 50 score points in Brunei Darussalam, Germany, Luxembourg, Macao (China), Malta and Switzerland (Table II.B1.9.2). This indicates that not speaking the language of instruction represents an additional barrier to attaining high proficiency in reading – a challenge that would require support beyond the home environment.

Some of the differences in performance between immigrant and non-immigrant students were related to their socio-economic status. Figure II.9.6 shows that, on average across OECD countries, the difference in reading performance between immigrant and non-immigrant students – 41 score points – shrank to 24 points once students' and schools' socio-economic profile were accounted for. Differences shrank substantially in Belgium, Denmark, France, Germany, the Netherlands, Slovenia and Thailand.

However, even though socio-economic status might explain some of the difference in reading achievement, most of that difference remains unexplained. The largest differences in favour of native-born students, after accounting for students' and schools' socio-economic profile, were observed in Austria, Denmark, Estonia, Finland, Iceland, Lebanon, Norway and Sweden. In these countries the differences in reading performance in favour of non-immigrants exceeded 30 score points.

After accounting for students' and schools' socio-economic profile, in a small group of countries and economies, immigrant students outperformed their native-born peers. This was the case in Australia, Brunei Darussalam, Hong Kong (China), Jordan, Macao (China), Qatar, Saudi Arabia, the United Arab Emirates and the United States, with the largest differences observed in Qatar and the United Arab Emirates. In both of these latter countries, most immigrant students are the children of highly educated expatriates. In Canada, Croatia, Israel, Kazakhstan, Malta, Montenegro, Panama, Russia, Serbia and the United Kingdom, the difference in reading performance between immigrant and non-immigrant students was not statistically significant after accounting for students' and schools' socio-economic profile. This indicates that in this group of countries, differences in performance between immigrant and non-immigrant students were mainly related to differences in their socio-economic status.

Figure II.9.5 **Average performance in reading, by immigrant background**



Notes: Countries where less than 5% of students had an immigrant background are not represented in the figure.
OECD average-36 refers to the arithmetic mean across OECD countries (and Colombia), excluding Spain.
Countries and economies are ranked in descending order of the mean score in reading amongst non-immigrant students.
Source: OECD, PISA 2018 Database, Table II.B1.9.3.
StatLink https://doi.org/10.1787/888934038305

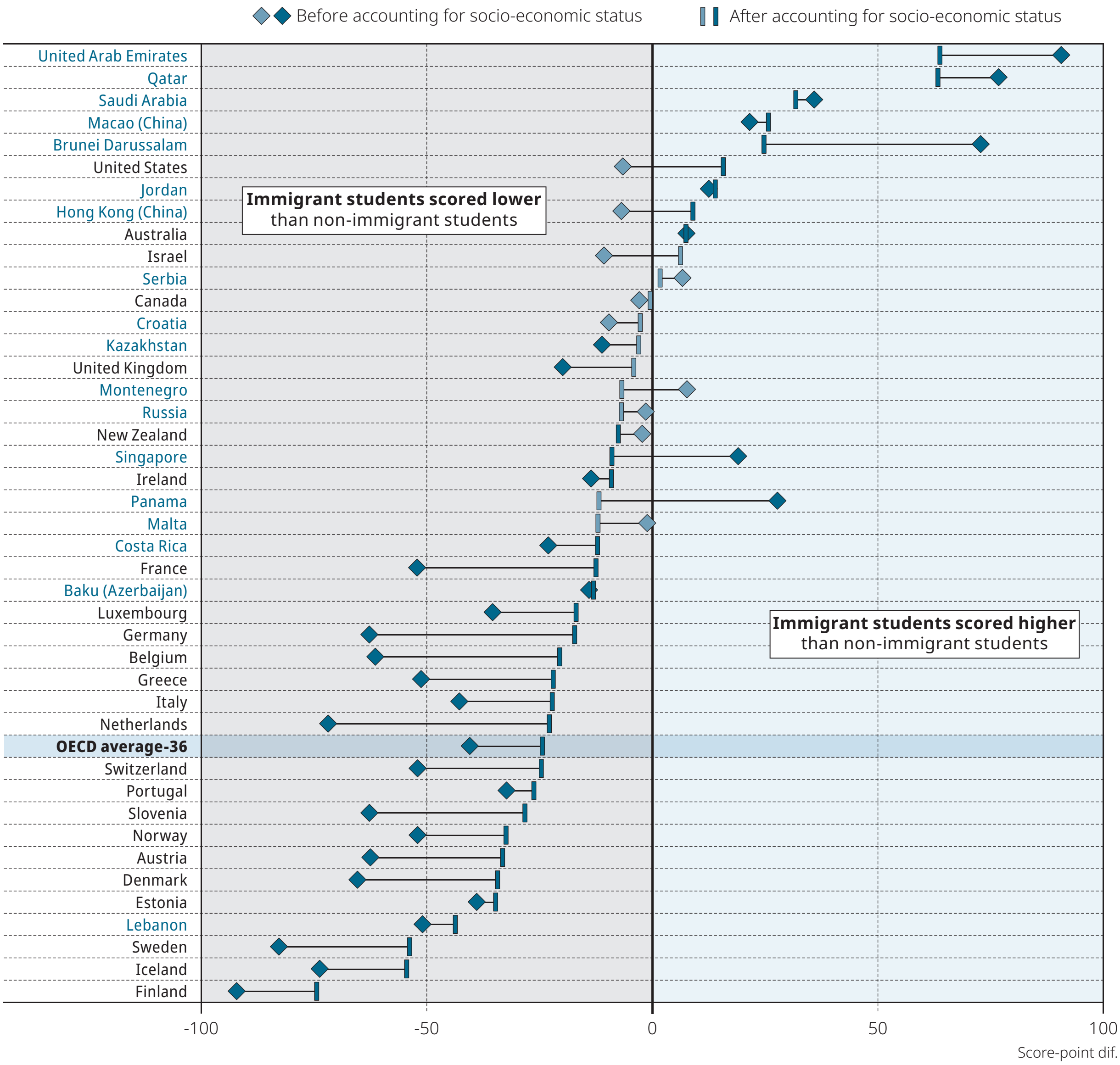
Moreover, when comparing the likelihood of students attaining the minimum level of performance in reading (Level 2), results show that, after accounting for students' and schools' socio-economic profile, immigrant students in Denmark, Estonia, Finland, Iceland, Lebanon and Sweden were more than twice as likely as their non-immigrant peers to score below proficiency Level 2 in reading, even after accounting for students' and schools' socio-economic profile. The reverse was observed only in a few countries/economies (Brunei Darussalam, Jordan, Macao (China), Qatar, Saudi Arabia, the United Arab Emirates and the United States), where immigrant students were more than 25% less likely than their non-immigrant peers to score below Level 2 in reading (Table II.B1.9.4).

Immigrant students' expectations of completing a tertiary degree

Students participating in PISA 2018 were asked whether they expect to pursue and complete a tertiary degree. Expectations about educational and professional goals are important because young immigrants, especially those from disadvantaged families, often hold higher educational and occupational aspirations than their native-born peers (Jonsson and Rudolphi, 2010[8]; Wicht, 2016[9]). PISA 2018 data confirmed this. Although the proportion of non-immigrant students who expect to complete a tertiary degree (69%) was slightly larger than that of immigrant students (67%), on average across OECD countries, the latter group was far more likely to expect to complete a tertiary degree (88% so reported) after accounting for students' and schools' socio-economic profile and students' performance in reading. Students' performance in reading was taken into account in order to adjust the estimate of students' expectations according to real performance (Table II.B1.9.5).

Figure II.9.6 **Difference in reading performance, by immigrant background**

Score-point difference in reading performance between immigrant and non-immigrant students, before and after accounting for socio-economic status

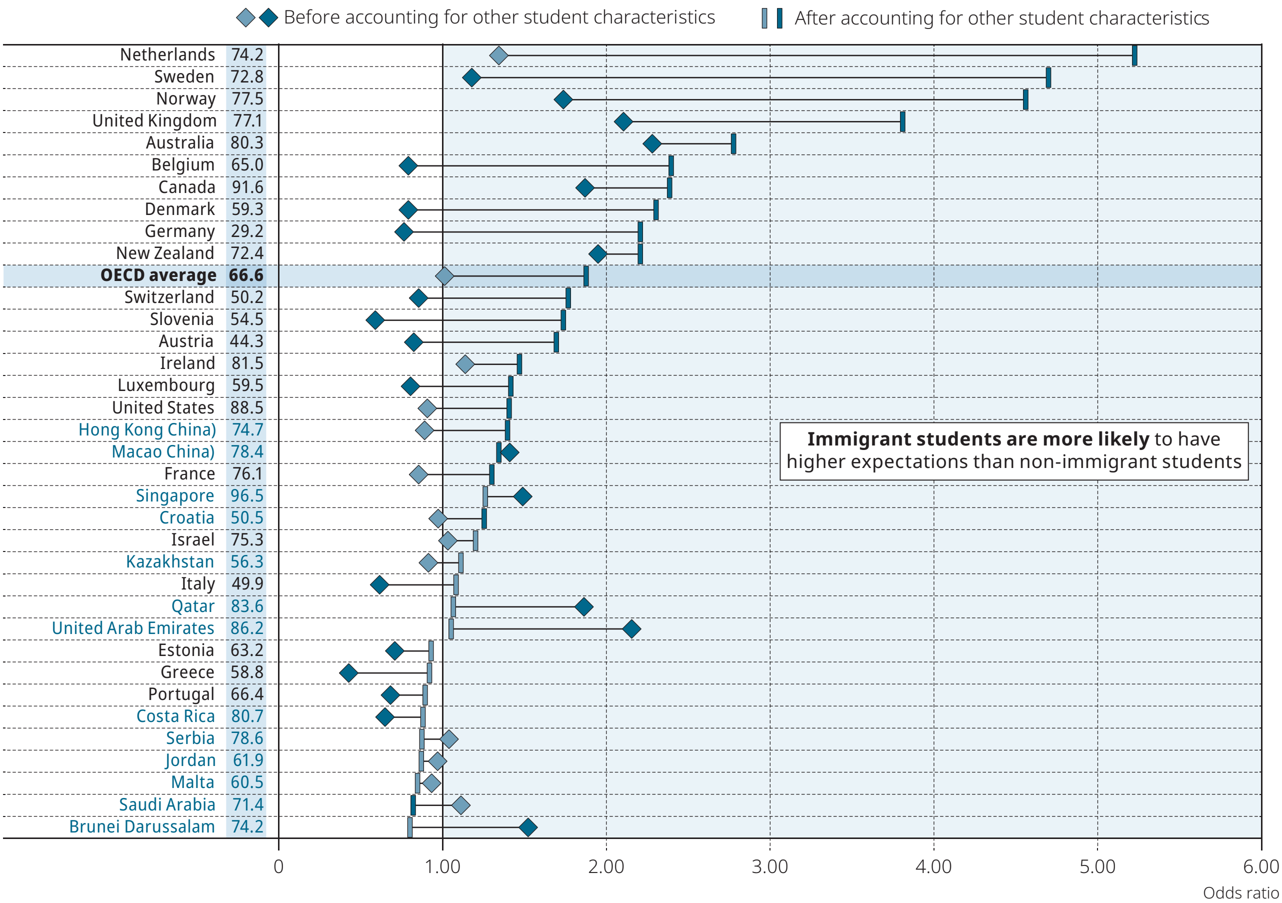


Notes: Statistically significant differences in reading performance are shown in a darker tone (see Annex A3).
Countries where less than 5% of students had an immigrant background are not represented in the figure.
OECD average-36 refers to the arithmetic mean across OECD countries (and Colombia), excluding Spain.
Countries and economies are ranked in descending order of the gap in reading performance related to immigrant background, after accounting for students' socio-economic status.
Source: OECD, PISA 2018 Database, Table II.B1.9.3.
StatLink https://doi.org/10.1787/888934038324

Figure II.9.7 shows that in Australia, Belgium, Canada, Denmark, Finland, Germany, the Netherlands, New Zealand, Norway, Sweden and the United Kingdom, students with an immigrant background were more than twice as likely as students without an immigrant background to expect to complete a tertiary degree, after accounting for students' and schools' socio-economic profile and students' performance in reading. This indicates that the poor performance of immigrant students and their relative socio-economic disadvantage may dampen their expectations of further education. But once performance was taken into account, immigrants were more likely than non-immigrant students to expect to complete tertiary education. These results may reflect factors other than academic performance, such as immigrant students' optimism and expectations of upward social mobility (Heath and Brinbaum, 2007[10]).

Figure II.9.7 **Students' expectations of completing tertiary education**

Likelihood that immigrant students expect to complete a tertiary degree compared to non-immigrant students, before and after accounting for students' socio-economic status and performance in reading



Notes: Statistically significant coefficients are marked in a darker tone (see Annex A3).
The percentage of immigrant students who expect to complete a tertiary degree is shown next to the country/economy name.
Countries where less than 5% of students had an immigrant background are not represented in the figure.
Countries and economies are ranked in descending order of students' expectations of completing tertiary education, after accounting for students' socio-economic status and performance in reading.
Source: OECD, PISA 2018 Database, Table II.B1.9.5.
StatLink https://doi.org/10.1787/888934038343

SEGREGATION OF IMMIGRANT STUDENTS IN EDUCATION SYSTEMS

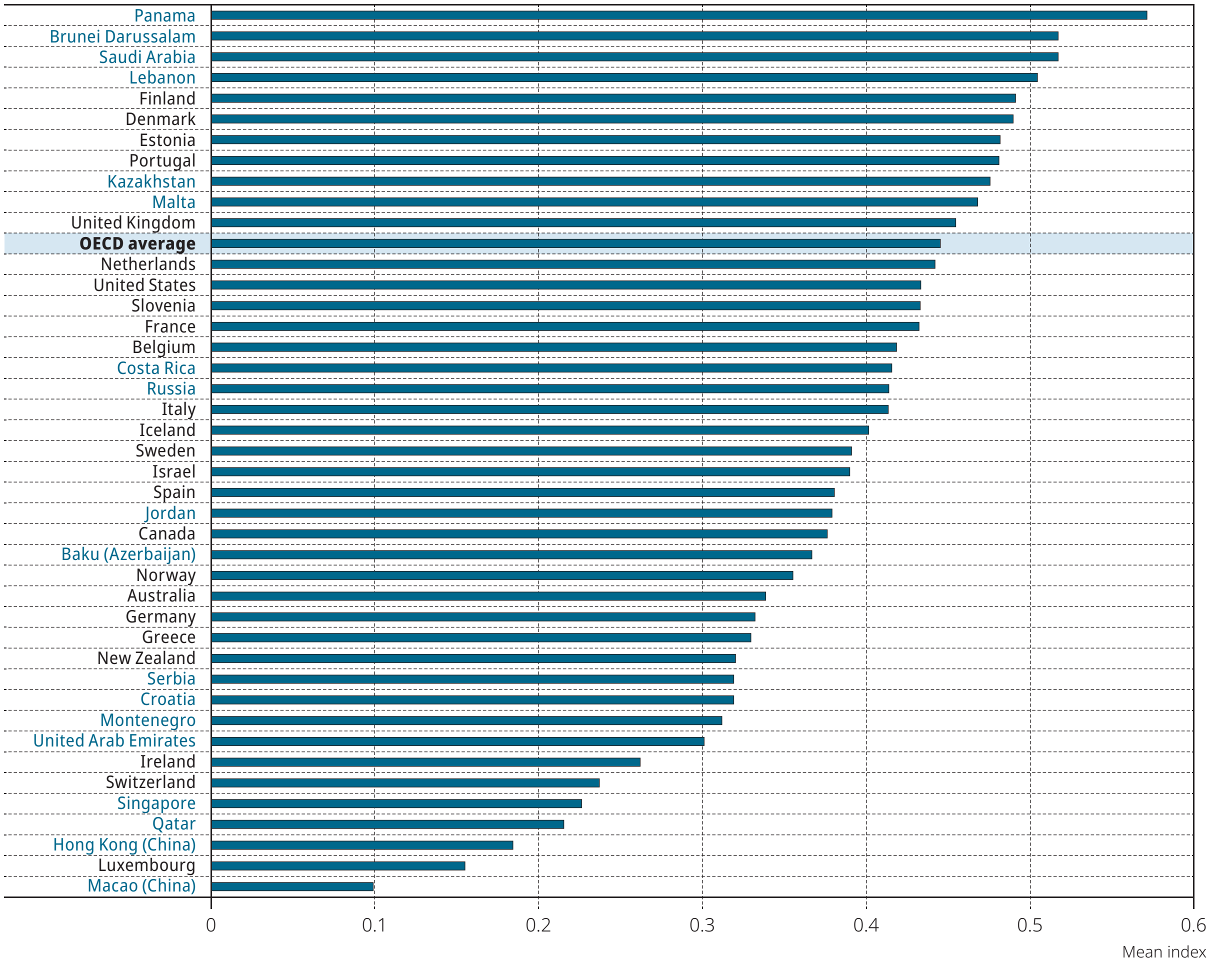
Facilitating the integration of immigrants into the economic and cultural life of their destination countries is a major focus of policy makers around the world. Education has traditionally been regarded as key to this process. However, many doubt the effectiveness of education in accomplishing this task given that education often reinforces or reproduces the prevailing social order (Corten and Dronkers, 2006[11]; Dronkers and Levels, 2007[12]). In the section that follows, segregation of immigrant students is examined across countries and economies. This subsection relies on the use of the normalised exposure index, known as the isolation index. This index is presented in detail in Chapter 4.

Figure II.9.8 illustrates the extent to which a student with an immigrant background is likely to be in contact with other immigrant students. The isolation index has a value close to 1 when immigrant students are concentrated in schools that non-immigrant students are unlikely to attend. The index was normalised to take into account the size of the population of immigrant students in each country. The analyses were also restricted to students in the modal grade for PISA.[1]

The index showed the largest values, exceeding 0.45, in Brunei Darussalam, Denmark, Estonia, Finland, Kazakhstan, Lebanon, Malta, Panama, Portugal, Saudi Arabia and the United Kingdom. In these countries and economies, immigrant students were likely to attend schools with other immigrant students, and thus were considered to be isolated from non-immigrant students. By contrast, in Hong Kong (China), Ireland, Luxembourg, Macao (China), Qatar, Singapore and Switzerland, the values in the index did not exceed 0.30.

Figure II.9.8 **Segregation of immigrant students across countries**

Index of isolation of immigrant students in school



Notes: Countries where less than 5% of students had an immigrant background are not represented in the figure.
The isolation index measures whether immigrant students are concentrated in some schools. The index is related to the likelihood of a representative immigrant student to be enrolled in schools that enrol not immigrant student. It ranges from 0 to 1, with 0 corresponding to no segregation and 1 to full.
Countries and economies are ranked in descending order in the index of isolation.
Source: OECD, PISA 2018 Database, Table II.B1.9.11.

StatLink https://doi.org/10.1787/888934038362

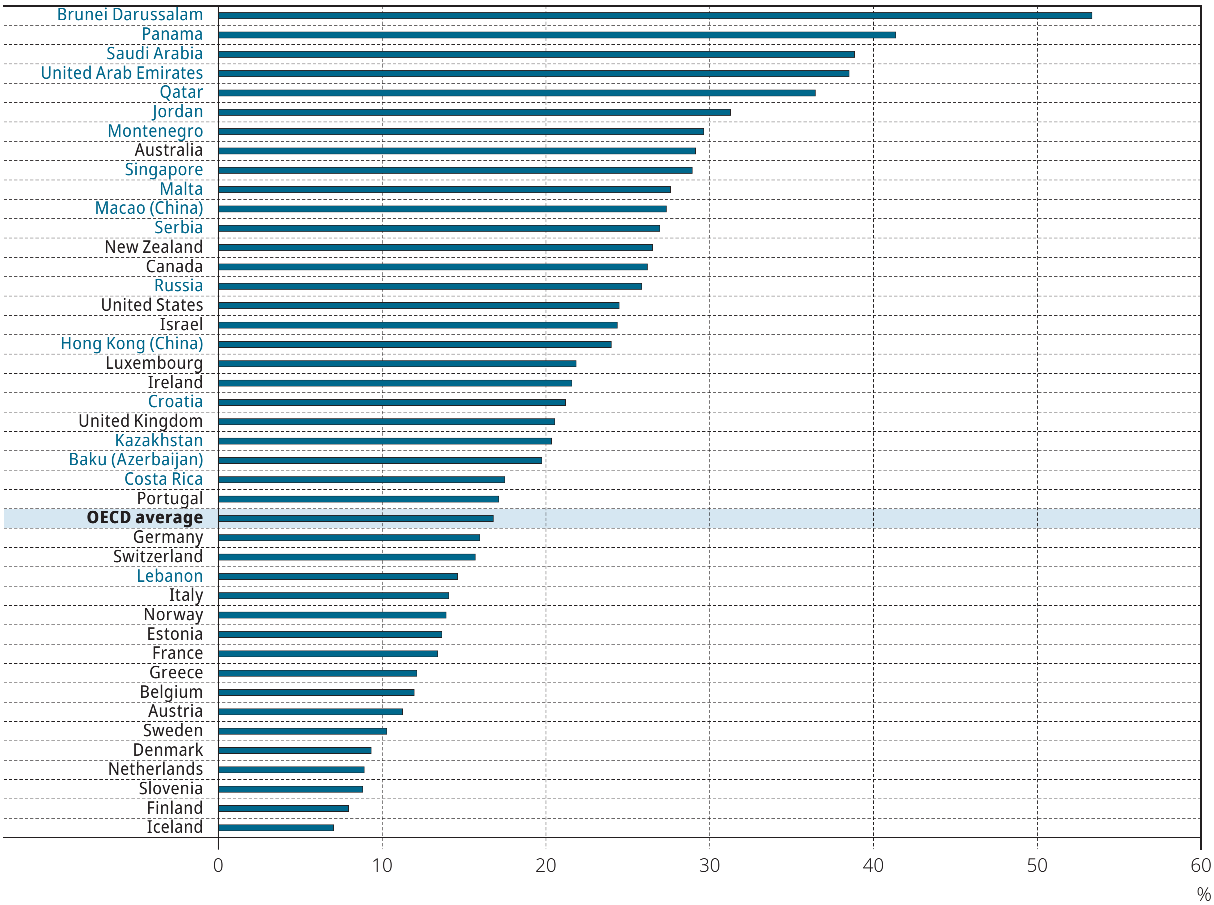
ACADEMIC RESILIENCE AMONGST IMMIGRANT STUDENTS

The first section of this chapter highlights the gap in performance in favour of non-immigrant students. But this general finding masks an interesting anomaly. In some countries, immigrant students outperformed their native-born peers, even though many of them were socio-economically disadvantaged (Sam et al., 2008[13]; Anagnostaki et al., 2016[14]). This finding could be a reflection of a greater sense of optimism or a stronger drive amongst immigrant students to integrate quickly into their destination country and move up the social ladder (Heath and Brinbaum, 2007[10]).

This subsection examines the resilience of immigrant students. Immigrant students are considered academically resilient if they are first- or second-generation immigrants and are able to attain the top quarter of reading performance in their country. In other words, they are immigrant students who beat the odds against them and perform well in school. The threshold to attain the top quarter of performance in reading varies across countries and economies, and depends on the overall distribution of scores within that country or economy. Academic resilience in this chapter is defined in terms of students' immigrant background, not their socio-economic status.

Figure II.9.9 presents the proportion of immigrant students who were academically resilient across those countries and economies where, in 2018, more than 5% of students had an immigrant background. The findings show that the proportion of resilient immigrant students varied between 53% in Brunei Darussalam and 7% in Iceland. In Brunei Darussalam, Jordan, Panama, Qatar, Saudi Arabia and the United Arab Emirates, more than 30% of immigrant students were academically resilient. On average across OECD countries, about 17% of immigrant students attained the top quarter of performance in reading in their country and can thus be considered resilient (Table II.B1.9.3).

Figure II.9.9 **Percentage of academically resilient immigrant students**



Note: Countries where less than 5% of students had an immigrant background are not represented in the figure.
Countries and economies are ranked in descending order of the percentage of resilient immigrant students.
Source: OECD, PISA 2018 Database, Table II.B1.9.3.
StatLink https://doi.org/10.1787/888934038381

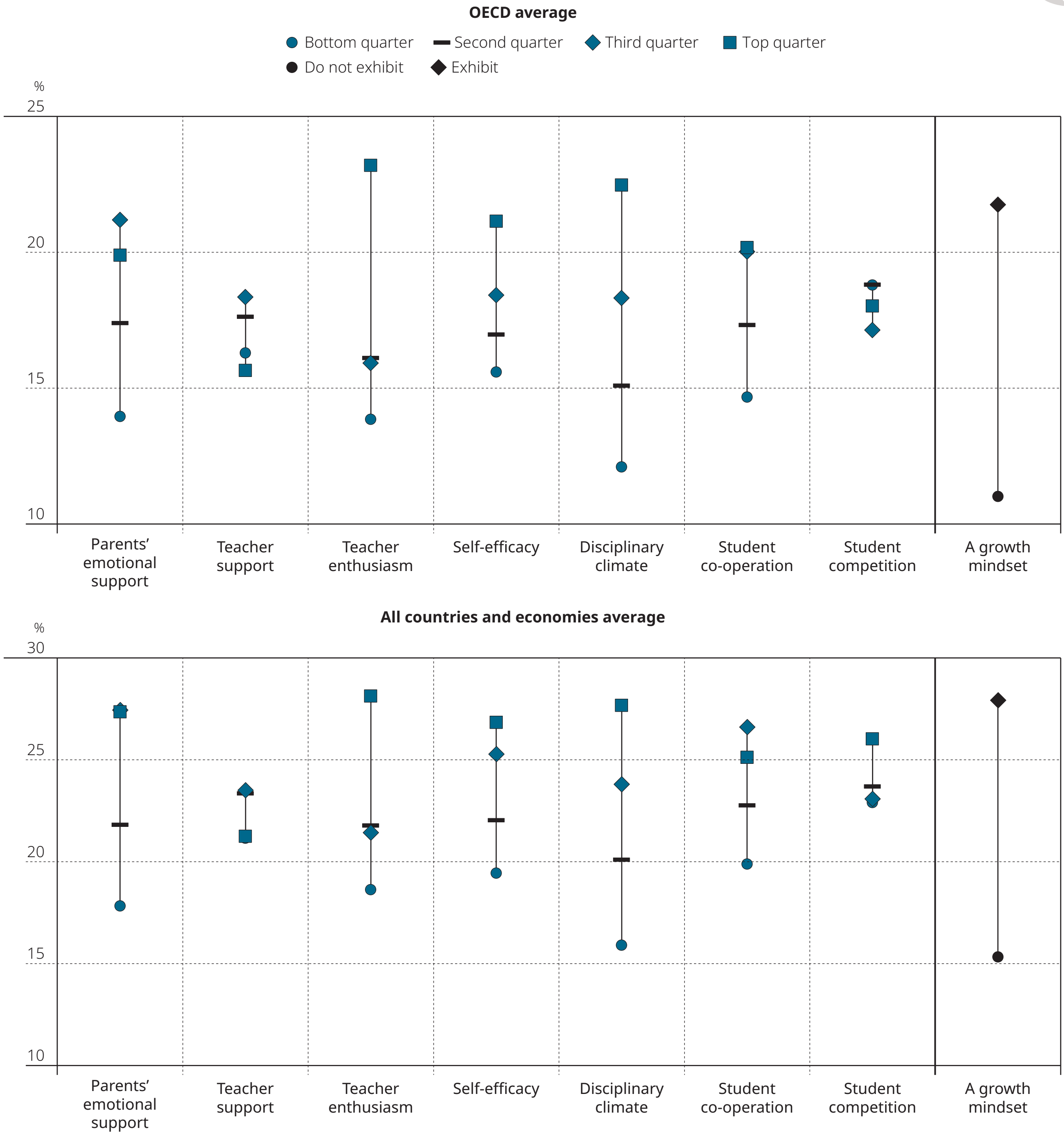
Contextual factors associated with academic resilience

Numerous factors were found to be associated with academic resilience. For instance, a larger share of resilient immigrant students was found amongst students who reported a more positive disciplinary climate in language-of-instruction classes and greater co-operation at school (Wang et al., 2010[15]). Moreover, students who believe that ability and intelligence are not fixed and can change over time (a growth mindset) were likely to be resilient because they believe that difficulties can be overcome through effort (Yeager and Dweck, 2012[16]). This subsection examines the association between academic resilience amongst immigrant students and key contextual indicators.

Figure II.9.10 examines the school, classroom and family contexts that are related to resilience amongst immigrant students. The figure presents the proportion of immigrant students who scored at or above the 75th percentile in reading within their countries/economies, by national quarter of key indices. Those differences do not account for variation in socio-economic status amongst immigrant students. The findings show a greater percentage of resilient immigrant students amongst those who reported greater parental support, perceived teacher enthusiasm, self-efficacy, co-operation in school and a more positive disciplinary climate in language-of-instruction class (i.e. these students were in the top quarter of the indices compared with students in the bottom quarter), and amongst those who exhibited a growth mindset. All of these differences were statistically significant.

By contrast, no significant difference in the proportion of academically resilient immigrant students was found between the top and bottom quarters of the indices of perceived competition at school and perceived teacher support. The findings held true for OECD countries and for all PISA-participating countries and economies. The largest differences in the proportion of resilient immigrant students were found between the top and bottom quarters of the indices of teacher enthusiasm, disciplinary climate at school, and for students who exhibited a growth mindset. Detailed results for each country and economy are provided in Table II.B1.9.6.

Figure II.9.10 **Percentage of academically resilient immigrant students, by quarter of key indicators**



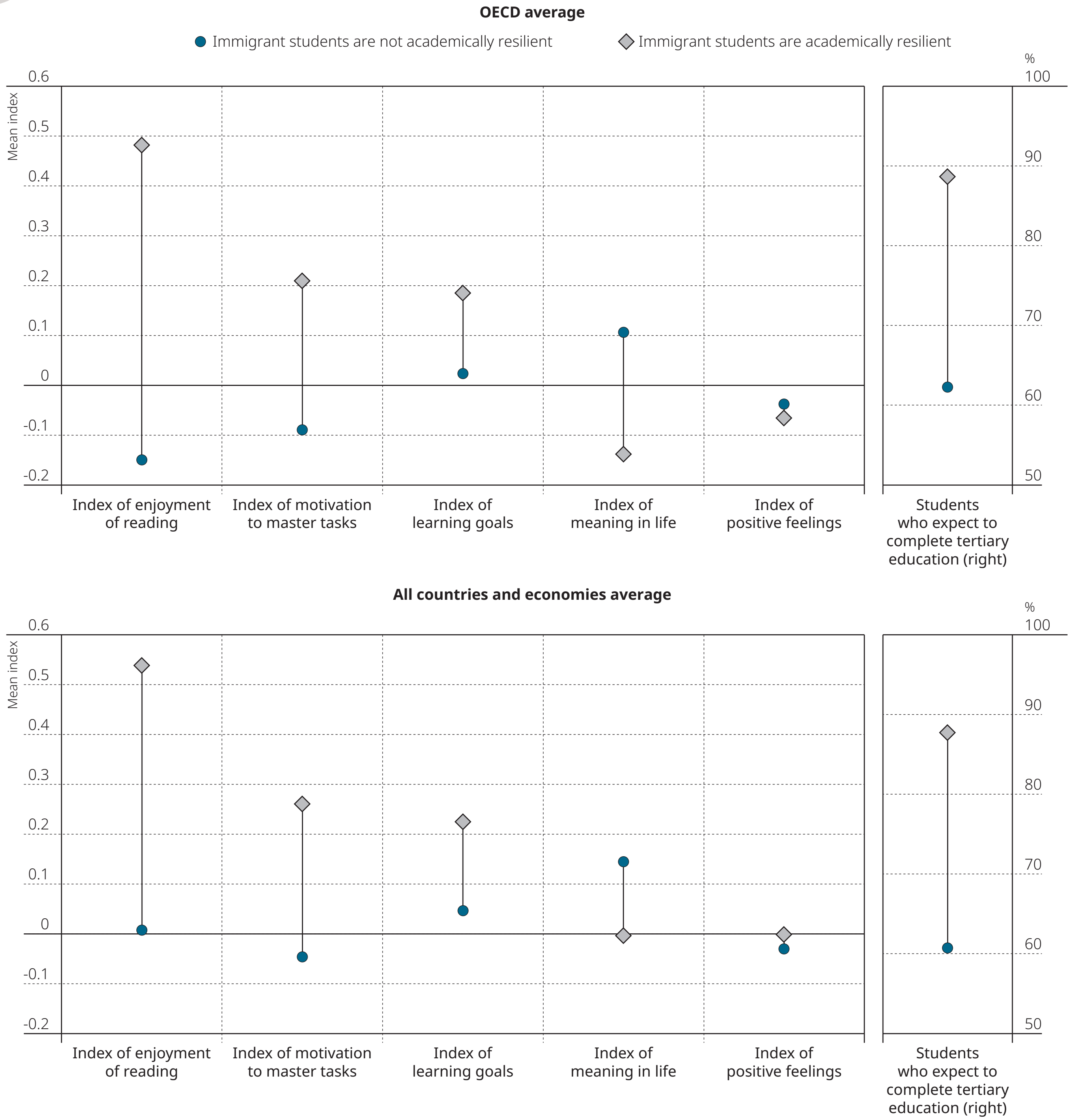
Note: For the index Self-efficacy and growth mindset, data are only available for the Flemish community in Belgium.
Source: OECD, PISA 2018 Database, Table II.B1.9.6

StatLink https://doi.org/10.1787/888934038400

Student's attitudes and dispositions associated with academic resilience

Figure II.9.11 explores the attitudes and dispositions of academically resilient immigrant students. The assumption is that immigrant students who are capable of overcoming adversity are more likely to exhibit positive attitudes towards their own education. This hypothesis turns out to be true across OECD countries and across many partner countries and economies. Academically resilient students reported greater enjoyment of reading, motivation to master tasks and goal orientation than their non-resilient peers. A larger proportion of resilient immigrant students than non-resilient immigrant students (a 27 percentage-point difference between the two groups, on average across OECD countries) reported that they expect to complete a tertiary degree. The difference in favour of resilient immigrant students was particularly large when considering enjoyment of reading and expectations of completing tertiary education. Results for each country and economy are provided in Table II.B1.9.7.

Figure II.9.11 **Students' attitudes and dispositions**



Note: For the index Meaning in life, data are only available for the Flemish community in Belgium.
Source: OECD, PISA 2018 Database, Table II.B1.9.7.
StatLink https://doi.org/10.1787/888934038419

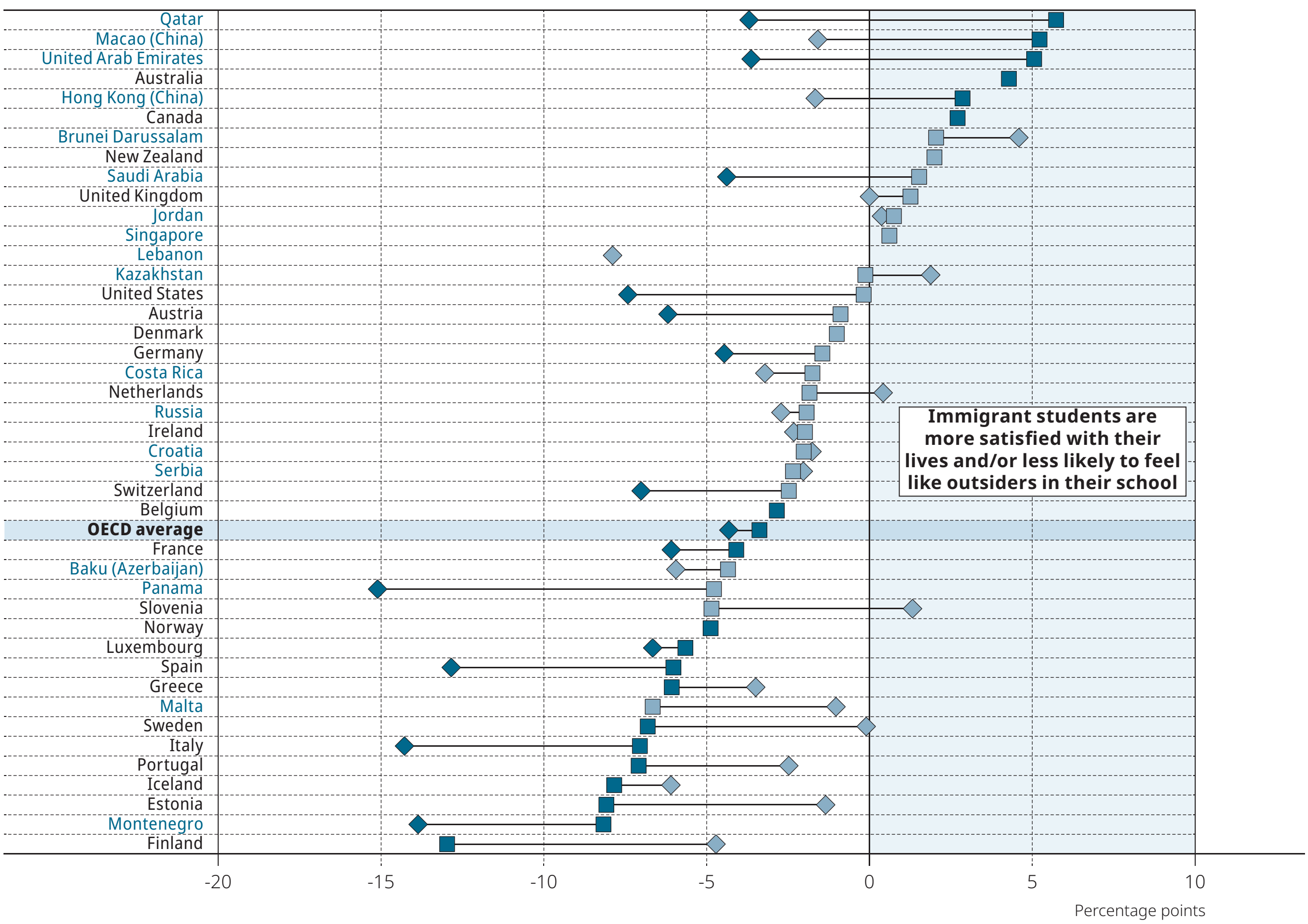
WELL-BEING OF IMMIGRANT STUDENTS

Students' well-being at school and beyond is increasingly recognised as a major area of interest for policy makers. Students spend a considerable amount of time at school learning, socialising with classmates, and interacting with teachers and staff members. Those experiences do not only affect students' academic performance, they shape students' outlook on life. This subsection explores two measures of student well-being: life satisfaction and sense of belonging at school. As in Chapter 3, students were considered to be satisfied with life if they reported a value of 7 or higher on the 10-point life-satisfaction scale, and to feel integrated at school if they disagreed with the statement: "I feel like an outsider at school".

In most countries, the results show that fewer immigrant students than non-immigrant students reported a value higher than 7 on the 10-point life-satisfaction scale. This was observed in Italy, Montenegro, Panama, Spain, Switzerland and the United States, where the differences between the two groups exceeded 7 percentage points and were statistically significant (Table II.B1.9.8). Similarly, in many countries immigrant students were more likely than their non-immigrant schoolmates to report feeling like an outsider at school. This was observed in Estonia, Finland, Iceland, Italy, Montenegro and Portugal; but the opposite was observed in Australia, Canada, Hong Kong (China), Macao (China), Qatar and the United Arab Emirates. On average across OECD countries, 64% of immigrant students reported that they are satisfied with their lives and 77% reported that they do not feel like an outsider at their school (Figure II.9.12).

Figure II.9.12 **Students' well-being and immigrant status**

Difference between immigrants and non-immigrant students in percentage of students who are



Notes: Some countries/economies did not ask their students about life satisfaction.

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

Countries where, in 2018, less than 5% of students had an immigrant background are not represented in the figure.

Countries and economies are ranked in descending order of the percentage change of immigrant students who reported that they are not feeling like an outsider.

Source: OECD, PISA 2018 Database, TableII.B1.9.8.

StatLink https://doi.org/10.1787/888934038438

Note

1. The "modal ISCED level" is defined here as the level in which at least one-third of the PISA sample is enrolled. In Albania, Argentina, Baku (Azerbaijan), Belarus, Beijing, Shanghai, Jiangsu and Zhejiang (China), Colombia, Costa Rica, the Czech Republic, the Dominican Republic, Indonesia, Ireland, Kazakhstan, Luxembourg, Macao (China), Morocco, the Slovak Republic, Chinese Taipei and Uruguay, both lower secondary (ISCED level 2) and upper secondary (ISCED level 3) schools meet this definition. In all other countries/economies, analyses are restricted to either lower secondary or upper secondary schools (see Annex C for details). In several countries, lower and upper secondary education are provided in the same school. As the restriction is made at the school level, some students from a grade other than the modal grade in the country may also be used in the analysis.

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10

Immigrant students' attitudes and dispositions

This chapter compares differences in selected indicators on students' attitudes and dispositions between immigrant and non-immigrant students. It examines how a range of aspects, including parental and teacher support, school climate, and co-operation at school, are related to those attitudes and dispositions.

Although immigrant students exhibit remarkable strengths, including strong family ties, a fundamental belief in the importance of education and optimism about the future, they often face a number of obstacles in their path towards success at school (Suárez-Orozco, Rhodes and Milburn, 2009[1]). These include poverty, unwelcoming host communities and discrimination, all of which have the potential to undermine their adjustment, well-being, self-esteem and engagement at school (Verkuyten, 1998[2]; O'Donnell, Schwab-Stone and Muyeed, 2002[3]; Williams, Neighbors and Jackson, 2003[4]). The capacity of immigrant students to overcome these challenges and to be resilient in the face of adversity should not only be judged by their academic success but also by their attitudes and dispositions towards school (OECD, 2018[5]).

This chapter builds on the preceding one with the aim of exploring immigrant students' attitudes and dispositions. The chapter compares differences between immigrant and non-immigrant students in selected indicators of students' attitudes and dispositions. It also examines how a range of aspects, including parental and teacher support, school climate, and co-operation at school, are related to immigrant students' attitudes and dispositions.

What the data tell us

- When comparing non-immigrant and immigrant students of similar socio-economic status and who perform at similar levels of proficiency in reading, immigrant students were more likely than non-immigrant students to feel they are competent in reading. This was observed in 18 countries and economies out of the 43 countries and economies where at least 5% of students had an immigrant background. Highest differences were observed in Denmark, Finland, Hong Kong (China), the Netherlands and Sweden. The reverse was observed only in eight countries and economies.
- The results show that, in 21 out of the 43 countries and economies where a substantial proportion of students had an immigrant background, immigrant students were more likely to report a goal-oriented attitude than their non-immigrant peers.
- Students who receive more parental support exhibited better attitudes and predispositions towards learning. Across all countries with a substantial proportion of immigrant students, the associations between parents' support and the index of learning goals were positive, significant and relatively strong. Similar results were found amongst students without an immigrant background.
- On average across OECD countries, immigrant students who speak the language of instruction at home reported that they feel they are competent in reading and have little difficulty in reading, compared with immigrant students who mainly speak another language at home.

THE ATTITUDES OF STUDENTS WITH AN IMMIGRANT BACKGROUND

One of the most important ingredients of success, both in school and beyond, is the motivation to achieve (OECD, 2013[6]). In many cases, students with less ability but more determination are better able to pursue and achieve their goals than students with more ability but who are unable to set objectives for themselves (Eccles and Wigfield, 2002[7]; Duckworth et al., 2011[8]). As PISA evidence has shown, immigrant students tend to have greater motivation to achieve than their non-immigrant peers (OECD, 2019[9]).

This section examines four indicators of attitudes related to immigrant students' motivation and engagement at school. They include students' perception of their own competence in reading, their perception of difficulty in reading, whether they persevere to master tasks, and whether they set goals for themselves. As in the preceding chapter, results are presented and discussed only for those countries and economies where, in 2018, at least 5% of students had an immigrant background. Results for all other countries and economies can be found in Annex B1.

Students' perception of their own competence and of reading difficulties

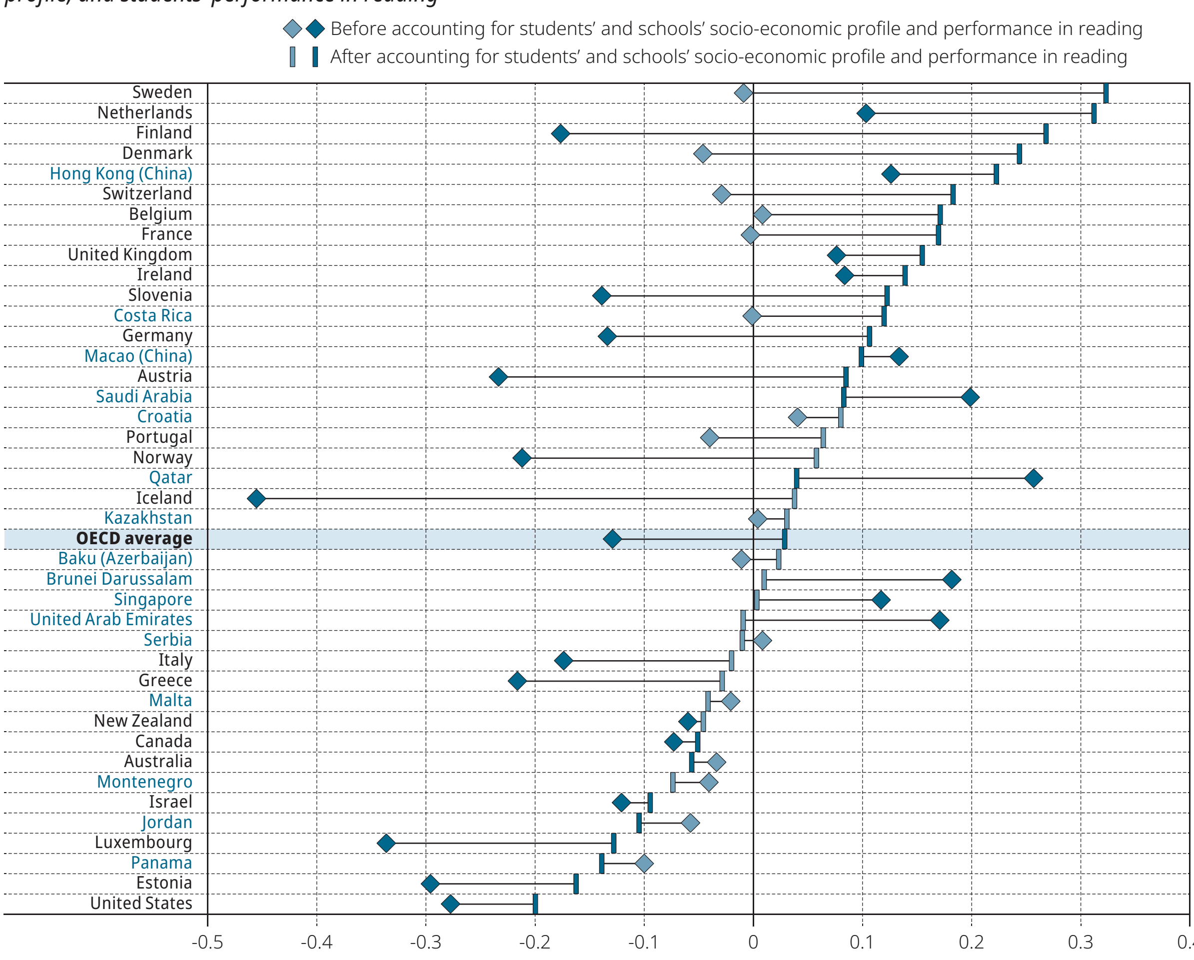
PISA 2018 asked students to describe their competence in reading and whether they encountered difficulties in learning how to read (see *PISA 2018 Results [Volume III]: What School Life Means for Students' Lives* (OECD, 2019[10]), and Chapter 8 in this volume, for more details). Students were asked whether they agree ("strongly agree", "agree", "disagree", "strongly disagree") with six statements: "I am a good reader"; "I am able to understand difficult texts"; "I read fluently"; "I have always had difficulty with reading"; "I have to read a text several times before completely understanding it"; and "I find it difficult to answer questions about a text". Students' responses were used to construct two indices: the index of perception of competence in reading and the index of perceived difficulty in reading. Positive values in the indices indicate greater perception of competence/difficulty.

In 15 countries, including Austria, Estonia, Greece, Iceland, Luxembourg, Norway and the United States, students without an immigrant background were more likely than their immigrant schoolmates to perceive that they are competent in reading. The reverse was observed in Brunei Darussalam, Hong Kong (China), Ireland, Macao (China), the Netherlands, Qatar, Saudi Arabia, Singapore, the United Arab Emirates and the United Kingdom, where students with an immigrant background were more likely than their non-immigrant peers to perceive that they are competent in reading. Differences between the two groups of students were particularly large in Brunei Darussalam, Qatar and Saudi Arabia (Table II.B1.10.1).

When students' and schools' socio-economic profile and students' performance in reading were accounted for, some of those differences changed, depending on how attitudes, immigrant background and socio-economic status were related to one another. In countries where immigrant students were more disadvantaged than students without an immigrant background, immigrant students at first appeared to be less confident in their reading ability than non-immigrant students. However, once socio-economic status and performance were accounted for, immigrant students appeared more confident of their reading ability than their non-immigrant peers. In other words, when comparing non-immigrant and immigrant students of similar socio-economic status and who perform at similar levels of proficiency in reading, immigrant students were more likely than non-immigrant students to feel they are competent in reading. This was observed in 18 countries and economies, including Denmark, Finland, Hong Kong (China), the Netherlands and Sweden. The reverse was observed in eight countries and economies. Figure II.10.1 shows the difference between immigrant and non-immigrant students in their perception of competence in reading before and after accounting for students' and schools' socio-economic profile and students' performance in reading.

Figure II.10.1 **Perception of competence in reading**

Difference between immigrant and non-immigrant students before and after accounting for students' and schools' socio-economic profile, and students' performance in reading



Notes: Statistically significant changes in the index are shown in a darker tone (see Annex A3).

Countries where less than 5% of students had an immigrant background are not represented in the figure.

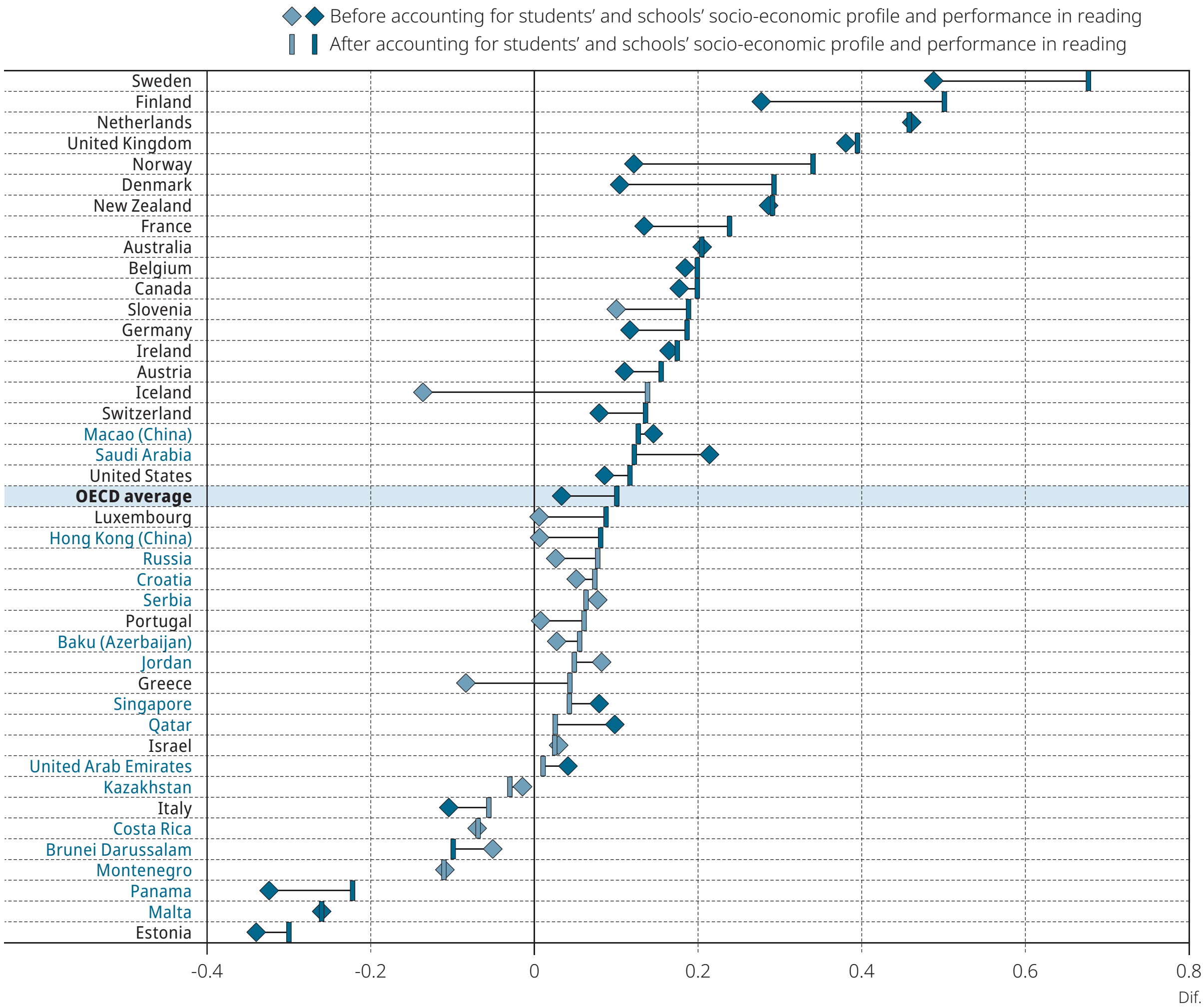
Countries and economies are ranked in descending order of the difference, after accounting for students' and schools' socio-economic profile and students' performance in reading.

Source: OECD, PISA 2018 Database, Table II.B1.10.2.

StatLink https://doi.org/10.1787/888934038457

Figure II.10.2 **Index of learning goals**

Difference between immigrant and non-immigrant students before and after accounting for students' and schools' socio-economic profile, and students' performance in reading



Notes: Statistically significant changes in the index are shown in a darker tone (see Annex A3).

Countries where less than 5% of students had an immigrant background are not represented in the figure.

Countries and economies are ranked in descending order of the difference, after accounting for students' and schools' socio-economic profile and students' performance in reading.

Source: OECD, PISA 2018 Database, Table II.B1.10.2.

StatLink https://doi.org/10.1787/888934038476

When it comes to perceptions of difficulty in reading, immigrant students in 21 countries and economies were more likely than non-immigrant students to report difficulty in reading. The differences were particularly large in Finland, Greece, Iceland, Italy and Luxembourg. The reverse was observed only in Brunei Darussalam, Hong Kong (China), Macao (China), Qatar and the United Arab Emirates (Table II.B1.10.1).

After accounting for students' and schools' socio-economic profile and students' performance in reading, differences shrank but remained statistically significant for some countries, but not on average across OECD countries. In this context, immigrant students in Australia, Canada, Greece, Israel, Italy, Luxembourg, New Zealand and the United States were more likely than their non-immigrant peers to report that they have difficulty in reading. By contrast, after accounting for these factors, immigrant students in Belgium, Brunei Darussalam, Denmark, Hong Kong (China), Ireland, the Netherlands, Qatar, Sweden, the United Arab Emirates and the United Kingdom were less likely than non-immigrant students to report having difficulty in reading (Table II.B1.10.2).

Goal orientation and work mastery

Goal orientation is a key ingredient of academic success. Students who are able to set clear and achievable goals are likely to reach those goals by investing effort, even if they are facing difficulty. PISA 2018 asked students to respond to three statements about their academic goals: "My goal is to learn as much as possible"; "My goal is to completely master the material presented in my classes"; "My goal is to understand the content of my classes as thoroughly as possible". Students' responses ("not at all true of me", "slightly true of me", "moderately true of me", "very true of me", "extremely true of me") were combined to construct the index of learning goals. Higher values in the index indicate greater goal orientation; for a full description of this index, see *PISA 2018 Results ([Volume III]: What School Life Means for Students' Lives* (OECD, 2019[10]).

PISA 2018 results show that, in 21 of the 43 countries and economies where, in 2018, more than 5% of students had an immigrant background, immigrant students were more likely to report a goal-oriented attitude than their non-immigrant peers. Differences were especially large in Finland, the Netherlands, Norway, Sweden and the United Kingdom, exceeding 0.3 of a point in the index of learning goals. The reverse was observed in only five countries (Table II.B1.10.1). On average across OECD countries, the difference in goal orientation between immigrant and non-immigrant students was small, but statistically significant. On average, immigrant students were more likely to report goal-oriented attitudes than their non-immigrant schoolmates, even after accounting for students' and schools' socio-economic profile and students' performance in reading (Figure II.10.2).

To determine the extent of students' motivation to master tasks, PISA asked students whether they agree or disagree ("strongly disagree", "disagree", "agree", "strongly agree") with four statements about work mastery, including: "I find satisfaction in working as hard as I can"; and "Once I start a task, I persist until it is finished" (for more details about how the index of motivation to master tasks was constructed, see *PISA 2018 Results [Volume III]: What School Life Means for Students' Lives* (OECD, 2019[10])). This construct is likely to be correlated with goal orientation. Students who set and pursue their goals are likely to work hard to achieve them. Hence, immigrant and non-immigrant students' responses to the task-mastery statements were similar to their responses to the goal-orientation statements, although differences between the two groups were smaller in the set of responses to the statements about work mastery (Tables II.B1.10.1 and II.B1.10.2).

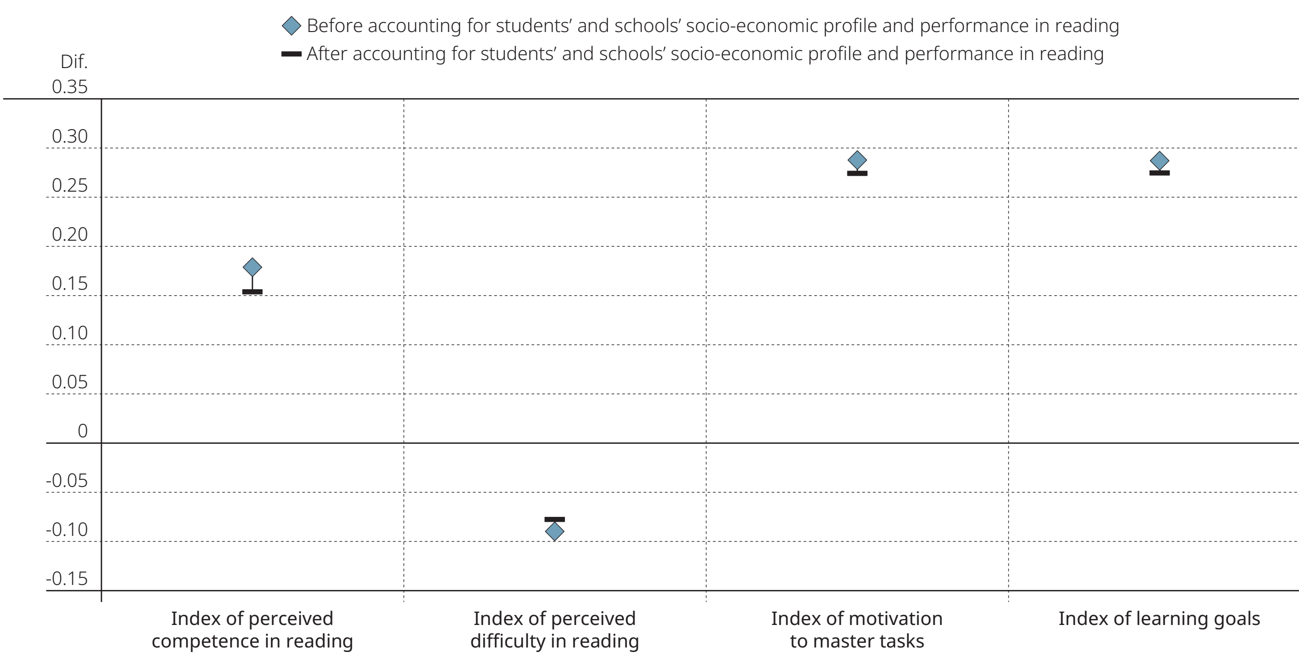
In summary, even though immigrant students may lag behind their non-immigrant peers in performance, in many countries, they showed more positive attitudes and dispositions towards learning, after accounting for their socio-economic status and academic achievement. Immigrant students' positive attitudes could be interpreted as a reflection of their optimism about their future prospects and of their willingness – and proven ability – to overcome the odds against them.

FACTORS RELATED TO POSITIVE STUDENT ATTITUDES

Positive student attitudes and dispositions are related to many environmental factors. This section explores the association between the attitudes and dispositions of immigrant and non-immigrant students and a range of those factors, including parent and teacher support, language spoken at home, student co-operation and the disciplinary climate at school.

Figure II.10.3 **Immigrant students' attitudes and parents' support**

Change in key indices associated with a one-unit increase in the index of parents' support, OECD average



Note: All changes in the index are statistically significant (see Annex A3).
Source: OECD, PISA 2018 Database, Table II.B1.10.3.
StatLink https://doi.org/10.1787/888934038495

Parents' emotional support

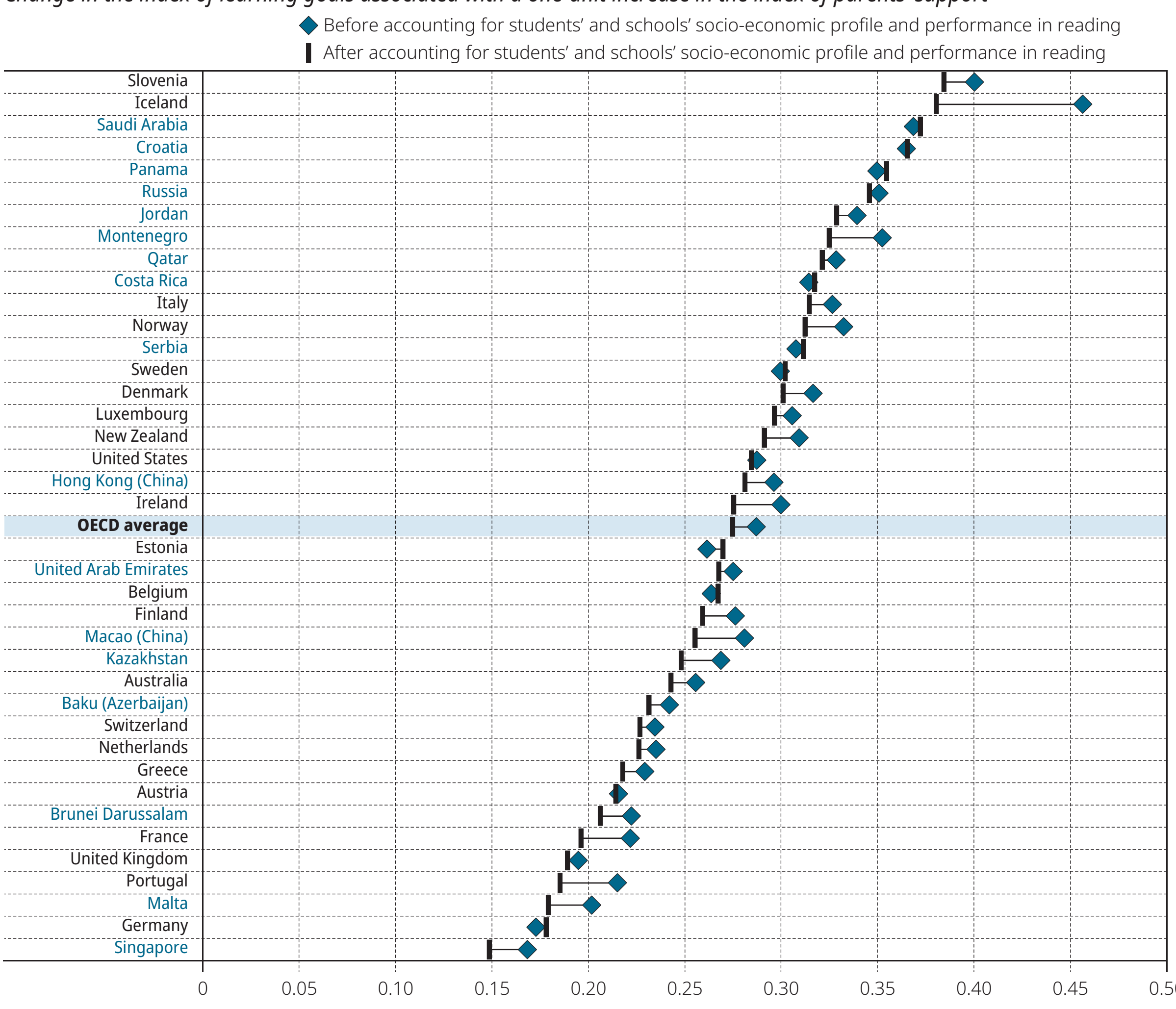
Establishing close relationships amongst immigrant families, and between immigrant families and the host community, may provide a network of support that would benefit immigrant students (Sabatier and Berry, 2008[11]; Telzer and Fuligni, 2009[12]; Güngör and Perdu, 2017[13]). It is widely recognised that parental support, in particular, is of great importance for students. Since many policies have been designed with the aim of enhancing parental involvement in their child's education, it would be useful to examine the possible association between parents' support and students' dispositions and attitudes.

PISA 2018 asked students whether they agree ("strongly agree", "agree", "disagree", "strongly disagree") with three statements about their parents' emotional support: "My parents support my educational efforts and achievements"; "My parents support me when I am facing difficulties at school"; and "My parents encourage me to be confident". Students' responses were used to construct the index of parents' emotional support. Positive values in the index indicate greater levels of support.

Figure II.10.3 shows the average association across OECD countries between parents' emotional support and immigrant students' attitudes and dispositions, before and after accounting for students' and schools' socio-economic profile. There was a strong positive association between parental support and the indices of learning goals and motivation to master tasks. More precisely, a one-unit increase in the index of parents' emotional support was associated with a 0.25-point increase in the two indices.

Figure II.10.4 **Parents' support and immigrant students' learning goals**

Change in the index of learning goals associated with a one-unit increase in the index of parents' support



Notes: All changes in the index are statistically significant (see Annex A3).
Countries where less than 5% of students had an immigrant background are not represented in the figure.
Countries and economies are ranked in descending order of the difference after accounting for students' and schools' socio-economic profile, and students' performance in reading.
Source: OECD, PISA 2018 Database, Table II.B1.10.3.
StatLink https://doi.org/10.1787/888934038514

The association between parents' support and students' perceived competence in reading was positive but moderate. A one-unit increase in the index of parents' emotional support was associated with a rise of 0.15 of a point in the index of students' perceived competence. The association between parents' support and perceived difficulty in reading was negative – students who reported low parental support were more likely to perceive themselves as having difficulty in reading – but much weaker, on average across OECD countries (Table II.B1.10.3).

A strong association was observed between the index of parents' emotional support and the index of learning goals, both of which are based on students' responses (Figure II.10.4). This positive association indicates that immigrant students (and students in general) are better able to set and pursue their education goals when their parents support their learning efforts and help them overcome difficulty at school. The association varied between 0.38 of a point in Slovenia and 0.15 of a point in Singapore, and was statistically significant in all countries. In Croatia, Iceland, Panama, the Russian Federation, Saudi Arabia and Slovenia, the association was strong – exceeding 0.35 of a point.

Interestingly, the differences between immigrant and non-immigrant students in the strength of the association between parents' support and the four student attitudes were small. This suggests that both groups of students would benefit more or less equally from greater parental support.

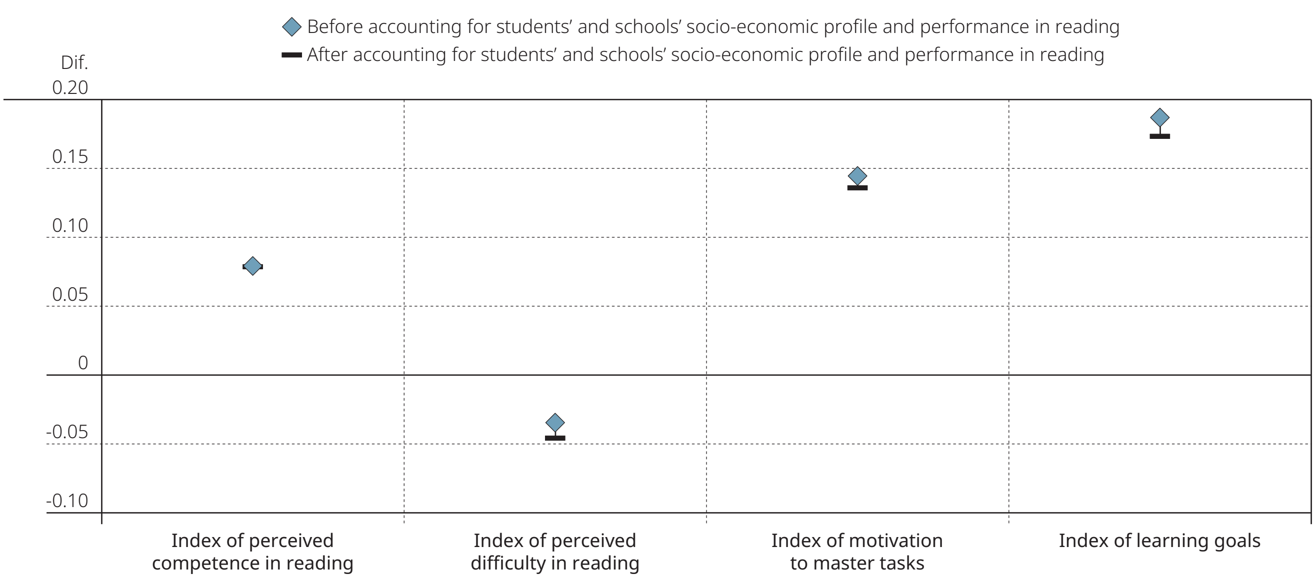
Teacher support

Most education experts agree that teacher support is an important factor affecting students' achievement at school. Students need to feel that their teachers are involved in their education and that they care about their students' well-being (Klem and Connell, 2004[14]). Existing evidence points to a strong association between teacher support, on the one hand, and engagement at school and academic performance, on the other (Croninger and Lee, 2001[15]; Roderick and Engel, 2001[16]). This subsection examines the association between teacher support and students' attitudes. In particular, it focuses on students' motivation to master tasks and on their goal orientation.

Students who participated in PISA 2018 were asked about the frequency ("every lesson", "most lessons", "some lessons", "never or hardly ever") with which the following occur in their language-of-instruction class: "The teacher shows an interest in every student's learning"; "The teacher gives extra help when students need it"; "The teacher helps students with their learning"; and "The teacher continues teaching until the students understand". Students' responses were used to construct the index of teacher support. Positive values in the index indicate greater levels of support. This index is also examined in *PISA 2018 Results (Volume III): What School Life Means for Students' Lives* (OECD,2019[10]).

Figure II.10.5 **Immigrant students' attitudes and teacher support**

Change in key indices associated with a one-unit increase in the index of teacher support, OECD average



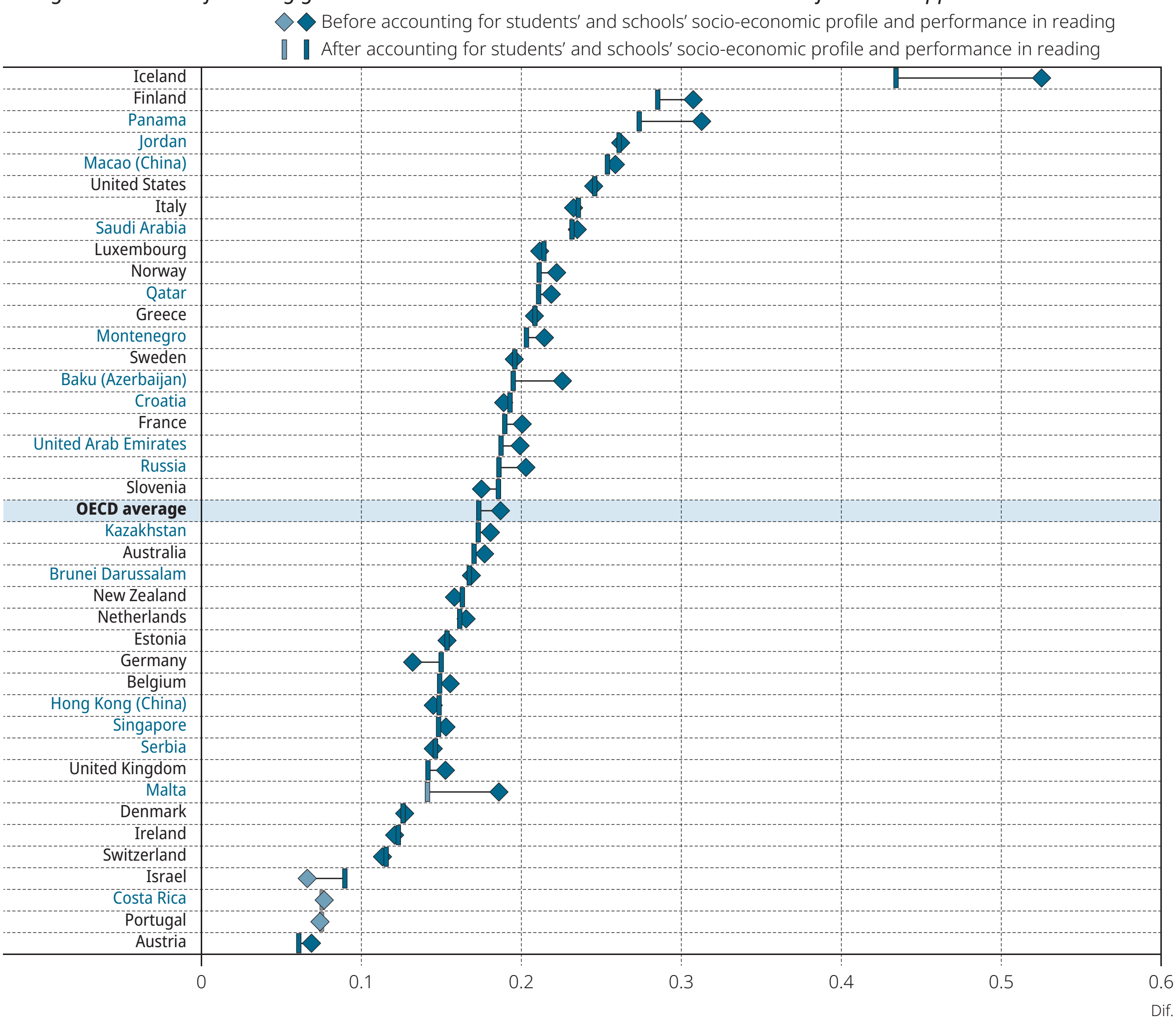
Note: All changes in the index are statistically significant (see Annex A3).
Source: OECD, PISA 2018 Database, Table II.B1.10.5.
StatLink https://doi.org/10.1787/888934038533

Figure II.10.5 presents the association between teacher support and four key student attitudes and dispositions across OECD countries. Teacher support was positively and significantly associated with immigrant students' perceptions of competence in reading, their motivation to master tasks and their ability to set and pursue their learning goals; it was negatively associated with perceptions of difficulty in reading. The associations were moderate for motivation to master tasks and goal orientation, and weak for the two other indices. No major differences were observed between immigrant and non-immigrant students. The associations remained almost unchanged after accounting for students' and schools' socio-economic profile.

On average across OECD countries, an increase of one unit in the index of teacher support was associated with a rise of 0.17 of a point in the index of learning goals, after accounting for students' and schools' socio-economic profile. Associations exceeded 0.25 of a point in Finland, Iceland, Jordan, Macao (China) and Panama; they were non-significant in only three countries (Figure II.10.6).

Figure II.10.6 **Teacher support and immigrant students' learning goals**

Change in the index of learning goals associated with a one-unit increase in the index of teacher support



Notes: Statistically significant changes in the index are shown in a darker tone (see Annex A3).
Countries where less than 5% of students had an immigrant background are not represented in the figure.
Countries and economies are ranked in descending order of the difference after accounting for students' and schools' socio-economic profile, and students' performance in reading.
Source: OECD, PISA 2018 Database, Table II.B1.10.5.
StatLink https://doi.org/10.1787/888934038552

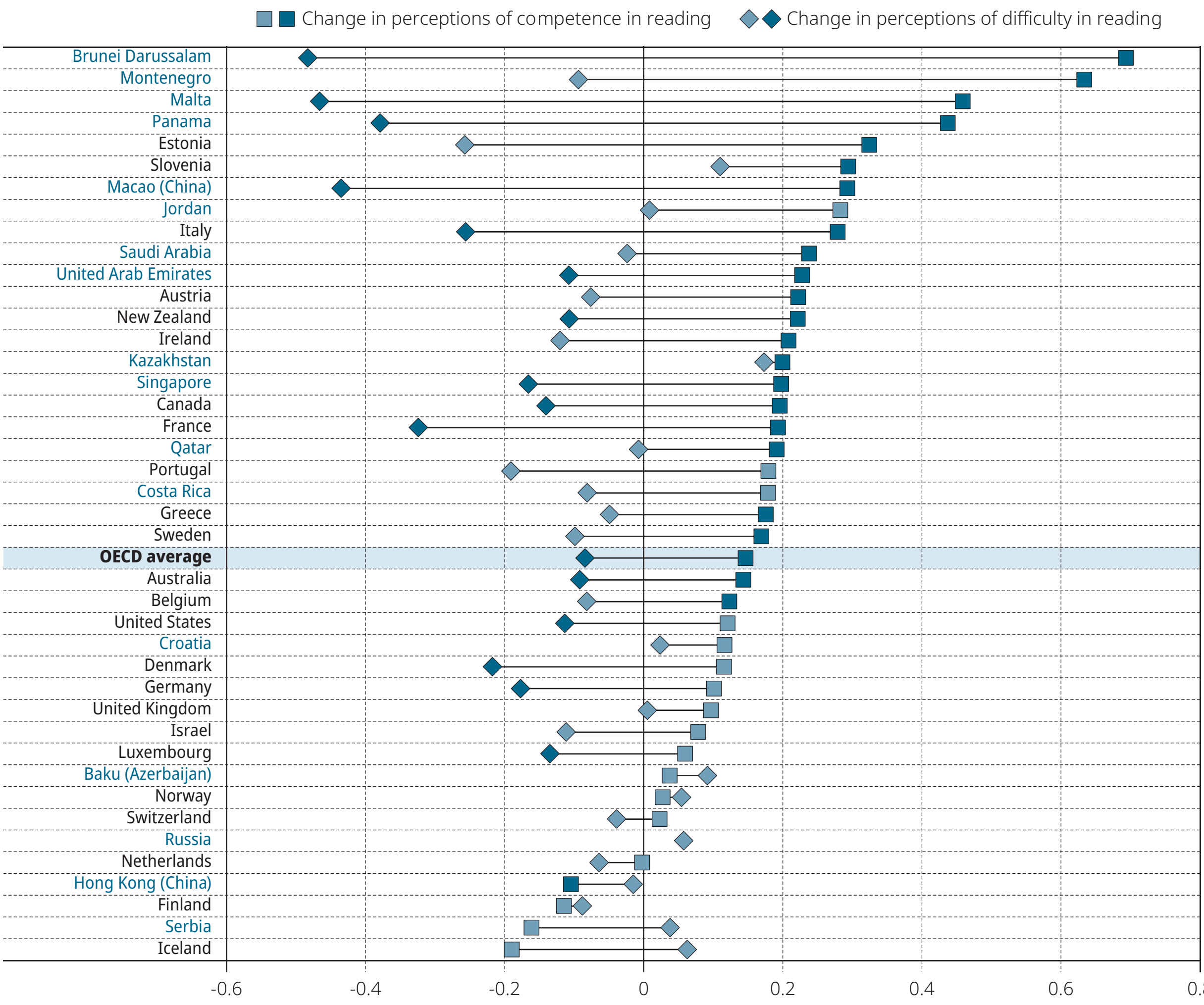
Language spoken at home

Mastery of the language of the host country is essential if immigrants are to integrate fully into their new community. It is one of the greatest challenges immigrant students face (Isphording and Otten, 2014[17]), and many immigrants never reach adequate proficiency in the host-country language (Isphording, 2015[18]). This subsection examines the association between speaking a language at home that is different from the language of instruction, and students' perceptions of competence and difficulty in reading.

PISA 2018 asked students to list the languages they speak at home. Using this information, a binary indicator was constructed to indicate whether or not a student speaks the language of instruction at home. On average across OECD countries, immigrant students who speak the language of instruction at home perceived that they are competent in reading (0.15 of a point higher in the index) and that they have little difficulty in reading (0.12 of a point lower in the index). These findings vary between countries and economies, however. For instance, in Brunei Darussalam, Estonia, Malta, Montenegro and Panama, speaking the language of instruction at home was associated with a rise of more than 0.3 of a point in the index of perception of competence, and exceeded 0.65 of a point in Brunei Darussalam, even after accounting for students' and schools' socio-economic profile. The associations were positive and statistically significant in 23 out of 38 countries where, in 2018, more than 5% of students had an immigrant background. Moreover, in Brunei Darussalam, France, Macao (China), Malta and Panama, speaking the language of instruction at home was associated with a decline in the perception of difficulty in reading of more than 0.30 of a point in the index. The associations were negative and significant in 17 out of 38 countries (Figure II.10.7).

Figure II.10.7 **Language spoken at home and perceptions of competence and difficulty in reading**

Change in perceptions of competence and difficulty in reading between immigrant students who speak the language of instruction at home and those who do not, after accounting for socio-economic status



Notes: Statistically significant changes in the index are shown in a darker tone (see Annex A3).
Countries where less than 5% of students had an immigrant background are not represented in the figure.
Countries and economies are ranked in descending order of the change in perceptions of competence in reading.
Source: OECD, PISA 2018 Database, Table II.B1.10.4.
StatLink https://doi.org/10.1787/888934038571

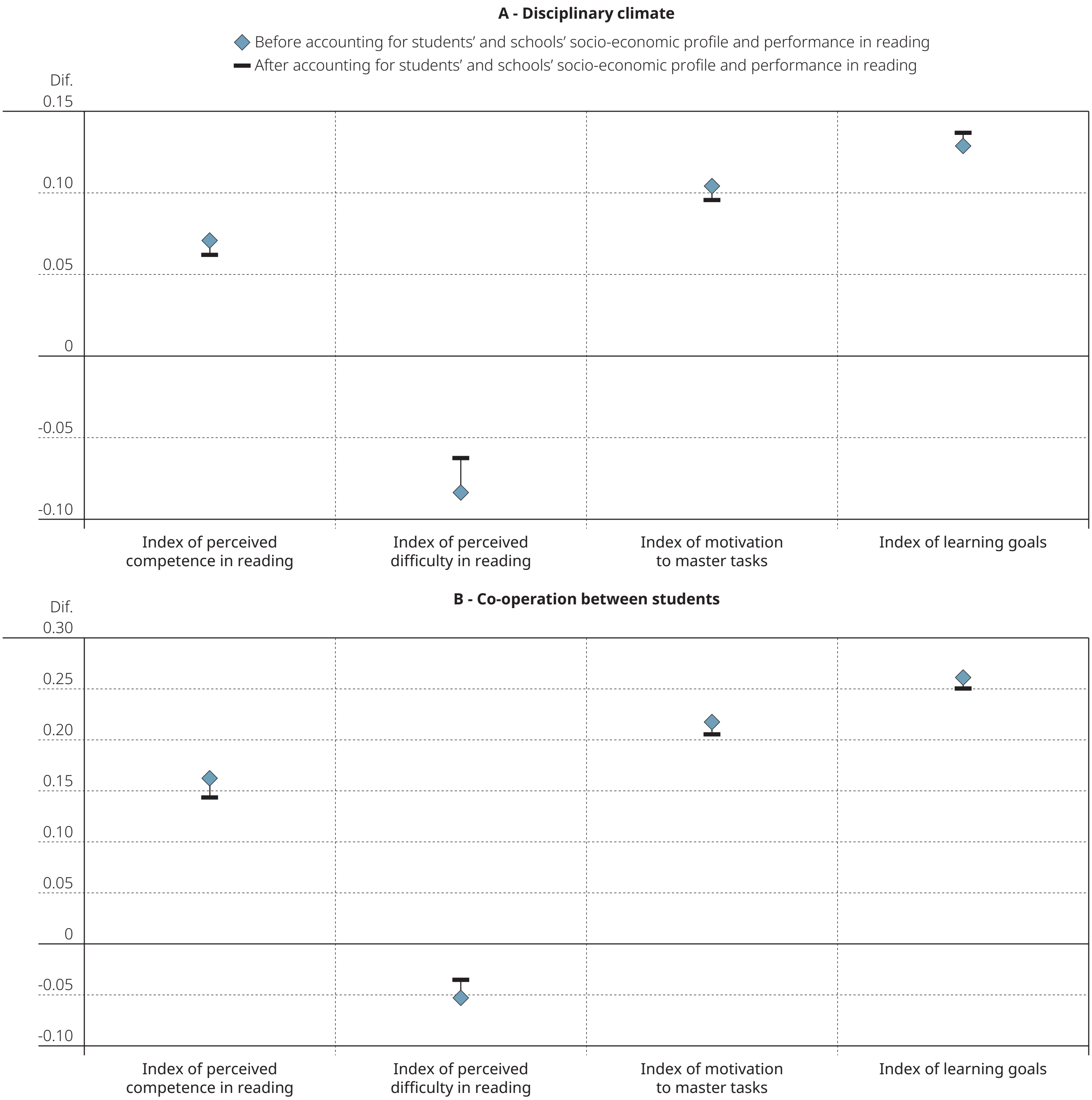
When comparing the findings for immigrant and non-immigrant students, it is clear that the associations were much stronger for the former than for the latter. This is not surprising, because mastering the language of the host country is more challenging for immigrant students and, as such, is more likely to have a stronger association with their attitudes. In addition, the number of non-immigrant students who do not speak the language of instruction at home was much smaller (Table II.B1.10.4). Those non-immigrant students are likely to be either members of linguistic minority groups or third- or fourth-generation immigrants (i.e. their grandparents or great-grandparents were immigrants in the host country) who were classified as non-immigrant students in PISA.

School climate

Good relationships with peers help immigrant students cope with the challenges of adapting to their host societies. Schools can also play an important role in integrating immigrants into their new communities, encouraging students' disciplined efforts, facilitating their motivation to master tasks, and nurturing a strong belief in the students' own abilities to pursue personal goals (Masten, 2001[19]; Güngör, 2008[20]; Van Geel and Vedder, 2010[21]). This subsection examines the association between students' perceptions of disciplinary climate and co-operation at school, on the one hand, and their attitudes and dispositions, on the other. The two indices were described in detail in Chapter 3 and are presented in Annex A1 of this report.

Figure II.10.8 **Immigrant students' attitudes, disciplinary climate at school, and perception of co-operation between students**

Change in key indices associated with a one-unit increase in the index of disciplinary climate or the index of student co-operation



Note: All changes in the index are statistically significant (see Annex A3).
Source: OECD, PISA 2018 Database, Tables II.B1.10.6 and II.B1.10.7.
StatLink https://doi.org/10.1787/888934038590

The findings show that immigrant students' perception of discipline in their language-of-instruction lessons was positively associated with their perception of their own competence in reading, their motivation to master tasks, and their ability to set and pursue academic goals. By contrast, it was negatively correlated with their perception of difficulty in reading. However, the associations were weak; the strongest were with the index of learning goals, after accounting for students' and schools' socio-economic profile. Similar but stronger associations were observed between immigrant students' perception of co-operation at school and their various attitudes. In particular, an increase of one unit in the index of student co-operation was associated with a rise of 0.21 of a point in the index of motivation to master tasks and 0.24 of a point in the index of learning goals, even after accounting for students' and schools' socio-economic profile. The findings vary little between immigrant and non-immigrant students. This indicates that the associations are not sensitive to students' immigrant background, and thus all students would benefit from a better school climate and greater student co-operation at school (Figure II.10.8).

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PISA

ANNEX A

PISA 2018 technical background

All figures and tables in Annex A are available on line

Annex A1: The construction of proficiency scales and of indices from the student context questionnaire

Annex A2: The PISA target population, the PISA samples and the definition of schools https://doi.org/10.1787/888934028862

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ANNEX A1
The construction of proficiency scales and of indices from the student context questionnaire

EXPLANATION OF THE INDICES

This section explains the indices derived from the PISA 2018 parent, student, school, teacher and educational career questionnaires used in this volume.

Several PISA measures reflect indices that summarise responses from students, their parents, teachers or school representatives (typically principals) to a series of related questions. The questions were selected from a larger pool on the basis of theoretical considerations and previous research. The *PISA 2018 Assessment and Analytical Framework* (OECD, 2019[1]) provides an in-depth description of this conceptual framework. Item response theory modelling was used to confirm the theoretically expected behaviour of the indices and to validate their comparability across countries. For this purpose a joint model across all countries was estimated. Item fit (RMSD) was evaluated separately for each item and each group (county by language). This procedure is in line with the PISA 2015 scaling approach. For a detailed description of other PISA indices and details on the methods, see the PISA 2015 Technical Report (OECD; 2017) and the *PISA 2018 Technical Report* (OECD, forthcoming[2])

There are three types of indices: simple indices, new scale indices and trend scale indices.

Simple indices are the variables that are constructed through the arithmetic transformation or recoding of one or more items in exactly the same way across assessments. Here, item responses are used to calculate meaningful variables, such as the recoding of the four-digit ISCO-08 codes into "Highest parents' socio-economic index (HISEI)" or teacher-student ratio based on information from the school questionnaire.

Scale indices are the variables constructed through the scaling of multiple items. Unless otherwise indicated, the index was scaled using a two-parameter item-response model (a generalised partial credit model was used in the case of items with more than two categories) and values of the index correspond to Warm likelihood estimates (WLE) (Warm, 1989[3]) For details on how each scale index was constructed, see the *PISA 2018 Technical Report* (OECD, forthcoming[2]). In general, the scaling was done in two stages:

1. The item parameters were estimated based on all students from equally-weighted countries and economies; only cases with a minimum number of three valid responses to items that are part of the index were included. In the case of trend indices, a common calibration linking procedure was used: countries/economies that participated in both PISA 2009 and PISA 2018 contributed both samples to the calibration of item parameters; each cycle and, within each cycle, each country/economy contributed equally to the estimation.[1]

2. For new scale indices, the Warm likelihood estimates were then standardised so that the mean of the index value for the OECD student population was zero and the standard deviation was one (countries were given equal weight in the standardisation process).

Sequential codes were assigned to the different response categories of the questions in the sequence in which the latter appeared in the student, school or parent questionnaires. Where indicated in this section, these codes were inverted for the purpose of constructing indices or scales. Negative values for an index do not necessarily imply that students responded negatively to the underlying questions. A negative value merely indicates that the respondents answered less positively than all respondents did on average across OECD countries. Likewise, a positive value on an index indicates that the respondents answered more favourably, or more positively, on average, than respondents in OECD countries did. Terms enclosed in brackets < > in the following descriptions were replaced in the national versions of the student, school and parent questionnaires by the appropriate national equivalent. For example, the term <qualification at ISCED level 5A> was translated in the United States into "Bachelor's degree, post-graduate certificate program, Master's degree program or first professional degree program". Similarly the term <classes in the language of assessment> in Luxembourg was translated into "German classes" or "French classes", depending on whether students received the German or French version of the assessment instruments.

In addition to simple and scaled indices described in this annex, there are a number of variables from the questionnaires that were used in this volume and correspond to single items not used to construct indices. These non-recoded variables have prefix of "ST" for the questionnaire items in the student questionnaire and "SC" for the items in the school questionnaire. All the context questionnaires, and the PISA international database, including all variables, are available through www.oecd.org/pisa.

STUDENT-LEVEL SIMPLE INDICES

Parents' level of education

Students' responses to questions ST005, ST006, ST007 and ST008 regarding their parents' education were classified using ISCED 1997 (OECD, 1999[4]). Indices on parental education were constructed by recoding educational qualifications into the following categories: (0) None, (1) <ISCED level 1> (primary education), (2) <ISCED level 2> (lower secondary), (3) <ISCED level 3B or 3C> (vocational/pre-vocational upper secondary), (4) <ISCED level 3A> (general upper secondary) and/or <ISCED level 4> (non-tertiary post-secondary), (5) <ISCED level 5B> (vocational tertiary) and (6) <ISCED level 5A> and/or <ISCED level 6> (theoretically oriented tertiary and post-graduate). Indices with these categories were provided for a student's mother (MISCED) and father (FISCED). In addition, the index of highest education level of parents (HISCED) corresponded to the higher ISCED level of either parent. The index of highest education level of parents was also recoded into estimated number of years of schooling (PARED). In PISA 2018, to avoid issues related to the misreporting of parental education by students, students' answers about post-secondary qualifications were considered only for those students who reported their parents' highest level of schooling to be at least lower secondary education. The conversion from ISCED levels to year of education is common to all countries. This international conversion was determined by using the modal years of education across countries for each ISCED level. The correspondence is available in the *PISA 2018 Technical Report* (OECD, forthcoming[5]).

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[6]). In PISA 2018, as in PISA 2015, the new ISCO and ISEI in their 2008 version were used rather than the 1988 versions that had been applied in the previous four cycles (Ganzeboom, 2010[7]). Three indices were calculated based on this information: father's occupational status (BFMJ2); mother's occupational status (BMMJ1); and the highest occupational status of parents (HISEI), which corresponds to the higher ISEI score of either parent or to the only available parent's ISEI score. For all three indices, higher ISEI scores indicate higher levels of occupational status. In PISA 2018, in order to reduce missing values, an ISEI value of 17 (equivalent to the ISEI value for ISCO code 9000, corresponding to the major group "Elementary Occupations") was attributed to pseudo-ISCO codes 9701, 9702 and 9703 ("Doing housework, bringing up children", "Learning, studying", "Retired, pensioner, on unemployment benefits").

Immigrant background

Information on the country of birth of the students and their parents was also collected. Included in the database are three country-specific variables relating to the country of birth of the student, mother and father (ST019). The variables are binary and indicate whether the student, mother and father were born in the country of assessment or elsewhere. The index on immigrant background (IMMIG) is calculated from these variables, and has the following categories: (1) native students (those students who had at least one parent born in the country); (2) second-generation students (those born in the country of assessment but whose parent[s] were born in another country); and (3) first-generation students (those students born outside the country of assessment and whose parents were also born in another country). Students with missing responses for either the student or for both parents were given missing values for this variable.

Language spoken at home

Students also indicated what language they usually spoke at home, and the database includes a variable (LANGN) containing country-specific code for each language. In addition, an internationally comparable variable (ST022Q01TA) was derived from this information and has the following categories: (1) language at home is same as the language of assessment for that student; (2) language at home is another language.[2]

Doing homework

In a subset of 32 countries and economies that participated in PISA 2018, students were asked how long they studied in the morning before going to school (EC158) and after school (EC159) on the most recent day prior to the PISA test (response choices included "I did not study" or "I do not remember"). Students' answers were averaged to measure the percentage of students who responded that they "did not study at all at home on the most recent day prior to the PISA test", "studied at home but less than one hour", and "studied at home more than one hour".

Time spent reading for enjoyment

PISA 2018 asked students (ST175): "about how much time do you usually spend reading for enjoyment?". The answers ("more than 30 minutes to less than 60 minutes a day"; "more than 30 minutes to less than 60 minutes a day"; "1 to 2 hours a day"; "more than 2 hours a day") were aggregated, against "I do not read for enjoyment" and "30 minutes or less a day" to create an index that corresponds to more than 30 minutes of reading a day.

Career expectations

In PISA 2018, students were asked to answer a question (ST114) about "what kind of job [they] expect to have when [they] are about 30 years old". Answers to this open-ended question were coded to four-digit ISCO codes (ILO, 2007), in variable OCOD3.

This variable was used to derive several indices related to career expectations.

The proportion of students who had no clear idea about their future job was computed excluding students who did not answer the question or gave an invalid answer, such as a smiley face (9998). It corresponds to students who reported that "they do not know" (9704) or gave a vague answer such as "a good job", "a quiet job", "a well-paid job", "an office job" (9705).

The definition of high-skilled, medium and low-skilled career expectations is based on the one-digit ISCO-08 classification of occupations. High-skilled occupations correspond to ISCO codes 1 to 3 (managers; professionals; technicians and associate professionals), medium-skilled to codes 4 to 8 (clerical support workers; service and sales workers; skilled agricultural, forestry and fishery workers; craft and related trades workers; plant and machine operators and assemblers) and low-skilled to code 9 (elementary occupations).

Science-related career expectations are defined as those career expectations whose realisation requires further engagement with the study of science beyond compulsory education, typically in formal tertiary education settings. The classification of careers into science-related and non-science-related is based on the four-digit ISCO-08 classification of occupations.

Only professionals (major ISCO group 2) and technicians/associate professionals (major ISCO group 3) were considered to fit the definition of science-related career expectations. In a broad sense, several managerial occupations (major ISCO group 1) are clearly science-related; these include research and development managers, hospital managers, construction managers, and other occupations classified under production and specialised services managers (submajor group 13). However, when science-related experience and training is an important requirement of a managerial occupation, these were not considered to be entry-level jobs, and 15-year-old students with science-related career aspirations would not expect to be in such a position by age 30.

Several skilled agriculture, forestry and fishery workers (major ISCO group 6) could also be considered to work in science-related occupations. The United States (O*NET OnLine, 2019[8]) classification of science, technology, engineering and mathematics (STEM) occupations indeed include these occupations. These, however, do not typically require formal science-related training or study after compulsory education. Thus, only major occupation groups that require ISCO skill levels 3 and 4 were included amongst science-related occupational expectations.

Amongst professionals and technicians/associate professionals, the boundary between science-related and non-science-related occupations is sometimes blurred, and different classifications draw different lines.

The classification used in this report includes four groups of jobs:

1. Science and engineering professionals: All science and engineering professionals (sub-major group 21), except product and garment designers (2163), graphic and multimedia designers (2166).
2. Health professionals: All health professionals in sub-major group 22 (e.g. doctors, nurses, veterinarians), with the exception of traditional and complementary medicine professionals (minor group 223).
3. ICT professionals: All information and communications technology professionals (sub-major group 25).
4. Science technicians and associate professionals, including:
   - physical and engineering science technicians (minor group 311)
   - life science technicians and related associate professionals (minor group 314)
   - air traffic safety electronic technicians (3155)
   - medical and pharmaceutical technicians (minor group 321), except medical and dental prosthetic technicians (3214)
   - telecommunications engineering technicians (3522).

Education expectations

Students' responses to question ST225 regarding the level of education they expect to complete were used for identifying those students who expected to complete tertiary education, defined using International Standardised Classification of Education 1997 <ISCED level 5A> and/or <ISCED level 6> (theoretically oriented tertiary and post-graduate).

This indicator was used to measure the proportion of students with ambitious and realistic expectations, defined as the proportion of students who achieved Level 2 in the three core subjects and Level 4 in at least one of them (defined as high performers) and who expect to complete tertiary education. It was also used to estimate the proportion of high performers who do not expect to complete tertiary education while

Further education and career

Learning about future study and career

In a subset of 32 countries and economies that participated in PISA 2018, students were asked in an optional Education Career Questionnaire whether they had done any of the following to find out about future study or types of work (EC150): did an internship; attended job shadowing or work-site visits; visited a job fair; spoke to a career advisor at school; spoke to an advisor outside of school; completed a questionnaire to find out about [his/her] interests and abilities; researched the Internet for information about careers; went to an organised tour in a higher education institution; or researched the Internet about higher education programmes.

Skills related to future study and career

In a subset of 32 countries and economies that participated in PISA 2018, students were asked in an optional Education Career Questionnaire whether they had acquired at school, outside of school or not acquired the following skills (EC151): finding information about jobs they are interested in; searching for a job; writing a résumé or a summary of their qualifications; preparing for a job interview; or finding information about financing higher education (e.g. student loans or grants). As some students may have acquired these skills both at and outside of school, the sum of the proportion of students who had not acquired one of these skills and the proportions of students who had acquired some of these skills at school and outside of school may be higher than 100%.

Factors that influence students' career expectations

In a subset of 32 countries and economies that participated in PISA 2018, students were asked in an optional Education Career Questionnaire how important ("not important", "somewhat important", "important", "very important") are some factors in the decisions they make about their future occupation (EC153). Answers to this question were used to measure the proportion of students who considered that their school grades, the school subjects they are good at, financial support for education or training, education or training options for the occupation they want to pursue, and employment opportunities for the occupation they want to pursue are important or very important in the decisions they make about their future occupation.

STUDENT-LEVEL SCALE INDICES

Attitudes towards competition

The index of attitudes towards competition (COMPETE) was constructed using students' responses to a new question (ST181) over the extent they "strongly agreed", "agreed", "disagreed" or "strongly disagreed" with the following statements: "I enjoy working in situations involving competition with others"; "It is important for me to perform better than other people on a task"; and "I try harder when I'm in competition with other people". Positive values on this scale mean that students expressed more favourable attitudes towards competition than did the average student across OECD countries.

Fear of failure

Students in PISA 2018 were asked to report the extent to which they agree ("strongly disagree", "disagree", "agree", "strongly agree") with the following statements (ST183): "When I am failing, I worry about what others think of me"; "When I am failing, I am afraid that I might not have enough talent"; and "When I am failing, this makes me doubt my plans for the future". These statements were combined to create the index of fear of failure (GFOFAIL). Positive values in this index mean that the student expressed a greater fear of failure than did the average student across OECD countries.

Learning goals

Students in PISA 2018 were asked (ST208) to respond how true ("not at all true of me", "slightly true of me", "moderately true of me", "very true of me", "extremely true of me") the following statements are for them: "My goal is to learn as much as possible"; "My goal is to completely master the material presented in my classes"; and "My goal is to understand the content of my classes as thoroughly as possible". These statements were combined to construct the index of learning goals (MASTGOAL). Positive values in the index indicate more ambitious learning goals than the average student across OECD countries.

Motivation to master tasks

PISA 2018 asked students (ST182) to report the extent to which they agree or disagree ("strongly disagree", "disagree", "agree", "strongly agree") with the following statements: "I find satisfaction in working as hard as I can"; "Once I start a task, I persist until it is finished"; "Part of the enjoyment I get from doing things is when I improve on my past performance"; and "If I am not good at something, I would rather keep struggling to master it than move on to something I may be good at". The first three statements were combined to create the index of motivation to master tasks (WORKMAST). Positive values in the index indicate greater motivation than the average student across OECD countries.

Meaning in life

PISA 2018 asked students (ST185) to report the extent to which they agree ("strongly agree", "agree", "disagree", "strongly disagree") with the following statements: "My life has clear meaning or purpose"; "I have discovered a satisfactory meaning in life"; and "I have a clear sense of what gives meaning to my life". These three statements were combined to form the index of meaning in life (EUDMO). Positive values in the index indicate greater meaning in life than the average student across OECD countries.

Perception of competence in reading and perceived difficulty in reading

PISA 2018 included a question (ST161) with six items asking students about their competence in reading and whether they encountered difficulties in learning how to read. The four response categories were "not at all", "very little", "to some extent", and "a lot". The index of perception of competence in reading (SCREADCOMP) was derived from the following three statements: "I am a good reader"; "I am able to understand difficult texts"; and "I read fluently". The index of perceived difficulty in reading (SCREADDIFF) was derived from the next three statements: "I have always had difficulty with reading"; "I have to read a text several times before completely understanding it"; and "I find it difficult to answer questions about a text". Positive values in these indices mean that the student indicated greater perception of competence/difficulty than the OECD average.

Positive feelings

PISA 2018 asked students (ST186) to report how frequently ("never", "rarely", "sometimes", "always") they feel happy, lively, proud, joyful, cheerful, scared, miserable, afraid and sad. Three of these positive feelings – happy, joyful and cheerful – were combined to create an index of positive feelings (SWBP). Positive values in this index mean that the student reported more positive feelings than the average student across OECD countries. An index of negative feelings was not created because of the low internal consistency of the index across PISA-participating countries.

Self-efficacy

PISA 2018 asked (ST188) students to report the extent to which they agree ("strongly disagree", "disagree, "agree", "strongly agree") with the following statements about themselves: "I usually manage one way or another"; "I feel proud that I have accomplished things"; "I feel that I can handle many things at a time"; "My belief in myself gets me through hard times"; and "When I'm in a difficult situation, I can usually find my way out of it". These statements were combined to create the index of self-efficacy (RESILIENCE). Positive values in this index mean that the student reported higher self-efficacy than did the average student across OECD countries.

Student competition

PISA 2018 asked (ST205) students how true ("not at all true", "slightly true", "very true", "extremely true") the following statements about their school are: "Students seem to value competition"; "It seems that students are competing with each other"; "Students seem to share the feeling that competing with each other is important"; and "Students feel that they are being compared with others". The first three statements were combined to create the index of student competition (PERCOMP). Positive values in this index mean that students perceived their peers to compete with each other to a greater extent than did the average student across OECD countries.

Student co-operation

PISA 2018 asked (ST206) students how true ("not at all true", "slightly true", "very true", "extremely true") the following statements about their school are: "Students seem to value co-operation"; "It seems that students are co-operating with each other"; "Students seem to share the feeling that co-operating with each other is important"; and "Students feel that they are encouraged to cooperate with others". The first three statements were combined to create the index of student co-operation (PERCOOP). Positive values in this index mean that students perceived their peers to co-operate to a greater extent than did the average student across OECD countries.

Teacher enthusiasm

PISA 2018 asked (ST213) students whether they agree ("strongly agree", "agree", "disagree", "strongly disagree") with the following statements about the two language-of-instruction lessons they attended prior to sitting the PISA test: "It was clear to me that the teacher liked teaching us"; "The enthusiasm of the teacher inspired me"; "It was clear that the teacher likes to deal with the topic of the lesson"; and "The teacher showed enjoyment in teaching". These statements were combined to create the index of teacher enthusiasm (TEACHINT). Positive values in this index mean that students perceived their language-of-instruction teachers to be more enthusiastic than did the average student across OECD countries.

ICT use outside of school for leisure

In PISA 2018 an optional ICT familiarity questionnaire was distributed in 52 countries and economies that participated. It included questions about how teenagers use digital devices (IC008). Specifically, 15-year-old students were asked to report how often ("never or hardly ever", "once or twice a month", "once or twice a week", "every day") they use digital devices for the following activities outside of school: playing one-player games; playing collaborative online games; using e-mail; chatting on line; participating in social networks (e.g. <Facebook>, <MySpace>); playing online games via social networks; browsing the Internet for fun (such as watching videos, e.g.<YouTube™>); reading news on the Internet (e.g. current affairs); obtaining practical information from the Internet (e.g. locations, dates of events); downloading music, films, games or software from the Internet; uploading [your] own created content for sharing (e.g. music, poetry, videos, computer programs); or downloading new apps on a mobile device. Students' answers to these questions were summarised in an index measuring the frequency of ICT use outside of school for leisure (ENTUSE). The index was standardised to have a mean of 0 and a standard deviation of 1 across OECD countries.

Indices included in earlier assessments

Disciplinary climate

The index of disciplinary climate (DISCLIMA) was constructed using students' responses to a trend question about how often ("every lesson", "most lessons", "some lessons", "never or hardly ever") the following happened in their language-of-instruction lessons (ST097): "Students don't listen to what the teacher says"; "There is noise and disorder"; "The teacher has to wait a long time for students to quiet down"; "Students cannot work well"; and "Students don't start working for a long time after the lesson begins". Positive values on this scale mean that the student enjoyed a better disciplinary climate in language-of-instruction lessons than the average student across OECD countries.

Enjoyment of reading

The index of enjoyment of reading (JOYREAD) was constructed based on a trend question (ST160) from PISA 2009 (ID in 2009: ST24) asking students whether they agree ("strongly agree", "agree", "disagree", "strongly disagree") with the following statements: "I read only if I have to"; "Reading is one of my favourite hobbies"; "I like talking about books with other people"; "For me, reading is a waste of time"; and "I read only to get information that I need". Positive values on this scale mean that the student enjoyed reading to a greater extent than the average student across OECD countries.

Parents' emotional support

The index of parents' emotional support (EMOSUPS) was constructed based on a trend question (ST123) asking students whether they agree ("strongly agree", "agree", "disagree", "strongly disagree") with the following statements: "My parents support my educational efforts and achievements"; "My parents support me when I am facing difficulties at school"; and "My parents encourage me to be confident". Positive values on this scale mean that students perceived greater levels of emotional support from their parents than did the average student across OECD countries.

Sense of belonging

The index of sense of belonging (BELONG) was constructed using students' responses to a trend question about their sense of belonging to school. Students were asked whether they agree ("strongly agree", "agree", "disagree", "strongly disagree") with the following statements (ST034): "I feel like an outsider (or left out of things) at school"; "I make friends easily at school"; "I feel like I belong at school"; "I feel awkward and out of place in my school"; "Other students seem to like me"; and "I feel lonely at school". Three of these items were reversed-coded so that positive values on this scale mean that students reported a greater sense of belonging at school than did the average student across OECD countries.

Teacher-directed instruction

The index of teacher-directed instruction (DIRINS) was constructed from students' reports on how often ("never or almost never", "some lessons", "many lessons", "every lesson or almost every lesson") the following happened in their language-of-instruction lessons (ST102): "The teacher sets clear goals for our learning"; "The teacher asks questions to check whether we have understood what was taught"; "At the beginning of a lesson, the teacher presents a short summary of the previous lesson"; and "The teacher tells us what we have to learn". Positive values on this scale mean that students perceived their teachers to use teacher-directed practices more frequently than did the average student across OECD countries.

Teacher feedback

The index of teacher feedback (PERFEED) was constructed using students' responses to a trend question (ST104) about how often ("never or hardly ever", "some lessons", "most lessons", "every lesson") the following things happen in their language-of-instruction lessons: "The teacher gives me feedback on my strengths in this subject"; "The teacher tells me in which areas I can still improve"; and "The teacher tells me how I can improve my performance". Positive values on this scale mean that students perceived their teachers to provide feedback more frequently than did the average student across OECD countries.

Teachers' stimulation of reading engagement

The index of teachers' stimulation of reading engagement (STIMREAD) was constructed based on a trend question (ST152) from PISA 2009 (ID in 2009: ST37) asking students how often ("never or hardly ever", "some lessons", "most lessons", "every lesson") the following occur in their language-of-instruction lessons: "The teacher encourages students to express their opinion about a text"; "The teacher helps students relate the stories they read to their lives"; "The teacher shows students how the information in texts builds on what they already know"; and "The teacher poses questions that motivate students to participate actively". Positive values on this scale mean that the students perceived their teacher to provide greater stimulation than did the average student across OECD countries.

Teacher support

The index of teacher support (TEACHSUP) was constructed using students' responses to a trend question (ST100) about how often ("every lesson", "most lessons", "some lessons", "never or hardly ever") the following things happen in their language-of-instruction lessons: "The teacher shows an interest in every student's learning"; "The teacher gives extra help when students need it"; "The teacher helps students with their learning"; and "The teacher continues teaching until the students understand". Positive values on this scale mean that students perceived their teacher to be more supportive than did the average student across OECD countries.

Value of school

The index of value of school (ATTLNACT) was constructed based on a trend question (ST036) asking students whether they agree ("strongly agree", "agree", "disagree", "strongly disagree") with the following statements: "Trying hard at school will help me get a good job"; "Trying hard at school will help me get into a good <college>"; and "Trying hard at school is important". Positive values on this scale mean that the student valued schooling to a greater extent than the average student across OECD countries.

Scaling of indices related to the PISA index of economic social and cultural status

The PISA index of economic, social and cultural status (ESCS) was derived, as in previous cycles, from three variables related to family background: parents' highest level of education (PARED), parents' highest occupational status (HISEI), and home possessions (HOMEPOS), including books in the home. PARED and HISEI are simple indices, described above. HOMEPOS is a proxy measure for family wealth.

Household possessions

In PISA 2018, students reported the availability of 16 household items at home (ST011), including three country-specific household items that were seen as appropriate measures of family wealth within the country's context. In addition, students reported the amount of possessions and books at home (ST012, ST013). HOMEPOS is a summary index of all household and possession items (ST011, ST012 and ST013).

Computation of ESCS

For the purpose of computing the PISA index of economic, social and cultural status (ESCS), values for students with missing PARED, HISEI or HOMEPOS were imputed with predicted values plus a random component based on a regression on the other two variables. If there were missing data on more than one of the three variables, ESCS was not computed and a missing value was assigned for ESCS.

In previous cycles, the PISA index of economic, social and cultural status was derived from a principal component analysis of standardised variables (each variable has an OECD mean of zero and a standard deviation of one), taking the factor scores for the first principal component as measures of the PISA index of economic, social and cultural status. In PISA 2018, ESCS is computed by attributing equal weight to the three standardised components. As in PISA 2015, the three components were standardised across all countries and economies (both OECD and partner countries/economies), with each country/economy contributing equally (in cycles prior to 2015, the standardisation and principal component analysis was based on OECD countries only). As in every previous cycle, the final ESCS variable was transformed, with 0 the score of an average OECD student and 1 the standard deviation across equally weighted OECD countries.

SCHOOL-LEVEL SIMPLE INDICES

School size

The PISA 2009 index of school size (SCHLSIZE) contains the total enrolment at school based on the enrolment data provided by the school principal, summing the number of girls and boys at a school.

School type

Schools are classified as either public or private according to whether a private entity or a public agency has the ultimate power to make decisions concerning its affairs. As in previous PISA surveys, the index of school type (SCHLTYPE) has three categories: (1) public schools managed directly or indirectly by a public education authority, government agency or governing board appointed by government or elected by public franchise; (2) government-dependent private schools, managed directly or indirectly by a non-government organisation (e.g. a church, trade union, business or other private institution), which receive more than 50% of their total funding in a typical school year from government agencies (including departments, local, regional, state and national agencies); and (3) government-independent private schools, controlled by a non-government organisation, which receive less than 50% of their core funding from government agencies.

Socio-economic profile of the schools

Advantaged and disadvantaged schools are defined in terms of the socio-economic profile of schools. All schools in each PISA-participating education system are ranked according to their average PISA index of economic, social and cultural status (ESCS) and then divided into four groups with approximately an equal number of students (quarters). Schools in the bottom quarter are referred to as “socio-economically disadvantaged schools”; and schools in the top quarter are referred to as “socio-economically advantaged schools”.

Quantity and qualifications of teaching staff at school

Principals were asked to report the number of full-time and part-time teachers at school (question SC018). Principals were also asked the number of full-time and part-time teachers who are fully certified by the appropriate authority, of those who have an ISCED Level 5A master’s degree qualification and of those who have an ISCED Level 6 qualification (those levels correspond to the International Standard Classification of Education 1997).

The number of part-time teachers was weighted by 0.5 and the number of full-time teachers was weighted by 1.0. The number of teachers who have at least a master’s degree was computed as the sum of the numbers of teachers with ISCED Level 5A or Level 6.

Principals were also asked to report the percentage of teaching staff in their school who has attended a programme of professional development in the previous three months (SC025), defined as a formal programme designed to enhance teaching skills or pedagogical practices. It may or may not lead to a recognised qualification. The programme must have lasted for at least one day and was focused on teaching and education.

School enrolment practices

As in previous surveys, school principals were asked about admittance policies at their school (SC012). Amongst these policies, principals were asked how much consideration was given to the following factors when students are admitted to the school, based on a scale with the categories “never”, “sometimes”, and “always”: students’ academic record (including placement tests) and residence in a particular area.

Career guidance at school

PISA 2018 asked school principals who, at their school, is responsible for career guidance for students in the national modal grade for 15-year-olds (question SC161). This indicator was used to measure the proportion of students in schools where career guidance is provided by a specialised counsellor when the principal reported that there is “one or more specific career guidance counsellors employed at school" or that there is "one or more specific career guidance counsellor[s] who regularly visit the school". The indicator was also used to measure the proportion of students in schools that do not provide career guidance by a specialised counsellor, but where either "all teachers share the responsibility for career guidance" or "specific teachers have the main responsibility for career guidance". It also measures the proportion of students in schools where career guidance is not available.

In schools where some career guidance is provided, principals were asked whether the career guidance is sought voluntarily by students or is formally scheduled into students' time at school (question SC162).

School-level scale indices

Indices included in earlier assessments

School resources: Shortage of educational material and staff

As in PISA 2015 and 2012, PISA 2018 included an eight-item question about school resources, measuring school principals' perceptions of potential factors hindering instruction at school ("Is your school's capacity to provide instruction hindered by any of the following issues?"). The four response categories were "not at all", "very little", "to some extent", and "a lot". A similar question was used in previous cycles, but items were reduced and reworded for 2012 focusing on two derived variables. The index of staff shortage (STAFFSHORT) was derived from the four items: a lack of teaching staff; inadequate or poorly qualified teaching staff; a lack of assisting staff; inadequate or poorly qualified assisting staff. The index of shortage of educational material (EDUSHORT) was scaled using the following four items: a lack of educational material (e.g. textbooks, IT equipment, library or laboratory material); inadequate or poor quality educational material (e.g. textbooks, IT equipment, library or laboratory material); a lack of physical infrastructure (e.g. building, grounds, heating/cooling, lighting and acoustic systems); inadequate or poor quality physical infrastructure (e.g. building, grounds, heating/cooling, lighting and acoustic systems). Positive values in these indices mean that principals viewed the amount and/or quality of resources in their schools as an obstacle to providing instruction to a greater extent than the OECD average.

Teacher behaviour hindering learning

The index of teacher behaviour hindering learning (TEACHBEHA) was constructed using school principals' responses to a trend question (SC061) about the extent to which ("not at all", "very little", "to some extent", "a lot") they think that student learning in their schools is hindered by such factors as "Teachers not meeting individual students' needs"; "Teacher absenteeism"; "School staff resisting change"; "Teachers being too strict with students"; and "Teachers not being well-prepared for classes". Positive values reflect principals' perceptions that these teacher-related behaviours hinder learning to a greater extent; negative values indicate that principals believed that these teacher-related behaviours hinder learning to a lesser extent, compared to the OECD average. Answers to this question were also used to measure the proportion of students in schools where instruction is hindered at least to some extent by teacher absenteeism, according to principals' reports.

PARENT-LEVEL SCALE INDICES

Indices included in earlier assessments

Parents' perception of school quality

The index of parents' perceived school quality (PQSCHOOL) was constructed using parents' responses to the trend question (PA007) about the extent to which they agree ("strongly agree", "agree", "disagree", "strongly disagree") with the following statements: "Most of my child's school teachers seem competent and dedicated"; "Standards of achievement are high in my child's school"; "I am happy with the content taught and the instructional methods used in my child's school"; "I am satisfied with the disciplinary atmosphere in my child's school"; "My child's progress is carefully monitored by the school"; "My child's school provides regular and useful information on my child's progress"; and "My child's school does a good job in educating students". Positive values reflect that parents perceived their child's school to be of higher quality, negative values indicate that parents perceived their child's school to be of lower quality than the OECD average parents' perceptions.

School policies for parental involvement

The index of school policies for parental involvement (PASCHPOL) was constructed using parents' responses to the trend question (PA007) about the extent to which they agree ("strongly agree", "agree", "disagree", "strongly disagree") with the following statements: "My child's school provides an inviting atmosphere for parents to get involved"; "My child's school provides effective communication between the school and families"; "My child's school involves parents in the school's decision-making process"; "My child's school offers parent education"; "My child's school informs families about how to help students with homework and other school-related activities"; and "My child's school co-operates with <community services> to strengthen school programmes and student development". Positive values reflect parents' perceptions that these school policies for parental involvement exist to a greater extent, negative values indicate that these school policies for parental involvement exist to a lesser extent, than the OECD average.

TEACHER-LEVEL SIMPLE INDICES

Novice teachers

In the 19 countries and economies that distributed an optional questionnaire for teachers, teachers were asked to report how many years of work experience they have worked as a teacher, respectively in the school where they worked at the date of the survey (TC007Q01NA) and in total (TC007Q02NA). Answers to this last question was used to measure the proportion of novice teachers, defined as those who have worked at most 5 years in total as a teacher.

Originally trained teachers

In the 19 countries and economies that distributed an optional questionnaire for teachers, teachers were asked whether they completed a teacher education or training programme (TC014) and whether they received their initial teaching qualification (TC015) by attending a standard teacher education or training programme an education institute, an in-service teacher education or training programme, an work-based teacher education or training programme or training in another pedagogical profession. Answers to these two questions were combined to create the variable OTT2 for "original trained teacher (strict definition)" that is used in this report.

Participation to professional development activities

In the 19 countries and economies that distributed an optional questionnaire for teachers, teachers were asked (TC193) whether they participated during the last 12 months in one of the following professional development activities: "Courses/workshops (e.g. on subject matter or methods and/or other education-related topics)"; "Education conferences or seminars (where teachers and/or researchers present their research results and discuss educational issues)"; "Observation visits to other schools"; "Observation visits to business premises, public organisations, non-governmental organisations; and In-service training courses in business premises, public organisations, non-governmental organisations". Answers to this question were used to measure the proportion of teachers who have participated to professional development activities (any of these five items) during the last 12 months.

TEACHER-LEVEL SCALE INDICES

Teachers' satisfaction with the teaching profession

In the optional teacher questionnaire, PISA 2018 asked (TC198) teachers how they feel about their job, specifically the degree to which they agree or disagree ("strongly agree", "agree", "disagree", "strongly disagree") with the following statements: "The advantages of being a teacher clearly outweigh the disadvantages"; "If I could decide again, I would still choose to work as a teacher"; "I regret that I decided to become a teacher"; and "I wonder whether it would have been better to choose another profession". Teachers' responses to these items were used to create an index of satisfaction with the teaching profession (SATTEACH). The index was standardised to have a mean of 0 and a standard deviation of 1 across OECD countries that distributed the optional teacher questionnaire. Higher values in the indices correspond to greater satisfaction.

Teachers' satisfaction with their current job environment

In the optional teacher questionnaire, PISA 2018 asked teachers (TC198) how they feel about their job, in general, and specifically the degree to which they agree or disagree ("strongly agree", "agree", "disagree", "strongly disagree") with the following statements: "I enjoy working at this school"; "I would recommend my school as a good place to work"; "I am satisfied with my performance in this school"; and "All in all, I am satisfied with my job". Teachers' responses to these items were used to create an index of satisfaction with the current job (SATJOB). The index was standardised to have a mean of 0 and a standard deviation of 1 across OECD countries that distributed the optional teacher questionnaire. Higher values in the indices correspond to greater satisfaction.

Teachers' self-efficacy in maintaining positive relations with students

In the optional teacher questionnaire, PISA 2018 asked teachers (TC199) to what extent ("not at all", "to some extent", "quite a bit", "a lot") they: "Get students to believe they can do well in school work"; "Help [my] students value learning"; and "Motivate students who show low interest in school work". Teachers' responses to these items were used to create an index of self-efficacy in maintaining positive relations with students (SEFFREL). The index was standardised to have a mean of 0 and a standard deviation of 1 across OECD countries that distributed the optional teacher questionnaire. Higher values in the indices correspond to greater self-efficacy.

Teachers' self-efficacy in instructional settings

In the optional teacher questionnaire, PISA 2018 asked teachers (TC199) to what extent ("not at all", "to some extent", "quite a bit", "a lot") they: "Craft good questions for [my] students"; "Use a variety of assessment strategies"; "Provide an alternative explanation for example when students are confused"; and "Implement alternative instructional strategies in [my] classroom". Teachers' responses to these items were used to create an index of self-efficacy in instructional settings (SEFFINS). The index was standardised to have a mean of 0 and a standard deviation of 1 across OECD countries that distributed the optional teacher questionnaire. Higher values in the indices correspond to greater self-efficacy.

Teachers' self-efficacy in classroom management

In the optional teacher questionnaire, PISA 2018 asked teachers (TC199) to what extent ("not at all", "to some extent", "quite a bit", "a lot") they: "Control disruptive behaviour in the classroom"; "Get students to follow classroom rules"; and "Calm a student who is disruptive or noisy". Teachers' responses to these items were used to create an index of self-efficacy in classroom management (SEFFCM). The index was standardised to have a mean of 0 and a standard deviation of 1 across OECD countries that distributed the optional teacher questionnaire. Higher values in the indices correspond to greater self-efficacy.

Notes

1. PISA expert groups identified a few indices that should be scaled to make index values directly comparable between PISA 2009 and PISA 2018. These indices include DISCLIMA, JOYREAD and JOYREADP. For these trend indices, a common calibration linking procedure was used. Countries/Economies that participated in both PISA 2009 and PISA 2018 contributed both samples to the calibration of item parameters. Each country/economy contributed equally to the estimation in each cycle. Trend indices were equated so that the mean and standard deviation of rescaled PISA 2009 estimates and of the original estimates included in the PISA 2009 database, across OECD countries, matched. Trend indices are therefore reported on the same scale as used in PISA 2009, so that values can be directly compared to those included in the PISA 2009 database.

2. The mappings of options provided in national versions of the student questionnaire (and recorded in variable LANGN) for the two possible values for the "International Language at Home" variable (ST022Q01TA) are the responsibility of national PISA centres. 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 "Other language".

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ANNEX A2
The PISA target population, the PISA samples and the definition of schools

Exclusions and coverage ratios

WHO IS THE PISA TARGET POPULATION?

PISA 2018 assessed the cumulative outcomes of education and learning at a point at which most young people are still enrolled in formal education – when they are 15 years old.

Any international survey of education must guarantee the comparability of its target population across nations. One way to do this is to assess students at the same grade level. However, differences between countries in the nature and extent of pre-primary education and care, the age at entry into formal schooling, and the institutional structure of education systems do not allow for a definition of internationally comparable grade levels.

Other international assessments have defined their target population by the grade level that provides maximum coverage of a particular age cohort. However, this method is particularly sensitive to the distribution of students across age and grade levels; small changes in this distribution can lead to the selection of different target grades, even within the same country over different PISA cycles. There also may be differences across countries in whether students who are older or younger than the desired age cohort are represented in the modal grade, further rendering such grade-level-based samples difficult to compare.

To overcome these problems, PISA uses an age-based definition of its target population, one that is not tied to the institutional structures of national education systems. PISA assesses students who are aged between 15 years and 3 (complete) months and 16 years and 2 (complete) months at the beginning of the assessment period, plus or minus an allowed 1-month variation, and who are enrolled in an educational institution at grade 7 or higher. All students who met these criteria were eligible to sit the PISA assessment in 2018, regardless of the type of educational institution in which they were enrolled and whether they were enrolled in full-time or part-time education. This also allows PISA to evaluate students shortly before they are faced with major life choices, such as whether to continue with education or enter the workforce.

Hence, PISA makes statements about the knowledge and skills of a group of individuals who were born within a comparable reference period, but who may have undergone different educational experiences both in and outside of school. These students may be distributed over different ranges of grades (both in terms of the specific grade levels and the spread in grade levels) in different countries, or over different tracks or streams. It is important to consider these differences when comparing PISA results across countries. In addition, differences in performance observed when students are 15 may disappear later on if students' experiences in education converge over time.

If a country's mean scores in reading, mathematics or science are significantly higher than those of another country, it cannot automatically be inferred that schools or particular parts of the education system in the first country are more effective than those in the second. However, one can legitimately conclude that it is the cumulative impact of learning experiences in the first country, starting in early childhood and up to the age of 15, and including all experiences, whether they be at school, home or elsewhere, that have resulted in the better outcomes of the first country in the subjects that PISA assesses.

The PISA target population does not include residents of a country who attend school in another country. It does, however, include foreign nationals who attend school in the country of assessment.

To accommodate countries that requested grade-based results for the purpose of national analyses, PISA 2018 provided a sampling option to supplement age-based sampling with grade-based sampling.

HOW WERE STUDENTS CHOSEN?

The accuracy of the results from any survey depends on the quality of the information drawn from those surveyed as well as on the sampling procedures. Quality standards, procedures, instruments and verification mechanisms were developed for PISA that ensured that national samples yielded comparable data and that the results could be compared across countries with confidence. Experts from the PISA Consortium selected the samples for most participating countries/economies and monitored the sample-selection process closely in those countries that selected their own samples.

Most PISA samples were designed as two-stage stratified samples. The first stage sampled schools in which 15-year-old students may be enrolled. Schools were sampled systematically with probabilities proportional to the estimated size of their (eligible) 15-year-old population. At least 150 schools were selected in each country, although the requirements for national analyses often demanded a larger sample. Replacement schools for each sampled school were simultaneously identified, in case an originally sampled school chose not to participate in PISA 2018.

The second stage of the selection process sampled students within sampled schools. Once schools were selected, a list of each sampled school's 15-year-old students was prepared. From this list, 42 students were then selected with equal probability (all 15-year-old students were selected if fewer than 42 were enrolled). The target number of students who were to be sampled in a school could deviate from 42 but could not fall below 20.

Data-quality standards in PISA required minimum participation rates for schools as well as for students. These standards were established to minimise the potential for bias resulting from non-response. Indeed, it was likely that any bias resulting from non-response would be negligible – i.e. typically smaller than the sampling error – in countries that met these standards.

At least 85% of the schools initially selected to take part in the PISA assessment were required to agree to conduct the test. Where the initial response rate of schools was between 65% and 85%, however, an acceptable school-response rate could still be achieved through the use of replacement schools. Inherent in this procedure was a risk of introducing bias, if replacement schools differed from initially sampled schools along dimensions other than those considered for sampling. Participating countries and economies were therefore encouraged to persuade as many of the schools in the original sample as possible to participate.

Schools with a student participation rate of between 25% and 50% were not considered to be participating schools, but data (from both the cognitive assessment and questionnaire) from these schools were included in the database and contributed to the various estimates. Data from schools with a student participation rate of less than 25% were excluded from the database.

In PISA 2018, five countries and economies – Hong Kong (China) (69%), Latvia (82%), New Zealand (83%), the United Kingdom (73%) and the United States (65%) – did not meet the 85% threshold, but met the 65% threshold, amongst schools initially selected to take part in the PISA assessment. Upon replacement, Hong Kong (China) (79%), the United Kingdom (87%) and the United States (76%) still failed to reach an acceptable participation rate. Amongst the schools initially selected before replacement, the Netherlands (61%) did not meet the 65% school response-rate threshold, but it reached a response rate of 87% upon replacement. However, these were not considered to be major issues as, for each of these countries/economies, additional non-response analyses showed that there were limited differences between schools that did participate and the full set of schools originally drawn in the sample. Data from these jurisdictions were hence considered to be largely comparable with, and were therefore reported together with, data from other countries/economies.

PISA 2018 also required that at least 80% of the students chosen within participating schools participated themselves. This threshold was calculated at the national level and did not have to be met in each participating school. Follow-up sessions were required in schools where too few students had participated in the original assessment sessions. Student-participation rates were calculated over all original schools; and also over all schools, whether original or replacement schools. Students who participated in either the original or in any follow-up assessment sessions were counted in these participation rates; those who attended only the questionnaire session were included in the international database and contributed to the statistics presented in this publication if they provided at least a description of their father's or mother's occupation.

This 80% threshold was met in every country/economy except Portugal, where only 76% of students who were sampled actually participated. The high level of non-responding students could lead to biased results, e.g. if students who did not respond were more likely to be low-performing students. This was indeed the case in Portugal, but a non-response analysis based on data from a national mathematics assessment in the country showed that the upward bias of Portugal's overall results was likely small enough to preserve comparability over time and with other countries. Data from Portugal was therefore reported along with data from the countries/economies that met this 80% student-participation threshold.

Table I.A2.6 shows the response rate for students and schools, before and after replacement.

- **Column 1** shows the weighted participation rate of schools before replacement; it is equivalent to Column 2 divided by Column 3 (multiplied by 100 to give a percentage).
- **Column 2** shows the number of responding schools before school replacement, weighted by student enrolment.
- **Column 3** shows the number of sampled schools before school replacement, weighted by student enrolment. This includes both responding and non-responding schools.
- **Column 4** shows the unweighted number of responding schools before school replacement.

- **Column 5** shows the unweighted number of sampled schools before school replacement, including both responding and non-responding schools.
- **Columns 6 to 10** repeat Columns 1 to 5 for schools *after* school replacement, i.e. after non-responding schools were replaced by the replacement schools identified during the initial sampling procedure.
- **Columns 11 to 15** repeat Columns 6 to 10 but for *students* in schools after school replacement. Note that the weighted and unweighted numbers of students sampled (Columns 13 and 15) include students who were assessed and those who should have been assessed but who were absent on the day of assessment. Furthermore, as mentioned above, any students in schools where the student response rate was less than 50% were not considered to be attending participating schools, and were thus excluded from Columns 14 and 15 (and, similarly, from Columns 4, 5, 9 and 10).

WHAT PROPORTION OF 15-YEAR-OLDS DOES PISA REPRESENT?

All countries and economies attempted to maximise the coverage of 15-year-olds enrolled in education in their national samples, including students enrolled in special-education institutions.

The sampling standards used in PISA only permitted countries and economies to exclude up to a total of 5% of the relevant population (i.e. 15-year-old students enrolled in school at grade 7 or higher) either by excluding schools or excluding students within schools. All but 16 countries and economies – Sweden (11.09%), Israel (10.21%), Luxembourg (7.92%), Norway (7.88%), Canada (6.87%), New Zealand (6.78%), Switzerland (6.68%), the Netherlands (6.24%), Cyprus (5.99%), Iceland (5.99%), Kazakhstan (5.87%), Australia (5.72%), Denmark (5.70%), Turkey (5.66%), the United Kingdom (5.45%) and Estonia (5.03%) – achieved this standard, and in 28 countries and economies, the overall exclusion rate was less than 2% (Table I.A2.1) When language exclusions were accounted for (i.e. removed from the overall exclusion rate), Estonia and Iceland no longer had exclusion rates greater than 5%. More details can be found in the *PISA 2018 Technical Report* (OECD, forthcoming[1]).

Exclusions that should remain within the above limits include both:

- at the school level:
  - schools that were geographically inaccessible or where the administration of the PISA assessment was not considered feasible
  - schools that provided teaching only for students in the categories defined under "within-school exclusions", such as schools for the blind.

  The percentage of 15-year-olds enrolled in such schools had to be less than 2.5% of the nationally desired target population (0.5% maximum for the former group and 2% maximum for the latter group). The magnitude, nature and justification of school-level exclusions are documented in the *PISA 2018 Technical Report* (OECD, forthcoming[1]).
- 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 unable to overcome such a language barrier in the PISA testing environment, and were typically students who had received less than one year of instruction in the language of assessment
  - other exclusions, a category defined by the PISA national centres in individual participating countries and approved by the PISA international consortium
  - students taught in a language of instruction for the major domain for which no materials were available.

  Students could not be excluded solely because of low proficiency or common disciplinary problems. The percentage of 15-year-olds excluded within schools had to be less than 2.5% of the national desired target population.

Although exceeding the exclusion rate limit of 5% (Table I.A2.1), data from the 16 countries and economies listed above were all deemed to be acceptable for the reasons listed below. In particular, all of these reasons were accepted by a data-adjudication panel to allow for the reliable comparison of PISA results across countries and economies and across time; thus the data from these countries were reported together with data from other countries/economies.

- In Australia, Canada, Denmark, Luxembourg, New Zealand and Norway, exclusion rates remained close to those observed in previous cycles. In the United Kingdom, exclusion rates were also above 5% but have decreased markedly across cycles.
- In Cyprus, Iceland, Kazakhstan, the Netherlands and Switzerland, exclusions increased but remained close to the 5% limit. The increase could be largely attributed to a marked increase in students who were excluded within schools due to intellectual or functional disabilities. Moreover, in the Netherlands, some 17% of students were not excluded but assigned to UH (*une heure*) booklets, which were intended for students with special education needs. As these booklets did not cover the domain of financial literacy (see *PISA 2018 Results [Volume IV]: Are Students Smart about Money?*, OECD, forthcoming[2]), the effective exclusion rate for the Netherlands in financial literacy was over 20%. This resulted in a strong upward bias in the country mean and other population statistics in that domain. Data from the Netherlands in financial literacy are not comparable with data from other education systems; but data from the Netherlands in the core PISA subjects were still deemed to be largely comparable.
- The higher exclusion rate in Turkey was likely the result of a higher school-level exclusion rate due to a particular type of non-formal educational institution that was not listed (and hence not excluded) in 2015 but was listed and excluded in 2018.
- The higher exclusion rate in Israel was the result of a higher school-level exclusion rate due to the lack of participation by a particular type of boys' school. These schools were considered to be non-responding schools in cycles up to 2015 but were treated as school-level exclusions in 2018.
- Sweden had the highest exclusion rate: 11.07%. It is believed that this increase in the exclusion rate was due to a large and temporary increase in immigrant and refugee inflows, although because of Swedish data-collection laws, this could not be explicitly stated in student-tracking forms. Instead, students confronted with language barriers were classified as being excluded "for other reasons", as were students with intellectual and functional disabilities. It is expected that the exclusion rate will decrease to previous levels in future cycles of PISA, as such inflows stabilise or shrink.

Table I.A2.1 describes the target population of the countries participating in PISA 2018. Further information on the target population and the implementation of PISA sampling standards can be found in the *PISA 2018 Technical Report* (OECD, forthcoming[1]).

- **Column 1** shows the total number of 15-year-olds according to the most recent available information, which in most countries and economies means from 2017, the year before the assessment.
- **Column 2** shows the number of 15-year-olds enrolled in school in grade 7 or above, which is referred to as the "eligible population".
- **Column 3** shows the national desired target population. Countries and economies were allowed to exclude up to 0.5% of students *a priori* from the eligible population, essentially for practical reasons. The following *a priori* exclusions exceed this limit but were agreed with the PISA Consortium:
  - Canada excluded 1.17% of its population: students living in the Yukon, Northwest Territories and Nunavut, and Aboriginal students living on reserves
  - Chile excluded 0.05% of its population: students living on Easter Island, the Juan Fernandez Archipelago and Antarctica
  - Cyprus excluded 0.10% of its population: students attending schools on the northern part of the island
  - the Philippines excluded 2.42% of its population: students living in the Autonomous Region in Muslim Mindanao
  - Saudi Arabia excluded 7.59% of its population: students living in the regions of Najran and Jizan
  - Ukraine excluded 0.37% of its population: some students attending schools in the Donetsk and Luhansk regions
  - the United Arab Emirates excluded 0.04% of its population: home-schooled students.
- **Column 4** shows the number of students enrolled in schools that were excluded from the national desired target population, either from the sampling frame or later in the field during data collection. In other words, these are school-level exclusions.
- **Column 5** shows the size of the national desired target population after subtracting the students enrolled in excluded schools. This column is obtained by subtracting Column 4 from Column 3.
- **Column 6** shows the percentage of students enrolled in excluded schools. This is obtained by dividing Column 4 by Column 3 and multiplying by 100.
- **Column 7** shows the number of students who participated in PISA 2018. Note that in some cases, this number does not account for 15-year-olds assessed as part of additional national options.

- **Column 8** shows the weighted number of participating students, i.e. the number of students in the nationally defined target population that the PISA sample represents.
- **Column 9** shows the total number of students excluded within schools. In each sampled school, all eligible students – namely, those 15 years of age, regardless of grade – were listed, and a reason for the exclusion was provided for each student who was to be excluded from the sample. These reasons are further described and classified into specific categories in Table I.A2.4.
- **Column 10** shows the weighted number of students excluded within schools, i.e. the overall number of students in the national defined target population represented by the number of students from the sample excluded within schools. This weighted number is also described and classified by exclusion categories in Table I.A2.4.
- **Column 11** shows the percentage of students excluded within schools. This is equivalent to the weighted number of excluded students (Column 10) divided by the weighted number of excluded and participating students (the sum of Columns 8 and 10), multiplied by 100.
- **Column 12** shows the overall exclusion rate, which represents the weighted percentage of the national desired target population excluded from PISA either through school-level exclusions or through the exclusion of students within schools. It is equivalent to the school-level exclusion rate (Column 6) plus the product of the within-school exclusion rate and 1 minus the school-level exclusion rate expressed as a decimal (Column 6 divided by 100).
- **Column 13** shows an index of the extent to which the national desired target population was covered by the PISA sample. As mentioned above, 16 countries/economies fell below the coverage of 95%. This is also known as Coverage Index 1.
- **Column 14** shows an index of the extent to which 15-year-olds *enrolled in school* were covered by the PISA sample. The index, also known as Coverage Index 2, measures the overall proportion of the national enrolled population that is covered by the non-excluded portion of the student sample, and takes into account both school- and student-level exclusions. Values close to 100 indicate that the PISA sample represents the entire (grade 7 and higher) education system as defined for PISA 2018. This is calculated in a similar manner to Column 13; however, the total enrolled population of 15-year-olds in grade 7 or above (Column 2) is used as a base instead of the national desired target population (Column 3).
- **Column 15** shows an index of the coverage of the 15-year-old population. The index is the weighted number of participating students (Column 8) divided by the total population of 15-year-old students (Column 1). This is also known as Coverage Index 3.

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 on the order of 5% would likely lead to an overestimation of national mean scores of less than 5 score points on the PISA scale (where the standard deviation is 100 score points).

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 Austria, the Czech Republic, Germany, Hungary, Japan, Romania and Slovenia, 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 of Belgium, each campus (or implantation) 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 of Belgium.

In Argentina, Australia, Colombia and Croatia, each campus of a multi-campus school was sampled independently. Schools in the Basque Country of Spain that were divided into sections by language of instruction were split into these linguistic sections for sampling. International schools in Luxembourg were split into two sampling units: one for students who were instructed in a language for which testing material was available, and one for students who were instructed in a language for which no testing material was available (and who were hence excluded).

Some schools in the United Arab Emirates were sampled as a whole unit, while others were split by curriculum and sometimes by gender. Due to reorganisation, some schools in Sweden were split into two parts, each part with its own principal. 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.

THE DISTRIBUTION OF PISA STUDENTS ACROSS GRADES

Students assessed in PISA 2018 were enrolled in various grade levels. The percentage of students at each grade level is presented, by country, in Table I.A2.8 and Table I.A2.9, and by gender within each country in Table I.A2.12 and Table I.A2.13.

Table I.A2.1 [1/4] **PISA target populations and samples**

		Population and sample information						
		Total population of 15-year-olds	Total enrolled population of 15-year-olds at grade 7 or above	Total in national desired target population	Total school-level exclusions	Total in national desired target population after all school exclusions and before within-school exclusions	School-level exclusion rate (%)	Number of participating students
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
OECD	Australia	288 195	284 687	284 687	5 610	279 077	1.97	14 273
	Austria	84 473	80 108	80 108	603	79 505	0.75	6 802
	Belgium	126 031	122 808	122 808	1 877	120 931	1.53	8 475
	Canada	388 205	400 139	395 448	7 950	387 498	2.01	22 653
	Chile	239 492	215 580	215 470	2 151	213 319	1.00	7 621
	Colombia	856 081	645 339	645 339	950	644 389	0.15	7 522
	Czech Republic	92 013	90 835	90 835	1 510	89 325	1.66	7 019
	Denmark	68 313	67 414	67 414	653	66 761	0.97	7 657
	Estonia	12 257	12 120	12 120	413	11 707	3.41	5 316
	Finland	58 325	57 552	57 552	496	57 056	0.86	5 649
	France	828 196	798 480	798 480	13 732	784 748	1.72	6 308
	Germany	739 792	739 792	739 792	15 448	724 344	2.09	5 451
	Greece	102 868	100 203	100 203	1 266	98 937	1.26	6 403
	Hungary	96 838	91 297	91 297	1 992	89 305	2.18	5 132
	Iceland	4 232	4 177	4 177	35	4 142	0.84	3 294
	Ireland	61 999	61 188	61 188	59	61 129	0.10	5 577
	Israel	136 848	128 419	128 419	10 613	117 806	8.26	6 623
	Italy	616 185	544 279	544 279	748	543 531	0.14	11 785
	Japan	1 186 849	1 159 226	1 159 226	27 743	1 131 483	2.39	6 109
	Korea	517 040	517 040	517 040	2 489	514 551	0.48	6 650
	Latvia	17 977	17 677	17 677	692	16 985	3.92	5 303
	Lithuania	27 075	25 998	25 998	494	25 504	1.90	6 885
	Luxembourg	6 291	5 952	5 952	156	5 796	2.62	5 230
	Mexico	2 231 751	1 697 100	1 697 100	8 013	1 689 087	0.47	7 299
	Netherlands	208 704	204 753	204 753	10 347	194 406	5.05	4 765
	New Zealand	59 700	58 131	58 131	857	57 274	1.47	6 173
	Norway	60 968	60 794	60 794	852	59 942	1.40	5 813
	Poland	354 020	331 850	331 850	6 853	324 997	2.07	5 625
	Portugal	112 977	110 732	110 732	709	110 023	0.64	5 932
	Slovak Republic	51 526	50 100	50 100	587	49 513	1.17	5 965
	Slovenia	17 501	18 236	18 236	337	17 899	1.85	6 401
	Spain	454 168	436 560	436 560	2 368	434 192	0.54	35 943
	Sweden	108 622	107 824	107 824	1 492	106 332	1.38	5 504
	Switzerland	80 590	78 059	78 059	3 227	74 832	4.13	5 822
	Turkey	1 218 693	1 038 993	1 038 993	43 928	995 065	4.23	6 890
	United Kingdom	703 991	697 603	697 603	1 315	64 076	2.01	13 818
	United States	4 133 719	4 058 637	4 058 637	24 757	4 033 880	0.61	4 838

Notes: For a full explanation of the details in this table please refer to the *PISA 2018 Technical Report* (OECD, forthcoming[1]).

The figure for total national population of 15-year-olds enrolled in Column 2 may occasionally be larger than the total number of 15-year-olds in Column 1 due to differing data sources.

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Table I.A2.1 [2/4] **PISA target populations and samples**

		Population and sample information					
	Total population of 15-year-olds	Total enrolled population of 15-year-olds at grade 7 or above	Total in national desired target population	Total school-level exclusions	Total in national desired target population after all school exclusions and before within-school exclusions	School-level exclusion rate (%)	Number of participating students
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Partners							
Albania	36 955	30 160	30 160	0	30 160	0.00	6 359
Argentina	702 788	678 151	678 151	5 597	672 554	0.83	11 975
Baku (Azerbaijan)	43 798	22 672	22 672	454	22 218	2.00	6 827
Belarus	89 440	82 580	82 580	1 440	81 140	1.74	5 803
Bosnia and Herzegovina	35 056	32 313	32 313	243	32 070	0.75	6 480
Brazil	3 132 463	2 980 084	2 980 084	74 772	2 905 312	2.51	10 691
Brunei Darussalam	7 081	7 384	7 384	0	7 384	0.00	6 828
B-S-J-Z (China)	1 221 746	1 097 296	1 097 296	33 279	1 064 017	3.03	12 058
Bulgaria	66 499	51 674	51 674	388	51 286	0.75	5 294
Costa Rica	72 444	58 789	58 789	0	58 789	0.00	7 221
Croatia	39 812	30 534	30 534	409	30 125	1.34	6 609
Cyprus	8 285	8 285	8 277	138	8 139	1.67	5 503
Dominican Republic	192 198	148 033	148 033	2 755	145 278	1.86	5 674
Georgia	46 605	41 750	41 750	1 018	40 732	2.44	5 572
Hong Kong (China)	51 935	51 328	51 328	643	50 685	1.25	6 037
Indonesia	4 439 086	3 684 980	3 684 980	3 892	3 681 088	0.11	12 098
Jordan	212 777	132 291	132 291	90	132 201	0.07	8 963
Kazakhstan	230 646	230 018	230 018	9 814	220 204	4.27	19 507
Kosovo	30 494	27 288	27 288	87	27 201	0.32	5 058
Lebanon	61 979	59 687	59 687	1 300	58 387	2.18	5 614
Macao (China)	4 300	3 845	3 845	14	3 831	0.36	3 775
Malaysia	537 800	455 358	455 358	3 503	451 855	0.77	6 111
Malta	4 039	4 056	4 056	37	4 019	0.91	3 363
Moldova	29 716	29 467	29 467	78	29 389	0.26	5 367
Montenegro	7 484	7 432	7 432	40	7 392	0.54	6 666
Morocco	601 250	415 806	415 806	8 292	407 514	1.99	6 814
North Macedonia	18 812	18 812	18 812	298	18 514	1.59	5 569
Panama	72 084	60 057	60 057	585	59 472	0.97	6 270
Peru	580 690	484 352	484 352	10 483	473 869	2.16	6 086
Philippines	2 063 564	1 734 997	1 692 950	42 290	1 650 660	2.50	7 233
Qatar	16 492	16 408	16 408	245	16 163	1.49	13 828
Romania	203 940	171 685	171 685	4 653	167 032	2.71	5 075
Russia	1 343 738	1 339 706	1 339 706	48 114	1 291 592	3.59	7 608
Saudi Arabia	418 788	406 768	375 914	8 940	366 974	2.38	6 136
Serbia	69 972	66 729	66 729	1 175	65 554	1.76	6 609
Singapore	46 229	45 178	45 178	552	44 626	1.22	6 676
Chinese Taipei	246 260	240 241	240 241	1 978	238 263	0.82	7 243
Thailand	795 130	696 833	696 833	10 014	686 819	1.44	8 633
Ukraine	351 424	321 833	320 636	8 352	312 284	2.60	5 998
United Arab Emirates	59 275	59 203	59 178	847	58 331	1.43	19 277
Uruguay	50 965	46 768	46 768	0	46 768	0.00	5 263
Viet Nam	1 332 000	1 251 842	1 251 842	6 169	1 245 673	0.49	5 377

Notes: For a full explanation of the details in this table please refer to the *PISA 2018 Technical Report* (OECD, forthcoming[1]).
The figure for total national population of 15-year-olds enrolled in Column 2 may occasionally be larger than the total number of 15-year-olds in Column 1 due to differing data sources.

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Table I.A2.1 [3/4] **PISA target populations and samples**

		Population and sample information					Coverage indices		
		Weighted number of participating students	Number of excluded students	Weighted number of excluded students	Within-school exclusion rate (%)	Overall exclusion rate (%)	Coverage Index 1: Coverage of national desired population	Coverage Index 2: Coverage of national enrolled population	Coverage Index 3: Coverage of 15-year-old population
		(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD	Australia	257 779	716	10 249	3.82	5.72	0.943	0.943	0.894
	Austria	75 077	117	1 379	1.80	2.54	0.975	0.975	0.889
	Belgium	118 025	45	494	0.42	1.94	0.981	0.981	0.936
	Canada	335 197	1 481	17 496	4.96	6.87	0.931	0.920	0.863
	Chile	213 832	68	2 029	0.94	1.93	0.981	0.980	0.893
	Colombia	529 976	28	1 812	0.34	0.49	0.995	0.995	0.619
	Czech Republic	87 808	1	11	0.01	1.67	0.983	0.983	0.954
	Denmark	59 967	444	3 009	4.78	5.70	0.943	0.943	0.878
	Estonia	11 414	96	195	1.68	5.03	0.950	0.950	0.931
	Finland	56 172	157	1 491	2.59	3.42	0.966	0.966	0.963
	France	756 477	56	6 644	0.87	2.58	0.974	0.974	0.913
	Germany	734 915	42	4 847	0.66	2.73	0.973	0.973	0.993
	Greece	95 370	52	798	0.83	2.08	0.979	0.979	0.927
	Hungary	86 754	75	1 353	1.54	3.68	0.963	0.963	0.896
	Iceland	3 875	209	212	5.19	5.99	0.940	0.940	0.916
	Ireland	59 639	257	2 370	3.82	3.91	0.961	0.961	0.962
	Israel	110 645	152	2 399	2.12	10.21	0.898	0.898	0.809
	Italy	521 223	93	3 219	0.61	0.75	0.992	0.992	0.846
	Japan	1 078 921	0	0	0.00	2.39	0.976	0.976	0.909
	Korea	455 544	7	378	0.08	0.56	0.994	0.994	0.881
	Latvia	15 932	23	62	0.38	4.29	0.957	0.957	0.886
	Lithuania	24 453	95	360	1.45	3.32	0.967	0.967	0.903
	Luxembourg	5 478	315	315	5.44	7.92	0.921	0.921	0.871
	Mexico	1 480 904	44	11 457	0.77	1.24	0.988	0.988	0.664
	Netherlands	190 281	78	2 407	1.25	6.24	0.938	0.938	0.912
	New Zealand	53 000	443	3 016	5.38	6.78	0.932	0.932	0.888
	Norway	55 566	452	3 906	6.57	7.88	0.921	0.921	0.911
	Poland	318 724	116	5 635	1.74	3.77	0.962	0.962	0.900
	Portugal	98 628	158	1 749	1.74	2.37	0.976	0.976	0.873
	Slovak Republic	44 418	12	72	0.16	1.33	0.987	0.987	0.862
	Slovenia	17 138	124	298	1.71	3.52	0.965	0.965	0.979
	Spain	416 703	747	8 951	2.10	2.63	0.974	0.974	0.918
	Sweden	93 129	681	10 163	9.84	11.09	0.889	0.889	0.857
	Switzerland	71 683	152	1 955	2.66	6.68	0.933	0.933	0.889
	Turkey	884 971	95	13 463	1.50	5.66	0.943	0.943	0.726
	United Kingdom	597 240	688	20 562	3.33	5.45	0.945	0.945	0.848
	United States	3 559 045	194	119 057	3.24	3.83	0.962	0.962	0.861

Notes: For a full explanation of the details in this table please refer to the *PISA 2018 Technical Report* (OECD, forthcoming[1]).
The figure for total national population of 15-year-olds enrolled in Column 2 may occasionally be larger than the total number of 15-year-olds in Column 1 due to differing data sources.

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Table I.A2.1 [4/4] **PISA target populations and samples**

		Population and sample information					Coverage indices		
		Weighted number of participating students	Number of excluded students	Weighted number of excluded students	Within-school exclusion rate (%)	Overall exclusion rate (%)	Coverage Index 1: Coverage of national desired population	Coverage Index 2: Coverage of national enrolled population	Coverage Index 3: Coverage of 15-year-old population
		(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Partners	Albania	27 963	0	0	0.00	0.00	1.000	1.000	0.757
	Argentina	566 486	118	4 083	0.72	1.54	0.985	0.985	0.806
	Baku (Azerbaijan)	20 271	0	0	0.00	2.00	0.980	0.980	0.463
	Belarus	78 333	31	462	0.59	2.32	0.977	0.977	0.876
	Bosnia and Herzegovina	28 843	24	106	0.36	1.11	0.989	0.989	0.823
	Brazil	2 036 861	41	8 180	0.40	2.90	0.971	0.971	0.650
	Brunei Darussalam	6 899	53	53	0.76	0.76	0.992	0.992	0.974
	B-S-J-Z (China)	992 302	34	1 452	0.15	3.17	0.968	0.968	0.812
	Bulgaria	47 851	80	685	1.41	2.15	0.978	0.978	0.720
	Costa Rica	45 475	39	249	0.54	0.54	0.995	0.995	0.628
	Croatia	35 462	135	637	1.76	3.08	0.969	0.969	0.891
	Cyprus	7 639	201	351	4.40	5.99	0.940	0.939	0.922
	Dominican Republic	140 330	0	0	0.00	1.86	0.981	0.981	0.730
	Georgia	38 489	26	180	0.46	2.89	0.971	0.971	0.826
	Hong Kong (China)	51 101	0	0	0.00	1.25	0.987	0.987	0.984
	Indonesia	3 768 508	0	0	0.00	0.11	0.999	0.999	0.849
	Jordan	114 901	44	550	0.48	0.54	0.995	0.995	0.540
	Kazakhstan	212 229	300	3 624	1.68	5.87	0.941	0.941	0.920
	Kosovo	25 739	26	132	0.51	0.83	0.992	0.992	0.844
	Lebanon	53 726	1	8	0.02	2.19	0.978	0.978	0.867
	Macao (China)	3 799	0	0	0.00	0.36	0.996	0.996	0.883
	Malaysia	388 638	37	2 419	0.62	1.38	0.986	0.986	0.723
	Malta	3 925	56	56	1.41	2.31	0.977	0.977	0.972
	Moldova	28 252	35	207	0.73	0.99	0.990	0.990	0.951
	Montenegro	7 087	4	12	0.18	0.71	0.993	0.993	0.947
	Morocco	386 408	4	220	0.06	2.05	0.980	0.980	0.643
	North Macedonia	17 820	18	85	0.48	2.05	0.979	0.979	0.947
	Panama	38 540	24	106	0.27	1.24	0.988	0.988	0.535
	Peru	424 586	20	1 360	0.32	2.48	0.975	0.975	0.731
	Philippines	1 400 584	10	2 039	0.15	2.64	0.974	0.950	0.679
	Qatar	15 228	192	192	1.25	2.72	0.973	0.973	0.923
	Romania	148 098	24	930	0.62	3.32	0.967	0.967	0.726
	Russia	1 257 388	96	14 905	1.17	4.72	0.953	0.953	0.936
	Saudi Arabia	354 013	1	53	0.01	2.39	0.976	0.902	0.845
	Serbia	61 895	42	409	0.66	2.41	0.976	0.976	0.885
	Singapore	44 058	35	232	0.52	1.74	0.983	0.983	0.953
	Chinese Taipei	226 698	38	1 297	0.57	1.39	0.986	0.986	0.921
	Thailand	575 713	17	1 002	0.17	1.61	0.984	0.984	0.724
	Ukraine	304 855	34	1 704	0.56	3.15	0.969	0.965	0.867
	United Arab Emirates	54 403	166	331	0.60	2.03	0.980	0.979	0.918
	Uruguay	39 746	25	164	0.41	0.41	0.996	0.996	0.780
	Viet Nam	926 260	0	0	0.00	0.49	0.995	0.995	0.695

Notes: For a full explanation of the details in this table please refer to the *PISA 2018 Technical Report* (OECD, forthcoming[1]).
The figure for total national population of 15-year-olds enrolled in Column 2 may occasionally be larger than the total number of 15-year-olds in Column 1 due to differing data sources.

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Table I.A2.2 [1/4] **Change in the enrolment of 15-year-olds in grade 7 and above (PISA 2003 through PISA 2018)**

		PISA 2018				PISA 2015				PISA 2012			
		Total population of 15-year-olds	Total population of 15-year-olds enrolled in grade 7 or above	Weighted number of participating students	Coverage Index 3: Coverage of the national 15-year-old population	Total population of 15-year-olds	Total population of 15-year-olds enrolled in grade 7 or above	Weighted number of participating students	Coverage Index 3: Coverage of the national 15-year-old population	Total population of 15-year-olds	Total population of 15-year-olds enrolled in grade 7 or above	Weighted number of participating students	Coverage Index 3: Coverage of the national 15-year-old population
OECD	Australia	288 195	284 687	257 779	0.89	282 888	282 547	256 329	0.91	291 967	288 159	250 779	0.86
	Austria	84 473	80 108	75 077	0.89	88 013	82 683	73 379	0.83	93 537	89 073	82 242	0.88
	Belgium	126 031	122 808	118 025	0.94	123 630	121 954	114 902	0.93	123 469	121 493	117 912	0.95
	Canada	388 205	400 139	335 197	0.86	396 966	381 660	331 546	0.84	417 873	409 453	348 070	0.83
	Chile	239 492	215 580	213 832	0.89	255 440	245 947	203 782	0.80	274 803	252 733	229 199	0.83
	Colombia	856 081	645 339	529 976	0.62	760 919	674 079	567 848	0.75	889 729	620 422	560 805	0.63
	Czech Republic	92 013	90 835	87 808	0.95	90 391	90 076	84 519	0.94	96 946	93 214	82 101	0.85
	Denmark	68 313	67 414	59 967	0.88	68 174	67 466	60 655	0.89	72 310	70 854	65 642	0.91
	Estonia	12 257	12 120	11 414	0.93	11 676	11 491	10 834	0.93	12 649	12 438	11 634	0.92
	Finland	58 325	57 552	56 172	0.96	58 526	58 955	56 934	0.97	62 523	62 195	60 047	0.96
	France	828 196	798 480	756 477	0.91	807 867	778 679	734 944	0.91	792 983	755 447	701 399	0.88
	Germany	739 792	739 792	734 915	0.99	774 149	774 149	743 969	0.96	798 136	798 136	756 907	0.95
	Greece	102 868	100 203	95 370	0.93	105 530	105 253	96 157	0.91	110 521	105 096	96 640	0.87
	Hungary	96 838	91 297	86 754	0.90	94 515	90 065	84 644	0.90	111 761	108 816	91 179	0.82
	Iceland	4 232	4 177	3 875	0.92	4 250	4 195	3 966	0.93	4 505	4 491	4 169	0.93
	Ireland	61 999	61 188	59 639	0.96	61 234	59 811	59 082	0.96	59 296	57 979	54 010	0.91
	Israel	136 848	128 419	110 645	0.81	124 852	118 997	117 031	0.94	118 953	113 278	107 745	0.91
	Italy	616 185	544 279	521 223	0.85	616 761	567 268	495 093	0.80	605 490	566 973	521 288	0.86
	Japan	1 186 849	1 159 226	1 078 921	0.91	1 201 615	1 175 907	1 138 349	0.95	1 241 786	1 214 756	1 128 179	0.91
	Korea	517 040	517 040	455 544	0.88	620 687	619 950	569 106	0.92	687 104	672 101	603 632	0.88
	Latvia	17 977	17 677	15 932	0.89	17 255	16 955	15 320	0.89	18 789	18 389	16 054	0.85
	Lithuania	27 075	25 998	24 453	0.90	33 163	32 097	29 915	0.90	38 524	35 567	33 042	0.86
	Luxembourg	6 291	5 952	5 478	0.87	6 327	6 053	5 540	0.88	6 187	6 082	5 523	0.85
	Mexico	2 231 751	1 697 100	1 480 904	0.66	2 257 399	1 401 247	1 392 995	0.62	2 114 745	1 472 875	1 326 025	0.63
	Netherlands	208 704	204 753	190 281	0.91	203 234	200 976	191 817	0.94	194 000	193 190	196 262	1.01
	New Zealand	59 700	58 131	53 000	0.89	60 162	57 448	54 274	0.90	60 940	59 118	53 414	0.88
	Norway	60 968	60 794	55 566	0.91	63 642	63 491	58 083	0.91	64 917	64 777	59 432	0.92
	Poland	354 020	331 850	318 724	0.90	380 366	361 600	345 709	0.91	425 597	410 700	379 275	0.89
	Portugal	112 977	110 732	98 628	0.87	110 939	101 107	97 214	0.88	108 728	127 537	96 034	0.88
	Slovak Republic	51 526	50 100	44 418	0.86	55 674	55 203	49 654	0.89	59 723	59 367	54 486	0.91
	Slovenia	17 501	18 236	17 138	0.98	18 078	17 689	16 773	0.93	19 471	18 935	18 303	0.94
	Spain	454 168	436 560	416 703	0.92	440 084	414 276	399 935	0.91	423 444	404 374	374 266	0.88
	Sweden	108 622	107 824	93 129	0.86	97 749	97 210	91 491	0.94	102 087	102 027	94 988	0.93
	Switzerland	80 590	78 059	71 683	0.89	85 495	83 655	82 223	0.96	87 200	85 239	79 679	0.91
	Turkey	1 218 693	1 038 993	884 971	0.73	1 324 089	1 100 074	925 366	0.70	1 266 638	965 736	866 681	0.68
	United Kingdom	703 991	697 603	597 240	0.85	747 593	746 328	627 703	0.84	738 066	745 581	688 236	0.93
	United States	4 133 719	4 058 637	3 559 045	0.86	4 220 325	3 992 053	3 524 497	0.84	3 985 714	4 074 457	3 536 153	0.89

Notes: Costa Rica, Georgia, Malta and Moldova conducted the PISA 2009 assessment in 2010 as part of PISA 2009+.

For Albania, Brazil, Chile, Jordan, the Netherlands, Romania, Uruguay and Viet Nam, estimates of the total population of 15-year-olds across years have been updated to align data sources with those used in 2018. Therefore, the estimates reported in this table do not match those that appear in previous PISA reports.

For Mexico, in 2015, the total population of 15-year-olds enrolled in grade 7 or above is an estimate of the target population size of the sample frame from which the 15-year-old students were selected for the PISA test. At the time Mexico provided the information to PISA, the official figure for this population was 1 573 952.

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Table I.A2.2 [2/4] **Change in the enrolment of 15-year-olds in grade 7 and above (PISA 2003 through PISA 2018)**

		PISA 2018				PISA 2015				PISA 2012			
		Total population of 15-year-olds	Total population of 15-year-olds enrolled in grade 7 or above	Weighted number of participating students	Coverage Index 3: Coverage of the national 15-year-old population	Total population of 15-year-olds	Total population of 15-year-olds enrolled in grade 7 or above	Weighted number of participating students	Coverage Index 3: Coverage of the national 15-year-old population	Total population of 15-year-olds	Total population of 15-year-olds enrolled in grade 7 or above	Weighted number of participating students	Coverage Index 3: Coverage of the national 15-year-old population
Partners	Albania	36 955	30 160	27 963	0.76	45 667	45 163	40 896	0.90	55 099	50 157	42 466	0.77
	Argentina	702 788	678 151	566 486	0.81	718 635	578 308	394 917	0.55	684 879	637 603	545 942	0.80
	Baku (Azerbaijan)	43 798	22 672	20 271	0.46	m	m	m	m	m	m	m	m
	Belarus	89 440	82 580	78 333	0.88	m	m	m	m	m	m	m	m
	Bosnia and Herzegovina	35 056	32 313	28 843	0.82	m	m	m	m	m	m	m	m
	Brazil	3 132 463	2 980 084	2 036 861	0.65	3 379 467	2 853 388	2 425 961	0.72	3 520 371	2 786 064	2 470 804	0.70
	Brunei Darussalam	7 081	7 384	6 899	0.97	m	m	m	m	m	m	m	m
	B-S-J-Z (China)	1 221 746	1 097 296	992 302	0.81	m	m	m	m	m	m	m	m
	Bulgaria	66 499	51 674	47 851	0.72	66 601	59 397	53 685	0.81	70 188	59 684	54 255	0.77
	Costa Rica	72 444	58 789	45 475	0.63	81 773	66 524	51 897	0.63	81 489	64 326	40 384	0.50
	Croatia	39 812	30 534	35 462	0.89	45 031	35 920	40 899	0.91	48 155	46 550	45 502	0.94
	Cyprus	8 285	8 285	7 639	0.92	9 255	9 255	8 785	0.95	9 956	9 956	9 650	0.97
	Dominican Republic	192 198	148 033	140 330	0.73	193 153	139 555	132 300	0.68	m	m	m	m
	Georgia	46 605	41 750	38 489	0.83	48 695	43 197	38 334	0.79	m	m	m	m
	Hong Kong (China)	51 935	51 328	51 101	0.98	65 100	61 630	57 662	0.89	84 200	77 864	70 636	0.84
	Indonesia	4 439 086	3 684 980	3 768 508	0.85	4 534 216	3 182 816	3 092 773	0.68	4 174 217	3 599 844	2 645 155	0.63
	Jordan	212 777	132 291	114 901	0.54	196 734	121 729	108 669	0.55	153 293	125 333	111 098	0.72
	Kazakhstan	230 646	230 018	212 229	0.92	211 407	209 555	192 909	0.91	258 716	247 048	208 411	0.81
	Kosovo	30 494	27 288	25 739	0.84	31 546	28 229	22 333	0.71	m	m	m	m
	Lebanon	61 979	59 687	53 726	0.87	64 044	62 281	42 331	0.66	m	m	m	m
	Macao (China)	4 300	3 845	3 799	0.88	5 100	4 417	4 507	0.88	6 600	5 416	5 366	0.81
	Malaysia	537 800	455 358	388 638	0.72	540 000	448 838	412 524	0.76	544 302	457 999	432 080	0.79
	Malta	4 039	4 056	3 925	0.97	4 397	4 406	4 296	0.98	m	m	m	m
	Moldova	29 716	29 467	28 252	0.95	31 576	30 601	29 341	0.93	m	m	m	m
	Montenegro	7 484	7 432	7 087	0.95	7 524	7 506	6 777	0.90	8 600	8 600	7 714	0.90
	Morocco	601 250	415 806	386 408	0.64	m	m	m	m	m	m	m	m
	North Macedonia	18 812	18 812	17 820	0.95	16 719	16 717	15 847	0.95	m	m	m	m
	Panama	72 084	60 057	38 540	0.53	m	m	m	m	m	m	m	m
	Peru	580 690	484 352	424 586	0.73	580 371	478 229	431 738	0.74	584 294	508 969	419 945	0.72
	Philippines	2 063 564	1 734 997	1 400 584	0.68	m	m	m	m	m	m	m	m
	Qatar	16 492	16 408	15 228	0.92	13 871	13 850	12 951	0.93	11 667	11 532	11 003	0.94
	Romania	203 940	171 685	148 098	0.73	218 846	176 334	164 216	0.75	212 694	146 243	140 915	0.66
	Russia	1 343 738	1 339 706	1 257 388	0.94	1 176 473	1 172 943	1 120 932	0.95	1 272 632	1 268 814	1 172 539	0.92
	Saudi Arabia	418 788	406 768	354 013	0.85	m	m	m	m	m	m	m	m
	Serbia	69 972	66 729	61 895	0.88	m	m	m	m	85 121	75 870	67 934	0.80
	Singapore	46 229	45 178	44 058	0.95	48 218	47 050	46 224	0.96	53 637	52 163	51 088	0.95
	Chinese Taipei	246 260	240 241	226 698	0.92	m	m	m	m	m	m	m	m
	Thailand	795 130	696 833	575 713	0.72	895 513	756 917	634 795	0.71	982 080	784 897	703 012	0.72
	Ukraine	351 424	321 833	304 855	0.87	m	m	m	m	m	m	m	m
	United Arab Emirates	59 275	59 203	54 403	0.92	51 687	51 518	46 950	0.91	48 824	48 446	40 612	0.83
	Uruguay	50 965	46 768	39 746	0.78	53 533	43 865	38 287	0.72	54 638	46 442	39 771	0.73
	Viet Nam	1 332 000	1 251 842	926 260	0.70	1 340 000	1 032 599	874 859	0.65	1 393 000	1 091 462	956 517	0.69

Notes: Costa Rica, Georgia, Malta and Moldova conducted the PISA 2009 assessment in 2010 as part of PISA 2009+.

For Albania, Brazil, Chile, Jordan, the Netherlands, Romania, Uruguay and Viet Nam, estimates of the total population of 15-year-olds across years have been updated to align data sources with those used in 2018. Therefore, the estimates reported in this table do not match those that appear in previous PISA reports.

For Mexico, in 2015, the total population of 15-year-olds enrolled in grade 7 or above is an estimate of the target population size of the sample frame from which the 15-year-old students were selected for the PISA test. At the time Mexico provided the information to PISA, the official figure for this population was 1 573 952.

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Table I.A2.2 [3/4] **Change in the enrolment of 15-year-olds in grade 7 and above (PISA 2003 through PISA 2018)**

		PISA 2009				PISA 2006				PISA 2003			
		Total population of 15-year-olds	Total population of 15-year-olds enrolled in grade 7 or above	Weighted number of participating students	Coverage Index 3: Coverage of the national 15-year-old population	Total population of 15-year-olds	Total population of 15-year-olds enrolled in grade 7 or above	Weighted number of participating students	Coverage Index 3: Coverage of the national 15-year-old population	Total population of 15-year-olds	Total population of 15-year-olds enrolled in grade 7 or above	Weighted number of participating students	Coverage Index 3: Coverage of the national 15-year-old population
OECD	Australia	286 334	269 669	240 851	0.84	270 115	256 754	234 940	0.87	268 164	250 635	235 591	0.88
	Austria	99 818	94 192	87 326	0.87	97 337	92 149	89 925	0.92	94 515	89 049	85 931	0.91
	Belgium	126 377	126 335	119 140	0.94	124 943	124 557	123 161	0.99	120 802	118 185	111 831	0.93
	Canada	430 791	426 590	360 286	0.84	426 967	428 876	370 879	0.87	398 865	399 265	330 436	0.83
	Chile	290 056	265 542	247 270	0.85	297 085	255 459	233 526	0.79	m	m	m	m
	Colombia	893 057	582 640	522 388	0.58	897 477	543 630	537 262	0.60	m	m	m	m
	Czech Republic	122 027	116 153	113 951	0.93	127 748	124 764	128 827	1.01	130 679	126 348	121 183	0.93
	Denmark	70 522	68 897	60 855	0.86	66 989	65 984	57 013	0.85	59 156	58 188	51 741	0.87
	Estonia	14 248	14 106	12 978	0.91	19 871	19 623	18 662	0.94	m	m	m	m
	Finland	66 198	66 198	61 463	0.93	66 232	66 232	61 387	0.93	61 107	61 107	57 883	0.95
	France	749 808	732 825	677 620	0.90	809 375	809 375	739 428	0.91	809 053	808 276	734 579	0.91
	Germany	852 044	852 044	766 993	0.90	951 535	1 062 920	903 512	0.95	951 800	916 869	884 358	0.93
	Greece	102 229	105 664	93 088	0.91	107 505	110 663	96 412	0.90	111 286	108 314	105 131	0.94
	Hungary	121 155	118 387	105 611	0.87	124 444	120 061	106 010	0.85	129 138	123 762	107 044	0.83
	Iceland	4 738	4 738	4 410	0.93	4 820	4 777	4 624	0.96	4 168	4 112	3 928	0.94
	Ireland	56 635	55 464	52 794	0.93	58 667	57 648	55 114	0.94	61 535	58 997	54 850	0.89
	Israel	122 701	112 254	103 184	0.84	122 626	109 370	93 347	0.76	m	m	m	m
	Italy	586 904	573 542	506 733	0.86	578 131	639 971	520 055	0.90	561 304	574 611	481 521	0.86
	Japan	1 211 642	1 189 263	1 113 403	0.92	1 246 207	1 222 171	1 113 701	0.89	1 365 471	1 328 498	1 240 054	0.91
	Korea	717 164	700 226	630 030	0.88	660 812	627 868	576 669	0.87	606 722	606 370	533 504	0.88
	Latvia	28 749	28 149	23 362	0.81	34 277	33 659	29 232	0.85	37 544	37 138	33 643	0.90
	Lithuania	51 822	43 967	40 530	0.78	53 931	51 808	50 329	0.93	m	m	m	m
	Luxembourg	5 864	5 623	5 124	0.87	4 595	4 595	4 733	1.03	4 204	4 204	4 080	0.97
	Mexico	2 151 771	1 425 397	1 305 461	0.61	2 200 916	1 383 364	1 190 420	0.54	2 192 452	1 273 163	1 071 650	0.49
	Netherlands	199 000	198 334	183 546	0.92	197 046	193 769	189 576	0.96	194 216	194 216	184 943	0.95
	New Zealand	63 460	60 083	55 129	0.87	63 800	59 341	53 398	0.84	55 440	53 293	48 638	0.88
	Norway	63 352	62 948	57 367	0.91	61 708	61 449	59 884	0.97	56 060	55 648	52 816	0.94
	Poland	482 500	473 700	448 866	0.93	549 000	546 000	515 993	0.94	589 506	569 294	534 900	0.91
	Portugal	115 669	107 583	96 820	0.84	115 426	100 816	90 079	0.78	109 149	99 216	96 857	0.89
	Slovak Republic	72 826	72 454	69 274	0.95	79 989	78 427	76 201	0.95	84 242	81 945	77 067	0.91
	Slovenia	20 314	19 571	18 773	0.92	23 431	23 018	20 595	0.88	m	m	m	m
	Spain	433 224	425 336	387 054	0.89	439 415	436 885	381 686	0.87	454 064	418 005	344 372	0.76
	Sweden	121 486	121 216	113 054	0.93	129 734	127 036	126 393	0.97	109 482	112 258	107 104	0.98
	Switzerland	90 623	89 423	80 839	0.89	87 766	86 108	89 651	1.02	83 247	81 020	86 491	1.04
	Turkey	1 336 842	859 172	757 298	0.57	1 423 514	800 968	665 477	0.47	1 351 492	725 030	481 279	0.36
	United Kingdom	786 626	786 825	683 380	0.87	779 076	767 248	732 004	0.94	768 180	736 785	698 579	0.91
	United States	4 103 738	4 210 475	3 373 264	0.82	4 192 939	4 192 939	3 578 040	0.85	3 979 116	3 979 116	3 147 089	0.79

Notes: Costa Rica, Georgia, Malta and Moldova conducted the PISA 2009 assessment in 2010 as part of PISA 2009+.

For Albania, Brazil, Chile, Jordan, the Netherlands, Romania, Uruguay and Viet Nam, estimates of the total population of 15-year-olds across years have been updated to align data sources with those used in 2018. Therefore, the estimates reported in this table do not match those that appear in previous PISA reports.

For Mexico, in 2015, the total population of 15-year-olds enrolled in grade 7 or above is an estimate of the target population size of the sample frame from which the 15-year-old students were selected for the PISA test. At the time Mexico provided the information to PISA, the official figure for this population was 1 573 952.

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Table I.A2.2 [4/4] **Change in the enrolment of 15-year-olds in grade 7 and above (PISA 2003 through PISA 2018)**

	PISA 2009				PISA 2006				PISA 2003			
Partners	Total population of 15-year-olds	Total population of 15-year-olds enrolled in grade 7 or above	Weighted number of participating students	Coverage Index 3: Coverage of the national 15-year-old population	Total population of 15-year-olds	Total population of 15-year-olds enrolled in grade 7 or above	Weighted number of participating students	Coverage Index 3: Coverage of the national 15-year-old population	Total population of 15-year-olds	Total population of 15-year-olds enrolled in grade 7 or above	Weighted number of participating students	Coverage Index 3: Coverage of the national 15-year-old population
Albania	55 587	42 767	34 134	0.61	m	m	m	m	m	m	m	m
Argentina	688 434	636 713	472 106	0.69	662 686	579 222	523 048	0.79	m	m	m	m
Baku (Azerbaijan)	m	m	m	m	m	m	m	m	m	m	m	m
Belarus	m	m	m	m	m	m	m	m	m	m	m	m
Bosnia and Herzegovina	m	m	m	m	m	m	m	m	m	m	m	m
Brazil	3 434 101	2 654 489	2 080 159	0.61	3 439 795	2 374 044	1 875 461	0.55	3 560 650	2 359 854	1 952 253	0.55
Brunei Darussalam	m	m	m	m	m	m	m	m	m	m	m	m
B-S-J-Z (China)	m	m	m	m	m	m	m	m	m	m	m	m
Bulgaria	80 226	70 688	57 833	0.72	89 751	88 071	74 326	0.83	m	m	m	m
Costa Rica	80 523	63 603	42 954	0.53	m	m	m	m	m	m	m	m
Croatia	48 491	46 256	43 065	0.89	54 500	51 318	46 523	0.85	m	m	m	m
Cyprus	m	m	m	m	m	m	m	m	m	m	m	m
Dominican Republic	m	m	m	m	m	m	m	m	m	m	m	m
Georgia	56 070	51 351	42 641	0.76	m	m	m	m	m	m	m	m
Hong Kong (China)	85 000	78 224	75 548	0.89	77 398	75 542	75 145	0.97	75 000	72 631	72 484	0.97
Indonesia	4 267 801	3 158 173	2 259 118	0.53	4 238 600	3 119 393	2 248 313	0.53	4 281 895	3 113 548	1 971 476	0.46
Jordan	133 953	107 254	104 056	0.78	122 354	126 708	90 267	0.74	m	m	m	m
Kazakhstan	281 659	263 206	250 657	0.89	m	m	m	m	m	m	m	m
Kosovo	m	m	m	m	m	m	m	m	m	m	m	m
Lebanon	m	m	m	m	m	m	m	m	m	m	m	m
Macao (China)	7 500	5 969	5 978	0.80	m	m	m	m	8 318	6 939	6 546	0.79
Malaysia	539 295	492 758	421 448	0.78	m	m	m	m	m	m	m	m
Malta	5 152	4 930	4 807	0.93	m	m	m	m	m	m	m	m
Moldova	47 873	44 069	43 195	0.90	m	m	m	m	m	m	m	m
Montenegro	8 500	8 493	7 728	0.91	9 190	8 973	7 734	0.84	m	m	m	m
Morocco	m	m	m	m	m	m	m	m	m	m	m	m
North Macedonia	m	m	m	m	m	m	m	m	m	m	m	m
Panama	57 919	43 623	30 510	0.53	m	m	m	m	m	m	m	m
Peru	585 567	491 514	427 607	0.73	m	m	m	m	m	m	m	m
Philippines	m	m	m	m	m	m	m	m	m	m	m	m
Qatar	10 974	10 665	9 806	0.89	8 053	7 865	7 271	0.90	m	m	m	m
Romania	220 264	152 084	151 130	0.69	312 483	241 890	223 887	0.72	m	m	m	m
Russia	1 673 085	1 667 460	1 290 047	0.77	2 243 924	2 077 231	1 810 856	0.81	2 496 216	2 366 285	2 153 373	0.86
Saudi Arabia	m	m	m	m	m	m	m	m	m	m	m	m
Serbia	85 121	75 128	70 796	0.83	88 584	80 692	73 907	0.83	m	m	m	m
Singapore	54 982	54 212	51 874	0.94	m	m	m	m	m	m	m	m
Chinese Taipei	m	m	m	m	m	m	m	m	m	m	m	m
Thailand	949 891	763 679	691 916	0.73	895 924	727 860	644 125	0.72	927 070	778 267	637 076	0.69
Ukraine	m	m	m	m	m	m	m	m	m	m	m	m
United Arab Emirates	41 564	40 447	38 707	0.93	m	m	m	m	m	m	m	m
Uruguay	53 801	43 281	33 971	0.63	52 119	40 815	36 011	0.69	53 948	40 023	33 775	0.63
Viet Nam	m	m	m	m	m	m	m	m	m	m	m	m

Notes: Costa Rica, Georgia, Malta and Moldova conducted the PISA 2009 assessment in 2010 as part of PISA 2009+.

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Table I.A2.4 [1/2] **Exclusions**

	Student exclusions (unweighted)						Student exclusions (weighted)					
	Number of excluded students with functional disability (Code 1)	Number of excluded students with intellectual disability (Code 2)	Number of excluded students because of language (Code 3)	Number of excluded students for other reasons (Code 4)	Number of excluded students because of no materials available in the language of instruction (Code 5)	Total number of excluded students	Number of excluded students with functional disability (Code 1)	Number of excluded students with intellectual disability (Code 2)	Number of excluded students because of language (Code 3)	Number of excluded students for other reasons (Code 4)	Number of excluded students because of no materials available in the language of instruction (Code 5)	Total number of excluded students
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD												
Australia	69	555	92	0	0	716	1 054	7 895	1 300	0	0	10 249
Austria	7	49	61	0	0	117	77	531	771	0	0	1 379
Belgium	8	19	18	0	0	45	87	211	196	0	0	494
Canada	125	1 040	316	0	0	1 481	1 611	11 744	4 141	0	0	17 496
Chile	6	58	4	0	0	68	173	1 727	129	0	0	2 029
Colombia	4	24	0	0	0	28	346	1 466	0	0	0	1 812
Czech Republic	1	0	0	0	0	1	11	0	0	0	0	11
Denmark	15	179	88	162	0	444	98	1 453	427	1 032	0	3 009
Estonia	3	85	8	0	0	96	8	174	13	0	0	195
Finland	6	100	22	17	12	157	55	966	204	155	111	1 491
France	8	28	20	0	0	56	776	3 397	2 471	0	0	6 644
Germany	2	18	22	0	0	42	199	1 859	2 789	0	0	4 847
Greece	2	39	11	0	0	52	29	590	179	0	0	798
Hungary	5	20	4	46	0	75	77	432	67	777	0	1 353
Iceland	5	133	61	10	0	209	5	135	62	10	0	212
Ireland	39	90	45	83	0	257	367	831	420	752	0	2 370
Israel	25	87	40	0	0	152	406	1 382	611	0	0	2 399
Italy	0	0	0	93	0	93	0	0	0	3 219	0	3 219
Japan	0	0	0	0	0	0	0	0	0	0	0	0
Korea	5	1	1	0	0	7	302	74	2	0	0	378
Latvia	2	20	1	0	0	23	5	54	2	0	0	62
Lithuania	4	91	0	0	0	95	16	344	0	0	0	360
Luxembourg	5	233	77	0	0	315	5	233	77	0	0	315
Mexico	13	28	3	0	0	44	2 609	7 301	1 547	0	0	11 457
Netherlands	7	58	9	4	0	78	236	1 813	224	134	0	2 407
New Zealand	42	279	119	0	3	443	278	1 905	812	0	21	3 016
Norway	17	327	108	0	0	452	147	2 814	944	0	0	3 906
Poland	21	87	8	0	0	116	964	4 190	481	0	0	5 635
Portugal	10	139	9	0	0	158	126	1 551	73	0	0	1 749
Slovak Republic	1	8	0	3	0	12	5	50	0	18	0	72
Slovenia	13	36	75	0	0	124	20	85	193	0	0	298
Spain	39	481	227	0	0	747	423	5 400	3 128	0	0	8 951
Sweden	0	0	0	681	0	681	0	0	0	10 163	0	10 163
Switzerland	8	71	73	0	0	152	86	813	1 056	0	0	1 955
Turkey	10	46	39	0	0	95	1 248	6 389	5 825	0	0	13 463
United Kingdom	75	573	40	0	0	688	2 448	16 592	1 522	0	0	20 562
United States	38	106	39	11	0	194	25 164	62 555	24 972	6 367	0	119 057

Note: For a full explanation of other details in this table please refer to the *PISA 2018 Technical Report* (OECD, forthcoming[1]).

Exclusion codes:

Code 1: Functional disability – student has a moderate to severe permanent physical disability.

Code 2: Intellectual disability – student has a mental or emotional disability and has either been tested as cognitively delayed or is considered in the professional opinion of qualified staff to be cognitively delayed.

Code 3: Limited assessment language proficiency – student is not a native speaker of any of the languages of the assessment in the country and has been resident in the country for less than one year.

Code 4: Other reasons defined by the national centres and approved by the international centre.

Code 5: No materials available in the language of instruction.

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Table I.A2.4 [2/2] **Exclusions**

	Student exclusions (unweighted)						Student exclusions (weighted)					
	Number of excluded students with functional disability (Code 1)	Number of excluded students with intellectual disability (Code 2)	Number of excluded students because of language (Code 3)	Number of excluded students for other reasons (Code 4)	Number of excluded students because of no materials available in the language of instruction (Code 5)	Total number of excluded students	Number of excluded students with functional disability (Code 1)	Number of excluded students with intellectual disability (Code 2)	Number of excluded students because of language (Code 3)	Number of excluded students for other reasons (Code 4)	Number of excluded students because of no materials available in the language of instruction (Code 5)	Total number of excluded students
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Partners												
Albania	0	0	0	0	0	0	0	0	0	0	0	0
Argentina	21	96	1	0	0	118	871	3 199	13	0	0	4 083
Baku (Azerbaijan)	0	0	0	0	0	0	0	0	0	0	0	0
Belarus	30	1	0	0	0	31	449	13	0	0	0	462
Bosnia and Herzegovina	8	16	0	0	0	24	29	77	0	0	0	106
Brazil	4	36	1	0	0	41	693	7 100	386	0	0	8 180
Brunei Darussalam	9	44	0	0	0	53	9	44	0	0	0	53
B-S-J-Z (China)	2	24	8	0	0	34	49	1 194	209	0	0	1 452
Bulgaria	4	76	0	0	0	80	31	653	0	0	0	685
Costa Rica	22	12	5	0	0	39	139	78	31	0	0	249
Croatia	7	84	4	0	40	135	33	397	24	0	182	637
Cyprus	17	143	41	0	0	201	25	250	77	0	0	351
Dominican Republic	0	0	0	0	0	0	0	0	0	0	0	0
Georgia	6	20	0	0	0	26	46	134	0	0	0	180
Hong Kong (China)	0	0	0	0	0	0	0	0	0	0	0	0
Indonesia	0	0	0	0	0	0	0	0	0	0	0	0
Jordan	25	17	2	0	0	44	322	204	23	0	0	550
Kazakhstan	132	157	11	0	0	300	1 673	1 617	334	0	0	3 624
Kosovo	0	14	0	0	12	26	0	53	0	0	79	132
Lebanon	0	1	0	0	0	1	0	8	0	0	0	8
Macao (China)	0	0	0	0	0	0	0	0	0	0	0	0
Malaysia	15	22	0	0	0	37	968	1 451	0	0	0	2 419
Malta	6	48	2	0	0	56	6	48	2	0	0	56
Moldova	4	29	2	0	0	35	25	164	18	0	0	207
Montenegro	0	4	0	0	0	4	0	12	0	0	0	12
Morocco	4	0	0	0	0	4	220	0	0	0	0	220
North Macedonia	2	3	0	0	13	18	4	8	0	0	73	85
Panama	5	18	1	0	0	24	12	91	3	0	0	106
Peru	11	9	0	0	0	20	756	603	0	0	0	1 360
Philippines	2	8	0	0	0	10	376	1 663	0	0	0	2 039
Qatar	30	150	12	0	0	192	30	150	12	0	0	192
Romania	2	19	3	0	0	24	58	700	172	0	0	930
Russia	14	81	1	0	0	96	2 126	12 620	159	0	0	14 905
Saudi Arabia	0	1	0	0	0	1	0	53	0	0	0	53
Serbia	8	11	2	0	21	42	71	148	16	0	174	409
Singapore	4	22	9	0	0	35	25	145	62	0	0	232
Chinese Taipei	9	28	1	0	0	38	320	957	20	0	0	1 297
Thailand	1	16	0	0	0	17	75	927	0	0	0	1 002
Ukraine	28	6	0	0	0	34	1 389	315	0	0	0	1 704
United Arab Emirates	16	124	26	0	0	166	26	256	49	0	0	331
Uruguay	4	20	1	0	0	25	29	131	5	0	0	164
Viet Nam	0	0	0	0	0	0	0	0	0	0	0	0

Note: For a full explanation of other details in this table please refer to the *PISA 2018 Technical Report* (OECD, forthcoming[1]).

Exclusion codes:

Code 1: Functional disability – student has a moderate to severe permanent physical disability.

Code 2: Intellectual disability – student has a mental or emotional disability and has either been tested as cognitively delayed or is considered in the professional opinion of qualified staff to be cognitively delayed.

Code 3: Limited assessment language proficiency – student is not a native speaker of any of the languages of the assessment in the country and has been resident in the country for less than one year.

Code 4: Other reasons defined by the national centres and approved by the international centre.

Code 5: No materials available in the language of instruction.

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Table I.A2.6 [1/2] **Response rates**

		Initial sample – before school replacement					Final sample – after school replacement					Final sample – students within schools after school replacement				
		Weighted school participation rate before replacement (%)	Weighted number of responding schools (weighted also by enrolment)	Weighted number of schools sampled (responding and non-responding) (weighted also by enrolment)	Number of responding schools (unweighted)	Number of responding and non-responding schools (unweighted)	Weighted school participation rate before replacement (%)	Weighted number of responding schools (weighted also by enrolment)	Weighted number of schools sampled (responding and non-responding) (weighted also by enrolment)	Number of responding schools (unweighted)	Number of responding and non-responding schools (unweighted)	Weighted student participation rate before replacement (%)	Number of students assessed (weighted)	Number of students sampled (assessed and absent) (weighted)	Number of students assessed (unweighted)	Number of students sampled (assessed and absent) (unweighted)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD	Australia	95	264 304	278 765	734	779	96	267 078	278 765	740	779	85	210 665	247 433	14 081	16 756
	Austria	100	78 872	78 946	291	293	100	78 872	78 946	291	293	93	69 426	75 019	6 802	7 555
	Belgium	87	103 631	119 744	256	308	95	113 259	119 719	285	308	91	101 504	111 421	8 431	9 271
	Canada	86	328 935	383 699	782	914	89	339 896	383 738	804	914	84	251 025	298 737	22 440	26 252
	Chile	90	190 060	210 669	224	258	100	209 953	210 666	255	258	93	197 940	212 625	7 601	8 156
	Colombia	95	596 406	629 729	238	250	97	610 211	629 088	244	250	93	475 820	512 614	7 480	8 036
	Czech Republic	99	86 650	87 689	330	334	99	86 650	87 689	330	334	92	79 903	86 943	6 996	7 628
	Denmark	88	52 392	59 459	328	371	93	55 170	59 109	344	371	86	48 473	56 078	7 607	8 891
	Estonia	100	11 684	11 684	231	231	100	11 684	11 684	231	231	92	10 532	11 436	5 316	5 786
	Finland	99	57 420	57 710	213	214	100	57 710	57 710	214	214	93	52 102	56 124	5 649	6 084
	France	98	769 117	784 728	244	252	100	783 049	784 728	250	252	93	698 721	754 842	6 295	6 817
	Germany	96	739 666	773 082	215	226	98	759 094	773 040	221	226	90	652 025	721 258	5 431	6 036
	Greece	85	83 158	97 793	212	256	96	94 540	98 005	240	256	96	88 019	91 991	6 371	6 664
	Hungary	98	89 754	91 208	235	245	99	90 303	91 208	236	245	94	80 693	85 878	5 129	5 458
	Iceland	98	4 178	4 282	140	160	98	4 178	4 282	140	160	87	3 285	3 791	3 285	3 791
	Ireland	100	63 179	63 179	157	157	100	63 179	63 179	157	157	86	51 575	59 639	5 577	6 445
	Israel	95	109 810	115 015	164	174	100	114 896	115 108	173	174	91	99 978	110 459	6 614	7 306
	Italy	93	505 813	541 477	510	550	98	529 552	541 672	531	550	86	437 219	506 762	11 679	13 540
	Japan	89	995 577	1 114 316	175	196	93	1 041 540	1 114 316	183	196	96	971 454	1 008 286	6 109	6 338
	Korea	100	514 768	514 768	188	188	100	514 768	514 768	188	188	97	443 719	455 544	6 650	6 810
	Latvia	82	14 020	17 049	274	349	89	15 219	17 021	308	349	89	12 752	14 282	5 303	5 923
	Lithuania	100	25 370	25 467	363	364	100	25 370	25 467	363	364	93	22 614	24 405	6 885	7 421
	Luxembourg	100	5 796	5 796	44	44	100	5 796	5 796	44	44	95	5 230	5 478	5 230	5 478
	Mexico	89	1 494 409	1 670 484	268	302	96	1 599 670	1 670 484	286	302	96	1 357 446	1 412 604	7 299	7 612
	Netherlands	61	118 705	194 486	106	175	87	169 033	194 397	150	175	83	138 134	165 739	4 668	5 617
	New Zealand	83	47 335	57 316	170	208	91	52 085	57 292	189	208	83	39 801	48 214	6 128	7 450
	Norway	98	58 521	59 889	247	254	99	59 128	59 889	250	254	91	50 009	54 862	5 802	6 368
	Poland	92	302 200	329 827	222	253	99	325 266	329 756	239	253	86	267 756	311 300	5 603	6 540
	Portugal	85	92 797	108 948	233	280	91	99 760	109 168	255	280	76	68 659	90 208	5 690	7 431
	Slovak Republic	92	45 799	49 713	348	388	96	48 391	50 361	373	388	93	39 730	42 628	5 947	6 406
	Slovenia	99	17 702	17 900	337	350	99	17 744	17 900	340	350	91	15 409	16 994	6 374	7 021
	Spain	99	427 230	432 969	1 079	1 102	99	427 899	432 969	1 082	1 102	90	368 767	410 820	35 849	39 772
	Sweden	99	101 591	102 873	218	227	99	102 075	102 873	219	227	86	79 604	92 069	5 487	6 356
	Switzerland	86	68 579	79 671	201	231	99	78 808	79 213	228	231	94	67 261	71 290	5 822	6 157
	Turkey	97	947 428	975 317	181	186	100	975 317	975 317	186	186	99	873 992	884 971	6 890	6 980
	United Kingdom	73	496 742	681 510	399	538	87	590 558	682 212	461	538	83	427 944	514 975	13 668	16 443
	United States	65	2 516 631	3 874 298	136	215	76	2 960 088	3 873 842	162	215	85	2 301 006	2 713 513	4 811	5 686

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Table I.A2.6 [2/2] **Response rates**

		Initial sample – before school replacement					Final sample – after school replacement					Final sample – students within schools after school replacement				
		Weighted school participation rate before replacement (%)	Weighted number of responding schools (weighted also by enrolment)	Weighted number of schools sampled (responding and non-responding) (weighted also by enrolment)	Number of responding schools (unweighted)	Number of responding and non-responding schools (unweighted)	Weighted school participation rate before replacement (%)	Weighted number of responding schools (weighted also by enrolment)	Weighted number of schools sampled (responding and non-responding) (weighted also by enrolment)	Number of responding schools (unweighted)	Number of responding and non-responding schools (unweighted)	Weighted student participation rate before replacement (%)	Number of students assessed (weighted)	Number of students sampled (assessed and absent) (weighted)	Number of students assessed (unweighted)	Number of students sampled (assessed and absent) (unweighted)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Partners	Albania	97	29 234	30 163	322	336	97	29 260	30 163	323	336	98	26 611	27 081	6 333	6 438
	Argentina	95	626 740	658 143	439	458	96	629 651	658 143	445	458	86	467 613	541 981	11 836	13 532
	Baku (Azerbaijan)	93	18 730	20 040	181	197	100	20 249	20 249	197	197	89	18 049	20 312	6 827	7 607
	Belarus	100	79 623	79 623	234	234	100	79 623	79 623	234	234	97	76 321	78 333	5 803	5 963
	Bosnia and Herzegovina	100	31 025	31 058	212	213	100	31 051	31 051	213	213	96	27 562	28 843	6 480	6 781
	Brazil	87	2 483 766	2 862 749	547	638	93	2 649 165	2 858 009	586	638	89	1 683 080	1 894 398	10 606	11 956
	Brunei Darussalam	100	6 681	6 681	55	55	100	6 681	6 681	55	55	99	6 828	6 899	6 828	6 899
	B-S-J-Z (China)	96	1 030 427	1 068 463	355	362	99	1 062 001	1 068 486	361	362	99	978 803	986 556	12 058	12 156
	Bulgaria	96	48 095	50 164	191	199	99	49 568	50 145	197	199	93	44 003	47 275	5 294	5 673
	Costa Rica	100	58 843	58 843	205	205	100	58 843	58 843	205	205	97	44 179	45 522	7 221	7 433
	Croatia	97	28 382	29 188	178	183	100	29 177	29 177	183	183	92	32 632	35 462	6 609	7 190
	Cyprus	98	7 946	8 122	90	99	98	7 946	8 122	90	99	93	6 975	7 472	5 503	5 890
	Dominican Republic	96	138 500	143 842	225	235	100	143 816	143 816	235	235	90	126 090	140 330	5 674	6 328
	Georgia	99	40 450	40 814	321	326	99	40 542	40 810	322	326	95	36 366	38 226	5 572	5 874
	Hong Kong (China)	69	34 976	50 371	120	174	79	39 765	50 608	136	174	85	34 219	40 108	5 706	6 692
	Indonesia	99	3 623 573	3 647 226	398	399	99	3 623 573	3 647 226	398	399	96	3 570 441	3 733 024	12 098	12 570
	Jordan	100	123 056	123 056	313	313	100	123 056	123 056	313	313	98	112 213	114 901	8 963	9 172
	Kazakhstan	100	220 344	220 344	616	616	100	220 344	220 344	616	616	99	210 226	212 229	19 507	19 721
	Kosovo	94	25 768	27 304	203	224	97	26 324	27 269	211	224	96	23 902	24 845	5 058	5 259
	Lebanon	94	54 392	58 119	302	320	98	56 652	58 093	313	320	91	47 855	52 453	5 614	6 154
	Macao (China)	100	3 830	3 830	45	45	100	3 830	3 830	45	45	99	3 775	3 799	3 775	3 799
	Malaysia	99	445 667	450 371	189	191	100	450 371	450 371	191	191	97	378 791	388 638	6 111	6 264
	Malta	100	3 997	3 999	50	51	100	3 997	3 999	50	51	86	3 363	3 923	3 363	3 923
	Moldova	100	29 054	29 054	236	236	100	29 054	29 054	236	236	98	27 700	28 252	5 367	5 474
	Montenegro	99	7 242	7 299	60	61	100	7 280	7 280	61	61	96	6 822	7 087	6 666	6 912
	Morocco	99	404 138	406 348	178	179	100	406 348	406 348	179	179	97	375 677	386 408	6 814	7 011
	North Macedonia	100	18 489	18 502	117	120	100	18 489	18 502	117	120	92	16 467	17 808	5 569	5 999
	Panama	94	54 475	57 873	241	260	97	56 455	58 002	251	260	90	34 060	37 944	6 256	7 058
	Peru	99	455 964	460 276	336	342	100	460 276	460 276	342	342	99	419 329	425 036	6 086	6 170
	Philippines	99	1 551 977	1 560 748	186	187	100	1 560 748	1 560 748	187	187	97	1 359 350	1 400 584	7 233	7 457
	Qatar	100	16 163	16 163	188	188	100	16 163	16 163	188	188	91	13 828	15 228	13 828	15 228
	Romania	98	157 747	160 607	167	170	100	160 607	160 607	170	170	98	144 688	148 098	5 075	5 184
	Russia	100	1 354 843	1 355 318	264	265	100	1 354 843	1 355 318	264	265	96	1 209 339	1 257 352	7 608	7 911
	Saudi Arabia	99	362 426	364 675	233	235	100	364 291	364 620	234	235	97	343 747	353 702	6 136	6 320
	Serbia	97	62 037	63 877	183	190	99	63 448	63 877	187	190	94	57 342	61 233	6 609	7 062
	Singapore	97	43 138	44 691	161	167	98	43 738	44 569	164	167	95	40 960	43 290	6 646	7 019
	Chinese Taipei	97	232 563	238 821	186	193	99	236 227	239 027	189	193	95	211 796	223 812	7 196	7 584
	Thailand	100	691 460	691 460	290	290	100	691 460	691 460	290	290	99	568 456	575 713	8 633	8 739
	Ukraine	98	301 552	308 245	244	250	100	308 163	308 163	250	250	96	291 850	304 855	5 998	6 263
	United Arab Emirates	99	57 891	58 234	754	760	99	57 891	58 234	754	760	96	51 517	53 904	19 265	20 191
	Uruguay	97	44 528	46 032	183	189	99	45 745	46 018	188	189	87	34 333	39 459	5 247	6 026
	Viet Nam	100	1 116 404	1 116 404	151	151	100	1 116 404	1 116 404	151	151	99	914 874	926 260	5 377	5 445

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Table I.A2.8 [1/2] **Percentage of students at each grade level**

		All students													
		7th grade		8th grade		9th grade		10th grade		11th grade		12th grade and above		Information unavailable	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	**Australia**	0.0	c	0.1	(0.0)	11.5	(0.4)	81.0	(0.5)	7.4	(0.4)	0.0	(0.0)	0.0	c
	Austria	0.4	(0.1)	6.8	(0.4)	44.5	(0.7)	48.1	(0.8)	0.2	(0.1)	0.0	c	0.0	c
	Belgium	0.3	(0.1)	6.1	(0.4)	26.7	(0.7)	63.3	(0.8)	1.3	(0.1)	0.0	c	2.3	(0.3)
	Canada	0.3	(0.1)	1.0	(0.2)	9.7	(0.3)	87.7	(0.3)	1.1	(0.1)	0.1	(0.0)	0.0	c
	Chile	1.0	(0.2)	4.4	(0.5)	20.6	(0.7)	68.5	(0.9)	5.6	(0.3)	0.0	c	0.0	c
	Colombia	4.4	(0.4)	11.3	(0.5)	22.8	(0.6)	43.0	(0.8)	18.5	(0.7)	0.0	c	0.0	c
	Czech Republic	0.6	(0.2)	3.3	(0.4)	48.5	(1.2)	47.5	(1.3)	0.0	c	0.0	c	0.0	c
	Denmark	0.1	(0.0)	16.3	(0.5)	81.7	(0.5)	1.7	(0.3)	0.0	c	0.1	(0.1)	0.0	c
	Estonia	0.4	(0.1)	21.8	(0.6)	76.4	(0.6)	1.3	(0.2)	0.0	(0.0)	0.0	c	0.0	c
	Finland	0.3	(0.1)	13.9	(0.4)	85.6	(0.5)	0.2	(0.1)	0.0	c	0.0	c	0.0	c
	France	0.0	(0.0)	0.5	(0.1)	16.9	(0.6)	79.2	(0.6)	3.2	(0.2)	0.1	(0.0)	0.0	c
	Germany	0.4	(0.1)	8.1	(0.4)	46.4	(1.0)	44.0	(1.1)	1.1	(0.3)	0.0	(0.0)	0.0	c
	Greece	0.1	(0.0)	0.7	(0.2)	3.7	(0.5)	95.5	(0.6)	0.0	c	0.0	c	0.0	c
	Hungary	1.7	(0.3)	8.3	(0.5)	71.1	(0.7)	18.9	(0.6)	0.0	(0.0)	0.0	c	0.0	c
	Iceland	0.0	c	0.0	c	0.0	c	99.2	(0.1)	0.8	(0.1)	0.0	c	0.0	c
	Ireland	0.0	(0.0)	2.0	(0.2)	61.6	(0.7)	27.9	(0.9)	8.5	(0.7)	0.0	c	0.0	c
	Israel	0.0	(0.0)	0.1	(0.1)	16.7	(0.9)	82.4	(0.9)	0.7	(0.2)	0.0	(0.0)	0.0	c
	Italy	0.0	c	1.0	(0.2)	13.5	(0.5)	77.8	(0.5)	7.7	(0.3)	0.0	c	0.0	c
	Japan	0.0	c	0.0	c	0.0	c	100.0	c	0.0	c	0.0	c	0.0	c
	Korea	0.0	c	0.0	c	16.1	(0.7)	83.8	(0.7)	0.1	(0.0)	0.0	c	0.0	c
	Latvia	0.7	(0.1)	9.8	(0.5)	86.0	(0.5)	2.5	(0.2)	0.0	(0.0)	0.0	c	1.1	(0.2)
	Lithuania	0.1	(0.1)	2.4	(0.2)	90.2	(0.5)	7.3	(0.4)	0.0	c	0.0	c	0.0	c
	Luxembourg	0.3	(0.1)	10.0	(0.1)	48.3	(0.1)	40.3	(0.1)	1.1	(0.1)	0.0	c	0.0	c
	Mexico	0.9	(0.2)	2.9	(0.4)	17.6	(1.1)	77.8	(1.0)	0.6	(0.1)	0.1	(0.1)	0.0	c
	Netherlands	0.1	(0.0)	2.6	(0.3)	36.8	(0.8)	59.3	(0.8)	1.2	(0.2)	0.0	(0.0)	0.0	c
	New Zealand	0.0	c	0.0	c	0.1	(0.0)	6.6	(0.5)	89.0	(0.4)	4.2	(0.2)	0.0	c
	Norway	0.0	c	0.0	c	0.3	(0.1)	99.3	(0.3)	0.4	(0.2)	0.0	c	0.0	c
	Poland	0.3	(0.1)	3.1	(0.3)	95.1	(0.5)	1.4	(0.4)	0.0	c	0.0	c	0.0	c
	Portugal	2.4	(0.2)	7.2	(0.4)	17.2	(0.9)	57.4	(1.3)	0.2	(0.1)	0.0	c	15.7	(1.5)
	Slovak Republic	1.9	(0.2)	4.3	(0.4)	40.8	(1.1)	51.3	(1.0)	1.7	(0.5)	0.0	c	0.0	c
	Slovenia	0.3	(0.0)	0.7	(0.2)	6.2	(0.4)	92.4	(0.4)	0.4	(0.1)	0.0	c	0.0	c
	Spain	0.0	(0.0)	5.9	(0.2)	24.1	(0.4)	69.9	(0.5)	0.1	(0.0)	0.0	c	0.0	c
	Sweden	0.0	c	2.1	(0.3)	96.3	(0.6)	1.6	(0.5)	0.0	c	0.0	c	0.0	c
	Switzerland	0.5	(0.1)	10.2	(0.6)	60.8	(1.4)	27.8	(1.4)	0.7	(0.3)	0.0	(0.0)	0.0	c
	Turkey	0.1	(0.1)	0.4	(0.2)	17.7	(1.1)	78.8	(1.1)	2.9	(0.3)	0.1	(0.0)	0.0	c
	United Kingdom	0.0	c	0.0	c	0.0	(0.0)	1.0	(0.6)	93.4	(0.6)	5.6	(0.2)	0.0	c
	United States	0.0	c	0.1	(0.1)	7.5	(0.5)	73.6	(0.8)	18.7	(0.7)	0.1	(0.1)	0.0	c

Note: The large number of students with missing grade-level information in Ukraine can be attributed to missing data from students in the first and second year of vocational colleges. Most of these 15-year-old students would have been in the first year of vocational college, which is equivalent to grade 10.

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Table I.A2.8 [2/2] **Percentage of students at each grade level**

		All students													
		7th grade		8th grade		9th grade		10th grade		11th grade		12th grade and above		Information unavailable	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
Partners	Albania	0.2	(0.1)	1.2	(0.3)	36.6	(1.4)	61.5	(1.4)	0.5	(0.1)	0.0	(0.0)	0.0	c
	Argentina	2.1	(0.5)	9.8	(0.7)	22.1	(0.8)	63.8	(1.4)	1.8	(1.0)	0.0	(0.0)	0.4	(0.4)
	Baku (Azerbaijan)	0.2	(0.1)	2.8	(0.9)	34.7	(0.7)	61.5	(1.2)	0.7	(0.1)	0.0	c	0.0	c
	Belarus	0.1	(0.0)	0.9	(0.2)	42.8	(0.9)	56.2	(0.9)	0.0	c	0.0	c	0.0	c
	Bosnia and Herzegovina	0.0	(0.0)	0.2	(0.1)	16.2	(1.1)	83.4	(1.1)	0.1	(0.1)	0.0	c	0.0	c
	Brazil	4.1	(0.2)	8.1	(0.5)	13.5	(0.6)	33.5	(0.8)	39.3	(0.8)	1.5	(0.1)	0.0	c
	Brunei Darussalam	0.0	(0.0)	0.5	(0.1)	6.5	(0.1)	59.7	(0.1)	29.2	(0.1)	4.1	(0.0)	0.0	c
	B-S-J-Z (China)	0.3	(0.1)	1.5	(0.2)	38.7	(1.7)	58.2	(1.6)	1.3	(0.2)	0.0	(0.0)	0.0	c
	Bulgaria	0.2	(0.1)	2.7	(0.4)	92.8	(0.5)	4.2	(0.3)	0.0	(0.0)	0.0	c	0.0	c
	Costa Rica	4.8	(0.5)	13.8	(0.7)	36.5	(1.1)	44.7	(1.5)	0.2	(0.1)	0.0	c	0.0	c
	Croatia	0.0	(0.0)	0.3	(0.2)	78.9	(0.4)	20.8	(0.4)	0.0	c	0.0	c	0.0	c
	Cyprus	0.0	c	0.1	(0.1)	4.4	(0.4)	94.4	(0.4)	1.1	(0.1)	0.0	c	0.0	c
	Dominican Republic	6.4	(0.6)	12.5	(0.8)	23.6	(0.8)	43.8	(1.2)	12.6	(0.7)	1.2	(0.1)	0.0	c
	Georgia	0.1	(0.0)	0.5	(0.1)	14.3	(0.6)	84.2	(0.6)	1.0	(0.2)	0.0	c	0.0	c
	Hong Kong (China)	1.2	(0.2)	5.9	(0.5)	26.1	(0.9)	66.0	(1.1)	0.8	(0.5)	0.0	c	0.0	c
	Indonesia	3.4	(1.1)	8.1	(1.0)	33.7	(2.0)	49.2	(2.2)	4.2	(0.7)	1.4	(0.9)	0.0	c
	Jordan	0.2	(0.1)	1.6	(0.2)	11.2	(0.6)	87.0	(0.7)	0.0	c	0.0	c	0.0	c
	Kazakhstan	0.1	(0.0)	1.7	(0.1)	44.0	(0.7)	53.4	(0.7)	0.8	(0.1)	0.0	(0.0)	0.0	c
	Kosovo	0.0	c	0.4	(0.1)	23.2	(0.9)	74.6	(0.9)	1.7	(0.2)	0.0	(0.0)	0.0	c
	Lebanon	5.3	(0.5)	8.5	(0.5)	16.3	(0.9)	58.2	(1.0)	11.7	(0.5)	0.1	(0.1)	0.0	c
	Macao (China)	1.9	(0.1)	9.4	(0.2)	29.7	(0.2)	57.9	(0.2)	1.0	(0.1)	0.0	(0.0)	0.0	c
	Malaysia	0.0	c	0.0	c	5.5	(0.6)	94.2	(0.6)	0.3	(0.1)	0.0	c	0.0	c
	Malta	0.0	c	0.0	c	0.1	(0.0)	5.4	(0.2)	94.4	(0.1)	0.1	(0.0)	0.0	c
	Moldova	0.2	(0.1)	6.2	(0.5)	83.2	(0.8)	10.4	(0.8)	0.0	(0.0)	0.0	c	0.0	c
	Montenegro	0.0	c	0.0	c	3.3	(0.3)	93.8	(0.3)	2.9	(0.1)	0.0	c	0.0	c
	Morocco	8.0	(0.7)	13.9	(1.1)	32.1	(1.9)	38.4	(2.7)	7.7	(0.8)	0.0	c	0.0	c
	North Macedonia	0.0	c	0.2	(0.1)	95.8	(0.1)	4.0	(0.1)	0.0	c	0.0	c	0.0	c
	Panama	3.2	(0.5)	6.9	(0.6)	20.6	(1.0)	65.4	(1.4)	3.8	(0.4)	0.0	(0.0)	0.0	c
	Peru	1.8	(0.3)	5.7	(0.4)	14.3	(0.5)	54.5	(0.7)	23.6	(0.6)	0.0	c	0.0	c
	Philippines	4.5	(0.4)	12.8	(0.6)	51.1	(0.7)	30.9	(0.7)	0.6	(0.3)	0.0	(0.0)	0.0	c
	Qatar	1.3	(0.1)	4.5	(0.1)	18.0	(0.1)	63.4	(0.1)	12.9	(0.1)	0.0	(0.0)	0.0	c
	Romania	0.9	(0.3)	6.0	(0.9)	77.9	(0.9)	15.1	(0.5)	0.0	(0.0)	0.0	c	0.0	c
	Russia	0.4	(0.0)	7.7	(0.4)	81.1	(0.9)	10.7	(1.1)	0.1	(0.0)	0.0	c	0.0	c
	Saudi Arabia	1.2	(0.2)	3.6	(0.6)	14.0	(1.8)	77.5	(2.4)	3.6	(0.3)	0.1	(0.0)	0.0	c
	Serbia	0.1	(0.1)	0.8	(0.2)	87.7	(0.4)	11.4	(0.4)	0.0	c	0.0	c	0.0	c
	Singapore	0.0	(0.0)	1.1	(0.1)	7.6	(0.3)	90.8	(0.5)	0.4	(0.2)	0.0	c	0.0	c
	Chinese Taipei	0.0	c	0.1	(0.0)	35.7	(0.9)	64.2	(0.9)	0.0	(0.0)	0.0	c	0.0	c
	Thailand	0.2	(0.1)	0.7	(0.2)	19.9	(0.9)	76.6	(0.9)	2.5	(0.3)	0.0	c	0.0	c
	Ukraine	0.0	c	0.4	(0.1)	29.8	(1.3)	41.3	(1.8)	0.5	(0.1)	0.0	c	28.0	(2.4)
	United Arab Emirates	0.3	(0.1)	1.5	(0.1)	9.6	(0.3)	56.8	(0.6)	29.9	(0.5)	1.9	(0.2)	0.0	c
	Uruguay	4.2	(0.5)	11.2	(0.5)	20.5	(0.7)	63.4	(1.1)	0.6	(0.1)	0.0	c	0.0	c
	Viet Nam	0.2	(0.1)	0.8	(0.3)	4.0	(1.2)	92.3	(2.5)	0.0	(0.0)	0.0	c	2.7	(2.0)

Note: The large number of students with missing grade-level information in Ukraine can be attributed to missing data from students in the first and second year of vocational colleges. Most of these 15-year-old students would have been in the first year of vocational college, which is equivalent to grade 10.

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Tables available on line

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- Table I.A2.3 PISA target populations and samples, by adjudicated regions
- Table I.A2.5 Exclusions, by adjudicated regions
- Table I.A2.7 Response rates, by adjudicated regions
- Table I.A2.9 Percentage of students at each grade level, excluding students with missing grade information
- Table I.A2.10 Percentage of students at each grade level, by adjudicated regions
- Table I.A2.11 Percentage of students at each grade level, by adjudicated regions, excluding students with missing grade information
- Table I.A2.12 Percentage of students at each grade level, by gender
- Table I.A2.13 Percentage of students at each grade level, by gender, excluding students with missing grade information
- Table I.A2.14 Percentage of students at each grade level, by gender and adjudicated regions
- Table I.A2.15 Percentage of students at each grade level, by gender and adjudicated regions, excluding students with missing grade information

Notes

1. More precisely, PISA assessed students who were at least 15 years and 3 complete months old and who were at most 16 years and 3 complete months old (i.e. younger than 16 years, 2 months and roughly 30 days old), with a tolerance of one month on each side of this age window. If the PISA assessment was conducted in April 2018, as was the case in most countries, all students born in 2002 would have been eligible.
2. Educational institutions are generally referred to as schools in this publication, although some educational institutions (in particular, some types of vocational education establishments) may not be referred to as schools in certain countries.
3. As might be expected from this definition, the average age of students across OECD countries was 15 years and 9 months. The range in country means was 2 months and 13 days (0.20 year), from the minimum country mean of 15 years and 8 months to the maximum country mean of 15 years and 11 months.
4. Such a comparison is complicated by first-generation immigrant students, who received part of their education in a country other than the one in which they were assessed. Mean scores in any country/economy should be interpreted in the context of student demographics within that country/economy.
5. Details for countries that applied different sampling designs are documented in the PISA 2018 Technical Report (OECD, forthcoming[1]).
6. Due to the small size of these education systems, all schools and all eligible students within these schools were included in the samples of Brunei Darussalam, Cyprus, Iceland, Luxembourg, Macao (China), Malta, Montenegro and Qatar.
7. The threshold for an acceptable participation rate after replacement varies between 85% and 100%, depending on the participation rate before replacement.
8. In particular, in the case of the Netherlands and the United Kingdom, non-response bias analyses relied on direct measures of school performance external to PISA, typically from national assessments. More indirect correlates of school performance were analysed in Hong Kong (China) and the United States, due to the absence of national assessments. The non-response problem in Hong Kong (China) can be attributed to two causes: lack of initiative amongst schools and teachers to participate in PISA, and a large number of schools that were considered to be non-responding schools, as less than 50% of sampled students in these schools sat the assessment.

9. 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.

10. The preliminary attribution of school codes in the process of selecting, and then excluding, students and schools may have resulted in the double exclusion (at both the school and student levels) of some of the students with special education needs in Sweden. As a result, the overall exclusion rate in Sweden may have been overestimated by (at most) 0.5 of a percentage point. In this scenario, the overall exclusion rate would still be over 10% and the highest amongst PISA-participating countries/economies.

11. The overall exclusion rate includes those students who were excluded at the school level (Column 6) and those students who were excluded within schools (Column 11); however, only students enrolled in non-excluded schools were affected by within-school exclusions, hence the presence of the term equivalent to 1 minus Column 6 (expressed as a decimal).

12. 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.

13. Testing material was adapted to each country. Versions in the same language thus differed across countries, and students in Luxembourg who were not instructed in one of the three languages in which testing material was available (English, French and German) were unable to sit the PISA assessment, even if such material were available in their language of instruction in a different country.

References

OECD (forthcoming), *PISA 2018 Results (Volume IV): Are Students Smart about Money?,* PISA, OECD Publishing, Paris. [2]

OECD (forthcoming), *PISA 2018 Technical Report*, OECD Publishing, Paris. [1]

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 the sample estimates. If numerous different samples were drawn from the same population, according to the same procedures as the original sample, then in 95 out of 100 samples the calculated confidence interval would encompass the true population parameter. For many parameters, sample estimators follow a normal distribution and the 95% confidence interval can be constructed as the estimated parameter, plus or minus 1.96 times the associated standard error.

In many cases, readers are primarily interested in whether a given value in a particular country is different from a second value in the same or another country, e.g. whether girls in a country perform better than boys in the same country. In the tables and figures used in this report, differences are labelled as statistically significant when a difference of that size or larger, in either direction, would be observed less than 5% of the time, if there were actually no difference in corresponding population values. Similarly, the risk of reporting an association as significant if there is, in fact, no correlation between two measures, is contained at 5%.

Throughout the report, significance tests were undertaken to assess the statistical significance of the comparisons made.

Statistical significance of gender differences and differences between subgroup means

Gender differences in student performance or other indices were tested for statistical significance. Positive differences indicate higher scores for girls while negative differences indicate higher scores for boys. Generally, differences marked in bold in the tables in this volume are statistically significant at the 95% confidence level.

Similarly, differences between other groups of students (e.g. non-immigrant students and students with an immigrant background, or socio-economically advantaged and disadvantaged students) were tested for statistical significance. The definitions of the subgroups can, in general, be found in the tables and the text accompanying the analysis. All differences marked in bold in the tables presented in Annex B of this report are statistically significant at the 95% level.

Statistical significance of differences between subgroup means, after accounting for other variables

For many tables, subgroup comparisons were performed both on the observed difference ("before accounting for other variables") and after accounting for other variables, such as the PISA index of economic, social and cultural status of students. The adjusted differences were estimated using linear regression and tested for significance at the 95% confidence level. Significant differences are marked in bold.

Statistical significance of performance differences between the top and bottom quartiles of PISA indices and scales

Differences in average performance between the top and bottom quarters of the PISA indices and scales were tested for statistical significance. Figures marked in bold indicate that performance between the top and bottom quarters of students on the respective index is statistically significantly different at the 95% confidence level.

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

$$\mathrm{OR} = {}^{(p_{11}\,/\,p_{12})}\!\big/_{(p_{21}\,/\,p_{22})} \qquad \text{Equation II.A3.2}$$

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.

Statistical significance of odds ratios

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.

In many tables, odds ratios after accounting for other variables are also presented. These odds ratios were estimated using logistic regression and tested for significance against the null hypothesis of an odds ratio equal to 1 (i.e. equal likelihoods, after accounting for other variables).

OVERALL RATIOS AND AVERAGE RATIOS

In this report, the comparisons of ratios related to teachers, such as student-teacher ratio or the proportion of certified teachers, are made using overall ratios. This means, for instance, that the student-teacher ratio is obtained by dividing the total number of students in the target population by the total number of teachers in the target population. The overall ratios are computed by first computing the numerator and denominator as the (weighted) sum of school-level totals, then dividing the numerator by the denominator. Similar estimations are made for the proportion of novice teachers, the proportion of teachers with at least a master's degree, the proportion of fully certified teachers, etc. In most cases (i.e. unless all schools are exactly the same size) this overall ratio differs from the average of school-level ratios.

SOCIAL AND ACADEMIC SEGREGATION INDICES

Statistics based on multilevel models

Statistics based on multilevel models include variance components (between- and within-school variance), the index of inclusion derived from these components, and regression coefficients where this has been indicated. Multilevel models are generally specified as two-level regression models (the student and school levels), with normally distributed residuals, and estimated with maximum likelihood estimation. Where the dependent variable is reading performance, the estimation uses ten plausible values for each student's performance on the reading scale. Models were estimated using the Stata (version 15.1) "mixed" module.

The index of inclusion is defined and estimated as:

$$100 * \frac{\sigma_W^2}{\sigma_W^2 + \sigma_B^2} \qquad \text{Equation II.A3.2}$$

where σ_W^2 and σ_B^2, respectively, represent the within- and between-variance estimates.

Standard errors in statistics estimated from multilevel models

For statistics based on multilevel models (such as the estimates of variance components and regression coefficients from two-level regression models) 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. The standard error for the estimated index of inclusion is calculated by deriving an approximate distribution for it from the (model-based) standard errors for the variance components, using the delta method.

The isolation index and the exposure index

The isolation index used in the report corresponds to the normalised exposure indicator (Frankel and Volij, 2011[1]),

$$\mathrm{I} = 1 - \frac{\sum_{j=1}^{J} \frac{n_j^a}{N^a} \frac{(1-n_j^a)}{n_j}}{1-p^a} \qquad \text{Equation II.A3.2}$$

where n_j^a (respectively N^a) stands for the number of students of type a (for instance, those with an immigrant background) in school j (respectively, in the country), n_j the total number of students in this school j and with $p^a = \frac{n^a}{N}$ the proportion of the group a in the population. This index ranges from 0 (no segregation) to 1 (full segregation), meaning that the index increases with the concentration of the students of the group a in a limited number of schools.

In the report, this index is also used for measuring the concentration of students in schools of socio-economically advantaged and disadvantaged students (defined as those in the first and the fourth quarters, respectively, of the national distribution of the ESCS index) and of low and high performers (defined as those in the first and the fourth quarters, respectively, of the national distribution of reading performance).

A related index, the exposure index, represents the probability E that an average student from one of these groups is in contact at school with students who do not belong to the same group (who represent three-quarters of the population). The exposure index can be computed as

$$E = \sum_{j=1}^{J} \frac{n_j^{disad}}{N^{disad}} \frac{n_j^{highperf}}{n_j} \approx 0.75 * (1 - I) \qquad \text{Equation II.A3.3}$$

This probability is (i.e. equal to the proportion of the other group in the population) when the allocation of students across schools does not depend on group membership (student type), and lower if the group the students belong to matters in the allocation of students to schools.

A derived version of the isolation index, the isolation of disadvantaged students (defined as those in the first quarter of the national distribution of the ESCS index) from high achievers (defined as those in the fourth quarter of the national distribution of reading performance) is also used in the report. It may be written formally as:

$$I_{disad}^{highperf} = 1 - \frac{\sum_{j=1}^{J} \frac{n_j^{disad}}{N^{disad}} \frac{n_j^{highperf}}{n_j}}{\frac{N^{highperf}}{N^{highperf} + N^{disad}}} \qquad \text{Equation II.A3.4}$$

The lowest value (0) is observed when the two subgroups are clustered in the same schools; the highest value (1) is observed when they are clustered in different schools. Medium values are observed when the two populations are randomly mixed within schools. Again, one may derive from this indicator the probability that an average disadvantaged student is in contact at school with a high performer, corresponding to:

$$E_{disad}^{highperf} = \sum_{j=1}^{J} \frac{n_j^{disad}}{N^{disad}} \frac{n_j^{highperf}}{n_j} \approx 0.5 * \left(1 - I_{disad}^{highperf}\right) \qquad \text{Equation II.A3.5}$$

The no social diversity index

The no social diversity index is a multi-group index, meaning that it provides a more accurate description of the social diversity in schools – comparing not only a group (such as disadvantaged students) with all other students, but all groups of students. This index is often referred to in the literature as the entropy index, or mutual information index (Frankel and Volij, 2011[1]; Reardon and Firebaugh, 2002[2]). The no social diversity index is computed as:

$$H = \sum_{j=1}^{J} \frac{n_j}{N} \frac{h(q_j) - h(q)}{h(q)} \qquad \text{Equation II.A3.6}$$

where $h(q) = -\sum_{k=1}^{4} q^k \ln(q^k)$ is a measure of the diversity in the population, depending on the proportions of the four socio-economic groups in the population (defined by the quarter of ESCS index, meaning that $q^k = 0.25$), and $h(q_j)$ is its counterpart measured at the school level with $q_j = \left(q_j^1, q_j^2, q_j^3, q_j^4\right)$ the proportion of the four groups of the students amongst the students in school (and the total number of students). The no-diversity index goes from 0 (no segregation) to 1 (full segregation).

The no-social diversity index is additively decomposable. If one aggregates schools at a higher level, typically comparing private schools to public schools, the no-diversity index can be decomposed into three components. The first component corresponds to the social segregation within private schools, the second to the segregation within public schools, and the third to the additional segregation that reflects the fact that the social composition in the public sector could be distinct from that of the private sector.

Formally, this can be written as:

$$H = H^{Priv/Pub} + \theta^{Pub}H^{Pub} + \theta^{Private}H^{Private} \quad \text{Equation II.A3.7}$$

With $H^{Priv/Pub}$ interpreted as the segregation due specifically to the coexistence of private and public sectors.

Modal grade schools

The segregation measures, such as between-school variations or the isolation indices, depend on how schools are defined and organised within countries and by the units that were chosen for sampling purposes. For example, in some countries, some of the schools in the PISA sample were defined as administrative units (even if they spanned several geographically separate institutions, as in Italy); in others, they were defined as those parts of larger educational institutions that serve 15-year-olds; in still others they were defined as physical school buildings; and in others they were defined from a management perspective (e.g. entities having a principal).

The *PISA 2018 Technical Report* (OECD, forthcoming) and Annex A2 provide an overview of how schools are defined. In Slovenia, for example, the primary sampling unit is defined as a group of students who follow the same study programme within a school (an education track within a school). In this case, the segregation indices between schools actually estimate the segregation between the distinct tracks in these schools. The use of stratification variables in the selection of schools may also affect the estimate of the between-school variation, particularly if stratification variables are associated with between-school differences.

In PISA 2018 the estimation of the segregation indices was restricted to schools with the "modal ISCED level" for 15-year-old students. The "modal ISCED level" is defined here as the level attended by at least one-third of the PISA sample. As PISA students are sampled to represent all 15-year-old students, whatever type of schools they are enrolled in, they may not be representative of their schools. Restricting the sampling to schools with the modal ISCED level for 15-year-old students ensures that the characteristics of students sampled for PISA represent the profile of the typical student attending the school. Modal grade may be either lower secondary (ISCED level 2), either upper secondary (ISCED level 3), or both (as in Albania, Argentina, Baku [Azerbaijan], Beijing, Shanghai, Jiangsu and Zhejiang [China], Belarus, Colombia, Costa Rica, the Czech Republic, the Dominican Republic, Indonesia, Ireland, Kazakhstan, Luxembourg, Macao [China], Morocco, the Slovak Republic, Chinese Taipei and Uruguay). In all other countries, analyses are restricted to either lower secondary or upper secondary schools. In several countries, lower and upper secondary education are provided in the same school. As the restriction is made at the school level, some students from a grade other than the modal grade in the country may also be used in the analysis. Table II.C.1 in Annex C shows the type of ISCED used for every country and economy, as well as the respective proportions of schools and students in the sample used in the analysis.

INDEX OF SOCIO-ECONOMIC INEQUALITY IN THE PROBABILITY OF BEING A HIGH PERFORMER

The index of socio-economic inequalities in high achievement quantifies the relative socio-economic inequalities in the probability of attaining Level 5 or 6 in reading proficiency. It calculates the cumulative number of high achievers concentrated in a cumulative percentage of the population of 15-year-olds ranked by the PISA index of economic, social and cultural status (ESCS), as described for instance in (O'Donnell et al., 2008[3]). This index may be related to the concentration line that would plot the cumulative numbers of high achievers (y-axis) against the cumulative percentage of the population of 15-year-olds, ranked by ESCS, beginning with the students with the lowest socio-economic status, and ending with those with the highest value (x-axis). If everyone, irrespective of his or her living standards, had exactly the same probability of being high achievers, the concentration curve would be a 45-degree line (hereafter, the line of equality), running from the bottom left-hand corner to the top right-hand corner. However, if being a high achiever is much less likely amongst students with the highest values in the ESCS index, the concentration curve would lie below the line of equality; conversely, if high achievers are more concentrated amongst students with the lowest values in the ESCS index, the concentration curve would be above the line of equality.

The farther the curve is below the line of equality, the more concentrated are high achievers amongst the most-advantaged students (similarly, the farther the line is above the line of equality, the more concentrated are high achievers amongst the least-advantaged students). The concentration index is then defined as twice the area between the concentration curve and the line of equality. When there is no socio-economic-related inequality, the concentration index is zero. By convention, the index takes a positive value when the curve lies below the line of equality, indicating a disproportionate concentration of high achievers amongst advantaged students; it takes a negative value when it lies above the line of equality. As the variable of interest (being high achievers) is binary, one should use a factor of normalisation. The calculation is made using the Stata (version 15.1) procedure "conindex", using the f normalisation for bounded variable proposed by (Wagstaff, 2011[4]). This corresponds to the calculation:

$$C = \frac{2}{\pi_h * (1-\pi_h) * n^2} \sum_{i=1}^{n} \left(\frac{n+1}{2} - r_i \right) * h_i \qquad \text{Equation II.A3.4}$$

Where h_i is a binary variable that takes the value 1 if student *i* is high performer and 0 instead, $r_i = i/n$ is the relative rank of student *i*, n is the total number of students and is the proportion of high performers amongst the population of 15-year-old students. As emphasised by (Kjellsson and Gerdtham, 2013[5]), this means that the index will take the maximum value, 1, only when the students at the top of the ESCS index are high performers.

USE OF STUDENT, SCHOOL AND TEACHER WEIGHTS

The target population in PISA is 15-year-old students, but a two-stage sampling procedure was used. After the population was defined, school samples were selected with a probability proportional to the expected number of eligible students in each school. Only in a second sampling stage were students drawn from amongst the eligible students in each selected school.

Although the student samples were drawn from within a sample of schools, the school sample was designed to optimise the resulting sample of students, rather than to give an optimal sample of schools. It is therefore preferable to analyse the school-level variables as attributes of students (e.g. in terms of the share of 15-year-old students affected), rather than as elements in their own right.

Most analyses of student and school characteristics are therefore weighted by student final weights (or their sum, in the case of school characteristics), and use student replicate weights for estimating standard errors.

As an exception, estimates of "overall ratios" in which the denominator corresponds to the population of teachers (student-teacher ratios; proportions of fully certified teachers and proportion of teachers with at least a master's degree) use school weights, which correspond to the inverse of the prior probability of selection for each selected school. Replicate school weights were generated for these analyses in analogy with the student replicate weights in the database, by applying the replicate factors observed for student weights within the school (one value among 0.2929, 0.5, 0.6464,1, 1.3536, 1.5 or 1.7071) to the base school weights (OECD, Forthcoming[6]).

In PISA 2018, as in PISA 2012 and 2015, multilevel models weights are used at both the student and school levels. The purpose of these weights is to account for differences in the probabilities of students being selected in the sample. Since PISA applies a two-stage sampling procedure, these differences are due to factors at both the school and the student levels. For the multilevel models, student final weights (W_FSTUWT) were used. Within-school weights correspond to student final weights, rescaled to amount to the sample size within each school. Between-school weights correspond to the sum of final student weights (W_FSTUWT) within each school.

Analyses based on teacher responses to the teacher questionnaires are weighted by student weights. In particular, in order to compute averages and shares based on teacher responses, final teacher weights were generated so that the sum of teacher weights within each school was equal to the sum of student weights within the same school. The same procedure was used to generate replicate teacher weights in analogy with the student replicate weights in the database. All teachers within a school have the same weight. For the computation of means, this is equivalent to aggregating teacher responses to the school level through simple, unweighted means, and then applying student weights to these school-level aggregates.

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ANNEX A4
Quality assurance

Quality assurance procedures were implemented in all parts of PISA 2018, as was done for all previous PISA surveys. The PISA 2018 Technical Standards (available on line at www.oecd.org/pisa) specify the way in which PISA must be implemented in each country, economy and adjudicated region. International contractors monitor the implementation in each of these and adjudicate on their adherence to the standards.

The consistent quality and linguistic equivalence of the PISA 2018 assessment instruments were facilitated by assessing the ease with which the original English version could be translated. Two source versions of the assessment instruments, in English and French, were prepared (except for the financial literacy assessment and the operational manuals, which were provided only in English) in order for countries to conduct a double translation design, i.e. two independent translations from the source language(s), and reconciliation by a third person. Detailed instructions for the localisation (adaptation, translation and validation) of the instruments for the field trial and for their review for the main survey, and translation/adaptation guidelines were supplied. An independent team of expert verifiers, appointed and trained by the PISA Consortium, verified each national version against the English and/or French source versions. These translators' mother tongue was the language of instruction in the country concerned, and the translators were knowledgeable about education systems. For further information on PISA translation procedures, see the *PISA 2018 Technical Report* (OECD, forthcoming[1]).

The survey was implemented through standardised procedures. The PISA Consortium provided comprehensive manuals that explained the implementation of the survey, including precise instructions for the work of school co-ordinators and scripts for test administrators to use during the assessment sessions. Proposed adaptations to survey procedures, or proposed modifications to the assessment session script, were submitted to the PISA Consortium for approval prior to verification. The PISA Consortium then verified the national translation and adaptation of these manuals.

To establish the credibility of PISA as valid and unbiased and to encourage uniformity in conducting the assessment sessions, test administrators in participating countries were selected using the following criteria: it was required that the test administrator not be the reading, mathematics or science instructor of any student in the sessions he or she would conduct for PISA; and it was considered preferable that the test administrator not be a member of the staff of any school in the PISA sample. Participating countries organised an in-person training session for test administrators.

Participating countries and economies were required to ensure that test administrators worked with the school co-ordinator to prepare the assessment session, including reviewing and updating the Student Tracking Form; completing the Session Attendance Form, which is designed to record students' attendance and instruments allocation; completing the Session Report Form, which is designed to summarise session times, any disturbance to the session, etc.; ensuring that the number of test booklets and questionnaires collected from students tallied with the number sent to the school (for countries using the paper-based assessment) or ensuring that the number of USB sticks or external laptops used for the assessment were accounted for (for countries using the computer-based assessment); and sending or uploading the school questionnaire, student questionnaires, parent and teacher questionnaires (if applicable), and all test materials (both completed and not completed) to the national centre after the assessment.

The PISA Consortium responsible for overseeing survey operations implemented all phases of the PISA Quality Monitor (PQM) process: interviewing and hiring PQM candidates in each of the countries, organising their training, selecting the schools to visit, and collecting information from the PQM visits. PQMs are independent contractors located in participating countries who are hired by the international survey operations contractor. They visit a sample of schools to observe test administration and to record the implementation of the documented field-operations procedures in the main survey.

Typically, two or four PQMs were hired for each country, and they visited an average of 15 schools in each country. If there were adjudicated regions in a country, it was usually necessary to hire additional PQMs, as a minimum of five schools were observed in adjudicated regions.

Approximately one-third of test items are open-ended items in PISA. Reliable human coding is critical for ensuring the validity of assessment results within a country, as well as the comparability of assessment results across countries. Coder reliability in PISA 2018 was evaluated and reported at both within- and across-country levels. The evaluation of coder reliability was made possible by the design of multiple coding: a portion or all of the responses from each human-coded constructed-response item were coded by at least two human coders.

All quality-assurance data collected throughout the PISA 2018 assessment were entered and collated in a central data-adjudication database on the quality of field operations, printing, translation, school and student sampling, and coding. Comprehensive reports were then generated for the PISA Adjudication Group. This group was formed by the Technical Advisory Group and the Sampling Referee. Its role is to review the adjudication database and reports in order to recommend adequate treatment to preserve the quality of PISA data. For further information, see the *PISA 2018 Technical Report* (OECD, forthcoming[1]). Overall, the review suggested good adherence of national implementations of PISA to the technical standards. Despite the overall high quality of data, a few countries' data failed to meet critical standards or presented inexplicable anomalies, such that the Adjudication Group recommends a special treatment of these data in databases and/or reporting.

The major issues for adjudication discussed at the adjudication meeting are listed below:

- In Viet Nam, while no major standard violation was identified, there were several minor violations and the adjudication group has identified technical issues affecting the comparability of their data, an essential dimension of data quality in PISA. Viet Nam's cognitive data show poor fit to the item-response-theory model, with more significant misfit than any other country/language group. In particular, selected-response questions, as a group, appeared to be significantly easier for students in Viet Nam than expected, given the usual relationship between open-ended and selected-response questions reflected in the international model parameters. In addition, for several selected-response items, response patterns are not consistent across field trial and main survey administrations, ruling out possible explanations of misfit in terms of familiarity, curriculum or cultural differences. For this reason, the OECD cannot currently assure full international comparability of the results.
- The Netherlands missed the standard for overall exclusions by a small margin. At the same time, in the Netherlands UH booklets, intended for students with special education needs, were assigned to about 17% of the non-excluded students. Because UH booklets do not cover the domain of financial literacy, the effective exclusion rate for the financial literacy additional sample is above 20%.The fact that students that receive support for learning in school were systematically excluded from the financial literacy sample results in a strong upward bias for the country mean and other population statistics. Therefore, the Netherlands' results in financial literacy may not be comparable to those of other counties or to results for the Netherlands from previous years. The Netherlands also missed the school response rate (before replacement) by a large margin, and could only reach close to an acceptable response rate through the use of replacement schools. Based on evidence provided in a non-response bias analysis, the Netherlands' results in reading, mathematics and science were accepted as largely comparable, but, in consideration of the low response rate amongst originally sampled schools, are reported with an annotation.
- Portugal did not meet the student-response rate standard. In Portugal, response rates dropped between 2015 and 2018. A student-non-response-bias analysis was submitted, investigating bias amongst students in grades 9 and above. Students in grades 7 and 8 represented about 11% of the total sample, but 20% of the non-respondents. A comparison of the linked responding and non-responding cases, using sampling weights, revealed that non-respondents tended to score about one-third of a standard deviation below respondents on the national mathematics examination (implying a "raw" upward bias of about 10% of a standard deviation on population statistics that are based on respondents only). At the same time, a significant proportion of the performance differences could be accounted for by variables considered in non-response adjustments (including grade level). Nevertheless, a residual upward bias in population statistics remained, even when using non-response adjusted weights. The non-response bias analysis therefore implies a small upward bias for PISA 2018 performance results in Portugal. The Adjudication Group also considered that trend comparisons and performance comparisons with other countries may not be particularly affected, because an upward bias of that size cannot be excluded even in countries that met the response-rate standard or for previous cycles of PISA. Therefore, Portugal's results are reported with an annotation.

While the adjudication group did not consider the violation of response-rate standards by Hong Kong (China) and the United States (see Annex A2) as major adjudication issues, they noted several limitations in the data used in non-response-bias analyses submitted by Hong Kong (China) and the United States. In consideration of the lower response rates, compared to other countries, the data for Hong Kong (China) and the United States are reported with an annotation.

In Spain, while no major standard violation was identified, subsequent data analyses identified sub-optimal response behaviours of some students. This was especially evident in the reading-fluency items. The reporting of Spain's reading performance will be deferred as this issue will be further investigated. For more details see Annex A9 in *PISA 2018 Results Volume I: What Students Know and Can Do* (OECD, 2019[2]).

Reference

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ANNEX B

PISA 2018 Data

All tables in Annex B are available on line

Annex B1: Results for countries and economies
https://doi.org/10.1787/888934038609
https://doi.org/10.1787/888934038628
https://doi.org/10.1787/888934038647
https://doi.org/10.1787/888934038666
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https://doi.org/10.1787/888934038723
https://doi.org/10.1787/888934038742
https://doi.org/10.1787/888934038761

Annex B2: Results for regions within countries
https://doi.org/10.1787/888934038780

Annex B3: PISA 2018 system-level indicators
https://doi.org/10.1787/888934029128

ANNEX B1
Results for countries and economies

Table II.B1.2.1 [1/4] **Students' socio-economic status**

		Coverage	Students' socio-economic status measured by the PISA index of economic, social and cultural status (ESCS)														
		Index 3: Coverage of 15-year-old population	All students			Variability in the index			Bottom quarter			Second quarter			Third quarter		
			Mean index	S.E.	s	S.D.	S.E.	s	Mean index	S.E.	s	Mean index	S.E.	s	Mean index	S.E.	s
OECD	Australia	0.89	0.32	(0.01)		0.91	(0.01)		-0.91	(0.02)		0.07	(0.02)		0.75	(0.01)	
	Austria	0.89	0.01	(0.02)		0.88	(0.01)		-1.10	(0.03)		-0.29	(0.02)		0.31	(0.02)	
	Belgium	0.94	0.07	(0.02)		0.93	(0.01)		-1.17	(0.02)		-0.22	(0.02)		0.50	(0.02)	
	Canada	0.86	0.42	(0.01)		0.82	(0.01)		-0.69	(0.02)		0.21	(0.02)		0.78	(0.01)	
	Chile	0.89	-0.58	(0.03)		1.03	(0.01)		-1.86	(0.03)		-0.99	(0.03)		-0.26	(0.04)	
	Colombia	0.62	-1.19	(0.04)		1.26	(0.02)		-2.81	(0.05)		-1.61	(0.05)		-0.78	(0.05)	
	Czech Republic	0.95	-0.21	(0.02)		0.88	(0.02)		-1.26	(0.03)		-0.57	(0.02)		0.04	(0.03)	
	Denmark	0.88	0.52	(0.01)		0.76	(0.01)		-0.54	(0.02)		0.40	(0.02)		0.88	(0.01)	
	Estonia	0.93	0.08	(0.02)		0.81	(0.01)		-0.98	(0.02)		-0.20	(0.02)		0.44	(0.02)	
	Finland	0.96	0.30	(0.02)		0.79	(0.01)		-0.78	(0.02)		0.06	(0.03)		0.69	(0.02)	
	France	0.91	-0.03	(0.02)		0.90	(0.01)		-1.22	(0.02)		-0.30	(0.02)		0.34	(0.02)	
	Germany	0.99	-0.10	(0.03)		1.04	(0.01)		-1.48	(0.03)		-0.41	(0.03)		0.33	(0.03)	
	Greece	0.93	-0.11	(0.02)		0.92	(0.01)		-1.30	(0.02)		-0.45	(0.03)		0.27	(0.03)	
	Hungary	0.90	-0.12	(0.02)		0.93	(0.01)		-1.29	(0.03)		-0.47	(0.02)		0.23	(0.03)	
	Iceland	0.92	0.55	(0.01)		0.81	(0.02)		-0.57	(0.03)		0.41	(0.02)		0.93	(0.01)	
	Ireland	0.96	0.13	(0.02)		0.87	(0.01)		-1.01	(0.03)		-0.16	(0.03)		0.50	(0.03)	
	Israel	0.81	0.35	(0.03)		0.98	(0.02)		-0.97	(0.03)		0.13	(0.03)		0.78	(0.02)	
	Italy	0.85	-0.22	(0.02)		0.92	(0.01)		-1.37	(0.02)		-0.57	(0.02)		0.07	(0.03)	
	Japan	0.91	-0.09	(0.01)		0.73	(0.01)		-1.05	(0.02)		-0.31	(0.02)		0.19	(0.01)	
	Korea	0.88	0.07	(0.02)		0.77	(0.01)		-0.97	(0.02)		-0.13	(0.02)		0.39	(0.02)	
	Latvia	0.89	0.00	(0.01)		0.84	(0.01)		-1.11	(0.02)		-0.29	(0.02)		0.39	(0.02)	
	Lithuania	0.90	0.03	(0.01)		0.87	(0.01)		-1.13	(0.02)		-0.28	(0.02)		0.46	(0.02)	
	Luxembourg	0.87	0.01	(0.01)		1.15	(0.01)		-1.56	(0.02)		-0.32	(0.02)		0.56	(0.01)	
	Mexico	0.66	-1.19	(0.04)		1.25	(0.02)		-2.76	(0.05)		-1.70	(0.04)		-0.77	(0.05)	
	Netherlands*	0.91	0.28	(0.02)		0.87	(0.02)		-0.91	(0.04)		0.07	(0.03)		0.69	(0.02)	
	New Zealand	0.89	0.16	(0.02)		0.97	(0.01)		-1.17	(0.02)		-0.10	(0.02)		0.63	(0.02)	
	Norway	0.91	0.54	(0.02)		0.82	(0.01)		-0.57	(0.03)		0.39	(0.02)		0.91	(0.02)	
	Poland	0.90	-0.14	(0.02)		0.85	(0.01)		-1.16	(0.01)		-0.57	(0.03)		0.14	(0.04)	
	Portugal*	0.87	-0.39	(0.03)		1.16	(0.01)		-1.91	(0.03)		-0.84	(0.04)		0.11	(0.06)	
	Slovak Republic	0.86	-0.21	(0.02)		0.92	(0.02)		-1.36	(0.04)		-0.55	(0.02)		0.12	(0.02)	
	Slovenia	0.98	0.07	(0.01)		0.80	(0.01)		-0.97	(0.01)		-0.24	(0.02)		0.42	(0.02)	
	Spain	0.92	-0.12	(0.02)		1.04	(0.01)		-1.54	(0.02)		-0.42	(0.02)		0.34	(0.02)	
	Sweden	0.86	0.36	(0.03)		0.89	(0.01)		-0.87	(0.03)		0.19	(0.03)		0.79	(0.03)	
	Switzerland	0.89	-0.01	(0.03)		0.93	(0.01)		-1.25	(0.04)		-0.29	(0.03)		0.39	(0.04)	
	Turkey	0.73	-1.15	(0.04)		1.18	(0.03)		-2.59	(0.03)		-1.65	(0.03)		-0.82	(0.05)	
	United Kingdom	0.85	0.27	(0.03)		0.91	(0.01)		-0.95	(0.03)		0.00	(0.03)		0.67	(0.03)	
	United States*	0.86	0.11	(0.04)		1.02	(0.02)		-1.28	(0.05)		-0.17	(0.05)		0.57	(0.04)	
	OECD average		-0.03	(0.00)		0.93	(0.00)		-1.25	(0.00)		-0.33	(0.00)		0.35	(0.00)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. World Bank Estimate, year 2015. Gini index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution. A Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.2.1 [2/4] **Students' socio-economic status**

		Coverage Index 3: Coverage of 15-year-old population	Students' socio-economic status measured by the PISA index of economic, social and cultural status (ESCS)														
			All students			Variability in the index			Bottom quarter			Second quarter			Third quarter		
			Mean index	S.E.	s	S.D.	S.E.	s	Mean index	S.E.	s	Mean index	S.E.	s	Mean index	S.E.	s
Partners	**Albania**	0.46	-0.87	(0.03)		0.97	(0.01)		-2.07	(0.02)		-1.26	(0.03)		-0.57	(0.03)	
	Argentina	0.81	-0.95	(0.03)		1.19	(0.01)		-2.50	(0.03)		-1.38	(0.04)		-0.49	(0.04)	
	Baku (Azerbaijan)	0.46	-0.56	(0.03)		0.92	(0.01)		-1.69	(0.02)		-0.93	(0.03)		-0.23	(0.03)	
	Belarus	0.88	-0.13	(0.02)		0.77	(0.01)		-1.14	(0.02)		-0.42	(0.02)		0.23	(0.02)	
	Bosnia and Herzegovina	0.82	-0.56	(0.02)		0.82	(0.01)		-1.53	(0.02)		-0.91	(0.02)		-0.36	(0.03)	
	Brazil	0.56	-1.10	(0.03)		1.23	(0.01)		-2.72	(0.04)		-1.50	(0.03)		-0.65	(0.03)	
	Brunei Darussalam	0.97	-0.26	(0.01)		0.96	(0.01)		-1.50	(0.02)		-0.60	(0.01)		0.08	(0.01)	
	B-S-J-Z (China)	0.81	-0.67	(0.03)		1.07	(0.01)		-1.98	(0.03)		-1.14	(0.04)		-0.30	(0.05)	
	Bulgaria	0.72	-0.26	(0.04)		1.02	(0.03)		-1.57	(0.06)		-0.60	(0.04)		0.18	(0.04)	
	Costa Rica	0.63	-0.96	(0.04)		1.32	(0.02)		-2.71	(0.04)		-1.44	(0.05)		-0.42	(0.06)	
	Croatia	0.89	-0.23	(0.01)		0.78	(0.01)		-1.17	(0.01)		-0.57	(0.01)		0.00	(0.02)	
	Cyprus	0.92	0.30	(0.01)		0.92	(0.01)		-0.94	(0.02)		0.04	(0.02)		0.73	(0.01)	
	Dominican Republic	0.73	-1.06	(0.04)		1.12	(0.02)		-2.48	(0.04)		-1.45	(0.03)		-0.72	(0.04)	
	Georgia	0.83	-0.41	(0.02)		0.93	(0.01)		-1.59	(0.02)		-0.75	(0.02)		-0.08	(0.03)	
	Hong Kong (China)*	0.98	-0.51	(0.03)		1.04	(0.02)		-1.81	(0.03)		-0.90	(0.03)		-0.18	(0.04)	
	Indonesia	0.85	-1.57	(0.05)		1.10	(0.02)		-2.94	(0.04)		-1.99	(0.06)		-1.24	(0.06)	
	Jordan	0.57	-0.66	(0.03)		1.11	(0.02)		-2.13	(0.04)		-1.03	(0.03)		-0.18	(0.04)	
	Kazakhstan	0.92	-0.44	(0.02)		0.85	(0.01)		-1.53	(0.02)		-0.77	(0.02)		-0.11	(0.02)	
	Kosovo	0.84	-0.46	(0.02)		0.88	(0.01)		-1.58	(0.02)		-0.78	(0.02)		-0.17	(0.02)	
	Lebanon	0.87	-0.57	(0.03)		1.15	(0.01)		-2.11	(0.04)		-0.90	(0.04)		-0.10	(0.03)	
	Macao (China)	0.88	-0.52	(0.01)		0.91	(0.01)		-1.65	(0.02)		-0.86	(0.02)		-0.23	(0.02)	
	Malaysia	0.72	-0.77	(0.03)		1.05	(0.02)		-2.03	(0.03)		-1.23	(0.03)		-0.46	(0.05)	
	Malta	0.97	0.06	(0.01)		0.96	(0.01)		-1.19	(0.02)		-0.29	(0.02)		0.47	(0.02)	
	Moldova	0.95	-0.59	(0.02)		0.93	(0.01)		-1.74	(0.02)		-0.97	(0.02)		-0.30	(0.03)	
	Montenegro	0.95	-0.18	(0.01)		0.87	(0.01)		-1.29	(0.02)		-0.50	(0.01)		0.15	(0.01)	
	Morocco	0.64	-1.89	(0.06)		1.42	(0.02)		-3.62	(0.05)		-2.51	(0.06)		-1.43	(0.07)	
	North Macedonia	0.95	-0.32	(0.01)		0.89	(0.01)		-1.47	(0.02)		-0.65	(0.01)		0.02	(0.01)	
	Panama	0.53	-1.09	(0.04)		1.35	(0.02)		-2.86	(0.04)		-1.56	(0.05)		-0.55	(0.06)	
	Peru	0.73	-1.12	(0.04)		1.17	(0.02)		-2.60	(0.04)		-1.52	(0.04)		-0.78	(0.05)	
	Philippines	0.68	-1.42	(0.04)		1.13	(0.02)		-2.86	(0.05)		-1.77	(0.04)		-1.08	(0.04)	
	Qatar	0.92	0.28	(0.01)		0.84	(0.01)		-0.86	(0.01)		0.18	(0.01)		0.62	(0.01)	
	Romania	0.71	-0.47	(0.05)		0.97	(0.02)		-1.64	(0.05)		-0.85	(0.04)		-0.20	(0.06)	
	Russia	0.94	0.13	(0.02)		0.74	(0.01)		-0.85	(0.02)		-0.08	(0.03)		0.46	(0.02)	
	Saudi Arabia	0.85	-0.70	(0.04)		1.19	(0.02)		-2.29	(0.04)		-1.11	(0.06)		-0.17	(0.06)	
	Serbia	0.88	-0.24	(0.02)		0.83	(0.01)		-1.28	(0.02)		-0.57	(0.02)		0.07	(0.02)	
	Singapore	0.95	0.17	(0.01)		0.92	(0.01)		-1.10	(0.02)		-0.06	(0.02)		0.62	(0.02)	
	Chinese Taipei	0.92	-0.32	(0.02)		0.92	(0.01)		-1.50	(0.02)		-0.64	(0.03)		0.05	(0.03)	
	Thailand	0.72	-1.30	(0.04)		1.16	(0.02)		-2.70	(0.03)		-1.77	(0.04)		-1.01	(0.06)	
	Ukraine	0.87	-0.20	(0.02)		0.77	(0.01)		-1.21	(0.03)		-0.48	(0.03)		0.11	(0.03)	
	United Arab Emirates	0.92	0.28	(0.02)		0.88	(0.01)		-0.92	(0.02)		0.12	(0.02)		0.66	(0.02)	
	Uruguay	0.77	-0.99	(0.04)		1.16	(0.02)		-2.43	(0.04)		-1.43	(0.04)		-0.66	(0.05)	
	Viet Nam	0.70	-1.62	(0.05)		1.08	(0.03)		-2.89	(0.06)		-2.05	(0.04)		-1.38	(0.06)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. World Bank Estimate, year 2015. Gini index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution. A Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.2.1 [3/4] **Students' socio-economic status**

		Students' socio-economic status measured by the PISA index of economic, social and cultural status (ESCS)															Gini Index[1]
		Fourth quarter			Top - Bottom quarter			5th percentile			95th percentile			95th - 5th percentile			
		Mean index	S.E.	s	Dif.	S.E.	s	Value	S.E.	s	Value	S.E.	s	Dif.	S.E.	s	
OECD	Australia	1.36	(0.01)		**2.27**	(0.02)		-1.28	(0.04)		1.55	(0.01)		**2.83**	(0.04)	.	
	Austria	1.14	(0.02)		**2.23**	(0.03)		-1.37	(0.04)		1.40	(0.02)		**2.77**	(0.05)	.	30.5
	Belgium	1.18	(0.01)		**2.35**	(0.02)		-1.49	(0.03)		1.39	(0.01)		**2.88**	(0.03)	.	27.7
	Canada	1.37	(0.01)		**2.05**	(0.02)		-1.01	(0.02)		1.55	(0.01)		**2.56**	(0.02)	.	
	Chile	0.78	(0.03)		**2.64**	(0.03)		-2.16	(0.04)		1.11	(0.02)		**3.27**	(0.05)	.	47.7
	Colombia	0.45	(0.05)		**3.27**	(0.06)		-3.31	(0.05)		0.88	(0.05)		**4.19**	(0.07)	.	51.1
	Czech Republic	0.95	(0.02)		**2.21**	(0.03)		-1.51	(0.05)		1.21	(0.02)		**2.72**	(0.05)	.	25.9
	Denmark	1.34	(0.01)		**1.88**	(0.02)		-0.92	(0.03)		1.50	(0.02)		**2.41**	(0.03)	.	28.2
	Estonia	1.07	(0.02)		**2.06**	(0.02)		-1.24	(0.02)		1.26	(0.02)		**2.50**	(0.03)	.	32.7
	Finland	1.21	(0.02)		**1.99**	(0.02)		-1.01	(0.02)		1.38	(0.02)		**2.39**	(0.03)	.	27.1
	France	1.04	(0.02)		**2.26**	(0.02)		-1.56	(0.04)		1.25	(0.02)		**2.82**	(0.03)	.	32.7
	Germany	1.17	(0.02)		**2.65**	(0.04)		-1.84	(0.07)		1.43	(0.02)		**3.28**	(0.07)	.	31.7
	Greece	1.05	(0.02)		**2.35**	(0.02)		-1.59	(0.04)		1.24	(0.02)		**2.83**	(0.04)	.	36
	Hungary	1.06	(0.02)		**2.36**	(0.03)		-1.66	(0.06)		1.27	(0.02)		**2.93**	(0.06)	.	30.4
	Iceland	1.42	(0.01)		**1.99**	(0.03)		-0.90	(0.05)		1.57	(0.03)		**2.47**	(0.07)	.	
	Ireland	1.19	(0.02)		**2.20**	(0.03)		-1.30	(0.03)		1.41	(0.02)		**2.71**	(0.03)	.	31.8
	Israel	1.44	(0.03)		**2.42**	(0.04)		-1.32	(0.04)		1.69	(0.05)		**3.01**	(0.06)	.	
	Italy	0.99	(0.03)		**2.36**	(0.03)		-1.62	(0.03)		1.28	(0.03)		**2.91**	(0.03)	.	35.4
	Japan	0.81	(0.01)		**1.86**	(0.03)		-1.30	(0.02)		1.02	(0.01)		**2.32**	(0.03)	.	
	Korea	1.00	(0.02)		**1.97**	(0.02)		-1.28	(0.02)		1.22	(0.02)		**2.49**	(0.03)	.	
	Latvia	1.01	(0.01)		**2.12**	(0.02)		-1.33	(0.02)		1.20	(0.01)		**2.53**	(0.03)	.	34.2
	Lithuania	1.06	(0.01)		**2.18**	(0.02)		-1.35	(0.02)		1.24	(0.01)		**2.59**	(0.02)	.	37.4
	Luxembourg	1.37	(0.01)		**2.93**	(0.03)		-2.06	(0.04)		1.60	(0.01)		**3.65**	(0.04)	.	33.8
	Mexico	0.48	(0.05)		**3.23**	(0.06)		-3.16	(0.05)		0.89	(0.04)		**4.05**	(0.07)	.	
	Netherlands*	1.26	(0.02)		**2.17**	(0.04)		-1.22	(0.06)		1.44	(0.02)		**2.65**	(0.06)	.	28.2
	New Zealand	1.29	(0.01)		**2.46**	(0.02)		-1.58	(0.03)		1.49	(0.01)		**3.07**	(0.03)	.	
	Norway	1.45	(0.02)		**2.02**	(0.03)		-0.85	(0.05)		1.63	(0.01)		**2.48**	(0.05)	.	27.5
	Poland	1.02	(0.02)		**2.17**	(0.02)		-1.33	(0.01)		1.25	(0.02)		**2.58**	(0.02)	.	31.8
	Portugal*	1.09	(0.02)		**3.00**	(0.03)		-2.27	(0.03)		1.31	(0.01)		**3.57**	(0.03)	.	35.5
	Slovak Republic	0.95	(0.02)		**2.31**	(0.04)		-1.60	(0.09)		1.18	(0.02)		**2.78**	(0.09)	.	26.5
	Slovenia	1.07	(0.01)		**2.04**	(0.02)		-1.16	(0.01)		1.26	(0.02)		**2.42**	(0.02)	.	25.4
	Spain	1.12	(0.01)		**2.66**	(0.02)		-1.95	(0.03)		1.37	(0.01)		**3.32**	(0.03)	.	36.2
	Sweden	1.33	(0.02)		**2.20**	(0.03)		-1.21	(0.04)		1.49	(0.03)		**2.69**	(0.05)	.	29.2
	Switzerland	1.10	(0.02)		**2.34**	(0.03)		-1.68	(0.04)		1.31	(0.02)		**2.99**	(0.03)	.	32.3
	Turkey	0.47	(0.08)		**3.06**	(0.07)		-2.89	(0.03)		0.92	(0.07)		**3.81**	(0.07)	.	42.9
	United Kingdom	1.37	(0.02)		**2.31**	(0.03)		-1.27	(0.03)		1.60	(0.02)		**2.87**	(0.03)	.	33.2
	United States*	1.31	(0.03)		**2.59**	(0.05)		-1.69	(0.07)		1.56	(0.04)		**3.25**	(0.08)	.	
	OECD average	1.10	(0.00)		**2.36**	(0.01)		-1.57	(0.01)		1.33	(0.00)		**2.91**	(0.01)		

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. World Bank Estimate, year 2015. Gini index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution. A Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

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Table II.B1.2.1 [4/4] **Students' socio-economic status**

	Students' socio-economic status measured by the PISA index of economic, social and cultural status (ESCS)															Gini Index[1]
	Fourth quarter			Top - Bottom quarter			5th percentile			95th percentile			95th - 5th percentile			
	Mean index	S.E.	s	Dif.	S.E.	s	Value	S.E.	s	Value	S.E.	s	Dif.	S.E.	s	
Partners																
Albania	0.42	(0.03)		**2.49**	(0.03)		-2.34	(0.03)		0.76	(0.03)		**3.10**	(0.04)	.	
Argentina	0.56	(0.03)		**3.07**	(0.04)		-2.90	(0.04)		0.89	(0.02)		**3.78**	(0.04)	.	
Baku (Azerbaijan)	0.63	(0.03)		**2.32**	(0.02)		-1.93	(0.02)		0.89	(0.02)		**2.82**	(0.03)	.	
Belarus	0.82	(0.02)		**1.96**	(0.02)		-1.37	(0.03)		0.98	(0.02)		**2.35**	(0.03)	.	25.6
Bosnia and Herzegovina	0.57	(0.03)		**2.10**	(0.03)		-1.78	(0.03)		0.88	(0.03)		**2.66**	(0.04)	.	
Brazil	0.46	(0.03)		**3.18**	(0.04)		-3.19	(0.05)		0.83	(0.04)		**4.03**	(0.06)	.	51.3
Brunei Darussalam	0.96	(0.01)		**2.47**	(0.02)		-1.84	(0.02)		1.26	(0.01)		**3.09**	(0.02)	.	
B-S-J-Z (China)	0.77	(0.03)		**2.75**	(0.03)		-2.27	(0.04)		1.05	(0.02)		**3.32**	(0.04)	.	
Bulgaria	0.97	(0.02)		**2.54**	(0.06)		-1.97	(0.09)		1.18	(0.02)		**3.14**	(0.09)	.	
Costa Rica	0.72	(0.04)		**3.43**	(0.05)		-3.06	(0.04)		1.02	(0.05)		**4.08**	(0.06)	.	48.4
Croatia	0.81	(0.01)		**1.98**	(0.02)		-1.35	(0.02)		1.04	(0.02)		**2.39**	(0.02)	.	31.1
Cyprus	1.37	(0.01)		**2.31**	(0.02)		-1.26	(0.04)		1.57	(0.02)		**2.83**	(0.04)	.	34
Dominican Republic	0.39	(0.05)		**2.87**	(0.05)		-2.97	(0.07)		0.76	(0.05)		**3.72**	(0.07)	.	45.2
Georgia	0.79	(0.02)		**2.37**	(0.03)		-1.87	(0.02)		1.00	(0.02)		**2.86**	(0.03)	.	36.5
Hong Kong (China)*	0.85	(0.05)		**2.66**	(0.04)		-2.16	(0.03)		1.20	(0.03)		**3.35**	(0.04)	.	
Indonesia	-0.10	(0.06)		**2.84**	(0.06)		-3.27	(0.04)		0.35	(0.06)		**3.62**	(0.06)	.	39.7
Jordan	0.69	(0.03)		**2.82**	(0.04)		-2.55	(0.05)		0.96	(0.04)		**3.51**	(0.06)	.	
Kazakhstan	0.65	(0.02)		**2.18**	(0.02)		-1.79	(0.02)		0.87	(0.01)		**2.66**	(0.02)	.	26.8
Kosovo	0.68	(0.02)		**2.26**	(0.03)		-1.92	(0.03)		0.96	(0.03)		**2.88**	(0.05)	.	
Lebanon	0.83	(0.03)		**2.94**	(0.04)		-2.62	(0.06)		1.15	(0.04)		**3.78**	(0.07)	.	
Macao (China)	0.67	(0.02)		**2.32**	(0.02)		-1.92	(0.04)		0.96	(0.02)		**2.88**	(0.05)	.	
Malaysia	0.66	(0.04)		**2.69**	(0.04)		-2.33	(0.05)		1.00	(0.03)		**3.33**	(0.06)	.	41
Malta	1.26	(0.01)		**2.45**	(0.03)		-1.48	(0.02)		1.47	(0.02)		**2.95**	(0.03)	.	29.4
Moldova	0.63	(0.03)		**2.38**	(0.03)		-2.04	(0.03)		0.89	(0.02)		**2.93**	(0.04)	.	27
Montenegro	0.92	(0.01)		**2.21**	(0.02)		-1.56	(0.02)		1.14	(0.02)		**2.70**	(0.03)	.	
Morocco	0.01	(0.08)		**3.63**	(0.06)		-3.94	(0.04)		0.57	(0.07)		**4.51**	(0.07)	.	
North Macedonia	0.81	(0.01)		**2.28**	(0.02)		-1.80	(0.03)		1.05	(0.02)		**2.85**	(0.04)	.	35.6
Panama	0.60	(0.05)		**3.46**	(0.05)		-3.27	(0.06)		0.92	(0.05)		**4.19**	(0.07)	.	50.8
Peru	0.41	(0.05)		**3.01**	(0.05)		-3.05	(0.05)		0.84	(0.04)		**3.89**	(0.06)	.	43.4
Philippines	0.03	(0.06)		**2.88**	(0.06)		-3.29	(0.05)		0.48	(0.06)		**3.76**	(0.07)	.	40.1
Qatar	1.19	(0.01)		**2.05**	(0.02)		-1.32	(0.02)		1.39	(0.01)		**2.70**	(0.03)	.	
Romania	0.83	(0.06)		**2.47**	(0.05)		-1.99	(0.07)		1.12	(0.04)		**3.11**	(0.07)	.	35.9
Russia	1.00	(0.02)		**1.85**	(0.02)		-1.07	(0.03)		1.17	(0.02)		**2.24**	(0.03)	.	37.7
Saudi Arabia	0.76	(0.03)		**3.05**	(0.04)		-2.72	(0.05)		1.01	(0.03)		**3.73**	(0.05)	.	
Serbia	0.83	(0.02)		**2.11**	(0.02)		-1.49	(0.03)		1.04	(0.01)		**2.53**	(0.03)	.	28.5
Singapore	1.22	(0.01)		**2.31**	(0.02)		-1.44	(0.03)		1.40	(0.02)		**2.84**	(0.04)	.	
Chinese Taipei	0.83	(0.02)		**2.34**	(0.02)		-1.81	(0.03)		1.09	(0.02)		**2.90**	(0.03)	.	
Thailand	0.29	(0.07)		**2.99**	(0.06)		-3.02	(0.04)		0.76	(0.06)		**3.78**	(0.06)	.	36
Ukraine	0.76	(0.02)		**1.98**	(0.02)		-1.45	(0.05)		0.95	(0.02)		**2.40**	(0.05)	.	25.5
United Arab Emirates	1.25	(0.01)		**2.18**	(0.02)		-1.32	(0.02)		1.46	(0.01)		**2.78**	(0.03)	.	
Uruguay	0.56	(0.06)		**2.99**	(0.05)		-2.79	(0.05)		0.99	(0.06)		**3.78**	(0.07)	.	40.2
Viet Nam	-0.16	(0.08)		**2.73**	(0.08)		-3.24	(0.08)		0.39	(0.08)		**3.63**	(0.10)	.	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. World Bank Estimate, year 2015. Gini index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution. A Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.3.1 [1/2] **Reading performance by socio-economic students and proportion of academically resilient students**
Based on students' reports

		Reading performance, by national quarter of ESCS[1]															Percentage of disadvantaged students[2] who are academically resilient[3]		
		Bottom quarter			Third quarter			Second quarter			Top quarter			Difference Top - Bottom					
		Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Score dif.	S.E.	s	%	S.E.	s
OECD	Australia	460	(2.3)		490	(2.4)		519	(2.7)		549	(2.3)		**89**	(2.8)		13.1	(0.7)	
	Austria	440	(3.7)		475	(3.3)		496	(3.5)		533	(3.4)		**93**	(5.0)		10.0	(1.0)	
	Belgium	440	(2.8)		476	(3.2)		512	(3.1)		550	(2.2)		**109**	(3.1)		9.0	(0.7)	
	Canada	485	(2.3)		512	(2.3)		539	(2.6)		553	(2.5)		**68**	(3.3)		13.9	(0.8)	
	Chile	415	(3.0)		443	(3.4)		455	(3.2)		502	(3.4)		**87**	(4.3)		11.2	(1.1)	
	Colombia	373	(3.5)		398	(4.2)		419	(4.0)		459	(5.2)		**86**	(6.5)		10.0	(1.0)	
	Czech Republic	439	(4.3)		481	(3.2)		498	(3.0)		544	(3.2)		**105**	(5.4)		8.9	(1.1)	
	Denmark	462	(2.7)		493	(2.8)		514	(2.8)		540	(2.8)		**78**	(3.7)		12.2	(1.1)	
	Estonia	497	(3.7)		509	(3.1)		532	(2.5)		558	(2.9)		**61**	(4.6)		15.6	(1.7)	
	Finland	483	(3.0)		509	(2.6)		533	(3.2)		562	(3.7)		**79**	(4.7)		12.6	(1.1)	
	France	443	(2.7)		474	(3.4)		509	(3.3)		550	(3.9)		**107**	(5.0)		9.5	(1.0)	
	Germany	450	(4.3)		492	(3.5)		518	(4.0)		564	(4.0)		**113**	(5.4)		10.4	(1.2)	
	Greece	417	(4.1)		444	(3.9)		468	(4.0)		502	(4.2)		**84**	(5.2)		11.8	(1.1)	
	Hungary	420	(3.4)		463	(3.2)		489	(3.2)		534	(4.0)		**113**	(5.4)		7.7	(0.9)	
	Iceland	437	(3.6)		463	(4.0)		495	(3.4)		510	(4.0)		**72**	(5.7)		12.8	(1.4)	
	Ireland	482	(3.0)		511	(3.0)		527	(2.8)		557	(3.0)		**75**	(4.2)		13.1	(1.1)	
	Israel	407	(4.2)		455	(4.8)		507	(4.1)		529	(4.1)		**121**	(5.4)		8.0	(0.8)	
	Italy	436	(3.5)		474	(2.8)		487	(3.2)		511	(3.9)		**75**	(5.1)		12.4	(1.1)	
	Japan	465	(4.2)		499	(3.2)		517	(3.4)		537	(3.7)		**72**	(5.6)		11.7	(1.1)	
	Korea	477	(3.9)		503	(3.6)		525	(3.8)		552	(4.3)		**75**	(5.7)		13.5	(1.0)	
	Latvia	447	(2.8)		470	(2.9)		490	(3.1)		512	(3.0)		**65**	(3.9)		12.2	(1.1)	
	Lithuania	432	(2.6)		465	(2.8)		488	(2.8)		522	(2.3)		**89**	(3.5)		11.2	(0.9)	
	Luxembourg	415	(2.3)		445	(2.4)		488	(2.7)		537	(3.0)		**122**	(4.1)		7.6	(0.8)	
	Mexico	382	(2.8)		413	(3.3)		426	(4.0)		464	(4.9)		**82**	(5.7)		10.6	(1.2)	
	Netherlands*	448	(4.8)		470	(4.2)		495	(3.6)		536	(4.0)		**88**	(5.9)		12.6	(1.3)	
	New Zealand	462	(3.0)		490	(2.8)		525	(3.2)		558	(3.3)		**96**	(4.4)		11.7	(1.0)	
	Norway	459	(3.5)		496	(3.1)		520	(2.8)		532	(3.4)		**73**	(4.6)		12.3	(1.0)	
	Poland	469	(3.1)		504	(3.1)		518	(3.8)		560	(4.6)		**90**	(5.7)		10.8	(1.0)	
	Portugal*	448	(4.1)		480	(3.4)		501	(3.2)		543	(3.2)		**95**	(4.7)		10.0	(1.3)	
	Slovak Republic	404	(3.9)		449	(3.1)		468	(3.0)		511	(3.9)		**106**	(5.7)		9.1	(0.9)	
	Slovenia	462	(2.6)		476	(2.7)		506	(2.9)		541	(3.0)		**80**	(3.9)		11.7	(1.0)	
	Spain	m	m		m	m		m	m		m	m		m	m		m	m	
	Sweden	460	(4.3)		501	(3.5)		526	(3.6)		549	(4.1)		**89**	(5.9)		11.4	(1.1)	
	Switzerland	435	(3.8)		469	(3.6)		499	(3.2)		539	(5.4)		**104**	(6.6)		9.3	(1.1)	
	Turkey	437	(3.8)		452	(3.1)		461	(3.0)		513	(4.0)		**76**	(6.0)		14.5	(1.4)	
	United Kingdom	471	(3.1)		493	(2.9)		516	(2.8)		550	(3.9)		**80**	(4.7)		14.0	(1.1)	
	United States*	460	(4.6)		488	(4.0)		517	(3.6)		558	(4.7)		**99**	(6.3)		10.3	(1.1)	
	OECD average-36a	445	(0.6)		476	(0.5)		500	(0.5)		534	(0.6)		**89**	(0.8)		11.3	(0.2)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

2. A socio-economically disadvantaged student is a student in the bottom quarter of the PISA index of economic, social and cultural status (ESCS) in his or her own country/economy.

3. Academically resilient students are disadvantaged students who scored in the top quarter of performance in reading amongst students in their own country.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.3.1 [2/2] **Reading performance by socio-economic students and proportion of academically resilient students**
Based on students' reports

		Reading performance, by national quarter of ESCS[1]															Percentage of disadvantaged students[2] who are academically resilient[3]		
		Bottom quarter			Third quarter			Second quarter			Top quarter			Difference Top - Bottom					
		Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Score dif.	S.E.	s	%	S.E.	s
Partners	**Albania**	377	(2.5)		402	(2.3)		406	(2.7)		438	(3.9)		**61**	(4.7)		12.3	(1.1)	
	Argentina	353	(3.6)		387	(3.5)		416	(3.4)		455	(4.1)		**102**	(5.4)		8.5	(0.9)	
	Baku (Azerbaijan)	371	(2.2)		385	(2.1)		393	(2.7)		412	(5.9)		**41**	(5.9)		16.5	(1.2)	
	Belarus	423	(3.1)		458	(3.6)		489	(2.5)		525	(3.5)		**102**	(4.7)		8.9	(1.0)	
	Bosnia and Herzegovina	373	(2.7)		402	(3.8)		408	(3.1)		431	(4.4)		**58**	(4.6)		13.1	(1.0)	
	Brazil	373	(2.3)		397	(2.8)		419	(2.6)		470	(3.8)		**97**	(4.4)		9.5	(0.6)	
	Brunei Darussalam	364	(1.8)		390	(1.9)		414	(2.3)		467	(2.0)		**103**	(2.7)		9.5	(0.8)	
	B-S-J-Z (China)	519	(3.7)		545	(2.7)		558	(2.9)		600	(4.0)		**82**	(5.4)		11.7	(1.2)	
	Bulgaria	369	(4.8)		403	(4.9)		438	(4.5)		475	(5.0)		**106**	(6.2)		6.5	(0.9)	
	Costa Rica	392	(2.6)		410	(2.8)		429	(4.5)		476	(4.6)		**83**	(4.9)		10.0	(0.9)	
	Croatia	455	(3.2)		463	(3.3)		480	(3.1)		518	(3.5)		**63**	(3.9)		15.2	(1.1)	
	Cyprus	389	(2.9)		416	(2.5)		439	(2.5)		459	(2.8)		**69**	(4.3)		12.8	(1.0)	
	Dominican Republic	319	(2.5)		333	(3.1)		336	(3.4)		383	(5.7)		**65**	(6.3)		12.3	(1.0)	
	Georgia	350	(2.9)		367	(3.4)		386	(2.6)		418	(3.8)		**68**	(4.5)		12.3	(1.0)	
	Hong Kong (China)*	497	(3.7)		523	(3.4)		529	(3.4)		555	(4.7)		**59**	(6.0)		16.5	(1.1)	
	Indonesia	350	(3.1)		362	(2.9)		371	(3.2)		402	(5.9)		**52**	(6.9)		13.7	(1.5)	
	Jordan	390	(4.3)		411	(3.3)		427	(3.3)		453	(4.1)		**64**	(5.6)		12.4	(1.4)	
	Kazakhstan	368	(1.8)		380	(1.6)		392	(1.8)		408	(2.8)		**40**	(3.1)		16.0	(0.8)	
	Kosovo	339	(2.2)		347	(2.1)		350	(2.1)		378	(2.6)		**40**	(3.5)		17.3	(1.4)	
	Lebanon	307	(4.1)		341	(4.5)		362	(5.9)		410	(7.5)		**103**	(7.7)		9.1	(1.2)	
	Macao (China)	511	(2.5)		524	(3.0)		524	(3.2)		542	(3.1)		**31**	(4.1)		19.8	(1.3)	
	Malaysia	377	(3.0)		401	(3.0)		417	(3.1)		466	(4.8)		**89**	(5.6)		9.8	(1.1)	
	Malta	406	(3.4)		442	(3.5)		460	(3.6)		491	(3.6)		**85**	(4.7)		13.3	(1.2)	
	Moldova	374	(2.9)		414	(3.2)		433	(3.0)		476	(4.7)		**102**	(5.3)		8.1	(0.9)	
	Montenegro	396	(2.1)		411	(1.9)		428	(2.3)		451	(2.1)		**55**	(3.0)		14.3	(1.0)	
	Morocco	340	(3.1)		351	(3.3)		357	(3.6)		391	(4.1)		**51**	(4.5)		13.2	(1.4)	
	North Macedonia	359	(2.8)		382	(2.8)		397	(3.0)		439	(2.7)		**80**	(4.0)		13.1	(1.2)	
	Panama	337	(3.4)		364	(3.1)		379	(3.2)		432	(5.5)		**95**	(6.5)		9.2	(1.1)	
	Peru	349	(2.9)		385	(3.0)		410	(3.2)		458	(4.3)		**110**	(4.9)		6.2	(0.8)	
	Philippines	301	(2.1)		330	(2.4)		339	(3.1)		389	(6.3)		**88**	(6.4)		7.7	(0.8)	
	Qatar	360	(1.4)		395	(1.8)		429	(1.7)		453	(1.8)		**93**	(2.3)		9.5	(0.5)	
	Romania	375	(5.1)		417	(4.7)		437	(4.8)		484	(5.7)		**109**	(7.0)		8.8	(1.2)	
	Russia	443	(4.4)		469	(3.1)		493	(3.2)		510	(4.2)		**67**	(5.4)		12.6	(1.0)	
	Saudi Arabia	362	(4.4)		392	(3.5)		409	(2.8)		437	(4.0)		**74**	(6.2)		10.7	(1.2)	
	Serbia	407	(4.2)		429	(4.1)		445	(3.7)		480	(4.6)		**73**	(5.8)		13.2	(1.3)	
	Singapore	495	(2.7)		535	(2.8)		570	(2.5)		599	(3.4)		**104**	(3.8)		9.7	(0.7)	
	Chinese Taipei	461	(2.9)		492	(2.8)		510	(3.6)		550	(4.3)		**89**	(4.8)		11.8	(0.9)	
	Thailand	369	(2.4)		377	(2.8)		388	(3.5)		438	(5.6)		**69**	(6.0)		12.5	(1.1)	
	Ukraine	422	(4.6)		456	(3.6)		476	(3.8)		511	(3.7)		**90**	(5.7)		11.8	(1.2)	
	United Arab Emirates	377	(1.6)		414	(2.2)		461	(2.3)		482	(4.0)		**105**	(4.1)		7.2	(0.6)	
	Uruguay	379	(3.6)		414	(3.2)		439	(3.9)		478	(4.1)		**99**	(5.7)		9.5	(1.1)	
	Viet Nam	m	m		m	m		m	m		m	m		m	m		0.0	c	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

2. A socio-economically disadvantaged student is a student in the bottom quarter of the PISA index of economic, social and cultural status (ESCS) in his or her own country/economy.

3. Academically resilient students are disadvantaged students who scored in the top quarter of performance in reading amongst students in their own country.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.3.4 [1/8] **Students' well-being, by socio-economic status**
Percentage of students; based on students' reports

		Students are satisfied with their lives[1]																
					By national quarter of ESCS[2]													
		All students			Bottom quarter			Third quarter			Second quarter			Top quarter			Difference Top - Bottom		
		%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
OECD	Australia	m	m		m	m		m	m		m	m		m	m		m	m	
	Austria	66.3	(1.4)		66.4	(1.4)		70.6	(1.4)		68.5	(1.3)		72.8	(1.3)		**6.4**	(1.9)	
	Belgium	m	m		m	m		m	m		m	m		m	m		m	m	
	Canada	m	m		m	m		m	m		m	m		m	m		m	m	
	Chile	57.6	(1.4)		57.6	(1.4)		63.0	(1.4)		67.1	(1.3)		68.8	(1.3)		**11.3**	(1.9)	
	Colombia	75.6	(1.4)		75.6	(1.4)		72.6	(1.1)		71.5	(1.3)		72.4	(1.2)		-3.2	(2.0)	
	Czech Republic	59.6	(2.0)		59.7	(2.0)		62.1	(1.5)		67.4	(1.3)		69.5	(1.3)		**9.9**	(2.3)	
	Denmark	m	m		m	m		m	m		m	m		m	m		m	m	
	Estonia	65.1	(1.4)		65.1	(1.4)		64.8	(1.6)		72.3	(1.4)		77.3	(1.3)		**12.2**	(1.9)	
	Finland	71.9	(1.3)		72.0	(1.3)		75.5	(1.4)		80.1	(1.0)		82.8	(1.0)		**10.8**	(1.7)	
	France	62.9	(1.5)		62.9	(1.5)		67.6	(1.4)		72.3	(1.2)		75.6	(1.3)		**12.7**	(2.2)	
	Germany	62.8	(1.4)		62.8	(1.4)		68.4	(1.7)		65.2	(1.5)		69.9	(1.5)		**7.1**	(2.2)	
	Greece	63.9	(1.5)		63.8	(1.5)		67.2	(1.2)		64.9	(1.3)		65.9	(1.4)		2.1	(2.0)	
	Hungary	64.1	(1.5)		64.2	(1.5)		66.5	(1.5)		69.0	(1.4)		71.7	(1.5)		**7.5**	(2.1)	
	Iceland	67.8	(1.9)		67.8	(1.9)		68.6	(1.7)		76.3	(1.6)		77.1	(1.4)		**9.4**	(2.4)	
	Ireland	57.8	(1.4)		57.7	(1.4)		61.2	(1.4)		62.8	(1.4)		63.6	(1.5)		**5.9**	(2.0)	
	Israel	m	m		m	m		m	m		m	m		m	m		m	m	
	Italy	61.7	(1.5)		61.7	(1.5)		66.6	(1.4)		66.9	(1.2)		72.4	(1.0)		**10.7**	(1.6)	
	Japan	48.7	(1.5)		48.7	(1.5)		51.1	(1.3)		48.2	(1.3)		53.0	(1.6)		**4.3**	(2.2)	
	Korea	53.7	(1.3)		53.8	(1.3)		57.6	(1.4)		57.0	(1.4)		58.7	(1.2)		**4.9**	(1.7)	
	Latvia	60.5	(1.6)		60.6	(1.6)		69.6	(1.5)		69.5	(1.4)		75.8	(1.5)		**15.2**	(2.3)	
	Lithuania	73.2	(1.1)		73.1	(1.1)		76.9	(1.1)		74.8	(1.2)		77.0	(1.2)		**3.9**	(1.7)	
	Luxembourg	61.7	(1.6)		61.7	(1.6)		65.7	(1.3)		68.6	(1.3)		76.4	(1.3)		**14.7**	(1.9)	
	Mexico	79.3	(1.4)		79.3	(1.4)		82.5	(1.0)		83.2	(1.2)		84.8	(1.0)		**5.5**	(1.7)	
	Netherlands*	79.5	(1.7)		79.5	(1.7)		76.6	(1.5)		78.9	(1.3)		82.4	(1.6)		3.0	(2.5)	
	New Zealand	m	m		m	m		m	m		m	m		m	m		m	m	
	Norway	m	m		m	m		m	m		m	m		m	m		m	m	
	Poland	58.1	(1.5)		58.1	(1.5)		62.9	(1.7)		62.9	(1.4)		63.5	(1.5)		**5.4**	(2.1)	
	Portugal*	66.3	(1.4)		66.3	(1.4)		68.0	(1.3)		67.5	(1.4)		73.8	(1.3)		**7.5**	(1.6)	
	Slovak Republic	63.6	(1.6)		63.5	(1.6)		69.6	(1.1)		71.2	(1.3)		72.9	(1.3)		**9.4**	(2.1)	
	Slovenia	65.4	(1.4)		65.5	(1.4)		64.3	(1.5)		62.1	(1.5)		64.4	(1.8)		-1.1	(2.3)	
	Spain	68.9	(0.7)		68.9	(0.7)		72.3	(0.7)		74.4	(0.7)		78.5	(0.5)		**9.6**	(0.9)	
	Sweden	60.2	(1.4)		60.2	(1.4)		66.0	(1.6)		69.1	(1.4)		71.2	(1.0)		**11.0**	(1.7)	
	Switzerland	69.9	(1.5)		69.9	(1.5)		73.1	(1.5)		72.8	(1.4)		77.3	(1.5)		**7.4**	(2.1)	
	Turkey	38.0	(1.3)		38.0	(1.3)		41.5	(1.2)		47.2	(1.3)		47.6	(1.5)		**9.7**	(1.9)	
	United Kingdom	45.9	(1.4)		45.8	(1.4)		50.6	(1.5)		53.2	(1.2)		59.7	(1.4)		**13.8**	(1.9)	
	United States*	54.8	(1.4)		54.7	(1.4)		59.2	(1.5)		61.1	(1.6)		67.5	(1.4)		**12.8**	(2.1)	
	OECD average	62.8	(0.3)		62.8	(0.3)		66.1	(0.3)		67.5	(0.2)		70.8	(0.2)		**8.0**	(0.4)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. In PISA 2018, students were asked "Overall, how satisfied are you with your life as a whole these days?". Students who rated their life with values from 7 to 10 were considered satisfied with their lives.

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

3. Students who disagreed with the following statement: "I feel like an outsider (or left out of things) at school".

4. Students who disagreed with the following statement: "When I am failing, this makes me doubt my plans for the future".

5. Students who are satisfied with their lives, do not feel like outsiders at school and do not doubt their future plans when facing failure.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.3.4 [2/8] **Students' well-being, by socio-economic status**
Percentage of students; based on students' reports

	Students are satisfied with their lives[1]																	
				By national quarter of ESCS[2]														
	All students			Bottom quarter			Third quarter			Second quarter			Top quarter			Difference Top - Bottom		
	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
Partners																		
Albania	84.5	(1.2)		84.6	(1.2)		87.8	(1.1)		86.5	(0.9)		86.8	(1.0)		2.3	(1.5)	
Argentina	65.7	(1.4)		65.7	(1.4)		66.3	(1.3)		70.2	(1.1)		76.4	(1.3)		**10.7**	(1.9)	
Baku (Azerbaijan)	64.1	(1.4)		64.2	(1.4)		66.5	(1.6)		65.1	(1.6)		71.4	(1.1)		**7.2**	(1.7)	
Belarus	82.1	(1.1)		82.1	(1.1)		83.2	(1.1)		84.2	(1.2)		84.5	(0.9)		2.5	(1.5)	
Bosnia and Herzegovina	73.7	(1.2)		73.7	(1.2)		76.5	(1.2)		77.7	(1.3)		78.0	(1.2)		**4.3**	(1.7)	
Brazil	65.5	(1.1)		65.5	(1.1)		63.6	(1.1)		64.3	(1.2)		66.5	(1.0)		1.0	(1.5)	
Brunei Darussalam	35.6	(1.2)		35.6	(1.2)		41.0	(1.3)		42.5	(1.3)		49.0	(1.1)		**13.4**	(1.8)	
B-S-J-Z (China)	54.1	(1.8)		54.1	(1.8)		59.6	(1.5)		60.6	(1.1)		62.3	(1.2)		**8.2**	(2.1)	
Bulgaria	59.8	(1.7)		59.8	(1.7)		64.8	(1.7)		66.2	(1.3)		70.1	(1.2)		**10.3**	(2.1)	
Costa Rica	79.6	(1.0)		79.6	(1.0)		76.3	(1.2)		79.8	(1.0)		79.1	(1.3)		-0.5	(1.6)	
Croatia	74.0	(1.2)		74.1	(1.2)		77.5	(1.1)		77.3	(0.9)		76.8	(1.0)		2.7	(1.6)	
Cyprus	56.8	(1.4)		56.8	(1.4)		62.8	(1.4)		62.5	(1.4)		68.3	(1.4)		**11.5**	(2.0)	
Dominican Republic	75.0	(1.8)	†	75.0	(1.8)	†	78.9	(1.5)	†	79.0	(1.3)	†	80.5	(1.3)		**5.5**	(2.2)	†
Georgia	69.0	(1.5)		69.0	(1.5)		73.1	(1.2)		75.3	(1.3)		77.5	(1.4)		**8.5**	(1.8)	
Hong Kong (China)*	45.2	(1.2)		45.2	(1.2)		49.9	(1.2)		55.8	(1.4)		57.8	(1.5)		**12.6**	(1.8)	
Indonesia	70.7	(2.0)		70.8	(2.0)		67.5	(1.4)		71.2	(1.8)		71.7	(1.6)		0.9	(2.5)	
Jordan	52.9	(1.7)		53.0	(1.7)		62.5	(1.3)		63.2	(1.3)		68.3	(1.3)		**15.3**	(2.2)	
Kazakhstan	87.1	(0.6)		87.1	(0.6)		86.9	(0.7)		86.3	(0.6)		87.4	(0.7)		0.3	(0.9)	
Kosovo	80.5	(1.4)		80.6	(1.4)		79.4	(1.3)		84.1	(1.2)		83.4	(1.2)		2.8	(1.8)	
Lebanon	46.0	(1.8)	†	46.0	(1.8)	†	55.1	(1.8)		59.4	(2.0)		72.0	(1.7)		**26.0**	(2.6)	†
Macao (China)	44.2	(1.6)		44.3	(1.6)		47.5	(1.7)		54.5	(1.4)		53.8	(1.7)		**9.5**	(2.6)	
Malaysia	58.1	(1.7)		58.1	(1.7)		64.2	(1.2)		63.7	(1.5)		66.6	(1.8)		**8.5**	(2.3)	
Malta	59.8	(1.9)		59.8	(1.9)		59.9	(1.9)		57.0	(1.8)		61.8	(1.8)		2.0	(2.7)	
Moldova	67.9	(1.4)		67.9	(1.4)		74.8	(1.3)		79.3	(1.3)		84.1	(1.3)		**16.1**	(1.9)	
Montenegro	71.1	(1.2)		71.2	(1.2)		77.2	(1.1)		74.1	(1.0)		76.4	(1.1)		**5.3**	(1.6)	
Morocco	59.5	(1.6)	†	59.5	(1.6)	†	62.1	(1.4)		61.3	(1.6)		65.3	(1.3)		**5.9**	(1.9)	†
North Macedonia	82.4	(1.1)		82.4	(1.1)		82.6	(1.1)		79.3	(1.2)		81.0	(1.1)		-1.4	(1.7)	
Panama	79.1	(1.7)	†	79.1	(1.7)	†	78.8	(1.3)	†	75.7	(1.4)		73.8	(1.5)		**-5.3**	(2.4)	†
Peru	68.0	(1.5)	†	68.0	(1.5)	†	68.0	(1.5)		67.8	(1.6)		68.4	(1.2)		0.5	(1.9)	†
Philippines	61.0	(1.5)		61.0	(1.5)		65.8	(1.3)		66.8	(1.3)		68.0	(1.7)		**6.9**	(2.1)	
Qatar	59.2	(0.9)		59.1	(0.9)		61.5	(0.8)		60.9	(0.9)		63.8	(0.9)		**4.6**	(1.1)	
Romania	75.0	(1.3)		75.1	(1.2)		77.5	(1.5)		81.3	(1.1)		84.6	(1.1)		**9.5**	(1.6)	
Russia	69.8	(1.4)		69.8	(1.4)		67.8	(1.6)		68.7	(1.0)		70.4	(1.2)		0.6	(1.7)	
Saudi Arabia	71.9	(1.5)		71.8	(1.5)		70.9	(1.2)		70.9	(1.2)		72.0	(1.4)		0.2	(2.0)	
Serbia	70.4	(1.1)		70.4	(1.1)		75.6	(1.1)		76.8	(1.0)		74.9	(1.3)		**4.5**	(1.7)	
Singapore	m	m		m	m		m	m		m	m		m	m		m	m	
Chinese Taipei	51.0	(1.4)		51.0	(1.4)		55.4	(1.3)		57.6	(1.3)		59.5	(1.4)		**8.5**	(1.8)	
Thailand	71.6	(1.4)		71.7	(1.4)		73.8	(1.3)		73.1	(1.2)		74.6	(1.2)		3.0	(1.8)	
Ukraine	77.1	(1.4)		77.2	(1.4)		80.7	(1.1)		83.1	(1.0)		85.5	(1.0)		**8.4**	(1.8)	
United Arab Emirates	60.8	(0.8)		60.8	(0.8)		61.8	(1.0)		61.3	(1.1)		61.6	(2.0)		0.9	(2.2)	
Uruguay	67.8	(1.5)		67.7	(1.5)		72.8	(1.4)		71.7	(1.6)		81.0	(1.5)		**13.3**	(2.1)	
Viet Nam	74.1	(1.8)		74.1	(1.8)		73.3	(1.3)		71.8	(1.4)		73.9	(1.5)		-0.2	(2.4)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. In PISA 2018, students were asked "Overall, how satisfied are you with your life as a whole these days?". Students who rated their life with values from 7 to 10 were considered satisfied with their lives.

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

3. Students who disagreed with the following statement: "I feel like an outsider (or left out of things) at school".

4. Students who disagreed with the following statement: "When I am failing, this makes me doubt my plans for the future".

5. Students who are satisfied with their lives, do not feel like outsiders at school and do not doubt their future plans when facing failure.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.3.4 [3/8] **Students' well-being, by socio-economic status**
Percentage of students; based on students' reports

	Do not feel like an outsider (or left out of things) at school,[3] by students' socio-economic status																	
				By national quarter of ESCS														
	All students			Bottom quarter			Third quarter			Second quarter			Top quarter			Difference Top - Bottom		
	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
OECD																		
Australia	68.1	(0.9)		68.1	(0.9)		72.2	(1.1)		74.7	(0.8)		76.8	(0.8)		**8.7**	(1.2)	
Austria	84.1	(0.9)		83.9	(0.9)		84.7	(1.0)		85.1	(1.2)		85.6	(0.8)		1.7	(1.2)	
Belgium	83.6	(0.9)		83.6	(0.9)		84.7	(0.9)		85.3	(0.9)		87.2	(0.7)		**3.6**	(1.1)	
Canada	68.0	(0.9)		68.1	(0.9)		73.5	(1.0)		73.7	(0.8)		78.9	(0.9)		**10.8**	(1.2)	
Chile	76.8	(1.4)		76.8	(1.4)		78.3	(1.1)		75.7	(1.2)		78.2	(1.2)		1.4	(1.9)	
Colombia	75.5	(1.5)		75.5	(1.5)		75.6	(1.2)		78.1	(1.1)		78.1	(1.0)		2.6	(1.7)	
Czech Republic	70.9	(1.5)		70.9	(1.5)		76.5	(1.2)		78.6	(1.2)		77.8	(1.2)		**6.9**	(1.7)	
Denmark	86.1	(1.0)		86.1	(1.0)		88.4	(1.0)		90.7	(1.0)		89.2	(0.9)		**3.1**	(1.4)	
Estonia	81.0	(1.3)		81.1	(1.3)		83.5	(1.1)		84.8	(1.0)		88.6	(0.9)		**7.5**	(1.7)	
Finland	82.0	(1.1)		82.0	(1.1)		85.9	(1.0)		85.2	(0.9)		86.1	(0.9)		**4.1**	(1.4)	
France	63.4	(1.3)		63.3	(1.3)		66.9	(1.5)		70.8	(1.5)		76.9	(1.2)		**13.5**	(1.7)	
Germany	80.8	(1.4)		80.8	(1.4)		85.7	(1.5)		83.0	(1.2)		86.9	(1.1)		**6.1**	(1.6)	
Greece	76.1	(1.3)		76.1	(1.3)		81.9	(1.3)		79.9	(1.2)		82.6	(1.0)		**6.5**	(1.6)	
Hungary	76.1	(1.1)		76.1	(1.1)		79.0	(1.1)		82.9	(1.0)		83.5	(1.0)		**7.4**	(1.4)	
Iceland	75.5	(1.8)		75.5	(1.8)		80.3	(1.3)		82.1	(1.2)		82.4	(1.3)		**6.9**	(2.3)	
Ireland	77.1	(1.2)		77.0	(1.2)		76.7	(1.1)		79.5	(1.2)		78.6	(1.2)		1.6	(1.6)	
Israel	m	m		m	m		m	m		m	m		m	m		m	m	
Italy	83.2	(1.4)		83.2	(1.4)		87.6	(1.0)		87.5	(0.9)		87.1	(0.9)		**3.9**	(1.7)	
Japan	86.7	(1.1)		86.7	(1.1)		87.6	(0.9)		87.8	(0.9)		87.8	(1.0)		1.1	(1.4)	
Korea	87.1	(0.9)		87.1	(0.9)		89.1	(0.9)		89.5	(0.9)		91.7	(0.8)		**4.6**	(1.1)	
Latvia	77.7	(1.3)		77.7	(1.4)		79.9	(1.2)		81.4	(1.3)		85.1	(1.1)		**7.3**	(1.7)	
Lithuania	70.8	(1.3)		70.6	(1.3)		73.8	(1.1)		74.4	(1.1)		76.0	(1.1)		**5.3**	(1.7)	
Luxembourg	76.2	(1.2)		76.3	(1.2)		80.6	(1.1)		83.4	(1.2)		85.9	(1.1)		**9.6**	(1.6)	
Mexico	77.0	(1.4)	†	77.0	(1.4)	†	79.3	(1.2)		79.5	(1.3)		80.6	(1.0)		**3.6**	(1.8)	†
Netherlands*	89.3	(1.0)	†	89.3	(1.0)	†	92.1	(0.9)		89.7	(1.1)		91.7	(0.9)		2.4	(1.2)	†
New Zealand	71.1	(1.2)		71.1	(1.2)		73.3	(1.1)		74.2	(1.3)		77.5	(1.2)		**6.4**	(1.7)	
Norway	84.0	(1.2)		84.0	(1.2)		87.6	(0.8)		90.5	(0.9)		87.8	(1.1)		**3.8**	(1.6)	
Poland	78.5	(1.1)		78.5	(1.1)		80.2	(1.2)		79.0	(1.3)		76.5	(1.2)		-2.0	(1.6)	
Portugal*	83.6	(1.2)		83.6	(1.2)		87.4	(1.0)		85.5	(1.1)		90.7	(0.9)		**7.1**	(1.5)	
Slovak Republic	66.0	(1.5)		65.9	(1.6)		71.0	(1.5)		72.4	(1.5)		77.3	(1.2)		**11.4**	(1.8)	
Slovenia	77.1	(1.2)		77.2	(1.2)		78.3	(1.5)		80.4	(1.2)		82.0	(1.2)		**4.8**	(1.5)	
Spain	86.4	(0.7)		86.4	(0.7)		88.1	(0.6)		89.3	(0.5)		90.3	(0.5)		**3.9**	(0.8)	
Sweden	78.1	(1.1)		78.1	(1.1)		80.9	(1.1)		81.3	(1.1)		81.0	(1.2)		2.9	(1.9)	
Switzerland	80.9	(1.4)		80.9	(1.4)		84.1	(1.2)		84.9	(1.1)		86.5	(1.1)		**5.6**	(1.9)	
Turkey	74.3	(1.1)		74.4	(1.1)		76.4	(1.0)		76.4	(1.1)		78.5	(1.0)		**4.2**	(1.4)	
United Kingdom	72.3	(1.1)		72.3	(1.1)		72.7	(1.3)		75.1	(1.2)		77.9	(1.0)		**5.7**	(1.4)	
United States*	64.4	(1.8)		64.3	(1.8)		68.8	(1.3)		69.5	(1.7)		72.6	(1.6)		**8.3**	(2.3)	
OECD average	77.5	(0.2)		77.5	(0.2)		80.3	(0.2)		81.2	(0.2)		82.8	(0.2)		**5.3**	(0.3)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. In PISA 2018, students were asked "Overall, how satisfied are you with your life as a whole these days?". Students who rated their life with values from 7 to 10 were considered satisfied with their lives.

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

3. Students who disagreed with the following statement: "I feel like an outsider (or left out of things) at school".

4. Students who disagreed with the following statement: "When I am failing, this makes me doubt my plans for the future".

5. Students who are satisfied with their lives, do not feel like outsiders at school and do not doubt their future plans when facing failure.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.3.4 [4/8] **Students' well-being, by socio-economic status**
Percentage of students; based on students' reports

	Do not feel like an outsider (or left out of things) at school,[3] by students' socio-economic status																	
				By national quarter of ESCS														
	All students			Bottom quarter			Third quarter			Second quarter			Top quarter			Difference Top - Bottom		
	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
Partners																		
Albania	86.9	(1.0)		86.9	(1.0)		88.4	(0.9)		88.7	(0.9)		91.1	(1.0)		**4.2**	(1.3)	
Argentina	65.5	(1.8)		65.5	(1.8)		71.1	(1.5)		74.8	(1.3)		78.2	(1.1)		**12.7**	(2.1)	
Baku (Azerbaijan)	66.9	(1.6)	†	66.9	(1.6)	†	65.6	(1.4)	†	70.3	(1.5)	†	71.3	(1.4)	†	**4.4**	(2.2)	†
Belarus	86.4	(1.0)		86.3	(1.0)		88.5	(0.9)		90.4	(0.7)		88.8	(0.8)		2.5	(1.4)	
Bosnia and Herzegovina	77.0	(1.2)		77.1	(1.2)		80.2	(1.2)		79.6	(1.3)		81.2	(1.2)		**4.1**	(1.8)	
Brazil	67.2	(1.4)	†	67.2	(1.4)	†	71.5	(1.2)		72.9	(1.0)		75.9	(1.2)		**8.7**	(1.9)	†
Brunei Darussalam	59.4	(1.3)		59.4	(1.3)		63.3	(1.3)		63.4	(1.2)		66.0	(1.2)		**6.6**	(1.8)	
B-S-J-Z (China)	78.9	(1.3)		78.9	(1.3)		81.1	(1.1)		82.5	(0.9)		83.4	(1.0)		**4.5**	(1.5)	
Bulgaria	57.4	(2.0)		57.4	(2.0)		67.6	(1.5)		70.8	(1.5)		74.2	(1.5)		**16.8**	(2.5)	
Costa Rica	79.1	(1.1)		79.1	(1.1)		77.4	(1.0)		78.5	(1.3)		82.3	(1.1)		**3.3**	(1.5)	
Croatia	83.4	(1.0)		83.4	(1.0)		84.6	(1.1)		84.5	(0.9)		86.8	(0.9)		**3.4**	(1.4)	
Cyprus	74.0	(1.3)		74.0	(1.3)		75.1	(1.4)		75.4	(1.3)		77.5	(1.2)		3.6	(1.8)	
Dominican Republic	58.3	(2.2)	‡	58.3	(2.2)	‡	65.0	(1.7)	†	64.2	(1.8)	†	69.4	(1.6)	†	**11.0**	(2.6)	‡
Georgia	80.9	(1.6)		80.8	(1.6)		79.9	(1.3)		80.8	(1.5)		85.9	(1.1)		**5.1**	(1.8)	
Hong Kong (China)*	66.5	(1.4)		66.5	(1.4)		72.0	(1.3)		71.8	(1.4)		74.3	(1.2)		**7.8**	(1.9)	
Indonesia	81.6	(1.5)		81.6	(1.5)		78.4	(1.2)		80.9	(1.3)		80.2	(1.2)		-1.4	(2.0)	
Jordan	63.1	(2.0)		63.1	(2.0)		65.9	(1.4)		66.6	(1.6)		69.0	(1.7)		**5.9**	(2.5)	
Kazakhstan	78.5	(0.9)		78.5	(0.9)		78.5	(0.7)		79.1	(0.8)		79.2	(0.8)		0.7	(1.1)	
Kosovo	82.2	(1.3)		82.2	(1.3)		83.2	(1.1)		81.1	(1.3)		86.4	(1.1)		**4.2**	(1.7)	
Lebanon	m	m		m	m		m	m		m	m		m	m		m	m	
Macao (China)	75.4	(1.5)		75.4	(1.4)		75.6	(1.4)		78.4	(1.5)		76.9	(1.3)		1.5	(1.9)	
Malaysia	79.8	(1.1)		79.9	(1.1)		78.1	(1.3)		77.0	(1.2)		82.2	(1.6)		2.4	(1.8)	
Malta	66.9	(1.7)		66.9	(1.7)		71.4	(1.8)		66.1	(1.6)		69.0	(1.6)		2.0	(2.2)	
Moldova	78.8	(1.2)		78.8	(1.2)		86.5	(1.0)		85.9	(1.0)		89.1	(0.8)		**10.3**	(1.5)	
Montenegro	78.8	(1.2)		78.8	(1.1)		79.2	(0.9)		81.6	(1.0)		79.8	(1.1)		**1.1**	(1.6)	
Morocco	67.6	(1.6)	†	67.6	(1.6)	†	69.4	(1.4)	†	69.8	(1.6)	†	75.6	(1.4)		**8.0**	(2.2)	†
North Macedonia	m	m		m	m		m	m		m	m		m	m		m	m	
Panama	63.9	(2.1)	‡	63.9	(2.1)	‡	70.8	(1.7)	†	67.5	(1.8)	†	74.7	(1.5)	†	**10.8**	(2.6)	‡
Peru	78.8	(1.6)	‡	78.8	(1.6)	‡	84.3	(1.1)	†	83.3	(1.0)		84.9	(1.1)		**6.0**	(2.0)	‡
Philippines	68.8	(1.2)		68.8	(1.2)		75.7	(1.2)		70.8	(1.3)		77.0	(1.0)		**8.2**	(1.7)	
Qatar	65.3	(0.8)		65.3	(0.8)		67.9	(0.8)		74.0	(0.8)		73.4	(0.7)		**8.1**	(0.9)	
Romania	77.5	(1.5)		77.6	(1.5)		81.0	(1.4)		85.5	(1.0)		88.3	(1.1)		**10.7**	(1.8)	
Russia	70.3	(1.6)		70.3	(1.6)		75.0	(1.3)		74.5	(1.1)		77.2	(0.9)		**6.9**	(2.0)	
Saudi Arabia	72.0	(1.6)		72.0	(1.6)		78.1	(1.3)		76.6	(1.4)		80.9	(1.4)		**8.9**	(2.0)	
Serbia	76.3	(1.4)		76.3	(1.4)		79.1	(1.2)		79.3	(1.0)		79.2	(1.2)		2.9	(1.9)	
Singapore	73.4	(1.1)		73.4	(1.1)		76.2	(1.1)		77.9	(1.1)		79.9	(1.1)		**6.5**	(1.6)	
Chinese Taipei	82.7	(1.0)		82.8	(1.0)		86.1	(0.9)		86.9	(0.7)		88.8	(0.8)		**6.0**	(1.3)	
Thailand	71.4	(1.7)		71.4	(1.7)		70.9	(1.6)		71.3	(1.3)		76.6	(1.2)		**5.2**	(2.1)	
Ukraine	76.9	(1.4)		76.9	(1.4)		80.2	(1.2)		81.5	(1.3)		83.4	(1.1)		**6.5**	(1.7)	
United Arab Emirates	70.8	(0.8)		70.8	(0.8)		73.5	(0.9)		73.6	(0.9)		73.9	(1.0)		**3.1**	(1.3)	
Uruguay	70.9	(1.8)	†	70.9	(1.8)	†	79.0	(1.4)		76.4	(1.8)		83.1	(1.4)		**12.1**	(2.1)	†
Viet Nam	73.0	(1.3)		73.0	(1.3)		74.2	(1.5)		72.3	(1.4)		69.9	(1.5)		-3.1	(2.1)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. In PISA 2018, students were asked "Overall, how satisfied are you with your life as a whole these days?". Students who rated their life with values from 7 to 10 were considered satisfied with their lives.

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

3. Students who disagreed with the following statement: "I feel like an outsider (or left out of things) at school".

4. Students who disagreed with the following statement: "When I am failing, this makes me doubt my plans for the future".

5. Students who are satisfied with their lives, do not feel like outsiders at school and do not doubt their future plans when facing failure.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.3.4 [5/8] **Students' well-being, by socio-economic status**
Percentage of students; based on students' reports

		Do not doubt their future plans when facing failure,[4] by students' socio-economic status																	
					By national quarter of ESCS														
		All students			Bottom quarter			Third quarter			Second quarter			Top quarter			Difference Top - Bottom		
		%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
OECD	Australia	32.1	(0.9)		32.1	(0.9)		30.8	(0.9)		33.5	(1.0)		31.5	(0.9)		-0.6	(1.2)	
	Austria	57.5	(1.6)		57.5	(1.6)		58.9	(1.3)		58.5	(1.3)		62.1	(1.1)		**4.6**	(1.8)	
	Belgium	48.2	(1.9)		48.2	(1.9)		48.5	(1.8)		47.4	(1.3)		45.5	(1.3)		-2.6	(2.5)	
	Canada	32.9	(1.0)		32.9	(1.0)		31.7	(1.1)		32.4	(1.1)		29.2	(0.9)		**-3.7**	(1.4)	
	Chile	42.1	(1.5)		42.1	(1.5)		40.9	(1.3)		40.0	(1.4)		40.7	(1.1)		-1.4	(1.7)	
	Colombia	56.1	(1.9)		56.1	(1.9)		57.8	(1.6)		55.3	(1.4)		56.7	(1.5)		0.6	(2.3)	
	Czech Republic	45.8	(1.5)		45.9	(1.5)		45.7	(1.5)		45.8	(1.4)		44.1	(1.5)		-1.7	(2.2)	
	Denmark	50.8	(1.2)		50.8	(1.2)		51.5	(1.7)		52.5	(1.3)		56.9	(1.5)		**6.1**	(1.9)	
	Estonia	56.0	(1.7)		56.1	(1.7)		54.8	(1.5)		53.4	(1.4)		54.9	(1.6)		-1.2	(2.3)	
	Finland	59.7	(1.5)		59.7	(1.5)		58.7	(1.2)		57.4	(1.4)		58.9	(1.5)		-0.9	(2.3)	
	France	37.8	(1.4)		37.7	(1.4)		38.9	(1.4)		36.5	(1.4)		38.1	(1.3)		0.4	(1.9)	
	Germany	60.1	(1.4)		60.0	(1.4)		62.1	(1.4)		64.8	(1.7)		63.3	(1.4)		3.3	(1.8)	
	Greece	48.6	(1.3)		48.6	(1.3)		51.3	(1.3)		50.6	(1.3)		48.9	(1.1)		0.3	(1.7)	
	Hungary	51.1	(1.4)		51.1	(1.4)		50.5	(1.5)		55.5	(1.7)		53.0	(1.6)		1.9	(2.1)	
	Iceland	48.0	(1.9)		48.0	(1.9)		49.3	(1.8)		50.7	(1.8)		50.4	(1.7)		2.3	(2.7)	
	Ireland	36.3	(1.3)		36.2	(1.3)		35.2	(1.3)		36.0	(1.3)		32.8	(1.2)		-3.5	(1.9)	
	Israel	m	m		m	m		m	m		m	m		m	m		m	m	
	Italy	43.0	(1.6)		43.0	(1.6)		41.0	(1.7)		40.6	(1.6)		45.4	(1.3)		2.4	(1.9)	
	Japan	39.4	(1.3)		39.4	(1.3)		40.0	(1.1)		38.7	(1.4)		38.3	(1.3)		-1.2	(1.6)	
	Korea	44.7	(1.4)		44.7	(1.4)		48.2	(1.2)		45.4	(1.4)		47.6	(1.4)		2.9	(2.1)	
	Latvia	50.9	(1.5)		50.9	(1.5)		49.1	(1.3)		51.9	(1.5)		51.3	(1.5)		0.4	(2.2)	
	Lithuania	50.2	(1.7)		50.3	(1.7)		51.1	(1.3)		48.8	(1.4)		50.1	(1.5)		-0.2	(2.4)	
	Luxembourg	44.0	(1.3)		43.9	(1.3)		47.0	(1.4)		48.2	(1.4)		46.1	(1.6)		2.1	(2.0)	
	Mexico	40.5	(2.0)	†	40.5	(2.0)	†	39.9	(1.4)		43.6	(1.7)		46.5	(1.3)		**6.0**	(2.4)	†
	Netherlands*	64.9	(1.7)	†	64.9	(1.7)	†	65.3	(1.6)		65.6	(1.8)		62.0	(1.5)		-2.9	(2.3)	†
	New Zealand	34.9	(1.2)		34.8	(1.2)		33.7	(1.2)		30.5	(1.3)		30.4	(1.3)		**-4.4**	(1.6)	
	Norway	m	m		m	m		m	m		m	m		m	m		m	m	
	Poland	44.8	(1.4)		44.8	(1.4)		41.7	(1.4)		43.5	(1.6)		38.3	(1.7)		**-6.5**	(1.9)	
	Portugal*	47.3	(1.8)		47.2	(1.8)		47.9	(1.7)		42.3	(1.4)		45.7	(1.6)		-1.5	(2.4)	
	Slovak Republic	47.9	(1.7)		47.9	(1.7)		48.0	(1.4)		46.8	(1.6)		46.2	(1.4)		-1.7	(2.3)	
	Slovenia	48.6	(1.7)		48.7	(1.6)		44.8	(1.5)		46.2	(1.4)		45.4	(1.8)		-3.3	(2.4)	
	Spain	50.4	(1.0)		50.4	(1.0)		51.5	(0.9)		51.7	(0.8)		54.1	(0.7)		**3.7**	(1.3)	
	Sweden	45.8	(1.4)		45.9	(1.4)		47.6	(1.4)		47.3	(1.3)		49.0	(1.3)		3.2	(1.9)	
	Switzerland	53.5	(1.6)		53.5	(1.6)		55.6	(1.7)		56.9	(1.5)		52.4	(1.4)		-1.1	(2.4)	
	Turkey	37.3	(1.4)		37.3	(1.4)		35.5	(1.1)		35.1	(1.2)		34.4	(1.3)		-2.9	(2.0)	
	United Kingdom	27.8	(1.2)		27.9	(1.2)		29.4	(1.2)		29.4	(1.1)		30.3	(1.2)		2.5	(1.8)	
	United States*	39.2	(1.3)		39.1	(1.3)		37.4	(1.6)		35.7	(1.6)		29.4	(1.3)		**-9.7**	(1.8)	
	OECD average	46.2	(0.3)		46.2	(0.3)		46.3	(0.2)		46.2	(0.2)		46.0	(0.2)		-0.2	(0.3)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. In PISA 2018, students were asked "Overall, how satisfied are you with your life as a whole these days?". Students who rated their life with values from 7 to 10 were considered satisfied with their lives.

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

3. Students who disagreed with the following statement: "I feel like an outsider (or left out of things) at school".

4. Students who disagreed with the following statement: "When I am failing, this makes me doubt my plans for the future".

5. Students who are satisfied with their lives, do not feel like outsiders at school and do not doubt their future plans when facing failure.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.3.4 [6/8] **Students' well-being, by socio-economic status**
Percentage of students; based on students' reports

	Do not doubt their future plans when facing failure,[4] by students' socio-economic status																	
				By national quarter of ESCS														
	All students			Bottom quarter			Third quarter			Second quarter			Top quarter			Difference Top - Bottom		
	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
Partners																		
Albania	50.8	(1.5)		50.8	(1.5)		54.8	(1.6)		53.4	(1.4)		57.7	(1.5)		**6.9**	(2.3)	
Argentina	43.1	(1.7)		43.1	(1.7)		45.5	(1.4)		50.8	(1.2)		55.2	(1.0)		**12.1**	(2.1)	
Baku (Azerbaijan)	39.0	(1.6)		39.0	(1.6)		42.3	(1.5)		43.2	(1.2)		43.8	(1.5)		**4.8**	(2.2)	
Belarus	49.6	(1.6)		49.6	(1.6)		52.9	(1.5)		49.7	(1.4)		54.9	(1.2)		**5.3**	(2.1)	
Bosnia and Herzegovina	50.6	(1.3)		50.6	(1.3)		54.2	(1.3)		55.2	(1.4)		56.1	(1.4)		**5.5**	(1.7)	
Brazil	46.0	(1.5)	†	46.0	(1.5)	†	43.6	(1.0)		45.1	(1.3)		38.3	(1.3)		**-7.7**	(2.1)	†
Brunei Darussalam	28.0	(0.9)		27.9	(0.9)		27.1	(1.1)		27.3	(1.2)		25.9	(1.1)		-2.1	(1.4)	
B-S-J-Z (China)	48.5	(1.3)		48.5	(1.3)		49.5	(1.4)		47.9	(1.1)		51.8	(1.5)		3.3	(1.7)	
Bulgaria	47.3	(1.8)		47.3	(1.8)		49.0	(1.3)		48.9	(1.7)		51.0	(1.4)		3.8	(2.2)	
Costa Rica	56.9	(1.4)		56.9	(1.4)		58.7	(1.4)		59.8	(1.4)		58.4	(1.3)		1.5	(2.0)	
Croatia	56.5	(1.3)		56.5	(1.3)		52.7	(1.3)		55.4	(1.2)		50.1	(1.6)		**-6.4**	(2.1)	
Cyprus	51.3	(1.2)		51.2	(1.2)		54.6	(1.5)		50.8	(1.5)		48.7	(1.4)		-2.6	(1.8)	
Dominican Republic	45.8	(1.8)	‡	45.8	(1.8)	‡	47.6	(1.9)	†	48.0	(1.4)	†	54.6	(1.8)		**8.8**	(2.7)	‡
Georgia	51.0	(1.6)		50.9	(1.5)		54.8	(1.5)		60.4	(1.3)		64.3	(1.5)		**13.4**	(2.0)	
Hong Kong (China)*	30.1	(1.2)		30.1	(1.2)		26.7	(1.0)		27.2	(1.2)		26.7	(1.4)		**-3.4**	(1.7)	
Indonesia	65.7	(1.9)		65.8	(1.9)		60.3	(1.4)		62.2	(1.6)		56.6	(1.5)		**-9.2**	(2.3)	
Jordan	48.8	(1.8)		48.8	(1.8)		51.8	(1.3)		51.3	(1.4)		53.7	(1.2)		**4.9**	(2.0)	
Kazakhstan	65.7	(1.0)		65.7	(1.0)		66.0	(0.8)		65.2	(0.9)		65.5	(0.8)		-0.1	(1.2)	
Kosovo	33.8	(1.3)		33.7	(1.2)		36.7	(1.4)		40.0	(1.5)		46.1	(1.7)		**12.4**	(2.0)	
Lebanon	46.3	(2.2)		46.3	(2.2)		45.4	(1.8)		47.2	(1.4)		46.2	(1.3)		-0.1	(2.4)	
Macao (China)	34.1	(1.6)		34.1	(1.6)		34.6	(1.6)		33.4	(1.7)		33.4	(1.5)		-0.7	(2.1)	
Malaysia	35.4	(1.3)		35.4	(1.3)		31.0	(1.2)		31.2	(1.3)		34.3	(1.6)		-1.1	(2.2)	
Malta	27.1	(1.6)		27.1	(1.6)		28.1	(1.7)		26.8	(1.4)		29.0	(1.6)		1.9	(2.4)	
Moldova	42.0	(1.5)		42.0	(1.5)		50.8	(1.5)		51.9	(1.5)		56.7	(1.6)		**14.8**	(2.1)	
Montenegro	57.0	(1.4)		57.0	(1.4)		59.9	(1.4)		62.1	(1.3)		60.4	(1.2)		3.4	(2.0)	
Morocco	45.8	(1.6)	†	45.8	(1.6)	†	46.4	(1.5)	†	46.0	(1.5)		47.7	(1.5)		1.9	(2.2)	†
North Macedonia	41.2	(1.4)		41.2	(1.4)		45.3	(1.5)		45.4	(1.4)		49.4	(1.6)		**8.2**	(2.1)	
Panama	43.8	(2.2)	‡	43.7	(2.2)	‡	53.4	(1.9)	†	51.9	(1.7)	†	50.0	(1.8)		**6.3**	(2.9)	‡
Peru	58.4	(2.0)	†	58.4	(2.0)	†	57.1	(1.2)	†	58.4	(1.5)		57.7	(1.3)		-0.7	(2.3)	†
Philippines	36.6	(1.5)		36.6	(1.5)		35.8	(1.1)		36.9	(1.2)		37.3	(1.5)		0.7	(2.0)	
Qatar	45.9	(1.1)		45.9	(1.1)		43.4	(0.9)		39.7	(0.8)		38.1	(0.9)		**-7.8**	(1.5)	
Romania	56.8	(1.6)		57.0	(1.6)		57.9	(1.5)		60.9	(1.3)		59.8	(1.3)		2.9	(2.0)	
Russia	49.8	(1.3)		49.8	(1.3)		50.8	(1.2)		51.9	(1.2)		51.4	(1.5)		1.5	(2.1)	
Saudi Arabia	55.9	(1.6)		56.0	(1.6)		58.9	(1.6)		59.7	(1.4)		61.4	(1.1)		**5.4**	(1.9)	
Serbia	49.5	(1.2)		49.5	(1.3)		52.3	(1.1)		52.9	(1.1)		52.9	(1.3)		3.3	(1.9)	
Singapore	20.7	(0.9)		20.6	(0.9)		22.0	(1.1)		23.0	(0.9)		24.0	(1.0)		**3.4**	(1.4)	
Chinese Taipei	22.1	(0.9)		22.2	(0.9)		23.0	(1.1)		23.0	(1.2)		24.9	(1.1)		2.7	(1.4)	
Thailand	35.0	(1.3)		35.0	(1.3)		36.3	(1.3)		34.0	(1.1)		38.7	(1.0)		**3.7**	(1.7)	
Ukraine	57.4	(1.4)		57.5	(1.4)		60.9	(1.5)		60.9	(1.6)		63.7	(1.3)		**6.2**	(1.7)	
United Arab Emirates	39.5	(0.9)		39.5	(0.9)		37.8	(1.0)		33.3	(0.9)		32.5	(1.3)		**-7.0**	(1.7)	
Uruguay	41.5	(1.6)		41.6	(1.6)		45.9	(1.3)		46.5	(1.6)		48.2	(1.5)		**6.5**	(2.3)	
Viet Nam	48.2	(1.7)		48.3	(1.7)		49.3	(2.1)		45.7	(1.5)		46.7	(1.8)		-1.6	(2.4)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. In PISA 2018, students were asked "Overall, how satisfied are you with your life as a whole these days?". Students who rated their life with values from 7 to 10 were considered satisfied with their lives.

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

3. Students who disagreed with the following statement: "I feel like an outsider (or left out of things) at school".

4. Students who disagreed with the following statement: "When I am failing, this makes me doubt my plans for the future".

5. Students who are satisfied with their lives, do not feel like outsiders at school and do not doubt their future plans when facing failure.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.3.4 [7/8] **Students' well-being, by socio-economic status**
Percentage of students; based on students' reports

		Students with positive wellbeing,[5] by socio-economic status																	
					By national quarter of ESCS														
		All students			Bottom quarter			Third quarter			Second quarter			Top quarter			Difference Top - Bottom		
		%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
OECD	Australia	m	m		m	m		m	m		m	m		m	m		m	m	
	Austria	41.5	(0.8)		37.8	(1.5)		42.6	(1.2)		41.0	(1.3)		45.3	(1.2)		**7.4**	(1.8)	
	Belgium	m	m		m	m		m	m		m	m		m	m		m	m	
	Canada	m	m		m	m		m	m		m	m		m	m		m	m	
	Chile	26.4	(0.6)		24.2	(1.3)		25.9	(1.4)		26.6	(1.3)		28.9	(1.3)		**4.7**	(1.7)	
	Colombia	38.2	(0.8)		39.1	(1.9)		37.6	(1.2)		37.9	(1.2)		38.1	(1.2)		-1.1	(2.0)	
	Czech Republic	28.8	(0.8)		24.3	(1.7)		28.2	(1.5)		30.4	(1.3)		31.4	(1.5)		**7.1**	(2.3)	
	Denmark	m	m		m	m		m	m		m	m		m	m		m	m	
	Estonia	39.6	(0.8)		36.2	(1.6)		38.5	(1.7)		39.4	(1.4)		44.3	(1.6)		**8.1**	(2.4)	
	Finland	46.9	(0.7)		44.1	(1.6)		46.9	(1.4)		46.9	(1.3)		49.8	(1.4)		**5.7**	(2.3)	
	France	22.9	(0.6)		20.3	(1.1)		21.5	(1.3)		23.3	(1.2)		26.1	(1.0)		**5.8**	(1.3)	
	Germany	41.6	(0.9)	†	35.4	(1.5)	†	44.0	(1.5)		41.1	(1.8)		45.2	(1.4)		**9.8**	(1.8)	†
	Greece	33.0	(0.5)		30.3	(1.3)		34.4	(1.2)		34.1	(1.2)		33.2	(1.2)		2.9	(1.8)	
	Hungary	35.0	(0.8)		30.9	(1.5)		32.0	(1.5)		38.8	(1.6)		38.0	(1.6)		**7.1**	(2.1)	
	Iceland	34.9	(0.9)		30.9	(1.9)		32.5	(1.9)		38.2	(1.6)		37.8	(1.8)		**6.9**	(2.7)	
	Ireland	24.1	(0.6)		23.5	(1.1)		24.6	(1.3)		24.3	(1.2)		23.9	(1.2)		0.4	(1.7)	
	Israel	m	m		m	m		m	m		m	m		m	m		m	m	
	Italy	29.9	(0.7)		27.1	(1.5)		29.8	(1.4)		28.7	(1.4)		33.7	(1.2)		**6.6**	(1.9)	
	Japan	20.9	(0.6)		20.4	(0.9)		21.3	(1.0)		20.7	(1.2)		21.3	(1.1)		0.9	(1.6)	
	Korea	31.8	(0.7)		29.0	(1.1)		32.4	(1.2)		32.0	(1.3)		33.7	(1.2)		**4.7**	(1.7)	
	Latvia	34.6	(0.7)		29.9	(1.1)		33.0	(1.3)		34.8	(1.5)		40.5	(1.8)		**10.6**	(2.2)	
	Lithuania	33.1	(0.7)		30.9	(1.5)		33.7	(1.3)		33.2	(1.3)		34.7	(1.4)		3.7	(2.0)	
	Luxembourg	31.6	(0.6)		25.0	(1.3)		31.4	(1.3)		34.5	(1.4)		35.3	(1.4)		**10.4**	(2.0)	
	Mexico	32.3	(0.8)	†	28.2	(1.4)	†	31.1	(1.5)		32.4	(1.8)		35.8	(1.4)		**7.7**	(2.0)	†
	Netherlands*	52.0	(0.9)		52.9	(1.8)	†	50.2	(1.7)		52.6	(1.7)		52.5	(1.6)		-0.4	(2.5)	†
	New Zealand	m	m		m	m		m	m		m	m		m	m		m	m	
	Norway	m	m		m	m		m	m		m	m		m	m		m	m	
	Poland	25.8	(0.7)		25.8	(1.3)		26.4	(1.3)		26.6	(1.4)		24.4	(1.5)		-1.4	(1.8)	
	Portugal*	33.8	(0.9)		33.5	(2.0)		34.2	(1.4)		29.7	(1.5)		37.3	(1.6)		3.8	(2.6)	
	Slovak Republic	29.5	(0.8)		25.1	(1.6)		28.6	(1.2)		30.5	(1.4)		33.0	(1.3)		**7.8**	(2.1)	
	Slovenia	31.9	(0.8)		34.2	(1.7)		30.5	(1.3)		29.9	(1.3)		33.3	(1.8)		-0.8	(2.3)	
	Spain	38.9	(0.4)		34.9	(1.0)		37.6	(1.0)		39.8	(0.8)		42.8	(0.6)		**7.9**	(1.2)	
	Sweden	32.3	(0.7)		29.5	(1.4)		31.6	(1.3)		34.0	(1.4)		34.3	(1.2)		**4.8**	(1.8)	
	Switzerland	39.5	(0.8)		34.7	(1.6)		41.1	(1.7)		40.4	(1.8)		41.0	(1.5)		**6.3**	(2.4)	
	Turkey	13.7	(0.5)		12.5	(0.8)		13.5	(0.8)		13.8	(1.1)		15.1	(1.1)		2.5	(1.3)	
	United Kingdom	18.1	(0.5)		15.0	(0.9)		17.1	(1.0)		18.7	(0.9)		20.5	(1.1)		**5.5**	(1.4)	
	United States*	22.3	(0.7)		21.9	(1.2)		23.4	(1.5)		22.5	(1.4)		21.0	(1.2)		-0.9	(1.6)	
	OECD average	32.2	(0.1)		29.6	(0.3)		31.9	(0.2)		32.6	(0.3)		34.4	(0.3)		**4.8**	(0.4)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. In PISA 2018, students were asked "Overall, how satisfied are you with your life as a whole these days?". Students who rated their life with values from 7 to 10 were considered satisfied with their lives.

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3. Students who disagreed with the following statement: "I feel like an outsider (or left out of things) at school".

4. Students who disagreed with the following statement: "When I am failing, this makes me doubt my plans for the future".

5. Students who are satisfied with their lives, do not feel like outsiders at school and do not doubt their future plans when facing failure.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

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Table II.B1.3.4 [8/8] **Students' well-being, by socio-economic status**
Percentage of students; based on students' reports

	Students with positive wellbeing,[5] by socio-economic status																	
				By national quarter of ESCS														
	All students			Bottom quarter			Third quarter			Second quarter			Top quarter			Difference Top - Bottom		
	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
Partners																		
Albania	45.9	(0.8)		42.2	(1.4)		46.7	(1.9)		44.2	(1.6)		50.5	(1.6)		**8.3**	(2.2)	
Argentina	31.4	(0.7)		22.2	(1.5)	†	27.0	(1.4)		34.2	(1.3)		40.2	(1.2)		**18.0**	(1.9)	†
Baku (Azerbaijan)	23.1	(0.6)	†	19.6	(1.4)	†	22.3	(1.5)	†	24.6	(1.2)	†	25.3	(1.1)	†	**5.8**	(1.9)	†
Belarus	42.5	(0.7)		39.6	(1.7)		43.2	(1.6)		42.0	(1.4)		45.3	(1.1)		**5.7**	(2.1)	
Bosnia and Herzegovina	39.2	(0.7)		34.7	(1.3)		39.8	(1.3)		40.5	(1.4)		41.4	(1.2)		**6.7**	(1.7)	
Brazil	26.3	(0.6)	†	27.5	(1.4)	†	25.7	(0.9)	†	27.5	(1.2)	†	25.1	(1.1)		-2.4	(1.9)	†
Brunei Darussalam	9.8	(0.4)		8.5	(0.7)		9.6	(0.8)		9.4	(0.7)		11.5	(0.9)		**2.9**	(1.0)	
B-S-J-Z (China)	31.5	(0.7)		27.9	(1.5)		32.0	(1.5)		31.4	(1.1)		34.6	(1.3)		**6.7**	(1.8)	
Bulgaria	28.1	(0.8)	†	20.8	(1.6)	†	27.1	(1.3)		29.0	(1.5)		34.6	(1.3)		**13.8**	(2.1)	†
Costa Rica	42.6	(0.7)		41.9	(1.4)		40.8	(1.3)		43.8	(1.4)		43.8	(1.4)		2.0	(2.1)	
Croatia	41.1	(0.7)		41.7	(1.3)		40.2	(1.3)		42.5	(1.2)		40.1	(1.6)		-1.6	(2.1)	
Cyprus	30.9	(0.6)		27.3	(1.3)		31.7	(1.5)		32.0	(1.4)		32.4	(1.3)		**5.1**	(1.9)	
Dominican Republic	31.3	(1.1)	‡	24.5	(1.9)	‡	29.6	(1.8)	‡	29.5	(1.8)	‡	37.4	(1.6)	†	**12.8**	(2.2)	‡
Georgia	39.9	(1.0)		33.0	(1.7)	†	36.1	(1.5)		42.4	(1.5)		47.4	(2.0)		**14.3**	(2.4)	†
Hong Kong (China)*	14.1	(0.6)		12.7	(0.9)		12.5	(0.9)		15.7	(1.0)		15.7	(1.2)		**3.0**	(1.4)	
Indonesia	40.2	(1.0)		43.7	(2.2)		37.8	(1.4)		41.4	(1.9)		38.0	(1.5)		**-5.7**	(2.5)	
Jordan	28.4	(0.7)		23.5	(1.7)		28.9	(1.3)		29.0	(1.3)		32.3	(1.2)		**8.8**	(2.0)	
Kazakhstan	50.1	(0.6)		50.1	(1.2)		50.1	(0.8)		49.2	(0.9)		51.0	(1.1)		0.9	(1.5)	
Kosovo	29.8	(0.6)		25.0	(1.2)		26.3	(1.4)		29.5	(1.3)		38.0	(1.5)		**13.0**	(1.9)	
Lebanon	m	m		m	m		m	m		m	m		m	m		m	m	
Macao (China)	17.5	(0.7)		15.8	(1.3)		17.3	(1.3)		19.0	(1.4)		18.1	(1.2)		2.3	(1.8)	
Malaysia	19.6	(0.5)		18.5	(1.0)		17.9	(1.0)		18.6	(0.9)		23.5	(1.2)		**5.0**	(1.6)	
Malta	15.6	(0.6)		13.8	(1.1)		18.1	(1.4)		14.0	(1.4)		16.0	(1.1)		2.2	(1.6)	
Moldova	39.1	(0.8)		29.1	(1.4)		37.3	(1.5)		41.4	(1.5)		48.0	(1.5)		**18.9**	(2.0)	
Montenegro	41.3	(0.6)		37.6	(1.2)		42.1	(1.4)		42.3	(1.5)		43.3	(1.3)		**5.7**	(1.9)	
Morocco	25.8	(0.8)	†	22.9	(1.8)	‡	24.3	(1.3)	†	25.6	(1.5)	†	29.2	(1.3)	†	**6.3**	(2.1)	‡
North Macedonia	m	m		m	m		m	m		m	m		m	m		m	m	
Panama	33.4	(1.0)	†	28.7	(2.6)	‡	35.7	(1.9)	†	32.3	(1.9)	†	35.2	(1.9)	†	6.5	(3.4)	‡
Peru	38.7	(1.0)	†	38.5	(1.9)	‡	38.5	(1.7)	†	38.1	(1.6)		39.5	(1.3)		1.0	(2.3)	‡
Philippines	21.1	(0.7)		18.2	(1.2)		21.6	(1.1)		21.4	(1.2)		22.9	(1.2)		**4.7**	(1.6)	
Qatar	23.0	(0.4)		22.4	(0.9)		22.9	(0.8)		23.9	(0.7)		22.7	(0.8)		0.3	(1.2)	
Romania	46.1	(0.8)		40.1	(1.5)		43.7	(1.7)		49.3	(1.2)		51.2	(1.5)		**11.1**	(2.2)	
Russia	32.5	(0.9)		28.5	(1.4)		31.6	(1.4)		34.0	(1.5)		35.7	(1.5)		**7.1**	(2.0)	
Saudi Arabia	37.1	(0.9)		33.5	(1.7)		38.1	(1.6)		36.0	(1.5)		41.3	(1.3)		**7.8**	(2.1)	
Serbia	36.3	(0.7)		33.3	(1.4)		35.9	(1.3)		37.0	(1.2)		38.6	(1.3)		**5.3**	(1.9)	
Singapore	m	m		m	m		m	m		m	m		m	m		m	m	
Chinese Taipei	14.1	(0.5)		11.7	(0.7)		13.8	(1.0)		14.7	(1.1)		16.2	(1.0)		**4.5**	(1.1)	
Thailand	23.6	(0.8)		22.5	(1.3)		23.3	(1.3)		21.5	(1.1)		26.8	(1.0)		**4.3**	(1.5)	
Ukraine	44.9	(0.9)		38.7	(1.6)		45.0	(1.5)		46.4	(1.7)		49.5	(1.5)		**10.8**	(2.2)	
United Arab Emirates	21.0	(0.5)		21.0	(0.8)		21.1	(0.8)		20.6	(0.9)		21.3	(1.1)		0.3	(1.5)	
Uruguay	31.5	(0.8)	†	23.3	(1.6)	†	32.2	(1.3)	†	31.5	(1.6)		37.6	(1.7)		**14.3**	(2.3)	†
Viet Nam	28.9	(1.0)		29.9	(1.7)		30.7	(1.6)		27.0	(1.5)		28.2	(1.6)		-1.7	(2.3)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. In PISA 2018, students were asked "Overall, how satisfied are you with your life as a whole these days?". Students who rated their life with values from 7 to 10 were considered satisfied with their lives.

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

3. Students who disagreed with the following statement: "I feel like an outsider (or left out of things) at school".

4. Students who disagreed with the following statement: "When I am failing, this makes me doubt my plans for the future".

5. Students who are satisfied with their lives, do not feel like outsiders at school and do not doubt their future plans when facing failure.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.4.3 [1/4] **School admissions policies, by school type**
Based on principals' reports

	Sample size	Coverage[1]	Percentage of students in schools whose principal reported that the following criterion is "always" considered for admission to school:															
			Residence in a particular area															
			All students			By type of school: Public			Private government-dependent			Private independent			Private - Public[2]			
	Number of schools	%	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s	
OECD Australia	665	87.3	47.6	(1.5)		74.6	(1.9)		15.9	(3.1)		3.0	(2.0)		**-63.7**	(2.9)		
Austria	291	m	m	m		m	m		m	m		m	m		m	m		
Belgium	m	m	4.2	(1.4)		m	m		m	m		m	m		m	m		
Canada	767	96.1	68.4	(2.3)		74.3	(2.5)		6.5	(6.2)		0.0	c		**-71.7**	(3.2)		
Chile	203	85.0	9.8	(2.4)		15.4	(5.2)		8.5	(3.2)		2.6	(1.8)		-8.2	(5.8)		
Colombia	245	99.0	18.8	(3.0)		18.1	(3.4)		c	c		21.9	(6.8)		3.5	(7.4)		
Czech Republic	319	95.3	29.7	(2.1)		31.9	(2.3)		0.0	c		c	c		**-31.9**	(2.3)		
Denmark	260	77.8	39.8	(2.7)		54.5	(3.7)		2.5	(2.4)		4.0	(4.1)		**-51.7**	(4.3)		
Estonia	224	99.5	64.5	(2.1)		66.7	(2.1)		19.9	(17.7)		0.0	c		**-55.0**	(11.2)		
Finland	209	98.8	74.0	(3.2)		75.6	(3.2)		37.5	(20.2)		m	m		-38.1	(20.8)		
France	156	73.1	63.0	(2.8)		76.9	(2.8)		14.2	(8.8)		12.6	(9.3)		**-63.6**	(7.3)		
Germany	183	81.5	52.9	(4.1)		53.4	(4.1)		38.7	(24.8)		c	c		-6.0	(21.7)		
Greece	200	92.5	73.1	(3.2)		76.1	(3.3)		m	m		13.8	(10.2)		**-62.3**	(10.6)		
Hungary	158	88.2	11.2	(2.6)		12.7	(3.2)		6.4	(3.7)		c	c		-6.8	(4.6)		
Iceland	126	96.5	57.2	(0.2)		56.8	(0.2)		c	c		m	m		c	c		
Ireland	0	0.0	36.4	(3.9)		m	m		m	m		m	m		m	m		
Israel	161	93.8	42.3	(3.7)		42.3	(3.7)		m	m		m	m		m	m		
Italy	482	93.3	30.4	(3.3)		31.0	(3.5)		38.9	(22.6)		0.7	(0.8)		-14.6	(12.4)		
Japan	183	100.0	17.8	(2.6)		23.8	(3.6)		0.0	c		6.7	(3.8)		**-17.9**	(4.9)		
Korea	149	81.1	18.8	(3.1)		25.7	(4.4)		9.1	(3.9)		11.8	(11.2)		**-16.2**	(5.4)		
Latvia	288	93.9	26.7	(1.4)		27.1	(1.5)		c	c		c	c		**-27.1**	(1.5)		
Lithuania	360	99.2	46.9	(1.8)		48.4	(1.9)		17.6	(3.0)		c	c		**-35.8**	(2.6)		
Luxembourg	39	90.4	48.4	(0.1)		56.0	(0.1)		19.0	(0.4)		c	c		**-41.1**	(0.3)		
Mexico	204	76.9	9.3	(2.1)		9.5	(2.3)		m	m		8.0	(5.7)		-1.5	(6.2)		
Netherlands*	144	92.6	10.3	(2.4)		14.9	(4.9)		7.8	(2.8)		c	c		-7.1	(5.8)		
New Zealand	181	94.7	48.9	(2.8)		51.6	(2.9)		m	m		6.7	(7.0)		**-44.9**	(7.5)		
Norway	230	92.6	57.7	(3.0)		w	w		w	w		w	w		w	w		
Poland	229	98.6	72.9	(2.8)		76.4	(2.9)		0.0	c		c	c		**-76.4**	(2.9)		
Portugal*	227	85.9	55.4	(3.3)		62.1	(3.7)		26.8	(10.0)		10.9	(9.6)		**-43.5**	(7.8)		
Slovak Republic	350	92.9	19.3	(2.1)		21.6	(2.3)		2.9	(2.9)		c	c		**-18.8**	(3.4)		
Slovenia	273	86.1	0.1	(0.0)		0.1	(0.0)		0.0	c		m	m		**-0.1**	(0.0)		
Spain	1012	93.3	62.9	(2.0)		66.2	(2.3)		58.2	(4.1)		40.6	(8.2)		**-11.5**	(4.2)		
Sweden	199	94.8	35.6	(2.7)		43.7	(3.3)		0.0	c		c	c		**-43.7**	(3.3)		
Switzerland	153	72.5	80.4	(3.0)		84.6	(3.0)		c	c		7.6	(7.6)		**-77.9**	(7.3)		
Turkey	176	97.7	12.6	(2.2)		13.5	(2.6)		c	c		6.9	(3.2)		-7.2	(4.0)		
United Kingdom	375	75.8	52.1	(3.2)		57.0	(5.7)		57.4	(4.6)		0.0	c		-8.1	(6.9)		
United States*	145	88.9	62.4	(3.7)		67.6	(3.9)		c	c		0.0	c		**-67.6**	(3.9)		
OECD average	m	m	40.6	(0.4)		45.8	(0.6)		16.9	(2.0)		8.3	(1.4)		**-32.8**	(1.4)		

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. Coverage refers to the weighted share of students in the PISA sample who attend modal grade schools (see Table in Annex C). It is equal to 100% if all schools in the PISA sample are included in the analysis and no student has a missing response. For countries with a low value in the coverage index, comparisons should be interpreted with caution.

2. The calculation "Private-Public" is the difference between private government-dependent and private independent schools combined, and public schools.

Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.4.3 [2/4] **School admissions policies, by school type**
Based on principals' reports

	Sample size	Coverage[1]	Percentage of students in schools whose principal reported that the following criterion is "always" considered for admission to school:														
			Residence in a particular area														
						By type of school											
			All students			Public			Private government-dependent			Private independent			Private - Public[2]		
	Number of schools	%	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
Partners																	
Albania	324	99.6	45.1	(3.1)		45.1	(3.1)		m	m		45.1	(13.0)		0.0	(13.4)	
Argentina	418	93.0	18.9	(2.4)		23.5	(3.4)		8.3	(4.0)		8.7	(5.4)		**-15.1**	(4.7)	
Baku (Azerbaijan)	122	60.6	65.6	(4.5)	†	65.9	(4.6)	†	m	m		c	c		c	c	
Belarus	234	100.0	53.6	(3.3)		53.9	(3.4)		m	m		c	c		c	c	
Bosnia and Herzegovina	127	82.6	7.4	(1.9)		7.5	(2.0)		c	c		c	c		c	c	
Brazil	412	75.7	35.0	(2.6)		41.1	(2.9)		m	m		7.2	(3.8)		**-33.8**	(4.8)	
Brunei Darussalam	55	100.0	76.4	(0.1)		89.8	(0.0)		m	m		4.1	(0.1)		**-85.7**	(0.1)	
B-S-J-Z (China)	361	100.0	38.5	(3.0)		43.0	(3.1)		c	c		10.3	(6.0)		**-31.5**	(6.8)	
Bulgaria	185	94.2	16.1	(2.4)		15.9	(2.4)		m	m		c	c		c	c	
Costa Rica	205	100.0	57.3	(3.6)		61.7	(3.8)		c	c		31.6	(7.8)		**-31.6**	(7.5)	
Croatia	172	95.5	5.2	(1.8)		5.4	(1.8)		c	c		c	c		**-5.4**	(1.8)	
Cyprus	77	96.0	67.7	(0.1)		81.9	(0.1)		m	m		0.0	c		**-81.9**	(0.1)	
Dominican Republic	206	87.7	18.2	(2.6)		17.8	(3.1)		c	c		22.6	(5.8)		2.9	(6.6)	
Georgia	303	96.9	22.5	(2.7)		24.2	(2.8)		c	c		7.4	(5.8)		**-16.2**	(6.0)	
Hong Kong (China)*	111	74.9	24.3	(4.3)		32.7	(16.7)		24.5	(4.6)		c	c		-9.0	(17.5)	
Indonesia	323	84.6	52.3	(4.5)		54.9	(5.2)		58.0	(10.2)		29.8	(10.2)		-9.2	(9.6)	
Jordan	297	94.7	56.2	(3.1)		65.7	(3.8)		m	m		20.6	(6.3)		**-45.1**	(7.8)	
Kazakhstan	516	80.4	54.7	(2.7)		55.5	(2.7)		15.0	(17.9)		c	c		**-45.3**	(11.6)	
Kosovo	84	70.2	6.9	(1.0)		7.2	(1.0)		m	m		c	c		c	c	
Lebanon	145	53.8	23.0	(2.8)		33.1	(4.8)		c	c		16.2	(5.1)		**-17.5**	(6.7)	
Macao (China)	45	100.0	5.2	(0.0)		0.0	c		6.1	(0.0)		c	c		**5.5**	(0.0)	
Malaysia	191	100.0	36.2	(3.6)		38.0	(3.7)		c	c		9.6	(9.6)		**-29.2**	(9.6)	
Malta	49	99.9	42.0	(0.1)		76.4	(0.2)		0.0	c		0.0	c		**-76.4**	(0.2)	
Moldova	212	92.8	47.2	(3.2)		47.5	(3.2)		m	m		c	c		c	c	
Montenegro	49	96.7	17.1	(0.0)		16.9	(0.0)		m	m		c	c		c	c	
Morocco	170	94.6	41.0	(3.6)		44.3	(3.7)		c	c		0.0	c		**-44.3**	(3.7)	
North Macedonia	92	86.3	6.3	(0.1)		6.1	(0.1)		m	m		32.6	(1.3)		**26.6**	(1.3)	
Panama	138	69.1	17.0	(2.1)		18.7	(2.2)		c	c		8.6	(5.5)		-10.6	(5.7)	
Peru	323	97.7	13.9	(2.2)		15.0	(2.4)		c	c		10.7	(3.3)		-4.5	(3.6)	
Philippines	185	99.1	54.7	(3.5)		58.0	(3.8)		48.3	(13.5)		28.6	(9.7)		**-19.2**	(9.1)	
Qatar	136	86.0	47.7	(0.1)		78.9	(0.1)		c	c		15.2	(0.1)		**-63.1**	(0.1)	
Romania	139	91.2	8.1	(2.4)		8.3	(2.4)		c	c		c	c		c	c	
Russia	235	91.5	53.5	(3.6)		53.5	(3.6)		m	m		m	m		m	m	
Saudi Arabia	156	74.5	64.5	(3.8)		71.6	(3.8)		m	m		18.1	(9.6)		**-53.6**	(10.3)	
Serbia	177	98.5	3.6	(1.4)		3.8	(1.4)		m	m		0.0	c		**-3.8**	(1.4)	
Singapore	166	100.0	9.6	(0.6)		9.5	(0.1)		c	c		12.6	(8.7)		0.5	(6.8)	
Chinese Taipei	178	92.6	28.2	(3.2)		33.5	(4.2)		1.3	(1.3)		23.9	(6.6)		**-17.6**	(6.5)	
Thailand	204	93.0	48.3	(4.1)		49.8	(4.3)		44.4	(12.8)		36.9	(16.3)		-8.9	(10.8)	
Ukraine	247	98.9	47.9	(3.7)		47.9	(3.8)		m	m		c	c		c	c	
United Arab Emirates	587	90.5	39.5	(1.2)		74.3	(0.9)		c	c		19.4	(1.7)		**-54.9**	(2.0)	
Uruguay	189	100.0	29.1	(2.8)		34.0	(3.2)		c	c		0.0	c		**-30.5**	(4.7)	
Viet Nam	123	95.2	35.0	(4.1)		35.2	(4.0)		m	m		30.6	(31.4)		-4.7	(31.7)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. Coverage refers to the weighted share of students in the PISA sample who attend modal grade schools (see Table in Annex C). It is equal to 100% if all schools in the PISA sample are included in the analysis and no student has a missing response. For countries with a low value in the coverage index, comparisons should be interpreted with caution.

2. The calculation "Private-Public" is the difference between private government-dependent and private independent schools combined, and public schools.

Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.4.3 [3/4] **School admissions policies, by school type**
Based on principals' reports

	Percentage of students in schools whose principal reported that the following criterion is "always" considered for admission to school:														
	Student's record of academic performance, including placement tests														
	All students			By type of school											
				Public			Private government-dependent			Private independent			Private - Public[2]		
	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
OECD															
Australia	24.0	(1.6)		23.5	(2.2)		24.0	(3.7)		26.6	(4.8)		1.5	(3.5)	
Austria	m	m		m	m		m	m		m	m		m	m	
Belgium	19.4	(2.5)		m	m		m	m		m	m		m	m	
Canada	16.5	(1.7)		11.2	(1.7)		56.0	(10.7)		86.0	(6.2)		**63.1**	(6.6)	
Chile	6.1	(1.4)		5.8	(3.4)		0.0	c		28.6	(5.5)		0.5	(3.4)	
Colombia	44.9	(3.9)		38.4	(4.2)		c	c		74.6	(6.4)		**35.1**	(6.6)	
Czech Republic	52.3	(1.9)		49.7	(2.3)		84.2	(8.3)		c	c		**35.9**	(8.4)	
Denmark	4.9	(1.5)		2.3	(0.8)		12.1	(5.5)		10.1	(9.5)		9.4	(4.9)	
Estonia	25.1	(1.4)		22.8	(1.1)		70.9	(11.7)		91.1	(10.5)		**56.4**	(7.4)	
Finland	3.2	(1.2)		2.8	(1.1)		12.5	(13.3)		m	m		9.7	(13.3)	
France	29.2	(3.6)		20.0	(3.7)		48.3	(14.1)		85.4	(10.8)		**46.8**	(10.1)	
Germany	40.1	(3.2)		38.4	(3.2)		68.5	(21.3)		c	c		34.5	(19.5)	
Greece	2.9	(1.2)		2.5	(1.1)		m	m		11.3	(10.2)		8.8	(10.3)	
Hungary	95.3	(1.6)		95.5	(1.7)		93.7	(4.3)		c	c		-1.4	(4.3)	
Iceland	3.4	(0.1)		3.5	(0.1)		c	c		m	m		c	c	
Ireland	13.2	(3.0)		m	m		m	m		m	m		m	m	
Israel	37.0	(4.0)		37.0	(4.0)		m	m		m	m		m	m	
Italy	44.2	(3.3)		44.2	(3.5)		43.4	(22.6)		53.1	(18.0)		4.9	(14.4)	
Japan	95.6	(1.8)		97.7	(1.4)		100.0	(0.0)		90.6	(4.2)		-6.0	(3.3)	
Korea	60.7	(3.5)		57.2	(4.7)		66.7	(5.9)		59.4	(16.6)		8.5	(7.6)	
Latvia	25.4	(1.4)		25.1	(1.4)		c	c		c	c		20.5	(25.2)	
Lithuania	20.2	(1.1)		19.0	(1.1)		47.4	(7.1)		c	c		**29.5**	(6.9)	
Luxembourg	54.9	(0.1)		51.6	(0.1)		52.6	(0.4)		c	c		**10.2**	(0.4)	
Mexico	60.9	(3.4)		61.6	(3.7)		m	m		56.4	(8.4)		-5.2	(9.0)	
Netherlands*	66.7	(4.4)		66.7	(7.6)		67.5	(5.1)		c	c		0.7	(8.9)	
New Zealand	33.5	(3.5)		32.3	(3.4)		m	m		51.0	(14.4)		18.6	(14.5)	
Norway	4.9	(1.3)		w	w		w	w		w	w		w	w	
Poland	16.2	(2.6)		14.9	(2.5)		41.3	(21.3)		c	c		28.4	(15.8)	
Portugal*	7.6	(1.8)		3.0	(1.3)		52.7	(10.9)		20.0	(11.0)		**33.0**	(8.3)	
Slovak Republic	56.6	(1.7)		54.1	(1.8)		72.4	(7.5)		c	c		**19.4**	(7.7)	
Slovenia	26.2	(0.1)		25.4	(0.1)		55.1	(1.2)		m	m		**29.7**	(1.2)	
Spain	2.7	(0.6)		1.3	(0.4)		2.6	(1.8)		19.0	(6.2)		**4.6**	(1.9)	
Sweden	1.0	(0.7)		1.2	(0.9)		0.0	c		c	c		-1.2	(0.9)	
Switzerland	46.2	(4.2)		47.7	(4.6)		c	c		10.2	(7.6)		**-26.9**	(10.6)	
Turkey	80.4	(2.7)		82.5	(3.0)		c	c		71.8	(9.4)		-17.3	(12.0)	
United Kingdom	18.2	(2.0)		9.5	(2.0)		10.1	(3.4)		99.2	(0.5)		**13.9**	(4.1)	
United States*	28.8	(4.3)		25.0	(4.5)		c	c		80.1	(10.5)		**47.2**	(11.0)	
OECD average	32.5	(0.4)		32.5	(0.5)		47.0	(2.2)		53.9	(2.3)		**16.5**	(1.8)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. Coverage refers to the weighted share of students in the PISA sample who attend modal grade schools (see Table in Annex C). It is equal to 100% if all schools in the PISA sample are included in the analysis and no student has a missing response. For countries with a low value in the coverage index, comparisons should be interpreted with caution.

2. The calculation "Private-Public" is the difference between private government-dependent and private independent schools combined, and public schools.

Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.4.3 [4/4] **School admissions policies, by school type**
Based on principals' reports

	Percentage of students in schools whose principal reported that the following criterion is "always" considered for admission to school:														
	Student's record of academic performance, including placement tests														
				By type of school											
	All students			Public			Private government-dependent			Private independent			Private - Public		
Partners	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
Albania	58.2	(3.3)		55.5	(3.6)		m	m		79.7	(8.4)		**24.2**	(9.0)	
Argentina	14.0	(2.0)		11.1	(2.1)		17.8	(4.6)		26.2	(10.0)		**9.0**	(4.6)	
Baku (Azerbaijan)	57.4	(4.4)	†	57.2	(4.4)	†	m	m		c	c		c	c	
Belarus	31.5	(2.6)		31.2	(2.6)		m	m		c	c		c	c	
Bosnia and Herzegovina	73.5	(3.8)		73.2	(3.9)		c	c		c	c		c	c	
Brazil	16.7	(2.1)		13.2	(2.2)		m	m		32.5	(7.4)		**19.3**	(7.9)	
Brunei Darussalam	51.1	(0.1)		44.6	(0.1)		m	m		85.8	(0.1)		**41.2**	(0.2)	
B-S-J-Z (China)	57.2	(3.2)		56.6	(3.4)		c	c		60.7	(9.7)		4.3	(10.1)	
Bulgaria	81.0	(3.0)		80.7	(3.0)		m	m		c	c		c	c	
Costa Rica	43.0	(3.4)		35.1	(3.8)		c	c		95.4	(3.4)		**57.1**	(6.3)	
Croatia	90.2	(2.0)		91.6	(1.8)		c	c		c	c		-34.8	(23.7)	
Cyprus	21.6	(0.1)		6.1	(0.1)		m	m		94.8	(0.3)		**88.7**	(0.3)	
Dominican Republic	21.0	(2.7)		14.7	(2.9)		c	c		52.3	(8.7)		**34.6**	(9.2)	
Georgia	27.5	(2.9)		23.9	(3.2)		c	c		55.0	(7.7)		**32.9**	(8.1)	
Hong Kong (China)*	92.4	(2.6)		93.0	(7.3)		92.1	(2.8)		c	c		-0.6	(7.8)	
Indonesia	68.0	(3.6)		68.8	(4.9)		64.1	(9.0)		76.9	(8.7)		0.9	(7.7)	
Jordan	28.1	(3.0)		22.4	(3.6)		m	m		49.5	(6.7)		**27.1**	(8.0)	
Kazakhstan	51.7	(2.7)		51.2	(2.6)		87.4	(10.6)		c	c		**31.5**	(12.1)	
Kosovo	92.2	(1.3)		92.0	(1.4)		m	m		c	c		c	c	
Lebanon	77.0	(2.8)		63.2	(5.2)		c	c		92.4	(2.1)		**27.7**	(5.8)	
Macao (China)	78.2	(0.1)		42.6	(0.1)		79.4	(0.1)		c	c		**37.8**	(0.1)	
Malaysia	35.4	(3.3)		32.8	(3.3)		c	c		73.1	(14.6)		**42.4**	(12.9)	
Malta	39.0	(0.1)		52.3	(0.2)		5.6	(0.0)		61.9	(0.5)		**-29.5**	(0.3)	
Moldova	36.0	(3.4)		35.4	(3.4)		m	m		c	c		c	c	
Montenegro	50.4	(0.1)		50.3	(0.1)		m	m		c	c		c	c	
Morocco	25.4	(3.5)		22.4	(3.4)		c	c		65.0	(13.8)		**36.5**	(13.9)	
North Macedonia	49.3	(0.1)		49.3	(0.1)		m	m		100.0	c		**50.7**	(0.1)	
Panama	67.5	(2.2)		59.3	(2.4)		c	c		99.3	(0.8)		**40.1**	(2.5)	
Peru	14.4	(2.0)		7.7	(1.7)		c	c		36.0	(6.4)		**27.9**	(6.7)	
Philippines	68.2	(3.1)		65.0	(3.6)		81.8	(9.3)		84.9	(10.4)		**18.3**	(8.3)	
Qatar	59.5	(0.1)		27.7	(0.1)		c	c		92.0	(0.1)		**64.6**	(0.1)	
Romania	82.4	(3.4)		83.5	(3.2)		c	c		c	c		c	c	
Russia	19.7	(3.2)		19.7	(3.2)		m	m		m	m		m	m	
Saudi Arabia	49.0	(3.7)		44.1	(3.8)		m	m		76.2	(11.0)		**32.1**	(11.5)	
Serbia	84.8	(2.3)		85.8	(2.1)		m	m		53.3	(27.9)		-32.6	(27.9)	
Singapore	88.0	(0.8)		87.7	(0.1)		c	c		88.2	(10.9)		3.0	(8.7)	
Chinese Taipei	47.4	(3.3)		57.4	(4.5)		21.0	(11.4)		29.7	(6.3)		**-30.8**	(6.2)	
Thailand	84.1	(3.2)		86.7	(3.1)		46.9	(16.4)		100.0	c		-15.5	(10.2)	
Ukraine	37.2	(3.0)		36.6	(3.0)		m	m		c	c		c	c	
United Arab Emirates	70.2	(1.1)		53.8	(0.6)		c	c		79.7	(1.6)		**25.9**	(1.7)	
Uruguay	29.8	(3.4)		27.7	(3.6)		c	c		42.5	(10.0)		13.3	(10.8)	
Viet Nam	82.9	(3.3)		82.0	(3.5)		m	m		100.0	c		**18.0**	(3.5)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. Coverage refers to the weighted share of students in the PISA sample who attend modal grade schools (see Table in Annex C). It is equal to 100% if all schools in the PISA sample are included in the analysis and no student has a missing response. For countries with a low value in the coverage index, comparisons should be interpreted with caution.

2. The calculation "Private-Public" is the difference between private government-dependent and private independent schools combined, and public schools.

Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.5.5 [1/2] **Novice teachers, by school characteristics**
Teachers with less than five years of experience; results based on teachers' reports

		All schools[1]					Proportion of novice teachers, by schools' socio-economic profile[4]									
		Sample size		Coverage[2]	Average proportion of novice teachers[3]		Bottom quarter		Second quarter		Third quarter		Top quarter		Top - bottom quarter	
		Number of teachers	Number of schools	%	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	% dif	S.E.
OECD	Chile	689	223	81.3	25.4	(1.3)	27.2	(2.0)	30.1	(3.9)	26.0	(2.8)	20.2	(1.8)	**-7.0**	(2.7)
	Germany	996	218	70.6	20.8	(1.0)	20.6	(1.7)	19.8	(1.9)	23.0	(2.2)	20.8	(2.2)	0.2	(2.8)
	Korea	635	154	83.4	16.5	(1.1)	19.4	(2.7)	15.5	(2.2)	14.7	(1.2)	14.7	(1.5)	-4.6	(3.1)
	Portugal*	99	234	81.1	3.7	(0.6)	4.5	(1.5)	3.6	(0.8)	2.5	(0.8)	3.4	(1.2)	-1.0	(1.9)
	Spain	2981	1079	85.5	16.8	(0.5)	18.2	(0.9)	17.4	(1.3)	14.9	(1.0)	16.5	(1.1)	-1.6	(1.3)
	Scotland (United Kingdom)	249	97	35.7	17.2	(1.3)	18.6	(2.5)	21.0	(1.8)	14.4	(2.8)	12.1	(1.9)	**-6.5**	(3.2)
	United States*	514	157	78.2	19.3	(1.5)	25.6	(2.9)	20.0	(3.0)	17.5	(2.7)	12.3	(2.4)	**-13.3**	(3.8)
	OECD average-7	m	m	m	17.1	(0.4)	19.1	(0.8)	18.2	(0.9)	16.2	(0.8)	14.3	(0.7)	**-4.9**	(1.1)
Partners	Albania	575	324	95.2	18.9	(0.8)	19.0	(1.4)	18.4	(2.4)	16.2	(2.2)	21.2	(2.4)	2.2	(2.9)
	Baku (Azerbaijan)	99	153	49.3	4.9	(0.8)	9.9	(2.2)	6.0	(1.9)	0.7	(0.3)	2.8	(0.9)	**-7.1**	(2.3)
	Brazil	861	435	71.4	14.2	(1.0)	18.0	(1.8)	12.3	(1.0)	10.8	(1.2)	14.8	(2.4)	-3.3	(2.8)
	Dominican Republic	573	222	83.1	33.2	(2.2)	39.6	(3.9)	30.1	(4.3)	30.7	(4.6)	26.9	(5.0)	**-12.7**	(6.1)
	Hong Kong (China)*	367	147	84.7	11.8	(0.8)	9.9	(1.3)	12.4	(1.3)	11.2	(1.7)	14.8	(2.3)	5.0	(2.7)
	Macao (China)	588	45	98.0	21.3	c	12.9	c	24.4	c	19.3	c	28.8	c	15.9	c
	Malaysia	676	191	97.5	16.2	(1.2)	14.2	(1.6)	11.3	(1.8)	15.4	(2.1)	23.8	(3.0)	**9.6**	(3.4)
	Morocco	763	177	85.6	28.4	(2.1)	44.8	(5.1)	32.3	(3.9)	19.7	(2.9)	15.8	(5.0)	**-29.0**	(7.3)
	Panama	385	157	70.7	23.7	(2.5)	28.7	(5.4)	12.7	(4.5)	10.1	(4.4)	29.7	(4.7)	1.0	(7.1)
	Peru	790	324	95.6	21.6	(1.0)	27.9	(1.6)	13.4	(1.6)	18.1	(3.9)	19.2	(2.1)	**-8.7**	(2.7)
	Chinese Taipei	473	192	87.6	12.5	(1.2)	16.9	(2.9)	9.4	(1.5)	10.6	(1.5)	10.4	(1.3)	**-6.5**	(3.2)
	United Arab Emirates	1469	619	85.8	15.2	(0.7)	12.5	(1.7)	13.6	(0.6)	17.5	(1.8)	16.7	(0.8)	**4.2**	(1.9)

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.
2. Coverage refers to the weighted share of students in the PISA sample who attend modal grade schools (see Table in Annex C). It is equal to 100% if all schools in the PISA sample are included in the analysis and no student has a missing response. For countries with a low value in the coverage index, comparisons should be interpreted with caution.
3. The average proportion is computed as the proportion of novice teachers amongst all teachers in the school, averaged across all schools included in this analysis.
4. The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).
5. The calculation "Private-Public" is the difference between private government-dependent and independent schools combined, and public schools.

Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

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

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Table II.B1.5.5 [2/2] **Novice teachers, by school characteristics**
Teachers with less than five years of experience; results based on teachers' reports

		Proportion of novice teachers, by type of school							
		Public		Private government-dependent		Private independent		Private-Public[5]	
		%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.
OECD	**Chile**	26.2	(1.4)	26.9	(1.9)	18.2	(2.1)	-1.8	(2.2)
	Germany	20.6	(1.1)	26.4	(9.9)	29.6	(0.0)	6.4	(8.3)
	Korea	18.3	(1.8)	13.4	(1.1)	16.4	(2.2)	**-4.5**	(2.1)
	Portugal*	1.6	(0.3)	10.5	(3.2)	6.7	(1.7)	**7.1**	(1.8)
	Spain	16.6	(0.6)	16.1	(1.0)	21.7	(1.8)	0.7	(1.1)
	Scotland (United Kingdom)	17.7	(1.3)	m	m	12.6	(3.8)	-5.1	(4.0)
	United States*	18.7	(1.5)	41.3	(2.9)	16.9	(7.6)	5.4	(7.7)
	OECD average-7	17.1	(0.5)	22.5	(1.8)	17.4	(1.3)	1.2	(1.8)
Partners	**Albania**	17.2	(0.9)	m	m	32.4	(3.4)	**15.2**	(3.7)
	Baku (Azerbaijan)	4.8	(0.8)	m	m	13.5	(0.4)	**8.7**	(0.9)
	Brazil	13.6	(0.8)	m	m	15.5	(3.2)	1.9	(3.3)
	Dominican Republic	33.2	(2.4)	19.9	(2.9)	29.4	(3.9)	-4.7	(4.3)
	Hong Kong (China)*	6.7	(2.7)	11.7	(0.9)	21.0	(10.6)	5.5	(2.9)
	Macao (China)	12.7	c	22.2	c	21.4	c	9.4	c
	Malaysia	13.7	(1.2)	38.9	(0.0)	41.4	(8.0)	**27.3**	(7.6)
	Morocco	29.1	(2.1)	33.3	(0.0)	26.3	(7.9)	-2.3	(7.8)
	Panama	17.7	(2.8)	37.5	(0.0)	36.1	(5.5)	**18.5**	(6.1)
	Peru	20.9	(1.2)	9.1	(0.0)	23.5	(1.9)	2.5	(2.4)
	Chinese Taipei	12.0	(1.4)	14.6	(4.0)	14.1	(1.8)	2.2	(2.5)
	United Arab Emirates	7.5	(0.1)	6.7	c	18.9	(1.1)	**11.3**	(1.1)

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

2. Coverage refers to the weighted share of students in the PISA sample who attend modal grade schools (see Table in Annex C). It is equal to 100% if all schools in the PISA sample are included in the analysis and no student has a missing response. For countries with a low value in the coverage index, comparisons should be interpreted with caution.

3. The average proportion is computed as the proportion of novice teachers amongst all teachers in the school, averaged across all schools included in this analysis.

4. The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).

5. The calculation "Private-Public" is the difference between private government-dependent and independent schools combined, and public schools.

Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

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

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Table II.B1.5.7 [1/4] **Teacher absenteeism, by school characteristics**
Results based on school principals' reports

		All schools[1]				Percentage of students in schools whose principal reported that the school's capacity to provide instruction is hindered at least to some extent by teacher absenteeism, by schools' socio-economic profile[3]									
		Sample size	Coverage[2]	Percentage of students in schools whose principal reported that the school's capacity to provide instruction is hindered at least to some extent by teacher absenteeism		Bottom quarter		Second quarter		Third quarter		Top quarter		Top - bottom quarter	
		Number of schools	%	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.
OECD	Australia	692	91.0	19.5	(1.3)	28.2	(3.7)	24.8	(3.8)	20.7	(3.8)	5.2	(2.0)	**-23.0**	(4.3)
	Austria	291	m	17.6	(2.7)	m	m	m	m	m	m	m	m	m	m
	Belgium	255	92.0	42.4	(2.9)	65.0	(5.8)	33.2	(7.0)	35.9	(5.8)	35.0	(5.8)	**-29.9**	(8.5)
	Canada	772	96.7	19.4	(2.1)	19.6	(4.2)	21.6	(5.3)	17.7	(5.3)	19.1	(5.8)	-0.5	(6.4)
	Chile	200	84.2	34.9	(4.0)	41.6	(9.1)	50.0	(9.4)	22.1	(7.7)	25.9	(6.4)	-15.7	(10.7)
	Colombia	245	99.0	31.8	(3.3)	50.3	(9.9)	30.4	(8.0)	29.0	(8.5)	18.4	(7.0)	**-31.8**	(12.4)
	Czech Republic	325	97.5	12.1	(1.6)	11.9	(3.7)	8.2	(4.6)	14.5	(5.6)	13.7	(3.8)	1.8	(5.7)
	Denmark	256	76.8	17.3	(2.7)	20.3	(7.1)	19.4	(8.7)	11.8	(4.9)	18.0	(5.9)	-2.3	(9.1)
	Estonia	224	99.5	19.7	(1.5)	19.8	(4.3)	20.6	(4.3)	21.9	(4.4)	16.6	(0.9)	-3.1	(4.4)
	Finland	210	99.3	12.8	(2.3)	12.2	(4.1)	13.2	(4.7)	14.8	(5.2)	10.8	(4.7)	-1.4	(5.8)
	France	164	76.7	12.4	(2.5)	20.6	(6.9)	5.4	(4.9)	14.7	(6.4)	8.5	(2.7)	-12.1	(8.3)
	Germany	185	82.2	41.8	(3.6)	44.3	(8.1)	64.7	(8.5)	27.7	(8.7)	30.4	(7.2)	-13.9	(10.4)
	Greece	205	95.0	14.0	(2.6)	8.0	(4.1)	20.2	(6.6)	13.6	(7.2)	14.5	(4.6)	6.4	(6.3)
	Hungary	160	88.9	5.2	(1.8)	7.6	(4.5)	3.8	(3.1)	6.5	(3.9)	2.7	(2.7)	-4.9	(5.2)
	Iceland	127	98.7	29.2	(0.2)	19.8	(0.5)	29.2	(0.4)	39.3	(0.5)	28.6	(0.3)	**8.8**	(0.6)
	Ireland	155	98.9	19.6	(3.2)	30.4	(7.0)	15.8	(6.8)	19.0	(6.6)	13.5	(5.6)	-17.0	(8.8)
	Israel	161	93.9	46.3	(4.4)	46.6	(8.9)	43.1	(8.3)	59.5	(10.7)	36.0	(7.8)	-10.6	(11.7)
	Italy	490	94.7	11.4	(2.1)	17.0	(5.4)	6.9	(5.1)	15.1	(5.5)	6.5	(3.4)	-10.5	(6.2)
	Japan	183	100.0	6.4	(1.8)	6.7	(3.3)	8.9	(4.5)	3.2	(3.8)	6.7	(3.8)	0.0	(5.1)
	Korea	153	83.3	4.9	(1.7)	3.6	(2.4)	10.3	(5.5)	2.9	(4.8)	2.6	(4.0)	-1.0	(4.7)
	Latvia	292	95.2	8.5	(1.4)	4.6	(2.4)	5.9	(2.1)	8.0	(3.2)	15.8	(2.6)	**11.3**	(3.1)
	Lithuania	360	99.7	1.3	(0.3)	0.7	(0.7)	0.2	(0.0)	1.2	(0.1)	3.1	(0.7)	**2.4**	(1.0)
	Luxembourg	42	96.0	4.8	(0.0)	9.4	(0.6)	9.5	(0.6)	0.0	c	0.0	c	**-9.4**	(0.6)
	Mexico	209	78.5	15.2	(2.7)	8.1	(4.7)	19.3	(6.5)	26.6	(7.4)	6.2	(4.1)	-1.9	(6.6)
	Netherlands*	145	93.1	46.9	(4.9)	34.0	(8.4)	52.8	(11.7)	47.8	(12.6)	53.6	(11.0)	19.6	(13.1)
	New Zealand	183	95.6	9.8	(2.0)	20.2	(5.9)	7.1	(5.2)	4.8	(3.2)	6.8	(4.4)	-13.4	(7.3)
	Norway	243	97.6	30.7	(3.1)	42.9	(7.8)	22.1	(10.1)	29.0	(9.8)	29.1	(6.8)	-13.8	(10.9)
	Poland	229	98.6	9.3	(1.9)	7.4	(3.8)	11.8	(5.0)	11.9	(5.9)	6.2	(3.6)	-1.3	(5.2)
	Portugal*	231	87.5	12.9	(2.7)	5.7	(2.6)	17.8	(7.5)	14.6	(7.4)	13.7	(5.9)	8.0	(6.4)
	Slovak Republic	355	94.7	6.9	(1.5)	4.8	(2.2)	4.2	(3.6)	3.7	(3.0)	14.8	(4.5)	10.0	(5.4)
	Slovenia	276	87.4	22.8	(0.2)	31.1	(0.3)	32.4	(0.3)	12.0	(0.2)	16.0	(0.3)	**-15.1**	(0.5)
	Spain	1053	97.4	7.3	(1.2)	13.6	(3.3)	6.8	(2.0)	4.1	(1.7)	4.9	(2.5)	**-8.7**	(4.1)
	Sweden	201	96.1	20.8	(2.9)	41.0	(7.6)	24.8	(7.4)	10.5	(5.5)	6.7	(3.7)	**-34.3**	(8.5)
	Switzerland	156	73.9	6.2	(2.2)	2.3	(3.2)	8.5	(5.4)	3.3	(3.5)	10.6	(6.0)	8.2	(6.4)
	Turkey	179	99.1	6.9	(2.0)	4.3	(3.5)	6.4	(4.8)	13.8	(6.2)	2.8	(4.2)	-1.5	(5.5)
	United Kingdom	389	78.9	20.5	(2.9)	21.8	(6.1)	29.0	(8.7)	11.5	(6.7)	21.1	(7.5)	-0.7	(9.6)
	United States*	146	88.8	14.1	(2.8)	25.4	(8.2)	19.3	(7.4)	9.6	(5.2)	2.5	(3.2)	**-22.8**	(9.1)
	OECD average	m	m	17.9	(0.4)	20.9	(0.9)	19.7	(1.0)	16.7	(1.0)	14.6	(0.8)	**-6.2**	(1.2)

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

2. Coverage refers to the weighted share of students in the PISA sample who attend modal grade schools (see Table in Annex C). It is equal to 100% if all schools in the PISA sample are included in the analysis and no student has a missing response. For countries with a low value in the coverage index, comparisons should be interpreted with caution.

3. The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).

4. The calculation "Private-Public" is the difference between private government-dependent and independent schools combined, and public schools.

Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

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

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Table II.B1.5.7 [2/4] **Teacher absenteeism, by school characteristics**
Results based on school principals' reports

		All schools[1]				Percentage of students in schools whose principal reported that the school's capacity to provide instruction is hindered at least to some extent by teacher absenteeism, by schools' socio-economic profile[3]									
		Sample size	Coverage[2]	Percentage of students in schools whose principal reported that the school's capacity to provide instruction is hindered at least to some extent by teacher absenteeism		Bottom quarter		Second quarter		Third quarter		Top quarter		Top - bottom quarter	
		Number of schools	%	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.
Partners	Albania	324	99.5	4.8	(1.3)	7.6	(3.5)	2.6	(1.7)	5.4	(3.3)	3.3	(3.0)	-4.3	(4.5)
	Argentina	440	96.7	53.7	(3.2)	57.7	(7.1)	67.8	(6.1)	60.9	(6.3)	28.3	(6.2)	**-29.3**	(9.2)
	Baku (Azerbaijan)	112	53.7	24.1	(4.0)	30.1	(7.9)	14.8	(8.5)	33.6	(10.6)	18.1	(8.9)	-12.1	(11.7)
	Belarus	234	100.0	4.5	(1.3)	3.3	(2.8)	5.5	(3.7)	4.9	(3.8)	4.3	(3.2)	1.0	(5.0)
	Bosnia and Herzegovina	129	83.5	20.0	(3.0)	12.9	(5.4)	17.9	(6.2)	19.9	(7.0)	29.7	(9.2)	16.8	(10.9)
	Brazil	421	77.9	38.2	(2.4)	36.5	(4.9)	51.5	(6.2)	44.8	(6.5)	19.8	(4.7)	**-16.6**	(7.2)
	Brunei Darussalam	55	100.0	15.8	(0.1)	37.6	(0.2)	0.0	c	23.8	(0.1)	0.0	c	**-37.6**	(0.2)
	B-S-J-Z (China)	361	100.0	31.8	(3.3)	32.9	(5.8)	41.1	(10.7)	27.3	(9.2)	25.9	(4.8)	-7.0	(7.1)
	Bulgaria	185	93.9	20.2	(3.3)	15.3	(8.4)	24.1	(8.3)	17.7	(7.2)	24.0	(8.4)	8.6	(13.5)
	Costa Rica	205	100.0	31.5	(3.3)	48.5	(9.3)	38.5	(7.3)	24.1	(8.4)	14.6	(7.0)	**-33.9**	(10.7)
	Croatia	178	99.1	15.4	(2.5)	13.8	(7.9)	18.7	(8.8)	23.1	(7.1)	6.6	(2.8)	-7.2	(8.3)
	Cyprus	77	96.0	10.6	(0.0)	18.6	(0.2)	14.4	(0.1)	0.0	c	8.9	(0.1)	**-9.6**	(0.2)
	Dominican Republic	215	91.6	6.0	(1.8)	4.4	(3.1)	7.9	(3.9)	7.3	(3.9)	4.4	(3.1)	0.0	(5.1)
	Georgia	309	98.3	11.0	(1.9)	12.5	(3.5)	9.6	(4.9)	11.6	(5.0)	10.4	(4.6)	-2.1	(5.3)
	Hong Kong (China)*	112	75.5	13.3	(3.3)	27.1	(10.2)	12.1	(7.8)	13.7	(6.7)	0.0	c	**-27.1**	(10.2)
	Indonesia	336	88.9	9.0	(3.1)	13.4	(6.6)	7.0	(6.4)	5.5	(3.7)	9.9	(8.2)	-3.5	(10.8)
	Jordan	311	99.1	41.5	(3.6)	34.9	(7.5)	41.4	(6.7)	54.3	(8.1)	35.6	(7.3)	0.8	(10.6)
	Kazakhstan	516	80.4	59.6	(2.5)	57.6	(5.1)	64.4	(5.6)	50.5	(6.9)	65.9	(5.5)	8.3	(7.7)
	Kosovo	90	74.6	18.6	(1.3)	17.0	(2.1)	38.3	(6.0)	12.1	(5.9)	5.9	(2.2)	**-11.1**	(3.0)
	Lebanon	207	76.9	23.0	(2.7)	11.6	(5.3)	33.7	(6.7)	29.2	(6.4)	17.1	(5.3)	5.5	(6.6)
	Macao (China)	45	100.0	14.3	(0.0)	4.3	(0.1)	28.7	(0.1)	22.8	(0.1)	3.7	(0.1)	**-0.6**	(0.1)
	Malaysia	191	100.0	24.4	(3.3)	28.0	(6.2)	24.5	(6.6)	27.0	(8.6)	18.0	(7.2)	-10.0	(9.3)
	Malta	49	99.9	22.3	(0.1)	29.7	(0.3)	44.3	(0.4)	13.6	(0.2)	0.0	c	**-29.7**	(0.3)
	Moldova	210	91.4	19.6	(2.9)	10.5	(3.8)	8.6	(4.7)	25.4	(6.9)	34.3	(7.6)	**23.9**	(8.3)
	Montenegro	49	96.7	5.3	(0.0)	11.7	(0.1)	9.9	(0.0)	0.0	c	0.0	c	**-11.7**	(0.1)
	Morocco	173	96.6	34.9	(3.7)	35.5	(8.0)	37.6	(9.0)	31.5	(7.2)	35.2	(8.2)	-0.3	(12.6)
	North Macedonia	96	89.0	11.0	(0.1)	9.7	(0.2)	15.9	(0.3)	10.9	(0.1)	7.5	(0.1)	**-2.2**	(0.3)
	Panama	140	69.4	28.2	(2.6)	40.2	(9.4)	32.5	(6.7)	30.9	(5.7)	8.2	(7.6)	**-32.0**	(13.5)
	Peru	323	97.7	17.5	(2.2)	23.7	(5.5)	20.5	(5.1)	15.6	(4.2)	10.2	(3.9)	**-13.5**	(6.5)
	Philippines	186	99.7	13.0	(2.8)	8.1	(4.8)	10.8	(5.8)	21.9	(6.7)	11.2	(5.9)	3.2	(7.5)
	Qatar	136	86.0	11.0	(0.0)	12.0	(0.2)	8.7	(0.2)	13.4	(0.1)	10.0	(0.1)	**-2.1**	(0.3)
	Romania	141	93.1	3.8	(1.3)	3.5	(2.6)	8.5	(5.4)	3.2	(3.6)	0.0	(1.4)	-3.5	(3.2)
	Russia	235	91.5	37.6	(3.3)	47.1	(6.3)	36.5	(6.9)	36.1	(8.6)	30.4	(7.6)	-16.7	(10.0)
	Saudi Arabia	170	81.2	23.2	(3.4)	22.9	(7.2)	25.9	(8.1)	23.6	(8.4)	20.2	(7.2)	-2.7	(10.0)
	Serbia	177	98.5	5.1	(1.8)	1.7	(1.2)	6.6	(5.0)	4.4	(4.5)	7.6	(4.0)	5.9	(4.1)
	Singapore	166	100.0	4.3	(0.4)	7.0	(0.2)	2.6	(0.1)	6.6	(0.2)	1.1	(1.5)	**-5.9**	(1.5)
	Chinese Taipei	186	96.7	7.2	(2.0)	3.0	(2.3)	6.9	(3.2)	8.1	(4.9)	11.1	(6.0)	8.1	(6.2)
	Thailand	204	93.0	4.1	(1.3)	0.0	c	5.9	(3.8)	10.2	(7.1)	0.0	(6.0)	0.0	(6.0)
	Ukraine	247	99.2	19.9	(3.1)	21.0	(4.9)	19.2	(6.1)	26.4	(8.0)	12.9	(8.0)	-8.1	(8.6)
	United Arab Emirates	590	90.7	25.7	(1.2)	38.4	(0.8)	33.6	(3.0)	20.6	(3.6)	10.4	(2.5)	**-27.9**	(2.3)
	Uruguay	189	100.0	61.4	(3.5)	74.7	(7.3)	58.7	(6.8)	72.1	(7.8)	40.0	(7.7)	**-34.7**	(10.9)
	Viet Nam	121	93.5	5.7	(2.1)	5.7	(4.2)	10.4	(6.4)	3.2	(3.9)	3.7	(2.6)	-2.1	(5.0)

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

2. Coverage refers to the weighted share of students in the PISA sample who attend modal grade schools (see Table in Annex C). It is equal to 100% if all schools in the PISA sample are included in the analysis and no student has a missing response. For countries with a low value in the coverage index, comparisons should be interpreted with caution.

3. The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).

4. The calculation "Private-Public" is the difference between private government-dependent and independent schools combined, and public schools.

Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

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

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Table II.B1.5.7 [3/4] **Teacher absenteeism, by school characteristics**
Results based on school principals' reports

		Percentage of students in schools whose principal reported that the school's capacity to provide instruction is hindered at least to some extent by teacher absenteeism, by type of school							
		Public		Private government-dependent		Private independent		Private-Public[4]	
		%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.
OECD	Australia	22.9	(1.8)	19.4	(3.1)	6.8	(2.8)	**-8.4**	(3.0)
	Austria	m	m	m	m	m	m	m	m
	Belgium	m	m	m	m	m	m	m	m
	Canada	20.4	(2.2)	9.6	(6.5)	7.8	(4.9)	**-11.8**	(4.5)
	Chile	54.7	(8.4)	26.1	(5.3)	21.0	(6.3)	**-29.7**	(9.6)
	Colombia	37.0	(3.8)	m	m	10.0	(3.9)	**-27.0**	(5.3)
	Czech Republic	12.4	(1.7)	8.1	(5.9)	m	m	-4.3	(6.1)
	Denmark	23.2	(3.5)	3.9	(2.7)	0.0	c	**-20.2**	(4.0)
	Estonia	20.5	(1.6)	0.0	c	0.0	c	**-20.5**	(1.6)
	Finland	12.8	(2.4)	13.0	(13.3)	m	m	0.3	(13.5)
	France	13.4	(3.1)	0.8	(0.8)	0.0	c	**-13.0**	(3.1)
	Germany	42.2	(3.6)	29.8	(18.8)	m	m	-12.4	(19.1)
	Greece	14.3	(2.7)	m	m	9.7	(10.0)	-4.6	(10.4)
	Hungary	6.2	(2.2)	1.8	(1.9)	m	m	-4.4	(2.9)
	Iceland	29.8	(0.2)	m	m	m	m	m	m
	Ireland	m	m	m	m	m	m	m	m
	Israel	46.3	(4.4)	m	m	m	m	m	m
	Italy	11.8	(2.1)	1.5	(0.8)	0.0	c	**-11.2**	(2.1)
	Japan	1.5	(1.0)	26.5	(15.8)	14.7	(5.1)	**14.5**	(5.1)
	Korea	5.2	(2.3)	5.2	(3.0)	0.0	c	-0.7	(3.3)
	Latvia	8.7	(1.4)	m	m	m	m	m	m
	Lithuania	1.4	(0.3)	0.0	c	m	m	**-1.4**	(0.3)
	Luxembourg	5.9	(0.1)	0.0	c	m	m	**-5.9**	(0.1)
	Mexico	17.4	(3.1)	m	m	0.0	c	**-17.4**	(3.1)
	Netherlands*	51.8	(7.5)	44.6	(5.8)	m	m	-7.2	(8.9)
	New Zealand	10.4	(2.1)	m	m	0.0	c	**-10.4**	(2.1)
	Norway	w	w	w	w	w	w	w	w
	Poland	9.8	(2.0)	0.0	c	m	m	**-9.8**	(2.0)
	Portugal*	14.6	(3.1)	8.2	(5.5)	0.0	c	**-10.6**	(3.9)
	Slovak Republic	6.8	(1.7)	8.0	(5.0)	m	m	1.2	(5.6)
	Slovenia	22.0	(0.1)	55.1	(1.2)	m	m	**33.2**	(1.2)
	Spain	10.2	(1.6)	1.0	(0.8)	2.6	(1.5)	**-8.8**	(1.6)
	Sweden	21.7	(3.3)	16.8	(6.1)	m	m	-4.9	(7.0)
	Switzerland	6.4	(2.3)	m	m	2.2	(2.1)	-4.2	(3.1)
	Turkey	7.8	(2.3)	m	m	0.0	c	**-7.8**	(2.3)
	United Kingdom	25.5	(4.5)	14.6	(3.8)	21.5	(12.5)	-9.9	(5.9)
	United States*	14.5	(3.0)	m	m	11.6	(8.4)	-2.9	(8.9)
	OECD average	18.5	(0.5)	12.8	(1.4)	5.7	(1.1)	**-7.3**	(1.2)

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

2. Coverage refers to the weighted share of students in the PISA sample who attend modal grade schools (see Table in Annex C). It is equal to 100% if all schools in the PISA sample are included in the analysis and no student has a missing response. For countries with a low value in the coverage index, comparisons should be interpreted with caution.

3. The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).

4. The calculation "Private-Public" is the difference between private government-dependent and independent schools combined, and public schools.

Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

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

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Table II.B1.5.7 [4/4] **Teacher absenteeism, by school characteristics**
Results based on school principals' reports

	Percentage of students in schools whose principal reported that the school's capacity to provide instruction is hindered at least to some extent by teacher absenteeism, by type of school							
	Public		Private government-dependent		Private independent		Private-Public[4]	
	%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.
Partners								
Albania	5.4	(1.4)	m	m	0.0	c	**-5.4**	(1.4)
Argentina	65.0	(3.6)	32.7	(6.5)	20.1	(10.6)	**-35.7**	(6.7)
Baku (Azerbaijan)	24.2	(4.0)	m	m	m	m	m	m
Belarus	4.5	(1.3)	m	m	m	m	m	m
Bosnia and Herzegovina	20.3	(3.0)	m	m	m	m	m	m
Brazil	44.1	(2.7)	m	m	11.7	(4.8)	**-32.4**	(5.6)
Brunei Darussalam	18.7	(0.1)	m	m	0.0	c	**-18.7**	(0.1)
B-S-J-Z (China)	31.9	(3.5)	m	m	30.8	(8.5)	-1.1	(9.1)
Bulgaria	20.6	(3.3)	m	m	m	m	m	m
Costa Rica	35.2	(3.7)	m	m	8.6	(5.2)	**-26.6**	(6.1)
Croatia	15.3	(2.7)	m	m	m	m	m	m
Cyprus	12.8	(0.1)	m	m	0.0	c	**-12.8**	(0.1)
Dominican Republic	5.7	(1.6)	0.0	c	8.4	(5.6)	1.8	(4.8)
Georgia	11.5	(2.1)	m	m	7.7	(3.3)	-3.9	(3.9)
Hong Kong (China)*	9.7	(9.2)	14.1	(3.7)	m	m	4.4	(10.1)
Indonesia	5.7	(3.1)	8.9	(4.4)	12.8	(10.5)	4.8	(6.0)
Jordan	42.0	(4.5)	m	m	40.0	(7.7)	-2.0	(9.5)
Kazakhstan	59.4	(2.5)	80.8	(16.0)	m	m	21.4	(16.3)
Kosovo	18.0	(1.1)	m	m	m	m	m	m
Lebanon	18.7	(3.7)	m	m	25.6	(5.7)	6.9	(6.9)
Macao (China)	0.0	c	15.7	(0.0)	m	m	**15.7**	(0.0)
Malaysia	24.9	(3.4)	m	m	9.2	(6.1)	**-15.7**	(7.5)
Malta	35.0	(0.2)	9.8	(0.2)	0.0	c	**-28.2**	(0.2)
Moldova	19.0	(2.7)	m	m	m	m	m	m
Montenegro	5.4	(0.0)	m	m	m	m	m	m
Morocco	34.0	(4.1)	m	m	46.4	(16.8)	12.4	(17.7)
North Macedonia	11.3	(0.1)	m	m	0.0	c	**-11.3**	(0.1)
Panama	33.8	(3.1)	m	m	6.6	(4.1)	**-27.2**	(5.1)
Peru	19.5	(2.6)	m	m	10.2	(3.4)	**-9.3**	(4.2)
Philippines	13.6	(3.0)	19.5	(12.2)	0.0	c	-3.4	(7.1)
Qatar	14.9	(0.1)	m	m	7.3	(0.1)	**-7.6**	(0.1)
Romania	3.9	(1.3)	m	m	m	m	m	m
Russia	37.6	(3.3)	m	m	m	m	m	m
Saudi Arabia	24.4	(3.8)	m	m	15.0	(9.7)	-9.4	(10.9)
Serbia	4.1	(1.5)	m	m	32.7	(27.7)	28.6	(27.8)
Singapore	4.5	(0.0)	m	m	3.6	(5.0)	-0.9	(5.0)
Chinese Taipei	7.1	(2.5)	12.5	(6.9)	3.8	(2.7)	0.0	(4.2)
Thailand	4.2	(1.4)	0.0	c	8.0	(8.3)	-0.5	(3.9)
Ukraine	20.1	(3.1)	m	m	m	m	m	m
United Arab Emirates	41.9	(0.5)	m	m	16.4	(1.8)	**-25.5**	(1.9)
Uruguay	69.1	(3.9)	m	m	21.8	(6.3)	**-47.3**	(7.4)
Viet Nam	6.0	(2.2)	m	m	0.0	c	**-6.0**	(2.2)

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

2. Coverage refers to the weighted share of students in the PISA sample who attend modal grade schools (see Table in Annex C). It is equal to 100% if all schools in the PISA sample are included in the analysis and no student has a missing response. For countries with a low value in the coverage index, comparisons should be interpreted with caution.

3. The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).

4. The calculation "Private-Public" is the difference between private government-dependent and independent schools combined, and public schools.

Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

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

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Table II.B1.6.1 [1/8] **Career expectations, by socio-economics status and school programme orientation**
Expectations of the job students will have when they are around 30 years old; based on students' reports

		Percentage of students who have no clear idea about their future job																	
					By students' socio-economic status (ESCS[1])														
		All students			Bottom quarter			Second quarter			Third quarter			Top quarter			Top - Bottom quarter		
		%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
OECD	Australia	28.1	(0.8)		23.3	(0.9)		21.1	(0.8)		20.9	(1.0)		19.1	(1.2)		**-4.2**	(1.3)	
	Austria	26.1	(0.6)		22.6	(1.3)		23.2	(1.2)		26.1	(1.1)		29.2	(1.3)		**6.6**	(1.7)	
	Belgium (French Community)	66.5	(0.7)		60.9	(1.4)		63.9	(1.4)		66.5	(1.0)		72.3	(1.5)		**11.4**	(2.1)	
	Canada	27.6	(0.7)		25.8	(0.9)		23.8	(0.9)		22.5	(0.9)		22.4	(0.7)		**-3.4**	(1.0)	
	Chile	24.3	(1.1)		24.8	(1.8)		23.1	(1.4)		22.1	(1.4)		20.5	(1.1)		**-4.3**	(2.0)	
	Colombia	15.8	(1.1)		16.5	(1.5)		12.1	(1.1)		11.1	(1.3)		8.5	(0.8)		**-8.0**	(1.5)	
	Czech Republic	29.5	(0.9)		24.8	(1.4)		25.2	(1.4)		30.7	(1.5)		34.7	(1.4)		**9.9**	(1.6)	
	Denmark	35.2	(0.9)		32.8	(1.4)		34.0	(1.6)		35.5	(1.5)		33.8	(1.9)		1.0	(2.2)	
	Estonia	21.4	(0.8)		21.0	(1.4)		20.8	(1.2)		19.9	(1.1)		17.7	(1.3)		-3.3	(1.8)	
	Finland	30.6	(0.9)		30.6	(1.3)		28.9	(1.6)		30.4	(1.3)		28.8	(1.2)		-1.8	(1.6)	
	France	24.0	(0.6)		25.4	(1.2)		21.9	(1.1)		21.4	(1.2)		23.9	(1.1)		-1.5	(1.6)	
	Germany	38.5	(1.0)		31.3	(1.5)		29.5	(1.5)		29.1	(1.3)		26.7	(1.5)		**-4.6**	(1.9)	
	Greece	15.1	(0.7)		15.9	(1.0)		14.4	(0.8)		12.7	(0.8)		15.7	(1.5)		-0.2	(1.7)	
	Hungary	20.2	(0.7)		21.0	(1.3)		18.3	(1.2)		17.8	(1.1)		21.2	(1.2)		0.3	(1.9)	
	Iceland	24.7	(0.7)		26.6	(1.6)		25.5	(1.5)		20.8	(1.4)		19.7	(1.4)		**-6.9**	(2.2)	
	Ireland	18.7	(0.6)		20.0	(1.2)		18.9	(1.1)		17.1	(1.0)		16.9	(1.0)		**-3.1**	(1.5)	
	Israel	34.7	(0.9)		37.4	(1.9)		35.2	(1.5)		32.1	(1.2)		27.7	(1.3)		**-9.7**	(2.1)	
	Italy	25.5	(0.7)		24.6	(1.3)		22.5	(1.2)		25.9	(1.3)		22.9	(1.4)		-1.8	(1.8)	
	Japan	22.3	(0.8)		27.1	(1.6)		23.0	(1.1)		19.1	(1.1)		17.7	(1.0)		**-9.5**	(1.7)	
	Korea	12.0	(0.7)		14.4	(1.1)		11.6	(1.1)		10.9	(1.0)		10.0	(0.9)		**-4.4**	(1.4)	
	Latvia	24.4	(0.7)		21.6	(1.3)		23.5	(1.4)		24.1	(1.2)		22.8	(1.3)		1.2	(2.0)	
	Lithuania	26.2	(0.6)		26.7	(1.3)		25.3	(1.0)		24.1	(1.3)		23.4	(1.2)		**-3.3**	(1.7)	
	Luxembourg	21.3	(0.5)		22.6	(1.1)		19.0	(0.9)		20.4	(1.0)		19.1	(1.1)		**-3.5**	(1.6)	
	Mexico	26.5	(1.1)		31.4	(2.2)		16.5	(1.4)		12.6	(1.1)		10.4	(0.9)		**-21.0**	(2.4)	
	Netherlands*	31.3	(1.0)		25.3	(1.8)		26.9	(1.7)		31.1	(1.5)		35.2	(1.5)		**9.9**	(2.3)	
	New Zealand	24.0	(0.7)		23.8	(1.3)		23.8	(1.2)		21.1	(1.0)		21.6	(1.3)		-2.2	(1.7)	
	Norway	25.7	(0.7)		23.3	(1.1)		23.0	(1.2)		22.6	(1.3)		24.3	(1.2)		1.0	(1.7)	
	Poland	16.1	(0.6)		15.4	(1.0)		17.3	(1.2)		15.1	(1.0)		14.5	(1.0)		-0.9	(1.4)	
	Portugal*	22.3	(0.7)		17.6	(1.4)		17.7	(1.2)		17.2	(1.1)		18.8	(1.2)		1.2	(1.9)	
	Slovak Republic	27.6	(0.8)		27.8	(1.4)		25.0	(1.3)		25.7	(1.2)		28.1	(1.1)		0.3	(1.4)	
	Slovenia	21.6	(0.7)		14.9	(1.0)		18.1	(1.2)		23.2	(1.3)		26.9	(1.5)		**12.0**	(1.8)	
	Spain	19.4	(0.5)		21.0	(1.0)		17.4	(0.8)		17.5	(0.7)		16.7	(0.6)		**-4.3**	(1.1)	
	Sweden	25.4	(0.7)		24.9	(1.3)		23.9	(1.2)		24.8	(1.2)		21.4	(1.1)		**-3.5**	(1.7)	
	Switzerland	24.7	(1.0)		25.5	(1.5)		22.2	(1.5)		23.5	(1.8)		23.5	(1.4)		-2.0	(1.8)	
	Turkey	6.4	(0.4)		7.2	(0.8)		5.4	(0.5)		5.5	(0.6)		5.8	(0.7)		-1.3	(1.0)	
	United Kingdom	24.6	(0.8)		22.5	(1.1)		20.2	(1.1)		20.0	(1.0)		22.6	(1.1)		0.1	(1.6)	
	United States*	20.9	(0.8)		21.4	(1.4)		20.7	(1.2)		20.0	(1.5)		18.5	(1.3)		-2.9	(1.8)	
	OECD average	25.1	(0.1)		24.3	(0.2)		22.8	(0.2)		22.7	(0.2)		22.8	(0.2)		**-1.5**	(0.3)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.6.1 [2/8] **Career expectations, by socio-economics status and school programme orientation**
Expectations of the job students will have when they are around 30 years old; based on students' reports

	Percentage of students who have no clear idea about their future job																	
				By students' socio-economic status (ESCS[1])														
	All students			Bottom quarter			Second quarter			Third quarter			Top quarter			Top - Bottom quarter		
	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
Partners																		
Albania	5.7	(0.4)		4.0	(0.6)		4.1	(0.6)		3.9	(0.5)		5.4	(1.0)		1.3	(1.2)	
Argentina	22.3	(0.8)		25.5	(1.6)		24.3	(1.2)		19.5	(1.0)		18.0	(1.1)		**-7.4**	(1.8)	
Baku (Azerbaijan)	29.7	(1.0)		30.7	(1.4)		27.2	(1.4)		27.6	(1.6)		23.9	(1.6)		**-6.8**	(2.0)	
Belarus	16.6	(0.6)		16.5	(1.1)		16.4	(1.1)		16.0	(0.9)		16.0	(1.0)		-0.5	(1.4)	
Bosnia and Herzegovina	17.2	(0.6)		16.6	(0.9)		15.0	(1.1)		15.9	(0.9)		16.5	(1.2)		-0.1	(1.3)	
Brazil	29.0	(0.7)		33.4	(1.6)		28.2	(1.1)		26.8	(1.0)		22.4	(1.0)		**-11.0**	(1.9)	
Brunei Darussalam	13.7	(0.4)		16.4	(0.9)		14.0	(0.7)		12.4	(0.9)		10.5	(0.8)		**-5.9**	(1.3)	
B-S-J-Z (China)	17.6	(0.6)		21.1	(1.1)		19.0	(1.0)		16.9	(1.1)		11.5	(0.7)		**-9.6**	(1.3)	
Bulgaria	33.4	(1.1)		34.5	(2.0)		33.8	(1.6)		33.0	(1.4)		25.5	(1.5)		**-8.9**	(2.5)	
Costa Rica	10.3	(0.5)		10.6	(0.9)		8.7	(0.8)		9.5	(0.8)		10.5	(0.9)		-0.1	(1.2)	
Croatia	20.3	(0.6)		18.6	(1.1)		18.6	(1.0)		20.1	(1.0)		22.2	(1.0)		**3.7**	(1.3)	
Cyprus	19.6	(0.6)		21.0	(1.3)		17.9	(1.1)		18.1	(1.2)		16.7	(1.0)		**-4.3**	(1.8)	
Dominican Republic	41.3	(1.4)		50.2	(2.0)		39.4	(1.8)		40.5	(1.8)		29.2	(1.8)		**-21.0**	(2.3)	
Georgia	31.4	(0.8)		35.3	(1.7)		30.3	(1.5)		29.5	(1.2)		26.6	(1.3)		**-8.7**	(2.1)	
Hong Kong (China)*	23.4	(0.8)		24.6	(1.5)		21.1	(1.4)		20.3	(1.3)		18.3	(1.3)		**-6.3**	(2.1)	
Indonesia	8.5	(0.8)		7.8	(0.8)		6.7	(0.9)		7.3	(1.0)		7.2	(1.6)		-0.6	(1.7)	
Jordan	12.5	(0.6)		16.2	(1.1)		12.4	(1.0)		11.2	(0.9)		8.3	(0.9)		**-7.9**	(1.4)	
Kazakhstan	20.8	(0.5)		20.5	(0.9)		20.2	(0.8)		21.7	(0.8)		20.3	(0.7)		-0.1	(1.2)	
Kosovo	14.1	(0.6)		14.0	(1.0)		13.8	(1.0)		13.2	(1.2)		11.4	(1.1)		-2.6	(1.5)	
Lebanon	37.9	(1.4)		45.3	(2.7)		39.1	(1.8)		35.8	(2.0)		28.2	(1.8)		**-17.1**	(3.1)	
Macao (China)	10.3	(0.5)		11.2	(0.9)		11.8	(1.1)		9.2	(1.1)		8.9	(0.9)		-2.3	(1.5)	
Malaysia	10.8	(0.8)		9.5	(1.0)		9.9	(1.0)		11.2	(0.9)		8.2	(0.8)		-1.3	(1.1)	
Malta	16.1	(0.6)		18.4	(1.2)		13.8	(1.1)		15.8	(1.5)		10.3	(1.0)		**-8.1**	(1.5)	
Moldova	10.4	(0.5)		13.9	(1.0)		9.4	(0.8)		8.3	(0.9)		9.1	(1.0)		**-4.8**	(1.4)	
Montenegro	18.1	(0.5)		18.9	(1.2)		16.2	(0.8)		16.9	(0.9)		17.4	(0.9)		-1.5	(1.4)	
Morocco	27.8	(1.2)		34.0	(1.6)		28.6	(1.6)		24.4	(1.5)		20.8	(1.4)		**-13.2**	(1.9)	
North Macedonia	24.4	(0.5)		26.8	(1.2)		25.6	(1.3)		21.5	(1.3)		18.4	(1.0)		**-8.5**	(1.6)	
Panama	36.8	(1.2)		50.9	(2.1)		34.9	(1.9)		30.8	(1.6)		24.1	(1.3)		**-26.7**	(2.5)	
Peru	25.6	(1.1)		42.6	(2.2)		25.8	(1.4)		19.5	(1.4)		12.6	(1.1)		**-30.0**	(2.3)	
Philippines	18.7	(0.7)		23.9	(1.3)		17.0	(1.0)		18.5	(1.0)		13.9	(1.2)		**-10.0**	(1.8)	
Qatar	19.6	(0.3)		23.6	(0.7)		17.4	(0.6)		13.8	(0.6)		15.4	(0.5)		**-8.2**	(1.0)	
Romania	11.9	(0.7)		17.5	(1.8)		11.5	(1.1)		10.1	(1.0)		7.6	(0.8)		**-9.8**	(2.2)	
Russia	20.4	(0.7)		17.6	(1.3)		19.5	(1.2)		19.3	(1.2)		18.7	(1.1)		1.0	(1.6)	
Saudi Arabia	14.7	(0.7)		17.5	(1.4)		13.8	(1.0)		13.6	(1.1)		12.2	(0.9)		**-5.3**	(1.5)	
Serbia	23.0	(1.0)		22.7	(1.4)		22.6	(1.3)		22.1	(1.2)		20.9	(1.4)		-1.7	(1.8)	
Singapore	19.2	(0.5)		20.9	(1.0)		19.4	(1.0)		18.6	(1.1)		16.8	(1.2)		**-4.1**	(1.5)	
Chinese Taipei	22.2	(0.6)		25.3	(1.3)		21.9	(1.1)		19.9	(1.1)		18.9	(1.1)		**-6.4**	(1.6)	
Thailand	16.9	(0.7)		23.1	(1.0)		16.8	(0.9)		15.2	(1.1)		10.9	(0.9)		**-12.1**	(1.2)	
Ukraine	13.7	(0.6)		17.1	(1.1)		13.4	(1.0)		13.2	(0.9)		10.2	(0.8)		**-6.9**	(1.3)	
United Arab Emirates	16.7	(0.6)		18.7	(0.5)		16.0	(0.8)		10.9	(0.6)		12.1	(0.7)		**-6.6**	(0.9)	
Uruguay	25.9	(1.1)		27.1	(1.9)		22.3	(1.7)		22.2	(1.5)		19.7	(1.4)		**-7.4**	(2.3)	
Viet Nam	9.4	(0.7)		11.7	(1.3)		8.3	(1.1)		8.6	(0.8)		9.1	(1.0)		-2.7	(1.6)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.6.1 [3/8] **Career expectations, by socio-economics status and school programme orientation**
Expectations of the job students will have when they are around 30 years old; based on students' reports

		Percentage of students who have no clear idea about their future job								
		By type of programme								
		Vocational			General or modular			General or modular - Vocational		
		%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
OECD	Australia	27.2	(2.7)		27.8	(0.8)		0.7	(2.8)	
	Austria	m	m		m	m		m	m	
	Belgium (French Community)	75.9	(1.3)		60.2	(1.0)		**-15.7**	(1.9)	
	Canada	m	m		27.6	(0.7)		m	m	
	Chile	19.4	(3.5)		24.4	(1.1)		5.0	(3.4)	
	Colombia	13.3	(2.1)		16.4	(1.2)		3.0	(2.2)	
	Czech Republic	31.5	(1.9)		28.5	(1.1)		-3.0	(2.3)	
	Denmark	c	c		35.3	(0.9)		c	c	
	Estonia	c	c		21.4	(0.8)		c	c	
	Finland	c	c		30.6	(0.9)		c	c	
	France	21.1	(1.5)		24.7	(0.7)		**3.6**	(1.6)	
	Germany	45.8	(11.8)		38.2	(1.0)		-7.6	(12.0)	
	Greece	17.3	(1.8)		14.7	(0.8)		-2.6	(1.9)	
	Hungary	18.3	(1.5)		20.6	(0.7)		2.3	(1.7)	
	Iceland	m	m		24.7	(0.7)		m	m	
	Ireland	15.8	(5.6)		18.7	(0.6)		2.9	(5.7)	
	Israel	m	m		34.7	(0.9)		m	m	
	Italy	26.4	(1.1)		24.7	(0.9)		-1.7	(1.4)	
	Japan	26.6	(2.5)		20.9	(0.7)		**-5.7**	(2.6)	
	Korea	16.6	(2.0)		11.1	(0.6)		**-5.5**	(2.0)	
	Latvia	28.1	(4.7)		24.4	(0.7)		-3.8	(4.9)	
	Lithuania	32.7	(5.2)		26.1	(0.6)		-6.6	(5.3)	
	Luxembourg	18.1	(1.2)		21.9	(0.5)		**3.7**	(1.4)	
	Mexico	19.3	(2.0)		29.3	(1.4)		**10.0**	(2.5)	
	Netherlands*	26.7	(2.1)	†	32.1	(1.1)		**5.4**	(2.4)	†
	New Zealand	m	m		24.0	(0.7)		m	m	
	Norway	m	m		25.7	(0.7)		m	m	
	Poland	c	c		16.1	(0.6)		c	c	
	Portugal*	17.0	(1.6)		23.3	(0.7)		**6.4**	(1.8)	
	Slovak Republic	27.7	(2.6)		27.6	(0.8)		-0.1	(2.8)	
	Slovenia	15.8	(0.6)		29.1	(1.4)		**13.3**	(1.5)	
	Spain	26.4	(4.1)		19.3	(0.5)		-7.1	(4.0)	
	Sweden	m	m		25.4	(0.7)		m	m	
	Switzerland	18.0	(1.9)		25.6	(1.1)		**7.6**	(2.1)	
	Turkey	7.1	(0.5)		6.1	(0.5)		-1.0	(0.7)	
	United Kingdom	26.1	(6.6)		24.6	(0.8)		-1.5	(6.7)	
	United States*	m	m		20.9	(0.8)		m	m	
	OECD average	24.7	(0.8)		25.2	(0.1)		0.1	(0.8)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.6.1 [4/8] **Career expectations, by socio-economics status and school programme orientation**
Expectations of the job students will have when they are around 30 years old; based on students' reports

		Percentage of students who have no clear idea about their future job								
		By type of programme								
		Vocational			General or modular			General or modular - Vocational		
		%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
Partners	Albania	4.8	(0.5)		6.7	(0.8)		1.9	(1.0)	
	Argentina	21.9	(1.9)		22.4	(0.8)		0.5	(2.1)	
	Baku (Azerbaijan)	m	m		29.7	(1.0)		m	m	
	Belarus	13.2	(1.5)		17.1	(0.6)		**3.9**	(1.6)	
	Bosnia and Herzegovina	16.6	(0.6)		18.2	(1.2)		1.6	(1.3)	
	Brazil	22.3	(1.6)		29.6	(0.8)		**7.4**	(1.7)	
	Brunei Darussalam	36.7	(2.6)		12.3	(0.4)		**-24.4**	(2.6)	
	B-S-J-Z (China)	19.0	(1.6)		17.3	(0.7)		-1.8	(1.8)	
	Bulgaria	37.1	(1.9)		29.8	(1.4)		-7.3	(2.4)	
	Costa Rica	9.3	(1.1)		10.4	(0.6)		1.2	(1.3)	
	Croatia	19.6	(0.8)		21.5	(0.9)		1.9	(1.3)	
	Cyprus	30.7	(1.6)		18.1	(0.6)		**-12.6**	(1.7)	
	Dominican Republic	20.1	(1.4)		44.3	(1.3)		**24.3**	(1.7)	
	Georgia	m	m		31.4	(0.8)		m	m	
	Hong Kong (China)*	m	m		23.4	(0.8)		m	m	
	Indonesia	8.3	(1.9)		8.5	(0.9)		0.3	(2.1)	
	Jordan	m	m		12.5	(0.6)		m	m	
	Kazakhstan	22.8	(1.1)		20.3	(0.5)		**-2.5**	(1.2)	
	Kosovo	17.0	(0.9)		12.1	(0.9)		**-4.9**	(1.3)	
	Lebanon	m	m		37.9	(1.4)		m	m	
	Macao (China)	18.5	(6.2)		10.3	(0.5)		-8.2	(6.1)	
	Malaysia	9.1	(1.7)		11.0	(0.8)		1.8	(1.6)	
	Malta	m	m		16.1	(0.6)		m	m	
	Moldova	10.1	(2.4)		10.4	(0.5)		0.3	(2.5)	
	Montenegro	18.7	(0.5)		17.0	(1.1)		-1.7	(1.2)	
	Morocco	m	m		27.8	(1.2)		m	m	
	North Macedonia	25.2	(0.7)		23.2	(0.8)		-2.0	(1.1)	
	Panama	35.8	(1.6)		37.2	(1.5)		1.4	(2.0)	
	Peru	m	m		25.6	(1.1)		m	m	
	Philippines	m	m		18.7	(0.7)		m	m	
	Qatar	m	m		19.6	(0.3)		m	m	
	Romania	15.3	(2.0)		11.4	(0.7)		-4.0	(2.1)	
	Russia	12.5	(3.2)		20.7	(0.7)		**8.1**	(3.1)	
	Saudi Arabia	m	m		14.7	(0.7)		m	m	
	Serbia	22.9	(1.2)		23.1	(1.8)		0.2	(2.2)	
	Singapore	m	m		19.2	(0.5)		m	m	
	Chinese Taipei	24.9	(1.5)		20.8	(0.6)		**-4.0**	(1.6)	
	Thailand	25.4	(2.1)		14.4	(0.6)		**-11.0**	(2.1)	
	Ukraine	13.6	(1.1)		13.8	(0.6)		0.2	(1.2)	
	United Arab Emirates	22.7	(1.5)		16.5	(0.6)		-6.3	(1.4)	
	Uruguay	23.5	(3.4)		26.2	(1.1)		2.6	(3.6)	
	Viet Nam	m	m		9.4	(0.7)		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.6.1 [5/8] **Career expectations, by socio-economics status and school programme orientation**
Expectations of the job students will have when they are around 30 years old; based on students' reports

		Percentage of students who expect to have a job that is included in the ten most common ones in their country																	
					By students' socio-economic status (ESCS)														
		All students			Bottom quarter			Second quarter			Third quarter			Top quarter			Top - Bottom quarter		
		%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
OECD	Australia	31.6	(0.6)	†	25.6	(1.3)		30.9	(0.9)		32.3	(1.2)		37.7	(0.9)		**12.1**	(1.4)	
	Austria	29.3	(0.9)	†	30.1	(1.6)	†	28.1	(1.6)		27.5	(1.5)	†	31.1	(1.8)	†	1.1	(2.3)	†
	Belgium (French Community)	33.9	(1.2)	‡	28.3	(1.9)	‡	31.8	(2.2)	‡	35.9	(1.7)	‡	41.1	(2.3)	‡	**12.8**	(2.8)	‡
	Canada	39.0	(0.6)	†	33.9	(1.1)	†	37.6	(0.9)	†	39.9	(1.1)		44.2	(1.1)		**10.3**	(1.6)	†
	Chile	42.9	(0.8)		36.7	(1.5)		41.6	(1.4)		42.8	(1.5)		50.4	(1.1)		**13.7**	(1.9)	
	Colombia	45.0	(0.7)		45.5	(1.8)		44.4	(1.6)		44.6	(1.5)		45.1	(1.5)		-0.4	(2.4)	
	Czech Republic	28.9	(0.9)	†	28.9	(1.7)	†	29.8	(1.6)	†	27.9	(1.4)	†	29.2	(1.5)	†	0.3	(2.3)	†
	Denmark	35.7	(1.0)	†	31.3	(1.6)	†	31.9	(1.8)	†	37.5	(1.6)	†	41.7	(1.7)	†	**10.4**	(2.2)	†
	Estonia	34.8	(0.8)		30.2	(1.8)		33.9	(1.7)		37.1	(1.4)		37.9	(1.5)		**7.7**	(2.4)	
	Finland	36.6	(0.9)	†	29.2	(1.5)	†	32.9	(1.5)	†	37.3	(1.6)	†	46.7	(1.7)	†	**17.5**	(2.3)	†
	France	26.9	(0.8)		24.6	(1.4)	†	25.2	(1.4)		27.5	(1.5)		30.5	(1.3)		**5.9**	(1.7)	†
	Germany	32.5	(0.9)	†	32.0	(1.4)	†	32.9	(2.1)	†	32.1	(1.3)	†	32.4	(1.7)	†	0.4	(2.3)	†
	Greece	40.0	(0.8)		35.9	(1.5)		40.1	(1.6)		43.8	(1.4)		40.3	(1.6)		**4.4**	(2.2)	
	Hungary	27.9	(1.0)		30.9	(1.8)		25.8	(1.2)		29.6	(1.9)		25.5	(1.5)		**-5.4**	(2.1)	
	Iceland	39.9	(0.9)	†	36.8	(1.8)	†	38.6	(2.2)	†	40.3	(1.9)		43.5	(1.7)		**6.6**	(2.4)	†
	Ireland	36.6	(0.9)		31.6	(1.7)		35.3	(1.6)		39.6	(1.5)		39.7	(1.6)		**8.1**	(2.2)	
	Israel	46.6	(0.8)	†	51.0	(1.3)	†	42.9	(1.6)	†	45.2	(1.6)	†	47.4	(1.7)	†	-3.7	(2.0)	†
	Italy	34.6	(0.9)	†	27.8	(1.6)		31.7	(1.4)		36.1	(1.6)	†	42.7	(1.7)		**14.9**	(2.4)	
	Japan	44.2	(1.0)		39.4	(2.0)	†	45.5	(1.6)		46.2	(1.5)		45.3	(1.9)		**5.9**	(2.8)	†
	Korea	37.8	(0.7)		36.4	(1.8)		37.9	(1.3)		40.7	(1.5)		36.0	(1.4)		-0.4	(2.3)	
	Latvia	34.8	(0.8)		26.8	(1.6)		34.2	(1.6)		36.9	(1.7)		41.5	(2.0)		**14.7**	(2.9)	
	Lithuania	40.5	(0.8)	†	34.9	(1.5)	†	40.1	(1.3)	†	43.2	(1.7)		43.9	(1.2)		**9.0**	(2.1)	†
	Luxembourg	44.1	(0.8)		42.6	(1.6)		45.0	(1.6)		45.3	(1.4)		43.6	(1.4)		1.0	(2.2)	
	Mexico	40.4	(0.7)	†	42.1	(2.0)	†	40.7	(1.4)		39.3	(1.5)		40.1	(1.2)		-2.1	(2.3)	†
	Netherlands*	25.8	(0.8)	†	19.8	(1.7)	†	25.9	(1.8)	†	27.6	(1.8)	†	29.7	(2.1)	†	9.9	(2.7)	†
	New Zealand	31.6	(0.7)		32.8	(1.3)		31.9	(1.6)		29.4	(1.5)		32.7	(1.4)		-0.1	(2.0)	
	Norway	40.0	(0.9)	†	37.1	(1.7)		39.8	(1.5)		42.4	(1.5)		40.9	(1.5)		3.8	(2.4)	
	Poland	34.5	(0.9)		24.2	(1.4)		32.3	(1.5)		36.6	(1.4)		44.8	(1.4)		**20.6**	(1.7)	
	Portugal*	37.9	(1.1)		32.9	(1.9)		36.5	(1.7)		39.0	(1.5)		43.4	(2.3)		**10.5**	(2.9)	
	Slovak Republic	30.9	(0.9)	†	31.8	(1.9)	†	28.5	(1.4)	†	29.7	(1.7)	†	33.8	(1.6)	†	2.0	(2.4)	†
	Slovenia	28.0	(0.7)		27.2	(1.2)		29.0	(1.3)		29.2	(1.9)		26.8	(1.8)	†	-0.4	(2.2)	†
	Spain	35.2	(0.4)		35.2	(0.9)		37.5	(0.9)		33.7	(0.8)		34.2	(0.8)		-0.9	(1.2)	
	Sweden	33.5	(0.9)	†	29.4	(1.5)		34.5	(1.4)		32.8	(1.6)		36.9	(1.4)		**7.5**	(1.9)	
	Switzerland	29.6	(0.8)		29.3	(1.7)	†	24.7	(1.6)		29.1	(1.7)		35.1	(1.9)		**5.9**	(2.8)	†
	Turkey	54.2	(0.8)		56.2	(1.4)		53.0	(1.4)		51.7	(1.2)		56.1	(1.5)		-0.1	(2.0)	
	United Kingdom	33.5	(0.8)		34.3	(1.6)		29.9	(1.3)		31.7	(1.5)		38.7	(1.5)		**4.4**	(2.2)	
	United States*	38.0	(1.0)		39.0	(1.6)		37.4	(1.5)		34.8	(1.7)		40.8	(2.3)		1.8	(2.9)	
	OECD average	36.1	(0.1)		33.6	(0.3)		35.1	(0.3)		36.7	(0.3)		39.2	(0.3)		**5.7**	(0.4)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.6.1 [6/8] **Career expectations, by socio-economics status and school programme orientation**
Expectations of the job students will have when they are around 30 years old; based on students' reports

		Percentage of students who expect to have a job that is included in the ten most common ones in their country																	
					By students' socio-economic status (ESCS)														
		All students			Bottom quarter			Second quarter			Third quarter			Top quarter			Top - Bottom quarter		
		%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
Partners	**Albania**	52.0	(0.8)		54.0	(1.4)		54.2	(1.5)		50.6	(1.4)		49.1	(1.2)		**-4.9**	(1.9)	
	Argentina	48.9	(0.8)		49.4	(1.4)	†	49.7	(1.5)		50.2	(1.5)		46.5	(1.3)		-2.9	(1.9)	†
	Baku (Azerbaijan)	59.9	(0.9)	†	55.7	(1.8)	†	59.5	(1.5)	†	62.1	(1.3)	†	62.1	(1.7)		**6.3**	(2.6)	†
	Belarus	35.7	(0.7)		29.4	(1.4)		31.4	(1.4)		39.1	(1.5)		42.9	(1.5)		**13.5**	(2.0)	
	Bosnia and Herzegovina	37.7	(1.1)		36.8	(1.6)		37.1	(1.8)		40.3	(1.5)		36.8	(1.8)		0.0	(2.3)	
	Brazil	52.1	(0.7)	†	57.1	(1.2)	†	51.8	(1.3)	†	48.7	(1.3)	†	51.3	(1.2)		**-5.8**	(1.7)	†
	Brunei Darussalam	69.3	(0.6)		76.6	(1.0)		72.2	(1.1)		68.5	(1.1)		60.3	(1.3)		**-16.4**	(1.7)	
	B-S-J-Z (China)	46.0	(0.7)		44.4	(1.8)		47.5	(1.5)		47.4	(1.3)		44.6	(1.2)		0.2	(2.2)	
	Bulgaria	40.6	(1.0)	†	31.7	(2.1)	†	39.6	(1.8)	†	45.4	(1.8)	†	45.8	(1.6)	†	**14.1**	(2.4)	†
	Costa Rica	48.3	(0.7)		45.3	(1.6)		49.6	(1.4)		49.7	(1.2)		48.4	(1.3)		3.1	(2.2)	
	Croatia	30.4	(0.8)		26.2	(1.4)		28.4	(1.3)		32.2	(1.5)		35.2	(1.4)		**8.9**	(1.9)	
	Cyprus	40.4	(0.9)		37.1	(1.5)		40.6	(1.7)		42.9	(1.5)		41.1	(1.7)		4.0	(2.4)	
	Dominican Republic	63.1	(1.0)	†	67.7	(1.8)	‡	66.2	(1.7)	†	60.6	(1.7)	†	59.2	(1.8)	†	**-8.5**	(2.6)	‡
	Georgia	47.6	(1.0)	†	44.7	(2.2)	†	47.3	(2.0)	†	48.5	(1.8)	†	49.6	(1.6)	†	4.8	(2.8)	†
	Hong Kong (China)*	38.3	(0.7)		36.2	(1.5)		36.6	(1.5)		40.5	(1.5)		40.1	(1.6)		4.0	(2.2)	
	Indonesia	64.0	(1.1)		67.1	(1.6)		67.0	(1.6)		63.4	(1.9)		58.5	(1.9)		**-8.6**	(2.5)	
	Jordan	60.3	(0.9)		58.2	(1.6)		60.5	(1.6)		58.5	(1.4)		63.7	(1.1)		**5.5**	(2.0)	
	Kazakhstan	41.5	(0.6)		41.5	(1.1)		40.6	(1.0)		43.5	(1.0)		40.4	(1.0)		-1.1	(1.4)	
	Kosovo	55.0	(0.9)		53.0	(1.9)		52.4	(1.9)		58.3	(1.7)		56.4	(1.9)		3.4	(2.8)	
	Lebanon	58.0	(1.1)	†	59.0	(2.1)	†	58.2	(1.9)	†	57.5	(1.8)	†	57.6	(1.7)	†	-1.4	(2.8)	†
	Macao (China)	41.5	(0.9)		41.3	(1.8)		41.9	(1.9)		43.7	(1.5)		39.1	(1.5)		-2.2	(2.4)	
	Malaysia	42.5	(0.7)		42.2	(1.6)		45.1	(1.3)		41.6	(1.4)		40.9	(1.5)		-1.3	(2.3)	
	Malta	40.0	(1.0)		33.2	(1.9)		42.1	(1.8)		39.1	(1.9)		45.6	(1.8)		**12.3**	(2.6)	
	Moldova	44.5	(0.7)		41.5	(1.5)		44.4	(1.6)		43.7	(1.5)		48.4	(1.3)		**7.0**	(2.0)	
	Montenegro	41.3	(0.7)		42.3	(1.4)		41.0	(1.5)		39.4	(1.3)		42.4	(1.3)		0.1	(2.0)	
	Morocco	62.2	(0.9)	†	68.3	(1.4)	†	64.0	(1.4)	†	60.0	(1.5)		57.5	(1.7)		**-10.9**	(2.1)	†
	North Macedonia	45.2	(0.7)		43.1	(1.9)	†	45.0	(1.7)	†	44.0	(1.7)		48.8	(1.6)		**5.7**	(2.7)	†
	Panama	53.5	(1.0)	†	57.9	(2.2)	‡	51.7	(1.9)	†	52.5	(1.9)	†	53.3	(1.9)		-4.5	(3.1)	‡
	Peru	50.8	(1.0)	†	51.2	(1.8)	†	49.9	(1.5)	†	51.7	(1.8)		50.4	(1.4)		-0.8	(2.2)	†
	Philippines	64.1	(0.9)		74.0	(1.3)		67.2	(1.2)		64.6	(1.6)		52.0	(1.6)		**-22.0**	(2.0)	
	Qatar	61.7	(0.4)		64.3	(1.1)		61.0	(0.8)		61.0	(0.8)		60.6	(0.9)		**-3.7**	(1.4)	
	Romania	39.4	(0.9)		38.7	(1.5)		40.4	(1.8)		40.5	(1.6)		37.9	(1.6)		-0.8	(2.2)	
	Russia	41.1	(0.6)		38.7	(1.5)		41.0	(1.1)		42.4	(1.2)		42.5	(1.3)		3.7	(2.1)	
	Saudi Arabia	68.3	(0.7)		71.6	(1.4)		66.6	(1.2)		66.2	(1.6)		68.5	(1.3)		-3.1	(1.7)	
	Serbia	37.9	(1.1)		28.1	(1.6)		32.0	(1.7)		43.8	(1.9)		47.5	(1.6)		**19.5**	(2.3)	
	Singapore	41.9	(0.6)		39.8	(1.3)		41.6	(1.5)		42.3	(1.4)		44.0	(1.2)		**4.2**	(1.8)	
	Chinese Taipei	28.8	(0.9)		31.8	(1.8)	†	28.8	(1.4)		27.4	(1.2)		27.3	(1.6)		**-4.5**	(2.2)	†
	Thailand	52.8	(1.0)		55.8	(1.7)		55.9	(1.4)		54.4	(1.4)		45.9	(1.5)		**-9.9**	(2.0)	
	Ukraine	44.4	(1.0)		40.0	(1.7)		43.7	(1.3)		44.0	(1.5)		49.5	(1.6)		**9.5**	(2.0)	
	United Arab Emirates	62.0	(0.5)		64.7	(1.0)		60.8	(0.9)		60.5	(0.9)		62.3	(1.1)		-2.4	(1.5)	
	Uruguay	46.9	(1.0)	†	43.4	(1.8)	†	43.6	(1.6)		50.5	(1.6)		50.0	(1.7)		**6.6**	(2.5)	†
	Viet Nam	53.2	(1.0)		52.5	(1.7)		52.2	(1.6)		54.7	(1.7)		53.3	(1.6)		0.8	(2.4)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.6.1 [7/8] **Career expectations, by socio-economics status and school programme orientation**
Expectations of the job students will have when they are around 30 years old; based on students' reports

		Percentage of students who expect to have a job that is included in the ten most common ones in their country								
		By type of programme								
		Vocational			General or modular			General or modular - Vocational		
		%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
OECD	Australia	27.7	(1.7)	†	32.1	(0.6)	†	**4.3**	(1.8)	†
	Austria	m	m		m	m		m	m	
	Belgium (French Community)	15.2	(1.8)	‡	41.4	(1.4)	‡	**26.2**	(2.4)	‡
	Canada	m	m		39.0	(0.6)	†	m	m	
	Chile	28.2	(4.5)		43.2	(0.9)		**15.0**	(4.8)	
	Colombia	44.4	(1.8)		45.1	(0.9)		0.7	(2.1)	
	Czech Republic	24.0	(2.1)	†	31.3	(1.0)	†	**7.3**	(2.4)	†
	Denmark	c	c		35.6	(0.9)	†	c	c	
	Estonia	c	c		34.8	(0.7)		c	c	
	Finland	m	m		36.6	(0.9)	†	m	m	
	France	17.6	(2.0)		29.2	(0.8)		**11.6**	(2.1)	
	Germany	34.7	(3.7)	†	32.5	(0.9)	†	-2.3	(3.9)	†
	Greece	23.5	(1.9)		42.4	(0.8)		**19.0**	(2.2)	
	Hungary	37.4	(3.2)		26.0	(1.0)		**-11.4**	(3.4)	
	Iceland	m	m		39.9	(0.9)	†	m	m	
	Ireland	6.2	(3.4)		36.8	(0.9)		**30.5**	(3.5)	
	Israel	m	m		46.6	(0.8)	†	m	m	
	Italy	26.5	(1.1)	†	42.3	(1.5)		**15.8**	(1.9)	†
	Japan	37.7	(2.8)	†	46.1	(1.0)		**8.4**	(2.9)	†
	Korea	35.1	(3.0)		38.3	(0.7)		3.1	(3.1)	
	Latvia	37.1	(7.9)	†	34.7	(0.8)		-2.4	(7.8)	†
	Lithuania	35.8	(5.5)	†	40.6	(0.8)	†	4.8	(5.7)	†
	Luxembourg	45.9	(2.0)		43.8	(0.8)		-2.1	(2.0)	
	Mexico	37.0	(1.5)		41.9	(0.8)	†	4.9	(1.7)	†
	Netherlands*	14.8	(2.1)	‡	27.9	(0.9)	†	**13.1**	(2.2)	‡
	New Zealand	m	m		31.6	(0.7)		m	m	
	Norway	m	m		40.0	(0.9)	†	m	m	
	Poland	c	c		34.5	(0.9)		c	c	
	Portugal*	19.3	(2.1)		42.1	(1.1)		**22.7**	(2.3)	
	Slovak Republic	44.5	(7.9)	†	30.2	(0.9)	†	-14.3	(8.0)	†
	Slovenia	27.9	(0.6)		28.3	(1.3)	†	0.5	(1.5)	†
	Spain	40.6	(5.3)	†	35.1	(0.4)		-5.5	(5.3)	†
	Sweden	m	m		33.5	(0.9)	†	m	m	
	Switzerland	25.0	(2.9)		30.3	(0.8)	†	5.3	(3.1)	†
	Turkey	44.4	(1.7)		59.1	(0.9)		**14.7**	(1.9)	
	United Kingdom	24.5	(8.3)	†	33.5	(0.8)		9.0	(8.3)	†
	United States*	m	m		38.0	(1.0)		m	m	
	OECD average	30.2	(0.8)		37.3	(0.2)		**7.2**	(0.8)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.6.1 [8/8] **Career expectations, by socio-economics status and school programme orientation**
Expectations of the job students will have when they are around 30 years old; based on students' reports;

		Percentage of students who have no clear idea about their future job								
		By type of programme								
		Vocational			General or modular			General or modular - Vocational		
		%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
Partners	Albania	51.8	(0.9)		52.3	(1.5)		0.5	(1.8)	
	Argentina	43.5	(2.0)		49.9	(0.8)		**6.3**	(2.2)	
	Baku (Azerbaijan)	m	m		59.9	(0.9)	†	m	m	
	Belarus	28.5	(2.5)		36.9	(0.8)		**8.4**	(2.6)	
	Bosnia and Herzegovina	38.2	(1.3)		36.6	(1.5)		-1.6	(1.9)	
	Brazil	48.5	(2.8)		52.5	(0.7)	†	4.0	(3.0)	†
	Brunei Darussalam	80.6	(2.7)	†	68.8	(0.6)		**-11.9**	(2.7)	†
	B-S-J-Z (China)	37.5	(2.2)		47.8	(0.7)		**10.3**	(2.2)	
	Bulgaria	34.2	(1.6)	†	46.1	(1.3)	†	**11.9**	(2.1)	†
	Costa Rica	45.4	(2.0)		48.7	(0.8)		3.4	(2.2)	
	Croatia	25.6	(1.0)		40.6	(1.3)		**15.0**	(1.6)	
	Cyprus	13.5	(1.4)	†	43.6	(1.0)		**30.1**	(1.8)	†
	Dominican Republic	57.7	(3.1)		64.2	(0.9)	†	**6.5**	(3.2)	†
	Georgia	m	m		47.6	(1.0)	†	m	m	
	Hong Kong (China)*	m	m		38.3	(0.7)		m	m	
	Indonesia	58.6	(3.6)		65.3	(1.0)		6.7	(3.8)	
	Jordan	m	m		60.3	(0.9)		m	m	
	Kazakhstan	30.8	(2.4)		44.0	(0.6)		**13.2**	(2.6)	
	Kosovo	46.0	(1.3)		60.7	(1.1)		**14.8**	(1.7)	
	Lebanon	m	m		58.0	(1.1)	†	m	m	
	Macao (China)	19.3	(4.4)		41.7	(0.9)		**22.4**	(4.5)	
	Malaysia	33.4	(2.8)		43.5	(0.8)		**10.1**	(2.9)	
	Malta	m	m		40.0	(1.0)		m	m	
	Moldova	32.9	(4.8)		45.0	(0.7)		**12.0**	(4.9)	
	Montenegro	40.4	(0.6)		42.9	(1.4)		2.5	(1.6)	
	Morocco	m	m		62.2	(0.9)	†	m	m	
	North Macedonia	40.5	(1.1)	†	51.7	(1.0)		**11.2**	(1.6)	†
	Panama	45.5	(1.7)	†	56.5	(1.1)	†	**11.0**	(1.9)	†
	Peru	m	m		50.8	(1.0)	†	m	m	
	Philippines	m	m		64.1	(0.9)		m	m	
	Qatar	m	m		61.7	(0.4)		m	m	
	Romania	43.9	(2.8)		38.8	(1.0)		-5.1	(3.0)	
	Russia	29.4	(5.2)		41.6	(0.7)		**12.1**	(5.4)	
	Saudi Arabia	m	m		68.3	(0.7)		m	m	
	Serbia	33.2	(1.3)		49.8	(2.0)		**16.6**	(2.4)	
	Singapore	m	m		41.9	(0.6)		m	m	
	Chinese Taipei	26.8	(1.9)		29.7	(1.0)		2.9	(2.1)	
	Thailand	40.1	(2.1)	†	56.1	(1.0)		**15.9**	(2.3)	†
	Ukraine	38.2	(2.3)		46.9	(0.9)		**8.7**	(2.4)	
	United Arab Emirates	72.0	(2.5)		61.7	(0.5)		**-10.4**	(2.4)	
	Uruguay	32.0	(4.3)		48.4	(0.9)	†	**16.3**	(4.5)	†
	Viet Nam	m	m		53.2	(1.0)		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.6.5 [1/4] **Factors that influence students' career and education expectations, by socio-economic status**
Based on students' reports

		Percentage of students who considered that the following was important or very important in their decision about their future occupation:																	
		Their school grades																	
					By students' socio-economic status (ESCS)														
		All students			Bottom quarter			Second quarter			Third quarter			Top quarter			Top - Bottom quarter		
		%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
OECD	Australia	85.7	(0.4)		81.8	(0.9)		84.7	(0.8)		87.6	(0.7)		88.6	(0.6)		**6.8**	(1.1)	
	Austria	80.7	(0.7)		83.6	(1.1)		82.3	(1.3)		82.4	(1.2)		75.2	(1.3)		**-8.4**	(1.7)	
	Belgium	83.1	(0.5)		83.4	(1.1)	†	83.6	(1.0)		82.3	(1.0)		83.4	(1.0)		0.0	(1.5)	†
	Canada	m	m		m	m		m	m		m	m		m	m		m	m	
	Chile	m	m		m	m		m	m		m	m		m	m		m	m	
	Colombia	m	m		m	m		m	m		m	m		m	m		m	m	
	Czech Republic	m	m		m	m		m	m		m	m		m	m		m	m	
	Denmark	81.0	(0.7)		79.8	(1.3)		80.7	(1.2)		82.6	(1.1)		80.8	(1.2)		0.9	(1.7)	
	Estonia	m	m		m	m		m	m		m	m		m	m		m	m	
	Finland	m	m		m	m		m	m		m	m		m	m		m	m	
	France	m	m		m	m		m	m		m	m		m	m		m	m	
	Germany	m	m		m	m		m	m		m	m		m	m		m	m	
	Greece	65.0	(0.7)		65.1	(1.3)		65.4	(1.1)		65.3	(1.1)		64.3	(1.5)		-0.8	(1.9)	
	Hungary	78.1	(0.7)		73.2	(1.7)		79.7	(1.4)		81.5	(1.1)		78.1	(1.2)		**4.9**	(1.9)	
	Iceland	81.0	(0.6)		75.8	(1.6)		79.9	(1.6)		82.2	(1.3)		85.5	(1.4)		**9.7**	(2.2)	
	Ireland	84.8	(0.5)		79.6	(1.1)		85.5	(0.9)		85.1	(1.0)		89.0	(0.9)		**9.4**	(1.5)	
	Israel	m	m		m	m		m	m		m	m		m	m		m	m	
	Italy	64.3	(0.8)		62.4	(1.1)		66.3	(1.4)		63.8	(1.4)		64.4	(1.4)		2.0	(1.7)	
	Japan	m	m		m	m		m	m		m	m		m	m		m	m	
	Korea	86.5	(0.5)		82.5	(1.0)		86.2	(0.8)		87.2	(0.9)		90.1	(0.8)		**7.7**	(1.0)	
	Latvia	m	m		m	m		m	m		m	m		m	m		m	m	
	Lithuania	61.3	(0.7)		59.1	(1.4)		62.6	(1.3)		62.1	(1.3)		62.0	(1.3)		2.9	(2.0)	
	Luxembourg	m	m		m	m		m	m		m	m		m	m		m	m	
	Mexico	m	m		m	m		m	m		m	m		m	m		m	m	
	Netherlands*	m	m		m	m		m	m		m	m		m	m		m	m	
	New Zealand	84.7	(0.5)		81.2	(1.2)		82.9	(1.1)		86.3	(0.8)		88.2	(0.7)		**6.9**	(1.4)	
	Norway	m	m		m	m		m	m		m	m		m	m		m	m	
	Poland	63.1	(0.7)		59.4	(1.4)		62.9	(1.4)		63.7	(1.2)		65.8	(1.5)		**6.4**	(2.0)	
	Portugal*	m	m		m	m		m	m		m	m		m	m		m	m	
	Slovak Republic	63.8	(0.7)		58.9	(1.6)	†	64.0	(1.6)		66.2	(1.3)		65.3	(1.5)		**6.4**	(2.2)	†
	Slovenia	73.5	(0.7)		69.8	(1.5)		74.6	(1.2)		72.8	(1.6)		76.5	(1.5)		**6.7**	(2.0)	
	Spain	84.6	(0.3)		81.4	(0.7)		84.0	(0.6)		85.4	(0.5)		87.4	(0.6)		**6.0**	(1.0)	
	Sweden	m	m		m	m		m	m		m	m		m	m		m	m	
	Switzerland	m	m		m	m		m	m		m	m		m	m		m	m	
	Turkey	m	m		m	m		m	m		m	m		m	m		m	m	
	United Kingdom	90.1	(0.5)	†	89.7	(1.1)	†	90.1	(1.1)	†	89.4	(0.9)	†	91.1	(0.9)		1.3	(1.3)	†
	United States*	m	m		m	m		m	m		m	m		m	m		m	m	
	OECD average	77.1	(0.2)		74.5	(0.3)		77.4	(0.3)		78.0	(0.3)		78.6	(0.3)		**4.0**	(0.4)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

Only countries and economies that distributed the educational career questionnaire are shown.

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Table II.B1.6.5 [2/4] **Factors that influence students' career and education expectations, by socio-economic status**
Based on students' reports

	Percentage of students who considered that the following was important or very important in their decision about their future occupation:																	
	Their school grades																	
				By students' socio-economic status (ESCS)														
	All students			Bottom quarter			Second quarter			Third quarter			Top quarter			Top - Bottom quarter		
	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
Partners																		
Albania	86.6	(0.6)		84.1	(0.9)		86.4	(1.0)		86.5	(1.1)		89.4	(1.0)		**5.2**	(1.4)	
Argentina	m	m		m	m		m	m		m	m		m	m		m	m	
Baku (Azerbaijan)	m	m		m	m		m	m		m	m		m	m		m	m	
Belarus	m	m		m	m		m	m		m	m		m	m		m	m	
Bosnia and Herzegovina	m	m		m	m		m	m		m	m		m	m		m	m	
Brazil	80.9	(0.6)	†	77.6	(1.2)	†	81.4	(1.1)	†	81.1	(1.1)	†	83.2	(1.1)		**5.6**	(1.7)	†
Brunei Darussalam	91.2	(0.4)		87.1	(0.9)		92.3	(0.7)		90.7	(0.7)		94.6	(0.6)		**7.5**	(1.0)	
B-S-J-Z (China)	m	m		m	m		m	m		m	m		m	m		m	m	
Bulgaria	63.0	(1.0)	†	56.0	(2.4)	†	63.2	(1.6)	†	63.0	(1.4)	†	68.8	(1.6)		**12.8**	(2.8)	†
Costa Rica	92.6	(0.4)		92.1	(1.0)		92.2	(0.7)		92.7	(0.7)		93.3	(0.6)		1.3	(1.2)	
Croatia	72.8	(0.6)		70.3	(1.1)		73.6	(1.4)		72.3	(1.3)		75.0	(0.9)		**4.7**	(1.4)	
Cyprus	m	m		m	m		m	m		m	m		m	m		m	m	
Dominican Republic	m	m		m	m		m	m		m	m		m	m		m	m	
Georgia	m	m		m	m		m	m		m	m		m	m		m	m	
Hong Kong (China)*	81.7	(0.5)		78.4	(1.4)		82.3	(1.1)		81.3	(1.2)		85.3	(0.9)		**6.9**	(1.7)	
Indonesia	m	m		m	m		m	m		m	m		m	m		m	m	
Jordan	m	m		m	m		m	m		m	m		m	m		m	m	
Kazakhstan	73.5	(0.5)		74.9	(0.8)		74.6	(1.0)		73.0	(0.9)		71.7	(1.0)		**-3.3**	(1.2)	
Kosovo	m	m		m	m		m	m		m	m		m	m		m	m	
Lebanon	m	m		m	m		m	m		m	m		m	m		m	m	
Macao (China)	m	m		m	m		m	m		m	m		m	m		m	m	
Malaysia	m	m		m	m		m	m		m	m		m	m		m	m	
Malta	84.8	(0.7)		83.4	(1.6)		86.2	(1.3)		83.6	(1.5)		86.4	(1.2)		3.0	(1.9)	
Moldova	m	m		m	m		m	m		m	m		m	m		m	m	
Montenegro	m	m		m	m		m	m		m	m		m	m		m	m	
Morocco	81.4	(0.7)		80.3	(1.1)		81.7	(1.2)		79.8	(1.0)		84.0	(1.2)		**3.8**	(1.5)	
North Macedonia	m	m		m	m		m	m		m	m		m	m		m	m	
Panama	89.0	(0.6)		90.7	(1.1)	†	89.8	(1.1)	†	89.3	(1.1)		86.7	(1.0)		**-4.0**	(1.4)	†
Peru	m	m		m	m		m	m		m	m		m	m		m	m	
Philippines	m	m		m	m		m	m		m	m		m	m		m	m	
Qatar	m	m		m	m		m	m		m	m		m	m		m	m	
Romania	m	m		m	m		m	m		m	m		m	m		m	m	
Russia	m	m		m	m		m	m		m	m		m	m		m	m	
Saudi Arabia	m	m		m	m		m	m		m	m		m	m		m	m	
Serbia	70.1	(0.7)	†	66.2	(1.7)	†	72.9	(1.3)	†	69.6	(1.3)	†	71.5	(1.3)		**5.3**	(2.1)	†
Singapore	m	m		m	m		m	m		m	m		m	m		m	m	
Chinese Taipei	74.5	(0.7)		68.8	(1.2)		74.0	(1.2)		77.0	(1.1)		78.4	(1.6)		**9.6**	(2.0)	
Thailand	87.7	(0.6)		86.9	(0.9)		88.1	(1.1)		88.1	(1.0)		87.9	(0.9)		1.0	(1.3)	
Ukraine	m	m		m	m		m	m		m	m		m	m		m	m	
United Arab Emirates	m	m		m	m		m	m		m	m		m	m		m	m	
Uruguay	m	m		m	m		m	m		m	m		m	m		m	m	
Viet Nam	m	m		m	m		m	m		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

Only countries and economies that distributed the educational career questionnaire are shown.

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Table II.B1.6.5 [3/4] **Factors that influence students' career and education expectations, by socio-economic status**
Based on students' reports

	Percentage of students who considered that the following was important or very important in their decision about their future occupation:																	
	The school subjects they are good at																	
	All students			By students' socio-economic status (ESCS)														
				Bottom quarter			Second quarter			Third quarter			Top quarter			Top - Bottom quarter		
	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
OECD Australia	87.5	(0.4)		82.6	(0.8)		87.4	(0.7)		89.6	(0.6)		90.4	(0.5)		**7.8**	(1.0)	
Austria	79.6	(0.7)		80.2	(1.5)		79.6	(1.2)		81.8	(1.2)		77.4	(1.2)		-2.8	(1.9)	
Belgium	83.9	(0.5)		80.7	(1.3)	†	82.6	(0.9)		84.0	(0.9)		88.2	(0.8)		**7.4**	(1.4)	†
Canada	m	m		m	m		m	m		m	m		m	m		m	m	
Chile	m	m		m	m		m	m		m	m		m	m		m	m	
Colombia	m	m		m	m		m	m		m	m		m	m		m	m	
Czech Republic	m	m		m	m		m	m		m	m		m	m		m	m	
Denmark	82.5	(0.6)		78.2	(1.3)		81.5	(1.2)		84.9	(1.0)		84.9	(1.1)		**6.7**	(1.9)	
Estonia	m	m		m	m		m	m		m	m		m	m		m	m	
Finland	m	m		m	m		m	m		m	m		m	m		m	m	
France	m	m		m	m		m	m		m	m		m	m		m	m	
Germany	m	m		m	m		m	m		m	m		m	m		m	m	
Greece	74.3	(0.7)		71.1	(1.4)		73.0	(1.3)		75.6	(1.2)		77.3	(1.2)		**6.3**	(1.7)	
Hungary	80.6	(0.7)		72.4	(1.4)		80.4	(1.3)		83.4	(1.3)		85.8	(1.0)		**13.4**	(1.6)	
Iceland	83.2	(0.7)		78.0	(1.8)		81.2	(1.4)		85.5	(1.3)		87.5	(1.3)		**9.5**	(2.1)	
Ireland	86.8	(0.5)		81.2	(1.0)		87.3	(0.9)		87.8	(1.0)		90.8	(0.9)		**9.5**	(1.4)	
Israel	m	m		m	m		m	m		m	m		m	m		m	m	
Italy	68.2	(0.8)		64.8	(1.4)		67.9	(1.4)		69.6	(1.3)		70.4	(1.3)		**5.5**	(1.9)	
Japan	m	m		m	m		m	m		m	m		m	m		m	m	
Korea	85.5	(0.5)		80.9	(1.0)		84.8	(0.9)		86.9	(0.9)		89.3	(0.7)		**8.4**	(1.0)	
Latvia	m	m		m	m		m	m		m	m		m	m		m	m	
Lithuania	67.7	(0.7)		62.1	(1.3)		68.3	(1.1)		69.6	(1.3)		71.3	(1.3)		**9.2**	(1.9)	
Luxembourg	m	m		m	m		m	m		m	m		m	m		m	m	
Mexico	m	m		m	m		m	m		m	m		m	m		m	m	
Netherlands*	m	m		m	m		m	m		m	m		m	m		m	m	
New Zealand	86.4	(0.5)		82.6	(1.1)		84.4	(1.0)		87.5	(0.8)		91.3	(0.6)		**8.8**	(1.1)	
Norway	m	m		m	m		m	m		m	m		m	m		m	m	
Poland	69.4	(0.7)		62.6	(1.4)		67.8	(1.4)		70.2	(1.3)		76.4	(1.3)		**13.8**	(1.7)	
Portugal*	m	m		m	m		m	m		m	m		m	m		m	m	
Slovak Republic	66.8	(0.7)		58.1	(1.8)	†	66.2	(1.4)		69.5	(1.3)		71.7	(1.2)		**13.6**	(2.2)	†
Slovenia	73.3	(0.8)		66.8	(1.4)		70.6	(1.3)		75.8	(1.5)		79.8	(1.4)		**12.9**	(1.9)	
Spain	85.6	(0.3)		81.7	(0.7)		84.9	(0.7)		86.9	(0.5)		88.7	(0.6)		**6.9**	(0.9)	
Sweden	m	m		m	m		m	m		m	m		m	m		m	m	
Switzerland	m	m		m	m		m	m		m	m		m	m		m	m	
Turkey	m	m		m	m		m	m		m	m		m	m		m	m	
United Kingdom	87.4	(0.6)	†	84.0	(1.4)	†	86.3	(1.2)	†	87.6	(1.0)	†	91.6	(1.0)		**7.6**	(1.7)	†
United States*	m	m		m	m		m	m		m	m		m	m		m	m	
OECD average	79.3	(0.2)		74.6	(0.3)		78.5	(0.3)		81.0	(0.3)		83.1	(0.3)		**8.5**	(0.4)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

Only countries and economies that distributed the educational career questionnaire are shown.

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Table II.B1.6.5 [4/4] **Factors that influence students' career and education expectations, by socio-economic status**
Based on students' reports

	Percentage of students who considered that the following was important or very important in their decision about their future occupation:																	
	The school subjects they are good at																	
				By students' socio-economic status (ESCS)														
	All students			Bottom quarter			Second quarter			Third quarter			Top quarter			Top - Bottom quarter		
	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
Partners																		
Albania	86.6	(0.6)		83.9	(1.0)		86.4	(1.1)		86.3	(1.1)		90.1	(0.9)		**6.2**	(1.2)	
Argentina	m	m		m	m		m	m		m	m		m	m		m	m	
Baku (Azerbaijan)	m	m		m	m		m	m		m	m		m	m		m	m	
Belarus	m	m		m	m		m	m		m	m		m	m		m	m	
Bosnia and Herzegovina	m	m		m	m		m	m		m	m		m	m		m	m	
Brazil	81.6	(0.5)	†	77.0	(1.3)	†	82.9	(1.0)	†	81.2	(1.1)	†	84.7	(0.8)		**7.7**	(1.5)	†
Brunei Darussalam	89.4	(0.4)		86.0	(0.8)		89.6	(0.9)		89.1	(0.8)		93.0	(0.6)		**7.0**	(1.0)	
B-S-J-Z (China)	m	m		m	m		m	m		m	m		m	m		m	m	
Bulgaria	65.8	(1.1)	†	57.6	(2.4)	†	64.5	(2.0)	†	67.1	(1.8)	†	73.0	(1.4)	†	**15.4**	(2.7)	†
Costa Rica	90.1	(0.5)		89.1	(0.9)		88.3	(0.9)		90.8	(0.8)		92.1	(0.8)		**3.0**	(1.2)	
Croatia	73.4	(0.7)		69.2	(1.2)		73.1	(1.4)		73.4	(1.3)		77.6	(1.0)		**8.4**	(1.6)	
Cyprus	m	m		m	m		m	m		m	m		m	m		m	m	
Dominican Republic	m	m		m	m		m	m		m	m		m	m		m	m	
Georgia	m	m		m	m		m	m		m	m		m	m		m	m	
Hong Kong (China)*	84.4	(0.5)		80.1	(1.1)		83.9	(1.1)		86.7	(1.0)		87.5	(0.8)		**7.3**	(1.4)	
Indonesia	m	m		m	m		m	m		m	m		m	m		m	m	
Jordan	m	m		m	m		m	m		m	m		m	m		m	m	
Kazakhstan	82.7	(0.4)		80.1	(0.7)		83.0	(0.7)		83.6	(0.6)		84.3	(0.8)		**4.2**	(1.0)	
Kosovo	m	m		m	m		m	m		m	m		m	m		m	m	
Lebanon	m	m		m	m		m	m		m	m		m	m		m	m	
Macao (China)	m	m		m	m		m	m		m	m		m	m		m	m	
Malaysia	m	m		m	m		m	m		m	m		m	m		m	m	
Malta	87.2	(0.6)		85.7	(1.3)		88.8	(1.3)		86.4	(1.4)		88.0	(1.2)		2.2	(1.9)	
Moldova	m	m		m	m		m	m		m	m		m	m		m	m	
Montenegro	m	m		m	m		m	m		m	m		m	m		m	m	
Morocco	80.8	(0.7)		79.1	(1.0)		80.1	(1.5)		79.4	(0.9)		84.4	(1.2)		**5.3**	(1.5)	
North Macedonia	m	m		m	m		m	m		m	m		m	m		m	m	
Panama	88.4	(0.6)	†	88.9	(1.4)	†	87.2	(1.2)	†	88.6	(1.0)		88.9	(1.0)		0.1	(1.5)	†
Peru	m	m		m	m		m	m		m	m		m	m		m	m	
Philippines	m	m		m	m		m	m		m	m		m	m		m	m	
Qatar	m	m		m	m		m	m		m	m		m	m		m	m	
Romania	m	m		m	m		m	m		m	m		m	m		m	m	
Russia	m	m		m	m		m	m		m	m		m	m		m	m	
Saudi Arabia	m	m		m	m		m	m		m	m		m	m		m	m	
Serbia	72.5	(0.7)	†	68.6	(1.5)	†	73.8	(1.4)	†	71.7	(1.1)	†	75.4	(1.2)		**6.7**	(1.8)	†
Singapore	m	m		m	m		m	m		m	m		m	m		m	m	
Chinese Taipei	81.4	(0.6)		75.9	(1.1)		80.3	(1.2)		84.1	(0.9)		85.5	(1.2)		**9.6**	(1.6)	
Thailand	86.6	(0.6)		85.1	(1.0)		86.1	(1.1)		86.6	(1.0)		88.7	(1.0)		**3.6**	(1.4)	
Ukraine	m	m		m	m		m	m		m	m		m	m		m	m	
United Arab Emirates	m	m		m	m		m	m		m	m		m	m		m	m	
Uruguay	m	m		m	m		m	m		m	m		m	m		m	m	
Viet Nam	m	m		m	m		m	m		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

Only countries and economies that distributed the educational career questionnaire are shown.

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Table II.B1.7.3 [1/6] **Mathematics performance, by gender (2018)**

		Boys										
		Mean			10th percentile			Median (50th percentile)			90th percentile		
		Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s
OECD	Australia	494	(2.4)		369	(4.1)		496	(2.5)		616	(4.1)	
	Austria	505	(3.9)		376	(6.2)		509	(4.8)		630	(4.4)	
	Belgium	514	(2.9)		381	(5.4)		520	(3.5)		636	(3.9)	
	Canada	514	(2.5)		391	(3.5)		516	(3.1)		635	(3.4)	
	Chile	421	(3.3)		310	(4.6)		420	(4.0)		536	(4.5)	
	Colombia	401	(3.8)		296	(5.4)		398	(4.5)		513	(5.0)	
	Czech Republic	501	(2.9)		378	(4.6)		502	(3.6)		623	(4.2)	
	Denmark	511	(2.3)		399	(3.7)		514	(2.8)		619	(3.7)	
	Estonia	528	(2.2)		420	(3.8)		529	(2.9)		636	(4.2)	
	Finland	504	(2.5)		392	(4.6)		506	(3.0)		615	(3.6)	
	France	499	(2.7)		370	(4.2)		505	(3.3)		619	(3.6)	
	Germany	503	(3.0)		372	(4.5)		508	(4.2)		628	(3.8)	
	Greece	452	(3.9)		329	(5.3)		453	(4.5)		572	(4.8)	
	Hungary	486	(3.0)		363	(5.3)		488	(3.8)		604	(3.9)	
	Iceland	490	(2.5)		362	(5.8)		494	(3.4)		610	(4.2)	
	Ireland	503	(2.9)		397	(4.3)		505	(3.4)		607	(4.2)	
	Israel	458	(5.2)		297	(8.5)		463	(6.0)		610	(5.3)	
	Italy	494	(3.3)		364	(6.0)		499	(4.0)		616	(4.4)	
	Japan	532	(3.4)		411	(5.0)		537	(4.1)		646	(5.0)	
	Korea	528	(4.1)		390	(6.0)		533	(4.5)		657	(6.3)	
	Latvia	500	(2.2)		392	(3.6)		500	(2.8)		607	(4.7)	
	Lithuania	480	(2.4)		356	(4.6)		481	(3.0)		604	(4.2)	
	Luxembourg	487	(1.5)		355	(3.7)		490	(2.9)		616	(3.4)	
	Mexico	415	(2.9)		315	(5.0)		413	(3.2)		518	(4.3)	
	Netherlands*	520	(3.5)		392	(6.3)		525	(4.4)		642	(4.9)	
	New Zealand	499	(2.5)		372	(4.1)		500	(3.2)		623	(3.8)	
	Norway	497	(2.5)		370	(4.8)		501	(3.2)		618	(3.8)	
	Poland	516	(2.9)		394	(4.6)		518	(3.9)		635	(4.7)	
	Portugal*	497	(3.0)		361	(4.4)		501	(3.8)		624	(4.5)	
	Slovak Republic	488	(3.2)		355	(6.3)		492	(4.0)		617	(4.2)	
	Slovenia	509	(1.9)		390	(4.1)		511	(2.4)		625	(4.5)	
	Spain	485	(2.1)		365	(3.2)		487	(2.3)		600	(2.6)	
	Sweden	502	(3.1)		380	(6.1)		504	(3.8)		620	(4.4)	
	Switzerland	519	(3.0)		394	(4.5)		521	(3.9)		641	(5.0)	
	Turkey	456	(3.2)		342	(5.5)		453	(3.7)		575	(5.0)	
	United Kingdom	508	(3.2)		384	(5.0)		511	(4.1)		628	(4.9)	
	United States*	482	(3.9)		356	(5.4)		485	(4.2)		605	(6.0)	
	OECD average-36b	491	(0.5)		368	(0.8)		494	(0.6)		611	(0.7)	
	OECD average-37	492	(0.5)		369	(0.8)		494	(0.6)		612	(0.7)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

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Table II.B1.7.3 [2/6] **Mathematics performance, by gender (2018)**

	Boys											
	Mean			10th percentile			Median (50th percentile)			90th percentile		
Partners	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s
Albania	435	(2.8)		329	(4.0)		433	(3.3)		545	(5.4)	
Argentina	387	(3.2)		275	(5.5)		387	(3.5)		501	(5.2)	
Baku (Azerbaijan)	423	(3.1)		304	(4.5)		422	(3.6)		546	(5.0)	
Belarus	475	(3.2)		349	(5.1)		476	(3.8)		600	(4.3)	
Bosnia and Herzegovina	408	(3.3)		303	(4.0)		403	(4.0)		520	(5.1)	
Brazil	388	(2.6)		277	(3.2)		380	(3.0)		510	(4.9)	
Brunei Darussalam	426	(1.7)		307	(2.7)		421	(2.5)		557	(3.1)	
B-S-J-Z (China)	597	(2.9)		488	(5.7)		602	(3.0)		698	(3.6)	
Bulgaria	435	(4.9)		308	(6.7)		433	(5.0)		568	(7.3)	
Costa Rica	411	(3.1)		318	(4.5)		410	(3.3)		507	(5.7)	
Croatia	469	(3.0)		355	(4.8)		467	(3.5)		586	(4.2)	
Cyprus	447	(1.9)		314	(3.5)		449	(2.9)		575	(3.5)	
Dominican Republic	324	(3.0)		234	(3.3)		319	(3.6)		419	(5.9)	
Georgia	396	(3.3)		280	(4.4)		392	(3.3)		518	(6.2)	
Hong Kong (China)*	548	(3.6)		417	(6.7)		555	(4.2)		670	(4.5)	
Indonesia	374	(3.6)		277	(5.5)		370	(4.2)		474	(6.2)	
Jordan	397	(5.2)		281	(7.1)		398	(6.1)		511	(5.4)	
Kazakhstan	424	(2.0)		310	(3.1)		422	(2.6)		540	(3.4)	
Kosovo	368	(2.1)		267	(3.2)		365	(2.6)		474	(4.0)	
Lebanon	394	(5.0)		254	(5.7)		390	(6.9)		538	(5.6)	
Macao (China)	560	(2.2)		451	(4.4)		562	(2.9)		664	(3.9)	
Malaysia	437	(3.5)		330	(4.1)		434	(3.6)		550	(5.7)	
Malta	466	(2.4)		321	(5.3)		471	(3.9)		603	(4.3)	
Moldova	420	(2.7)		294	(4.1)		418	(4.0)		547	(4.7)	
Montenegro	434	(1.9)		323	(2.8)		433	(2.5)		546	(3.2)	
Morocco	368	(3.7)		274	(3.8)		362	(4.0)		473	(5.1)	
North Macedonia	391	(1.9)		271	(3.5)		390	(2.8)		513	(4.3)	
Panama	357	(3.4)		257	(5.2)		355	(3.4)		461	(5.8)	
Peru	408	(3.3)		299	(4.1)		404	(3.4)		525	(5.2)	
Philippines	346	(4.0)		247	(5.0)		341	(3.8)		455	(7.5)	
Qatar	402	(1.4)		272	(2.8)		393	(1.9)		548	(3.0)	
Romania	432	(4.9)		308	(6.0)		430	(5.7)		561	(7.1)	
Russia	490	(3.2)		375	(5.2)		493	(4.0)		602	(4.1)	
Saudi Arabia	367	(3.8)		263	(4.7)		364	(4.6)		475	(5.1)	
Serbia	450	(3.9)		323	(5.6)		446	(4.9)		582	(4.7)	
Singapore	571	(1.6)		436	(3.1)		580	(2.8)		691	(2.8)	
Chinese Taipei	533	(4.3)		391	(4.8)		540	(4.5)		662	(6.5)	
Thailand	410	(4.9)		299	(5.3)		405	(5.1)		530	(8.8)	
Ukraine	456	(4.3)		329	(5.6)		459	(4.8)		580	(6.1)	
United Arab Emirates	430	(2.4)		285	(3.9)		426	(3.2)		583	(3.5)	
Uruguay	422	(3.3)		309	(5.1)		423	(4.2)		537	(5.2)	
Viet Nam	m	m		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

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Table II.B1.7.3 [3/6] **Mathematics performance, by gender (2018)**

		Girls										
		Mean			10th percentile			Median (50th percentile)			90th percentile		
		Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s
OECD	Australia	488	(2.5)		373	(3.0)		489	(2.9)		603	(3.3)	
	Austria	492	(3.8)		371	(6.1)		498	(4.8)		603	(4.0)	
	Belgium	502	(2.7)		372	(4.5)		509	(3.5)		620	(3.4)	
	Canada	510	(2.7)		393	(3.5)		511	(3.3)		624	(3.2)	
	Chile	414	(2.7)		312	(4.2)		412	(3.5)		520	(4.0)	
	Colombia	381	(3.1)		285	(4.4)		378	(3.3)		483	(5.2)	
	Czech Republic	498	(3.2)		378	(6.4)		500	(3.6)		615	(4.0)	
	Denmark	507	(2.3)		402	(3.4)		509	(2.8)		608	(3.7)	
	Estonia	519	(2.0)		419	(3.8)		519	(3.1)		620	(3.2)	
	Finland	510	(2.2)		407	(4.3)		514	(3.4)		609	(3.5)	
	France	492	(2.8)		370	(4.8)		498	(4.0)		603	(3.6)	
	Germany	496	(3.1)		374	(6.0)		500	(4.1)		613	(3.7)	
	Greece	451	(3.2)		339	(5.5)		454	(3.5)		557	(4.1)	
	Hungary	477	(3.2)		356	(5.4)		480	(4.1)		591	(5.0)	
	Iceland	500	(2.9)		386	(5.7)		504	(3.5)		608	(4.5)	
	Ireland	497	(2.7)		397	(4.0)		499	(3.2)		592	(3.5)	
	Israel	467	(3.5)		334	(5.6)		473	(4.3)		591	(4.1)	
	Italy	479	(3.1)		362	(6.5)		481	(3.8)		591	(4.7)	
	Japan	522	(2.9)		414	(5.3)		525	(3.7)		626	(3.9)	
	Korea	524	(4.0)		397	(6.8)		527	(4.3)		645	(5.6)	
	Latvia	493	(2.5)		393	(4.1)		494	(3.2)		592	(3.8)	
	Lithuania	482	(2.7)		369	(4.1)		485	(3.5)		592	(3.8)	
	Luxembourg	480	(1.7)		352	(4.2)		481	(2.5)		605	(3.5)	
	Mexico	403	(2.7)		307	(3.9)		403	(3.0)		500	(4.5)	
	Netherlands*	519	(2.7)		396	(5.6)		524	(3.5)		632	(4.5)	
	New Zealand	490	(2.3)		373	(4.1)		492	(2.8)		605	(3.7)	
	Norway	505	(2.6)		392	(4.3)		507	(3.3)		615	(4.6)	
	Poland	515	(3.1)		402	(4.2)		516	(3.4)		627	(5.8)	
	Portugal*	488	(3.1)		363	(5.0)		493	(3.8)		602	(4.4)	
	Slovak Republic	484	(3.2)		352	(6.7)		491	(4.5)		605	(4.3)	
	Slovenia	509	(1.8)		395	(4.1)		511	(2.7)		619	(4.4)	
	Spain	478	(1.5)		365	(2.7)		482	(1.7)		586	(2.2)	
	Sweden	503	(3.1)		386	(5.2)		506	(3.9)		616	(4.5)	
	Switzerland	512	(3.5)		389	(4.7)		515	(4.3)		631	(5.1)	
	Turkey	451	(2.9)		343	(4.7)		447	(3.3)		567	(4.8)	
	United Kingdom	496	(3.0)		378	(4.9)		497	(3.3)		612	(4.0)	
	United States*	474	(3.3)		358	(5.2)		474	(3.8)		590	(5.3)	
	OECD average-36b	487	(0.5)		372	(0.8)		489	(0.6)		598	(0.7)	
	OECD average-37	487	(0.5)		372	(0.8)		489	(0.6)		598	(0.7)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

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Table II.B1.7.3 [4/6] **Mathematics performance, by gender (2018)**

	Girls											
	Mean			10th percentile			Median (50th percentile)			90th percentile		
Partners	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s
Albania	440	(2.7)		336	(4.1)		440	(3.5)		542	(3.5)	
Argentina	372	(2.7)		270	(4.2)		371	(3.2)		477	(3.9)	
Baku (Azerbaijan)	416	(3.2)		308	(4.2)		415	(3.5)		524	(5.1)	
Belarus	469	(3.1)		353	(4.0)		470	(3.8)		584	(4.5)	
Bosnia and Herzegovina	405	(3.7)		303	(4.3)		404	(4.2)		509	(5.3)	
Brazil	379	(2.0)		276	(3.0)		374	(2.7)		492	(4.1)	
Brunei Darussalam	434	(1.3)		326	(3.5)		429	(2.0)		553	(3.0)	
B-S-J-Z (China)	586	(2.6)		485	(4.4)		590	(2.8)		682	(4.3)	
Bulgaria	437	(3.9)		317	(5.5)		436	(4.8)		558	(5.5)	
Costa Rica	394	(4.5)		300	(4.6)		392	(4.3)		490	(8.2)	
Croatia	460	(3.4)		352	(4.6)		460	(3.8)		568	(5.2)	
Cyprus	455	(1.7)		338	(3.7)		459	(2.7)		567	(3.2)	
Dominican Republic	327	(2.9)		239	(3.3)		325	(3.5)		416	(5.0)	
Georgia	400	(2.6)		293	(3.7)		397	(3.2)		512	(4.5)	
Hong Kong (China)*	554	(3.4)		435	(6.7)		559	(3.8)		664	(4.5)	
Indonesia	383	(3.5)		286	(5.1)		380	(3.5)		485	(7.2)	
Jordan	403	(3.1)		302	(4.4)		402	(3.4)		505	(5.5)	
Kazakhstan	422	(2.6)		317	(3.3)		422	(2.9)		530	(3.8)	
Kosovo	364	(1.9)		270	(4.2)		363	(2.9)		457	(4.2)	
Lebanon	393	(4.0)		259	(5.5)		392	(4.7)		529	(4.9)	
Macao (China)	556	(2.2)		453	(4.8)		559	(3.1)		654	(3.5)	
Malaysia	443	(3.2)		340	(4.2)		442	(3.5)		549	(5.6)	
Malta	478	(2.7)		353	(5.2)		484	(3.6)		595	(4.8)	
Moldova	422	(2.9)		305	(4.2)		420	(3.0)		539	(6.2)	
Montenegro	425	(2.2)		324	(3.3)		425	(3.1)		528	(3.3)	
Morocco	367	(3.4)		273	(3.8)		365	(3.9)		466	(5.3)	
North Macedonia	398	(2.1)		280	(3.8)		398	(3.4)		519	(4.3)	
Panama	349	(3.0)		254	(4.2)		348	(3.6)		446	(5.9)	
Peru	392	(2.6)		288	(4.1)		390	(3.1)		496	(4.1)	
Philippines	358	(3.7)		264	(4.3)		356	(3.5)		457	(6.1)	
Qatar	426	(1.5)		316	(2.4)		425	(1.9)		539	(3.5)	
Romania	427	(5.6)		312	(6.4)		427	(6.6)		546	(7.8)	
Russia	485	(3.1)		378	(4.5)		487	(3.3)		592	(4.7)	
Saudi Arabia	380	(4.0)		286	(5.5)		379	(4.2)		475	(4.8)	
Serbia	447	(3.4)		326	(4.5)		446	(4.4)		570	(4.0)	
Singapore	567	(2.3)		446	(4.1)		574	(2.7)		678	(4.0)	
Chinese Taipei	529	(4.1)		403	(5.7)		534	(4.3)		649	(6.7)	
Thailand	426	(3.7)		320	(3.8)		422	(3.9)		539	(6.6)	
Ukraine	449	(3.9)		333	(5.7)		449	(4.6)		566	(6.2)	
United Arab Emirates	439	(2.8)		315	(3.6)		438	(3.5)		566	(4.0)	
Uruguay	414	(3.0)		306	(4.2)		415	(3.7)		520	(4.8)	
Viet Nam	m	m		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

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Table II.B1.7.3 [5/6] **Mathematics performance, by gender (2018)**

		Gender differences (girls - boys)											
		Mean			10th percentile			Median (50th percentile)			90th percentile		
		Score dif.	S.E.	s	Score dif.	S.E.	s	Score dif.	S.E.	s	Score dif.	S.E.	s
OECD	**Australia**	**-6**	(3.0)		4	(3.9)		-7	(3.7)		**-13**	(4.5)	
	Austria	**-13**	(5.1)		-5	(8.3)		-11	(6.5)		**-27**	(5.3)	
	Belgium	**-12**	(3.3)		-9	(5.7)		**-11**	(4.6)		**-17**	(4.1)	
	Canada	**-5**	(2.3)		2	(3.7)		-5	(3.3)		**-11**	(3.8)	
	Chile	**-7**	(3.6)		2	(5.4)		-8	(4.6)		**-16**	(5.1)	
	Colombia	**-20**	(3.5)		-10	(6.4)		**-20**	(4.1)		**-29**	(5.8)	
	Czech Republic	-4	(3.6)		0	(6.3)		-2	(5.0)		-9	(4.8)	
	Denmark	-4	(2.9)		3	(4.9)		-5	(3.5)		**-11**	(5.1)	
	Estonia	**-8**	(2.5)		-1	(5.2)		**-9**	(3.7)		**-16**	(5.2)	
	Finland	**6**	(2.6)		**15**	(5.4)		8	(4.0)		-6	(4.3)	
	France	**-6**	(2.9)		0	(5.6)		-7	(4.5)		**-16**	(4.2)	
	Germany	**-7**	(2.9)		2	(6.2)		-8	(4.6)		**-15**	(4.2)	
	Greece	0	(3.6)		10	(6.0)		2	(4.5)		**-15**	(5.1)	
	Hungary	**-9**	(4.1)		-7	(7.5)		-8	(5.3)		**-13**	(4.9)	
	Iceland	**10**	(3.7)		**24**	(8.3)		9	(4.8)		-3	(6.4)	
	Ireland	-6	(3.4)		0	(5.0)		-6	(4.4)		**-15**	(5.0)	
	Israel	9	(5.4)		**37**	(9.6)		10	(6.2)		**-19**	(5.7)	
	Italy	**-16**	(3.5)		-2	(7.8)		**-18**	(4.2)		**-25**	(4.8)	
	Japan	**-10**	(3.9)		3	(6.7)		**-11**	(5.0)		**-20**	(5.0)	
	Korea	-4	(5.3)		7	(8.9)		-5	(5.9)		-13	(7.4)	
	Latvia	**-7**	(2.6)		1	(4.2)		-6	(3.7)		**-16**	(5.8)	
	Lithuania	2	(3.3)		**13**	(6.1)		4	(4.6)		**-12**	(5.3)	
	Luxembourg	**-7**	(2.3)		-2	(5.0)		**-8**	(3.8)		**-11**	(4.0)	
	Mexico	**-12**	(2.6)		-8	(5.7)		**-10**	(3.0)		**-18**	(4.8)	
	Netherlands*	-1	(3.3)		5	(6.8)		-1	(5.0)		-10	(5.2)	
	New Zealand	**-9**	(3.3)		1	(5.5)		**-8**	(4.0)		**-18**	(6.0)	
	Norway	**7**	(2.6)		**22**	(5.4)		6	(3.5)		-4	(5.0)	
	Poland	-1	(3.0)		8	(4.7)		-2	(4.7)		-8	(6.1)	
	Portugal*	**-9**	(3.1)		2	(5.8)		-8	(4.5)		**-22**	(5.4)	
	Slovak Republic	-5	(3.9)		-3	(7.8)		-1	(6.0)		**-12**	(6.2)	
	Slovenia	-1	(2.5)		5	(5.4)		-1	(3.7)		-5	(6.8)	
	Spain	**-6**	(2.1)		-1	(3.6)		**-6**	(2.6)		**-14**	(2.6)	
	Sweden	1	(3.1)		6	(6.5)		2	(4.2)		-4	(6.0)	
	Switzerland	**-7**	(2.9)		-5	(5.9)		-6	(4.2)		**-10**	(5.0)	
	Turkey	-5	(4.0)		0	(7.0)		-7	(5.1)		-8	(5.6)	
	United Kingdom	**-12**	(3.6)		-6	(5.8)		**-13**	(4.8)		**-17**	(5.8)	
	United States*	**-9**	(3.2)		2	(5.9)		**-12**	(3.7)		**-15**	(6.7)	
	OECD average-36b	**-5**	(0.6)		**3**	(1.0)		**-5**	(0.7)		**-13**	(0.9)	
	OECD average-37	**-5**	(0.6)		**3**	(1.0)		**-5**	(0.7)		**-14**	(0.9)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

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Table II.B1.7.3 [6/6] **Mathematics performance, by gender (2018)**

		Gender differences (girls - boys)											
		Mean			10th percentile			Median (50th percentile)			90th percentile		
		Score dif.	S.E.	s	Score dif.	S.E.	s	Score dif.	S.E.	s	Score dif.	S.E.	s
Partners	Albania	5	(2.7)		7	(4.7)		**7**	(3.6)		-3	(5.1)	
	Argentina	**-15**	(2.2)		-5	(4.4)		**-16**	(2.9)		**-24**	(4.9)	
	Baku (Azerbaijan)	**-8**	(2.8)		5	(5.4)		-7	(4.0)		**-22**	(4.8)	
	Belarus	-6	(3.3)		4	(6.0)		-6	(4.4)		**-17**	(4.5)	
	Bosnia and Herzegovina	-3	(3.3)		0	(5.1)		1	(4.3)		-11	(5.8)	
	Brazil	**-9**	(2.2)		-1	(4.1)		**-6**	(3.0)		**-18**	(5.1)	
	Brunei Darussalam	**8**	(1.9)		**18**	(3.5)		**8**	(3.1)		-4	(4.4)	
	B-S-J-Z (China)	**-11**	(2.4)		-3	(6.3)		**-12**	(3.0)		**-16**	(4.0)	
	Bulgaria	2	(4.5)		9	(6.8)		4	(5.6)		-10	(6.5)	
	Costa Rica	**-18**	(3.9)		**-18**	(5.7)		**-18**	(3.8)		**-18**	(7.5)	
	Croatia	**-9**	(3.8)		-4	(5.4)		-7	(4.4)		**-19**	(5.7)	
	Cyprus	**8**	(2.3)		**24**	(5.1)		**9**	(4.1)		-8	(4.5)	
	Dominican Republic	3	(2.8)		5	(4.0)		6	(4.2)		-3	(4.8)	
	Georgia	4	(3.0)		**12**	(4.4)		5	(3.7)		-5	(5.9)	
	Hong Kong (China)*	6	(3.6)		**18**	(7.3)		4	(4.9)		-6	(5.5)	
	Indonesia	**10**	(3.3)		9	(6.6)		**10**	(4.3)		12	(6.7)	
	Jordan	6	(5.4)		**22**	(8.4)		4	(6.5)		-6	(6.5)	
	Kazakhstan	-1	(2.8)		7	(3.9)		0	(3.7)		**-10**	(3.8)	
	Kosovo	-4	(2.8)		3	(4.9)		-2	(3.9)		**-16**	(5.0)	
	Lebanon	0	(3.8)		5	(6.1)		2	(6.1)		-9	(5.4)	
	Macao (China)	-4	(3.1)		2	(5.6)		-4	(4.1)		-10	(5.3)	
	Malaysia	**7**	(3.4)		11	(5.7)		**8**	(3.8)		0	(5.8)	
	Malta	**13**	(3.5)		**33**	(7.4)		**12**	(5.2)		-8	(6.2)	
	Moldova	2	(2.7)		**12**	(5.7)		2	(4.4)		-8	(5.7)	
	Montenegro	**-8**	(3.2)		0	(4.2)		-8	(4.2)		**-19**	(4.4)	
	Morocco	-1	(2.5)		0	(4.1)		3	(3.0)		-7	(5.4)	
	North Macedonia	**7**	(2.5)		9	(5.3)		8	(4.1)		6	(5.6)	
	Panama	**-8**	(3.3)		-3	(5.7)		-7	(4.3)		**-15**	(5.7)	
	Peru	**-16**	(2.9)		**-11**	(4.7)		**-14**	(3.4)		**-29**	(4.9)	
	Philippines	**12**	(3.4)		**17**	(5.6)		**14**	(3.8)		2	(6.6)	
	Qatar	**24**	(1.7)		**44**	(3.0)		**32**	(2.2)		-9	(4.6)	
	Romania	-5	(3.7)		4	(6.6)		-3	(4.8)		**-14**	(6.1)	
	Russia	**-5**	(2.2)		3	(4.3)		-6	(3.6)		**-11**	(4.8)	
	Saudi Arabia	**13**	(5.0)		**23**	(6.4)		**15**	(5.8)		1	(6.7)	
	Serbia	-3	(3.8)		3	(5.9)		0	(5.1)		**-12**	(5.3)	
	Singapore	-4	(2.3)		9	(4.9)		-6	(3.7)		**-13**	(4.6)	
	Chinese Taipei	-4	(6.1)		12	(7.1)		-7	(6.3)		-13	(9.5)	
	Thailand	**16**	(5.3)		**20**	(5.1)		**18**	(5.5)		9	(9.6)	
	Ukraine	-7	(3.8)		4	(7.2)		**-10**	(4.1)		**-14**	(6.8)	
	United Arab Emirates	**9**	(3.1)		**30**	(4.3)		**12**	(4.3)		**-16**	(5.2)	
	Uruguay	**-8**	(3.3)		-2	(5.9)		-8	(4.2)		**-17**	(6.2)	
	Viet Nam	m	m		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

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Table II.B1.7.5 [1/6] **Science performance, by gender (2018)**

		Boys											
		Mean			10th percentile			Median (50th percentile)			90th percentile		
		Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s
OECD	Australia	504	(2.4)		364	(3.7)		508	(3.2)		636	(3.6)	
	Austria	491	(3.8)		358	(4.5)		493	(5.3)		622	(4.5)	
	Belgium	501	(2.6)		362	(5.1)		507	(3.2)		630	(3.1)	
	Canada	516	(2.7)		387	(2.8)		519	(3.4)		642	(3.9)	
	Chile	445	(3.2)		333	(4.5)		444	(4.2)		559	(4.1)	
	Colombia	420	(3.8)		312	(5.0)		416	(4.5)		534	(4.8)	
	Czech Republic	496	(3.2)		370	(5.5)		495	(3.7)		622	(4.7)	
	Denmark	492	(2.5)		364	(4.7)		496	(3.3)		611	(4.0)	
	Estonia	528	(2.3)		412	(4.4)		528	(3.4)		642	(4.1)	
	Finland	510	(2.9)		376	(5.0)		513	(4.0)		638	(3.9)	
	France	493	(2.7)		358	(4.6)		496	(3.5)		619	(4.2)	
	Germany	502	(3.2)		357	(5.4)		508	(4.6)		639	(4.4)	
	Greece	446	(3.8)		329	(5.5)		446	(4.4)		561	(4.6)	
	Hungary	484	(3.1)		359	(5.2)		486	(4.3)		607	(4.7)	
	Iceland	471	(2.3)		345	(4.5)		471	(3.6)		596	(4.7)	
	Ireland	495	(3.0)		376	(5.1)		496	(3.3)		615	(4.6)	
	Israel	452	(5.3)		294	(6.9)		451	(7.4)		612	(5.8)	
	Italy	470	(3.0)		345	(5.1)		473	(3.4)		588	(4.4)	
	Japan	531	(3.5)		399	(5.3)		537	(4.4)		651	(5.0)	
	Korea	521	(3.9)		385	(5.9)		527	(4.8)		647	(4.9)	
	Latvia	483	(2.2)		368	(3.9)		484	(3.3)		596	(3.6)	
	Lithuania	479	(2.3)		356	(4.3)		479	(3.1)		603	(3.3)	
	Luxembourg	475	(1.7)		343	(3.8)		475	(2.4)		606	(4.0)	
	Mexico	424	(2.8)		331	(3.9)		419	(3.3)		524	(4.9)	
	Netherlands*	499	(3.6)		358	(7.0)		502	(5.0)		637	(4.9)	
	New Zealand	509	(2.9)		364	(4.9)		514	(3.8)		647	(4.0)	
	Norway	485	(2.6)		345	(4.3)		489	(3.3)		617	(3.8)	
	Poland	511	(2.8)		386	(4.2)		511	(3.5)		635	(4.4)	
	Portugal*	494	(3.0)		367	(5.0)		496	(4.0)		616	(4.5)	
	Slovak Republic	461	(2.8)		337	(4.0)		458	(4.0)		591	(4.6)	
	Slovenia	502	(1.6)		382	(3.4)		504	(2.4)		620	(4.1)	
	Spain	484	(1.9)		363	(2.8)		486	(2.4)		604	(2.5)	
	Sweden	496	(3.2)		361	(6.0)		499	(4.1)		626	(4.3)	
	Switzerland	495	(3.3)		363	(4.9)		496	(4.6)		626	(5.3)	
	Turkey	465	(2.9)		354	(4.6)		463	(3.6)		580	(4.2)	
	United Kingdom	506	(3.1)		374	(4.1)		508	(3.7)		636	(4.1)	
	United States*	503	(3.9)		364	(6.4)		506	(4.9)		634	(5.7)	
	OECD average-36b	487	(0.5)		360	(0.8)		489	(0.7)		612	(0.7)	
	OECD average-37	488	(0.5)		359	(0.8)		489	(0.7)		613	(0.7)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

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Table II.B1.7.5 [2/6] **Science performance, by gender (2018)**

		Boys											
		Mean			10th percentile			Median (50th percentile)			90th percentile		
		Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s
Partners	Albania	409	(2.5)		314	(3.5)		405	(3.4)		509	(4.0)	
	Argentina	409	(3.3)		294	(5.1)		406	(4.2)		530	(5.2)	
	Baku (Azerbaijan)	395	(2.7)		299	(3.2)		392	(2.9)		496	(5.3)	
	Belarus	473	(3.0)		358	(4.7)		473	(3.7)		587	(3.9)	
	Bosnia and Herzegovina	398	(3.1)		301	(3.6)		394	(4.0)		502	(4.3)	
	Brazil	403	(2.5)		289	(2.8)		395	(3.0)		531	(4.3)	
	Brunei Darussalam	427	(1.6)		309	(2.6)		415	(2.2)		569	(3.3)	
	B-S-J-Z (China)	596	(2.9)		484	(5.2)		600	(3.1)		703	(3.3)	
	Bulgaria	417	(4.5)		299	(5.7)		409	(5.1)		549	(6.7)	
	Costa Rica	420	(3.0)		328	(3.4)		419	(3.2)		518	(5.3)	
	Croatia	470	(3.5)		350	(4.9)		468	(3.9)		594	(3.8)	
	Cyprus	429	(2.1)		305	(3.2)		425	(3.6)		559	(3.2)	
	Dominican Republic	331	(2.8)		247	(2.8)		323	(3.0)		428	(5.8)	
	Georgia	376	(2.9)		272	(4.3)		371	(3.4)		489	(5.4)	
	Hong Kong (China)*	512	(3.4)		392	(5.4)		518	(4.2)		623	(4.6)	
	Indonesia	393	(2.9)		309	(3.5)		387	(3.4)		487	(5.8)	
	Jordan	414	(4.9)		296	(7.2)		416	(5.6)		530	(5.3)	
	Kazakhstan	394	(2.0)		301	(2.8)		386	(2.4)		499	(3.9)	
	Kosovo	362	(1.8)		280	(3.3)		357	(2.0)		450	(3.7)	
	Lebanon	381	(4.2)		261	(4.3)		373	(5.1)		515	(6.4)	
	Macao (China)	543	(2.1)		427	(4.5)		546	(3.0)		652	(3.8)	
	Malaysia	434	(3.0)		334	(3.9)		432	(3.5)		538	(4.5)	
	Malta	447	(2.4)		297	(5.1)		448	(3.7)		595	(4.4)	
	Moldova	423	(2.6)		306	(3.8)		421	(3.9)		544	(4.0)	
	Montenegro	413	(1.9)		306	(3.1)		410	(2.2)		526	(3.7)	
	Morocco	372	(3.1)		289	(2.7)		366	(3.9)		467	(4.4)	
	North Macedonia	404	(2.2)		288	(3.9)		402	(2.9)		524	(4.5)	
	Panama	365	(3.2)		258	(4.6)		360	(3.4)		481	(7.2)	
	Peru	411	(3.2)		309	(3.2)		405	(3.9)		522	(6.0)	
	Philippines	355	(3.4)		270	(3.6)		344	(3.3)		461	(7.6)	
	Qatar	400	(1.4)		268	(2.5)		387	(1.8)		553	(2.9)	
	Romania	425	(4.6)		308	(5.4)		422	(5.7)		547	(6.3)	
	Russia	477	(3.0)		366	(5.2)		477	(3.5)		588	(4.1)	
	Saudi Arabia	372	(3.9)		273	(5.0)		368	(4.2)		480	(5.1)	
	Serbia	437	(3.8)		317	(4.4)		434	(4.5)		564	(4.8)	
	Singapore	553	(2.0)		411	(3.8)		564	(2.6)		676	(3.5)	
	Chinese Taipei	516	(4.1)		377	(4.6)		523	(4.9)		645	(5.7)	
	Thailand	415	(4.3)		314	(4.6)		409	(4.7)		527	(7.5)	
	Ukraine	470	(3.9)		350	(5.8)		469	(4.4)		591	(4.9)	
	United Arab Emirates	420	(2.1)		284	(2.0)		412	(3.2)		572	(3.5)	
	Uruguay	428	(3.2)		313	(4.6)		425	(4.3)		548	(4.6)	
	Viet Nam	m	m		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

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Table II.B1.7.5 [3/6] **Science performance, by gender (2018)**

		Girls							
		Mean		10th percentile		Median (50th percentile)		90th percentile	
		Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.
OECD	**Australia**	502	(2.0)	373	(3.4)	505	(2.5)	625	(3.4)
	Austria	489	(3.6)	366	(4.8)	493	(4.8)	606	(3.6)
	Belgium	496	(2.7)	363	(4.8)	504	(3.3)	618	(2.6)
	Canada	520	(2.5)	399	(3.3)	522	(3.0)	637	(2.9)
	Chile	442	(2.6)	338	(3.7)	441	(3.2)	548	(4.0)
	Colombia	407	(2.9)	310	(3.6)	403	(3.7)	513	(4.8)
	Czech Republic	498	(3.1)	375	(5.1)	499	(3.9)	618	(3.5)
	Denmark	494	(2.2)	379	(3.3)	495	(3.2)	605	(4.3)
	Estonia	533	(2.3)	421	(4.3)	533	(3.2)	645	(3.6)
	Finland	534	(2.9)	415	(4.6)	538	(3.5)	647	(3.9)
	France	493	(2.8)	369	(3.8)	498	(4.1)	611	(4.2)
	Germany	504	(3.3)	371	(4.7)	509	(4.7)	627	(4.0)
	Greece	457	(3.2)	348	(4.7)	460	(3.9)	561	(3.7)
	Hungary	478	(3.1)	353	(5.1)	481	(4.2)	597	(4.4)
	Iceland	479	(2.8)	365	(4.4)	480	(3.5)	593	(5.0)
	Ireland	497	(2.6)	384	(4.3)	499	(3.4)	606	(3.1)
	Israel	471	(3.5)	337	(5.3)	474	(4.3)	602	(4.1)
	Italy	466	(2.6)	351	(4.5)	467	(3.4)	577	(4.6)
	Japan	528	(3.0)	410	(5.0)	531	(3.2)	640	(3.7)
	Korea	517	(3.6)	389	(5.7)	522	(4.5)	635	(4.9)
	Latvia	491	(2.4)	387	(4.4)	493	(2.9)	594	(4.0)
	Lithuania	485	(2.1)	373	(3.9)	487	(2.9)	595	(3.3)
	Luxembourg	479	(1.7)	353	(4.0)	480	(2.5)	606	(3.3)
	Mexico	415	(2.9)	322	(4.7)	412	(3.3)	512	(4.5)
	Netherlands*	508	(3.1)	371	(4.7)	513	(4.2)	636	(4.4)
	New Zealand	508	(2.8)	378	(4.4)	510	(3.5)	632	(3.7)
	Norway	496	(2.8)	373	(4.6)	499	(3.3)	614	(4.0)
	Poland	511	(3.1)	397	(4.2)	512	(3.8)	625	(5.1)
	Portugal*	489	(3.3)	370	(5.9)	492	(3.6)	602	(4.4)
	Slovak Republic	467	(3.0)	340	(4.7)	470	(3.9)	588	(4.4)
	Slovenia	512	(2.0)	399	(4.0)	515	(2.7)	621	(3.6)
	Spain	482	(1.8)	368	(2.6)	484	(1.9)	593	(2.6)
	Sweden	503	(3.7)	376	(6.5)	507	(4.7)	622	(4.3)
	Switzerland	495	(3.3)	370	(4.6)	498	(4.2)	616	(5.0)
	Turkey	472	(2.5)	369	(4.1)	470	(3.3)	578	(5.0)
	United Kingdom	503	(3.2)	374	(5.0)	506	(3.6)	628	(4.0)
	United States*	502	(3.5)	377	(5.7)	504	(4.0)	624	(4.8)
	OECD average-36b	490	(0.5)	371	(0.8)	492	(0.6)	605	(0.7)
	OECD average-37	490	(0.5)	371	(0.8)	492	(0.6)	605	(0.7)

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

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Table II.B1.7.5 [4/6] **Science performance, by gender (2018)**

	Boys											
	Mean			10th percentile			Median (50th percentile)			90th percentile		
	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s
Partners												
Albania	425	(2.0)		335	(3.4)		425	(2.7)		517	(3.5)	
Argentina	399	(3.3)		288	(4.5)		396	(3.7)		517	(4.9)	
Baku (Azerbaijan)	400	(2.6)		311	(3.1)		399	(2.5)		491	(4.8)	
Belarus	470	(2.8)		363	(4.1)		471	(3.3)		574	(3.5)	
Bosnia and Herzegovina	399	(3.2)		303	(4.2)		398	(3.7)		497	(4.6)	
Brazil	404	(2.1)		297	(3.0)		398	(2.4)		523	(3.8)	
Brunei Darussalam	435	(1.6)		322	(2.8)		426	(2.2)		564	(3.4)	
B-S-J-Z (China)	584	(2.9)		480	(4.5)		587	(3.4)		685	(4.6)	
Bulgaria	432	(3.8)		315	(4.6)		429	(5.4)		555	(5.4)	
Costa Rica	411	(4.3)		320	(4.0)		409	(4.4)		506	(7.4)	
Croatia	474	(3.4)		361	(4.8)		474	(4.2)		587	(4.9)	
Cyprus	450	(1.9)		336	(3.2)		448	(2.8)		565	(3.1)	
Dominican Republic	340	(2.7)		254	(3.4)		336	(3.1)		433	(5.4)	
Georgia	390	(2.6)		293	(4.0)		387	(3.2)		492	(4.3)	
Hong Kong (China)*	521	(2.8)		411	(5.5)		526	(2.8)		623	(3.9)	
Indonesia	399	(2.5)		315	(3.4)		397	(3.0)		489	(5.0)	
Jordan	444	(3.0)		338	(4.2)		445	(3.8)		549	(4.3)	
Kazakhstan	401	(2.1)		313	(2.6)		396	(2.2)		497	(4.2)	
Kosovo	368	(1.4)		291	(3.2)		364	(2.3)		449	(3.1)	
Lebanon	386	(3.6)		269	(5.2)		380	(4.5)		512	(5.5)	
Macao (China)	545	(2.0)		442	(4.0)		548	(2.6)		644	(3.6)	
Malaysia	441	(3.2)		344	(3.4)		440	(3.3)		537	(6.0)	
Malta	468	(2.5)		335	(4.7)		471	(3.8)		592	(4.1)	
Moldova	434	(2.8)		324	(4.8)		432	(3.0)		547	(4.5)	
Montenegro	418	(1.6)		317	(3.2)		416	(2.0)		521	(4.0)	
Morocco	381	(3.3)		299	(4.0)		378	(4.2)		468	(4.4)	
North Macedonia	423	(2.0)		307	(4.0)		421	(3.0)		542	(4.3)	
Panama	364	(3.2)		259	(5.0)		361	(3.4)		476	(5.4)	
Peru	397	(2.7)		299	(4.2)		395	(3.2)		500	(4.8)	
Philippines	359	(3.7)		269	(3.9)		350	(3.5)		461	(7.3)	
Qatar	439	(1.5)		324	(2.9)		435	(1.5)		561	(2.7)	
Romania	426	(5.2)		315	(6.0)		425	(6.1)		541	(6.9)	
Russia	478	(3.2)		372	(4.4)		478	(3.6)		585	(4.7)	
Saudi Arabia	401	(3.4)		307	(4.5)		400	(3.9)		497	(4.6)	
Serbia	442	(3.4)		328	(4.8)		441	(4.3)		561	(4.5)	
Singapore	549	(1.9)		422	(4.2)		556	(2.6)		664	(3.3)	
Chinese Taipei	515	(4.1)		388	(4.8)		519	(4.3)		636	(7.2)	
Thailand	435	(3.6)		336	(3.5)		432	(3.9)		541	(6.0)	
Ukraine	468	(3.6)		352	(5.4)		468	(4.3)		584	(5.8)	
United Arab Emirates	447	(2.8)		326	(2.6)		444	(3.2)		572	(4.2)	
Uruguay	424	(2.7)		315	(3.9)		422	(3.6)		535	(4.5)	
Viet Nam	m	m		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

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Table II.B1.7.5 [5/6] **Science performance, by gender (2018)**

		Gender differences (girls - boys)											
		Mean			10th percentile			Median (50th percentile)			90th percentile		
		Score dif.	S.E.	s	Score dif.	S.E.	s	Score dif.	S.E.	s	Score dif.	S.E.	s
OECD	Australia	-2	(2.6)		9	(4.7)		-3	(3.5)		**-11**	(4.2)	
	Austria	-2	(5.0)		7	(6.4)		0	(7.2)		**-16**	(5.3)	
	Belgium	-5	(3.0)		1	(5.7)		-3	(4.0)		**-12**	(3.8)	
	Canada	3	(2.9)		**12**	(3.9)		3	(3.5)		-5	(4.6)	
	Chile	-3	(3.3)		5	(5.1)		-3	(4.8)		**-12**	(4.6)	
	Colombia	**-12**	(2.9)		-2	(4.2)		**-13**	(3.6)		**-21**	(5.7)	
	Czech Republic	2	(3.7)		5	(6.7)		4	(4.8)		-4	(5.6)	
	Denmark	2	(2.8)		**15**	(5.0)		0	(4.2)		-6	(5.9)	
	Estonia	**5**	(2.5)		9	(5.5)		5	(4.1)		3	(5.2)	
	Finland	**24**	(3.0)		**39**	(6.0)		**25**	(4.6)		9	(5.1)	
	France	1	(3.1)		**11**	(5.3)		3	(4.6)		-8	(5.1)	
	Germany	1	(3.0)		**15**	(6.0)		1	(4.9)		**-12**	(5.4)	
	Greece	**11**	(3.3)		**19**	(6.0)		**14**	(4.5)		0	(4.8)	
	Hungary	-6	(4.0)		-5	(6.7)		-5	(5.9)		-10	(5.6)	
	Iceland	**8**	(3.6)		**20**	(6.4)		9	(4.9)		-2	(7.2)	
	Ireland	1	(3.4)		8	(6.1)		3	(4.2)		-9	(5.0)	
	Israel	**19**	(5.3)		**43**	(7.6)		**23**	(7.5)		-10	(6.0)	
	Italy	-3	(2.9)		7	(5.5)		-5	(3.8)		**-11**	(4.6)	
	Japan	-3	(4.0)		12	(6.8)		-6	(5.0)		**-10**	(5.2)	
	Korea	-4	(5.0)		4	(8.3)		-5	(6.5)		**-12**	(6.1)	
	Latvia	**8**	(3.0)		**19**	(5.1)		**9**	(4.2)		-2	(5.2)	
	Lithuania	**6**	(3.0)		**17**	(5.2)		8	(4.0)		-7	(5.0)	
	Luxembourg	**5**	(2.3)		10	(6.1)		5	(3.5)		0	(5.1)	
	Mexico	**-9**	(2.4)		**-9**	(4.2)		**-7**	(3.4)		**-12**	(4.5)	
	Netherlands*	**8**	(3.6)		13	(7.0)		**11**	(5.5)		0	(5.7)	
	New Zealand	-2	(3.9)		**14**	(6.3)		-4	(5.0)		**-15**	(4.9)	
	Norway	**11**	(2.9)		**27**	(5.6)		**10**	(4.1)		-3	(5.2)	
	Poland	0	(2.7)		**10**	(5.0)		1	(3.9)		-10	(5.0)	
	Portugal*	-5	(3.1)		3	(6.5)		-4	(4.4)		**-14**	(5.1)	
	Slovak Republic	6	(3.7)		3	(5.1)		**12**	(5.4)		-4	(5.9)	
	Slovenia	**10**	(2.6)		**17**	(4.5)		**10**	(3.7)		1	(5.3)	
	Spain	-2	(2.1)		5	(3.0)		-1	(2.7)		**-11**	(2.6)	
	Sweden	**8**	(3.1)		**15**	(5.9)		9	(5.3)		-4	(5.6)	
	Switzerland	0	(2.8)		7	(5.7)		3	(4.5)		-10	(5.1)	
	Turkey	**7**	(3.6)		**15**	(6.2)		7	(5.0)		-2	(5.1)	
	United Kingdom	-2	(3.6)		0	(5.0)		-2	(4.9)		-8	(5.4)	
	United States*	-1	(3.3)		**13**	(6.4)		-2	(4.5)		-11	(6.7)	
	OECD average-36b	**2**	(0.5)		**11**	(1.0)		**3**	(0.8)		**-7**	(0.9)	
	OECD average-37	**2**	(0.5)		**11**	(1.0)		**3**	(0.8)		**-7**	(0.9)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

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Table II.B1.7.5 [6/6] **Science performance, by gender (2018)**

		Gender differences (girls - boys)											
		Mean			10th percentile			Median (50th percentile)			90th percentile		
		Score dif.	S.E.	s	Score dif.	S.E.	s	Score dif.	S.E.	s	Score dif.	S.E.	s
Partners	Albania	**16**	(2.4)		**20**	(4.4)		**20**	(3.5)		8	(4.2)	
	Argentina	**-10**	(3.2)		-6	(5.3)		**-10**	(3.9)		**-13**	(6.2)	
	Baku (Azerbaijan)	**5**	(2.4)		**12**	(3.6)		**7**	(3.5)		-5	(4.7)	
	Belarus	-3	(3.0)		6	(5.0)		-2	(4.0)		**-14**	(4.1)	
	Bosnia and Herzegovina	1	(3.0)		2	(4.3)		4	(4.2)		-6	(4.6)	
	Brazil	2	(2.1)		**8**	(3.4)		3	(3.0)		**-8**	(3.5)	
	Brunei Darussalam	**7**	(2.1)		**12**	(3.8)		**11**	(3.2)		-5	(4.2)	
	B-S-J-Z (China)	**-12**	(2.2)		-4	(5.4)		**-13**	(3.3)		**-19**	(3.8)	
	Bulgaria	**15**	(4.3)		**17**	(6.1)		**20**	(6.2)		6	(6.6)	
	Costa Rica	**-9**	(3.4)		-8	(4.0)		**-10**	(3.4)		-12	(7.1)	
	Croatia	4	(4.0)		11	(5.7)		6	(4.8)		-7	(5.8)	
	Cyprus	**21**	(2.9)		**30**	(4.4)		**24**	(4.7)		6	(4.7)	
	Dominican Republic	**10**	(2.4)		**7**	(3.2)		**13**	(3.2)		5	(5.8)	
	Georgia	**14**	(3.0)		**21**	(5.6)		**16**	(3.3)		4	(5.6)	
	Hong Kong (China)*	**9**	(3.6)		**20**	(6.5)		8	(4.3)		0	(5.1)	
	Indonesia	**7**	(2.6)		5	(4.4)		**10**	(4.0)		2	(5.0)	
	Jordan	**29**	(5.6)		**42**	(8.4)		**28**	(6.8)		**19**	(6.0)	
	Kazakhstan	**7**	(2.5)		**12**	(3.6)		**10**	(3.0)		-2	(4.4)	
	Kosovo	**6**	(2.2)		**10**	(4.1)		**7**	(2.9)		-1	(4.5)	
	Lebanon	5	(3.2)		8	(5.8)		7	(4.7)		-3	(6.4)	
	Macao (China)	2	(2.9)		**15**	(5.7)		1	(4.3)		-8	(5.5)	
	Malaysia	**6**	(3.2)		**10**	(4.0)		**8**	(3.8)		-1	(6.0)	
	Malta	**21**	(3.2)		**37**	(6.2)		**24**	(5.3)		-3	(6.1)	
	Moldova	**11**	(2.9)		**18**	(5.8)		**11**	(4.1)		3	(4.7)	
	Montenegro	5	(2.3)		**11**	(4.0)		**6**	(3.0)		-5	(6.2)	
	Morocco	**9**	(2.6)		**11**	(4.0)		**13**	(3.1)		1	(4.0)	
	North Macedonia	**19**	(3.1)		**18**	(5.8)		**20**	(4.3)		**18**	(6.3)	
	Panama	0	(2.8)		1	(5.5)		1	(3.6)		-5	(6.1)	
	Peru	**-13**	(2.7)		**-10**	(4.4)		**-10**	(3.8)		**-22**	(5.8)	
	Philippines	3	(3.1)		0	(4.4)		**6**	(3.0)		0	(6.2)	
	Qatar	**39**	(2.2)		**56**	(3.9)		**48**	(2.4)		**8**	(3.8)	
	Romania	1	(3.5)		6	(6.2)		3	(4.5)		-7	(7.1)	
	Russia	1	(2.3)		6	(4.1)		0	(3.0)		-3	(4.7)	
	Saudi Arabia	**29**	(4.7)		**35**	(6.3)		**32**	(5.3)		**17**	(6.2)	
	Serbia	5	(3.8)		**11**	(5.5)		7	(5.0)		-3	(4.7)	
	Singapore	-4	(2.5)		**12**	(5.4)		**-8**	(3.3)		**-12**	(5.2)	
	Chinese Taipei	-1	(5.9)		11	(5.8)		-4	(6.6)		-9	(10.0)	
	Thailand	**20**	(4.8)		**22**	(5.2)		**22**	(5.1)		14	(8.7)	
	Ukraine	-2	(3.7)		2	(6.6)		-2	(4.4)		-7	(5.6)	
	United Arab Emirates	**26**	(3.3)		**41**	(3.1)		**32**	(4.5)		0	(5.1)	
	Uruguay	-3	(3.2)		2	(5.5)		-2	(4.7)		**-13**	(5.2)	
	Viet Nam	m	m		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

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Table II.B1.8.22 [1/2] **Expectation to work as science and engineering professionals amongst top performers in science or mathematics, by gender**

		Percentage of top performers[1] in science and/or mathematics			Percentage of top performers in science or mathematics who expect to work as science and engineering professionals when they are 30											
					All students			Boys			Girls			Gender difference (girls-boys)		
		%	S.E	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
OECD	Australia	14.1	(0.6)		27.0	(1.6)		33.2	(2.3)		19.2	(2.0)		**-14.0**	(2.8)	
	Austria	14.2	(0.8)		16.2	(1.8)	†	20.3	(2.3)	†	8.9	(2.5)	†	**-11.4**	(3.4)	†
	Belgium[2]	17.4	(0.9)		24.7	(2.7)	‡	30.9	(4.1)	‡	16.3	(3.6)	‡	**-14.6**	(5.8)	‡
	Canada	19.5	(0.8)		23.0	(1.2)		31.4	(1.9)	†	14.1	(1.4)		**-17.3**	(2.5)	†
	Chile	1.9	(0.2)		33.0	(4.7)		38.1	(5.7)		22.7	(9.4)		-15.4	(11.5)	
	Colombia	0.8	(0.2)		28.2	(8.7)		36.2	(11.5)		c	c		c	c	
	Czech Republic	14.7	(0.8)		11.5	(1.7)	†	14.5	(2.6)	†	8.2	(2.0)	†	-6.2	(3.2)	†
	Denmark	13.3	(0.7)		25.1	(2.6)	†	32.3	(3.8)	†	16.9	(3.5)	†	**-15.4**	(5.1)	†
	Estonia	19.5	(0.8)		16.3	(1.5)		17.3	(2.0)		15.2	(2.3)		-2.0	(3.1)	
	Finland	16.8	(0.8)		10.2	(1.2)	†	11.6	(2.0)	†	9.1	(1.9)		-2.5	(3.0)	†
	France	13.4	(0.8)		26.5	(2.1)		33.1	(3.2)		16.9	(2.7)	†	**-16.2**	(4.1)	†
	Germany	16.6	(0.9)		18.4	(1.7)	†	22.6	(2.6)	†	12.4	(2.2)	†	**-10.2**	(3.7)	†
	Greece	4.4	(0.5)		23.3	(4.1)		23.1	(5.1)		23.4	(6.8)		0.3	(8.5)	
	Hungary	9.7	(0.7)		22.3	(2.2)		26.7	(3.3)		16.5	(3.4)		**-10.1**	(5.1)	
	Iceland	11.2	(0.6)		17.6	(2.5)		21.1	(3.8)		14.1	(3.4)		-7.0	(5.3)	
	Ireland	10.5	(0.7)		23.9	(2.5)		29.6	(3.2)		16.7	(3.2)		**-12.9**	(4.2)	
	Israel	11.1	(0.7)		20.1	(1.8)	†	23.6	(2.8)	†	16.2	(2.7)	†	-7.3	(4.2)	†
	Italy	10.2	(0.9)		21.2	(2.5)		26.0	(3.5)		12.5	(3.6)		**-13.6**	(5.2)	†
	Japan	21.8	(1.1)		5.6	(0.8)		7.5	(1.2)		3.4	(1.0)		**-4.0**	(1.6)	
	Korea	23.6	(1.2)		13.5	(1.4)		18.5	(2.2)		7.2	(1.3)		**-11.3**	(2.6)	
	Latvia	9.9	(0.6)		16.7	(2.1)		20.4	(3.0)		12.2	(2.8)		**-8.3**	(4.2)	
	Lithuania	9.9	(0.5)		16.1	(1.8)		17.9	(2.7)		13.5	(2.8)	†	-4.4	(4.2)	†
	Luxembourg	12.5	(0.5)		20.2	(2.0)		25.0	(3.2)		14.6	(2.8)		**-10.5**	(4.4)	
	Mexico	0.7	(0.2)		38.3	(9.9)		43.2	(13.7)		c	c		c	c	
	Netherlands*	20.7	(1.0)		13.6	(1.7)	†	19.0	(2.9)	†	8.2	(1.8)	†	**-10.7**	(3.3)	†
	New Zealand	16.4	(0.6)		21.1	(1.7)	†	26.4	(2.4)	†	14.3	(2.2)		**-12.1**	(3.2)	†
	Norway	13.9	(0.7)		22.8	(2.0)	†	32.7	(2.9)		11.6	(2.5)	†	**-21.0**	(3.9)	†
	Poland	18.2	(1.1)		13.0	(1.4)		14.0	(2.0)		11.9	(1.8)		-2.1	(2.6)	
	Portugal*	13.2	(0.8)		35.6	(2.5)		47.9	(3.3)		15.1	(2.6)	†	**-32.8**	(4.1)	†
	Slovak Republic	11.6	(0.7)		11.7	(1.7)	†	12.6	(2.6)	†	10.7	(2.4)		-1.9	(3.7)	†
	Slovenia	15.5	(0.8)		18.8	(2.4)	†	22.8	(3.4)	†	14.5	(3.0)	†	-8.3	(4.3)	†
	Spain	m	m		m	m		m	m		m	m		m	m	
	Sweden	14.8	(0.8)		28.7	(2.5)		36.7	(4.0)		20.4	(2.7)		**-16.4**	(4.7)	
	Switzerland	18.6	(1.1)		18.2	(2.4)	†	23.8	(3.3)	†	11.2	(2.3)	†	**-12.6**	(3.3)	†
	Turkey	5.5	(0.6)		27.9	(3.2)		32.7	(4.1)		21.7	(4.0)		**-11.0**	(5.5)	
	United Kingdom	16.2	(0.8)		24.1	(1.6)		27.7	(2.2)		20.0	(2.1)		**-7.6**	(3.0)	
	United States*	12.3	(1.0)		20.0	(2.0)		27.8	(2.9)		10.4	(2.5)		**-17.4**	(3.7)	
	OECD average-36a	13.1	(0.1)		21.2	(0.5)		26.0	(0.7)		14.3	(0.5)		**-10.9**	(0.8)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. In this figure, top performers refers to students who achieve at least Level 2 in all three core domains and at Level 5 in mathematics and/or science.

2. For students' career expectations, results are only available for the French community.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.8.22 [2/2] **Expectation to work as science and engineering professionals amongst top performers in science or mathematics, by gender**

	Percentage of top performers[1] in science and/or mathematics			Percentage of top performers in science or mathematics who expect to work as science and engineering professionals when they are 30											
				All students			Boys			Girls			Gender difference (girls-boys)		
	%	S.E	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
Partners															
Albania	2.3	(0.3)		31.4	(4.8)		37.8	(6.2)		23.2	(7.6)		-14.6	(10.1)	
Argentina	0.7	(0.2)		37.7	(10.1)		42.2	(10.2)		27.0	(17.4)		-15.2	(17.4)	
Baku (Azerbaijan)	2.0	(0.3)		13.2	(4.5)		13.4	(5.1)		13.2	(8.2)		-0.2	(9.3)	
Belarus	8.0	(0.6)		12.9	(1.9)		14.1	(2.8)		10.9	(3.1)		-3.2	(4.6)	
Bosnia and Herzegovina	0.9	(0.2)		26.7	(9.2)		29.9	(13.5)		c	c		c	c	
Brazil	1.4	(0.2)		29.2	(5.0)		34.2	(8.3)		20.2	(8.5)		-14.0	(14.0)	
Brunei Darussalam	4.0	(0.3)		28.7	(3.2)		36.6	(4.6)		18.4	(4.2)		**-18.2**	(6.2)	
B-S-J-Z (China)	48.5	(1.4)		12.3	(0.8)		15.1	(1.1)		9.1	(0.8)		**-6.0**	(1.1)	
Bulgaria	4.8	(0.7)		13.0	(2.7)		14.1	(3.9)	†	11.5	(3.5)		-2.7	(5.2)	†
Costa Rica	0.4	(0.1)		c	c		c	c		c	c		c	c	
Croatia	6.9	(0.6)		18.6	(2.4)		20.1	(2.9)		16.5	(4.1)		-3.6	(5.2)	
Cyprus	5.1	(0.4)		24.3	(3.2)		26.3	(4.2)		21.6	(6.1)		-4.8	(8.0)	
Dominican Republic	0.0	(0.0)		m	m		m	m		m	m		m	m	
Georgia	1.1	(0.3)		19.7	(6.5)		22.2	(7.9)		c	c		c	c	
Hong Kong (China)*	29.6	(1.1)		13.1	(1.1)		19.7	(1.8)		6.4	(1.1)		**-13.3**	(2.0)	
Indonesia	0.5	(0.2)		8.5	(6.5)		12.5	(10.4)		5.0	(7.7)		-7.5	(12.5)	
Jordan	1.2	(0.3)		19.4	(5.1)		27.1	(9.3)		11.1	(5.8)		-16.0	(11.4)	
Kazakhstan	2.0	(0.2)		22.8	(3.2)		28.3	(4.4)		14.2	(3.7)		**-14.1**	(5.5)	
Kosovo	0.1	(0.1)		c	c		c	c		m	m		m	m	
Lebanon	2.2	(0.3)		37.9	(7.8)		46.6	(9.1)		26.7	(11.1)		-20.0	(13.1)	
Macao (China)	31.0	(0.9)		11.6	(1.1)		15.1	(1.7)		7.7	(1.3)		**-7.4**	(2.2)	
Malaysia	2.6	(0.5)		26.6	(4.9)		38.2	(7.0)		14.7	(5.8)		**-23.5**	(8.4)	
Malta	9.8	(0.6)		21.2	(2.8)		26.6	(3.9)		14.6	(3.6)		**-12.0**	(5.4)	
Moldova	2.8	(0.4)		8.4	(3.2)		6.3	(3.4)		11.0	(4.6)		4.6	(4.9)	
Montenegro	1.9	(0.2)		12.6	(4.2)		9.8	(4.6)		17.5	(7.0)		7.8	(7.6)	
Morocco	0.1	(0.1)		c	c		c	c		c	c		c	c	
North Macedonia	1.6	(0.2)		17.0	(6.8)		14.0	(8.6)		20.0	(11.3)		5.9	(15.1)	
Panama	0.2	(0.1)		c	c		c	c		m	m		m	m	
Peru	1.0	(0.2)		29.6	(8.6)		34.2	(9.6)		c	c		c	c	
Philippines	0.1	(0.1)		c	c		c	c		c	c		c	c	
Qatar	4.0	(0.2)		29.4	(2.3)		34.9	(3.1)		22.3	(2.9)		**-12.6**	(4.1)	
Romania	3.5	(0.6)		12.7	(3.5)		13.4	(4.9)		11.4	(4.8)		-2.0	(6.9)	
Russia	9.1	(0.8)		16.5	(2.0)		20.3	(3.3)		12.3	(2.9)		-8.0	(4.8)	
Saudi Arabia	0.2	(0.1)		c	c		c	c		c	c		c	c	
Serbia	5.9	(0.5)		15.7	(2.5)		14.8	(2.7)		16.9	(4.1)		2.1	(4.6)	
Singapore	40.3	(0.8)		20.0	(0.9)		27.0	(1.4)		11.9	(1.0)		**-15.1**	(1.8)	
Chinese Taipei	24.6	(1.2)		16.7	(1.3)		23.8	(2.0)		8.7	(1.3)		**-15.0**	(2.4)	
Thailand	2.6	(0.4)		16.5	(3.3)		19.4	(5.8)		14.5	(4.0)		-4.9	(6.9)	
Ukraine	6.4	(0.7)		8.7	(1.6)		11.2	(2.3)		5.0	(2.3)		-6.2	(3.2)	
United Arab Emirates	6.6	(0.3)		24.9	(2.0)		31.5	(2.7)		16.2	(3.0)		**-15.3**	(4.0)	
Uruguay	1.5	(0.3)		41.1	(10.5)		47.0	(11.5)		c	c		c	c	
Viet Nam	0.0	c		m	m		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. In this figure, top performers refers to students who achieve at least Level 2 in all three core domains and at Level 5 in mathematics and/or science.

2. For students' career expectations, results are only available for the French community.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.8.23 [1/2] **Expectation to work as health professionals amongst top performers in science or mathematics, by gender**

		Percentage of top performers[1] in science and/or mathematics			Percentage of top performers in science or mathematics who expect to work as health professionals when they are 30											
					All students			Boys			Girls			Gender difference (girls-boys)		
		%	S.E	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
OECD	Australia	14.1	(0.6)		24.9	(1.5)		17.5	(1.7)		34.1	(2.4)		**16.6**	(2.8)	
	Austria	14.2	(0.8)		15.7	(2.1)	†	10.7	(2.5)	†	24.5	(3.0)	†	**13.8**	(3.7)	†
	Belgium[2]	17.4	(0.9)		18.3	(2.8)	‡	13.3	(3.4)	‡	25.0	(4.8)	‡	**11.7**	(5.9)	‡
	Canada	19.5	(0.8)		28.6	(1.5)		18.5	(1.6)	†	39.4	(2.2)		**20.9**	(2.6)	†
	Chile	1.9	(0.2)		32.6	(5.3)		25.6	(5.8)		46.4	(11.0)		20.8	(12.0)	
	Colombia	0.8	(0.2)		11.0	(4.6)		8.4	(5.4)		c	c		c	c	
	Czech Republic	14.7	(0.8)		19.2	(2.1)	†	11.2	(2.3)	†	28.0	(3.2)	†	**16.8**	(3.6)	†
	Denmark	13.3	(0.7)		19.5	(2.2)	†	10.6	(2.0)	†	29.8	(3.8)	†	**19.2**	(4.3)	†
	Estonia	19.5	(0.8)		15.9	(1.6)		11.2	(1.8)		21.3	(2.6)		**10.1**	(3.2)	
	Finland	16.8	(0.8)		26.2	(2.1)	†	15.2	(2.3)	†	35.9	(2.9)		**20.7**	(3.4)	†
	France	13.4	(0.8)		18.8	(2.0)		12.6	(2.3)		27.6	(3.5)	†	**15.0**	(4.2)	†
	Germany	16.6	(0.9)		13.5	(1.3)	†	6.3	(1.3)	†	23.7	(2.6)	†	**17.4**	(3.1)	†
	Greece	4.4	(0.5)		20.2	(3.3)		15.4	(3.6)		27.7	(6.0)		12.3	(6.8)	
	Hungary	9.7	(0.7)		15.8	(2.4)		10.3	(2.3)		23.1	(3.8)		**12.8**	(4.1)	
	Iceland	11.2	(0.6)		21.2	(3.1)		9.6	(2.8)		32.9	(5.0)		**23.3**	(5.4)	
	Ireland	10.5	(0.7)		22.8	(2.5)		17.0	(3.0)		30.4	(3.6)		**13.4**	(4.6)	
	Israel	11.1	(0.7)		17.9	(2.0)	†	10.2	(2.0)	†	26.7	(3.2)	†	**16.5**	(3.5)	†
	Italy	10.2	(0.9)		15.0	(1.8)		10.7	(1.7)		22.7	(3.6)		**12.0**	(3.9)	†
	Japan	21.8	(1.1)		17.9	(2.1)		12.0	(2.3)		25.0	(2.9)		**12.9**	(3.1)	
	Korea	23.6	(1.2)		12.5	(1.2)		10.3	(1.3)		15.2	(1.8)		**4.9**	(2.0)	
	Latvia	9.9	(0.6)		16.2	(2.5)		9.2	(2.5)		24.9	(4.5)		**15.7**	(5.4)	
	Lithuania	9.9	(0.5)		16.7	(2.3)		6.7	(1.6)		31.8	(5.0)	†	**25.1**	(5.3)	†
	Luxembourg	12.5	(0.5)		17.1	(1.7)		10.0	(1.9)		25.2	(3.1)		**15.2**	(3.7)	
	Mexico	0.7	(0.2)		12.9	(7.0)		10.7	(7.6)		c	c		c	c	
	Netherlands*	20.7	(1.0)		19.0	(2.0)	†	9.5	(2.0)	†	28.7	(3.1)	†	**19.2**	(3.7)	†
	New Zealand	16.4	(0.6)		23.7	(1.8)	†	14.8	(2.2)	†	35.1	(3.3)		**20.3**	(4.4)	†
	Norway	13.9	(0.7)		16.2	(2.0)	†	6.7	(1.9)		26.8	(3.4)	†	**20.1**	(3.6)	†
	Poland	18.2	(1.1)		19.9	(1.7)		10.8	(1.6)		30.4	(2.8)		**19.6**	(3.2)	
	Portugal*	13.2	(0.8)		26.8	(2.3)		15.0	(2.0)		46.6	(4.7)	†	**31.6**	(5.3)	†
	Slovak Republic	11.6	(0.7)		23.5	(2.2)	†	14.7	(3.6)	†	33.2	(4.0)		**18.5**	(6.0)	†
	Slovenia	15.5	(0.8)		21.1	(2.5)	†	11.8	(2.2)	†	31.3	(3.9)	†	**19.6**	(4.1)	†
	Spain	m	m		m	m		m	m		m	m		m	m	
	Sweden	14.8	(0.8)		14.3	(1.7)		6.6	(1.8)		22.2	(2.8)		**15.6**	(3.3)	
	Switzerland	18.6	(1.1)		17.0	(1.9)	†	8.9	(1.7)	†	27.1	(3.1)	†	**18.2**	(3.4)	†
	Turkey	5.5	(0.6)		38.2	(3.3)		27.4	(3.9)		52.3	(4.2)		**25.0**	(5.4)	
	United Kingdom	16.2	(0.8)		18.1	(1.5)		10.9	(1.7)		26.2	(2.3)		**15.2**	(2.9)	
	United States*	12.3	(1.0)		24.9	(2.6)		14.5	(3.0)		37.7	(4.0)		**23.1**	(5.1)	
	OECD average-36a	13.1	(0.1)		19.8	(0.4)		12.3	(0.5)		29.9	(0.7)		**17.4**	(0.8)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. In this figure, top performers refers to students who achieve at least Level 2 in all three core domains and at Level 5 in mathematics and/or science.

2. For students' career expectations, results are only available for the French community.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.8.23 [2/2] **Expectation to work as health professionals amongst top performers in science or mathematics, by gender**

	Percentage of top performers[1] in science and/or mathematics			Percentage of top performers in science or mathematics who expect to work as science and engineering professionals when they are 30											
				All students			Boys			Girls			Gender difference (girls-boys)		
Partners	%	S.E	s	%	S.E.	s	%	S.E.	s	%	S.E.	s	% dif.	S.E.	s
Albania	2.3	m		29.2	(4.3)		24.9	(5.5)		34.7	(7.4)		9.8	(9.4)	
Argentina	0.7	m		10.8	(5.6)		7.3	(5.0)		19.3	(12.8)		12.0	(13.7)	
Baku (Azerbaijan)	2.0	m		19.4	(4.5)		15.5	(4.9)		27.7	(10.3)		12.2	(11.9)	
Belarus	8.0	m		14.4	(2.5)		11.0	(2.6)		19.9	(4.1)		**9.0**	(4.5)	
Bosnia and Herzegovina	0.9	m		16.6	(7.3)		7.3	(5.9)		c	c		c	c	
Brazil	1.4	m		28.8	(5.3)		22.9	(5.8)		39.5	(10.1)		16.6	(11.7)	
Brunei Darussalam	4.0	m		25.1	(3.7)		21.6	(4.0)		29.6	(5.8)		8.0	(6.4)	
B-S-J-Z (China)	48.5	m		11.7	(0.7)		11.1	(0.9)		12.3	(0.9)		1.2	(1.2)	
Bulgaria	4.8	m		18.1	(3.6)		14.7	(4.1)	†	22.7	(5.8)		8.0	(6.7)	†
Costa Rica	0.4	m		c	c		c	c		c	c		c	c	
Croatia	6.9	m		20.9	(2.8)		12.9	(2.7)		32.0	(4.9)		**19.1**	(5.5)	
Cyprus	5.1	m		24.0	(4.0)		22.2	(5.0)		26.7	(7.1)		4.6	(8.9)	
Dominican Republic	0.0	m		m	m		m	m		m	m		m	m	
Georgia	1.1	m		8.7	(5.0)		6.9	(5.9)		c	c		c	c	
Hong Kong (China)*	29.6	m		18.7	(1.5)		13.7	(1.5)		23.7	(2.3)		**10.1**	(2.6)	
Indonesia	0.5	m		25.3	(9.4)		17.7	(15.4)		33.0	(11.3)		15.3	(19.4)	
Jordan	1.2	m		55.3	(7.6)		44.2	(11.2)		67.5	(11.2)		23.3	(16.2)	
Kazakhstan	2.0	m		12.9	(2.3)		10.4	(2.9)		16.7	(4.0)		6.3	(5.3)	
Kosovo	0.1	m		c	c		c	c		m	m		m	m	
Lebanon	2.2	m		30.4	(5.7)		21.1	(7.1)		42.5	(8.9)		21.4	(11.2)	
Macao (China)	31.0	m		17.9	(1.2)		10.5	(1.3)		26.3	(1.9)		**15.9**	(2.4)	
Malaysia	2.6	m		24.2	(4.6)		9.7	(4.5)		39.0	(5.9)		**29.2**	(7.5)	
Malta	9.8	m		23.4	(2.7)		17.2	(3.6)		31.0	(4.0)		**13.8**	(5.4)	
Moldova	2.8	m		16.2	(3.9)		11.9	(4.7)		21.3	(6.1)		9.4	(7.3)	
Montenegro	1.9	m		14.7	(4.4)		13.3	(6.0)		17.0	(6.9)		3.7	(9.3)	
Morocco	0.1	m		c	c		c	c		c	c		c	c	
North Macedonia	1.6	m		10.3	(6.0)		6.4	(7.3)		14.0	(9.3)		7.6	(11.5)	
Panama	0.2	m		c	c		c	c		m	m		m	m	
Peru	1.0	m		13.3	(5.0)		8.3	(5.7)		c	c		c	c	
Philippines	0.1	m		c	c		c	c		c	c		c	c	
Qatar	4.0	m		28.8	(2.3)		22.2	(2.8)		37.1	(3.8)		**14.9**	(4.7)	
Romania	3.5	m		18.0	(4.2)		8.1	(3.3)		34.5	(8.5)		**26.4**	(8.8)	
Russia	9.1	m		12.2	(1.7)		8.5	(1.9)		16.3	(3.0)		**7.8**	(3.6)	
Saudi Arabia	0.2	m		c	c		c	c		c	c		c	c	
Serbia	5.9	m		17.1	(3.0)		14.1	(3.3)		21.5	(4.5)		7.3	(4.9)	
Singapore	40.3	m		22.1	(0.9)		15.4	(1.2)		29.9	(1.7)		**14.6**	(2.2)	
Chinese Taipei	24.6	m		17.8	(1.5)		12.4	(1.5)		24.0	(2.4)		**11.6**	(2.8)	
Thailand	2.6	m		34.8	(4.7)		20.5	(5.1)		45.2	(7.3)		**24.7**	(9.0)	
Ukraine	6.4	m		8.9	(2.0)		5.2	(1.7)		14.5	(4.3)		**9.3**	(4.7)	
United Arab Emirates	6.6	m		27.6	(2.2)		19.3	(2.8)		38.5	(3.9)		**19.3**	(5.0)	
Uruguay	1.5	m		15.9	(6.9)		11.4	(6.7)		c	c		c	c	
Viet Nam	0.0	m		m	m		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. In this figure, top performers refers to students who achieve at least Level 2 in all three core domains and at Level 5 in mathematics and/or science.

2. For students' career expectations, results are only available for the French community.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.9.3 [1/4] **Mean reading performance and academic resilience, by immigrant background**
Based on students' reports

		Percentage of immigrant students			Reading performance														
					Average performance			Non-immigrant students			Immigrant students			Second-generation immigrant students			First-generation immigrant students		
		%	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s
OECD	Australia	27.7	(0.8)		503	(1.6)		504	(2.0)		511	(3.3)		523	(4.5)		501	(3.9)	
	Austria	22.7	(1.2)		484	(2.7)		500	(2.6)		437	(4.2)		446	(4.3)		421	(5.5)	
	Belgium	18.1	(0.9)		493	(2.3)		506	(2.4)		445	(3.8)		459	(4.7)		427	(5.2)	
	Canada	35.0	(1.4)		520	(1.8)		525	(1.6)		522	(3.0)		535	(3.9)		508	(3.6)	
	Chile	3.4	(0.4)		452	(2.6)		456	(2.7)		438	(7.5)		447	(18.3)		435	(8.5)	
	Colombia	0.6	(0.1)		412	(3.3)		414	(3.3)		355	(13.9)		c	c		c	c	
	Czech Republic	4.1	(0.4)		490	(2.5)		493	(2.5)		440	(9.7)		459	(10.5)		421	(14.4)	
	Denmark	10.7	(0.4)		501	(1.8)		509	(1.9)		444	(3.5)		447	(3.7)		435	(7.4)	
	Estonia	10.4	(0.5)		523	(1.8)		528	(1.9)		489	(4.5)		492	(4.9)		453	(16.8)	
	Finland	5.8	(0.5)		520	(2.3)		527	(2.1)		435	(7.5)		456	(10.3)		420	(9.0)	
	France	14.3	(0.9)		493	(2.3)		502	(2.7)		449	(5.3)		461	(5.7)		425	(7.5)	
	Germany	22.2	(1.1)		498	(3.0)		519	(3.3)		456	(6.5)		477	(6.6)		405	(11.8)	
	Greece	11.7	(0.7)		457	(3.6)		465	(3.4)		414	(6.1)		420	(6.9)		397	(9.2)	
	Hungary	2.6	(0.3)		476	(2.3)		477	(2.3)		490	(9.8)		510	(11.1)		468	(16.5)	
	Iceland	5.6	(0.4)		474	(1.7)		481	(1.8)		407	(7.6)		412	(10.9)		402	(9.5)	
	Ireland	17.9	(0.9)		518	(2.2)		522	(2.3)		508	(3.8)		509	(5.3)		508	(5.3)	
	Israel	16.4	(1.1)		470	(3.7)		481	(3.5)		470	(6.6)		493	(6.1)		398	(10.4)	
	Italy	10.0	(0.5)		476	(2.4)		482	(2.6)		440	(4.9)		445	(5.9)		433	(7.1)	
	Japan	0.6	(0.1)		504	(2.7)		w	w		w	w		w	w		w	w	
	Korea	0.2	(0.1)		514	(2.9)		515	(2.9)		c	c		c	c		c	c	
	Latvia	4.4	(0.3)		479	(1.6)		480	(1.6)		476	(8.7)		467	(9.2)		515	(19.9)	
	Lithuania	1.6	(0.1)		476	(1.5)		478	(1.5)		457	(11.1)		454	(11.5)		469	(27.3)	
	Luxembourg	54.9	(0.6)		470	(1.1)		491	(1.9)		455	(1.7)		450	(2.9)		461	(2.9)	
	Mexico	1.6	(0.3)		420	(2.7)		424	(2.8)		328	(14.5)		332	(13.4)		324	(22.4)	
	Netherlands*	13.8	(1.2)		485	(2.7)		498	(2.9)		426	(6.2)		433	(6.7)		399	(13.0)	
	New Zealand	26.5	(1.3)		506	(2.0)		510	(2.3)		508	(3.5)		518	(5.3)		500	(4.0)	
	Norway	12.4	(0.8)		499	(2.2)		509	(2.1)		457	(4.7)		463	(7.0)		451	(5.5)	
	Poland	0.6	(0.2)		512	(2.7)		514	(2.7)		c	c		c	c		c	c	
	Portugal*	7.0	(0.6)		492	(2.4)		495	(2.6)		463	(7.8)		483	(10.1)		436	(9.1)	
	Slovak Republic	1.2	(0.2)		458	(2.2)		460	(2.2)		407	(13.6)		424	(17.8)		387	(17.3)	
	Slovenia	8.9	(0.3)		495	(1.2)		502	(1.3)		439	(6.0)		464	(7.3)		422	(8.2)	
	Spain	12.2	(0.5)		m	m		m	m		m	m		m	m		m	m	
	Sweden	20.5	(1.3)		506	(3.0)		525	(2.7)		443	(5.8)		471	(6.4)		410	(6.9)	
	Switzerland	33.9	(1.4)		484	(3.1)		503	(3.2)		451	(4.3)		453	(4.6)		448	(6.3)	
	Turkey	0.9	(0.1)		466	(2.2)		467	(2.2)		462	(12.7)		474	(15.1)		c	c	
	United Kingdom	19.8	(1.2)		504	(2.6)		511	(2.7)		491	(4.2)		493	(5.7)		488	(6.9)	
	United States*	23.0	(1.5)		505	(3.6)		510	(3.6)		503	(6.0)		512	(6.1)		479	(8.3)	
	OECD average-36a	13.0	(0.1)		487	(0.4)		494	(0.4)		452	(1.3)		465	(1.6)		440	(2.1)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

2. Immigrant students who scored in the top quarter of performance in reading amongst students in their own country.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.9.3 [2/4] **Mean reading performance and academic resilience, by immigrant background**
Based on students' reports

		Percentage of immigrant students			Reading performance															
					Average performance			Non-immigrant students			Immigrant students			Second-generation immigrant students			First-generation immigrant students			
		%	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	
Partners	Albania	0.6	(0.1)		405	(1.9)		407	(1.9)		340	(11.3)		c	c		c	c		
	Argentina	4.6	(0.3)		402	(3.0)		404	(3.1)		405	(7.0)		414	(9.4)		395	(8.0)		
	Baku (Azerbaijan)	5.2	(0.4)		389	(2.5)		393	(2.6)		379	(4.2)		386	(5.2)		369	(6.8)		
	Belarus	4.1	(0.3)		474	(2.4)		475	(2.5)		457	(7.3)		461	(6.7)		447	(16.3)		
	Bosnia and Herzegovina	2.8	(0.3)		403	(2.9)		405	(3.0)		386	(7.7)		403	(11.0)		369	(11.1)		
	Brazil	0.6	(0.1)		413	(2.1)		418	(2.1)		334	(11.0)		332	(13.4)		c	c		
	Brunei Darussalam	8.2	(0.3)		408	(0.9)		403	(1.0)		476	(4.0)		460	(6.8)		485	(5.4)		
	B-S-J-Z (China)	0.2	(0.1)		555	(2.7)		556	(2.7)		c	c		c	c		c	c		
	Bulgaria	1.1	(0.2)		420	(3.9)		425	(3.8)		383	(13.0)		c	c		c	c		
	Costa Rica	10.0	(0.7)		426	(3.4)		430	(3.5)		407	(4.8)		408	(4.7)		404	(8.8)		
	Croatia	9.1	(0.5)		479	(2.7)		481	(2.6)		471	(5.5)		473	(5.7)		464	(11.8)		
	Cyprus	14.8	(0.5)		424	(1.4)		426	(1.4)		430	(4.0)		420	(6.4)		436	(5.4)		
	Dominican Republic	2.9	(0.3)		342	(2.9)		347	(2.7)		322	(11.2)		323	(10.4)		322	(16.2)		
	Georgia	1.4	(0.2)		380	(2.2)		384	(2.1)		333	(11.4)		328	(15.3)		c	c		
	Hong Kong (China)*	37.9	(1.3)		524	(2.7)		529	(2.9)		522	(4.7)		533	(4.3)		502	(6.9)		
	Indonesia	0.3	(0.1)		371	(2.6)		373	(2.6)		276	(16.0)		c	c		c	c		
	Jordan	11.6	(0.5)		419	(2.9)		421	(2.7)		433	(4.5)		433	(5.0)		434	(6.1)		
	Kazakhstan	8.2	(0.4)		387	(1.5)		389	(1.5)		377	(2.8)		389	(4.0)		366	(3.7)		
	Kosovo	1.1	(0.2)		353	(1.1)		355	(1.1)		333	(8.3)		339	(9.3)		c	c		
	Lebanon	6.0	(0.5)		353	(4.3)		364	(4.4)		313	(8.4)		306	(13.1)		316	(9.3)		
	Macao (China)	62.9	(0.7)		525	(1.2)		512	(2.2)		533	(1.8)		528	(2.5)		540	(2.8)		
	Malaysia	1.6	(0.2)		415	(2.9)		417	(2.8)		410	(16.7)		413	(13.0)		c	c		
	Malta	8.8	(0.4)		448	(1.7)		452	(1.8)		451	(6.8)		433	(16.3)		457	(8.3)		
	Moldova	1.4	(0.2)		424	(2.4)		428	(2.4)		428	(13.8)		433	(14.4)		c	c		
	Montenegro	5.8	(0.3)		421	(1.1)		422	(1.1)		429	(4.5)		438	(6.5)		415	(6.5)		
	Morocco	0.8	(0.1)		359	(3.1)		361	(3.2)		305	(11.0)		c	c		c	c		
	North Macedonia	1.6	(0.2)		393	(1.1)		397	(1.2)		369	(14.1)		372	(17.2)		c	c		
	Panama	6.0	(0.7)		377	(3.0)		381	(2.9)		408	(10.1)		375	(14.3)		426	(12.1)		
	Peru	0.5	(0.1)		401	(3.0)		403	(2.9)		c	c		c	c		c	c		
	Philippines	1.0	(0.2)		340	(3.3)		344	(3.3)		274	(12.8)		c	c		261	(14.4)		
	Qatar	56.8	(0.4)		407	(0.8)		368	(1.3)		445	(1.2)		423	(2.6)		454	(1.4)		
	Romania	0.8	(0.2)	†	428	(5.1)		431	(5.3)		c	c		c	c		c	c		
	Russia	5.8	(0.3)		479	(3.1)		480	(3.1)		478	(6.3)		491	(6.9)		457	(8.4)		
	Saudi Arabia	11.9	(1.1)		399	(3.0)		400	(3.1)		436	(4.7)		435	(5.7)		437	(6.2)		
	Serbia	9.3	(0.4)		439	(3.3)		441	(3.1)		447	(6.8)		447	(7.3)		449	(13.5)		
	Singapore	24.8	(0.7)		549	(1.6)		546	(1.5)		565	(4.3)		587	(4.0)		554	(6.0)		
	Chinese Taipei	0.7	(0.2)		503	(2.8)		504	(2.8)		428	(49.1)		c	c		c	c		
	Thailand	1.1	(0.4)		393	(3.2)		394	(3.2)		356	(20.0)		348	(15.5)		c	c		
	Ukraine	2.3	(0.2)		466	(3.5)		468	(3.4)		443	(9.9)		456	(11.7)		419	(18.7)		
	United Arab Emirates	55.8	(0.8)		432	(2.3)		386	(2.0)		476	(2.7)		465	(2.6)		484	(3.4)		
	Uruguay	1.3	(0.2)		427	(2.8)		429	(2.7)		402	(18.6)		399	(19.4)		404	(31.4)		
	Viet Nam	0.1	(0.0)		m	m		m	m		m	m		m	m		m	m		

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

2. Immigrant students who scored in the top quarter of performance in reading amongst students in their own country.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.9.3 [3/4] **Mean reading performance and academic resilience, by immigrant background**
Based on students' reports

		Score-point difference in reading performance associated with immigrant background				Academic resilience	
		Before accounting for gender, and students' and schools' socio-economic profile[1]		After accounting for gender, and students' and schools' socio-economic profile		Academically resilient immigrant students[2]	
		Score dif.	S.E.	Score dif.	S.E.	%	S.E.
OECD	Australia	**8**	(3.5)	**7**	(3.0)	29.1	(1.3)
	Austria	**-63**	(4.5)	**-33**	(3.6)	11.2	(1.2)
	Belgium	**-61**	(4.1)	**-21**	(4.0)	12.0	(1.2)
	Canada	-3	(2.9)	-1	(2.6)	26.2	(1.2)
	Chile	**-18**	(7.1)	**-14**	(6.9)	18.6	(2.9)
	Colombia	**-59**	(13.6)	**-46**	(11.2)	13.5	(5.3)
	Czech Republic	**-53**	(9.4)	**-34**	(7.3)	12.3	(2.5)
	Denmark	**-65**	(3.8)	**-34**	(3.7)	9.3	(1.2)
	Estonia	**-39**	(4.6)	**-35**	(4.5)	13.6	(1.5)
	Finland	**-92**	(7.3)	**-74**	(6.7)	7.9	(1.8)
	France	**-52**	(6.2)	**-13**	(5.0)	13.4	(1.7)
	Germany	**-63**	(6.8)	**-17**	(5.6)	16.0	(1.7)
	Greece	**-51**	(5.3)	**-22**	(5.1)	12.1	(1.7)
	Hungary	13	(9.7)	-7	(9.4)	31.0	(5.3)
	Iceland	**-74**	(8.0)	**-55**	(7.9)	7.0	(2.6)
	Ireland	**-14**	(3.8)	**-9**	(3.2)	21.6	(1.5)
	Israel	-11	(6.4)	6	(5.3)	24.3	(1.8)
	Italy	**-43**	(5.1)	**-22**	(4.0)	14.1	(1.6)
	Japan	w	w	w	w	w	w
	Korea	c	c	c	c	m	m
	Latvia	-4	(8.8)	-7	(8.1)	27.5	(3.8)
	Lithuania	-21	(11.2)	**-27**	(9.0)	20.3	(4.2)
	Luxembourg	**-35**	(2.8)	**-17**	(2.8)	21.8	(0.7)
	Mexico	**-96**	(14.9)	**-80**	(11.6)	7.3	(3.4)
	Netherlands*	**-72**	(7.1)	**-23**	(6.5)	8.9	(1.7)
	New Zealand	-2	(4.0)	**-8**	(3.3)	26.5	(1.3)
	Norway	**-52**	(4.4)	**-33**	(4.5)	13.9	(1.5)
	Poland	c	c	c	c	m	m
	Portugal*	**-32**	(8.2)	**-26**	(6.2)	17.1	(2.8)
	Slovak Republic	**-53**	(13.7)	**-40**	(12.7)	12.6	(4.6)
	Slovenia	**-63**	(6.3)	**-28**	(6.2)	8.8	(1.8)
	Spain	m	m	m	m	m	m
	Sweden	**-83**	(5.9)	**-54**	(4.7)	10.3	(1.5)
	Switzerland	**-52**	(4.7)	**-25**	(3.6)	15.7	(1.3)
	Turkey	-5	(12.6)	**-27**	(12.2)	25.1	(7.0)
	United Kingdom	**-20**	(4.4)	-4	(4.1)	20.5	(1.6)
	United States*	-7	(5.9)	**16**	(4.5)	24.5	(2.2)
	OECD average-36a	**-41**	(1.3)	**-24**	(1.2)	16.8	(0.5)

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

1. The socio-economic profile is measured by the PISA index of economic, social and cultural status (ESCS).
2. Immigrant students who scored in the top quarter of performance in reading amongst students in their own country.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.9.3 [4/4] **Mean reading performance and academic resilience, by immigrant background**
Based on students' reports

		Score-point difference in reading performance associated with immigrant background						Academic resilience		
		Before accounting for gender, and students' and schools' socio-economic profile[1]			After accounting for gender, and students' and schools' socio-economic profile			Academically resilient immigrant students[2]		
		Score dif.	S.E.	s	Score dif.	S.E.	s	%	S.E.	s
Partners	Albania	**-67**	(11.3)		**-68**	(9.5)		3.0	(2.5)	
	Argentina	1	(7.3)		**12**	(6.0)		23.0	(2.6)	
	Baku (Azerbaijan)	**-14**	(4.8)		**-13**	(4.6)		19.8	(2.9)	
	Belarus	**-19**	(7.2)		-9	(6.5)		22.6	(2.9)	
	Bosnia and Herzegovina	**-19**	(7.7)		**-23**	(7.0)		20.1	(3.7)	
	Brazil	**-84**	(11.2)		**-74**	(10.6)		4.6	(2.5)	
	Brunei Darussalam	**73**	(4.2)		**25**	(4.1)		53.3	(2.1)	
	B-S-J-Z (China)	c	c		c	c		m	m	
	Bulgaria	**-42**	(12.4)		**-34**	(10.8)		16.8	(4.7)	
	Costa Rica	**-23**	(4.5)		**-12**	(3.4)		17.5	(2.4)	
	Croatia	-10	(5.2)		-3	(4.1)		21.2	(2.6)	
	Cyprus	4	(4.1)		9	(5.1)		27.9	(1.8)	
	Dominican Republic	**-24**	(10.3)		-17	(8.7)		20.0	(4.5)	
	Georgia	**-51**	(11.4)		**-47**	(11.0)		12.5	(3.9)	
	Hong Kong (China)*	-7	(5.0)		**9**	(4.2)		24.0	(1.3)	
	Indonesia	**-97**	(16.1)		**-89**	(15.1)		0.6	(0.7)	
	Jordan	**12**	(3.7)		**14**	(3.4)		31.3	(2.5)	
	Kazakhstan	**-11**	(3.0)		-3	(2.8)		20.3	(1.6)	
	Kosovo	**-22**	(8.6)		**-31**	(7.5)		14.6	(6.2)	
	Lebanon	**-51**	(8.0)		**-44**	(9.1)		14.6	(2.6)	
	Macao (China)	**22**	(3.0)		**26**	(3.1)		27.3	(0.9)	
	Malaysia	-8	(16.3)		-3	(12.5)		25.7	(6.5)	
	Malta	-1	(7.2)		-12	(7.1)		27.6	(2.9)	
	Moldova	0	(13.4)		-14	(12.4)		31.5	(6.4)	
	Montenegro	8	(4.7)		-7	(4.2)		29.6	(2.5)	
	Morocco	**-56**	(10.7)		**-55**	(9.7)		7.6	(4.0)	
	North Macedonia	-28	(14.4)		**-27**	(12.1)		18.7	(6.6)	
	Panama	**28**	(9.5)		-12	(7.0)		41.4	(5.0)	
	Peru	c	c		c	c		m	m	
	Philippines	**-70**	(11.9)		**-64**	(7.8)		11.9	(5.6)	
	Qatar	**77**	(1.9)		**63**	(1.6)		36.4	(0.5)	
	Romania	c	c	†	c	c	†	m	m	
	Russia	-2	(5.4)		-7	(5.1)		25.8	(2.8)	
	Saudi Arabia	**36**	(5.4)		**32**	(4.3)		38.8	(2.8)	
	Serbia	7	(6.3)		2	(4.8)		26.9	(2.9)	
	Singapore	**19**	(4.5)		**-9**	(4.2)		28.9	(1.5)	
	Chinese Taipei	-76	(49.0)		-82	(59.4)		17.3	(8.8)	
	Thailand	-38	(20.2)		-2	(22.9)		17.4	(7.8)	
	Ukraine	**-25**	(8.7)		**-25**	(8.4)		15.3	(4.0)	
	United Arab Emirates	**91**	(2.8)		**64**	(2.5)		38.5	(1.2)	
	Uruguay	-28	(18.6)		**-42**	(15.8)		22.3	(6.5)	
	Viet Nam	m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

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

2. Immigrant students who scored in the top quarter of performance in reading amongst students in their own country.

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.9.9 [1/6] **Change between 2009 and 2018 in the percentage of students with an immigrant background**
Based on students' reports

		PISA 2009										
		Percentage of students										
		Non-immigrant			Immigrant			Second-generation immigrant			First-generation immigrant		
		%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s
OECD	Australia	76.8	(1.1)		23.2	(1.1)		12.1	(0.7)		11.1	(0.6)	
	Austria	m	m		m	m		m	m		m	m	
	Belgium	85.2	(1.1)		14.8	(1.1)		7.8	(0.7)		6.9	(0.7)	
	Canada	75.6	(1.3)		24.4	(1.3)		13.7	(0.8)		10.7	(0.7)	
	Chile	99.5	(0.1)		0.5	(0.1)		0.1	(0.0)		0.4	(0.1)	
	Colombia	99.7	(0.1)		0.3	(0.1)		0.3	(0.1)		0.0	(0.0)	
	Czech Republic	97.7	(0.2)		2.3	(0.2)		1.4	(0.2)		0.8	(0.1)	
	Denmark	91.4	(0.4)		8.6	(0.4)		5.9	(0.3)		2.8	(0.2)	
	Estonia	92.0	(0.6)		8.0	(0.6)		7.4	(0.6)		0.6	(0.1)	
	Finland	97.4	(0.3)		2.6	(0.3)		1.1	(0.2)		1.4	(0.2)	
	France	86.9	(1.4)		13.1	(1.4)		10.0	(1.0)		3.2	(0.5)	
	Germany	82.4	(1.0)		17.6	(1.0)		11.7	(0.8)		5.9	(0.4)	
	Greece	91.0	(0.8)		9.0	(0.8)		2.9	(0.3)		6.1	(0.7)	
	Hungary	97.9	(0.3)		2.1	(0.3)		0.9	(0.1)		1.2	(0.2)	
	Iceland	97.6	(0.2)		2.4	(0.2)		0.4	(0.1)		1.9	(0.2)	
	Ireland	91.7	(0.6)		8.3	(0.6)		1.4	(0.2)		6.8	(0.5)	
	Israel	80.3	(1.1)		19.7	(1.1)		12.6	(0.7)		7.1	(0.7)	
	Italy	94.5	(0.3)		5.5	(0.3)		1.3	(0.1)		4.2	(0.2)	
	Japan	99.7	(0.1)		0.3	(0.1)		0.1	(0.0)		0.1	(0.0)	
	Korea	100.0	(0.0)		0.0	(0.0)		0.0	(0.0)		0.0	c	
	Latvia	95.5	(0.5)		4.5	(0.5)		4.1	(0.5)		0.4	(0.1)	
	Lithuania	98.3	(0.3)		1.7	(0.3)		1.6	(0.3)		0.2	(0.1)	
	Luxembourg	59.8	(0.7)		40.2	(0.7)		24.0	(0.6)		16.1	(0.5)	
	Mexico	98.1	(0.2)		1.9	(0.2)		0.7	(0.1)		1.1	(0.1)	
	Netherlands*	87.9	(1.4)		12.1	(1.4)		8.9	(1.1)		3.2	(0.5)	
	New Zealand	75.3	(1.0)		24.7	(1.0)		8.0	(0.6)		16.7	(0.7)	
	Norway	93.2	(0.6)		6.8	(0.6)		3.6	(0.4)		3.2	(0.3)	
	Poland	100.0	(0.0)		0.0	(0.0)		0.0	c		0.0	(0.0)	
	Portugal*	94.5	(0.5)		5.5	(0.5)		2.7	(0.3)		2.8	(0.3)	
	Slovak Republic	99.5	(0.1)		0.5	(0.1)		0.3	(0.1)		0.3	(0.1)	
	Slovenia	92.2	(0.4)		7.8	(0.4)		6.4	(0.4)		1.4	(0.2)	
	Spain	90.5	(0.5)		9.5	(0.5)		1.1	(0.1)		8.4	(0.5)	
	Sweden	88.3	(1.2)		11.7	(1.2)		8.0	(0.8)		3.7	(0.5)	
	Switzerland	76.5	(0.9)		23.5	(0.9)		15.1	(0.7)		8.4	(0.5)	
	Turkey	99.5	(0.1)		0.5	(0.1)		0.4	(0.1)		0.1	(0.1)	
	United Kingdom	89.4	(1.0)		10.6	(1.0)		5.8	(0.7)		4.8	(0.4)	
	United States*	80.5	(1.3)		19.5	(1.3)		13.0	(1.1)		6.4	(0.5)	
	OECD average-36b	90.5	(0.1)		9.5	(0.1)		5.4	(0.1)		4.1	(0.1)	
	OECD average-37	m	m		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.9.9 [2/6] **Change between 2009 and 2018 in the percentage of students with an immigrant background**
Based on students' reports

		PISA 2009											
		Percentage of students											
		Non-immigrant			Immigrant			Second-generation immigrant			First-generation immigrant		
		%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s
Partners	**Albania**	99.4	(0.2)		0.6	(0.2)		0.5	(0.2)		0.1	(0.1)	
	Argentina	96.4	(0.5)		3.6	(0.5)		2.2	(0.3)		1.5	(0.3)	
	Baku (Azerbaijan)	m	m		m	m		m	m		m	m	
	Belarus	m	m		m	m		m	m		m	m	
	Bosnia and Herzegovina	m	m		m	m		m	m		m	m	
	Brazil	99.2	(0.1)		0.8	(0.1)		0.5	(0.1)		0.3	(0.1)	
	Brunei Darussalam	m	m		m	m		m	m		m	m	
	B-S-J-Z (China)	m	m		m	m		m	m		m	m	
	Bulgaria	99.5	(0.1)		0.5	(0.1)		0.2	(0.1)		0.3	(0.1)	
	Costa Rica	94.0	(0.6)		6.0	(0.6)		2.6	(0.4)		3.4	(0.4)	
	Croatia	89.3	(0.6)		10.7	(0.6)		7.2	(0.5)		3.5	(0.3)	
	Cyprus	m	m		m	m		m	m		m	m	
	Dominican Republic	m	m		m	m		m	m		m	m	
	Georgia	98.5	(0.2)		1.5	(0.2)		1.3	(0.2)		0.1	(0.1)	
	Hong Kong (China)*	60.6	(1.5)		39.4	(1.5)		23.9	(0.8)		15.5	(1.0)	
	Indonesia	99.7	(0.1)		0.3	(0.1)		0.0	c		0.3	(0.1)	
	Jordan	86.2	(0.9)		13.8	(0.9)		10.5	(0.7)		3.3	(0.3)	
	Kazakhstan	88.4	(1.1)		11.6	(1.1)		7.2	(0.8)		4.4	(0.6)	
	Kosovo	m	m		m	m		m	m		m	m	
	Lebanon	m	m		m	m		m	m		m	m	
	Macao (China)	29.6	(0.6)		70.4	(0.6)		54.9	(0.6)		15.5	(0.4)	
	Malaysia	98.7	(0.3)		1.3	(0.3)		1.2	(0.3)		0.2	(0.1)	
	Malta	97.5	(0.3)		2.5	(0.3)		0.7	(0.2)		1.8	(0.2)	
	Moldova	98.7	(0.2)		1.3	(0.2)		1.1	(0.2)		0.2	(0.1)	
	Montenegro	93.4	(0.4)		6.6	(0.4)		2.5	(0.3)		4.1	(0.3)	
	Morocco	m	m		m	m		m	m		m	m	
	North Macedonia	m	m		m	m		m	m		m	m	
	Panama	96.1	(0.8)		3.9	(0.8)		1.4	(0.3)		2.5	(0.7)	
	Peru	99.6	(0.1)		0.4	(0.1)		0.3	(0.1)		0.2	(0.1)	
	Philippines	m	m		m	m		m	m		m	m	
	Qatar	53.6	(0.4)		46.4	(0.4)		20.0	(0.4)		26.4	(0.4)	
	Romania	99.7	(0.1)		0.3	(0.1)		0.1	(0.0)		0.2	(0.1)	
	Russia	87.9	(0.7)		12.1	(0.7)		7.2	(0.7)		4.9	(0.4)	
	Saudi Arabia	m	m		m	m		m	m		m	m	
	Serbia	90.5	(0.6)		9.5	(0.6)		5.2	(0.4)		4.3	(0.4)	
	Singapore	85.6	(0.7)		14.4	(0.7)		4.8	(0.4)		9.6	(0.5)	
	Chinese Taipei	99.6	(0.1)		0.4	(0.1)		0.2	(0.1)		0.2	(0.1)	
	Thailand	100.0	c		0.0	c		0.0	c		0.0	c	
	Ukraine	m	m		m	m		m	m		m	m	
	United Arab Emirates	m	m		m	m		m	m		m	m	
	Uruguay	99.4	(0.1)		0.6	(0.1)		0.3	(0.1)		0.3	(0.1)	
	Viet Nam	m	m		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.9.9 [3/6] **Change between 2009 and 2018 in the percentage of students with an immigrant background**
Based on students' reports

		PISA 2018												
		Percentage of students												
		Non-immigrant			Immigrant			Second-generation immigrant			First-generation immigrant			
		%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s
OECD	Australia	72.3	(0.8)		27.7	(0.8)		13.5	(0.6)		14.2	(0.5)	
	Austria	77.3	(1.2)		22.7	(1.2)		14.9	(0.8)		7.8	(0.7)	
	Belgium	81.9	(0.9)		18.1	(0.9)		10.2	(0.6)		7.8	(0.6)	
	Canada	65.0	(1.4)		35.0	(1.4)		17.9	(0.9)		17.1	(0.8)	
	Chile	96.6	(0.4)		3.4	(0.4)		0.7	(0.1)		2.7	(0.4)	
	Colombia	99.4	(0.1)		0.6	(0.1)		0.3	(0.1)		0.3	(0.1)	
	Czech Republic	95.9	(0.4)		4.1	(0.4)		2.0	(0.2)		2.1	(0.3)	
	Denmark	89.3	(0.4)		10.7	(0.4)		8.4	(0.4)		2.2	(0.2)	
	Estonia	89.6	(0.5)		10.4	(0.5)		9.6	(0.4)		0.7	(0.1)	
	Finland	94.2	(0.5)		5.8	(0.5)		2.5	(0.3)		3.3	(0.3)	
	France	85.7	(0.9)		14.3	(0.9)		9.6	(0.8)		4.7	(0.4)	
	Germany	77.8	(1.1)		22.2	(1.1)		15.7	(0.9)		6.5	(0.6)	
	Greece	88.3	(0.7)		11.7	(0.7)		8.5	(0.5)		3.2	(0.3)	
	Hungary	97.4	(0.3)		2.6	(0.3)		1.3	(0.2)		1.2	(0.3)	
	Iceland	94.4	(0.4)		5.6	(0.4)		2.5	(0.3)		3.1	(0.3)	
	Ireland	82.1	(0.9)		17.9	(0.9)		8.0	(0.6)		9.8	(0.5)	
	Israel	83.6	(1.1)		16.4	(1.1)		12.4	(1.0)		4.0	(0.3)	
	Italy	90.0	(0.5)		10.0	(0.5)		5.5	(0.4)		4.6	(0.3)	
	Japan	99.4	(0.1)		0.6	(0.1)		0.3	(0.1)		0.3	(0.1)	
	Korea	99.8	(0.1)		0.2	(0.1)		0.1	(0.1)		0.1	(0.0)	
	Latvia	95.6	(0.3)		4.4	(0.3)		3.6	(0.3)		0.9	(0.1)	
	Lithuania	98.4	(0.1)		1.6	(0.1)		1.2	(0.1)		0.3	(0.1)	
	Luxembourg	45.1	(0.6)		54.9	(0.6)		30.4	(0.6)		24.5	(0.5)	
	Mexico	98.4	(0.3)		1.6	(0.3)		0.9	(0.2)		0.7	(0.1)	
	Netherlands*	86.2	(1.2)		13.8	(1.2)		11.0	(1.1)		2.7	(0.3)	
	New Zealand	73.5	(1.3)		26.5	(1.3)		11.7	(0.8)		14.8	(0.7)	
	Norway	87.6	(0.8)		12.4	(0.8)		6.2	(0.6)		6.2	(0.4)	
	Poland	99.4	(0.2)		0.6	(0.2)		0.3	(0.1)		0.4	(0.2)	
	Portugal*	93.0	(0.6)		7.0	(0.6)		4.0	(0.4)		3.0	(0.4)	
	Slovak Republic	98.8	(0.2)		1.2	(0.2)		0.6	(0.1)		0.6	(0.1)	
	Slovenia	91.1	(0.3)		8.9	(0.3)		3.6	(0.2)		5.2	(0.3)	
	Spain	87.8	(0.5)		12.2	(0.5)		4.9	(0.3)		7.3	(0.3)	
	Sweden	79.5	(1.3)		20.5	(1.3)		10.9	(0.9)		9.6	(0.7)	
	Switzerland	66.1	(1.4)		33.9	(1.4)		21.8	(1.0)		12.0	(0.6)	
	Turkey	99.1	(0.1)		0.9	(0.1)		0.6	(0.1)		0.3	(0.1)	
	United Kingdom	80.2	(1.2)		19.8	(1.2)		11.3	(0.9)		8.4	(0.6)	
	United States*	77.0	(1.5)		23.0	(1.5)		17.1	(1.2)		5.9	(0.6)	
	OECD average-36b	87.2	(0.1)		12.8	(0.1)		7.5	(0.1)		5.3	(0.1)	
	OECD average-37	87.0	(0.1)		13.0	(0.1)		7.7	(0.1)		5.4	(0.1)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.9.9 [4/6] **Change between 2009 and 2018 in the percentage of students with an immigrant background**
Based on students' reports

		PISA 2018											
		Percentage of students											
		Non-immigrant			Immigrant			Second-generation immigrant			First-generation immigrant		
		%	S.E.	s	%	S.E.	s	%	S.E.	s	%	S.E.	s
Partners	**Albania**	99.4	(0.1)		0.6	(0.1)		0.4	(0.1)		0.3	(0.1)	
	Argentina	95.4	(0.3)		4.6	(0.3)		2.4	(0.2)		2.2	(0.2)	
	Baku (Azerbaijan)	94.8	(0.4)		5.2	(0.4)		3.0	(0.3)		2.2	(0.2)	
	Belarus	95.9	(0.3)		4.1	(0.3)		2.9	(0.2)		1.3	(0.2)	
	Bosnia and Herzegovina	97.2	(0.3)		2.8	(0.3)		1.4	(0.2)		1.4	(0.3)	
	Brazil	99.4	(0.1)		0.6	(0.1)		0.4	(0.1)		0.2	(0.0)	
	Brunei Darussalam	91.8	(0.3)		8.2	(0.3)		3.0	(0.2)		5.2	(0.2)	
	B-S-J-Z (China)	99.8	(0.1)		0.2	(0.1)		0.1	(0.1)		0.1	(0.0)	
	Bulgaria	98.9	(0.2)		1.1	(0.2)		0.6	(0.1)		0.5	(0.1)	
	Costa Rica	90.0	(0.7)		10.0	(0.7)		6.8	(0.5)		3.2	(0.3)	
	Croatia	90.9	(0.5)		9.1	(0.5)		7.7	(0.4)		1.3	(0.2)	
	Cyprus	85.2	(0.5)		14.8	(0.5)		5.2	(0.3)		9.6	(0.5)	
	Dominican Republic	97.1	(0.3)		2.9	(0.3)		1.6	(0.2)		1.3	(0.2)	
	Georgia	98.6	(0.2)		1.4	(0.2)		0.8	(0.1)		0.6	(0.1)	
	Hong Kong (China)*	62.1	(1.3)		37.9	(1.3)		25.1	(0.9)		12.8	(0.9)	
	Indonesia	99.7	(0.1)		0.3	(0.1)		0.1	(0.0)		0.2	(0.1)	
	Jordan	88.4	(0.5)		11.6	(0.5)		6.5	(0.4)		5.1	(0.3)	
	Kazakhstan	91.8	(0.4)		8.2	(0.4)		4.2	(0.3)		4.0	(0.3)	
	Kosovo	98.9	(0.2)		1.1	(0.2)		0.9	(0.2)		0.3	(0.1)	
	Lebanon	94.0	(0.5)		6.0	(0.5)		2.1	(0.2)		3.9	(0.4)	
	Macao (China)	37.1	(0.7)		62.9	(0.7)		36.8	(0.8)		26.1	(0.6)	
	Malaysia	98.4	(0.2)		1.6	(0.2)		1.2	(0.2)		0.5	(0.1)	
	Malta	91.2	(0.4)		8.8	(0.4)		2.1	(0.2)		6.6	(0.4)	
	Moldova	98.6	(0.2)		1.4	(0.2)		1.1	(0.1)		0.3	(0.1)	
	Montenegro	94.2	(0.3)		5.8	(0.3)		3.6	(0.2)		2.2	(0.2)	
	Morocco	99.2	(0.1)		0.8	(0.1)		0.4	(0.1)		0.4	(0.1)	
	North Macedonia	98.4	(0.2)		1.6	(0.2)		1.1	(0.2)		0.5	(0.1)	
	Panama	94.0	(0.7)		6.0	(0.7)		2.1	(0.4)		3.9	(0.6)	
	Peru	99.5	(0.1)		0.5	(0.1)		0.4	(0.1)		0.1	(0.0)	
	Philippines	99.0	(0.2)		1.0	(0.2)		0.4	(0.1)		0.6	(0.1)	
	Qatar	43.2	(0.4)		56.8	(0.4)		17.0	(0.3)		39.8	(0.3)	
	Romania	99.2	(0.2)	†	0.8	(0.2)	†	0.5	(0.1)	†	0.3	(0.1)	†
	Russia	94.2	(0.3)		5.8	(0.3)		3.5	(0.2)		2.2	(0.2)	
	Saudi Arabia	88.1	(1.1)		11.9	(1.1)		6.4	(0.7)		5.5	(0.5)	
	Serbia	90.7	(0.4)		9.3	(0.4)		8.3	(0.4)		1.0	(0.1)	
	Singapore	75.2	(0.7)		24.8	(0.7)		8.1	(0.3)		16.7	(0.7)	
	Chinese Taipei	99.3	(0.2)		0.7	(0.2)		0.4	(0.1)		0.3	(0.1)	
	Thailand	98.9	(0.4)		1.1	(0.4)		0.7	(0.3)		0.3	(0.1)	
	Ukraine	97.7	(0.2)		2.3	(0.2)		1.5	(0.2)		0.8	(0.1)	
	United Arab Emirates	44.2	(0.8)		55.8	(0.8)		23.0	(0.4)		32.7	(0.7)	
	Uruguay	98.7	(0.2)		1.3	(0.2)		0.6	(0.1)		0.6	(0.1)	
	Viet Nam	99.9	(0.0)		0.1	(0.0)		0.0	(0.0)		0.0	(0.0)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.9.9 [5/6] **Change between 2009 and 2018 in the percentage of students with an immigrant background**
Based on students' reports

		Change between PISA 2009 and PISA 2018 (PISA 2018 - PISA 2009)										
	Percentage of students											
	Non-immigrant			Immigrant			Second-generation immigrant			First-generation immigrant		
	% dif.	S.E.	s	% dif.	S.E.	s	% dif.	S.E.	s	% dif.	S.E.	s
OECD Australia	**-4.5**	(1.4)		**4.5**	(1.4)		1.4	(0.9)		**3.1**	(0.8)	
Austria	m	m		m	m		m	m		m	m	
Belgium	**-3.3**	(1.4)		**3.3**	(1.4)		**2.4**	(0.9)		0.9	(0.9)	
Canada	**-10.6**	(1.9)		**10.6**	(1.9)		**4.2**	(1.2)		**6.4**	(1.1)	
Chile	**-2.9**	(0.4)		**2.9**	(0.4)		**0.6**	(0.1)		**2.3**	(0.4)	
Colombia	-0.2	(0.1)		0.2	(0.1)		0.0	(0.1)		**0.2**	(0.1)	
Czech Republic	**-1.9**	(0.5)		**1.9**	(0.5)		**0.6**	(0.3)		**1.3**	(0.3)	
Denmark	**-2.0**	(0.6)		**2.0**	(0.6)		**2.5**	(0.5)		-0.5	(0.3)	
Estonia	**-2.4**	(0.8)		**2.4**	(0.8)		**2.3**	(0.7)		0.1	(0.2)	
Finland	**-3.2**	(0.6)		**3.2**	(0.6)		**1.3**	(0.3)		**1.9**	(0.4)	
France	-1.1	(1.7)		1.1	(1.7)		-0.4	(1.3)		**1.5**	(0.7)	
Germany	**-4.5**	(1.5)		**4.5**	(1.5)		**4.0**	(1.2)		0.6	(0.7)	
Greece	**-2.7**	(1.0)		**2.7**	(1.0)		**5.6**	(0.6)		**-3.0**	(0.8)	
Hungary	-0.5	(0.4)		0.5	(0.4)		0.4	(0.2)		0.0	(0.3)	
Iceland	**-3.2**	(0.5)		**3.2**	(0.5)		**2.1**	(0.3)		**1.2**	(0.3)	
Ireland	**-9.6**	(1.1)		**9.6**	(1.1)		**6.6**	(0.7)		**3.0**	(0.8)	
Israel	**3.3**	(1.5)		**-3.3**	(1.5)		-0.2	(1.2)		**-3.1**	(0.8)	
Italy	**-4.5**	(0.6)		**4.5**	(0.6)		**4.1**	(0.4)		0.3	(0.3)	
Japan	**-0.3**	(0.2)		**0.3**	(0.2)		**0.2**	(0.1)		0.1	(0.1)	
Korea	-0.1	(0.1)		0.1	(0.1)		0.1	(0.1)		**0.1**	(0.0)	
Latvia	0.0	(0.6)		0.0	(0.6)		-0.5	(0.6)		**0.5**	(0.2)	
Lithuania	0.2	(0.3)		-0.2	(0.3)		-0.4	(0.3)		0.2	(0.1)	
Luxembourg	**-14.7**	(0.9)		**14.7**	(0.9)		**6.3**	(0.9)		**8.4**	(0.7)	
Mexico	0.3	(0.3)		-0.3	(0.3)		0.1	(0.2)		**-0.4**	(0.2)	
Netherlands*	-1.6	(1.8)		1.6	(1.8)		2.1	(1.5)		-0.5	(0.6)	
New Zealand	-1.8	(1.7)		1.8	(1.7)		**3.7**	(1.0)		-1.9	(1.1)	
Norway	**-5.6**	(0.9)		**5.6**	(0.9)		**2.6**	(0.7)		**3.0**	(0.5)	
Poland	**-0.6**	(0.2)		**0.6**	(0.2)		**0.3**	(0.1)		**0.3**	(0.2)	
Portugal*	**-1.5**	(0.7)		**1.5**	(0.7)		**1.3**	(0.5)		0.2	(0.5)	
Slovak Republic	**-0.7**	(0.2)		**0.7**	(0.2)		**0.4**	(0.1)		0.3	(0.2)	
Slovenia	**-1.1**	(0.5)		**1.1**	(0.5)		**-2.8**	(0.4)		**3.9**	(0.3)	
Spain	**-2.7**	(0.7)		**2.7**	(0.7)		**3.8**	(0.3)		**-1.1**	(0.6)	
Sweden	**-8.7**	(1.8)		**8.7**	(1.8)		**2.9**	(1.2)		**5.8**	(0.8)	
Switzerland	**-10.3**	(1.7)		**10.3**	(1.7)		**6.7**	(1.2)		**3.6**	(0.8)	
Turkey	-0.3	(0.2)		0.3	(0.2)		0.2	(0.2)		0.1	(0.1)	
United Kingdom	**-9.2**	(1.5)		**9.2**	(1.5)		**5.5**	(1.1)		**3.6**	(0.8)	
United States*	-3.6	(2.0)		3.6	(2.0)		**4.1**	(1.6)		-0.5	(0.8)	
OECD average-36b	**-3.2**	(0.2)		**3.2**	(0.2)		**2.1**	(0.1)		**1.2**	(0.1)	
OECD average-37	m	m		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

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Table II.B1.9.9 [6/6] **Change between 2009 and 2018 in the percentage of students with an immigrant background**
Based on students' reports

		Change between PISA 2009 and PISA 2018 (PISA 2018 - PISA 2009)							
		Percentage of students							
		Non-immigrant		Immigrant		Second-generation immigrant		First-generation immigrant	
		% dif.	S.E.	% dif.	S.E.	% dif.	S.E.	% dif.	S.E.
Partners	Albania	0.0	(0.2)	0.0	(0.2)	-0.1	(0.2)	0.2	(0.1)
	Argentina	-0.9	(0.6)	0.9	(0.6)	0.2	(0.4)	**0.7**	(0.4)
	Baku (Azerbaijan)	m	m	m	m	m	m	m	m
	Belarus	m	m	m	m	m	m	m	m
	Bosnia and Herzegovina	m	m	m	m	m	m	m	m
	Brazil	0.2	(0.2)	-0.2	(0.2)	-0.1	(0.1)	-0.1	(0.1)
	Brunei Darussalam	m	m	m	m	m	m	m	m
	B-S-J-Z (China)	m	m	m	m	m	m	m	m
	Bulgaria	**-0.6**	(0.2)	**0.6**	(0.2)	**0.4**	(0.1)	0.2	(0.1)
	Costa Rica	**-4.0**	(0.9)	**4.0**	(0.9)	**4.2**	(0.6)	-0.2	(0.5)
	Croatia	**1.7**	(0.8)	**-1.7**	(0.8)	0.5	(0.6)	**-2.2**	(0.4)
	Cyprus	m	m	m	m	m	m	m	m
	Dominican Republic	m	m	m	m	m	m	m	m
	Georgia	0.1	(0.3)	-0.1	(0.3)	**-0.5**	(0.2)	**0.4**	(0.1)
	Hong Kong (China)*	1.5	(2.0)	-1.5	(2.0)	1.2	(1.2)	-2.6	(1.4)
	Indonesia	0.0	(0.1)	0.0	(0.1)	**0.1**	(0.0)	-0.1	(0.1)
	Jordan	**2.2**	(1.0)	**-2.2**	(1.0)	**-4.0**	(0.8)	**1.8**	(0.4)
	Kazakhstan	**3.4**	(1.2)	**-3.4**	(1.2)	**-3.0**	(0.9)	-0.3	(0.7)
	Kosovo	m	m	m	m	m	m	m	m
	Lebanon	m	m	m	m	m	m	m	m
	Macao (China)	**7.5**	(0.9)	**-7.5**	(0.9)	**-18.1**	(1.0)	**10.6**	(0.7)
	Malaysia	-0.3	(0.3)	0.3	(0.3)	0.0	(0.3)	**0.3**	(0.1)
	Malta	**-6.3**	(0.5)	**6.3**	(0.5)	**1.4**	(0.3)	**4.9**	(0.5)
	Moldova	-0.1	(0.3)	0.1	(0.3)	0.0	(0.2)	0.1	(0.1)
	Montenegro	0.8	(0.5)	-0.8	(0.5)	**1.1**	(0.4)	**-1.8**	(0.4)
	Morocco	m	m	m	m	m	m	m	m
	North Macedonia	m	m	m	m	m	m	m	m
	Panama	-2.1	(1.1)	2.1	(1.1)	0.7	(0.5)	1.4	(0.9)
	Peru	0.0	(0.1)	0.0	(0.1)	0.1	(0.1)	0.0	(0.1)
	Philippines	m	m	m	m	m	m	m	m
	Qatar	**-10.4**	(0.6)	**10.4**	(0.6)	**-3.0**	(0.5)	**13.4**	(0.5)
	Romania	**-0.5**	(0.2)	**0.5**	(0.2)	**0.4**	(0.1)	0.0	(0.1)
	Russia	**6.3**	(0.8)	**-6.3**	(0.8)	**-3.7**	(0.7)	**-2.7**	(0.4)
	Saudi Arabia	m	m	m	m	m	m	m	m
	Serbia	0.1	(0.7)	-0.1	(0.7)	**3.1**	(0.5)	**-3.3**	(0.4)
	Singapore	**-10.5**	(0.9)	**10.5**	(0.9)	**3.3**	(0.5)	**7.1**	(0.9)
	Chinese Taipei	-0.3	(0.2)	0.3	(0.2)	0.1	(0.1)	0.2	(0.1)
	Thailand	**-1.1**	(0.4)	**1.1**	(0.4)	**0.7**	(0.3)	**0.3**	(0.1)
	Ukraine	m	m	m	m	m	m	m	m
	United Arab Emirates	m	m	m	m	m	m	m	m
	Uruguay	**-0.7**	(0.2)	**0.7**	(0.2)	**0.4**	(0.2)	**0.3**	(0.2)
	Viet Nam	m	m	m	m	m	m	m	m

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.9.10 [1/6] **Change between 2009 and 2018 in the reading performance of students with an immigrant background**
Based on students' reports

		Reading performance														
		PISA 2009														
		All students			Non-immigrant			Immigrant			Second-generation immigrant			First-generation immigrant		
		Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s
OECD	Australia	515	(2.3)		515	(2.1)		524	(5.8)		530	(6.2)		518	(6.3)	
	Austria	m	m		m	m		m	m		m	m		m	m	
	Belgium	506	(2.3)		519	(2.2)		451	(6.4)		454	(7.0)		448	(8.3)	
	Canada	524	(1.5)		528	(1.5)		521	(3.4)		522	(3.6)		520	(4.6)	
	Chile	449	(3.1)		452	(3.0)		c	c		c	c		c	c	
	Colombia	413	(3.7)		415	(3.6)		313	(24.8)		c	c		c	c	
	Czech Republic	478	(2.9)		479	(2.8)		457	(13.7)		448	(17.9)		472	(17.5)	
	Denmark	495	(2.1)		502	(2.2)		438	(3.8)		446	(4.3)		422	(6.2)	
	Estonia	501	(2.6)		505	(2.7)		470	(6.5)		470	(6.6)		470	(17.4)	
	Finland	536	(2.3)		538	(2.2)		468	(12.8)		493	(13.9)		449	(17.7)	
	France	496	(3.4)		505	(3.8)		444	(8.5)		449	(8.9)		428	(15.9)	
	Germany	497	(2.7)		511	(2.6)		455	(4.7)		457	(6.1)		450	(5.7)	
	Greece	483	(4.3)		489	(4.2)		432	(11.5)		456	(10.4)		420	(15.5)	
	Hungary	494	(3.2)		495	(3.1)		507	(8.3)		527	(12.4)		493	(11.6)	
	Iceland	500	(1.4)		504	(1.4)		423	(11.7)		c	c		417	(12.4)	
	Ireland	496	(3.0)		502	(3.0)		473	(7.1)		508	(12.8)		466	(7.6)	
	Israel	474	(3.6)		480	(3.3)		478	(6.4)		487	(6.5)		462	(9.2)	
	Italy	486	(1.6)		491	(1.6)		418	(4.2)		446	(9.4)		410	(4.5)	
	Japan	520	(3.5)		521	(3.4)		c	c		c	c		c	c	
	Korea	539	(3.5)		540	(3.4)		c	c		c	c		m	m	
	Latvia	484	(3.0)		485	(2.9)		474	(9.0)		472	(9.7)		c	c	
	Lithuania	468	(2.4)		471	(2.4)		448	(10.5)		447	(11.0)		c	c	
	Luxembourg	472	(1.3)		495	(1.9)		442	(2.1)		439	(2.9)		448	(4.5)	
	Mexico	425	(2.0)		430	(1.8)		331	(7.9)		340	(9.9)		324	(9.9)	
	Netherlands*	508	(5.1)		515	(5.2)		470	(7.8)		469	(8.2)		471	(12.5)	
	New Zealand	521	(2.4)		526	(2.6)		513	(4.7)		498	(8.3)		520	(4.5)	
	Norway	503	(2.6)		508	(2.6)		456	(5.9)		463	(8.0)		447	(7.8)	
	Poland	500	(2.6)		502	(2.6)		c	c		m	m		c	c	
	Portugal*	489	(3.1)		492	(3.1)		466	(6.9)		476	(9.4)		456	(8.8)	
	Slovak Republic	477	(2.5)		478	(2.5)		c	c		c	c		c	c	
	Slovenia	483	(1.0)		488	(1.1)		441	(4.8)		447	(5.5)		414	(8.7)	
	Spain	481	(2.0)		488	(2.0)		430	(4.0)		461	(9.3)		426	(4.1)	
	Sweden	497	(2.9)		507	(2.7)		442	(6.9)		454	(7.5)		416	(11.3)	
	Switzerland	501	(2.4)		513	(2.2)		465	(4.1)		471	(4.5)		455	(6.7)	
	Turkey	464	(3.5)		466	(3.5)		c	c		c	c		c	c	
	United Kingdom	494	(2.3)		499	(2.2)		476	(7.5)		492	(8.5)		458	(9.5)	
	United States*	500	(3.7)		506	(3.8)		484	(5.8)		483	(6.2)		485	(7.9)	
	OECD average-35a	491	(0.5)		496	(0.5)		454	(1.6)		468	(1.7)		451	(2.0)	
	OECD average-36a	m	m		m	m		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.9.10 [2/6] **Change between 2009 and 2018 in the reading performance of students with an immigrant background**
Based on students' reports

		Reading performance														
		PISA 2009														
		All students			Non-immigrant			Immigrant			Second-generation immigrant			First-generation immigrant		
		Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s
Partners	Albania	385	(4.0)		389	(4.0)		c	c		c	c		c	c	
	Argentina	398	(4.6)		401	(4.6)		362	(15.2)		366	(12.6)		356	(26.5)	
	Baku (Azerbaijan)	m	m		m	m		m	m		m	m		m	m	
	Belarus	m	m		m	m		m	m		m	m		m	m	
	Bosnia and Herzegovina	m	m		m	m		m	m		m	m		m	m	
	Brazil	412	(2.7)		416	(2.7)		317	(13.5)		321	(18.7)		310	(18.6)	
	Brunei Darussalam	m	m		m	m		m	m		m	m		m	m	
	B-S-J-Z (China)	m	m		m	m		m	m		m	m		m	m	
	Bulgaria	429	(6.7)		433	(6.7)		c	c		c	c		c	c	
	Costa Rica	443	(3.2)		445	(3.1)		427	(7.5)		419	(11.5)		434	(8.4)	
	Croatia	476	(2.9)		479	(2.9)		461	(5.3)		465	(5.5)		452	(8.4)	
	Cyprus	m	m		m	m		m	m		m	m		m	m	
	Dominican Republic	m	m		m	m		m	m		m	m		m	m	
	Georgia	374	(2.9)		378	(2.8)		393	(11.1)		393	(10.7)		c	c	
	Hong Kong (China)*	533	(2.1)		535	(2.7)		531	(3.4)		543	(3.2)		512	(5.5)	
	Indonesia	402	(3.7)		403	(3.7)		c	c		m	m		c	c	
	Jordan	405	(3.3)		407	(3.1)		418	(5.7)		420	(6.5)		412	(8.6)	
	Kazakhstan	390	(3.1)		390	(3.2)		396	(9.7)		415	(12.1)		366	(8.9)	
	Kosovo	m	m		m	m		m	m		m	m		m	m	
	Lebanon	m	m		m	m		m	m		m	m		m	m	
	Macao (China)	487	(0.9)		482	(2.0)		489	(1.0)		489	(1.3)		491	(2.2)	
	Malaysia	414	(2.9)		415	(2.8)		399	(10.6)		405	(10.5)		c	c	
	Malta	442	(1.6)		446	(1.7)		448	(13.6)		c	c		447	(15.3)	
	Moldova	388	(2.8)		389	(2.8)		449	(11.1)		450	(14.6)		c	c	
	Montenegro	408	(1.7)		408	(1.7)		415	(6.8)		433	(10.1)		404	(8.9)	
	Morocco	m	m		m	m		m	m		m	m		m	m	
	North Macedonia	m	m		m	m		m	m		m	m		m	m	
	Panama	371	(6.5)		382	(5.6)		350	(26.8)		398	(28.8)		324	(32.6)	
	Peru	370	(4.0)		374	(3.9)		c	c		c	c		c	c	
	Philippines	m	m		m	m		m	m		m	m		m	m	
	Qatar	372	(0.8)		331	(1.3)		429	(1.4)		392	(2.3)		457	(2.1)	
	Romania	424	(4.1)		426	(4.0)		c	c		c	c		c	c	
	Russia	459	(3.3)		464	(3.2)		439	(7.0)		435	(9.4)		444	(7.1)	
	Saudi Arabia	m	m		m	m		m	m		m	m		m	m	
	Serbia	442	(2.4)		442	(2.4)		457	(4.8)		466	(6.8)		446	(7.3)	
	Singapore	526	(1.1)		526	(1.2)		529	(4.3)		544	(6.4)		521	(4.9)	
	Chinese Taipei	495	(2.6)		497	(2.5)		c	c		c	c		c	c	
	Thailand	421	(2.6)		421	(2.6)		m	m		m	m		m	m	
	Ukraine	m	m		m	m		m	m		m	m		m	m	
	United Arab Emirates	m	m		m	m		m	m		m	m		m	m	
	Uruguay	426	(2.6)		427	(2.6)		412	(36.1)		c	c		c	c	
	Viet Nam	m	m		m	m		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.9.10 [3/6] **Change between 2009 and 2018 in the reading performance of students with an immigrant background**
Based on students' reports

		Reading performance														
		PISA 2018														
		All students			Non-immigrant			Immigrant			Second-generation immigrant			First-generation immigrant		
		Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s
OECD	**Australia**	503	(1.6)		504	(2.0)		511	(3.3)		523	(4.5)		501	(3.9)	
	Austria	484	(2.7)		500	(2.6)		437	(4.2)		446	(4.3)		421	(5.5)	
	Belgium	493	(2.3)		506	(2.4)		445	(3.8)		459	(4.7)		427	(5.2)	
	Canada	520	(1.8)		525	(1.6)		522	(3.0)		535	(3.9)		508	(3.6)	
	Chile	452	(2.6)		456	(2.7)		438	(7.5)		447	(18.3)		435	(8.5)	
	Colombia	412	(3.3)		414	(3.3)		355	(13.9)		c	c		c	c	
	Czech Republic	490	(2.5)		493	(2.5)		440	(9.7)		459	(10.5)		421	(14.4)	
	Denmark	501	(1.8)		509	(1.9)		444	(3.5)		447	(3.7)		435	(7.4)	
	Estonia	523	(1.8)		528	(1.9)		489	(4.5)		492	(4.9)		453	(16.8)	
	Finland	520	(2.3)		527	(2.1)		435	(7.5)		456	(10.3)		420	(9.0)	
	France	493	(2.3)		502	(2.7)		449	(5.3)		461	(5.7)		425	(7.5)	
	Germany	498	(3.0)		519	(3.3)		456	(6.5)		477	(6.6)		405	(11.8)	
	Greece	457	(3.6)		465	(3.4)		414	(6.1)		420	(6.9)		397	(9.2)	
	Hungary	476	(2.3)		477	(2.3)		490	(9.8)		510	(11.1)		468	(16.5)	
	Iceland	474	(1.7)		481	(1.8)		407	(7.6)		412	(10.9)		402	(9.5)	
	Ireland	518	(2.2)		522	(2.3)		508	(3.8)		509	(5.3)		508	(5.3)	
	Israel	470	(3.7)		481	(3.5)		470	(6.6)		493	(6.1)		398	(10.4)	
	Italy	476	(2.4)		482	(2.6)		440	(4.9)		445	(5.9)		433	(7.1)	
	Japan	504	(2.7)		w	w		w	w		w	w		w	w	
	Korea	514	(2.9)		515	(2.9)		c	c		c	c		c	c	
	Latvia	479	(1.6)		480	(1.6)		476	(8.7)		467	(9.2)		515	(19.9)	
	Lithuania	476	(1.5)		478	(1.5)		457	(11.1)		454	(11.5)		469	(27.3)	
	Luxembourg	470	(1.1)		491	(1.9)		455	(1.7)		450	(2.9)		461	(2.9)	
	Mexico	420	(2.7)		424	(2.8)		328	(14.5)		332	(13.4)		324	(22.4)	
	Netherlands*	485	(2.7)		498	(2.9)		426	(6.2)		433	(6.7)		399	(13.0)	
	New Zealand	506	(2.0)		510	(2.3)		508	(3.5)		518	(5.3)		500	(4.0)	
	Norway	499	(2.2)		509	(2.1)		457	(4.7)		463	(7.0)		451	(5.5)	
	Poland	512	(2.7)		514	(2.7)		c	c		c	c		c	c	
	Portugal*	492	(2.4)		495	(2.6)		463	(7.8)		483	(10.1)		436	(9.1)	
	Slovak Republic	458	(2.2)		460	(2.2)		407	(13.6)		424	(17.8)		387	(17.3)	
	Slovenia	495	(1.2)		502	(1.3)		439	(6.0)		464	(7.3)		422	(8.2)	
	Spain	m	m		m	m		m	m		m	m		m	m	
	Sweden	506	(3.0)		525	(2.7)		443	(5.8)		471	(6.4)		410	(6.9)	
	Switzerland	484	(3.1)		503	(3.2)		451	(4.3)		453	(4.6)		448	(6.3)	
	Turkey	466	(2.2)		467	(2.2)		462	(12.7)		474	(15.1)		c	c	
	United Kingdom	504	(2.6)		511	(2.7)		491	(4.2)		493	(5.7)		488	(6.9)	
	United States*	505	(3.6)		510	(3.6)		503	(6.0)		512	(6.1)		479	(8.3)	
	OECD average-35a	487	(0.4)		494	(0.4)		452	(1.3)		465	(1.6)		440	(2.1)	
	OECD average-36a	487	(0.4)		494	(0.4)		452	(1.3)		466	(1.6)		441	(2.1)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.9.10 [4/6] **Change between 2009 and 2018 in the reading performance of students with an immigrant background**
Based on students' reports

	Reading performance														
	PISA 2018														
	All students			Non-immigrant			Immigrant			Second-generation immigrant			First-generation immigrant		
	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s
Partners															
Albania	405	(1.9)		407	(1.9)		340	(11.3)		c	c		c	c	
Argentina	402	(3.0)		404	(3.1)		405	(7.0)		414	(9.4)		395	(8.0)	
Baku (Azerbaijan)	389	(2.5)		393	(2.6)		379	(4.2)		386	(5.2)		369	(6.8)	
Belarus	474	(2.4)		475	(2.5)		457	(7.3)		461	(6.7)		447	(16.3)	
Bosnia and Herzegovina	403	(2.9)		405	(3.0)		386	(7.7)		403	(11.0)		369	(11.1)	
Brazil	413	(2.1)		418	(2.1)		334	(11.0)		332	(13.4)		c	c	
Brunei Darussalam	408	(0.9)		403	(1.0)		476	(4.0)		460	(6.8)		485	(5.4)	
B-S-J-Z (China)	555	(2.7)		556	(2.7)		c	c		c	c		c	c	
Bulgaria	420	(3.9)		425	(3.8)		383	(13.0)		c	c		c	c	
Costa Rica	426	(3.4)		430	(3.5)		407	(4.8)		408	(4.7)		404	(8.8)	
Croatia	479	(2.7)		481	(2.6)		471	(5.5)		473	(5.7)		464	(11.8)	
Cyprus	424	(1.4)		426	(1.4)		430	(4.0)		420	(6.4)		436	(5.4)	
Dominican Republic	342	(2.9)		347	(2.7)		322	(11.2)		323	(10.4)		322	(16.2)	
Georgia	380	(2.2)		384	(2.1)		333	(11.4)		328	(15.3)		c	c	
Hong Kong (China)*	524	(2.7)		529	(2.9)		522	(4.7)		533	(4.3)		502	(6.9)	
Indonesia	371	(2.6)		373	(2.6)		276	(16.0)		c	c		c	c	
Jordan	419	(2.9)		421	(2.7)		433	(4.5)		433	(5.0)		434	(6.1)	
Kazakhstan	387	(1.5)		389	(1.5)		377	(2.8)		389	(4.0)		366	(3.7)	
Kosovo	353	(1.1)		355	(1.1)		333	(8.3)		339	(9.3)		c	c	
Lebanon	353	(4.3)		364	(4.4)		313	(8.4)		306	(13.1)		316	(9.3)	
Macao (China)	525	(1.2)		512	(2.2)		533	(1.8)		528	(2.5)		540	(2.8)	
Malaysia	415	(2.9)		417	(2.8)		410	(16.7)		413	(13.0)		c	c	
Malta	448	(1.7)		452	(1.8)		451	(6.8)		433	(16.3)		457	(8.3)	
Moldova	424	(2.4)		428	(2.4)		428	(13.8)		433	(14.4)		c	c	
Montenegro	421	(1.1)		422	(1.1)		429	(4.5)		438	(6.5)		415	(6.5)	
Morocco	359	(3.1)		361	(3.2)		305	(11.0)		c	c		c	c	
North Macedonia	393	(1.1)		397	(1.2)		369	(14.1)		372	(17.2)		c	c	
Panama	377	(3.0)		381	(2.9)		408	(10.1)		375	(14.3)		426	(12.1)	
Peru	401	(3.0)		403	(2.9)		c	c		c	c		c	c	
Philippines	340	(3.3)		344	(3.3)		274	(12.8)		c	c		261	(14.4)	
Qatar	407	(0.8)		368	(1.3)		445	(1.2)		423	(2.6)		454	(1.4)	
Romania	428	(5.1)		431	(5.3)		c	c		c	c		c	c	
Russia	479	(3.1)		480	(3.1)		478	(6.3)		491	(6.9)		457	(8.4)	
Saudi Arabia	399	(3.0)		400	(3.1)		436	(4.7)		435	(5.7)		437	(6.2)	
Serbia	439	(3.3)		441	(3.1)		447	(6.8)		447	(7.3)		449	(13.5)	
Singapore	549	(1.6)		546	(1.5)		565	(4.3)		587	(4.0)		554	(6.0)	
Chinese Taipei	503	(2.8)		504	(2.8)		428	(49.1)		c	c		c	c	
Thailand	393	(3.2)		394	(3.2)		356	(20.0)		348	(15.5)		c	c	
Ukraine	466	(3.5)		468	(3.4)		443	(9.9)		456	(11.7)		419	(18.7)	
United Arab Emirates	432	(2.3)		386	(2.0)		476	(2.7)		465	(2.6)		484	(3.4)	
Uruguay	427	(2.8)		429	(2.7)		402	(18.6)		399	(19.4)		404	(31.4)	
Viet Nam	m	m		m	m		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.9.10 [5/6] **Change between 2009 and 2018 in the reading performance of students with an immigrant background**
Based on students' reports

		Change in reading performance between PISA 2009 and PISA 2018 (PISA 2018 - PISA 2009)														
		All students			Non-immigrant			Immigrant			Second-generation immigrant			First-generation immigrant		
		Score dif.	S.E.	s	Score dif.	S.E.	s	Score dif.	S.E.	s	Score dif.	S.E.	s	Score dif.	S.E.	s
OECD	Australia	**-12**	(4.5)		**-11**	(4.5)		-13	(7.6)		-8	(8.5)		**-17**	(8.2)	
	Austria	m	m		m	m		m	m		m	m		m	m	
	Belgium	**-13**	(4.8)		**-13**	(4.8)		-6	(8.2)		4	(9.1)		**-21**	(10.4)	
	Canada	-4	(4.2)		-3	(4.2)		1	(5.8)		**13**	(6.4)		-12	(6.8)	
	Chile	3	(5.4)		5	(5.4)		m	m		m	m		m	m	
	Colombia	-1	(6.1)		-1	(6.0)		42	(28.6)		m	m		m	m	
	Czech Republic	**12**	(5.2)		**14**	(5.2)		-17	(17.2)		12	(21.0)		**-51**	(23.0)	
	Denmark	6	(4.5)		8	(4.5)		6	(6.3)		1	(6.7)		12	(10.3)	
	Estonia	**22**	(4.8)		**24**	(4.8)		**20**	(8.7)		**22**	(8.9)		-17	(24.4)	
	Finland	**-16**	(4.8)		**-11**	(4.6)		**-33**	(15.2)		**-37**	(17.6)		-29	(20.2)	
	France	-3	(5.4)		-3	(5.8)		5	(10.6)		12	(11.1)		-3	(17.9)	
	Germany	1	(5.3)		8	(5.5)		1	(8.7)		**20**	(9.7)		**-46**	(13.5)	
	Greece	**-25**	(6.6)		**-24**	(6.5)		-18	(13.5)		**-36**	(13.0)		-23	(18.4)	
	Hungary	**-18**	(5.2)		**-18**	(5.2)		-18	(13.3)		-17	(17.0)		-24	(20.4)	
	Iceland	**-26**	(4.2)		**-23**	(4.2)		-16	(14.4)		m	m		-15	(16.0)	
	Ireland	**22**	(5.1)		**20**	(5.2)		**35**	(8.8)		1	(14.3)		**42**	(9.9)	
	Israel	-4	(6.3)		1	(6.0)		-8	(9.8)		6	(9.6)		**-64**	(14.3)	
	Italy	**-10**	(4.6)		-8	(4.7)		**21**	(7.3)		-1	(11.6)		**23**	(9.1)	
	Japan	**-16**	(5.6)		m	m		m	m		m	m		m	m	
	Korea	**-25**	(5.7)		**-25**	(5.7)		m	m		m	m		m	m	
	Latvia	-5	(4.9)		-5	(4.8)		2	(13.1)		-6	(13.8)		m	m	
	Lithuania	7	(4.5)		7	(4.5)		9	(15.7)		6	(16.3)		m	m	
	Luxembourg	-2	(3.9)		-4	(4.4)		**13**	(4.4)		**11**	(5.4)		**14**	(6.4)	
	Mexico	-5	(4.9)		-6	(4.8)		-2	(16.8)		-9	(17.0)		0	(24.8)	
	Netherlands*	**-24**	(6.8)		**-17**	(6.9)		**-44**	(10.6)		**-37**	(11.1)		**-72**	(18.4)	
	New Zealand	**-15**	(4.7)		**-16**	(4.9)		-5	(6.8)		20	(10.5)		**-20**	(7.0)	
	Norway	-4	(4.9)		1	(4.9)		1	(8.3)		0	(11.2)		3	(10.2)	
	Poland	**11**	(5.1)		**11**	(5.1)		m	m		m	m		m	m	
	Portugal*	2	(5.3)		3	(5.4)		-3	(11.1)		7	(14.3)		-20	(13.1)	
	Slovak Republic	**-19**	(4.9)		**-18**	(4.9)		m	m		m	m		m	m	
	Slovenia	**12**	(3.9)		**14**	(3.9)		-2	(8.5)		17	(9.8)		9	(12.5)	
	Spain	m	m		m	m		m	m		m	m		m	m	
	Sweden	8	(5.5)		**18**	(5.2)		1	(9.7)		18	(10.5)		-6	(13.7)	
	Switzerland	**-17**	(5.3)		-10	(5.2)		**-14**	(6.9)		**-17**	(7.3)		-7	(9.9)	
	Turkey	1	(5.4)		1	(5.4)		m	m		m	m		m	m	
	United Kingdom	**10**	(4.9)		**12**	(4.9)		14	(9.3)		1	(10.8)		**30**	(12.3)	
	United States*	6	(6.2)		4	(6.3)		**19**	(9.1)		**28**	(9.3)		-6	(12.0)	
	OECD average-35a	-4	(3.6)		-2	(3.6)		0	(4.1)		1	(4.2)		**-12**	(4.6)	
	OECD average-36a	m	m		m	m		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.9.10 [6/6] **Change between 2009 and 2018 in the reading performance of students with an immigrant background**
Based on students' reports

		Change in reading performance between PISA 2009 and PISA 2018 (PISA 2018 - PISA 2009)														
		All students			Non-immigrant			Immigrant			Second-generation immigrant			First-generation immigrant		
		Score dif.	S.E.	s	Score dif.	S.E.	s	Score dif.	S.E.	s	Score dif.	S.E.	s	Score dif.	S.E.	s
Partners	Albania	**21**	(5.7)		**18**	(5.6)		m	m		m	m		m	m	
	Argentina	3	(6.5)		3	(6.6)		**43**	(17.1)		**48**	(16.1)		39	(27.9)	
	Baku (Azerbaijan)	m	m		m	m		m	m		m	m		m	m	
	Belarus	m	m		m	m		m	m		m	m		m	m	
	Bosnia and Herzegovina	m	m		m	m		m	m		m	m		m	m	
	Brazil	1	(4.9)		2	(4.9)		17	(17.7)		11	(23.2)		m	m	
	Brunei Darussalam	m	m		m	m		m	m		m	m		m	m	
	B-S-J-Z (China)	m	m		m	m		m	m		m	m		m	m	
	Bulgaria	-9	(8.5)		-8	(8.4)		m	m		m	m		m	m	
	Costa Rica	**-16**	(5.8)		**-15**	(5.9)		**-20**	(9.5)		-11	(12.9)		**-30**	(12.6)	
	Croatia	3	(5.3)		3	(5.3)		11	(8.4)		8	(8.7)		12	(14.9)	
	Cyprus	m	m		m	m		m	m		m	m		m	m	
	Dominican Republic	m	m		m	m		m	m		m	m		m	m	
	Georgia	5	(5.0)		6	(5.0)		**-60**	(16.3)		**-65**	(19.0)		m	m	
	Hong Kong (China)*	-9	(4.9)		-6	(5.3)		-9	(6.8)		-11	(6.4)		-10	(9.5)	
	Indonesia	**-31**	(5.7)		**-30**	(5.8)		m	m		m	m		m	m	
	Jordan	**14**	(5.7)		**14**	(5.4)		15	(8.1)		12	(8.9)		22	(11.2)	
	Kazakhstan	-4	(4.9)		-1	(5.0)		-19	(10.7)		-26	(13.2)		0	(10.3)	
	Kosovo	m	m		m	m		m	m		m	m		m	m	
	Lebanon	m	m		m	m		m	m		m	m		m	m	
	Macao (China)	**38**	(3.8)		**30**	(4.6)		**44**	(4.1)		**39**	(4.5)		**50**	(5.0)	
	Malaysia	1	(5.4)		3	(5.3)		11	(20.1)		9	(17.1)		m	m	
	Malta	6	(4.2)		7	(4.3)		3	(15.6)		m	m		10	(17.8)	
	Moldova	**36**	(5.1)		**39**	(5.1)		-21	(18.0)		-17	(20.8)		m	m	
	Montenegro	**14**	(4.1)		**13**	(4.1)		14	(8.9)		5	(12.6)		10	(11.6)	
	Morocco	m	m		m	m		m	m		m	m		m	m	
	North Macedonia	m	m		m	m		m	m		m	m		m	m	
	Panama	6	(8.0)		-2	(7.2)		**58**	(28.9)		-23	(32.3)		**102**	(34.9)	
	Peru	**31**	(6.1)		**29**	(6.0)		m	m		m	m		m	m	
	Philippines	m	m		m	m		m	m		m	m		m	m	
	Qatar	**35**	(3.7)		**37**	(4.0)		**16**	(4.0)		**32**	(5.0)		-2	(4.3)	
	Romania	3	(7.5)		5	(7.5)		m	m		m	m		m	m	
	Russia	**19**	(5.7)		**16**	(5.7)		**39**	(10.1)		**56**	(12.2)		13	(11.5)	
	Saudi Arabia	m	m		m	m		m	m		m	m		m	m	
	Serbia	-3	(5.4)		-1	(5.3)		-10	(9.0)		-19	(10.6)		3	(15.8)	
	Singapore	**24**	(4.0)		**19**	(4.0)		**36**	(7.0)		**43**	(8.4)		**33**	(8.5)	
	Chinese Taipei	7	(5.2)		8	(5.2)		m	m		m	m		m	m	
	Thailand	**-28**	(5.5)		**-27**	(5.4)		m	m		m	m		m	m	
	Ukraine	m	m		m	m		m	m		m	m		m	m	
	United Arab Emirates	m	m		m	m		m	m		m	m		m	m	
	Uruguay	1	(5.2)		2	(5.1)		-10	(40.8)		m	m		m	m	
	Viet Nam	m	m		m	m		m	m		m	m		m	m	

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Table II.B1.10.1 [1/8] **Average student attitudes and dispositions, by immigrant background**
Based on students' reports

		Percentage of immigrant students			Index of perception of competence											
					All students			Non-immigrant students			Immigrant students			Difference immigrants - non-immigrants		
		%	S.E.	s	Mean index	S.E.	s	Mean index	S.E.	s	Mean index	S.E.	s	Dif.	S.E.	s
OECD	Australia	27.7	(0.8)		0.20	(0.01)		0.21	(0.01)		0.18	(0.02)		-0.03	(0.02)	
	Austria	22.7	(1.2)		0.32	(0.02)		0.38	(0.02)		0.15	(0.03)		**-0.23**	(0.04)	
	Belgium	18.1	(0.9)		-0.25	(0.01)		-0.25	(0.01)		-0.24	(0.02)		0.01	(0.02)	
	Canada	35.0	(1.4)		0.28	(0.01)		0.31	(0.01)		0.24	(0.02)		**-0.07**	(0.02)	
	Chile	3.4	(0.4)		-0.18	(0.01)		-0.18	(0.01)		-0.21	(0.08)		-0.03	(0.08)	
	Colombia	0.6	(0.1)		-0.15	(0.02)		-0.15	(0.02)		-0.28	(0.21)		-0.13	(0.21)	
	Czech Republic	4.1	(0.4)		-0.17	(0.01)		-0.17	(0.01)		-0.28	(0.06)		-0.12	(0.06)	
	Denmark	10.7	(0.4)		0.30	(0.01)		0.30	(0.01)		0.26	(0.03)		-0.05	(0.03)	
	Estonia	10.4	(0.5)		-0.11	(0.01)		-0.08	(0.02)		-0.37	(0.04)		**-0.30**	(0.04)	
	Finland	5.8	(0.5)		0.09	(0.02)		0.10	(0.02)		-0.07	(0.07)		**-0.18**	(0.07)	
	France	14.3	(0.9)		-0.21	(0.02)		-0.21	(0.02)		-0.21	(0.04)		0.00	(0.04)	
	Germany	22.2	(1.1)		0.17	(0.02)		0.19	(0.02)		0.06	(0.04)		**-0.13**	(0.04)	
	Greece	11.7	(0.7)		0.07	(0.01)		0.10	(0.01)		-0.12	(0.04)		**-0.22**	(0.04)	
	Hungary	2.6	(0.3)		-0.06	(0.02)		-0.06	(0.02)		-0.09	(0.08)		-0.03	(0.08)	
	Iceland	5.6	(0.4)		-0.03	(0.02)		0.00	(0.02)		-0.46	(0.07)		**-0.46**	(0.07)	
	Ireland	17.9	(0.9)		0.12	(0.01)		0.11	(0.02)		0.20	(0.03)		**0.08**	(0.03)	
	Israel	16.4	(1.1)		0.42	(0.02)		0.44	(0.02)		0.32	(0.05)		**-0.12**	(0.05)	
	Italy	10.0	(0.5)		-0.36	(0.01)		-0.35	(0.01)		-0.52	(0.04)		**-0.17**	(0.04)	
	Japan	0.6	(0.1)		-0.64	(0.01)		w	w		w	w		w	w	
	Korea	0.2	(0.1)		-0.20	(0.02)		-0.20	(0.02)		c	c		c	c	
	Latvia	4.4	(0.3)		-0.26	(0.01)		-0.26	(0.01)		-0.31	(0.05)		-0.06	(0.05)	
	Lithuania	1.6	(0.1)		0.40	(0.02)		0.41	(0.02)		-0.13	(0.11)		**-0.54**	(0.12)	
	Luxembourg	54.9	(0.6)		0.08	(0.01)		0.27	(0.02)		-0.07	(0.02)		**-0.34**	(0.03)	
	Mexico	1.6	(0.3)		-0.13	(0.01)		-0.13	(0.01)		-0.55	(0.10)		**-0.42**	(0.10)	
	Netherlands*	13.8	(1.2)		-0.11	(0.02)		-0.12	(0.02)		-0.02	(0.04)	†	**0.10**	(0.04)	†
	New Zealand	26.5	(1.3)		0.06	(0.02)		0.09	(0.02)		0.03	(0.03)		**-0.06**	(0.03)	
	Norway	12.4	(0.8)		0.21	(0.02)		0.24	(0.02)		0.03	(0.04)		**-0.21**	(0.04)	
	Poland	0.6	(0.2)		-0.14	(0.02)		-0.14	(0.02)		c	c		c	c	
	Portugal*	7.0	(0.6)		-0.25	(0.01)		-0.25	(0.02)		-0.29	(0.05)		-0.04	(0.06)	
	Slovak Republic	1.2	(0.2)		-0.42	(0.01)		-0.42	(0.01)		-0.45	(0.13)		-0.03	(0.13)	
	Slovenia	8.9	(0.3)		0.09	(0.01)		0.10	(0.01)		-0.04	(0.05)		**-0.14**	(0.05)	
	Spain	12.2	(0.5)		-0.12	(0.01)		-0.10	(0.01)		-0.18	(0.02)		**-0.08**	(0.02)	
	Sweden	20.5	(1.3)		0.33	(0.02)		0.33	(0.02)		0.32	(0.03)		-0.01	(0.04)	
	Switzerland	33.9	(1.4)		0.05	(0.01)		0.06	(0.02)		0.03	(0.02)		-0.03	(0.03)	
	Turkey	0.9	(0.1)		0.03	(0.01)		0.03	(0.02)		-0.12	(0.13)		-0.15	(0.13)	
	United Kingdom	19.8	(1.2)		0.21	(0.02)		0.19	(0.02)		0.27	(0.03)		**0.08**	(0.03)	
	United States*	23.0	(1.5)		0.26	(0.02)		0.34	(0.02)		0.06	(0.04)		**-0.28**	(0.05)	
	OECD average	13.0	(0.1)		0.00	(0.00)		0.03	(0.00)		-0.08	(0.01)		**-0.13**	(0.01)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.10.1 [2/8] **Average student attitudes and dispositions, by immigrant background**
Based on students' reports

	Percentage of immigrant students			Index of perception of competence											
				All students			Non-immigrant students			Immigrant students			Difference immigrants - non-immigrants		
	%	S.E.	s	Mean index	S.E.	s	Mean index	S.E.	s	Mean index	S.E.	s	Dif.	S.E.	s
Partners															
Albania	0.6	(0.1)		0.32	(0.02)		0.32	(0.02)		0.34	(0.15)		0.02	(0.15)	
Argentina	4.6	(0.3)		-0.50	(0.01)		-0.50	(0.01)		-0.45	(0.06)		0.05	(0.06)	
Baku (Azerbaijan)	5.2	(0.4)		0.16	(0.01)		0.16	(0.01)		0.15	(0.07)		-0.01	(0.07)	
Belarus	4.1	(0.3)		m	m		m	m		m	m		m	m	
Bosnia and Herzegovina	2.8	(0.3)		0.05	(0.02)		0.05	(0.02)		0.11	(0.10)		0.06	(0.10)	
Brazil	0.6	(0.1)		-0.21	(0.01)		-0.21	(0.01)		-0.36	(0.19)	†	-0.15	(0.19)	†
Brunei Darussalam	8.2	(0.3)		-0.29	(0.01)		-0.30	(0.01)		-0.12	(0.04)		**0.18**	(0.04)	
B-S-J-Z (China)	0.2	(0.1)		0.02	(0.02)		0.02	(0.02)		c	c		c	c	
Bulgaria	1.1	(0.2)		0.02	(0.02)		0.04	(0.02)		-0.42	(0.18)	†	**-0.46**	(0.18)	†
Costa Rica	10.0	(0.7)		-0.25	(0.02)		-0.24	(0.02)		-0.24	(0.04)		0.00	(0.04)	
Croatia	9.1	(0.5)		-0.04	(0.01)		-0.04	(0.01)		0.00	(0.05)		0.04	(0.05)	
Cyprus	14.8	(0.5)		0.01	(0.01)		0.00	(0.01)		0.03	(0.04)		0.03	(0.04)	
Dominican Republic	2.9	(0.3)		0.12	(0.02)	†	0.14	(0.02)	†	-0.14	(0.14)	†	**-0.29**	(0.14)	†
Georgia	1.4	(0.2)		0.08	(0.01)		0.09	(0.01)		-0.33	(0.15)	†	**-0.42**	(0.14)	†
Hong Kong (China)*	37.9	(1.3)		-0.22	(0.02)		-0.27	(0.02)		-0.14	(0.02)		**0.13**	(0.02)	
Indonesia	0.3	(0.1)		0.04	(0.02)		0.04	(0.02)		c	c		c	c	
Jordan	11.6	(0.5)		0.41	(0.02)		0.42	(0.02)		0.36	(0.04)		-0.06	(0.04)	
Kazakhstan	8.2	(0.4)		-0.16	(0.01)		-0.15	(0.01)		-0.15	(0.03)		0.00	(0.03)	
Kosovo	1.1	(0.2)		0.55	(0.01)		0.55	(0.01)		0.51	(0.11)		-0.04	(0.11)	
Lebanon	6.0	(0.5)		m	m		m	m		m	m		m	m	
Macao (China)	62.9	(0.7)		-0.41	(0.01)		-0.50	(0.03)		-0.37	(0.02)		**0.13**	(0.03)	
Malaysia	1.6	(0.2)		-0.06	(0.02)		-0.05	(0.02)		-0.11	(0.10)		-0.06	(0.10)	
Malta	8.8	(0.4)		0.41	(0.02)		0.42	(0.02)		0.40	(0.07)		-0.02	(0.07)	
Moldova	1.4	(0.2)		-0.20	(0.02)		-0.19	(0.02)		-0.51	(0.11)		**-0.32**	(0.11)	
Montenegro	5.8	(0.3)		0.45	(0.01)		0.46	(0.01)		0.41	(0.06)		-0.04	(0.06)	
Morocco	0.8	(0.1)		-0.23	(0.01)		-0.22	(0.01)		-0.32	(0.22)		-0.10	(0.23)	
North Macedonia	1.6	(0.2)		m	m		m	m		m	m		m	m	
Panama	6.0	(0.7)		0.01	(0.02)		0.02	(0.02)		-0.08	(0.05)		-0.10	(0.05)	
Peru	0.5	(0.1)		-0.06	(0.01)		-0.06	(0.01)		c	c		c	c	
Philippines	1.0	(0.2)		-0.06	(0.01)		-0.05	(0.01)		-0.56	(0.12)		**-0.51**	(0.12)	
Qatar	56.8	(0.4)		0.18	(0.01)		0.04	(0.01)		0.29	(0.01)		**0.26**	(0.02)	
Romania	0.8	(0.2)	†	-0.02	(0.02)		0.00	(0.02)		c	c		c	c	
Russia	5.8	(0.3)		m	m		m	m		m	m		m	m	
Saudi Arabia	11.9	(1.1)		0.22	(0.02)		0.21	(0.02)		0.41	(0.04)		**0.20**	(0.04)	
Serbia	9.3	(0.4)		0.14	(0.01)		0.14	(0.01)		0.15	(0.05)		0.01	(0.05)	
Singapore	24.8	(0.7)		-0.11	(0.01)		-0.13	(0.02)		-0.02	(0.03)		**0.12**	(0.03)	
Chinese Taipei	0.7	(0.2)		-0.35	(0.02)		-0.35	(0.02)		-0.48	(0.14)		-0.13	(0.14)	
Thailand	1.1	(0.4)		-0.26	(0.02)		-0.25	(0.02)		-0.55	(0.11)		**-0.29**	(0.11)	
Ukraine	2.3	(0.2)		-0.10	(0.02)		-0.10	(0.02)		-0.08	(0.09)		0.01	(0.09)	
United Arab Emirates	55.8	(0.8)		0.32	(0.01)		0.23	(0.01)		0.40	(0.01)		**0.17**	(0.02)	
Uruguay	1.3	(0.2)		-0.19	(0.02)		-0.18	(0.02)		-0.15	(0.16)		0.03	(0.16)	
Viet Nam	0.1	(0.0)		-0.42	(0.01)		-0.42	(0.01)		c	c		c	c	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.10.1 [3/8] **Average student attitudes and dispositions, by immigrant background**
Based on students' reports

		Index of perception of difficulty in reading										
		All students			Non-immigrant students			Immigrant students			Difference immigrants - non-immigrants		
		Mean index	S.E.	s	Mean index	S.E.	s	Mean index	S.E.	s	Dif.	S.E.	s
OECD	Australia	0.05	(0.01)		0.03	(0.01)		0.08	(0.02)		**0.06**	(0.03)	
	Austria	-0.38	(0.02)		-0.43	(0.02)		-0.22	(0.03)		**0.20**	(0.03)	
	Belgium	0.12	(0.01)		0.11	(0.01)		0.16	(0.03)		0.05	(0.03)	
	Canada	0.02	(0.01)		-0.03	(0.01)		0.10	(0.02)		**0.12**	(0.02)	
	Chile	0.15	(0.02)		0.14	(0.02)		0.20	(0.06)		0.05	(0.06)	
	Colombia	0.26	(0.01)		0.26	(0.01)		0.64	(0.23)		0.39	(0.23)	
	Czech Republic	0.15	(0.01)		0.14	(0.01)		0.34	(0.07)		**0.20**	(0.07)	
	Denmark	-0.14	(0.02)		-0.15	(0.02)		-0.03	(0.04)		**0.12**	(0.04)	
	Estonia	-0.15	(0.01)		-0.16	(0.01)		-0.11	(0.04)		0.04	(0.05)	
	Finland	-0.10	(0.02)		-0.12	(0.02)		0.18	(0.06)		**0.31**	(0.07)	
	France	0.11	(0.01)		0.09	(0.02)		0.21	(0.04)		**0.12**	(0.04)	
	Germany	-0.17	(0.02)		-0.22	(0.02)		0.02	(0.04)		**0.24**	(0.04)	
	Greece	-0.05	(0.02)		-0.08	(0.02)		0.21	(0.04)		**0.30**	(0.04)	
	Hungary	-0.38	(0.02)		-0.38	(0.02)		-0.31	(0.08)		0.08	(0.09)	
	Iceland	0.08	(0.02)		0.06	(0.02)		0.48	(0.07)		**0.42**	(0.08)	
	Ireland	0.00	(0.01)		0.00	(0.02)		-0.03	(0.03)		-0.03	(0.03)	
	Israel	-0.01	(0.02)		-0.04	(0.02)		0.09	(0.04)		**0.13**	(0.04)	
	Italy	-0.20	(0.01)		-0.23	(0.01)		0.07	(0.04)		**0.31**	(0.04)	
	Japan	0.55	(0.01)		w	w		w	w		w	w	
	Korea	0.19	(0.02)		0.19	(0.02)		c	c		c	c	
	Latvia	-0.06	(0.01)		-0.06	(0.01)		-0.09	(0.06)		-0.03	(0.06)	
	Lithuania	-0.03	(0.02)		-0.03	(0.02)		-0.12	(0.11)		-0.09	(0.11)	
	Luxembourg	-0.25	(0.01)		-0.46	(0.02)		-0.09	(0.02)		**0.37**	(0.03)	
	Mexico	0.19	(0.01)		0.19	(0.01)		0.40	(0.14)		0.21	(0.15)	
	Netherlands*	0.13	(0.02)		0.13	(0.02)		0.07	(0.05)	†	-0.06	(0.05)	†
	New Zealand	0.16	(0.02)		0.12	(0.02)		0.22	(0.03)		**0.09**	(0.03)	
	Norway	0.08	(0.02)		0.06	(0.02)		0.24	(0.04)		**0.18**	(0.05)	
	Poland	-0.10	(0.01)		-0.11	(0.01)		c	c		c	c	
	Portugal*	0.16	(0.02)		0.15	(0.02)		0.27	(0.06)		**0.12**	(0.06)	
	Slovak Republic	0.07	(0.01)		0.07	(0.01)		-0.12	(0.15)		-0.19	(0.15)	
	Slovenia	-0.03	(0.01)		-0.04	(0.01)		0.07	(0.05)		**0.11**	(0.05)	
	Spain	-0.06	(0.01)		-0.08	(0.01)		0.06	(0.02)		**0.14**	(0.02)	
	Sweden	-0.05	(0.02)		-0.09	(0.02)		0.09	(0.04)		**0.18**	(0.05)	
	Switzerland	-0.10	(0.01)		-0.13	(0.02)		-0.06	(0.02)		**0.07**	(0.03)	
	Turkey	-0.10	(0.01)		-0.10	(0.01)		0.07	(0.14)		0.18	(0.14)	
	United Kingdom	0.08	(0.02)		0.07	(0.02)		0.06	(0.03)		-0.01	(0.03)	
	United States*	0.08	(0.02)		0.02	(0.02)		0.24	(0.03)		**0.22**	(0.04)	
	OECD average	0.01	(0.00)		-0.03	(0.00)		0.10	(0.01)		**0.13**	(0.01)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.10.1 [4/8] **Average student attitudes and dispositions, by immigrant background**
Based on students' reports

	Index of perception of difficulty in reading											
	All students			Non-immigrant students			Immigrant students			Difference immigrants - non-immigrants		
	Mean index	S.E.	s	Mean index	S.E.	s	Mean index	S.E.	s	Dif.	S.E.	s
Partners												
Albania	-0.12	(0.02)		-0.13	(0.02)		0.38	(0.23)		**0.51**	(0.23)	
Argentina	0.18	(0.02)		0.17	(0.02)		0.24	(0.06)		0.08	(0.06)	
Baku (Azerbaijan)	0.14	(0.02)		0.12	(0.02)		0.30	(0.08)		**0.17**	(0.08)	
Belarus	-0.11	(0.01)		-0.12	(0.01)		0.01	(0.07)		0.13	(0.07)	
Bosnia and Herzegovina	-0.19	(0.02)		-0.19	(0.02)		0.02	(0.11)		**0.21**	(0.10)	
Brazil	0.17	(0.01)		0.17	(0.01)		0.39	(0.16)	†	0.22	(0.16)	†
Brunei Darussalam	0.62	(0.01)		0.64	(0.01)		0.35	(0.04)		**-0.29**	(0.04)	
B-S-J-Z (China)	0.18	(0.02)		0.18	(0.02)		c	c		c	c	
Bulgaria	-0.02	(0.02)		-0.03	(0.02)		0.16	(0.22)		0.18	(0.23)	
Costa Rica	0.10	(0.02)		0.10	(0.02)		0.14	(0.05)		0.04	(0.05)	
Croatia	-0.20	(0.01)		-0.20	(0.01)		-0.23	(0.04)		-0.04	(0.04)	
Cyprus	0.00	(0.02)		0.00	(0.02)		0.03	(0.04)		0.03	(0.05)	
Dominican Republic	0.09	(0.02)	†	0.08	(0.02)		0.35	(0.12)	†	**0.27**	(0.12)	†
Georgia	-0.06	(0.02)		-0.06	(0.02)		0.17	(0.20)	†	0.23	(0.21)	†
Hong Kong (China)*	0.15	(0.01)		0.17	(0.02)		0.11	(0.02)		**-0.06**	(0.02)	
Indonesia	0.55	(0.02)		0.54	(0.02)		0.56	(0.31)		0.01	(0.31)	
Jordan	0.40	(0.02)		0.40	(0.02)		0.37	(0.03)		-0.04	(0.04)	
Kazakhstan	0.19	(0.01)		0.19	(0.01)		0.23	(0.03)		0.05	(0.03)	
Kosovo	-0.13	(0.02)		-0.14	(0.02)		0.11	(0.14)		0.25	(0.15)	
Lebanon	m	m		m	m		m	m		m	m	
Macao (China)	0.21	(0.02)		0.26	(0.03)		0.18	(0.02)		**-0.08**	(0.03)	
Malaysia	m	m		m	m		m	m		m	m	
Malta	-0.13	(0.02)		-0.14	(0.02)		-0.10	(0.07)		0.04	(0.07)	
Moldova	-0.04	(0.02)		-0.05	(0.02)		-0.17	(0.12)		-0.11	(0.12)	
Montenegro	-0.12	(0.01)		-0.12	(0.01)		-0.14	(0.06)		-0.02	(0.06)	
Morocco	m	m		m	m		m	m		m	m	
North Macedonia	m	m		m	m		m	m		m	m	
Panama	0.22	(0.02)		0.21	(0.02)		0.16	(0.06)		-0.05	(0.06)	
Peru	0.25	(0.01)		0.25	(0.01)		c	c		c	c	
Philippines	0.61	(0.02)		0.60	(0.02)		0.68	(0.10)		0.07	(0.11)	
Qatar	0.17	(0.01)		0.32	(0.02)		0.05	(0.01)		**-0.26**	(0.02)	
Romania	-0.16	(0.02)		-0.16	(0.02)		c	c		c	c	
Russia	-0.04	(0.01)		-0.05	(0.01)		0.02	(0.06)		0.07	(0.06)	
Saudi Arabia	0.05	(0.01)		0.04	(0.02)		0.00	(0.04)		-0.04	(0.04)	
Serbia	-0.21	(0.02)		-0.21	(0.02)		-0.23	(0.05)		-0.02	(0.05)	
Singapore	0.26	(0.01)		0.27	(0.01)		0.23	(0.03)		-0.04	(0.04)	
Chinese Taipei	-0.04	(0.02)		-0.04	(0.02)		0.01	(0.21)		0.05	(0.21)	
Thailand	0.59	(0.01)		0.59	(0.01)		0.55	(0.11)		-0.05	(0.11)	
Ukraine	-0.09	(0.02)		-0.09	(0.02)		-0.22	(0.10)		-0.13	(0.11)	
United Arab Emirates	0.15	(0.01)		0.33	(0.01)		0.00	(0.02)		**-0.33**	(0.02)	
Uruguay	0.12	(0.02)		0.12	(0.02)		0.29	(0.14)		0.17	(0.14)	
Viet Nam	m	m		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.10.1 [5/8] **Average student attitudes and dispositions, by immigrant background**
Based on students' reports

		Index of motivation to master tasks											
		All students			Non-immigrant students			Immigrant students			Difference immigrants - non-immigrants		
		Mean index	S.E.	s	Mean index	S.E.	s	Mean index	S.E.	s	Dif.	S.E.	s
OECD	Australia	-0.03	(0.01)		-0.07	(0.01)		0.08	(0.02)		**0.16**	(0.02)	
	Austria	-0.03	(0.01)		-0.04	(0.02)		0.00	(0.03)		0.03	(0.04)	
	Belgium	m	m		m	m		m	m		m	m	
	Canada	0.12	(0.01)		0.09	(0.01)		0.18	(0.02)		**0.09**	(0.02)	
	Chile	0.29	(0.02)		0.29	(0.02)		0.39	(0.08)		0.09	(0.08)	
	Colombia	0.13	(0.02)		0.14	(0.02)		0.16	(0.24)		0.03	(0.24)	
	Czech Republic	-0.25	(0.01)		-0.24	(0.01)		-0.46	(0.07)		**-0.22**	(0.07)	
	Denmark	-0.05	(0.01)		-0.06	(0.02)		0.06	(0.04)		**0.11**	(0.04)	
	Estonia	-0.31	(0.01)		-0.31	(0.01)		-0.32	(0.04)		-0.01	(0.04)	
	Finland	-0.31	(0.02)		-0.31	(0.02)		-0.30	(0.06)		0.01	(0.06)	
	France	-0.24	(0.01)		-0.26	(0.02)		-0.11	(0.04)		**0.15**	(0.04)	
	Germany	-0.08	(0.02)		-0.10	(0.02)		0.01	(0.04)		**0.11**	(0.04)	
	Greece	0.27	(0.02)		0.29	(0.02)		0.16	(0.04)		**-0.12**	(0.04)	
	Hungary	0.02	(0.01)		0.03	(0.01)		-0.05	(0.10)		-0.07	(0.10)	
	Iceland	-0.13	(0.02)		-0.11	(0.02)		-0.37	(0.08)		**-0.25**	(0.08)	
	Ireland	-0.09	(0.01)		-0.10	(0.01)		-0.02	(0.03)		**0.08**	(0.03)	
	Israel	0.34	(0.02)		0.36	(0.02)		0.30	(0.04)		-0.06	(0.04)	
	Italy	0.49	(0.02)		0.51	(0.02)		0.31	(0.05)		**-0.20**	(0.05)	
	Japan	-0.11	(0.02)		w	w		w	w		w	w	
	Korea	0.39	(0.01)		0.40	(0.01)		c	c		c	c	
	Latvia	-0.09	(0.01)		-0.08	(0.02)		-0.30	(0.07)		**-0.22**	(0.07)	
	Lithuania	-0.02	(0.01)		-0.02	(0.01)		-0.24	(0.11)		**-0.22**	(0.11)	
	Luxembourg	-0.26	(0.02)		-0.27	(0.02)		-0.25	(0.02)		0.02	(0.03)	
	Mexico	0.37	(0.02)		0.39	(0.02)		-0.18	(0.20)	†	**-0.57**	(0.20)	†
	Netherlands*	-0.40	(0.02)		-0.42	(0.02)		-0.19	(0.04)	†	**0.23**	(0.04)	†
	New Zealand	-0.04	(0.01)		-0.09	(0.02)		0.09	(0.03)		**0.18**	(0.03)	
	Norway	0.02	(0.01)		0.01	(0.02)		0.04	(0.04)		0.02	(0.04)	
	Poland	0.10	(0.02)		0.10	(0.02)		c	c		c	c	
	Portugal*	0.08	(0.01)		0.09	(0.01)		0.01	(0.07)		-0.07	(0.07)	
	Slovak Republic	-0.18	(0.01)		-0.18	(0.01)		-0.43	(0.15)		-0.25	(0.16)	
	Slovenia	0.41	(0.01)		0.42	(0.01)		0.39	(0.05)		-0.03	(0.05)	
	Spain	0.17	(0.01)		0.18	(0.01)		0.10	(0.02)		**-0.08**	(0.02)	
	Sweden	-0.29	(0.02)		-0.35	(0.02)		-0.07	(0.04)		**0.28**	(0.04)	
	Switzerland	-0.20	(0.02)		-0.25	(0.02)		-0.11	(0.03)		**0.13**	(0.03)	
	Turkey	0.02	(0.02)		0.03	(0.02)		-0.14	(0.17)		-0.17	(0.17)	
	United Kingdom	-0.16	(0.01)		-0.20	(0.02)		0.00	(0.03)		**0.20**	(0.04)	
	United States*	0.18	(0.02)		0.20	(0.02)		0.17	(0.04)		-0.03	(0.04)	
	OECD average	0.00	(0.00)		0.00	(0.00)		-0.03	(0.01)		-0.02	(0.01)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.10.1 [6/8] **Average student attitudes and dispositions, by immigrant background**
Based on students' reports

	Index of motivation to master tasks											
	All students			Non-immigrant students			Immigrant students			Difference immigrants - non-immigrants		
	Mean index	S.E.	s	Mean index	S.E.	s	Mean index	S.E.	s	Dif.	S.E.	s
Partners												
Albania	0.62	(0.02)		0.62	(0.02)		0.44	(0.21)		-0.18	(0.21)	
Argentina	0.29	(0.02)		0.29	(0.02)		0.37	(0.05)		0.07	(0.05)	
Baku (Azerbaijan)	0.10	(0.02)	†	0.11	(0.02)		0.09	(0.09)	†	-0.02	(0.09)	†
Belarus	-0.12	(0.01)		-0.11	(0.01)		-0.20	(0.04)		-0.09	(0.04)	
Bosnia and Herzegovina	0.11	(0.02)		0.12	(0.02)		0.07	(0.11)		-0.04	(0.11)	
Brazil	0.26	(0.01)		0.26	(0.01)		-0.01	(0.22)	†	-0.27	(0.22)	†
Brunei Darussalam	0.12	(0.01)		0.13	(0.01)		0.12	(0.03)		0.00	(0.03)	
B-S-J-Z (China)	0.28	(0.02)		0.28	(0.02)		c	c		c	c	
Bulgaria	0.07	(0.03)		0.09	(0.02)		-0.82	(0.13)		**-0.91**	(0.13)	
Costa Rica	0.60	(0.02)		0.60	(0.02)		0.60	(0.05)		0.00	(0.05)	
Croatia	0.21	(0.01)		0.21	(0.02)		0.22	(0.04)		0.00	(0.04)	
Cyprus	-0.01	(0.02)		-0.01	(0.02)		-0.02	(0.04)		-0.01	(0.04)	
Dominican Republic	0.11	(0.03)	†	0.13	(0.03)	†	-0.12	(0.18)	†	-0.25	(0.18)	†
Georgia	0.08	(0.02)		0.09	(0.02)		-0.17	(0.18)	†	-0.27	(0.19)	†
Hong Kong (China)*	-0.03	(0.01)		-0.03	(0.02)		-0.01	(0.02)		0.02	(0.03)	
Indonesia	0.25	(0.02)		0.26	(0.02)		-0.10	(0.29)		-0.36	(0.29)	
Jordan	0.35	(0.03)		0.35	(0.03)		0.46	(0.06)		0.11	(0.06)	
Kazakhstan	0.03	(0.01)		0.03	(0.01)		0.03	(0.03)		0.00	(0.04)	
Kosovo	0.36	(0.02)		0.36	(0.02)		0.39	(0.15)		0.02	(0.16)	
Lebanon	0.05	(0.03)		0.10	(0.03)		-0.13	(0.09)		**-0.23**	(0.08)	
Macao (China)	0.00	(0.01)		-0.04	(0.03)		0.03	(0.02)		**0.07**	(0.03)	
Malaysia	0.42	(0.02)		0.43	(0.02)		0.26	(0.10)		-0.18	(0.10)	
Malta	0.29	(0.02)		0.31	(0.02)		0.09	(0.07)		**-0.23**	(0.08)	
Moldova	-0.04	(0.01)		-0.03	(0.02)		-0.10	(0.12)		-0.08	(0.12)	
Montenegro	-0.07	(0.01)		-0.07	(0.01)		-0.11	(0.06)		-0.05	(0.06)	
Morocco	0.36	(0.02)	†	0.38	(0.02)	†	-0.37	(0.18)		**-0.75**	(0.17)	†
North Macedonia	0.52	(0.01)		0.54	(0.01)		0.36	(0.18)		-0.17	(0.18)	
Panama	0.41	(0.02)	†	0.43	(0.02)	†	0.31	(0.06)	†	-0.11	(0.06)	†
Peru	0.39	(0.02)		0.40	(0.02)		c	c		c	c	
Philippines	0.08	(0.02)		0.11	(0.02)		-0.86	(0.16)		**-0.97**	(0.17)	
Qatar	0.28	(0.01)		0.18	(0.02)		0.37	(0.01)		**0.19**	(0.02)	
Romania	0.00	(0.02)		-0.02	(0.02)		c	c		c	c	
Russia	-0.32	(0.02)		-0.32	(0.02)		-0.23	(0.05)		0.10	(0.05)	
Saudi Arabia	0.22	(0.02)		0.21	(0.02)		0.42	(0.04)		**0.21**	(0.04)	
Serbia	0.07	(0.02)		0.07	(0.02)		0.10	(0.06)		0.03	(0.06)	
Singapore	0.24	(0.01)		0.22	(0.01)		0.30	(0.03)		**0.09**	(0.03)	
Chinese Taipei	0.20	(0.01)		0.20	(0.01)		0.00	(0.21)		-0.20	(0.21)	
Thailand	0.29	(0.02)		0.30	(0.02)		-0.05	(0.20)		-0.35	(0.20)	
Ukraine	-0.03	(0.02)		-0.02	(0.02)		-0.13	(0.11)		-0.11	(0.11)	
United Arab Emirates	0.40	(0.01)		0.37	(0.02)		0.45	(0.01)		**0.07**	(0.02)	
Uruguay	0.27	(0.02)		0.27	(0.02)		0.53	(0.17)	†	0.26	(0.17)	†
Viet Nam	0.18	(0.02)		0.18	(0.02)		c	c		c	c	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.10.1 [7/8] **Average student attitudes and dispositions, by immigrant background**
Based on students' reports

		Index of learning goals											
		All students			Non-immigrant students			Immigrant students			Difference immigrants - non-immigrants		
		Mean index	S.E.	s	Mean index	S.E.	s	Mean index	S.E.	s	Dif.	S.E.	s
OECD	Australia	0.06	(0.01)		0.00	(0.01)		0.20	(0.02)		**0.21**	(0.02)	
	Austria	0.02	(0.02)		0.00	(0.02)		0.11	(0.03)		**0.11**	(0.03)	
	Belgium	0.13	(0.01)		0.10	(0.01)		0.28	(0.03)		**0.18**	(0.03)	
	Canada	0.22	(0.01)		0.16	(0.01)		0.34	(0.02)		**0.18**	(0.02)	
	Chile	0.33	(0.02)		0.33	(0.02)		0.41	(0.10)		0.08	(0.10)	
	Colombia	0.47	(0.02)		0.47	(0.02)		0.17	(0.24)		-0.30	(0.24)	
	Czech Republic	-0.06	(0.02)		-0.06	(0.02)		-0.24	(0.10)		-0.19	(0.10)	
	Denmark	0.44	(0.02)		0.43	(0.02)		0.53	(0.04)		**0.10**	(0.04)	
	Estonia	-0.20	(0.02)		-0.17	(0.02)		-0.51	(0.04)		**-0.35**	(0.04)	
	Finland	-0.12	(0.01)		-0.13	(0.01)		0.15	(0.07)		**0.28**	(0.07)	
	France	-0.20	(0.01)		-0.22	(0.01)		-0.08	(0.04)		**0.13**	(0.05)	
	Germany	0.01	(0.02)	†	-0.01	(0.02)		0.11	(0.04)		**0.12**	(0.04)	
	Greece	-0.09	(0.02)		-0.07	(0.02)		-0.16	(0.04)		-0.08	(0.04)	
	Hungary	-0.24	(0.02)		-0.24	(0.02)		-0.26	(0.13)		-0.02	(0.13)	
	Iceland	0.26	(0.02)		0.27	(0.02)		0.13	(0.09)		-0.14	(0.10)	
	Ireland	-0.12	(0.01)		-0.15	(0.02)		0.02	(0.03)		**0.16**	(0.04)	
	Israel	0.28	(0.02)		0.28	(0.02)		0.31	(0.04)		0.03	(0.05)	
	Italy	-0.18	(0.01)		-0.17	(0.01)		-0.28	(0.05)		**-0.10**	(0.05)	
	Japan	-0.31	(0.02)		w	w		w	w		w	w	
	Korea	0.06	(0.02)		0.06	(0.02)		c	c		c	c	
	Latvia	-0.31	(0.02)		-0.30	(0.02)		-0.66	(0.07)		**-0.37**	(0.07)	
	Lithuania	0.05	(0.02)		0.06	(0.02)		-0.40	(0.13)		**-0.46**	(0.13)	
	Luxembourg	-0.04	(0.01)		-0.04	(0.02)		-0.04	(0.02)		0.01	(0.03)	
	Mexico	0.55	(0.01)	†	0.56	(0.01)		0.31	(0.18)	†	-0.25	(0.18)	†
	Netherlands*	-0.21	(0.02)		-0.27	(0.02)		0.19	(0.04)	†	**0.46**	(0.04)	†
	New Zealand	0.07	(0.01)		-0.01	(0.01)		0.28	(0.02)		**0.29**	(0.03)	
	Norway	0.41	(0.02)		0.39	(0.02)		0.52	(0.04)		**0.12**	(0.04)	
	Poland	0.01	(0.02)		0.01	(0.02)		c	c		c	c	
	Portugal*	-0.01	(0.02)		-0.01	(0.02)		-0.01	(0.06)		0.01	(0.06)	
	Slovak Republic	-0.34	(0.02)		-0.33	(0.02)		-0.58	(0.14)		-0.24	(0.14)	
	Slovenia	-0.29	(0.01)		-0.30	(0.02)		-0.20	(0.05)		0.10	(0.06)	
	Spain	-0.10	(0.01)		-0.09	(0.01)		-0.20	(0.02)		**-0.11**	(0.03)	
	Sweden	0.01	(0.02)		-0.09	(0.02)		0.40	(0.04)		**0.49**	(0.04)	
	Switzerland	-0.04	(0.02)		-0.06	(0.02)		0.01	(0.02)		**0.08**	(0.03)	
	Turkey	-0.05	(0.02)		-0.05	(0.02)		0.09	(0.14)		0.14	(0.14)	
	United Kingdom	-0.08	(0.02)		-0.16	(0.02)		0.22	(0.03)		**0.38**	(0.04)	
	United States*	0.29	(0.02)		0.27	(0.02)		0.36	(0.03)		**0.09**	(0.04)	
	OECD average	0.02	(0.00)		0.01	(0.00)		0.04	(0.01)		**0.03**	(0.01)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

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Table II.B1.10.1 [8/8] **Average student attitudes and dispositions, by immigrant background**
Based on students' reports

	Index of learning goals											
	All students			Non-immigrant students			Immigrant students			Difference immigrants - non-immigrants		
	Mean index	S.E.	s	Mean index	S.E.	s	Mean index	S.E.	s	Dif.	S.E.	s
Partners												
Albania	0.67	(0.02)		0.68	(0.02)		0.29	(0.30)		-0.39	(0.30)	
Argentina	-0.23	(0.02)		-0.23	(0.02)		-0.21	(0.06)		0.02	(0.06)	
Baku (Azerbaijan)	0.49	(0.02)	†	0.49	(0.02)		0.52	(0.07)	†	0.03	(0.07)	†
Belarus	-0.06	(0.02)		-0.06	(0.02)		-0.09	(0.07)		-0.03	(0.07)	
Bosnia and Herzegovina	0.22	(0.02)		0.22	(0.02)		0.11	(0.10)		-0.11	(0.10)	
Brazil	0.53	(0.01)		0.54	(0.01)		0.15	(0.19)	†	**-0.39**	(0.19)	†
Brunei Darussalam	0.12	(0.01)		0.13	(0.01)		0.08	(0.03)		-0.05	(0.04)	
B-S-J-Z (China)	-0.01	(0.02)		-0.01	(0.02)		c	c		c	c	
Bulgaria	-0.24	(0.02)		-0.22	(0.02)		-0.65	(0.19)		**-0.43**	(0.19)	
Costa Rica	0.55	(0.02)		0.55	(0.02)		0.48	(0.04)		-0.07	(0.04)	
Croatia	-0.10	(0.02)		-0.10	(0.02)		-0.05	(0.05)		0.05	(0.05)	
Cyprus	0.02	(0.02)		0.03	(0.02)		-0.02	(0.05)		-0.06	(0.05)	
Dominican Republic	0.51	(0.02)	†	0.52	(0.02)	†	0.28	(0.18)	‡	-0.24	(0.18)	‡
Georgia	0.45	(0.02)		0.47	(0.02)		-0.02	(0.22)	†	**-0.49**	(0.22)	†
Hong Kong (China)*	-0.05	(0.01)		-0.05	(0.02)		-0.04	(0.02)		0.01	(0.03)	
Indonesia	0.49	(0.02)		0.49	(0.02)		0.84	(0.13)		**0.35**	(0.13)	
Jordan	0.52	(0.02)		0.52	(0.02)		0.60	(0.04)		0.08	(0.04)	
Kazakhstan	0.54	(0.01)		0.55	(0.01)		0.54	(0.04)		-0.01	(0.04)	
Kosovo	0.57	(0.02)		0.58	(0.02)		0.55	(0.13)		-0.03	(0.13)	
Lebanon	m	m		m	m		m	m		m	m	
Macao (China)	-0.22	(0.02)		-0.32	(0.02)		-0.17	(0.02)		**0.15**	(0.03)	
Malaysia	0.36	(0.02)		0.37	(0.02)		0.31	(0.10)		-0.06	(0.11)	
Malta	0.21	(0.02)		0.24	(0.02)		-0.02	(0.07)		**-0.26**	(0.07)	
Moldova	0.11	(0.02)		0.13	(0.02)		-0.14	(0.12)		**-0.26**	(0.12)	
Montenegro	0.32	(0.01)		0.33	(0.01)		0.22	(0.07)		-0.11	(0.08)	
Morocco	0.31	(0.02)	†	0.31	(0.02)	†	-0.18	(0.18)	†	**-0.49**	(0.18)	†
North Macedonia	m	m		m	m		m	m		m	m	
Panama	0.59	(0.03)	†	0.62	(0.03)	†	0.29	(0.09)	†	**-0.32**	(0.09)	†
Peru	0.38	(0.02)	†	0.39	(0.02)	†	c	c		c	c	
Philippines	0.34	(0.02)		0.37	(0.02)		-0.39	(0.11)		**-0.76**	(0.11)	
Qatar	0.33	(0.01)		0.28	(0.02)		0.38	(0.01)		**0.10**	(0.02)	
Romania	0.10	(0.02)		0.10	(0.02)		c	c		c	c	
Russia	-0.18	(0.02)		-0.18	(0.02)		-0.16	(0.05)		0.03	(0.05)	
Saudi Arabia	0.42	(0.02)		0.42	(0.02)		0.63	(0.03)		**0.21**	(0.04)	
Serbia	-0.01	(0.02)		-0.02	(0.02)		0.06	(0.05)		0.08	(0.05)	
Singapore	0.31	(0.01)		0.30	(0.01)		0.37	(0.02)		**0.08**	(0.02)	
Chinese Taipei	-0.29	(0.02)		-0.29	(0.02)		-0.11	(0.17)		0.19	(0.17)	
Thailand	0.24	(0.02)		0.25	(0.02)		-0.12	(0.14)		**-0.37**	(0.13)	
Ukraine	-0.35	(0.02)		-0.34	(0.02)		-0.51	(0.11)		-0.17	(0.11)	
United Arab Emirates	0.42	(0.01)		0.41	(0.01)		0.45	(0.01)		**0.04**	(0.02)	
Uruguay	0.15	(0.02)		0.14	(0.02)		0.51	(0.15)	†	**0.37**	(0.15)	†
Viet Nam	-1.04	(0.02)		-1.04	(0.02)		c	c		c	c	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.10.2 [1/4] **Students' attitudes and dispositions, and immigrant background**
Based on students' reports

		Percentage of immigrant students			Index of perception of competence						Index of perception of difficulty in reading					
					Before accounting for any student or school variables			After accounting for gender, students' and schools' socio-economic profile, and performance in reading			Before accounting for any student or school variables			After accounting for gender, students' and schools' socio-economic profile, and performance in reading		
		%	S.E.	s	Dif.	S.E.	s	Dif.	S.E.	s	Dif.	S.E.	s	Dif.	S.E.	s
OECD	Australia	27.7	(0.8)		-0.03	(0.02)		**-0.06**	(0.02)		**0.06**	(0.03)		**0.08**	(0.02)	
	Austria	22.7	(1.2)		**-0.23**	(0.04)		**0.08**	(0.04)		**0.20**	(0.03)		-0.05	(0.04)	
	Belgium	18.1	(0.9)		0.01	(0.02)		**0.17**	(0.03)		0.05	(0.03)		**-0.07**	(0.03)	
	Canada	35.0	(1.4)		**-0.07**	(0.02)		**-0.05**	(0.02)		**0.12**	(0.02)		**0.11**	(0.02)	
	Chile	3.4	(0.4)		-0.03	(0.08)		0.01	(0.07)		0.05	(0.06)		-0.01	(0.06)	
	Colombia	0.6	(0.1)		-0.13	(0.21)		0.00	(0.18)		0.39	(0.23)		0.22	(0.26)	
	Czech Republic	4.1	(0.4)		-0.12	(0.06)		0.09	(0.07)		**0.20**	(0.07)		0.05	(0.07)	
	Denmark	10.7	(0.4)		-0.05	(0.03)		**0.24**	(0.03)		**0.12**	(0.04)		**-0.14**	(0.05)	
	Estonia	10.4	(0.5)		**-0.30**	(0.04)		**-0.16**	(0.04)		0.04	(0.05)		-0.04	(0.04)	
	Finland	5.8	(0.5)		**-0.18**	(0.07)		**0.27**	(0.07)		**0.31**	(0.07)		-0.08	(0.07)	
	France	14.3	(0.9)		0.00	(0.04)		**0.17**	(0.04)		**0.12**	(0.04)		-0.03	(0.04)	
	Germany	22.2	(1.1)		**-0.13**	(0.04)		**0.11**	(0.04)		**0.24**	(0.04)		0.00	(0.04)	
	Greece	11.7	(0.7)		**-0.22**	(0.04)		-0.03	(0.04)		**0.30**	(0.04)		**0.12**	(0.04)	
	Hungary	2.6	(0.3)		-0.03	(0.08)		-0.11	(0.07)		0.08	(0.09)		0.11	(0.09)	
	Iceland	5.6	(0.4)		**-0.46**	(0.07)		0.04	(0.08)		**0.42**	(0.08)		0.00	(0.08)	
	Ireland	17.9	(0.9)		**0.08**	(0.03)		**0.14**	(0.03)		-0.03	(0.03)		**-0.08**	(0.03)	
	Israel	16.4	(1.1)		**-0.12**	(0.05)		**-0.09**	(0.05)		**0.13**	(0.04)		**0.11**	(0.03)	
	Italy	10.0	(0.5)		**-0.17**	(0.04)		-0.02	(0.04)		**0.31**	(0.04)		**0.18**	(0.04)	
	Japan	0.6	(0.1)		w	w		w	w		w	w		w	w	
	Korea	0.2	(0.1)		c	c		c	c		c	c		c	c	
	Latvia	4.4	(0.3)		-0.06	(0.05)		-0.04	(0.05)		-0.03	(0.06)		-0.04	(0.05)	
	Lithuania	1.6	(0.1)		**-0.54**	(0.12)		**-0.48**	(0.10)		-0.09	(0.11)		-0.15	(0.11)	
	Luxembourg	54.9	(0.6)		**-0.34**	(0.03)		**-0.13**	(0.03)		**0.37**	(0.03)		**0.24**	(0.03)	
	Mexico	1.6	(0.3)		**-0.42**	(0.10)		-0.13	(0.09)		0.21	(0.15)		-0.04	(0.14)	
	Netherlands*	13.8	(1.2)		**0.10**	(0.04)		**0.31**	(0.05)		-0.06	(0.05)		**-0.17**	(0.05)	
	New Zealand	26.5	(1.3)		**-0.06**	(0.03)		-0.05	(0.03)		**0.09**	(0.03)		**0.08**	(0.03)	
	Norway	12.4	(0.8)		**-0.21**	(0.04)		0.06	(0.04)		**0.18**	(0.05)		-0.02	(0.05)	
	Poland	0.6	(0.2)		c	c		c	c		c	c		c	c	
	Portugal*	7.0	(0.6)		-0.04	(0.06)		0.06	(0.05)		**0.12**	(0.06)		0.05	(0.06)	
	Slovak Republic	1.2	(0.2)		-0.03	(0.13)		0.10	(0.12)		-0.19	(0.15)		-0.29	(0.15)	
	Slovenia	8.9	(0.3)		**-0.14**	(0.05)		**0.12**	(0.06)		**0.11**	(0.05)		-0.08	(0.05)	
	Spain	12.2	(0.5)		**-0.08**	(0.02)		m	m		**0.14**	(0.02)		m	m	
	Sweden	20.5	(1.3)		-0.01	(0.04)		**0.32**	(0.04)		**0.18**	(0.05)		**-0.14**	(0.04)	
	Switzerland	33.9	(1.4)		-0.03	(0.03)		**0.18**	(0.03)		**0.07**	(0.03)		-0.06	(0.03)	
	Turkey	0.9	(0.1)		-0.15	(0.13)		-0.15	(0.12)		0.18	(0.14)		0.15	(0.14)	
	United Kingdom	19.8	(1.2)		**0.08**	(0.03)		**0.15**	(0.03)		-0.01	(0.03)		**-0.07**	(0.04)	
	United States*	23.0	(1.5)		**-0.28**	(0.05)		**-0.20**	(0.04)		**0.22**	(0.04)		**0.17**	(0.04)	
	OECD average	13.0	(0.1)		**-0.13**	(0.01)		**0.03**	(0.01)		**0.13**	(0.01)		0.00	(0.01)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.10.2 [2/4] **Students' attitudes and dispositions, and immigrant background**
Based on students' reports

		Percentage of immigrant students			Index of perception of competence						Index of perception of difficulty in reading					
					Before accounting for any student or school variables			After accounting for gender, students' and schools' socio-economic profile, and performance in reading			Before accounting for any student or school variables			After accounting for gender, students' and schools' socio-economic profile, and performance in reading		
		%	S.E.	s	Dif.	S.E.	s	Dif.	S.E.	s	Dif.	S.E.	s	Dif.	S.E.	s
Partners	Albania	0.6	(0.1)		0.02	(0.15)		0.17	(0.13)		**0.51**	(0.23)		0.24	(0.24)	
	Argentina	4.6	(0.3)		0.05	(0.06)		0.06	(0.05)		0.08	(0.06)		0.05	(0.06)	
	Baku (Azerbaijan)	5.2	(0.4)		-0.01	(0.07)		0.02	(0.07)		**0.17**	(0.08)		0.11	(0.07)	
	Belarus	4.1	(0.3)		m	m		m	m		0.13	(0.07)		0.08	(0.07)	
	Bosnia and Herzegovina	2.8	(0.3)		0.06	(0.10)		0.11	(0.10)		**0.21**	(0.10)		0.17	(0.10)	
	Brazil	0.6	(0.1)		-0.15	(0.19)		0.00	(0.18)		0.22	(0.16)		0.07	(0.16)	
	Brunei Darussalam	8.2	(0.3)		**0.18**	(0.04)		0.01	(0.04)		**-0.29**	(0.04)		**-0.12**	(0.03)	
	B-S-J-Z (China)	0.2	(0.1)		c	c		c	c		c	c		c	c	
	Bulgaria	1.1	(0.2)		**-0.46**	(0.18)		**-0.40**	(0.16)		0.18	(0.23)		0.03	(0.24)	
	Costa Rica	10.0	(0.7)		0.00	(0.04)		**0.12**	(0.04)		0.04	(0.05)		-0.05	(0.05)	
	Croatia	9.1	(0.5)		0.04	(0.05)		0.08	(0.05)		-0.04	(0.04)		-0.06	(0.04)	
	Cyprus	14.8	(0.5)		0.03	(0.04)		0.04	(0.04)		0.03	(0.05)		0.04	(0.04)	
	Dominican Republic	2.9	(0.3)		**-0.29**	(0.14)	†	-0.19	(0.12)	†	**0.27**	(0.12)	†	**0.21**	(0.10)	†
	Georgia	1.4	(0.2)		**-0.42**	(0.14)		**-0.28**	(0.12)		0.23	(0.21)		0.06	(0.21)	
	Hong Kong (China)*	37.9	(1.3)		**0.13**	(0.02)		**0.22**	(0.02)		**-0.06**	(0.02)		**-0.07**	(0.03)	
	Indonesia	0.3	(0.1)		c	c		c	c		0.01	(0.31)		-0.19	(0.30)	
	Jordan	11.6	(0.5)		-0.06	(0.04)		**-0.11**	(0.04)		-0.04	(0.04)		-0.01	(0.03)	
	Kazakhstan	8.2	(0.4)		0.00	(0.03)		0.03	(0.03)		0.05	(0.03)		0.00	(0.03)	
	Kosovo	1.1	(0.2)		-0.04	(0.11)		0.00	(0.11)		0.25	(0.15)		0.18	(0.14)	
	Lebanon	6.0	(0.5)		m	m		m	m		m	m		m	m	
	Macao (China)	62.9	(0.7)		**0.13**	(0.03)		**0.10**	(0.03)		**-0.08**	(0.03)		-0.02	(0.03)	
	Malaysia	1.6	(0.2)		-0.06	(0.10)		0.00	(0.09)		m	m		m	m	
	Malta	8.8	(0.4)		-0.02	(0.07)		-0.04	(0.07)		0.04	(0.07)		0.02	(0.07)	
	Moldova	1.4	(0.2)		**-0.32**	(0.11)		**-0.34**	(0.11)		-0.11	(0.12)		-0.06	(0.12)	
	Montenegro	5.8	(0.3)		-0.04	(0.06)		-0.07	(0.06)		-0.02	(0.06)		0.01	(0.07)	
	Morocco	0.8	(0.1)		-0.10	(0.23)		-0.02	(0.21)		m	m		m	m	
	North Macedonia	1.6	(0.2)		m	m		m	m		m	m		m	m	
	Panama	6.0	(0.7)		-0.10	(0.05)	†	**-0.14**	(0.05)	†	-0.05	(0.06)	†	0.04	(0.06)	†
	Peru	0.5	(0.1)		c	c		c	c		c	c		c	c	
	Philippines	1.0	(0.2)		**-0.51**	(0.12)		**-0.32**	(0.13)		0.07	(0.11)		-0.19	(0.11)	
	Qatar	56.8	(0.4)		**0.26**	(0.02)		**0.04**	(0.02)		**-0.26**	(0.02)		**-0.05**	(0.02)	
	Romania	0.8	(0.2)	†	c	c	†	c	c	†	c	c	†	c	c	†
	Russia	5.8	(0.3)		m	m		m	m		0.07	(0.06)		0.05	(0.06)	
	Saudi Arabia	11.9	(1.1)		**0.20**	(0.04)		**0.08**	(0.04)		-0.04	(0.04)		0.07	(0.04)	
	Serbia	9.3	(0.4)		0.01	(0.05)		-0.01	(0.05)		-0.02	(0.05)		-0.01	(0.05)	
	Singapore	24.8	(0.7)		**0.12**	(0.03)		0.00	(0.03)		-0.04	(0.04)		0.03	(0.03)	
	Chinese Taipei	0.7	(0.2)		-0.13	(0.14)		0.08	(0.20)		0.05	(0.21)		-0.12	(0.14)	
	Thailand	1.1	(0.4)		**-0.29**	(0.11)		**-0.21**	(0.09)		-0.05	(0.11)		-0.13	(0.12)	
	Ukraine	2.3	(0.2)		0.01	(0.09)		0.07	(0.10)		-0.13	(0.11)		-0.18	(0.10)	
	United Arab Emirates	55.8	(0.8)		**0.17**	(0.02)		-0.01	(0.02)		**-0.33**	(0.02)		**-0.06**	(0.02)	
	Uruguay	1.3	(0.2)		0.03	(0.16)		0.12	(0.14)		0.17	(0.14)		0.08	(0.14)	
	Viet Nam	0.1	(0.0)		c	c		m	m		m	m		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.10.2 [3/4] **Students' attitudes and dispositions, and immigrant background**
Based on students' reports

		Index of motivation to master tasks						Index of learning goals					
		Before accounting for any student or school variables			After accounting for gender, students' and schools' socio-economic profile, and performance in reading			Before accounting for any student or school variables			After accounting for gender, students' and schools' socio-economic profile, and performance in reading		
		Dif.	S.E.	s	Dif.	S.E.	s	Dif.	S.E.	s	Dif.	S.E.	s
OECD	Australia	**0.16**	(0.02)		**0.15**	(0.02)		**0.21**	(0.02)		**0.20**	(0.02)	
	Austria	0.03	(0.04)		**0.14**	(0.04)		**0.11**	(0.03)		**0.15**	(0.04)	
	Belgium	m	m		m	m		**0.18**	(0.03)		**0.20**	(0.04)	
	Canada	**0.09**	(0.02)		**0.11**	(0.02)		**0.18**	(0.02)		**0.20**	(0.02)	
	Chile	0.09	(0.08)		0.13	(0.08)		0.08	(0.10)		0.06	(0.10)	
	Colombia	0.03	(0.24)		0.10	(0.23)		-0.30	(0.24)		-0.30	(0.23)	
	Czech Republic	**-0.22**	(0.07)		-0.13	(0.07)		-0.19	(0.10)		-0.12	(0.11)	
	Denmark	**0.11**	(0.04)		**0.30**	(0.05)		**0.10**	(0.04)		**0.29**	(0.04)	
	Estonia	-0.01	(0.04)		0.04	(0.04)		**-0.35**	(0.04)		**-0.30**	(0.05)	
	Finland	0.01	(0.06)		**0.29**	(0.06)		**0.28**	(0.07)		**0.50**	(0.07)	
	France	**0.15**	(0.04)		**0.22**	(0.04)		**0.13**	(0.05)		**0.24**	(0.05)	
	Germany	**0.11**	(0.04)		**0.18**	(0.04)	†	**0.12**	(0.04)	†	**0.19**	(0.04)	†
	Greece	**-0.12**	(0.04)		0.03	(0.04)		-0.08	(0.04)		0.04	(0.04)	
	Hungary	-0.07	(0.10)		-0.08	(0.10)		-0.02	(0.13)		-0.06	(0.13)	
	Iceland	**-0.25**	(0.08)		0.04	(0.08)		-0.14	(0.10)		0.14	(0.09)	
	Ireland	**0.08**	(0.03)		**0.08**	(0.03)		**0.16**	(0.04)		**0.17**	(0.04)	
	Israel	-0.06	(0.04)		-0.04	(0.04)		0.03	(0.05)		0.02	(0.05)	
	Italy	**-0.20**	(0.05)		**-0.13**	(0.05)		**-0.10**	(0.05)		-0.06	(0.05)	
	Japan	w	w		w	w		w	w		w	w	
	Korea	c	c		c	c		c	c		c	c	
	Latvia	**-0.22**	(0.07)		**-0.21**	(0.07)		**-0.37**	(0.07)		**-0.36**	(0.07)	
	Lithuania	**-0.22**	(0.11)		-0.18	(0.12)		**-0.46**	(0.13)		**-0.43**	(0.13)	
	Luxembourg	0.02	(0.03)		**0.12**	(0.04)		0.01	(0.03)		**0.09**	(0.04)	
	Mexico	**-0.57**	(0.20)		**-0.38**	(0.19)		-0.25	(0.18)	†	-0.22	(0.18)	†
	Netherlands*	**0.23**	(0.04)		**0.19**	(0.04)		**0.46**	(0.04)		**0.46**	(0.04)	
	New Zealand	**0.18**	(0.03)		**0.17**	(0.03)		**0.29**	(0.03)		**0.29**	(0.03)	
	Norway	0.02	(0.04)		**0.16**	(0.05)		**0.12**	(0.04)		**0.34**	(0.04)	
	Poland	c	c		c	c		c	c		c	c	
	Portugal*	-0.07	(0.07)		-0.01	(0.06)		0.01	(0.06)		0.06	(0.05)	
	Slovak Republic	-0.25	(0.16)		-0.16	(0.16)		-0.24	(0.14)		-0.14	(0.14)	
	Slovenia	-0.03	(0.05)		**0.12**	(0.05)		0.10	(0.06)		**0.19**	(0.06)	
	Spain	**-0.08**	(0.02)		m	m		**-0.11**	(0.03)		m	m	
	Sweden	**0.28**	(0.04)		**0.44**	(0.04)		**0.49**	(0.04)		**0.68**	(0.05)	
	Switzerland	**0.13**	(0.03)		**0.19**	(0.03)		**0.08**	(0.03)		**0.14**	(0.04)	
	Turkey	-0.17	(0.17)		-0.16	(0.16)		0.14	(0.14)		0.15	(0.15)	
	United Kingdom	**0.20**	(0.04)		**0.23**	(0.04)		**0.38**	(0.04)		**0.39**	(0.03)	
	United States*	-0.03	(0.04)		0.01	(0.04)		**0.09**	(0.04)		**0.12**	(0.04)	
	OECD average	-0.02	(0.01)		**0.06**	(0.01)		**0.03**	(0.01)		**0.10**	(0.01)	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B1.10.2 [4/4] **Students' attitudes and dispositions, and immigrant background**
Based on students' reports

	Index of motivation to master tasks						Index of learning goals					
	Before accounting for any student or school variables			After accounting for gender, students' and schools' socio-economic profile, and performance in reading			Before accounting for any student or school variables			After accounting for gender, students' and schools' socio-economic profile, and performance in reading		
Partners	Dif.	S.E.	s	Dif.	S.E.	s	Dif.	S.E.	s	Dif.	S.E.	s
Albania	-0.18	(0.21)		-0.01	(0.20)		-0.39	(0.30)		-0.29	(0.29)	
Argentina	0.07	(0.05)		0.07	(0.05)		0.02	(0.06)		0.01	(0.07)	
Baku (Azerbaijan)	-0.02	(0.09)	†	0.01	(0.09)	†	0.03	(0.07)	†	0.05	(0.07)	†
Belarus	-0.09	(0.04)		-0.05	(0.05)		-0.03	(0.07)		0.01	(0.07)	
Bosnia and Herzegovina	-0.04	(0.11)		0.01	(0.11)		-0.11	(0.10)		-0.09	(0.10)	
Brazil	-0.27	(0.22)		-0.13	(0.21)		**-0.39**	(0.19)		-0.30	(0.18)	
Brunei Darussalam	0.00	(0.03)		**-0.13**	(0.04)		-0.05	(0.04)		**-0.10**	(0.04)	
B-S-J-Z (China)	c	c		c	c		c	c		c	c	
Bulgaria	**-0.91**	(0.13)		**-0.73**	(0.11)		**-0.43**	(0.19)		-0.37	(0.19)	
Costa Rica	0.00	(0.05)		0.02	(0.05)		-0.07	(0.04)		-0.07	(0.04)	
Croatia	0.00	(0.04)		0.01	(0.04)		0.05	(0.05)		0.07	(0.05)	
Cyprus	-0.01	(0.04)		0.00	(0.04)		-0.06	(0.05)		-0.03	(0.05)	
Dominican Republic	-0.25	(0.18)	†	-0.17	(0.16)	†	-0.24	(0.18)	†	-0.19	(0.17)	†
Georgia	-0.27	(0.19)		-0.11	(0.19)		**-0.49**	(0.22)		-0.40	(0.21)	
Hong Kong (China)*	0.02	(0.03)		0.06	(0.03)		0.01	(0.03)		**0.08**	(0.03)	
Indonesia	-0.36	(0.29)		0.01	(0.27)		**0.35**	(0.13)		**0.41**	(0.14)	
Jordan	0.11	(0.06)		0.05	(0.05)		0.08	(0.04)		0.05	(0.04)	
Kazakhstan	0.00	(0.04)		0.03	(0.04)		-0.01	(0.04)		-0.03	(0.04)	
Kosovo	0.02	(0.16)		0.10	(0.14)		-0.03	(0.13)		0.00	(0.13)	
Lebanon	**-0.23**	(0.08)	†	-0.07	(0.09)	†	m	m		m	m	
Macao (China)	**0.07**	(0.03)		0.06	(0.03)		**0.15**	(0.03)		**0.13**	(0.03)	
Malaysia	-0.18	(0.10)		-0.14	(0.08)		-0.06	(0.11)		0.00	(0.10)	
Malta	**-0.23**	(0.08)		**-0.22**	(0.07)		**-0.26**	(0.07)		**-0.26**	(0.07)	
Moldova	-0.08	(0.12)		-0.10	(0.11)		**-0.26**	(0.12)		**-0.25**	(0.12)	
Montenegro	-0.05	(0.06)		-0.05	(0.05)		-0.11	(0.08)		-0.11	(0.07)	
Morocco	**-0.75**	(0.17)	†	**-0.44**	(0.15)	†	**-0.49**	(0.18)	†	**-0.48**	(0.19)	†
North Macedonia	-0.17	(0.18)		-0.17	(0.19)		m	m		m	m	
Panama	-0.11	(0.06)	†	**-0.15**	(0.06)	†	**-0.32**	(0.09)	†	**-0.22**	(0.08)	†
Peru	c	c		c	c		c	c	†	c	c	†
Philippines	**-0.97**	(0.17)		**-0.66**	(0.14)		**-0.76**	(0.11)		**-0.51**	(0.10)	
Qatar	**0.19**	(0.02)		0.04	(0.02)		**0.10**	(0.02)		0.02	(0.02)	
Romania	c	c	†	c	c	†	c	c	†	c	c	†
Russia	0.10	(0.05)		**0.13**	(0.05)		0.03	(0.05)		0.08	(0.05)	
Saudi Arabia	**0.21**	(0.04)		**0.09**	(0.04)		**0.21**	(0.04)		**0.12**	(0.04)	
Serbia	0.03	(0.06)		0.02	(0.06)		0.08	(0.05)		0.06	(0.05)	
Singapore	**0.09**	(0.03)		0.06	(0.03)		**0.08**	(0.02)		0.04	(0.02)	
Chinese Taipei	-0.20	(0.21)		-0.15	(0.21)		0.19	(0.17)		0.30	(0.15)	
Thailand	-0.35	(0.20)		-0.20	(0.16)		**-0.37**	(0.13)		**-0.31**	(0.13)	
Ukraine	-0.11	(0.11)		-0.09	(0.11)		-0.17	(0.11)		-0.15	(0.11)	
United Arab Emirates	**0.07**	(0.02)		0.00	(0.02)		**0.04**	(0.02)		0.01	(0.02)	
Uruguay	0.26	(0.17)		0.25	(0.16)		**0.37**	(0.15)	†	**0.38**	(0.14)	†
Viet Nam	c	c		m	m		c	c		m	m	

* Hong Kong (China), the Netherlands, Portugal and the United States: Data did not meet the PISA technical standards but were accepted as largely comparable (see Annexes A2 and A4).

Notes: Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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https://doi.org/10.1787/888934038609

Chapter 3 **Academic resilience and well-being amongst disadvantaged students**

https://doi.org/10.1787/888934038628

Chapter 4 **Social diversity and equity in learning outcomes**

https://doi.org/10.1787/888934038647

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https://doi.org/10.1787/888934038666

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Chapter 8 **Do boys and girls differ in their attitudes towards school and learning?**

https://doi.org/10.1787/888934038723

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ANNEX B2
Results for regions within countries

Table II.B2.1 [1/4] **Students' socio-economic status**

	Coverage Index 3: Coverage of 15-year-old population	Students' socio-economic status measured by the PISA index of economic, social and cultural status (ESCS)														
		All students			Variability in the index			Bottom quarter			Second quarter			Third quarter		
		Mean index	S.E.	s	S.D.	S.E.	s	Mean index	S.E.	s	Mean index	S.E.	s	Mean index	S.E.	s
OECD																
Belgium																
*Flemish Community**	0.96	0.16	(0.02)		0.90	(0.01)		-1.06	(0.03)		-0.13	(0.03)		0.60	(0.03)	
French Community	m	-0.05	(0.03)		0.95	(0.02)		-1.32	(0.03)		-0.33	(0.04)		0.36	(0.03)	
German-speaking Community	m	0.18	(0.04)		0.85	(0.03)		-0.97	(0.07)		-0.07	(0.07)		0.57	(0.05)	
Canada																
Alberta	m	0.46	(0.03)		0.81	(0.02)		-0.63	(0.04)		0.23	(0.04)		0.81	(0.03)	
British Columbia	m	0.43	(0.04)		0.80	(0.02)		-0.66	(0.05)		0.23	(0.05)		0.80	(0.04)	
Manitoba	m	0.17	(0.03)		0.87	(0.01)		-0.98	(0.04)		-0.12	(0.04)		0.54	(0.03)	
New Brunswick	m	0.24	(0.03)		0.85	(0.02)		-0.90	(0.04)		-0.03	(0.04)		0.62	(0.03)	
Newfoundland and Labrador	m	0.38	(0.04)		0.85	(0.03)		-0.74	(0.06)		0.13	(0.05)		0.73	(0.04)	
Nova Scotia	m	0.33	(0.03)		0.82	(0.03)		-0.77	(0.04)		0.13	(0.04)		0.68	(0.03)	
Ontario	m	0.48	(0.03)		0.81	(0.02)		-0.62	(0.04)		0.29	(0.04)		0.85	(0.03)	
Prince Edward Island	m	0.32	(0.08)		0.80	(0.03)		-0.73	(0.06)		0.08	(0.10)		0.66	(0.10)	
Québec	m	0.37	(0.02)		0.80	(0.01)		-0.71	(0.04)		0.17	(0.03)		0.73	(0.02)	
Saskatchewan	m	0.29	(0.02)		0.84	(0.02)		-0.80	(0.04)		0.02	(0.03)		0.62	(0.02)	
Colombia																
Bogotá	m	-0.56	(0.07)		1.13	(0.04)		-2.01	(0.07)		-0.98	(0.07)		-0.14	(0.10)	
Italy																
Bolzano	m	-0.20	(0.02)		0.80	(0.01)		-1.17	(0.02)		-0.53	(0.03)		0.04	(0.03)	
Sardegna	m	-0.31	(0.04)		0.93	(0.01)		-1.47	(0.03)		-0.70	(0.04)		-0.02	(0.04)	
Toscana	m	-0.21	(0.03)		0.89	(0.02)		-1.34	(0.04)		-0.54	(0.04)		0.08	(0.04)	
Trento	m	-0.16	(0.02)		0.83	(0.02)		-1.19	(0.03)		-0.49	(0.03)		0.11	(0.04)	
Spain																
Andalusia	m	-0.35	(0.06)		1.05	(0.02)		-1.77	(0.07)		-0.67	(0.07)		0.09	(0.08)	
Aragon	m	-0.02	(0.05)		0.99	(0.02)		-1.38	(0.06)		-0.26	(0.05)		0.42	(0.06)	
Asturias	m	-0.09	(0.04)		1.03	(0.02)		-1.47	(0.06)		-0.41	(0.04)		0.35	(0.05)	
Balearic Islands	m	-0.13	(0.05)		1.00	(0.03)		-1.48	(0.07)		-0.43	(0.06)		0.32	(0.06)	
Basque Country	m	0.08	(0.03)		0.90	(0.01)		-1.14	(0.04)		-0.17	(0.04)		0.52	(0.03)	
Canary Islands	m	-0.39	(0.04)		1.02	(0.02)		-1.74	(0.03)		-0.71	(0.04)		0.00	(0.06)	
Cantabria	m	-0.02	(0.03)		0.93	(0.01)		-1.23	(0.04)		-0.31	(0.03)		0.33	(0.05)	
Castile and Leon	m	-0.05	(0.05)		1.01	(0.02)		-1.44	(0.05)		-0.32	(0.05)		0.39	(0.06)	
Castile-La Mancha	m	-0.25	(0.05)		1.07	(0.02)		-1.67	(0.04)		-0.61	(0.06)		0.18	(0.07)	
Catalonia	m	0.09	(0.04)		0.97	(0.02)		-1.26	(0.06)		-0.15	(0.06)		0.56	(0.04)	
Ceuta	m	-0.60	(0.05)		1.11	(0.03)		-2.11	(0.09)		-0.88	(0.09)		-0.15	(0.06)	
Comunidad Valenciana	m	-0.20	(0.04)		1.04	(0.02)		-1.60	(0.04)		-0.52	(0.05)		0.26	(0.06)	
Extremadura	m	-0.36	(0.06)		1.04	(0.02)		-1.74	(0.06)		-0.72	(0.07)		0.05	(0.06)	
Galicia	m	-0.08	(0.03)		1.00	(0.03)		-1.40	(0.05)		-0.37	(0.03)		0.33	(0.04)	
La Rioja	m	-0.15	(0.02)		1.01	(0.02)		-1.50	(0.04)		-0.43	(0.03)		0.28	(0.03)	
Madrid	m	0.15	(0.04)		1.03	(0.02)		-1.26	(0.05)		-0.12	(0.05)		0.65	(0.04)	
Melilla	m	-0.61	(0.07)		1.26	(0.05)		-2.27	(0.10)		-1.10	(0.10)		-0.08	(0.10)	
Murcia	m	-0.41	(0.06)		1.08	(0.03)		-1.85	(0.07)		-0.74	(0.07)		0.02	(0.08)	
Navarre	m	0.01	(0.03)		1.01	(0.03)		-1.38	(0.06)		-0.25	(0.04)		0.48	(0.04)	
United Kingdom																
England	m	0.28	(0.03)		0.92	(0.01)		-0.95	(0.04)		0.01	(0.04)		0.69	(0.03)	
Northern Ireland	m	0.20	(0.03)		0.87	(0.01)		-0.94	(0.03)		-0.11	(0.04)		0.57	(0.04)	
*Scotland**	0.85	0.22	(0.03)		0.87	(0.01)		-0.94	(0.02)		-0.05	(0.04)		0.61	(0.04)	
Wales	m	0.23	(0.03)		0.85	(0.01)		-0.90	(0.03)		-0.04	(0.03)		0.59	(0.03)	

* PISA adjudicated region.

Notes: See Table II.B1.2.1 for national data.

Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B2.1 [2/4] **Students' socio-economic status**

	Coverage Index 3: Coverage of 15-year-old population	Students' socio-economic status measured by the PISA index of economic, social and cultural status (ESCS)														
		All students			Variability in the index			Bottom quarter			Second quarter			Third quarter		
		Mean index	S.E.	s	S.D.	S.E.	s	Mean index	S.E.	s	Mean index	S.E.	s	Mean index	S.E.	s
Partners																
Argentina																
*CABA**	0.94	-0.22	(0.05)		1.08	(0.02)		-1.70	(0.07)		-0.53	(0.08)		0.32	(0.06)	
*Cordoba**	0.83	-0.83	(0.05)		1.12	(0.03)		-2.31	(0.06)		-1.22	(0.06)		-0.36	(0.06)	
*PBA**	0.81	-0.91	(0.06)		1.11	(0.02)		-2.33	(0.05)		-1.32	(0.07)		-0.53	(0.08)	
*Tucuman**	0.75	-1.11	(0.06)		1.25	(0.03)		-2.70	(0.06)		-1.62	(0.07)		-0.66	(0.08)	
Brazil																
North	m	-1.20	(0.09)		1.21	(0.03)		-2.79	(0.10)		-1.61	(0.11)		-0.75	(0.13)	
Northeast	m	-1.50	(0.06)		1.31	(0.03)		-3.19	(0.06)		-1.97	(0.06)		-1.04	(0.06)	
South	m	-0.95	(0.07)		1.23	(0.03)		-2.56	(0.07)		-1.38	(0.08)		-0.51	(0.10)	
Southeast	m	-0.93	(0.04)		1.13	(0.02)		-2.41	(0.05)		-1.30	(0.04)		-0.50	(0.04)	
Middle-West	m	-0.79	(0.08)		1.10	(0.04)		-2.21	(0.08)		-1.18	(0.08)		-0.43	(0.10)	
Indonesia																
DI Yogyakarta	m	-1.29	(0.07)		1.09	(0.04)		-2.63	(0.07)		-1.73	(0.07)		-1.00	(0.09)	
DKI Jakarta	m	-1.04	(0.10)		1.05	(0.05)		-2.32	(0.05)		-1.45	(0.08)		-0.77	(0.13)	
Kazakhstan																
Akmola region	m	-0.55	(0.03)		0.80	(0.02)		-1.53	(0.03)		-0.89	(0.04)		-0.29	(0.04)	
Aktobe region	m	-0.49	(0.06)		0.83	(0.02)		-1.56	(0.05)		-0.81	(0.07)		-0.16	(0.07)	
Almaty	m	-0.14	(0.06)		0.83	(0.02)		-1.25	(0.04)		-0.42	(0.08)		0.25	(0.06)	
Almaty region	m	-0.53	(0.05)		0.84	(0.02)		-1.56	(0.06)		-0.88	(0.05)		-0.27	(0.06)	
Astana	m	-0.09	(0.06)		0.82	(0.02)		-1.19	(0.06)		-0.34	(0.09)		0.29	(0.07)	
Atyrau region	m	-0.53	(0.05)		0.83	(0.02)		-1.60	(0.05)		-0.84	(0.06)		-0.22	(0.06)	
East-Kazakhstan region	m	-0.53	(0.07)		0.83	(0.03)		-1.59	(0.07)		-0.86	(0.08)		-0.24	(0.08)	
Karagandy region	m	-0.37	(0.05)		0.80	(0.02)		-1.40	(0.06)		-0.67	(0.07)		-0.07	(0.06)	
Kostanay region	m	-0.52	(0.04)		0.79	(0.02)		-1.51	(0.05)		-0.85	(0.06)		-0.22	(0.06)	
Kyzyl-Orda region	m	-0.49	(0.06)		0.90	(0.02)		-1.65	(0.05)		-0.85	(0.07)		-0.13	(0.08)	
Mangistau region	m	-0.40	(0.07)		0.83	(0.03)		-1.47	(0.07)		-0.71	(0.07)		-0.07	(0.09)	
North-Kazakhstan region	m	-0.54	(0.04)		0.80	(0.02)		-1.52	(0.03)		-0.89	(0.05)		-0.25	(0.06)	
Pavlodar region	m	-0.45	(0.06)		0.79	(0.02)		-1.46	(0.04)		-0.76	(0.06)		-0.17	(0.08)	
South-Kazakhstan region	m	-0.44	(0.06)		0.86	(0.02)		-1.57	(0.05)		-0.76	(0.07)		-0.06	(0.08)	
West-Kazakhstan region	m	-0.47	(0.04)		0.83	(0.02)		-1.54	(0.04)		-0.80	(0.05)		-0.17	(0.06)	
Zhambyl region	m	-0.68	(0.07)		0.85	(0.02)		-1.74	(0.06)		-1.03	(0.07)		-0.40	(0.09)	
Russia																
*Moscow region**	m	0.34	(0.02)		0.69	(0.02)		-0.58	(0.04)		0.18	(0.03)		0.62	(0.02)	
*Republic of Tatarstan**	m	0.13	(0.02)		0.72	(0.01)		-0.81	(0.02)		-0.10	(0.02)		0.45	(0.02)	

* PISA adjudicated region.

Notes: See Table II.B1.2.1 for national data.

Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B2.1 [3/4] **Students' socio-economic status**

	Students' socio-economic status measured by the PISA index of economic, social and cultural status (ESCS)														
	Fourth quarter			Top - Bottom quarter			5th percentile			95th percentile			95th - 5th percentile		
	Mean index	S.E.	s	Dif.	S.E.	s	Value	S.E.	s	Value	S.E.	s	Dif.	S.E.	s
OECD															
Belgium															
*Flemish Community**	1.23	(0.02)		**2.29**	(0.03)		-1.36	(0.04)		1.42	(0.01)		**2.77**	(0.04)	.
French Community	1.09	(0.03)		**2.40**	(0.04)		-1.63	(0.04)		1.32	(0.02)		**2.95**	(0.04)	.
German-speaking Community	1.18	(0.04)		**2.15**	(0.08)		-1.24	(0.12)		1.33	(0.10)		**2.56**	(0.16)	.
Canada															
Alberta	1.42	(0.03)		**2.05**	(0.04)		-0.94	(0.05)		1.62	(0.04)		**2.57**	(0.06)	.
British Columbia	1.35	(0.03)		**2.02**	(0.04)		-0.99	(0.05)		1.56	(0.03)		**2.55**	(0.05)	.
Manitoba	1.25	(0.03)		**2.23**	(0.04)		-1.30	(0.06)		1.51	(0.05)		**2.81**	(0.07)	.
New Brunswick	1.26	(0.03)		**2.16**	(0.05)		-1.21	(0.03)		1.46	(0.04)		**2.67**	(0.05)	.
Newfoundland and Labrador	1.38	(0.04)		**2.12**	(0.05)		-1.02	(0.07)		1.60	(0.05)		**2.62**	(0.08)	.
Nova Scotia	1.27	(0.03)		**2.04**	(0.04)		-1.06	(0.03)		1.49	(0.04)		**2.54**	(0.04)	.
Ontario	1.40	(0.02)		**2.02**	(0.04)		-0.94	(0.03)		1.57	(0.03)		**2.51**	(0.04)	.
Prince Edward Island	1.27	(0.08)		**2.00**	(0.06)		-0.96	(0.06)		1.47	(0.08)		**2.43**	(0.12)	.
Québec	1.30	(0.02)		**2.01**	(0.03)		-1.05	(0.06)		1.51	(0.03)		**2.56**	(0.06)	.
Saskatchewan	1.33	(0.03)		**2.13**	(0.04)		-1.10	(0.05)		1.58	(0.03)		**2.68**	(0.05)	.
Colombia															
Bogotá	0.91	(0.09)		**2.92**	(0.10)		-2.42	(0.06)		1.20	(0.09)		**3.62**	(0.10)	.
Italy															
Bolzano	0.87	(0.04)		**2.04**	(0.04)		-1.45	(0.06)		1.14	(0.03)		**2.59**	(0.06)	.
Sardegna	0.95	(0.04)		**2.42**	(0.04)		-1.72	(0.03)		1.28	(0.04)		**3.00**	(0.04)	.
Toscana	0.96	(0.04)		**2.30**	(0.05)		-1.59	(0.05)		1.20	(0.03)		**2.79**	(0.05)	.
Trento	0.94	(0.03)		**2.13**	(0.04)		-1.45	(0.08)		1.18	(0.04)		**2.63**	(0.08)	.
Spain															
Andalusia	0.95	(0.05)		**2.72**	(0.04)		-2.09	(0.07)		1.25	(0.05)		**3.34**	(0.06)	.
Aragon	1.14	(0.04)		**2.52**	(0.06)		-1.79	(0.06)		1.33	(0.03)		**3.13**	(0.07)	.
Asturias	1.17	(0.04)		**2.64**	(0.06)		-1.88	(0.06)		1.41	(0.04)		**3.29**	(0.07)	.
Balearic Islands	1.07	(0.05)		**2.55**	(0.07)		-1.82	(0.07)		1.35	(0.04)		**3.17**	(0.07)	.
Basque Country	1.12	(0.02)		**2.26**	(0.04)		-1.52	(0.04)		1.30	(0.03)		**2.82**	(0.04)	.
Canary Islands	0.90	(0.06)		**2.65**	(0.06)		-2.07	(0.03)		1.17	(0.06)		**3.24**	(0.07)	.
Cantabria	1.15	(0.03)		**2.38**	(0.04)		-1.64	(0.03)		1.37	(0.03)		**3.01**	(0.04)	.
Castile and Leon	1.15	(0.04)		**2.58**	(0.04)		-1.87	(0.04)		1.39	(0.04)		**3.26**	(0.05)	.
Castile-La Mancha	1.09	(0.04)		**2.76**	(0.04)		-2.00	(0.03)		1.35	(0.03)		**3.35**	(0.04)	.
Catalonia	1.20	(0.03)		**2.46**	(0.06)		-1.67	(0.06)		1.43	(0.04)		**3.10**	(0.07)	.
Ceuta	0.75	(0.06)		**2.86**	(0.09)		-2.54	(0.12)		1.04	(0.05)		**3.59**	(0.13)	.
Comunidad Valenciana	1.07	(0.05)		**2.67**	(0.05)		-1.97	(0.04)		1.36	(0.04)		**3.33**	(0.05)	.
Extremadura	0.96	(0.05)		**2.70**	(0.05)		-2.00	(0.06)		1.22	(0.06)		**3.22**	(0.07)	.
Galicia	1.13	(0.04)		**2.53**	(0.06)		-1.81	(0.06)		1.38	(0.05)		**3.19**	(0.08)	.
La Rioja	1.06	(0.02)		**2.57**	(0.05)		-1.89	(0.04)		1.31	(0.03)		**3.21**	(0.05)	.
Madrid	1.33	(0.02)		**2.59**	(0.05)		-1.70	(0.07)		1.55	(0.02)		**3.24**	(0.07)	.
Melilla	1.00	(0.07)		**3.27**	(0.12)		-2.74	(0.07)		1.28	(0.09)		**4.02**	(0.12)	.
Murcia	0.95	(0.07)		**2.80**	(0.07)		-2.22	(0.08)		1.24	(0.03)		**3.47**	(0.08)	.
Navarre	1.16	(0.02)		**2.54**	(0.06)		-1.85	(0.11)		1.37	(0.03)		**3.22**	(0.11)	.
United Kingdom															
England	1.38	(0.02)		**2.33**	(0.03)		-1.28	(0.04)		1.61	(0.02)		**2.89**	(0.04)	.
Northern Ireland	1.29	(0.03)		**2.23**	(0.03)		-1.20	(0.03)		1.54	(0.03)		**2.74**	(0.04)	.
*Scotland**	1.27	(0.03)		**2.21**	(0.03)		-1.25	(0.03)		1.47	(0.03)		**2.72**	(0.04)	.
Wales	1.28	(0.03)		**2.18**	(0.03)		-1.18	(0.03)		1.50	(0.04)		**2.68**	(0.05)	.

* PISA adjudicated region.

Notes: See Table II.B1.2.1 for national data.

Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B2.1 [4/4] **Students' socio-economic status**

	Students' socio-economic status measured by the PISA index of economic, social and cultural status (ESCS)														
	Fourth quarter			Top - Bottom quarter			5th percentile			95th percentile			95th - 5th percentile		
	Mean index	S.E.	s	Dif.	S.E.	s	Value	S.E.	s	Value	S.E.	s	Dif.	S.E.	s
Partners															
Argentina															
*CABA**	1.04	(0.03)		**2.73**	(0.06)		-2.17	(0.06)		1.26	(0.03)		**3.43**	(0.06)	.
*Cordoba**	0.57	(0.05)		**2.88**	(0.07)		-2.69	(0.05)		0.87	(0.04)		**3.56**	(0.06)	.
*PBA**	0.54	(0.06)		**2.87**	(0.05)		-2.70	(0.06)		0.90	(0.04)		**3.59**	(0.07)	.
*Tucuman**	0.55	(0.08)		**3.25**	(0.08)		-3.03	(0.05)		0.91	(0.07)		**3.94**	(0.09)	.
Brazil															
North	0.34	(0.05)		**3.13**	(0.08)		-3.26	(0.09)		0.73	(0.08)		**3.99**	(0.11)	.
Northeast	0.19	(0.08)		**3.38**	(0.08)		-3.61	(0.05)		0.68	(0.06)		**4.29**	(0.07)	.
South	0.65	(0.08)		**3.21**	(0.08)		-2.99	(0.08)		1.03	(0.12)		**4.02**	(0.14)	.
Southeast	0.49	(0.05)		**2.90**	(0.06)		-2.85	(0.08)		0.84	(0.04)		**3.68**	(0.08)	.
Middle-West	0.64	(0.10)		**2.85**	(0.10)		-2.60	(0.08)		0.93	(0.10)		**3.53**	(0.10)	.
Indonesia															
DI Yogyakarta	0.19	(0.10)		**2.82**	(0.10)		-3.02	(0.05)		0.64	(0.10)		**3.65**	(0.09)	.
DKI Jakarta	0.39	(0.16)		**2.71**	(0.13)		-2.65	(0.06)		0.78	(0.16)		**3.43**	(0.16)	.
Kazakhstan															
Akmola region	0.52	(0.04)		**2.05**	(0.04)		-1.73	(0.05)		0.77	(0.03)		**2.50**	(0.05)	.
Aktobe region	0.59	(0.04)		**2.15**	(0.05)		-1.83	(0.06)		0.82	(0.03)		**2.65**	(0.06)	.
Almaty	0.88	(0.05)		**2.13**	(0.04)		-1.51	(0.05)		1.09	(0.07)		**2.60**	(0.06)	.
Almaty region	0.57	(0.04)		**2.13**	(0.05)		-1.78	(0.11)		0.81	(0.05)		**2.59**	(0.10)	.
Astana	0.88	(0.03)		**2.07**	(0.05)		-1.46	(0.06)		1.06	(0.04)		**2.52**	(0.06)	.
Atyrau region	0.54	(0.04)		**2.13**	(0.05)		-1.85	(0.06)		0.80	(0.04)		**2.64**	(0.07)	.
East-Kazakhstan region	0.55	(0.07)		**2.14**	(0.07)		-1.86	(0.08)		0.82	(0.09)		**2.68**	(0.10)	.
Karagandy region	0.67	(0.05)		**2.06**	(0.05)		-1.62	(0.06)		0.89	(0.05)		**2.51**	(0.06)	.
Kostanay region	0.50	(0.04)		**2.01**	(0.05)		-1.75	(0.08)		0.72	(0.04)		**2.47**	(0.09)	.
Kyzyl-Orda region	0.67	(0.05)		**2.32**	(0.04)		-1.89	(0.07)		0.92	(0.03)		**2.81**	(0.07)	.
Mangistau region	0.67	(0.07)		**2.14**	(0.07)		-1.72	(0.09)		0.89	(0.08)		**2.60**	(0.09)	.
North-Kazakhstan region	0.52	(0.05)		**2.04**	(0.05)		-1.71	(0.06)		0.76	(0.06)		**2.47**	(0.08)	.
Pavlodar region	0.57	(0.07)		**2.03**	(0.05)		-1.68	(0.05)		0.81	(0.06)		**2.49**	(0.06)	.
South-Kazakhstan region	0.65	(0.05)		**2.23**	(0.05)		-1.83	(0.08)		0.84	(0.04)		**2.67**	(0.08)	.
West-Kazakhstan region	0.61	(0.05)		**2.15**	(0.05)		-1.78	(0.03)		0.85	(0.08)		**2.63**	(0.08)	.
Zhambyl region	0.44	(0.07)		**2.18**	(0.06)		-1.96	(0.05)		0.69	(0.05)		**2.65**	(0.06)	.
Russia															
*Moscow region**	1.13	(0.03)		**1.71**	(0.04)		-0.81	(0.04)		1.25	(0.04)		**2.06**	(0.06)	.
*Republic of Tatarstan**	1.00	(0.02)		**1.81**	(0.02)		-1.01	(0.02)		1.15	(0.02)		**2.16**	(0.02)	.

* PISA adjudicated region.

Notes: See Table II.B1.2.1 for national data.

Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B2.4 [1/6] **Socio-economic status and reading performance**

	Reading performance				Socio-economic gradients			
	Score, unadjusted		Score, adjusted by ESCS[1]		Strength: Percentage of variance in reading performance explained by ESCS (R^2)		Slope: Score-point difference in reading performance associated with a one-unit increase in ESCS	
	Mean score	S.E.	Mean score	S.E.	%	S.E.	Score dif.	S.E.
OECD								
Belgium								
*Flemish Community**	502	(3.4)	496	(3.0)	17.3	(1.1)	**48**	(1.9)
French Community	481	(3.0)	485	(2.7)	16.2	(1.6)	**42**	(2.3)
German-speaking Community	483	(4.6)	480	(5.0)	5.1	(3.0)	**24**	(7.0)
Canada								
Alberta	532	(4.3)	516	(4.3)	9.2	(1.9)	**38**	(4.0)
British Columbia	519	(4.5)	508	(4.0)	5.7	(1.5)	**31**	(4.3)
Manitoba	494	(3.4)	492	(3.3)	4.6	(1.2)	**24**	(3.2)
New Brunswick	489	(3.5)	483	(3.4)	5.6	(1.7)	**29**	(4.4)
Newfoundland and Labrador	512	(4.3)	510	(4.7)	5.1	(1.8)	**26**	(4.4)
Nova Scotia	516	(3.9)	508	(4.2)	6.1	(1.4)	**31**	(4.2)
Ontario	524	(3.5)	514	(3.5)	4.8	(0.9)	**27**	(2.9)
Prince Edward Island	503	(8.3)	492	(7.9)	7.9	(3.1)	**36**	(9.6)
Québec	519	(3.5)	507	(3.0)	9.4	(1.4)	**36**	(2.9)
Saskatchewan	499	(3.0)	492	(3.2)	8.7	(1.5)	**33**	(3.1)
Colombia								
Bogotá	455	(5.4)	475	(4.6)	19.3	(3.8)	**35**	(3.3)
Italy								
Bolzano	495	(3.3)	502	(3.5)	7.5	(1.5)	**31**	(3.2)
Sardegna	462	(4.1)	469	(4.3)	4.6	(1.3)	**21**	(3.0)
Toscana	482	(4.0)	489	(3.7)	7.1	(1.3)	**28**	(2.9)
Trento	496	(2.3)	502	(2.6)	9.1	(1.6)	**34**	(3.1)
Spain								
Andalusia	m	m	m	m	m	m	m	m
Aragon	m	m	m	m	m	m	m	m
Asturias	m	m	m	m	m	m	m	m
Balearic Islands	m	m	m	m	m	m	m	m
Basque Country	m	m	m	m	m	m	m	m
Canary Islands	m	m	m	m	m	m	m	m
Cantabria	m	m	m	m	m	m	m	m
Castile and Leon	m	m	m	m	m	m	m	m
Castile-La Mancha	m	m	m	m	m	m	m	m
Catalonia	m	m	m	m	m	m	m	m
Ceuta	m	m	m	m	m	m	m	m
Comunidad Valenciana	m	m	m	m	m	m	m	m
Extremadura	m	m	m	m	m	m	m	m
Galicia	m	m	m	m	m	m	m	m
La Rioja	m	m	m	m	m	m	m	m
Madrid	m	m	m	m	m	m	m	m
Melilla	m	m	m	m	m	m	m	m
Murcia	m	m	m	m	m	m	m	m
Navarre	m	m	m	m	m	m	m	m
United Kingdom								
England	505	(3.0)	499	(2.5)	9.8	(1.2)	**34**	(2.1)
Northern Ireland	501	(4.0)	498	(3.7)	6.9	(1.1)	**29**	(2.6)
*Scotland**	504	(3.0)	498	(2.6)	8.3	(1.4)	**32**	(2.8)
Wales	483	(4.0)	483	(3.7)	4.0	(0.8)	**22**	(2.4)

* PISA adjudicated region.

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

Notes: See Table II.B1.2.3 for national data.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B2.4 [2/6] **Socio-economic status and reading performance**

	Reading performance				Socio-economic gradients			
	Score, unadjusted		Score, adjusted by ESCS[1]		Strength: Percentage of variance in reading performance explained by ESCS (R^2)		Slope: Score-point difference in reading performance associated with a one-unit increase in ESCS	
	Mean score	S.E.	Mean score	S.E.	%	S.E.	Score dif.	S.E.
Partners								
Argentina								
*CABA**	454	(5.4)	462	(4.5)	14.7	(2.7)	**33**	(3.1)
*Cordoba**	427	(4.5)	455	(4.7)	16.7	(2.5)	**33**	(2.8)
*PBA**	413	(5.8)	445	(5.9)	15.5	(3.0)	**34**	(3.5)
*Tucuman**	389	(5.0)	427	(5.0)	19.8	(2.8)	**34**	(2.5)
Brazil								
North	392	(6.9)	424	(9.1)	11.8	(3.5)	**26**	(4.0)
Northeast	389	(4.2)	430	(6.5)	12.2	(2.6)	**26**	(3.0)
South	432	(6.3)	465	(5.1)	17.8	(3.0)	**33**	(2.9)
Southeast	424	(3.0)	452	(3.8)	11.1	(1.6)	**29**	(2.1)
Middle-West	425	(9.1)	454	(11.0)	13.5	(4.6)	**35**	(7.1)
Indonesia								
DI Yogyakarta	414	(5.8)	448	(9.0)	11.8	(3.8)	**26**	(4.3)
DKI Jakarta	412	(7.0)	447	(9.9)	17.8	(5.9)	**33**	(6.1)
Kazakhstan								
Akmola region	395	(4.5)	400	(5.1)	0.8	(0.4)	**8**	(2.6)
Aktobe region	381	(4.3)	389	(4.1)	4.4	(1.5)	**17**	(2.9)
Almaty	424	(7.8)	428	(7.5)	4.2	(2.3)	**21**	(6.3)
Almaty region	360	(4.4)	366	(4.5)	2.1	(1.1)	**12**	(3.2)
Astana	428	(7.4)	430	(6.6)	9.5	(2.1)	**30**	(4.3)
Atyrau region	344	(4.4)	354	(4.5)	5.3	(1.9)	**19**	(3.5)
East-Kazakhstan region	405	(6.4)	417	(6.6)	6.3	(3.2)	**23**	(6.4)
Karagandy region	422	(6.8)	430	(7.8)	4.0	(2.3)	**21**	(6.2)
Kostanay region	417	(5.1)	428	(5.7)	4.4	(1.7)	**20**	(4.1)
Kyzyl-Orda region	366	(2.8)	373	(3.1)	4.2	(1.3)	**13**	(2.2)
Mangistau region	361	(5.8)	368	(6.2)	4.9	(2.3)	**19**	(4.6)
North-Kazakhstan region	413	(5.0)	421	(6.2)	2.3	(1.3)	**15**	(4.3)
Pavlodar region	391	(6.5)	398	(7.2)	2.6	(1.6)	**17**	(5.1)
South-Kazakhstan region	368	(3.5)	373	(3.6)	2.1	(0.9)	**11**	(2.1)
West-Kazakhstan region	378	(4.9)	387	(4.9)	4.7	(1.3)	**19**	(3.0)
Zhambyl region	369	(3.6)	375	(4.1)	1.3	(0.8)	**8**	(2.8)
Russia								
*Moscow region**	486	(4.7)	479	(5.4)	2.8	(1.2)	**22**	(5.1)
*Republic of Tatarstan**	463	(3.1)	460	(2.8)	4.6	(1.1)	**27**	(3.3)

* PISA adjudicated region.

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

Notes: See Table II.B1.2.3 for national data.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B2.4 [3/6] **Socio-economic status and reading performance**

	Reading performance, by socio-economic status (ESCS)														
	National quarter of ESCS														
	Bottom quarter of ESCS			Second quarter of ESCS			Third quarter of ESCS			Top quarter of ESCS			Top - Bottom quarter		
	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Mean score	S.E.	s	Score dif.	S.E.	s
OECD															
Belgium															
*Flemish Community**	448	(4.6)		483	(5.3)		524	(4.8)		558	(3.1)		**110**	(5.1)	
French Community	430	(4.2)		468	(5.0)		497	(5.1)		538	(5.1)		**107**	(6.7)	
German-speaking Community	460	(11.2)		480	(10.5)		487	(9.5)		512	(10.1)		**52**	(16.0)	
Canada															
Alberta	492	(6.9)		521	(7.2)		553	(5.2)		568	(6.0)		**76**	(9.2)	
British Columbia	483	(6.4)		515	(5.8)		541	(6.1)		545	(8.0)		**61**	(9.8)	
Manitoba	468	(5.7)		487	(5.2)		504	(5.4)		526	(5.8)		**58**	(8.2)	
New Brunswick	460	(6.3)		477	(6.4)		500	(6.3)		524	(7.6)		**63**	(10.6)	
Newfoundland and Labrador	491	(7.9)		514	(8.5)		528	(7.5)		546	(8.0)		**55**	(9.9)	
Nova Scotia	480	(6.0)		510	(5.9)		537	(6.9)		543	(8.1)		**63**	(8.3)	
Ontario	492	(5.3)		518	(4.9)		542	(5.9)		555	(4.8)		**63**	(6.7)	
Prince Edward Island	472	(13.7)		484	(17.1)		510	(12.4)		549	(13.3)		**76**	(18.0)	
Québec	482	(4.7)		510	(4.9)		538	(5.0)		554	(4.9)		**71**	(6.2)	
Saskatchewan	465	(5.2)		491	(5.7)		510	(5.0)		539	(4.8)		**74**	(6.8)	
Colombia															
Bogotá	409	(7.1)		438	(7.3)		462	(6.9)		515	(12.3)		**106**	(14.1)	
Italy															
Bolzano	466	(5.4)		493	(5.4)		500	(7.0)		525	(5.8)		**60**	(7.2)	
Sardegna	436	(5.8)		458	(5.6)		468	(7.4)		485	(6.3)		**49**	(7.6)	
Toscana	447	(6.0)		480	(6.7)		495	(6.6)		512	(5.6)		**65**	(6.8)	
Trento	461	(5.1)		489	(6.6)		505	(6.3)		533	(6.6)		**72**	(8.4)	
Spain															
Andalusia	m	m		m	m		m	m		m	m		m	m	
Aragon	m	m		m	m		m	m		m	m		m	m	
Asturias	m	m		m	m		m	m		m	m		m	m	
Balearic Islands	m	m		m	m		m	m		m	m		m	m	
Basque Country	m	m		m	m		m	m		m	m		m	m	
Canary Islands	m	m		m	m		m	m		m	m		m	m	
Cantabria	m	m		m	m		m	m		m	m		m	m	
Castile and Leon	m	m		m	m		m	m		m	m		m	m	
Castile-La Mancha	m	m		m	m		m	m		m	m		m	m	
Catalonia	m	m		m	m		m	m		m	m		m	m	
Ceuta	m	m		m	m		m	m		m	m		m	m	
Comunidad Valenciana	m	m		m	m		m	m		m	m		m	m	
Extremadura	m	m		m	m		m	m		m	m		m	m	
Galicia	m	m		m	m		m	m		m	m		m	m	
La Rioja	m	m		m	m		m	m		m	m		m	m	
Madrid	m	m		m	m		m	m		m	m		m	m	
Melilla	m	m		m	m		m	m		m	m		m	m	
Murcia	m	m		m	m		m	m		m	m		m	m	
Navarre	m	m		m	m		m	m		m	m		m	m	
United Kingdom															
England	471	(3.8)		495	(4.3)		517	(4.4)		553	(4.6)		**82**	(5.7)	
Northern Ireland	476	(4.8)		483	(6.3)		516	(7.1)		539	(6.6)		**62**	(6.8)	
*Scotland**	472	(4.8)		492	(4.6)		515	(5.8)		544	(5.3)		**72**	(6.9)	
Wales	466	(4.7)		478	(5.6)		491	(5.9)		515	(5.8)		**49**	(6.6)	

* PISA adjudicated region.

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

Notes: See Table II.B1.2.3 for national data.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B2.4 [4/6] **Socio-economic status and reading performance**

	Reading performance, by socio-economic status (ESCS)									
	National quarter of ESCS									
	Bottom quarter of ESCS		Second quarter of ESCS		Third quarter of ESCS		Top quarter of ESCS		Top - Bottom quarter	
	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.
Partners										
Argentina										
*CABA**	409	(6.5)	443	(8.3)	463	(7.4)	505	(7.8)	**96**	(9.5)
*Cordoba**	376	(6.6)	416	(5.7)	446	(6.4)	472	(7.2)	**96**	(9.5)
*PBA**	369	(5.9)	397	(8.1)	423	(8.2)	466	(9.9)	**97**	(11.4)
*Tucuman**	341	(5.5)	363	(7.0)	404	(9.6)	451	(7.7)	**110**	(9.6)
Brazil										
North	350	(7.8)	390	(8.7)	399	(11.9)	432	(11.4)	**82**	(12.6)
Northeast	355	(5.1)	376	(4.8)	389	(6.5)	443	(10.7)	**88**	(12.4)
South	390	(8.4)	414	(7.4)	435	(9.7)	496	(9.1)	**106**	(11.2)
Southeast	389	(3.5)	407	(4.2)	432	(4.4)	473	(6.7)	**84**	(7.2)
Middle-West	391	(8.7)	401	(13.2)	425	(12.0)	488	(21.4)	**97**	(23.0)
Indonesia										
DI Yogyakarta	388	(6.3)	395	(5.8)	413	(8.6)	460	(13.6)	**73**	(14.3)
DKI Jakarta	378	(4.7)	391	(5.6)	415	(8.9)	465	(21.2)	**86**	(22.3)
Kazakhstan										
Akmola region	388	(4.8)	391	(6.3)	398	(7.0)	404	(6.6)	**16**	(6.0)
Aktobe region	361	(5.7)	376	(6.7)	387	(6.9)	399	(5.2)	**38**	(6.4)
Almaty	401	(8.1)	422	(9.5)	428	(11.4)	448	(12.2)	**47**	(13.8)
Almaty region	348	(5.6)	356	(5.8)	362	(6.6)	374	(6.1)	**26**	(6.7)
Astana	396	(7.4)	418	(9.9)	441	(9.3)	455	(9.1)	**59**	(10.4)
Atyrau region	325	(5.8)	344	(7.1)	342	(7.1)	364	(5.7)	**39**	(8.0)
East-Kazakhstan region	380	(10.3)	401	(6.6)	410	(9.4)	429	(10.6)	**49**	(14.5)
Karagandy region	398	(6.3)	422	(8.1)	427	(10.9)	443	(11.9)	**45**	(13.2)
Kostanay region	396	(7.8)	417	(6.2)	422	(8.2)	434	(7.9)	**39**	(8.9)
Kyzyl-Orda region	351	(4.8)	362	(4.5)	373	(5.2)	380	(4.6)	**29**	(6.1)
Mangistau region	345	(6.1)	353	(5.3)	362	(8.0)	383	(11.6)	**39**	(11.9)
North-Kazakhstan region	397	(6.4)	410	(6.1)	413	(8.7)	431	(8.5)	**34**	(9.1)
Pavlodar region	379	(8.1)	383	(6.6)	391	(5.6)	411	(12.8)	**33**	(12.9)
South-Kazakhstan region	359	(4.8)	361	(3.5)	370	(6.9)	383	(4.7)	**24**	(5.3)
West-Kazakhstan region	360	(5.5)	370	(6.7)	391	(8.2)	393	(6.0)	**33**	(6.9)
Zhambyl region	359	(5.9)	369	(5.0)	369	(5.1)	380	(5.8)	**21**	(7.2)
Russia										
*Moscow region**	462	(7.9)	480	(6.8)	495	(6.3)	509	(5.5)	**47**	(9.0)
*Republic of Tatarstan**	437	(3.6)	450	(3.2)	478	(4.1)	487	(6.0)	**50**	(6.5)

* PISA adjudicated region.

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

Notes: See Table II.B1.2.3 for national data.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B2.4 [5/6] **Socio-economic status and reading performance**

	Reading performance, by socio-economic status (ESCS)					
	National decile of ESCS					
	Below the bottom decile of ESCS		Above the top decile of ESCS		Above top - Below bottom deciles of ESCS	
	Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.
OECD **Belgium**						
*Flemish Community**	428	(6.0)	569	(5.4)	**141**	(7.8)
French Community	414	(5.5)	548	(5.8)	**134**	(8.0)
German-speaking Community	438	(21.8)	518	(16.9)	**80**	(27.1)
Canada						
Alberta	478	(10.8)	574	(9.5)	**96**	(15.8)
British Columbia	467	(7.8)	543	(11.1)	**76**	(13.7)
Manitoba	459	(11.0)	519	(9.6)	**60**	(14.1)
New Brunswick	441	(10.4)	515	(14.0)	**74**	(18.2)
Newfoundland and Labrador	474	(14.1)	542	(12.6)	**68**	(18.0)
Nova Scotia	473	(10.0)	550	(12.5)	**76**	(15.2)
Ontario	485	(7.3)	543	(5.6)	**58**	(8.4)
Prince Edward Island	465	(19.7)	532	(18.7)	**66**	(25.1)
Québec	469	(7.3)	564	(6.3)	**96**	(9.6)
Saskatchewan	450	(8.0)	543	(8.8)	**93**	(12.6)
Colombia						
Bogotá	401	(7.0)	539	(13.8)	**138**	(15.1)
Italy						
Bolzano	439	(7.7)	554	(7.3)	**115**	(10.4)
Sardegna	422	(9.7)	505	(9.1)	**83**	(12.9)
Toscana	428	(11.9)	518	(7.6)	**90**	(14.5)
Trento	441	(8.7)	543	(9.5)	**102**	(12.0)
Spain						
Andalusia	m	m	m	m	m	m
Aragon	m	m	m	m	m	m
Asturias	m	m	m	m	m	m
Balearic Islands	m	m	m	m	m	m
Basque Country	m	m	m	m	m	m
Canary Islands	m	m	m	m	m	m
Cantabria	m	m	m	m	m	m
Castile and Leon	m	m	m	m	m	m
Castile-La Mancha	m	m	m	m	m	m
Catalonia	m	m	m	m	m	m
Ceuta	m	m	m	m	m	m
Comunidad Valenciana	m	m	m	m	m	m
Extremadura	m	m	m	m	m	m
Galicia	m	m	m	m	m	m
La Rioja	m	m	m	m	m	m
Madrid	m	m	m	m	m	m
Melilla	m	m	m	m	m	m
Murcia	m	m	m	m	m	m
Navarre	m	m	m	m	m	m
United Kingdom						
England	452	(6.4)	553	(6.3)	**100**	(8.4)
Northern Ireland	461	(7.0)	549	(7.0)	**88**	(9.3)
*Scotland**	461	(6.4)	549	(7.2)	**88**	(9.6)
Wales	457	(6.9)	528	(7.1)	**71**	(9.0)

* PISA adjudicated region.

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

Notes: See Table II.B1.2.3 for national data.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B2.4 [6/6] **Socio-economic status and reading performance**

	Reading performance, by socio-economic status (ESCS)					
	National decile of ESCS					
	Below the bottom decile of ESCS		Above the top decile of ESCS		Above top - Below bottom deciles of ESCS	
	Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.
Partners						
Argentina						
*CABA**	395	(7.4)	508	(8.9)	**113**	(12.0)
*Cordoba**	356	(9.4)	488	(8.6)	**132**	(13.4)
*PBA**	361	(10.1)	495	(9.0)	**134**	(13.4)
*Tucuman**	331	(7.9)	469	(12.2)	**137**	(14.4)
Brazil						
North	336	(9.2)	465	(16.2)	**129**	(17.3)
Northeast	346	(6.3)	481	(18.2)	**135**	(19.7)
South	375	(11.4)	529	(11.8)	**154**	(15.5)
Southeast	387	(5.6)	502	(10.1)	**115**	(11.5)
Middle-West	392	(13.6)	522	(34.0)	**130**	(35.8)
Indonesia						
DI Yogyakarta	381	(7.1)	482	(16.3)	**101**	(18.2)
DKI Jakarta	371	(5.2)	497	(22.0)	**126**	(23.9)
Kazakhstan						
Akmola region	374	(7.6)	402	(10.4)	**28**	(10.1)
Aktobe region	354	(6.8)	396	(6.4)	**42**	(9.2)
Almaty	383	(10.4)	444	(13.6)	**62**	(18.2)
Almaty region	346	(8.7)	379	(7.6)	**32**	(11.2)
Astana	388	(7.6)	467	(11.1)	**79**	(13.4)
Atyrau region	310	(7.5)	370	(7.4)	**60**	(9.5)
East-Kazakhstan region	362	(22.8)	433	(16.6)	**70**	(28.4)
Karagandy region	391	(8.1)	453	(12.6)	**62**	(17.5)
Kostanay region	377	(10.8)	438	(9.5)	**61**	(13.7)
Kyzyl-Orda region	341	(7.2)	387	(6.3)	**45**	(9.7)
Mangistau region	338	(8.9)	388	(13.3)	**50**	(15.1)
North-Kazakhstan region	394	(9.2)	434	(11.4)	**41**	(13.8)
Pavlodar region	368	(13.3)	421	(15.8)	**53**	(18.1)
South-Kazakhstan region	354	(7.8)	381	(8.0)	**27**	(10.0)
West-Kazakhstan region	352	(10.0)	402	(8.9)	**50**	(12.8)
Zhambyl region	351	(6.5)	382	(7.2)	**31**	(9.6)
Russia						
*Moscow region**	461	(10.7)	503	(8.6)	**42**	(13.7)
*Republic of Tatarstan**	425	(5.2)	483	(8.2)	**57**	(9.5)

* PISA adjudicated region.

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

Notes: See Table II.B1.2.3 for national data.

Values that are statistically significant are indicated in bold (see Annex A3).

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Table II.B2.9 [1/4] **Total variation in reading performance, and variation between and within schools**

	Sample size	Coverage[1]	Mean reading performance			Total variation in reading performance[2]			Variation in reading performance between schools[3]			Variation in reading performance within schools		
	Number of schools	%	Mean score	S.E.	s	Variance	S.E.	s	Variance	S.E.	s	Variance	S.E.	s
OECD														
Belgium														
*Flemish Community**	159	97.3	506	(3.5)		10309	(409)		4424	(439)		5865	(180)	
French Community	97	94.2	489	(2.8)		9095	(314)		3175	(330)		5891	(218)	
German-speaking Community	9	98.9	484	(4.6)		8232	(628)		1853	(1033)		6345	(440)	
Canada														
Alberta	79	96.6	532	(4.3)		10298	(468)		1284	(262)		8968	(389)	
British Columbia	83	99.7	520	(4.5)		10750	(444)		949	(274)		9912	(370)	
Manitoba	93	99.3	495	(3.4)		9773	(325)		936	(245)		8876	(343)	
New Brunswick	53	100.0	489	(3.5)		10653	(504)		772	(239)		9978	(550)	
Newfoundland and Labrador	46	99.8	512	(4.3)		9902	(555)		332	(158)		9612	(445)	
Nova Scotia	52	91.7	514	(3.9)		10391	(502)		709	(269)		9651	(446)	
Ontario	146	100.0	524	(3.5)		10233	(317)		1052	(177)		9235	(282)	
Prince Edward Island	9	76.3	505	(13.0)		11470	(1012)		1711	(861)		9577	(893)	
Québec	139	97.8	521	(3.5)		8785	(338)		1723	(281)		7034	(271)	
Saskatchewan	87	99.6	499	(3.0)		8963	(414)		456	(182)		8493	(403)	
Colombia														
Bogotá	58	100.0	455	(5.4)		8013	(514)		2916	(497)		5115	(201)	
Italy														
Bolzano	81	99.7	496	(3.3)		7870	(353)		2535	(389)		5370	(322)	
Sardegna	71	98.9	463	(4.1)		8317	(377)		2855	(418)		5414	(238)	
Toscana	70	99.7	482	(4.0)		8804	(460)		3006	(542)		5669	(261)	
Trento	57	99.6	497	(2.3)		8576	(369)		3669	(601)		4926	(250)	
Spain														
Andalusia	53	98.8	m	m		m	m		m	m		m	m	
Aragon	52	98.7	m	m		m	m		m	m		m	m	
Asturias	55	98.5	m	m		m	m		m	m		m	m	
Balearic Islands	53	97.0	m	m		m	m		m	m		m	m	
Basque Country	128	97.6	m	m		m	m		m	m		m	m	
Canary Islands	54	96.8	m	m		m	m		m	m		m	m	
Cantabria	56	99.1	m	m		m	m		m	m		m	m	
Castile and Leon	59	98.3	m	m		m	m		m	m		m	m	
Castile-La Mancha	53	99.0	m	m		m	m		m	m		m	m	
Catalonia	50	98.3	m	m		m	m		m	m		m	m	
Ceuta	12	97.6	m	m		m	m		m	m		m	m	
Comunidad Valenciana	53	97.9	m	m		m	m		m	m		m	m	
Extremadura	54	97.9	m	m		m	m		m	m		m	m	
Galicia	60	98.5	m	m		m	m		m	m		m	m	
La Rioja	45	98.2	m	m		m	m		m	m		m	m	
Madrid	143	98.2	m	m		m	m		m	m		m	m	
Melilla	8	99.5	m	m		m	m		m	m		m	m	
Murcia	52	96.2	m	m		m	m		m	m		m	m	
Navarre	49	97.9	m	m		m	m		m	m		m	m	
United Kingdom														
England	175	100.0	505	(3.0)		10165	(302)		1812	(255)		8315	(205)	
Northern Ireland	79	100.0	501	(4.0)		9515	(432)		3353	(436)		6123	(296)	
*Scotland**	110	100.0	504	(3.0)		8995	(352)		789	(221)		8249	(294)	
Wales	107	100.0	483	(4.0)		9389	(304)		1372	(215)		7989	(280)	

* PISA adjudicated region.

1. Coverage refers to the weighted share of students in the PISA sample who attend schools included in this analysis. It is equal to 100% if all schools in the PISA sample are included in the analysis.

2. The total variation in student performance is calculated from the square of the standard deviation for all students. Due to the unbalanced, clustered nature of the data, the sum of the between- and within-school variation components, as an estimate from a sample, does not necessarily add up to the total.

3. In some countries/economies, subunits within schools were sampled instead of schools; this may affect the estimation of between-school variation components (see Annex A3).

4. The index of academic inclusion is calculated as 100*(1-rho), where rho stands for the intra-class correlation of performance. The intra-class correlation, in turn, is the variation in student performance between schools, divided by the sum of the variation in student performance between schools and the variation in student performance within schools, and multiplied by 100.

Notes: See Table II.B1.4.1 for national data.

Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

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Table II.B2.9 [2/4] **Total variation in reading performance, and variation between and within schools**

		Sample size	Coverage[1]	Mean reading performance		Total variation in reading performance[2]		Variation in reading performance between schools[3]		Variation in reading performance within schools	
		Number of schools	%	Mean score	S.E.	Variance	S.E.	Variance	S.E.	Variance	S.E.
Partners	**Argentina**										
	*CABA**	81	100.0	454	(5.4)	8711	(433)	2848	(419)	5841	(250)
	*Cordoba**	83	100.0	427	(4.5)	8289	(452)	2972	(421)	5291	(196)
	*PBA**	87	100.0	413	(5.8)	9359	(443)	3343	(503)	5982	(260)
	*Tucuman**	85	100.0	389	(5.0)	9145	(472)	3697	(496)	5397	(184)
	Brazil										
	North	37	74.5	413	(8.0)	8071	(507)	2648	(807)	5383	(353)
	Northeast	118	68.8	421	(4.6)	8843	(630)	3294	(652)	5535	(242)
	South	71	88.3	442	(6.0)	9070	(593)	3218	(589)	5813	(351)
	Southeast	187	90.5	431	(2.9)	9472	(305)	3119	(411)	6360	(200)
	Middle-West	37	87.5	439	(8.9)	9954	(1220)	3857	(1360)	6158	(449)
	Indonesia										
	DI Yogyakarta	58	100.0	414	(5.8)	6932	(531)	3656	(655)	3252	(174)
	DKI Jakarta	60	100.0	412	(7.0)	6961	(814)	3764	(793)	3207	(290)
	Kazakhstan										
	Akmola region	44	87.1	395	(4.9)	6224	(363)	1126	(338)	5120	(343)
	Aktobe region	32	78.6	390	(5.3)	4749	(346)	1205	(459)	3864	(346)
	Almaty	21	71.2	446	(9.5)	7020	(746)	2015	(752)	4889	(474)
	Almaty region	31	86.5	361	(4.8)	4753	(323)	799	(276)	4155	(269)
	Astana	24	81.5	439	(8.0)	6557	(469)	1661	(430)	5013	(280)
	Atyrau region	26	75.3	349	(4.5)	4643	(408)	980	(403)	3897	(328)
	East-Kazakhstan region	37	82.8	415	(6.4)	5795	(445)	1598	(420)	4389	(387)
	Karagandy region	28	72.1	426	(8.2)	7389	(690)	2346	(684)	5202	(447)
	Kostanay region	40	85.8	424	(5.3)	5541	(341)	1360	(381)	4526	(314)
	Kyzyl-Orda region	27	70.9	378	(3.6)	3560	(315)	667	(293)	3140	(335)
	Mangistau region	22	78.7	369	(6.3)	4985	(451)	1479	(514)	3656	(353)
	North-Kazakhstan region	54	86.2	415	(5.5)	6002	(362)	1210	(376)	4965	(255)
	Pavlodar region	35	86.8	393	(7.3)	6899	(432)	2391	(461)	4761	(338)
	South-Kazakhstan region	32	83.7	368	(3.6)	4045	(346)	681	(220)	3529	(326)
	West-Kazakhstan region	35	78.9	384	(5.3)	5131	(377)	1588	(318)	3624	(343)
	Zhambyl region	28	80.0	375	(4.1)	3907	(311)	1080	(346)	2996	(257)
	Russia										
	*Moscow region**	59	98.3	487	(4.8)	8404	(402)	1170	(248)	7254	(260)
	*Republic of Tatarstan**	232	98.7	463	(3.1)	8298	(293)	2072	(273)	6455	(162)

* PISA adjudicated region.

1. Coverage refers to the weighted share of students in the PISA sample who attend schools included in this analysis. It is equal to 100% if all schools in the PISA sample are included in the analysis.

2. The total variation in student performance is calculated from the square of the standard deviation for all students. Due to the unbalanced, clustered nature of the data, the sum of the between- and within-school variation components, as an estimate from a sample, does not necessarily add up to the total.

3. In some countries/economies, subunits within schools were sampled instead of schools; this may affect the estimation of between-school variation components (see Annex A3).

4. The index of academic inclusion is calculated as 100*(1-rho), where rho stands for the intra-class correlation of performance. The intra-class correlation, in turn, is the variation in student performance between schools, divided by the sum of the variation in student performance between schools and the variation in student performance within schools, and multiplied by 100.

Notes: See Table II.B1.4.1 for national data.

Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

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Table II.B2.9 [3/4] **Total variation in reading performance, and variation between and within schools**

	As a percentage of the average total variation in reading performance across OECD countries			Index of academic inclusion[4]	
	Total variation	Between-school variation	Within-school variation		
	%	%	%	%	S.E.
OECD					
Belgium					
*Flemish Community**	106.0	45.5	60.3	57.0	(2.7)
French Community	93.5	32.6	60.6	65.0	(2.7)
German-speaking Community	84.7	19.1	65.2	77.4	(10.1)
Canada					
Alberta	105.9	13.2	92.2	87.5	(2.3)
British Columbia	110.5	9.8	101.9	91.3	(2.4)
Manitoba	100.5	9.6	91.3	90.5	(2.3)
New Brunswick	109.5	7.9	102.6	92.8	(2.1)
Newfoundland and Labrador	101.8	3.4	98.8	96.7	(1.6)
Nova Scotia	106.9	7.3	99.2	93.2	(2.4)
Ontario	105.2	10.8	95.0	89.8	(1.6)
Prince Edward Island	117.9	17.6	98.5	84.8	(6.5)
Québec	90.3	17.7	72.3	80.3	(2.7)
Saskatchewan	92.2	4.7	87.3	94.9	(2.0)
Colombia					
Bogotá	82.4	30.0	52.6	63.7	(4.2)
Italy					
Bolzano	80.9	26.1	55.2	67.9	(3.7)
Sardegna	85.5	29.4	55.7	65.5	(3.5)
Toscana	90.5	30.9	58.3	65.3	(4.4)
Trento	88.2	37.7	50.7	57.3	(4.5)
Spain					
Andalusia	m	m	m	m	m
Aragon	m	m	m	m	m
Asturias	m	m	m	m	m
Balearic Islands	m	m	m	m	m
Basque Country	m	m	m	m	m
Canary Islands	m	m	m	m	m
Cantabria	m	m	m	m	m
Castile and Leon	m	m	m	m	m
Castile-La Mancha	m	m	m	m	m
Catalonia	m	m	m	m	m
Ceuta	m	m	m	m	m
Comunidad Valenciana	m	m	m	m	m
Extremadura	m	m	m	m	m
Galicia	m	m	m	m	m
La Rioja	m	m	m	m	m
Madrid	m	m	m	m	m
Melilla	m	m	m	m	m
Murcia	m	m	m	m	m
Navarre	m	m	m	m	m
United Kingdom					
England	104.5	18.6	85.5	82.1	(2.2)
Northern Ireland	97.8	34.5	63.0	64.6	(3.3)
*Scotland**	92.5	8.1	84.8	91.3	(2.3)
Wales	96.5	14.1	82.1	85.3	(2.1)

* PISA adjudicated region.

1. Coverage refers to the weighted share of students in the PISA sample who attend schools included in this analysis. It is equal to 100% if all schools in the PISA sample are included in the analysis.

2. The total variation in student performance is calculated from the square of the standard deviation for all students. Due to the unbalanced, clustered nature of the data, the sum of the between- and within-school variation components, as an estimate from a sample, does not necessarily add up to the total.

3. In some countries/economies, subunits within schools were sampled instead of schools; this may affect the estimation of between-school variation components (see Annex A3).

4. The index of academic inclusion is calculated as 100*(1-rho), where rho stands for the intra-class correlation of performance. The intra-class correlation, in turn, is the variation in student performance between schools, divided by the sum of the variation in student performance between schools and the variation in student performance within schools, and multiplied by 100.

Notes: See Table II.B1.4.1 for national data.

Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

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Table II.B2.9 [4/4] **Total variation in reading performance, and variation between and within schools**

	As a percentage of the average total variation in reading performance across OECD countries			Index of academic inclusion[4]	
	Total variation	Between-school variation	Within-school variation		
	%	%	%	%	S.E.
Partners					
Argentina					
*CABA**	89.6	29.3	60.1	67.2	(3.6)
*Cordoba**	85.2	30.6	54.4	64.0	(3.6)
*PBA**	96.2	34.4	61.5	64.1	(3.8)
*Tucuman**	94.0	38.0	55.5	59.4	(3.5)
Brazil					
North	83.0	27.2	55.4	67.0	(6.9)
Northeast	90.9	33.9	56.9	62.7	(5.0)
South	93.3	33.1	59.8	64.4	(4.7)
Southeast	97.4	32.1	65.4	67.1	(3.1)
Middle-West	102.4	39.7	63.3	61.5	(8.9)
Indonesia					
DI Yogyakarta	71.3	37.6	33.4	47.1	(5.0)
DKI Jakarta	71.6	38.7	33.0	46.0	(5.8)
Kazakhstan					
Akmola region	64.0	11.6	52.6	82.0	(4.7)
Aktobe region	48.8	12.4	39.7	76.2	(6.6)
Almaty	72.2	20.7	50.3	70.8	(8.3)
Almaty region	48.9	8.2	42.7	83.9	(4.7)
Astana	67.4	17.1	51.5	75.1	(4.9)
Atyrau region	47.7	10.1	40.1	79.9	(6.5)
East-Kazakhstan region	59.6	16.4	45.1	73.3	(5.5)
Karagandy region	76.0	24.1	53.5	68.9	(6.8)
Kostanay region	57.0	14.0	46.5	76.9	(5.2)
Kyzyl-Orda region	36.6	6.9	32.3	82.5	(6.2)
Mangistau region	51.3	15.2	37.6	71.2	(6.5)
North-Kazakhstan region	61.7	12.4	51.1	80.4	(5.1)
Pavlodar region	70.9	24.6	49.0	66.6	(5.0)
South-Kazakhstan region	41.6	7.0	36.3	83.8	(4.7)
West-Kazakhstan region	52.8	16.3	37.3	69.5	(4.7)
Zhambyl region	40.2	11.1	30.8	73.5	(5.9)
Russia					
*Moscow region**	86.4	12.0	74.6	86.1	(2.6)
*Republic of Tatarstan**	85.3	21.3	66.4	75.7	(2.6)

* PISA adjudicated region.

1. Coverage refers to the weighted share of students in the PISA sample who attend schools included in this analysis. It is equal to 100% if all schools in the PISA sample are included in the analysis.

2. The total variation in student performance is calculated from the square of the standard deviation for all students. Due to the unbalanced, clustered nature of the data, the sum of the between- and within-school variation components, as an estimate from a sample, does not necessarily add up to the total.

3. In some countries/economies, subunits within schools were sampled instead of schools; this may affect the estimation of between-school variation components (see Annex A3).

4. The index of academic inclusion is calculated as 100*(1-rho), where rho stands for the intra-class correlation of performance. The intra-class correlation, in turn, is the variation in student performance between schools, divided by the sum of the variation in student performance between schools and the variation in student performance within schools, and multiplied by 100.

Notes: See Table II.B1.4.1 for national data.

Information regarding the proportion of the sample covered is shown next to the standard error. No symbol means at least 75% of the population was covered; one dagger (†) means at least 50% but less than 75%; and one double-dagger (‡) means less than 50% was covered. For comparisons across cycles, the coverage information corresponds to the cycle with the lowest sample coverage.

In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

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Table II.B2.18 [1/6] **Variation in Principals' views on staff shortage, by school characteristics**
Results based on school principals' reports

		All schools[1]										
		Sample size	Coverage[2]	Average index of principals' views on staff shortage		Percentiles of index of principals' views on staff shortage						Variability in index of principals' views on staff shortage across schools — Inter-decile range	
		Number of schools	%	Mean Index	S.E.	10th	S.E.	Median (50th)	S.E.	90th	S.E.	I.D.R.	S.E.
OECD	**Belgium**												
	*Flemish Community**	151	92.3	0.194	(0.061)	-1.455	(0.499)	0.430	(0.024)	1.074	(0.120)	2.530	(0.518)
	French Community	89	86.5	0.581	(0.078)	-0.316	(0.162)	0.611	(0.110)	1.440	(0.134)	1.756	(0.224)
	German-speaking Community	9	98.9	0.791	(0.010)	-0.002	c	0.592	c	2.098	c	2.100	c
	Canada												
	Alberta	79	96.6	-0.263	(0.115)	-1.455	c	-0.178	(0.218)	0.837	(0.175)	2.292	(0.175)
	British Columbia	81	96.7	0.074	(0.092)	-1.455	c	0.189	(0.092)	1.074	(0.524)	2.530	(0.524)
	Manitoba	92	98.6	-0.209	(0.053)	-1.455	c	-0.010	(0.185)	1.074	(0.080)	2.530	(0.080)
	New Brunswick	53	100.0	0.268	(0.019)	-1.455	c	0.443	(0.009)	1.074	c	2.530	c
	Newfoundland and Labrador	46	99.8	-0.220	(0.051)	-1.455	c	-0.297	(0.000)	1.544	(0.481)	2.999	(0.481)
	Nova Scotia	50	88.8	0.270	(0.068)	-1.455	(0.000)	0.430	(0.012)	1.082	(0.187)	2.537	(0.187)
	Ontario	143	98.9	-0.525	(0.096)	-1.455	c	-0.587	(0.584)	0.674	(0.248)	2.129	(0.248)
	Prince Edward Island	8	63.9	1.145	(0.145)	0.430	c	0.837	(0.289)	2.088	c	1.658	c
	Québec	129	89.0	0.158	(0.071)	-1.455	c	0.333	(0.136)	1.258	(0.184)	2.713	(0.184)
	Saskatchewan	86	97.5	0.020	(0.071)	-1.455	c	0.028	(0.145)	1.000	(0.012)	2.455	(0.012)
	Colombia												
	Bogotá	58	100.0	-0.018	(0.116)	-1.455	c	0.013	(0.210)	1.095	(0.169)	2.550	(0.169)
	Italy												
	Bolzano	81	99.7	0.299	(0.011)	-0.587	(0.028)	0.430	c	0.973	c	1.560	(0.028)
	Sardegna	70	97.5	0.672	(0.097)	-0.316	(0.383)	0.674	(0.146)	1.970	(0.145)	2.287	(0.340)
	Toscana	68	96.2	0.668	(0.106)	0.006	(0.394)	0.743	(0.100)	1.544	(0.293)	1.538	(0.515)
	Trento	55	98.3	0.150	(0.034)	-1.455	c	0.430	c	1.828	c	3.283	c
	Spain												
	Andalusia	49	93.2	0.447	(0.108)	-0.297	(0.162)	0.449	(0.024)	1.544	(0.489)	1.840	(0.440)
	Aragon	50	97.3	0.375	(0.127)	-0.587	(0.379)	0.283	(0.202)	1.341	(0.409)	1.927	(0.574)
	Asturias	54	97.9	0.485	(0.086)	-0.297	(0.258)	0.512	(0.140)	1.341	(0.177)	1.637	(0.307)
	Balearic Islands	51	97.6	0.459	(0.124)	-0.587	(0.471)	0.512	(0.108)	1.544	(0.071)	2.130	(0.470)
	Basque Country	123	96.3	0.104	(0.076)	-0.614	(0.891)	0.108	(0.182)	0.922	(0.210)	1.536	(0.982)
	Canary Islands	51	93.8	0.537	(0.146)	-0.587	(1.286)	0.449	(0.025)	1.881	(0.257)	2.468	(1.319)
	Cantabria	52	94.7	0.251	(0.095)	-1.455	(0.868)	0.379	(0.143)	1.341	(0.213)	2.796	(0.917)
	Castile and Leon	59	100.0	0.355	(0.101)	-0.587	(1.317)	0.360	(0.183)	1.341	(0.168)	1.927	(1.331)
	Castile-La Mancha	53	100.0	0.573	(0.127)	-0.297	(0.301)	0.674	(0.128)	1.544	(0.229)	1.840	(0.382)
	Catalonia	47	93.3	0.095	(0.145)	-1.455	c	0.183	(0.168)	1.341	(0.428)	2.796	(0.428)
	Ceuta	10	71.5	0.780	(0.017)	-0.178	c	0.430	c	2.490	c	2.667	c
	Comunidad Valenciana	52	99.6	0.295	(0.101)	-0.614	(0.704)	0.430	(0.193)	1.544	(0.478)	2.158	(0.744)
	Extremadura	51	94.3	0.163	(0.174)	-1.455	(0.301)	0.210	(0.178)	1.776	(0.733)	3.231	(0.828)
	Galicia	57	95.3	0.047	(0.113)	-1.455	c	0.210	(0.055)	0.922	(0.571)	2.377	(0.571)
	La Rioja	44	98.4	0.164	(0.007)	-1.455	c	0.263	c	1.341	c	2.796	c
	Madrid	132	93.6	0.455	(0.090)	-0.783	(0.977)	0.449	(0.035)	1.872	(0.139)	2.655	(0.985)
	Melilla	8	100.0	0.684	(0.015)	0.189	c	0.655	c	1.544	c	1.354	c
	Murcia	52	100.0	0.390	(0.113)	-1.455	(1.342)	0.449	(0.063)	1.544	(0.359)	2.999	(1.533)
	Navarre	49	100.0	0.251	(0.092)	-1.455	(1.228)	0.210	(0.052)	1.166	(0.378)	2.621	(1.161)
	United Kingdom												
	England	132	76.1	-0.217	(0.065)	-1.455	c	0.013	(0.071)	0.837	(0.132)	2.292	(0.132)
	Northern Ireland	67	84.1	-0.501	(0.090)	-1.455	c	-0.587	(0.130)	0.605	(0.420)	2.060	(0.420)
	*Scotland**	83	75.0	0.173	(0.097)	-1.455	(0.368)	0.210	(0.278)	1.258	(0.106)	2.713	(0.381)
	Wales	99	92.1	-0.065	(0.086)	-1.455	c	0.006	(0.073)	1.000	(0.093)	2.455	(0.093)

* PISA adjudicated region.

1. In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

2. Coverage refers to the weighted share of students in the PISA sample who attend schools included in this analysis. It is equal to 100% if all schools in the PISA sample are included in the analysis.

3. The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).

4. The calculation "Private-Public" is the difference between private government-dependent and independent schools combined, and public schools.

Notes: See Table II.B1.5.13 for national data.

Values that are statistically significant are indicated in bold (see Annex A3).

Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

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Table II.B2.18 [2/6] **Variation in Principals' views on staff shortage, by school characteristics**
Results based on school principals' reports

	All schools[1]											
	Sample size	Coverage[2]	Average index of principals' views on staff shortage		Percentiles of index of principals' views on staff shortage						Variability in index of principals' views on staff shortage across schools: Inter-decile range	
	Number of schools	%	Mean Index	S.E.	10th	S.E.	Median (50th)	S.E.	90th	S.E.	I.D.R.	S.E.
Partners												
Argentina												
*CABA**	75	93.2	-0.178	(0.105)	-1.455	c	-0.178	(0.216)	1.341	(0.326)	2.796	(0.326)
*Cordoba**	80	96.2	-0.176	(0.122)	-1.455	c	-0.178	(0.136)	1.527	(0.434)	2.982	(0.434)
*PBA**	82	93.4	-0.242	(0.098)	-1.455	c	-0.088	(0.122)	0.902	(0.190)	2.357	(0.190)
*Tucuman**	81	94.5	-0.025	(0.110)	-1.455	c	0.028	(0.086)	1.300	(0.451)	2.755	(0.451)
Brazil												
North	34	70.5	-0.550	(0.180)	-1.455	c	-0.587	(0.828)	0.922	(0.193)	2.377	(0.193)
Northeast	113	65.8	-0.260	(0.096)	-1.455	c	-0.195	(0.222)	1.095	(0.267)	2.550	(0.267)
South	61	80.0	-0.413	(0.155)	-1.455	c	-0.587	(0.487)	0.922	(0.296)	2.377	(0.296)
Southeast	170	82.4	-0.021	(0.084)	-1.455	c	0.028	(0.172)	1.356	(0.127)	2.811	(0.127)
Middle-West	36	87.2	-0.129	(0.229)	-1.455	c	-0.178	(0.382)	1.651	(0.575)	3.106	(0.575)
Indonesia												
DI Yogyakarta	50	83.3	0.186	(0.163)	-1.455	c	0.263	(0.275)	1.544	(0.175)	2.999	(0.175)
DKI Jakarta	49	84.0	0.057	(0.155)	-1.455	c	0.263	(0.105)	1.151	(0.304)	2.607	(0.304)
Kazakhstan												
Akmola region	44	87.1	-0.559	(0.173)	-1.577	c	-0.519	(0.486)	0.586	(0.826)	2.162	(0.826)
Aktobe region	32	78.6	-0.287	(0.202)	-1.455	c	-0.213	(0.307)	1.243	(0.439)	2.698	(0.439)
Almaty	21	71.2	-0.756	(0.184)	-1.577	c	-0.614	(0.530)	0.006	(0.665)	1.582	(0.665)
Almaty region	31	86.5	-0.642	(0.113)	-1.455	c	-0.783	(0.256)	0.430	(0.434)	1.885	(0.434)
Astana	24	81.5	-0.092	(0.236)	-1.577	(0.121)	0.150	(0.325)	1.126	(0.363)	2.703	(0.326)
Atyrau region	26	75.3	-0.376	(0.182)	-1.455	c	-0.431	(0.110)	0.973	(0.444)	2.428	(0.444)
East-Kazakhstan region	37	82.8	-0.607	(0.160)	-1.577	(0.163)	-0.783	(0.211)	0.694	(0.190)	2.270	(0.158)
Karagandy region	28	72.1	-0.079	(0.287)	-1.577	(0.121)	-0.222	(0.524)	1.544	(0.141)	3.120	(0.191)
Kostanay region	40	85.8	-0.376	(0.236)	-1.577	c	-0.656	(0.405)	1.402	(0.325)	2.978	(0.325)
Kyzyl-Orda region	27	70.9	-0.721	(0.163)	-1.455	(0.121)	-1.455	(0.959)	0.512	(0.319)	1.967	(0.335)
Mangistau region	22	78.7	-0.231	(0.231)	-1.455	c	-0.459	(0.572)	1.243	(0.233)	2.698	(0.233)
North-Kazakhstan region	54	86.2	-0.485	(0.133)	-1.577	(0.000)	-0.519	(0.101)	1.004	(0.320)	2.581	(0.320)
Pavlodar region	35	86.8	-0.721	(0.172)	-1.577	c	-0.914	(0.379)	0.546	(0.215)	2.123	(0.215)
South-Kazakhstan region	32	83.7	-0.260	(0.229)	-1.455	c	-0.775	(0.519)	1.544	(1.109)	2.999	(1.109)
West-Kazakhstan region	35	78.9	-0.869	(0.110)	-1.577	(0.000)	-0.783	(0.216)	0.044	(0.266)	1.621	(0.266)
Zhambyl region	28	80.0	-0.194	(0.287)	-1.455	(0.121)	-0.587	(0.375)	2.088	(1.160)	3.544	(1.157)
Russia												
*Moscow region**	59	98.3	-0.419	(0.107)	-1.455	c	-0.316	(0.146)	0.592	(0.139)	2.047	(0.139)
*Republic of Tatarstan**	232	98.7	-0.060	(0.082)	-1.455	c	-0.002	(0.054)	1.151	(0.125)	2.607	(0.125)

* PISA adjudicated region.
1. In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.
2. Coverage refers to the weighted share of students in the PISA sample who attend schools included in this analysis. It is equal to 100% if all schools in the PISA sample are included in the analysis.
3. The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).
4. The calculation "Private-Public" is the difference between private government-dependent and independent schools combined, and public schools.
Notes: See Table II.B1.5.13 for national data.
Values that are statistically significant are indicated in bold (see Annex A3).
Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

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Table II.B2.18 [3/6] **Variation in Principals' views on staff shortage, by school characteristics**
Results based on school principals' reports

	Average index of principals' views on staff shortage, by schools' socio-economic profile[3]									
	Bottom quarter		Second quarter		Third quarter		Top quarter		Top - bottom quarter	
	Mean Index	S.E.	Mean Index	S.E.	Mean Index	S.E.	Mean Index	S.E.	Dif.	S.E.
OECD **Belgium**										
*Flemish Community**	0.500	(0.115)	0.153	(0.158)	0.102	(0.125)	0.024	(0.131)	**-0.476**	(0.169)
French Community	1.032	(0.145)	0.272	(0.191)	0.565	(0.198)	0.457	(0.182)	**-0.576**	(0.224)
German-speaking Community	m	m	m	m	m	m	m	m	m	m
Canada										
Alberta	-0.191	(0.249)	-0.520	(0.304)	-0.227	(0.321)	-0.105	(0.247)	0.085	(0.348)
British Columbia	0.392	(0.220)	-0.020	(0.217)	0.137	(0.285)	-0.241	(0.224)	-0.632	(0.332)
Manitoba	0.127	(0.126)	-0.249	(0.199)	-0.317	(0.192)	-0.382	(0.093)	**-0.509**	(0.143)
New Brunswick	0.294	(0.038)	0.602	(0.033)	-0.387	(0.065)	0.516	(0.027)	**0.223**	(0.047)
Newfoundland and Labrador	-0.267	(0.161)	-0.621	(0.156)	0.096	(0.330)	-0.447	(0.315)	-0.179	(0.345)
Nova Scotia	0.724	(0.219)	-0.041	(0.282)	0.073	(0.184)	0.345	(0.153)	-0.379	(0.209)
Ontario	-0.105	(0.255)	-0.636	(0.217)	-0.829	(0.201)	-0.506	(0.196)	-0.401	(0.350)
Prince Edward Island	m	m	m	m	m	m	m	m	m	m
Québec	0.310	(0.189)	0.422	(0.151)	0.408	(0.144)	-0.536	(0.160)	**-0.846**	(0.252)
Saskatchewan	0.029	(0.164)	0.255	(0.250)	-0.143	(0.130)	-0.077	(0.102)	-0.105	(0.189)
Colombia										
Bogotá	0.420	(0.257)	0.516	(0.318)	-0.143	(0.282)	-0.938	(0.276)	**-1.358**	(0.389)
Italy										
Bolzano	0.253	(0.017)	0.362	(0.025)	0.531	(0.018)	0.008	(0.034)	**-0.246**	(0.038)
Sardegna	0.630	(0.282)	0.576	(0.307)	1.012	(0.285)	0.459	(0.253)	-0.171	(0.414)
Toscana	0.700	(0.212)	0.844	(0.193)	0.679	(0.407)	0.472	(0.298)	-0.227	(0.363)
Trento	0.075	(0.112)	0.151	(0.070)	-0.196	(0.078)	0.572	(0.065)	**0.497**	(0.142)
Spain										
Andalusia	0.621	(0.249)	0.761	(0.337)	0.313	(0.356)	0.072	(0.194)	-0.549	(0.332)
Aragon	-0.018	(0.313)	0.444	(0.399)	0.938	(0.274)	0.126	(0.177)	0.144	(0.342)
Asturias	0.586	(0.221)	0.308	(0.178)	0.580	(0.251)	0.491	(0.169)	-0.095	(0.264)
Balearic Islands	0.558	(0.263)	0.543	(0.271)	0.603	(0.325)	0.120	(0.391)	-0.439	(0.447)
Basque Country	0.077	(0.204)	0.373	(0.166)	0.138	(0.198)	-0.179	(0.158)	-0.256	(0.256)
Canary Islands	0.779	(0.313)	0.338	(0.498)	1.192	(0.517)	-0.208	(0.290)	**-0.987**	(0.444)
Cantabria	0.684	(0.186)	0.117	(0.222)	0.393	(0.295)	-0.154	(0.159)	**-0.838**	(0.233)
Castile and Leon	0.447	(0.279)	0.247	(0.297)	0.492	(0.280)	0.212	(0.135)	-0.235	(0.329)
Castile-La Mancha	0.557	(0.184)	0.635	(0.286)	0.670	(0.434)	0.433	(0.175)	-0.124	(0.250)
Catalonia	0.344	(0.262)	0.478	(0.363)	-0.079	(0.399)	-0.417	(0.369)	-0.760	(0.452)
Ceuta	-0.178	c	-0.111	(0.005)	0.692	(0.000)	0.430	(0.000)	**0.608**	(0.000)
Comunidad Valenciana	0.172	(0.189)	0.493	(0.281)	0.437	(0.334)	0.067	(0.325)	-0.104	(0.427)
Extremadura	-0.086	(0.295)	0.692	(0.469)	0.175	(0.257)	-0.131	(0.295)	-0.045	(0.445)
Galicia	0.006	(0.284)	0.266	(0.271)	0.097	(0.226)	-0.207	(0.215)	-0.214	(0.354)
La Rioja	0.110	(0.016)	0.198	(0.016)	0.345	(0.008)	0.021	(0.015)	**-0.089**	(0.021)
Madrid	1.051	(0.203)	0.557	(0.206)	0.411	(0.209)	-0.229	(0.156)	**-1.281**	(0.259)
Melilla	m	m	m	m	m	m	m	m	m	m
Murcia	0.556	(0.172)	0.601	(0.250)	0.298	(0.340)	0.092	(0.268)	-0.464	(0.309)
Navarre	0.280	(0.108)	0.430	(0.237)	0.370	(0.280)	-0.078	(0.103)	**-0.358**	(0.157)
United Kingdom										
England	-0.025	(0.159)	0.100	(0.168)	-0.206	(0.163)	-0.761	(0.128)	**-0.737**	(0.220)
Northern Ireland	-0.609	(0.215)	-0.754	(0.238)	-0.502	(0.311)	-0.160	(0.219)	0.450	(0.310)
*Scotland**	0.092	(0.222)	0.380	(0.213)	0.278	(0.165)	-0.049	(0.255)	-0.141	(0.339)
Wales	0.179	(0.276)	-0.141	(0.248)	-0.011	(0.182)	-0.151	(0.189)	-0.331	(0.341)

* PISA adjudicated region.

1. In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

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Notes: See Table II.B1.5.13 for national data.

Values that are statistically significant are indicated in bold (see Annex A3).

Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

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Table II.B2.18 [4/6] **Variation in Principals' views on staff shortage, by school characteristics**
Results based on school principals' reports

	Average index of principals' views on staff shortage, by schools' socio-economic profile[3]									
	Bottom quarter		Second quarter		Third quarter		Top quarter		Top - bottom quarter	
	Mean Index	S.E.	Mean Index	S.E.	Mean Index	S.E.	Mean Index	S.E.	Dif.	S.E.
Partners										
Argentina										
*CABA**	0.405	(0.204)	0.223	(0.226)	-0.526	(0.294)	-0.864	(0.175)	**-1.269**	(0.261)
*Cordoba**	-0.003	(0.211)	0.367	(0.288)	-0.487	(0.320)	-0.609	(0.216)	**-0.605**	(0.301)
*PBA**	-0.049	(0.241)	-0.015	(0.251)	-0.121	(0.298)	-0.816	(0.279)	**-0.767**	(0.366)
*Tucuman**	0.143	(0.301)	0.407	(0.325)	0.057	(0.204)	-0.720	(0.206)	**-0.863**	(0.350)
Brazil										
North	-0.040	(0.382)	-0.684	(0.433)	-0.650	(0.540)	-1.455	(0.177)	**-1.415**	(0.409)
Northeast	0.239	(0.250)	-0.317	(0.246)	0.074	(0.247)	-1.085	(0.210)	**-1.324**	(0.296)
South	-0.303	(0.403)	0.006	(0.280)	-0.165	(0.403)	-1.207	(0.182)	**-0.904**	(0.447)
Southeast	0.193	(0.136)	0.421	(0.189)	-0.069	(0.282)	-0.646	(0.266)	**-0.839**	(0.295)
Middle-West	-0.565	(0.469)	0.128	(0.631)	0.587	(0.686)	-0.745	(0.481)	-0.180	(0.651)
Indonesia										
DI Yogyakarta	0.374	(0.281)	-0.081	(0.418)	0.470	(0.348)	-0.053	(0.376)	-0.427	(0.415)
DKI Jakarta	0.604	(0.171)	0.190	(0.261)	0.031	(0.338)	-0.647	(0.400)	**-1.250**	(0.435)
Kazakhstan										
Akmola region	-0.546	(0.347)	-0.423	(0.508)	-0.399	(0.566)	-0.950	(0.443)	-0.404	(0.570)
Aktobe region	-0.187	(0.359)	0.320	(0.896)	-0.635	(0.822)	-0.599	(0.733)	-0.412	(0.880)
Almaty	-1.061	(0.489)	-0.915	(0.433)	-0.884	(0.460)	-0.718	(0.767)	0.344	(0.834)
Almaty region	-0.637	(0.272)	-1.131	(0.453)	-0.132	(0.393)	-0.670	(0.188)	-0.032	(0.338)
Astana	0.273	(0.366)	0.317	(0.928)	-0.405	(0.833)	-0.746	(0.331)	**-1.018**	(0.508)
Atyrau region	-0.569	(0.227)	-0.485	(0.580)	-0.046	(0.525)	-0.423	(0.767)	0.147	(0.733)
East-Kazakhstan region	-0.653	(0.312)	-0.659	(0.517)	-0.387	(0.333)	-0.763	(0.403)	-0.110	(0.544)
Karagandy region	-0.522	(0.397)	-0.945	(1.084)	1.428	(0.826)	0.454	(0.247)	**0.976**	(0.461)
Kostanay region	-0.004	(0.407)	-0.769	(0.830)	-0.214	(0.756)	-0.562	(0.653)	-0.559	(0.805)
Kyzyl-Orda region	-0.797	(0.324)	-0.767	(0.420)	-0.754	(0.586)	-0.594	(0.503)	0.203	(0.671)
Mangistau region	-0.096	(0.586)	0.923	(1.019)	-0.698	(0.670)	-0.674	(0.368)	-0.578	(0.693)
North-Kazakhstan region	-0.192	(0.283)	-0.648	(0.553)	-0.472	(0.341)	-0.640	(0.165)	-0.448	(0.307)
Pavlodar region	-0.687	(0.351)	-0.645	(0.515)	-1.095	(0.590)	-0.394	(0.429)	0.294	(0.517)
South-Kazakhstan region	0.604	(0.706)	-0.789	(0.603)	-0.340	(0.554)	-0.673	(0.472)	-1.278	(0.735)
West-Kazakhstan region	-0.708	(0.233)	-0.896	(0.374)	-0.899	(0.436)	-0.983	(0.181)	-0.275	(0.285)
Zhambyl region	-0.648	(0.321)	0.380	(0.976)	-0.455	(0.578)	-0.056	(0.861)	0.592	(0.894)
Russia										
*Moscow region**	-0.391	(0.284)	-0.364	(0.246)	-0.731	(0.272)	-0.172	(0.236)	0.218	(0.368)
*Republic of Tatarstan**	-0.130	(0.136)	-0.028	(0.175)	-0.139	(0.173)	0.060	(0.197)	0.190	(0.248)

* PISA adjudicated region.

1. In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

2. Coverage refers to the weighted share of students in the PISA sample who attend schools included in this analysis. It is equal to 100% if all schools in the PISA sample are included in the analysis.

3. The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).

4. The calculation "Private-Public" is the difference between private government-dependent and independent schools combined, and public schools.

Notes: See Table II.B1.5.13 for national data.

Values that are statistically significant are indicated in bold (see Annex A3).

Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

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Table II.B2.18 [5/6] **Variation in Principals' views on staff shortage, by school characteristics**
Results based on school principals' reports

		Average index of principals' views on staff shortage, by type of school							
		Public		Private government-dependent		Private independent		Private-Public[4]	
		Mean Index	S.E.	Mean Index	S.E.	Mean Index	S.E.	Dif.	S.E.
OECD	**Belgium**								
	*Flemish Community**	m	m	m	m	m	m	m	m
	French Community	m	m	m	m	m	m	m	m
	German-speaking Community	m	m	m	m	m	m	m	m
	Canada								
	Alberta	-0.255	(0.115)	m	m	m	m	m	m
	British Columbia	0.099	(0.096)	-0.043	(0.427)	m	m	-0.142	(0.441)
	Manitoba	-0.170	(0.056)	-0.578	(0.219)	m	m	-0.408	(0.227)
	New Brunswick	0.268	(0.019)	m	m	m	m	m	m
	Newfoundland and Labrador	-0.202	(0.041)	m	m	m	m	m	m
	Nova Scotia	0.270	(0.068)	m	m	m	m	m	m
	Ontario	-0.509	(0.099)	m	m	-0.979	(0.137)	**-0.469**	(0.174)
	Prince Edward Island	1.145	(0.145)	m	m	m	m	m	m
	Québec	0.396	(0.082)	-0.726	(0.234)	-0.554	(0.221)	**-1.014**	(0.159)
	Saskatchewan	0.050	(0.068)	m	m	m	m	m	m
	Colombia								
	Bogotá	0.551	(0.160)	m	m	-0.880	(0.170)	**-1.431**	(0.233)
	Italy								
	Bolzano	0.310	(0.012)	-0.110	(0.044)	m	m	**-0.420**	(0.046)
	Sardegna	0.690	(0.095)	m	m	m	m	m	m
	Toscana	0.675	(0.107)	m	m	m	m	m	m
	Trento	0.301	(0.030)	-0.319	(0.122)	m	m	**-0.620**	(0.130)
	Spain								
	Andalusia	0.527	(0.133)	0.211	(0.145)	m	m	-0.316	(0.198)
	Aragon	0.352	(0.184)	0.490	(0.172)	m	m	0.138	(0.252)
	Asturias	0.502	(0.117)	0.468	(0.127)	m	m	-0.033	(0.179)
	Balearic Islands	0.641	(0.132)	-0.104	(0.279)	0.633	(0.110)	**-0.545**	(0.241)
	Basque Country	0.125	(0.127)	0.070	(0.088)	m	m	-0.055	(0.155)
	Canary Islands	0.780	(0.177)	0.048	(0.436)	-0.446	(0.342)	**-0.989**	(0.322)
	Cantabria	0.482	(0.108)	-0.359	(0.195)	m	m	**-0.841**	(0.219)
	Castile and Leon	0.482	(0.136)	0.012	(0.130)	m	m	**-0.470**	(0.189)
	Castile-La Mancha	0.658	(0.155)	0.312	(0.171)	m	m	-0.346	(0.230)
	Catalonia	0.357	(0.198)	-0.376	(0.285)	m	m	**-0.733**	(0.347)
	Ceuta	m	m	0.127	(0.012)	m	m	m	m
	Comunidad Valenciana	0.417	(0.112)	0.165	(0.259)	-0.186	(0.376)	-0.344	(0.246)
	Extremadura	0.011	(0.212)	0.902	(0.102)	m	m	**0.891**	(0.234)
	Galicia	0.178	(0.142)	-0.282	(0.137)	m	m	**-0.460**	(0.198)
	La Rioja	0.270	(0.007)	0.043	(0.011)	m	m	**-0.227**	(0.013)
	Madrid	0.869	(0.120)	0.230	(0.171)	-0.496	(0.176)	**-0.934**	(0.183)
	Melilla	0.726	(0.016)	m	m	m	m	m	m
	Murcia	0.469	(0.145)	0.170	(0.142)	m	m	-0.299	(0.204)
	Navarre	0.324	(0.105)	0.033	(0.138)	m	m	-0.291	(0.177)
	United Kingdom								
	England	-0.087	(0.115)	-0.112	(0.088)	-1.342	(0.114)	-0.204	(0.136)
	Northern Ireland	-0.501	(0.101)	-0.477	(0.509)	m	m	0.024	(0.548)
	*Scotland**	0.215	(0.095)	m	m	m	m	m	m
	Wales	-0.040	(0.088)	m	m	-0.775	(0.409)	-0.736	(0.418)

* PISA adjudicated region.

1. In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

2. Coverage refers to the weighted share of students in the PISA sample who attend schools included in this analysis. It is equal to 100% if all schools in the PISA sample are included in the analysis.

3. The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).

4. The calculation "Private-Public" is the difference between private government-dependent and independent schools combined, and public schools.

Notes: See Table II.B1.5.13 for national data.

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Table II.B2.18 [6/6] **Variation in Principals' views on staff shortage, by school characteristics**
Results based on school principals' reports

	Average index of principals' views on staff shortage, by type of school							
	Public		Private government-dependent		Private independent		Private-Public[4]	
	Mean Index	S.E.	Mean Index	S.E.	Mean Index	S.E.	Dif.	S.E.
Partners								
Argentina								
*CABA**	0.386	(0.170)	-0.578	(0.171)	-1.276	(0.119)	**-1.255**	(0.222)
*Cordoba**	0.235	(0.173)	-0.435	(0.269)	-1.051	(0.233)	**-0.893**	(0.247)
*PBA**	0.102	(0.100)	-0.802	(0.224)	-0.864	(0.496)	**-0.920**	(0.259)
*Tucuman**	0.222	(0.136)	-0.657	(0.199)	m	m	**-0.879**	(0.232)
Brazil								
North	-0.331	(0.204)	m	m	-1.455	c	**-1.124**	(0.204)
Northeast	-0.065	(0.108)	m	m	-1.203	(0.141)	**-1.138**	(0.189)
South	-0.238	(0.182)	m	m	-1.298	(0.138)	**-1.059**	(0.226)
Southeast	0.205	(0.081)	m	m	-0.917	(0.263)	**-1.121**	(0.276)
Middle-West	0.048	(0.253)	m	m	-1.061	(0.358)	**-1.109**	(0.444)
Indonesia								
DI Yogyakarta	0.274	(0.189)	0.319	(0.430)	-0.018	(0.358)	-0.077	(0.335)
DKI Jakarta	-0.086	(0.174)	m	m	0.478	(0.227)	**0.564**	(0.287)
Kazakhstan								
Akmola region	-0.559	(0.173)	m	m	m	m	m	m
Aktobe region	-0.287	(0.202)	m	m	m	m	m	m
Almaty	-0.769	(0.188)	m	m	m	m	m	m
Almaty region	-0.642	(0.113)	m	m	m	m	m	m
Astana	-0.075	(0.254)	m	m	m	m	m	m
Atyrau region	-0.322	(0.204)	m	m	m	m	m	m
East-Kazakhstan region	-0.597	(0.162)	m	m	m	m	m	m
Karagandy region	-0.079	(0.287)	m	m	m	m	m	m
Kostanay region	-0.376	(0.236)	m	m	m	m	m	m
Kyzyl-Orda region	-0.721	(0.163)	m	m	m	m	m	m
Mangistau region	-0.231	(0.231)	m	m	m	m	m	m
North-Kazakhstan region	-0.485	(0.133)	m	m	m	m	m	m
Pavlodar region	-0.721	(0.172)	m	m	m	m	m	m
South-Kazakhstan region	-0.240	(0.238)	m	m	m	m	m	m
West-Kazakhstan region	-0.869	(0.110)	m	m	m	m	m	m
Zhambyl region	-0.192	(0.290)	m	m	m	m	m	m
Russia								
*Moscow region**	-0.419	(0.107)	m	m	m	m	m	m
*Republic of Tatarstan**	-0.060	(0.082)	m	m	m	m	m	m

* PISA adjudicated region.

1. In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

2. Coverage refers to the weighted share of students in the PISA sample who attend schools included in this analysis. It is equal to 100% if all schools in the PISA sample are included in the analysis.

3. The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).

4. The calculation "Private-Public" is the difference between private government-dependent and independent schools combined, and public schools.

Notes: See Table II.B1.5.13 for national data.

Values that are statistically significant are indicated in bold (see Annex A3).

Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

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Table II.B2.19 [1/6] **Variation in Principals' views on material shortage, by school characteristics**
Results based on school principals' reports

	All schools[1]											
	Sample size	Coverage[2]	Average index of principals' views on material shortage		Percentiles of index of principals' views on material shortage						Variability in index of principals' views on material shortage across schools: Inter-decile range	
OECD	Number of schools	%	Mean Index	S.E.	10th	S.E.	Median (50th)	S.E.	90th	S.E.	I.D.R.	S.E.
Belgium												
*Flemish Community**	150	91.7	-0.240	(0.066)	-1.421	c	-0.281	(0.034)	0.757	(0.150)	2.178	(0.150)
French Community	89	86.5	0.356	(0.101)	-1.421	(0.938)	0.268	(0.223)	1.525	(0.338)	2.946	(1.011)
German-speaking Community	9	98.9	-0.362	(0.012)	-1.421	c	0.100	(0.121)	0.757	c	2.178	c
Canada												
Alberta	79	96.6	-0.705	(0.098)	-1.421	c	-1.421	(0.249)	0.470	(0.032)	1.891	(0.032)
British Columbia	80	96.7	-0.321	(0.089)	-1.421	c	-0.238	(0.081)	0.500	(0.354)	1.921	(0.354)
Manitoba	92	98.6	-0.789	(0.044)	-1.421	c	-0.943	(0.002)	0.108	(0.208)	1.529	(0.208)
New Brunswick	53	100.0	0.038	(0.054)	-1.421	c	0.100	(0.033)	1.028	(0.001)	2.450	(0.001)
Newfoundland and Labrador	46	99.8	-0.787	(0.056)	-1.421	c	-1.421	(0.000)	0.142	(0.134)	1.564	(0.134)
Nova Scotia	51	91.5	-0.246	(0.062)	-1.421	c	-0.238	c	0.834	(0.241)	2.255	(0.241)
Ontario	143	98.9	-0.670	(0.089)	-1.421	c	-0.688	(0.232)	0.265	(0.225)	1.686	(0.225)
Prince Edward Island	8	63.9	0.407	(0.119)	0.069	(0.247)	0.100	c	1.248	(0.340)	1.179	(0.420)
Québec	132	91.8	-0.405	(0.075)	-1.421	c	-0.487	(0.130)	0.630	(0.178)	2.051	(0.178)
Saskatchewan	86	97.5	-0.502	(0.052)	-1.421	c	-0.648	(0.052)	0.500	(0.025)	1.921	(0.025)
Colombia												
Bogotá	58	100.0	0.124	(0.121)	-1.421	(0.000)	0.111	(0.091)	1.533	(0.213)	2.954	(0.213)
Italy												
Bolzano	81	99.7	-0.073	(0.016)	-1.421	c	0.100	c	0.834	(0.002)	2.255	(0.002)
Sardegna	69	96.1	0.738	(0.095)	-0.312	(0.348)	0.633	(0.160)	1.774	(0.338)	2.086	(0.496)
Toscana	68	96.2	0.508	(0.090)	-0.684	(0.556)	0.429	(0.009)	1.474	(0.289)	2.159	(0.509)
Trento	55	98.3	-0.435	(0.030)	-1.421	c	-0.445	(0.239)	0.265	(0.200)	1.686	(0.200)
Spain												
Andalusia	51	96.5	0.509	(0.167)	-1.421	(0.755)	0.459	(0.224)	1.932	(0.252)	3.353	(0.803)
Aragon	51	99.3	0.058	(0.163)	-1.421	c	0.057	(0.161)	1.686	(0.295)	3.108	(0.295)
Asturias	54	97.9	0.099	(0.106)	-1.421	(0.513)	-0.238	(0.400)	1.686	(0.157)	3.108	(0.545)
Balearic Islands	51	97.6	0.293	(0.117)	-1.421	(0.348)	0.399	(0.209)	1.686	(0.353)	3.108	(0.534)
Basque Country	123	96.3	-0.082	(0.092)	-1.421	(0.000)	0.069	(0.175)	1.244	(0.319)	2.665	(0.319)
Canary Islands	51	93.8	0.464	(0.152)	-1.421	(0.653)	0.429	(0.109)	1.918	(0.281)	3.340	(0.822)
Cantabria	52	94.7	-0.157	(0.090)	-1.421	(0.000)	-0.102	(0.293)	0.757	(0.078)	2.178	(0.078)
Castile and Leon	58	98.3	0.047	(0.126)	-1.421	(0.000)	-0.113	(0.243)	1.248	(0.080)	2.669	(0.080)
Castile-La Mancha	53	100.0	1.023	(0.148)	-0.634	(0.340)	1.205	(0.153)	2.461	(0.710)	3.096	(0.793)
Catalonia	47	93.3	0.018	(0.163)	-1.421	c	0.100	(0.095)	1.737	(0.409)	3.158	(0.409)
Ceuta	10	71.5	0.364	(0.035)	-1.421	c	0.265	c	2.960	c	4.381	c
Comunidad Valenciana	52	99.6	0.153	(0.120)	-1.421	(0.366)	0.026	(0.168)	1.529	(0.324)	2.950	(0.462)
Extremadura	52	96.1	0.103	(0.173)	-1.421	(0.690)	0.057	(0.337)	1.686	(0.578)	3.108	(1.071)
Galicia	57	95.3	-0.015	(0.117)	-1.421	(0.000)	0.057	(0.158)	1.248	(0.113)	2.669	(0.113)
La Rioja	44	98.4	-0.104	(0.009)	-1.421	(0.000)	-0.067	c	1.248	c	2.669	(0.000)
Madrid	134	95.9	0.013	(0.089)	-1.421	(0.000)	0.100	(0.156)	1.252	(0.106)	2.673	(0.106)
Melilla	8	100.0	0.726	(0.026)	-0.688	c	0.757	(0.038)	2.128	c	2.817	c
Murcia	52	100.0	0.339	(0.116)	-1.421	(0.502)	0.307	(0.213)	1.970	(0.374)	3.391	(0.684)
Navarre	49	100.0	-0.114	(0.105)	-1.421	(0.000)	0.100	(0.338)	1.307	(0.143)	2.728	(0.143)
United Kingdom												
England	132	76.1	-0.088	(0.082)	-1.421	c	-0.067	(0.201)	1.248	(0.201)	2.669	(0.201)
Northern Ireland	68	86.0	0.209	(0.129)	-1.421	(0.433)	0.100	(0.017)	1.686	(0.665)	3.108	(0.808)
*Scotland**	83	75.0	-0.267	(0.101)	-1.421	c	-0.238	(0.058)	0.987	(0.371)	2.408	(0.371)
Wales	100	93.0	0.381	(0.082)	-1.421	(0.593)	0.299	(0.151)	1.770	(0.229)	3.191	(0.659)

* PISA adjudicated region.

1. In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

2. Coverage refers to the weighted share of students in the PISA sample who attend schools included in this analysis. It is equal to 100% if all schools in the PISA sample are included in the analysis.

3. The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).

4. The calculation "Private-Public" is the difference between private government-dependent and independent schools combined, and public schools.

Notes: See Table II.B1.5.14 for national data.

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Table II.B2.19 [2/6] **Variation in Principals' views on material shortage, by school characteristics**
Results based on school principals' reports

	All schools[1]											
	Sample size	Coverage[2]	Average index of principals' views on material shortage		Percentiles of index of principals' views on material shortage						Variability in index of principals' views on material shortage across schools: Inter-decile range	
	Number of schools	%	Mean Index	S.E.	10th	S.E.	Median (50th)	S.E.	90th	S.E.	I.D.R.	S.E.
Partners												
Argentina												
*CABA**	75	93.2	-0.083	(0.130)	-1.421	c	-0.226	(0.236)	1.686	(0.489)	3.108	(0.489)
*Cordoba**	80	96.2	0.134	(0.115)	-1.421	c	0.131	(0.138)	1.474	(0.321)	2.896	(0.321)
*PBA**	83	94.3	0.472	(0.146)	-1.421	c	0.757	(0.286)	2.143	(0.095)	3.564	(0.095)
*Tucuman**	83	96.6	0.160	(0.109)	-1.421	c	0.276	(0.149)	1.291	(0.296)	2.712	(0.296)
Brazil												
North	35	72.4	0.242	(0.202)	-1.421	c	0.142	(0.466)	1.686	(0.133)	3.108	(0.133)
Northeast	113	65.8	0.217	(0.114)	-1.421	c	0.265	(0.257)	1.686	(0.019)	3.108	(0.019)
South	62	80.4	0.061	(0.149)	-1.421	c	0.100	(0.086)	1.529	(0.237)	2.950	(0.237)
Southeast	171	82.8	-0.288	(0.079)	-1.421	c	-0.484	(0.227)	1.248	(0.035)	2.669	(0.035)
Middle-West	36	87.2	0.014	(0.240)	-1.421	c	0.057	(0.174)	1.529	(0.461)	2.950	(0.461)
Indonesia												
DI Yogyakarta	49	81.7	0.585	(0.171)	-0.943	(0.427)	0.429	(0.179)	2.186	(0.855)	3.129	(0.947)
DKI Jakarta	49	84.0	-0.014	(0.174)	-1.421	(0.000)	-0.067	(0.185)	1.686	(0.410)	3.108	(0.410)
Kazakhstan												
Akmola region	44	87.1	0.278	(0.203)	-1.421	(0.212)	0.268	(0.328)	1.737	(0.665)	3.158	(0.670)
Aktobe region	32	78.6	0.690	(0.147)	-0.281	(0.056)	0.789	(0.150)	2.143	(0.590)	2.424	(0.578)
Almaty	21	71.2	-0.727	(0.185)	-1.421	(0.000)	-1.421	(0.575)	0.630	(1.072)	2.051	(1.072)
Almaty region	31	86.5	0.194	(0.167)	-1.421	(0.000)	0.429	(0.236)	1.478	(0.462)	2.900	(0.462)
Astana	24	81.5	0.415	(0.232)	-1.421	(0.855)	0.459	(0.142)	1.248	(0.934)	2.669	(0.815)
Atyrau region	26	75.3	-0.028	(0.163)	-1.421	(0.230)	0.072	(0.143)	1.248	(0.529)	2.669	(0.577)
East-Kazakhstan region	37	82.8	0.395	(0.212)	-0.688	(0.733)	0.500	(0.438)	1.727	(0.483)	2.416	(0.774)
Karagandy region	28	72.1	0.179	(0.206)	-1.421	(0.000)	0.500	(0.215)	1.248	(0.455)	2.669	(0.455)
Kostanay region	40	85.8	0.496	(0.206)	-1.421	c	0.789	(0.295)	1.686	(0.430)	3.108	(0.430)
Kyzyl-Orda region	27	70.9	0.254	(0.211)	-1.421	c	0.500	(0.136)	1.478	(0.000)	2.900	(0.000)
Mangistau region	22	78.7	-0.118	(0.265)	-1.421	c	0.057	(0.681)	1.248	(0.219)	2.669	(0.219)
North-Kazakhstan region	54	86.2	0.581	(0.159)	-0.688	(0.524)	0.467	(0.267)	1.936	(0.720)	2.624	(0.837)
Pavlodar region	35	86.8	-0.292	(0.134)	-1.421	(0.000)	-0.269	(0.148)	0.834	(0.492)	2.255	(0.492)
South-Kazakhstan region	32	83.7	0.388	(0.231)	-0.943	(0.632)	0.103	(0.774)	1.932	(0.380)	2.875	(0.720)
West-Kazakhstan region	35	78.9	-0.047	(0.149)	-1.421	(0.928)	-0.226	(0.430)	0.831	(0.542)	2.252	(0.986)
Zhambyl region	28	80.0	0.433	(0.188)	-1.421	(0.423)	0.440	(0.185)	1.574	(0.890)	2.995	(0.917)
Russia												
*Moscow region**	59	98.3	-0.175	(0.113)	-1.421	(0.000)	-0.141	(0.222)	1.205	(0.388)	2.626	(0.388)
*Republic of Tatarstan**	232	98.7	0.442	(0.081)	-1.421	(0.629)	0.470	(0.040)	1.970	(0.261)	3.391	(0.650)

* PISA adjudicated region.

1. In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

2. Coverage refers to the weighted share of students in the PISA sample who attend schools included in this analysis. It is equal to 100% if all schools in the PISA sample are included in the analysis.

3. The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).

4. The calculation "Private-Public" is the difference between private government-dependent and independent schools combined, and public schools.

Notes: See Table II.B1.5.14 for national data.

Values that are statistically significant are indicated in bold (see Annex A3).

Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

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Table II.B2.19 [3/6] **Variation in Principals' views on material shortage, by school characteristics**
Results based on school principals' reports

		Average index of principals' views on material shortage, by schools' socio-economic profile[3]									
		Bottom quarter		Second quarter		Third quarter		Top quarter		Top - bottom quarter	
		Mean Index	S.E.	Mean Index	S.E.	Mean Index	S.E.	Mean Index	S.E.	Dif.	S.E.
OECD	**Belgium**										
	*Flemish Community**	-0.110	(0.140)	-0.220	(0.161)	-0.343	(0.149)	-0.292	(0.153)	-0.183	(0.199)
	French Community	0.690	(0.193)	0.300	(0.172)	0.433	(0.275)	-0.002	(0.260)	**-0.692**	(0.347)
	German-speaking Community	m	m	m	m	m	m	m	m	m	m
	Canada										
	Alberta	-0.824	(0.212)	-0.972	(0.160)	-0.643	(0.295)	-0.355	(0.322)	0.469	(0.411)
	British Columbia	-0.071	(0.267)	-0.323	(0.292)	-0.438	(0.273)	-0.465	(0.153)	-0.394	(0.302)
	Manitoba	-0.952	(0.115)	-0.823	(0.135)	-0.737	(0.145)	-0.634	(0.109)	0.317	(0.171)
	New Brunswick	0.300	(0.153)	0.289	(0.131)	-0.409	(0.049)	-0.057	(0.037)	**-0.357**	(0.157)
	Newfoundland and Labrador	-0.675	(0.132)	-1.173	(0.161)	-0.703	(0.201)	-0.867	(0.103)	-0.192	(0.138)
	Nova Scotia	-0.148	(0.165)	-0.217	(0.160)	-0.061	(0.121)	-0.580	(0.015)	**-0.433**	(0.166)
	Ontario	-0.233	(0.285)	-0.879	(0.192)	-0.809	(0.189)	-0.751	(0.141)	-0.518	(0.314)
	Prince Edward Island	m	m	m	m	m	m	m	m	m	m
	Québec	-0.446	(0.178)	-0.246	(0.194)	-0.109	(0.194)	-0.817	(0.120)	-0.371	(0.220)
	Saskatchewan	-0.369	(0.193)	-0.322	(0.200)	-0.873	(0.092)	-0.459	(0.081)	-0.090	(0.205)
	Colombia										
	Bogotá	0.829	(0.194)	0.508	(0.346)	-0.008	(0.394)	-0.905	(0.309)	**-1.734**	(0.377)
	Italy										
	Bolzano	-0.317	(0.026)	0.059	(0.027)	-0.129	(0.033)	0.130	(0.042)	**0.447**	(0.049)
	Sardegna	0.723	(0.272)	0.682	(0.197)	0.864	(0.414)	0.627	(0.291)	-0.096	(0.391)
	Toscana	0.219	(0.186)	0.773	(0.230)	0.846	(0.285)	0.229	(0.095)	0.010	(0.206)
	Trento	-0.381	(0.103)	-0.544	(0.077)	-0.472	(0.060)	-0.378	(0.022)	0.003	(0.104)
	Spain										
	Andalusia	0.700	(0.279)	1.155	(0.432)	0.008	(0.409)	0.105	(0.277)	-0.595	(0.326)
	Aragon	-0.264	(0.414)	0.374	(0.298)	0.450	(0.540)	-0.404	(0.304)	-0.139	(0.517)
	Asturias	0.411	(0.246)	-0.127	(0.266)	0.441	(0.375)	-0.238	(0.228)	**-0.649**	(0.327)
	Balearic Islands	0.135	(0.332)	0.238	(0.291)	0.641	(0.429)	0.128	(0.394)	-0.007	(0.532)
	Basque Country	0.208	(0.285)	0.366	(0.304)	-0.319	(0.263)	-0.599	(0.164)	**-0.807**	(0.325)
	Canary Islands	0.616	(0.361)	0.413	(0.421)	0.956	(0.370)	-0.169	(0.381)	-0.785	(0.516)
	Cantabria	0.048	(0.289)	-0.005	(0.334)	-0.343	(0.235)	-0.354	(0.266)	-0.402	(0.388)
	Castile and Leon	0.325	(0.296)	-0.244	(0.501)	0.471	(0.440)	-0.372	(0.295)	-0.697	(0.417)
	Castile-La Mancha	1.181	(0.238)	1.250	(0.418)	0.875	(0.400)	0.764	(0.367)	-0.416	(0.449)
	Catalonia	0.338	(0.344)	0.270	(0.518)	-0.053	(0.380)	-0.548	(0.323)	-0.886	(0.482)
	Ceuta	-1.421	(0.000)	-0.614	(0.057)	1.973	c	1.248	c	2.669	c
	Comunidad Valenciana	0.477	(0.253)	0.152	(0.556)	0.327	(0.455)	-0.372	(0.279)	**-0.848**	(0.363)
	Extremadura	-0.056	(0.286)	0.374	(0.406)	0.427	(0.428)	-0.370	(0.246)	-0.314	(0.338)
	Galicia	-0.059	(0.312)	0.272	(0.366)	0.053	(0.287)	-0.361	(0.265)	-0.302	(0.410)
	La Rioja	0.294	(0.016)	-0.463	(0.037)	0.163	(0.015)	-0.422	(0.018)	**-0.716**	(0.024)
	Madrid	0.524	(0.218)	0.268	(0.183)	-0.124	(0.207)	-0.657	(0.139)	**-1.181**	(0.256)
	Melilla	m	m	m	m	m	m	m	m	m	m
	Murcia	0.577	(0.329)	0.319	(0.343)	0.229	(0.315)	0.217	(0.337)	-0.360	(0.466)
	Navarre	0.146	(0.198)	0.031	(0.254)	-0.127	(0.313)	-0.504	(0.161)	**-0.650**	(0.251)
	United Kingdom										
	England	0.082	(0.152)	0.107	(0.227)	0.082	(0.195)	-0.598	(0.166)	**-0.680**	(0.215)
	Northern Ireland	0.297	(0.258)	-0.107	(0.344)	0.138	(0.408)	0.510	(0.350)	0.213	(0.471)
	*Scotland**	-0.610	(0.230)	-0.139	(0.278)	-0.087	(0.216)	-0.218	(0.217)	0.393	(0.330)
	Wales	0.634	(0.259)	-0.010	(0.229)	0.526	(0.207)	0.381	(0.176)	-0.252	(0.357)

* PISA adjudicated region.

1. In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

2. Coverage refers to the weighted share of students in the PISA sample who attend schools included in this analysis. It is equal to 100% if all schools in the PISA sample are included in the analysis.

3. The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).

4. The calculation "Private-Public" is the difference between private government-dependent and independent schools combined, and public schools.

Notes: See Table II.B1.5.14 for national data.

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Table II.B2.19 [4/6] **Variation in Principals' views on material shortage, by school characteristics**
Results based on school principals' reports

	Average index of principals' views on material shortage, by schools' socio-economic profile[3]									
	Bottom quarter		Second quarter		Third quarter		Top quarter		Top - bottom quarter	
	Mean Index	S.E.	Mean Index	S.E.	Mean Index	S.E.	Mean Index	S.E.	Dif.	S.E.
Partners										
Argentina										
*CABA**	0.557	(0.370)	0.407	(0.370)	-0.422	(0.249)	-0.930	(0.192)	**-1.487**	(0.428)
*Cordoba**	0.673	(0.231)	0.126	(0.245)	-0.068	(0.301)	-0.192	(0.328)	**-0.864**	(0.407)
*PBA**	1.464	(0.257)	0.779	(0.305)	0.550	(0.518)	-0.929	(0.290)	**-2.393**	(0.387)
*Tucuman**	0.587	(0.270)	0.192	(0.343)	0.445	(0.205)	-0.615	(0.313)	**-1.202**	(0.448)
Brazil										
North	1.121	(0.297)	0.418	(0.558)	0.583	(0.559)	-1.341	(0.440)	**-2.462**	(0.543)
Northeast	0.627	(0.282)	0.430	(0.246)	0.501	(0.233)	-0.737	(0.285)	**-1.364**	(0.380)
South	0.456	(0.218)	0.552	(0.371)	0.397	(0.482)	-1.222	(0.299)	**-1.678**	(0.382)
Southeast	0.191	(0.182)	-0.152	(0.222)	-0.449	(0.226)	-0.739	(0.212)	**-0.930**	(0.246)
Middle-West	0.236	(0.527)	0.971	(0.972)	-0.353	(0.378)	-0.863	(0.290)	-1.098	(0.671)
Indonesia										
DI Yogyakarta	1.194	(0.455)	0.886	(0.554)	0.371	(0.439)	-0.133	(0.238)	**-1.327**	(0.468)
DKI Jakarta	0.625	(0.331)	-0.070	(0.403)	0.046	(0.315)	-0.727	(0.374)	**-1.352**	(0.495)
Kazakhstan										
Akmola region	0.184	(0.351)	0.102	(0.480)	0.898	(0.644)	-0.163	(0.572)	-0.347	(0.632)
Aktobe region	0.776	(0.384)	1.255	(0.813)	0.435	(0.685)	0.344	(0.457)	-0.432	(0.622)
Almaty	-0.686	(0.647)	-0.487	(0.693)	-0.851	(0.616)	-1.421	(0.000)	-0.735	(0.647)
Almaty region	0.322	(0.430)	-0.307	(0.645)	0.351	(0.337)	0.406	(0.158)	0.084	(0.479)
Astana	0.207	(0.375)	1.003	(0.592)	-0.114	(0.679)	0.467	(0.352)	0.260	(0.508)
Atyrau region	-0.142	(0.330)	0.593	(0.450)	-0.377	(0.384)	-0.205	(0.475)	-0.063	(0.610)
East-Kazakhstan region	0.206	(0.386)	0.189	(0.450)	0.844	(0.525)	0.294	(0.515)	0.088	(0.710)
Karagandy region	0.285	(0.478)	-0.504	(0.630)	0.724	(0.584)	0.014	(0.390)	-0.272	(0.643)
Kostanay region	0.794	(0.385)	0.383	(0.480)	0.928	(0.766)	-0.150	(0.345)	-0.944	(0.526)
Kyzyl-Orda region	0.246	(0.267)	0.032	(1.127)	0.432	(1.272)	0.328	(0.451)	0.083	(0.548)
Mangistau region	0.138	(0.673)	0.267	(0.894)	-0.144	(1.225)	-0.750	(0.918)	-0.888	(1.171)
North-Kazakhstan region	0.562	(0.382)	0.897	(0.563)	0.223	(0.416)	0.601	(0.473)	0.039	(0.591)
Pavlodar region	-0.107	(0.293)	-0.015	(0.486)	-0.788	(0.644)	-0.249	(0.375)	-0.142	(0.449)
South-Kazakhstan region	1.199	(0.407)	0.396	(0.518)	-0.628	(0.832)	0.515	(0.729)	-0.684	(0.842)
West-Kazakhstan region	-0.142	(0.225)	0.178	(0.319)	0.402	(0.327)	-0.700	(0.435)	-0.557	(0.407)
Zhambyl region	-0.053	(0.421)	1.009	(0.681)	0.075	(0.590)	0.660	(0.741)	0.713	(0.822)
Russia										
*Moscow region**	-0.148	(0.301)	-0.237	(0.385)	-0.268	(0.295)	-0.034	(0.214)	0.114	(0.343)
*Republic of Tatarstan**	0.645	(0.117)	0.432	(0.173)	0.334	(0.181)	0.356	(0.200)	-0.290	(0.224)

* PISA adjudicated region.

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2. Coverage refers to the weighted share of students in the PISA sample who attend schools included in this analysis. It is equal to 100% if all schools in the PISA sample are included in the analysis.

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Notes: See Table II.B1.5.14 for national data.

Values that are statistically significant are indicated in bold (see Annex A3).

Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

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Table II.B2.19 [5/6] **Variation in Principals' views on material shortage, by school characteristics**
Results based on school principals' reports

	Average index of principals' views on material shortage, by type of school							
	Public		Private government-dependent		Private independent		Private-Public[4]	
	Mean Index	S.E.	Mean Index	S.E.	Mean Index	S.E.	Dif.	S.E.
OECD **Belgium**								
*Flemish Community**	m	m	m	m	m	m	m	m
French Community	m	m	m	m	m	m	m	m
German-speaking Community	m	m	m	m	m	m	m	m
Canada								
Alberta	-0.743	(0.085)	m	m	m	m	m	m
British Columbia	-0.286	(0.098)	-0.351	(0.168)	m	m	-0.065	(0.185)
Manitoba	-0.778	(0.042)	-0.867	(0.403)	m	m	-0.089	(0.405)
New Brunswick	0.038	(0.054)	m	m	m	m	m	m
Newfoundland and Labrador	-0.779	(0.056)	m	m	m	m	m	m
Nova Scotia	-0.246	(0.062)	m	m	m	m	m	m
Ontario	-0.656	(0.092)	m	m	-1.077	(0.234)	-0.420	(0.250)
Prince Edward Island	0.407	(0.119)	m	m	m	m	m	m
Québec	-0.273	(0.092)	-1.009	(0.183)	-0.725	(0.167)	**-0.552**	(0.152)
Saskatchewan	-0.519	(0.055)	m	m	m	m	m	m
Colombia								
Bogotá	0.654	(0.155)	m	m	-0.676	(0.206)	**-1.331**	(0.257)
Italy								
Bolzano	-0.065	(0.016)	-0.515	(0.044)	m	m	**-0.450**	(0.047)
Sardegna	0.755	(0.096)	m	m	m	m	m	m
Toscana	0.515	(0.091)	m	m	m	m	m	m
Trento	-0.412	(0.015)	-0.507	(0.121)	m	m	-0.096	(0.123)
Spain								
Andalusia	0.768	(0.201)	-0.440	(0.242)	m	m	**-1.208**	(0.314)
Aragon	0.229	(0.214)	-0.170	(0.316)	m	m	-0.400	(0.382)
Asturias	0.231	(0.138)	-0.222	(0.166)	m	m	**-0.454**	(0.219)
Balearic Islands	0.560	(0.131)	-0.301	(0.307)	-0.391	(0.433)	**-0.885**	(0.278)
Basque Country	0.024	(0.157)	-0.234	(0.101)	m	m	-0.258	(0.186)
Canary Islands	0.743	(0.187)	-0.378	(0.302)	-0.512	(0.234)	**-1.191**	(0.253)
Cantabria	-0.123	(0.112)	-0.273	(0.156)	m	m	-0.150	(0.193)
Castile and Leon	0.423	(0.172)	-0.695	(0.158)	m	m	**-1.118**	(0.232)
Castile-La Mancha	1.246	(0.170)	0.045	(0.334)	m	m	**-1.201**	(0.375)
Catalonia	0.166	(0.181)	-0.174	(0.415)	m	m	-0.340	(0.453)
Ceuta	m	m	0.084	(0.048)	m	m	m	m
Comunidad Valenciana	0.335	(0.150)	-0.006	(0.287)	-0.652	(0.291)	-0.511	(0.269)
Extremadura	0.123	(0.201)	0.200	(0.260)	m	m	0.077	(0.330)
Galicia	0.179	(0.122)	-0.470	(0.307)	m	m	**-0.649**	(0.330)
La Rioja	-0.080	(0.013)	-0.108	(0.015)	m	m	-0.029	(0.021)
Madrid	0.359	(0.088)	-0.123	(0.210)	-0.679	(0.181)	**-0.718**	(0.172)
Melilla	0.797	(0.027)	m	m	m	m	m	m
Murcia	0.618	(0.141)	-0.436	(0.196)	m	m	**-1.053**	(0.243)
Navarre	0.057	(0.136)	-0.378	(0.183)	m	m	-0.435	(0.233)
United Kingdom								
England	0.126	(0.140)	0.041	(0.111)	-1.352	(0.061)	-0.288	(0.169)
Northern Ireland	0.218	(0.133)	0.170	(0.419)	m	m	-0.048	(0.430)
*Scotland**	-0.249	(0.102)	m	m	m	m	m	m
Wales	0.417	(0.084)	m	m	-0.640	(0.500)	**-1.057**	(0.507)

* PISA adjudicated region.

1. In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

2. Coverage refers to the weighted share of students in the PISA sample who attend schools included in this analysis. It is equal to 100% if all schools in the PISA sample are included in the analysis.

3. The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).

4. The calculation "Private-Public" is the difference between private government-dependent and independent schools combined, and public schools.

Notes: See Table II.B1.5.14 for national data.

Values that are statistically significant are indicated in bold (see Annex A3).

Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

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Table II.B2.19 [6/6] **Variation in Principals' views on material shortage, by school characteristics**
Results based on school principals' reports

	Average index of principals' views on material shortage, by type of school							
	Public		Private government-dependent		Private independent		Private-Public[4]	
	Mean Index	S.E.	Mean Index	S.E.	Mean Index	S.E.	Dif.	S.E.
Partners								
Argentina								
*CABA**	0.499	(0.209)	-0.525	(0.203)	-1.069	(0.172)	**-1.250**	(0.253)
*Cordoba**	0.387	(0.131)	0.050	(0.323)	-0.628	(0.266)	**-0.583**	(0.254)
*PBA**	1.010	(0.164)	-0.406	(0.289)	-0.690	(0.562)	**-1.491**	(0.334)
*Tucuman**	0.359	(0.107)	-0.110	(0.408)	m	m	-0.470	(0.426)
Brazil								
North	0.608	(0.187)	m	m	-1.324	(0.124)	**-1.932**	(0.217)
Northeast	0.454	(0.116)	m	m	-0.933	(0.212)	**-1.387**	(0.247)
South	0.342	(0.174)	m	m	-1.376	(0.041)	**-1.718**	(0.178)
Southeast	-0.118	(0.087)	m	m	-0.965	(0.198)	**-0.847**	(0.221)
Middle-West	0.259	(0.270)	m	m	-1.274	(0.171)	**-1.533**	(0.317)
Indonesia								
DI Yogyakarta	0.492	(0.239)	0.971	(0.369)	-0.117	(0.241)	0.085	(0.359)
DKI Jakarta	0.039	(0.236)	m	m	0.027	(0.303)	-0.012	(0.383)
Kazakhstan								
Akmola region	0.278	(0.203)	m	m	m	m	m	m
Aktobe region	0.690	(0.147)	m	m	m	m	m	m
Almaty	-0.730	(0.191)	m	m	m	m	m	m
Almaty region	0.194	(0.167)	m	m	m	m	m	m
Astana	0.445	(0.236)	m	m	m	m	m	m
Atyrau region	0.042	(0.170)	m	m	m	m	m	m
East-Kazakhstan region	0.412	(0.214)	m	m	m	m	m	m
Karagandy region	0.179	(0.206)	m	m	m	m	m	m
Kostanay region	0.496	(0.206)	m	m	m	m	m	m
Kyzyl-Orda region	0.254	(0.211)	m	m	m	m	m	m
Mangistau region	-0.118	(0.265)	m	m	m	m	m	m
North-Kazakhstan region	0.581	(0.159)	m	m	m	m	m	m
Pavlodar region	-0.292	(0.134)	m	m	m	m	m	m
South-Kazakhstan region	0.412	(0.243)	m	m	m	m	m	m
West-Kazakhstan region	-0.047	(0.149)	m	m	m	m	m	m
Zhambyl region	0.444	(0.190)	m	m	m	m	m	m
Russia								
*Moscow region**	-0.175	(0.113)	m	m	m	m	m	m
*Republic of Tatarstan**	0.442	(0.081)	m	m	m	m	m	m

* PISA adjudicated region.

1. In this chapter, all analyses are restricted to schools with the modal ISCED level for 15-year-old students. Results may thus differ from those estimated on the entire sample of 15-year-old students.

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3. The socio-economic profile is measured by the school's average PISA index of economic, social and cultural status (ESCS).

4. The calculation "Private-Public" is the difference between private government-dependent and independent schools combined, and public schools.

Notes: See Table II.B1.5.14 for national data.

Values that are statistically significant are indicated in bold (see Annex A3).

Private schools refer to schools managed directly or indirectly by a non-governmental organisation, such as a church, trade union, business or other private institution. Privately managed schools are classified as independent when at least 50% of the funding comes from private sources; they are classified as government-dependent when at least 50% of the funding comes from the government (including departments, local, regional, state and national). The classification is based on the school principal's report.

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https://doi.org/10.1787/888934038780

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ANNEX B3
PISA 2018 system-level indicators

System-level data that are not derived from the PISA 2018 student or school questionnaire are extracted from the OECD's annual publication *Education at a Glance* for those countries and economies that participate in that periodic data collection. For other countries and economies, a special system-level data collection was conducted in collaboration with PISA Governing Board members and National Project Managers.

For further information see: *System-level data collection for PISA 2018: Sources, comments and technical notes.pdf* at www.oecd.org/pisa/.

The following tables are available on line at https://doi.org/10.1787/888934029128.

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		Table B3.1.2	Teachers' salaries (2017)
		Table B3.1.3	Teachers' salaries (2017)
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		Table B3.2.2	Intended instruction time in compulsory general education, by age (2018)
		Table B3.2.3	School support staff
3	**Education system characteristics**	**Table B3.3.1**	Theoretical starting age and theoretical duration (2015)
		Table B3.3.2	Cut-off birthdate for eligibility to school enrolment and first day of the school year (2018)
		Table B3.3.3	Selecting students for different programmes (2018)
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		Table B3.6.11	Availability of school vouchers (or scholarships) (2018)
		Table B3.6.12	Extent to which public funding follows students when they leave for another public or private school (2018)

ANNEX C

Modal grade by country/economy

Table II.C.1 [1/2] **Modal grade by country/economy**

		Modal ISCED level	Students in the modal ISCED level in the sample %	Students in a modal ISCED school in the sample %
OECD	Australia	2	92.6	99.2
	Austria	m	m	m
	Belgium	3	91.2	96.0
	Canada	3	88.9	98.8
	Chile	3	94.7	96.9
	Colombia	2 3	38.5 61.5	100.0
	Czech Republic	2 3	52.9 47.1	100.0
	Denmark	2	99.0	99.0
	Estonia	2	98.6	99.5
	Finland	2	99.8	99.8
	France	3	82.6	84.9
	Germany	2	96.7	99.1
	Greece	3	95.5	95.6
	Hungary	3	89.8	90.2
	Iceland	2	99.2	99.2
	Ireland	2 3	63.6 36.4	100.0
	Israel	3	87.8	97.6
	Italy	3	99.0	99.0
	Japan	3	100.0	100.0
	Korea	3	83.9	83.9
	Latvia	2	96.4	99.0
	Lithuania	2	100.0	100.0
	Luxembourg	2 3	55.9 44.1	100.0
	Mexico	3	78.5	78.5
	Netherlands	2	66.8	99.0
	New Zealand	3	93.3	99.6
	Norway	2	99.6	99.6
	Poland	2	98.6	98.6
	Portugal	3	69.4	88.5
	Slovak Republic	2 3	46.5 53.5	100.0
	Slovenia	3	92.9	92.9
	Spain	2	99.9	100.0
	Sweden	2	98.4	98.4
	Switzerland	2	71.5	76.0
	Turkey	3	99.5	99.5
	United Kingdom	3	100.0	100.0
	United States	3	92.4	100.0

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Table II.C.1 [2/2] **Modal grade by country/economy**

		Modal ISCED level	Students in the modal ISCED level in the sample %	Students in a modal ISCED school in the sample %
Partners	Albania	2 3	38.0 62.0	100.0
	Argentina	2 3	34.0 65.6	99.6
	Baku (Azerbaijan)	2 3	37.8 62.2	100.0
	Belarus	2 3	43.8 56.2	100.0
	Bosnia and Herzegovina	3	83.5	83.5
	Brazil	3	74.3	82.7
	Brunei Darussalam	3	99.4	100.0
	B-S-J-Z (China)	2 3	40.4 59.6	100.0
	Bulgaria	3	99.7	100.0
	Costa Rica	2 3	55.1 44.9	100.0
	Croatia	3	99.7	99.7
	Cyprus	3	95.5	96.0
	Dominican Republic	2 3	42.4 57.6	100.0
	Georgia	3	85.2	99.3
	Hong Kong (China)	3	66.8	98.4
	Indonesia	2 3	45.2 54.8	100.0
	Jordan	2	100.0	100.0
	Kazakhstan	2 3	45.8 34.6	80.4
	Kosovo	3	76.3	76.3
	Lebanon	3	70.0	80.2
	Macao (China)	2 3	41.0 59.0	100.0
	Malaysia	3	94.5	100.0
	Malta	3	99.9	100.0
	Moldova	2	89.5	94.7
	Montenegro	3	96.7	96.7
	Morocco	2 3	53.9 46.1	100.0
	North Macedonia	3	99.8	99.8
	Panama	3	69.3	84.8
	Peru	3	77.9	98.0
	Philippines	2	99.3	99.7
	Qatar	3	76.3	86.3
	Romania	3	93.1	93.1
	Russia	2	88.8	96.4
	Saudi Arabia	3	81.2	81.2
	Serbia	3	99.1	99.1
	Singapore	3	98.5	100.0
	Chinese Taipei	2 3	35.8 64.2	100.0
	Thailand	3	79.1	93.0
	Ukraine	3	100.0	100.0
	United Arab Emirates	3	88.6	97.4
	Uruguay	2 3	36.0 64.0	100.0
	Viet Nam	3	95.0	95.2

Note: The "modal ISCED level" is defined here as the level attended by at least one-third of the PISA sample (see Annex A3 for details).

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ANNEX D

The development and implementation of PISA: A collaborative effort

PISA is a collaborative effort, bringing together experts from the participating countries, steered jointly by their governments on the basis of shared, policy-driven interests.

A PISA Governing Board, on which each country is represented, determines the policy priorities for PISA, in the context of OECD objectives, and oversees adherence to these priorities during the implementation of the programme. This includes setting priorities for the development of indicators, for establishing the assessment instruments, and for reporting the results.

Experts from participating countries also serve on working groups that are charged with linking policy objectives with the best internationally available technical expertise. By participating in these expert groups, countries ensure that the instruments are internationally valid and take into account the cultural and educational contexts in OECD member and partner countries and economies, that the assessment materials have strong measurement properties, and that the instruments emphasise authenticity and educational validity.

Through National Project Managers, participating countries and economies implement PISA at the national level subject to the agreed administration procedures. National Project Managers play a vital role in ensuring that the implementation of the survey is of high quality, and verify and evaluate the survey results, analyses, reports and publications.

The design and implementation of the surveys, within the framework established by the PISA Governing Board, is the responsibility of external contractors. For PISA 2018, the overall management of contractors and implementation was carried out by the Educational Testing Service (ETS) in the United States as the Core A contractor. Tasks under Core A also included instrument development, development of the computer platform, survey operations and meetings, scaling, analysis and data products. These tasks were implemented in co-operation with the following subcontractors; i) the University of Luxembourg for support with test development; ii) the Unité d'analyse des systèmes et des pratiques d'enseignement (aSPe) at the University of Liège in Belgium for test development and coding training for open-response items; iii) the International Association for the Evaluation of Educational Achievement (IEA) in the Netherlands for the data management software; iv) Westat in the United States for survey operations; v) Deutsches Institut für Internationale Pädagogische Forschung (DIPF) in Germany, with co-operation from Statistics Canada, for the development of the questionnaires; and vi) HallStat SPRL in Belgium for the translation referee.

The remaining tasks related to the implementation of PISA 2018 were implemented through three additional contractors – Cores B to D. The development of the cognitive assessment frameworks for reading and global competence and of the framework for questionnaires was carried out by Pearson in the United Kingdom as the Core B contractor. Core C focused on sampling and was the responsibility of Westat in the United States in co-operation with the Australian Council for Educational Research (ACER) for the sampling software KeyQuest. Linguistic quality control and the development of the French source version for Core D were undertaken by cApStAn, who worked in collaboration with BranTra as a subcontractor.

The OECD Secretariat has overall managerial responsibility for the programme, monitors its implementation daily, acts as the secretariat for the PISA Governing Board, builds consensus among countries and serves as the interlocutor between the PISA Governing Board and the international Consortium charged with implementing the activities. The OECD Secretariat also produces the indicators and analyses and prepares the international reports and publications in co-operation with the PISA Consortium and in close consultation with member and partner countries and economies both at the policy level (PISA Governing Board) and at the level of implementation (National Project Managers).

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PISA 2018 Results:
WHERE ALL STUDENTS CAN SUCCEED
VOLUME II

The OECD Programme for International Student Assessment (PISA) examines what students know in reading, mathematics and science, and what they can do with what they know. It provides the most comprehensive and rigorous international assessment of student learning outcomes to date. Results from PISA indicate the quality and equity of learning outcomes attained around the world, and allow educators and policy makers to learn from the policies and practices applied in other countries. This is one of six volumes that present the results of the PISA 2018 survey, the seventh round of the triennial assessment.

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