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Innocenti Report Card 15

# An Unfair Start

## Inequality in Children's Education in Rich Countries

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*Innocenti Report Card 15* was written by Yekaterina Chzhen, Gwyther Rees, Anna Gromada, Jose Cuesta and Zlata Bruckauf and edited by Madelaine Drohan.

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# An Unfair Start

Inequality in Children's Education in Rich Countries

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**“By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes”**

– Global Goals for Sustainable Development, 2015, Goal 4.1

# EXECUTIVE SUMMARY

In the world's richest countries, some children do worse at school than others because of circumstances beyond their control, such as where they were born, the language they speak or their parents' occupations. These children enter the education system at a disadvantage and can drop further behind if educational policies and practices reinforce, rather than reduce, the gap between them and their peers. These types of inequality are unjust. Not all children have an equal opportunity to reach their full potential, to pursue their interests and to develop their talents and skills. This has social and economic costs.

This report focuses on educational inequalities in 41 of the world's richest countries, all of which are members of the Organisation for Economic Co-operation and Development (OECD) and/or the European Union (EU). Using the most recent data available, it examines inequalities across childhood – from access to preschool to expectations of post-secondary education – and explores in depth the relationships between educational inequality and factors such as parents' occupations, migration background, the child's gender and school characteristics.

The key feature of the report is the league table, which summarizes the extent of educational inequalities at preschool, primary school and secondary school levels. The indicator of inequality at the preschool level is the percentage

of students enrolled in organized learning one year before the official age of primary school entry. The indicator for both primary school (Grade 4, around age 10) and secondary school (age 15) is the gap in reading scores between the lowest- and highest-performing students.

## Key findings

At least 9 in 10 children attend preschool the year before they start primary school in nearly all the 41 countries. Yet in 16 countries, more than 5 per cent of children do not attend preschool the year before they start school. This amounts to more than 1 million children in total across these countries.

By Grade 4, around age 10, there are large gaps in children's reading abilities. In almost all countries, more than 10 per cent of children do not reach an intermediate level of reading proficiency expected at this age.

There are also large inequalities in children's reading scores at age 15. Latvia, Ireland and Spain are the first, second and third most equal countries respectively. Malta (38th), Bulgaria (37th) and Israel (36th) are the three most unequal.

Countries can have different degrees of educational inequality at different educational stages. Ireland and Slovenia are in the bottom third of countries (high inequality) for preschool enrolment, but move to the top third (low inequality) towards the end of secondary school.

France has one of the highest rates of preschool enrolment, but then falls to the bottom third in secondary school. The Netherlands goes from being the most equal country in primary school reading scores to ranking 26th (of 38 countries) when children are 15 years old.

Tackling educational inequality does not mean sacrificing high standards. Countries with higher average achievement tend to have lower levels of inequality in children's reading scores. Bringing the worst-performing students up does not mean pulling the best-performing students down.

High national wealth is no guarantee of high equality. Some of the poorest countries included in this report, such as Latvia and Lithuania, have higher preschool enrolment rates and lower inequality in reading performance in primary and secondary school than those with far greater resources.

## What drives educational inequality among children?

### Parental occupation

Large inequalities in children's educational progress are linked to family background. These inequalities already exist when children enter preschool. In 16 of the 29 European countries for which data are available, children from the poorest fifth of households have a lower preschool attendance rate than children from the richest fifth. These patterns persist throughout a child's educational journey.

Differences in parental occupation explain up to one third of the variation in children's reading scores at the ages of 10 (Grade 4) and 15. Everything else being equal, children aged 15 with parents in high-status jobs are much more likely to expect to continue into higher education than those with parents in low-status jobs.

#### *Migration background*

In 21 of the 25 countries with substantial levels of immigration, children who are first-generation immigrants tend to do less well at school at age 15 than non-migrant children. In 15 countries, second-generation immigrant children also do less well than non-migrant children. However, in Australia and Canada, second-generation immigrant children do better than non-migrant children. These differences reflect varying patterns of migration to different countries.

#### *Gender*

There are already substantial gender differences in children's reading abilities by Grade 4. Girls do better than boys. Yet, in some countries, the gap can shrink when tests are done on a computer rather than on paper. These gaps in reading performance tend to grow as children get older. At age 15, they range from girls doing 2 per cent better than boys in Ireland, to girls doing 12 per cent better than boys in Bulgaria. Girls are also much more likely than boys to expect to continue in education beyond secondary school.

#### *Differences between schools*

In most countries, there are large differences in average reading scores between schools. In Bulgaria, Hungary and the Netherlands, when children are 15 years old, there is more variation in

performance between schools than between children in the same school. On the other hand, there is relatively little variation in performance between schools in Finland, Iceland and Norway. An important factor explaining these performance variations is the average family background of children in each school. Differences caused by family background are strongest in countries such as Hungary and Luxembourg, where children from richer and poorer families tend to go to different schools.

#### **What can be done to reduce educational inequalities?**

Countries can have very similar average educational performance but quite different levels of educational inequality. This suggests that the inequalities can be reduced. This said, each country's education system has developed within a distinct national context. A policy or practice that works in one country may not work in another. However, some general principles are relevant to any country that wishes to reduce inequalities:

- **Guarantee high-quality, early childhood education and care for all children** – ensuring that all children have access to high-quality preschool learning opportunities plays an important role in reducing socio-economic inequalities that exist when children start school.
- **Ensure that all children achieve a good minimum level of core skills** – A key test of any education system is that it provides all children with the basic skills needed to participate fully in society. This should be a baseline requirement for an equitable education system.
- **Reduce the impact of socio-economic inequalities** – Through a combination of family allowances and public services, rich countries can ensure that all children are able to enjoy learning, develop varied interests and achieve their full potential. Reducing the segregation of children with different family backgrounds into different schools can also help to ensure that all children have equal opportunities.
- **Close the gender gaps in achievement** – Policy makers and educators need to ensure the equal engagement of boys and girls in all core subjects, paying attention to the gender mix of teachers and challenging gender stereotypes every step of the way.
- **Produce better data** – Not enough is known about how inequalities develop and persist in different contexts. More high-quality, cross-country, comparable evidence is needed to fill these gaps. Longitudinal studies that follow the same children as they grow would be particularly valuable.
- **Focus on equality, not just averages** – Policy and public debates should also be more fully informed by the international surveys that are already available, such as the ones used in this report. International comparisons should consider not just how countries are faring in average educational performance, but also the degree of inequality among the students in each country. Greater equality does not come at the cost of average achievement; both are necessary to give all children a fair start.

# SECTION 1

## INTRODUCTION

“States Parties recognize the right of the child to education ... with a view to achieving this right progressively and on the basis of equal opportunity”

– United Nations Convention on the Rights of the Child, 1989, Article 28

In the world’s richest countries, some children do worse at school than others because of circumstances beyond their control, such as where they were born, the language they speak or their parents’ occupations. These children enter the education system at a disadvantage and can drop further behind if educational policies and practices reinforce rather than reduce the gap between them and their peers. These types of inequality are unjust. Not all children have an equal opportunity to reach

their full potential, to pursue their interests and to develop their talents and skills. This has social and economic costs.

This *Report Card* focuses on 41 high- and middle-income countries that are members of the Organisation for Economic Co-operation and Development (OECD) and/or the European Union (EU).

Our primary concern is inequality in achievement among children as they near the end of compulsory schooling. This is the key measure

in the league table. Inequalities that exist at this stage influence and limit children’s prospects as adults. They indicate how well an education system has done in providing equal opportunities for all.

There are various ways to measure educational inequalities. In this report, we use the best and most up-to-date data to look at differences between individual children and between schools. We start with disparities in access to early education. For school-aged children we look at variations in

their scores in standardized reading tests in primary and secondary school and their expectations of continuing into higher education. This provides a life-course perspective on our discussion of educational inequalities.

Our research addresses three sets of questions:

1. How much educational inequality is there in rich countries? Does it vary between countries?
2. To what extent do children's starting points, circumstances and characteristics explain educational inequalities? How does this vary between countries and across the different stages of education?
3. To what extent do education systems and schools magnify or reduce inequalities between children? What policies and practices can help to reduce inequalities?

We begin tackling these questions in section 2, which presents a league table of inequalities across different stages of education from preschool to the age of 15. In some systems, compulsory education ends at this age. We focus on the period of compulsory education because we want to understand educational inequalities when most children are still at school. We also have the most complete data for this stage in children's lives.

In sections 3, 4 and 5, we paint a more detailed picture of the possible sources of educational inequalities and how these develop as children progress through school. Section 6 takes a brief look at education systems and policies. In section 7, we discuss the implications of our analysis and provide our recommendations.

We find substantial variation in access to early education for the youngest children; in children's

educational progress; and in their expectations of continuing in education beyond the end of compulsory schooling. Inequalities linked to family economic circumstances start early and persist. A child's gender or place of birth can also be a source of inequality. We identify the size of inequalities between schools within each country and highlight the potential role that educational policies and practices can play in either reducing or reinforcing inequalities. The international comparisons show that the magnitude of all these types of inequality varies substantially between countries. This offers the potential to learn from different educational policies and practices.

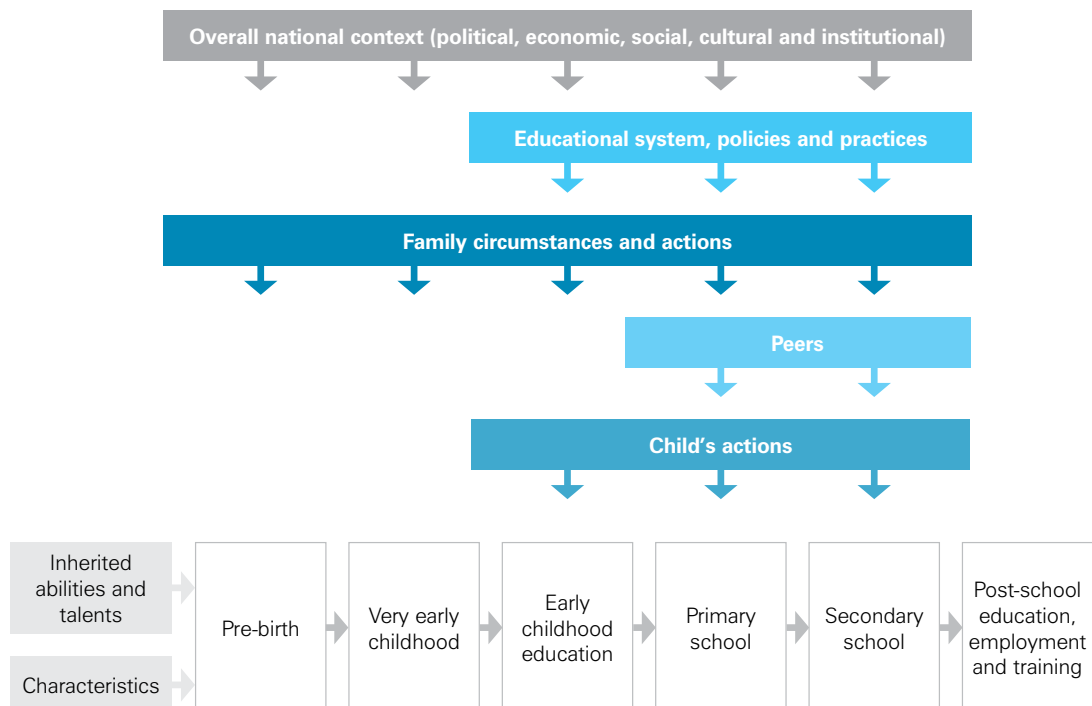


## Box 1 What are the sources of educational inequality?

If we are going to reduce educational inequality, we need a good understanding of its sources. This report explores these issues using a life-course perspective (see Figure 1).

- The bottom part of the diagram shows the child's route through the education system and indicates that inequalities at one stage in the education system could feed into later inequalities. It also notes that some sources of inequality may originate before birth.
- The overall national context – economic, social and cultural – has a part to play in influencing educational inequalities throughout childhood.
- The policies and practices of the education system and those of individual schools exert an additional influence once children enter formal education.
- Systems and schools can play an equalizing role, narrowing gaps created by children's different starting points and early childhood experiences. They can also accentuate inequalities or create new ones.
- Family circumstances, such as wealth and parental education, and parental actions, such as reading to their child or funding extra tuition, influence a child's educational development.
- The influence of peers may become increasingly important as children move through the education system.
- Children's own actions, such as the interests they pursue, play some part in widening or narrowing gaps between them and their peers.

**Figure 1:** A life-course perspective on educational inequalities



Source: Authors' own design

## SECTION 2

### SUMMARY LEAGUE TABLE

**Figure 2: League Table**  
Inequality across three stages of education

| Rank | Country           | Preschool (rank) | Primary School (rank) | Secondary School (rank) |
|------|-------------------|------------------|-----------------------|-------------------------|
| 1    | Latvia            | 4=               | 2                     | 1                       |
| 2    | Ireland           | 33               | 16                    | 2                       |
| 3    | Spain             | 22               | 4                     | 3                       |
| 4    | Denmark           | 17=              | 12                    | 4                       |
| 5    | Estonia           | 31               |                       | 5                       |
| 6    | Poland            | 4=               | 15                    | 6                       |
| 7    | Croatia           | 24=              |                       | 7                       |
| 8    | Japan             | 34               |                       | 8                       |
| 9    | Canada            | 27               | 18                    | 9                       |
| 10   | Slovenia          | 28               | 17                    | 10                      |
| 11   | Finland           | 14               | 3                     | 11                      |
| 12   | Portugal          | 8                | 8                     | 12                      |
| 13   | Italy             | 15               | 6                     | 13                      |
| 14   | Romania           | 39               |                       | 14                      |
| 15   | Lithuania         | 1                | 13                    | 15                      |
| 16   | United Kingdom    | 20               | 23                    | 16                      |
| 17   | Republic of Korea | 35               |                       | 17                      |
| 18   | Switzerland       | 4=               |                       | 18                      |
| 19   | Hungary           | 32               | 19                    | 19                      |
| 20   | Norway            | 17=              | 7                     | 20                      |
| 21   | Greece            | 29               |                       | 21                      |
| 22   | Iceland           | 2=               |                       | 22                      |
| 23   | Germany           | 23               | 20                    | 23                      |
| 24   | United States     | 40               | 22                    | 24                      |
| 25   | Sweden            | 16               | 11                    | 25                      |
| 26   | Netherlands       | 10=              | 1                     | 26                      |
| 27   | Czech Republic    | 38               | 10                    | 27                      |
| 28   | Belgium           | 10=              | 9                     | 28                      |
| 29   | Austria           | 10=              | 5                     | 29                      |
| 30   | Australia         | 36               | 25                    | 30                      |
| 31   | Cyprus            | 26               |                       | 31                      |
| 32   | Slovakia          | 37               | 21                    | 32                      |
| 33   | New Zealand       | 30               | 28                    | 33                      |
| 34   | Luxembourg        | 13               |                       | 34                      |
| 35   | France            | 2=               | 14                    | 35                      |
| 36   | Israel            | 4=               | 27                    | 36                      |
| 37   | Bulgaria          | 24=              | 26                    | 37                      |
| 38   | Malta             | 17=              | 29                    | 38                      |
|      | Chile             | 21               | 24                    |                         |
|      | Mexico            | 9                |                       |                         |
|      | Turkey            | 41               |                       |                         |

**Note:** A light blue background indicates a place in the top third of the ranking, medium blue denotes the middle third, and dark blue the bottom third. The blank cells indicate there are no data available.

**Source:** See Box 2.

Some rich countries do better than others in ensuring equality across the three stages of children's education: preschool, primary and secondary. The league table displays where a country ranks in each of the three stages and highlights whether it is in the top, middle or bottom third. A country's overall place in the league table is based on its position in terms of inequalities at age 15. The inequalities that exist at this age influence and limit children's prospects as adults.

The indicators provide a snapshot of inequality at each of the three stages (see Box 2):

- The measure for preschool is the percentage of students enrolled in organized learning for at least one hour per week one year before the official age of primary school entry. It denotes equality of access to preschool education and is a measure of equality of opportunity.
- The indicator for primary school is the gap in reading scores between the lowest- and highest-scoring students at Grade 4. We focus on reading, rather than mathematics or science, because reading is a gateway to other learning.
- The indicator for secondary school is the gap in reading scores between the lowest- and highest-scoring students at age 15.

## Box 2 Interpreting the data

**Preschool** – The indicator used is the percentage of students enrolled in organized learning one year before the official age of primary school entry for at least one hour per week. The official age varies by country. An average rank is reported for the countries that have the same preschool participation rate.

**Source:** Sustainable Development Goals Indicators Global Database (UNESCO, OECD and Eurostat Surveys of Formal Education) (see <<https://unstats.un.org/sdgs/indicators/database/>>), except for Austria, the Czech Republic, Germany and Slovakia (Age 5 enrolment in formal childcare, EU Statistics on Income and Living Conditions 2016 user database) and Canada (Indicator 4.2.2, 2015–16, Government of Canada Sustainable Development Goal Data Hub, <[www144.statcan.gc.ca/sdg-odd/goal-objectif04-eng.htm](http://www144.statcan.gc.ca/sdg-odd/goal-objectif04-eng.htm)>).

**Primary School** – The indicator is the gap in reading scores between those Grade 4 students (around 10 years of age) who have done worse than 90 per cent of their peers (10th percentile) and those who have done better than 90 per cent of their peers (90th percentile). The rank for the UK is based on England and Northern Ireland only. The reading scores were standardized in 2001 so that they had an international mean of 500 and a standard deviation of 100. Most children tend to score between 300 and 700 points.

**Source:** Progress in International Reading Literacy Study (PIRLS) 2016, the International Association for the Evaluation of Educational Achievement. See <<https://timssandpirls.bc.edu/pirls2016/index.html>>.

**Secondary School** – The indicator is the gap in reading scores between the 15-year-old students (Grade 7 or higher) who have done worse than 90 per cent of their peers (10th percentile) and those who have done better than 90 per cent of their peers (90th percentile). The reading scores were standardized in 2000 so that they had an international mean of 500 and a standard deviation of 100. Most children tend to score between 300 and 700 points.

**Source:** OECD Programme for International Student Assessment (PISA) 2015. See <[www.oecd.org/pisa/](http://www.oecd.org/pisa/)>.

Chile, Mexico and Turkey are omitted from the summary league table because the proportion of 15-year-olds who are either excluded from PISA 2015 or are not at school exceeds 20 per cent. This means that the figures for these countries are not a reliable measure of educational inequality for that age group. Their positions on the preschool indicator appear below the league table, for reference.

**Source:** PISA 2015.

For more detail on the data and methods, see Gromada, A. et al., 'Measuring Inequality in Children's Education in Rich Countries', Innocenti Working Paper 2018-18, UNICEF Office of Research – Innocenti, Florence, 2018.

The results suggest that there is no systematic relationship between country income and any of the indicators of equality in education. It is notable that some of the poorest countries in the comparison, such as Latvia and Lithuania, achieve near-universal access to preschool learning and curb inequality in reading performance among both primary and secondary school students more successfully than countries that have far greater resources.

Finland, Latvia and Portugal have the most equal education systems across all three indicators of equality in education in the league table. Australia, New Zealand and Slovakia are in the bottom third for each of the three indicators of equality in education.

Some countries have very different degrees of inequality at different stages in the school system.

Ireland and Slovenia are the only two countries that move up from the bottom third in preschool access to the middle third in equality at primary school and the top third in equality at secondary school. Estonia and Japan also do much better at the secondary school level than their rank for preschool would predict.

It is also possible to have a relatively equitable system to begin with, and then see wide inequalities by the end of secondary school. Austria, Belgium and the Netherlands score in the top third of the preschool and primary school rankings, but in the bottom third of the secondary

school ranking. Between the primary and secondary school indicators, Austria's standing drops from 5th to 29th, Belgium's from 9th to 28th, and the Netherlands plummets from 1st to 26th.

It is tempting to think that the countries that do worse in the ranking can successfully copy the education system of those countries that do well. There are undoubtedly lessons that can be learned from the countries at the top of the league table. Yet these must be replicated with care. As we noted at the start of this report, there are many sources of inequality in education. Political, economic, social, cultural and institutional contexts vary widely among countries. What works in one country may not work elsewhere.

## SECTION 3

# PRESCHOOL EDUCATION

A child's journey through education often begins in a childcare centre, where children learn to interact with each other and their caregivers. Public provision of high-quality childcare is increasingly being seen as a policy that helps working parents and counteracts the unequal starting conditions of children by providing a stimulating social and learning environment for all types of family.<sup>1</sup>

We use the terms 'preschool' and 'childcare provision' interchangeably to refer to all forms of centre-based, early childhood education and care. The divide between care provision and preschool education is blurred in many countries, but it is still common to think of services for children under the age of 3, as childcare and those for children aged 3 and over as preschool.

The benefits of preschool education can be long-lasting. According to the OECD, 15-year-olds who report having had more than one year of pre-primary education do substantially better at reading than

those with no pre-primary education, even after accounting for the child's economic and social position.<sup>2</sup> Studies that follow the same children over a period of time point to an array of long-term benefits. Children who attend preschool are more likely to complete other levels of school and graduate from university. Overall, they tend to have more years of education.<sup>3</sup> Those who benefit most are children whose mothers did not go far in school and those from poorer families.<sup>4</sup> Providing universal access to early childhood learning and care is a potential means of reducing inequality.

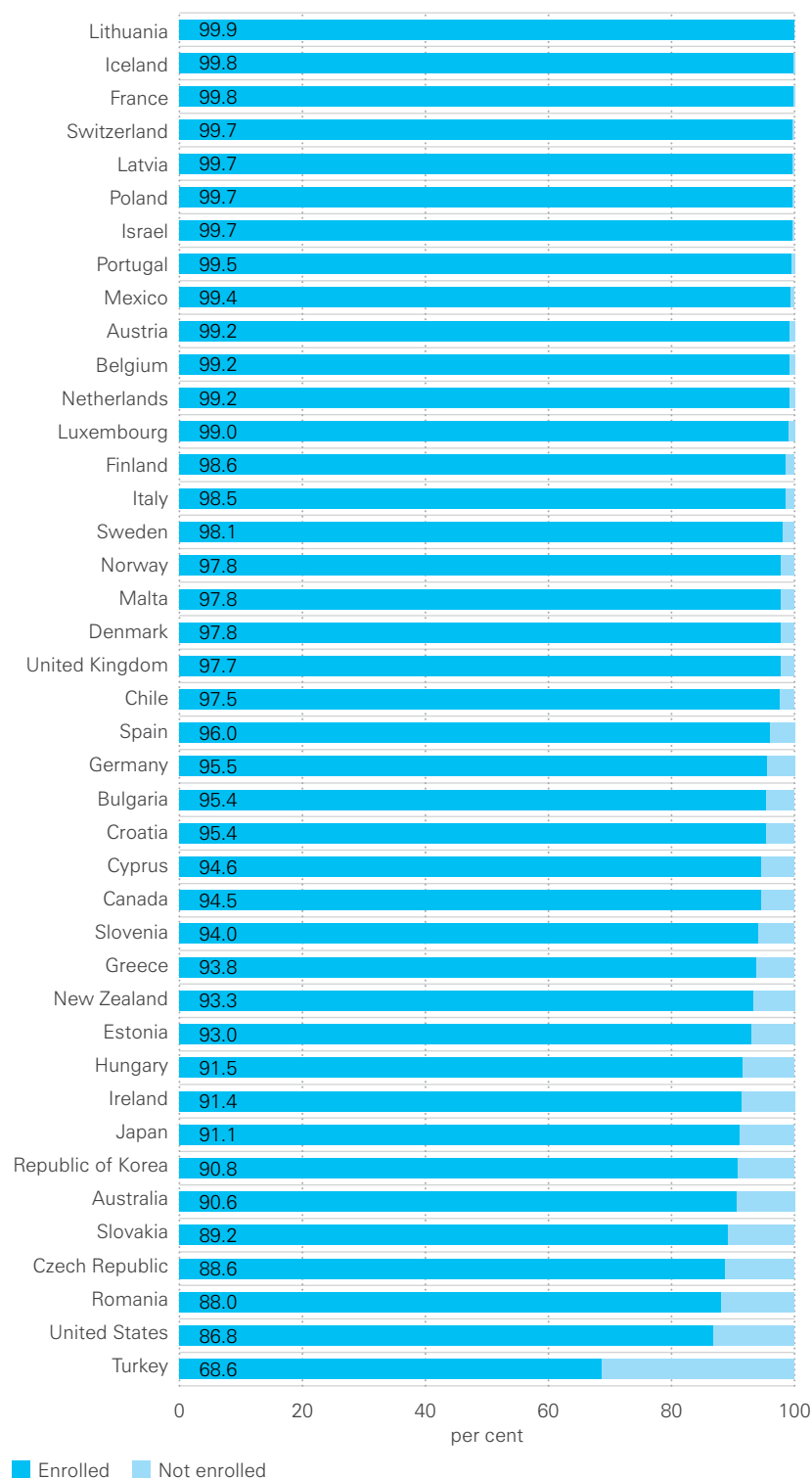
### **Most children start primary school with some experience of organized learning**

One of the targets contained in the Sustainable Development Goals (SDGs) is that all children should have access to quality preschool education. *Figure 3* shows that at least 9 in 10 children attend preschool the year before they start primary school in nearly all the

41 OECD and EU countries. In many of these countries, the enrolment rate is virtually 100 per cent, often reflecting a statutory requirement to enrol a child in preschool that year. Although this snapshot does not account for the international differences in the organization of early childhood education – such as the quality of education or the hours of attendance – it does indicate that almost all children start primary school with at least some experience of learning with their peers.

In a handful of countries this is not the case. Only two in three children (69 per cent) in Turkey attend preschool the year before starting compulsory education. In another 15 countries, including Australia, Canada, the Republic of Korea and the United States, the enrolment rate is between 85 per cent and 95 per cent. This still leaves more than a million children across these countries entering primary school with no recent experience of group-based learning.

**Figure 3: How many children attend preschool?**  
Percentage of children participating in preschool education in 2015 (for at least one hour per week, one year before the official age of primary school entry)



### Childcare provision for younger preschoolers is far from universal

Most children start school with some experience of group-based learning. Yet an international comparison indicates that attendance rates vary depending on the age of preschoolers.

*Figure 4* shows the percentages of preschool children under 3 years of age and those aged 3 and older, who attend centre-based care for at least one hour a week in the 31 (European) countries for which comparable statistics are available. More than half of children aged 3 and over attend preschool in every country. In two thirds of the countries, at least four in five children do so, with near-universal enrolment in Belgium, Denmark, Iceland, Spain and Sweden. In Cyprus, Lithuania and Slovakia, fewer than four in five children in this age range attend preschool. In Bulgaria, Switzerland and the United Kingdom fewer than three in four do. The rate falls to below two in three in Croatia, Greece, Poland and Romania.

**Note:** Most recent data are from 2013 for Iceland and Japan, and from 2014 for Greece, Luxembourg, Poland, Portugal, Mexico, Slovenia, Switzerland and the United Kingdom.

**Source:** SDG Indicators Global Database, Indicator 4.2.2 (UNESCO, OECD and Eurostat Surveys of Formal Education), except Austria, the Czech Republic, Germany and Slovakia (Age 5 enrolment in centre-based services, EU-SILC 2015) and Canada (Indicator 4.2.2, 2015–16, Government of Canada Sustainable Development Goal Data Hub, <[www144.statcan.gc.ca/sdg-odd/goal-objectif04-eng.htm](http://www144.statcan.gc.ca/sdg-odd/goal-objectif04-eng.htm)>). Data last accessed 2 July 2018.

The age at which a child starts school varies across the EU countries, and so the period between 3 years of age and the compulsory school age is longer in some countries than in others.<sup>5</sup> In Hungary, pre-primary education starts as early as age 3 (and primary at age 6). Yet only 87 per cent of children aged 3 and over attend preschool. More than 90 per cent of children do so in Estonia and Sweden, the only two EU countries where compulsory pre-primary or

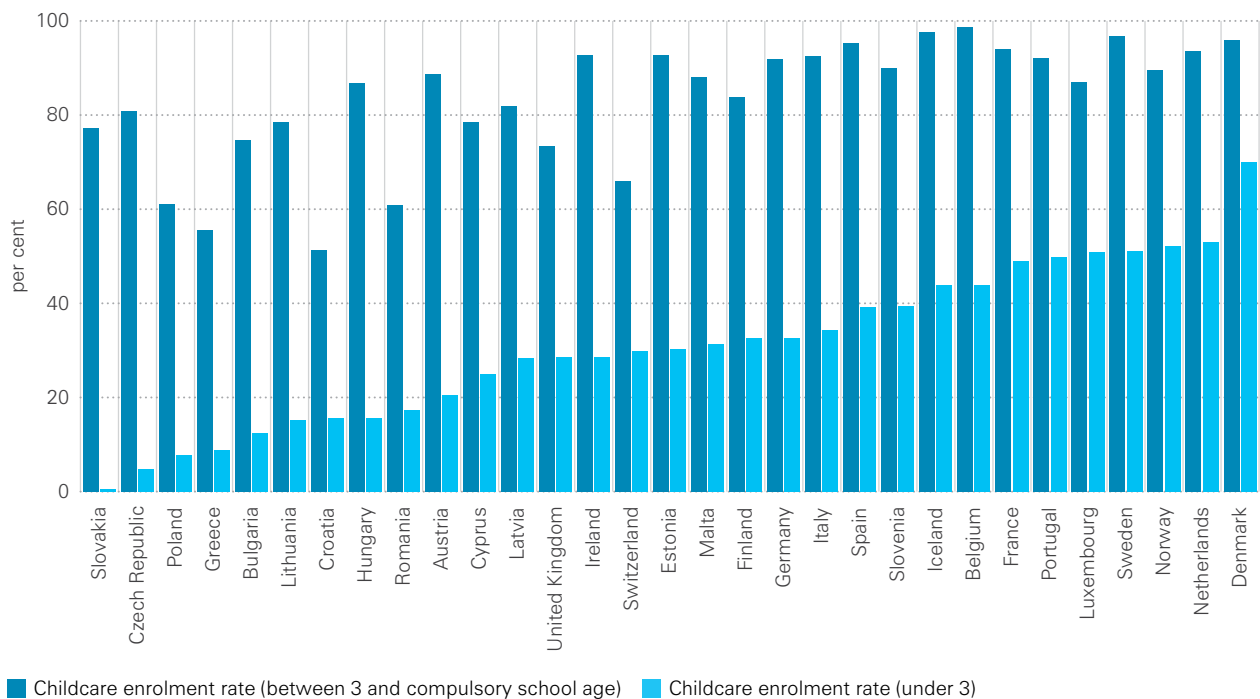
primary education did not start until the age of 7 at the time the survey was conducted. Average enrolment rates also hide sub-national variations (see Box 3).

In every country, children under the age of 3 are less likely to attend centre-based childcare than their counterparts aged 3 and older. Less than 1 in 10 children under the age of 3 does so in the Czech Republic, Greece, Poland and Slovakia, and less than one in five

does so in Bulgaria, Croatia, Hungary, Lithuania and Romania. Enrolment rates are below 50 per cent in nearly all the countries. The exceptions are France, Luxembourg, the Netherlands, Norway, Portugal and Sweden, where around one child in two under the age of 3 attends centre-based care, and Denmark, which stands out as the country with the highest childcare enrolment rate for children under 3 (70 per cent).

**Figure 4: Who is providing children with the best start?**

Percentage of children below the minimum compulsory school age attending centre-based education or care for at least one hour per week in 2016



**Note:** The most recent data are for 2014 for Switzerland and 2015 for Iceland. The minimum compulsory school age varies between 4 and 7 across these 31 countries. Centre-based education and care services include education or care at preschool, compulsory school, centre-based services or day-care centres  
**Source:** Eurostat (last update 1 March 2018).

## Box 3 Childcare in Canada

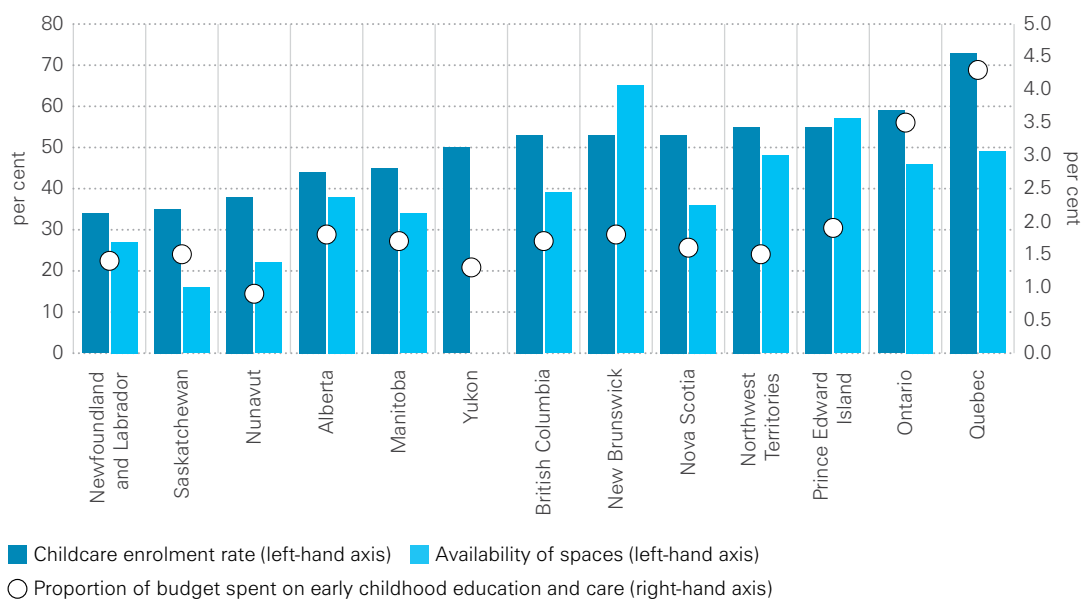
Being able to access affordable childcare is an issue for many Canadian families. Just over half (54 per cent) of children between the ages of 2 and 4 attend some type of regulated, early childhood education or care programme in Canada. This national figure obscures substantial variation across Canada’s 13 provinces and territories. In Quebec, which has the highest enrolment, nearly three in four children (73 per cent) attend childcare, compared with just one child in three (34 per cent) in Newfoundland and Labrador.<sup>6</sup>

The enrolment rate among children aged 2–4 years is higher in the provinces and territories with greater availability of spaces for children under 6. Availability is measured as the percentage of regulated childcare places to the population

of children in this age group. *Figure 5* indicates that those governments that spend a greater proportion of their budget on early childhood education and care tend to have higher enrolment.

We have information on average childcare fees for major Canadian cities,<sup>7</sup> but not for each province and territory. Fees are lowest in cities in Quebec. Families in these cities on average incomes and with at least one child under 5 pay around 3 per cent of their after-tax income for a full-time place in regulated childcare. Toronto, Ontario, is the most expensive of the 20 cities surveyed.<sup>8</sup> The average cost of a childcare space for children under 5 in Canada’s largest city amounts to 22 per cent of average net household income for families with preschool children.

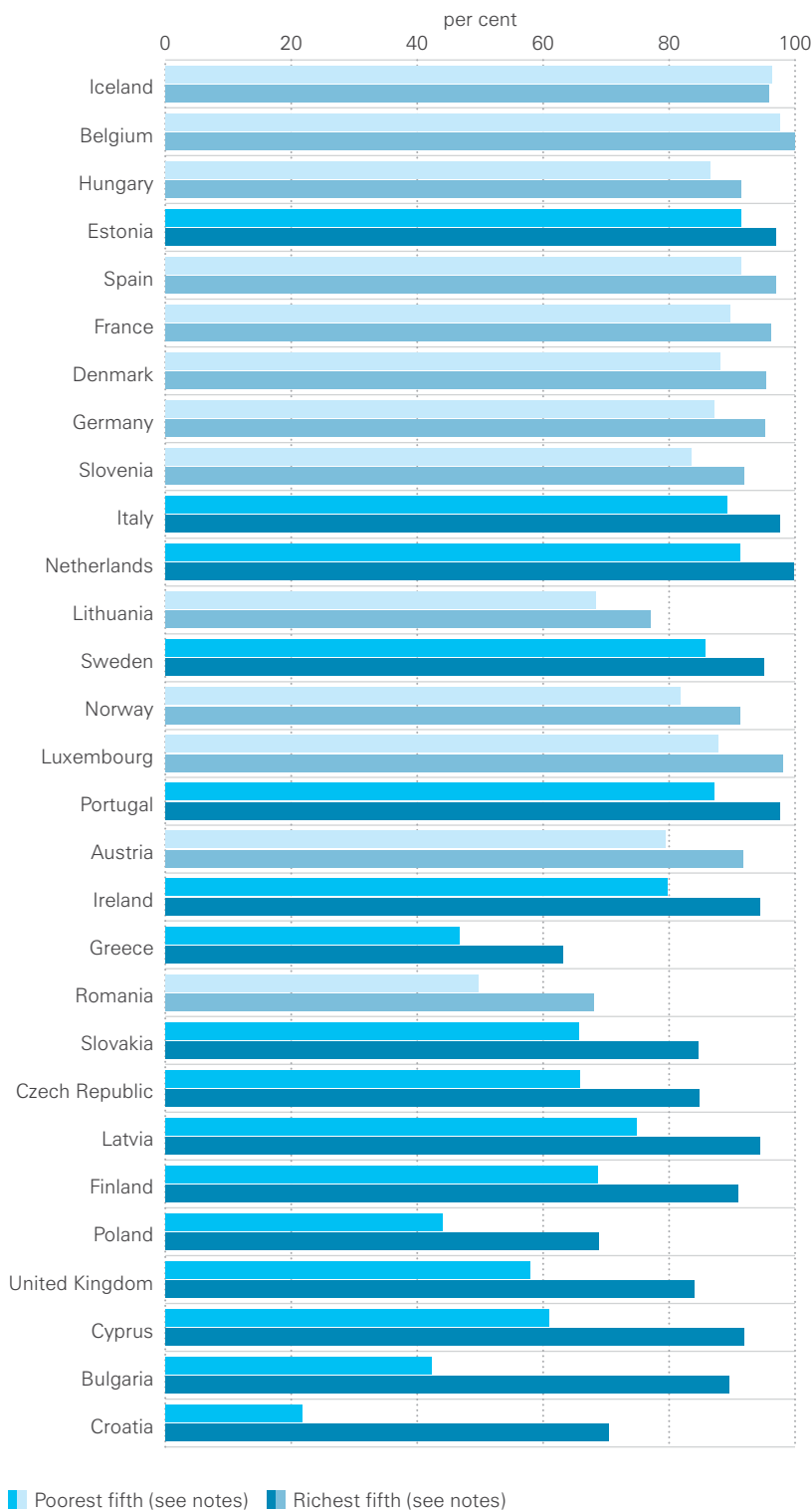
**Figure 5: Childcare enrolment rates, availability of spaces and spending on childcare across Canadian provinces and territories (2016)**



**Note:** The childcare enrolment rate refers to the percentage of children between the ages of 2 and 4 who regularly attend an early childhood education programme. The provinces and territories are ordered by increasing enrolment rate. No data on availability of spaces for Yukon.  
**Source:** Akbari, E. and K. McCuaig, Early Childhood Education Report 2017, Atkinson Centre/University of Toronto, Toronto, 2018.



**Figure 6: Poor children are more likely to miss out on preschool**  
Preschool attendance for children in the bottom and top fifth of household income distribution (2016)



### Children from lower-income households are less likely to attend preschool

Children aged 3 and older are less likely to attend preschool if they live in the lowest-income households. *Figure 6* plots the childcare enrolment rates separately for children in the poorest fifth and in the richest fifth of households in the 29 countries for which data are available. In 16 countries, children from the poorest fifth of households have a lower preschool attendance rate than children from the richest fifth.

Croatia has the largest gap in both absolute and relative terms. The attendance rate of children from better-off households is three times that of their poorer peers. While two in three children (70 per cent) from households in the richest fifth of the income distribution attend preschool, the rate for the poorest fifth is less than one child in four (22 per cent).

Bulgaria has the second-largest gap in absolute terms: 42 per cent of children from the poorest fifth of households attend preschool, compared with 89 per cent of their peers from the richest fifth. This means that children from richer families are more than twice as likely to attend preschool. The enrolment rate for children from the richest fifth

**Note:** Countries are sorted by magnitude of the absolute percentage point gap. 2015 data used for Iceland. No data for Malta or Switzerland. No area data for Germany, the Netherlands or Slovenia. Personal cross-sectional weights used. Countries with statistically significant differences between the top and bottom income quintiles (at  $p < 0.05$ ) are noted with darker shading. A difference is considered statistically significant when it is larger than might be expected to occur by chance. The child's age and the area of residence by degree of urbanization are controlled for. Income quintiles are constructed using the distribution of equivalent disposable household income (after transfers and taxes) among all children between the ages of 3 and the minimum compulsory school age.

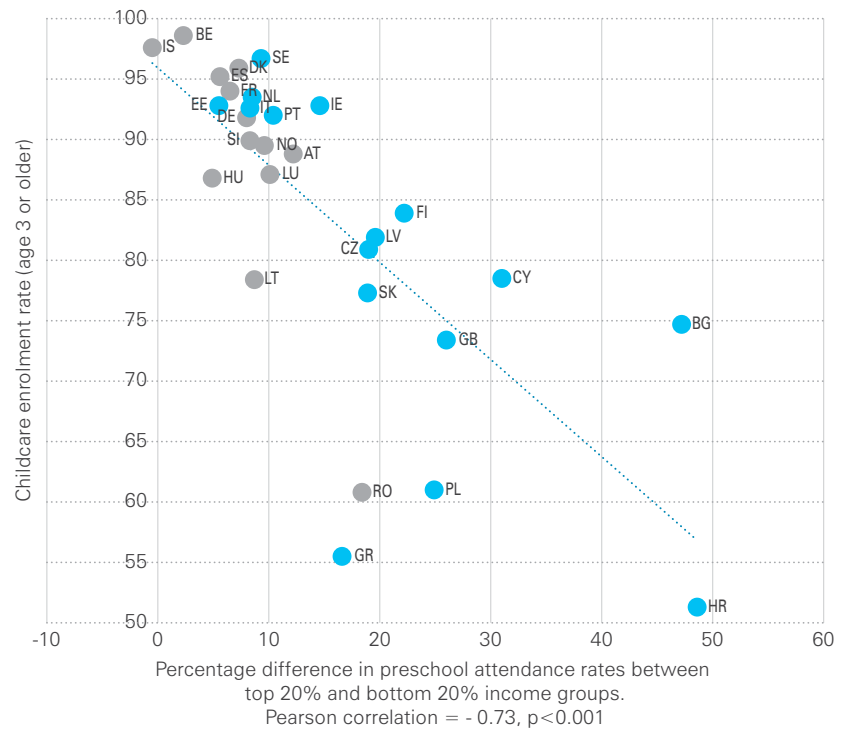
**Source:** EU-SILC 2016 (version 14 March 2018).

of households in Bulgaria is on a par with the average rate in Norway.

A further factor in preschool attendance is the availability or accessibility of services in rural areas, compared with urban ones. In two countries, Croatia and Poland, there is a significant urban–rural divide. While four in five children aged 3 and older attend preschool in urban Croatia, just one child in three does so in rural areas. In Poland, three in four children in urban areas are enrolled in preschool, compared to less than one in two in rural areas.

Countries with greater income inequality in preschool attendance tend to have lower average rates of attendance (see Figure 7). This suggests that the affordability of childcare services for preschool children may be a crucial barrier to access and a source of educational inequality.

**Figure 7: Where income inequality is high, preschool attendance is generally low**  
Preschool attendance and the income gap (2016)



**Note:** Countries with statistically significant differences between the top and bottom income group quintiles (at p < 0.05) are noted in blue.  
**Source:** See Figure 4 and Figure 6.

## SECTION 4

### PRIMARY SCHOOL

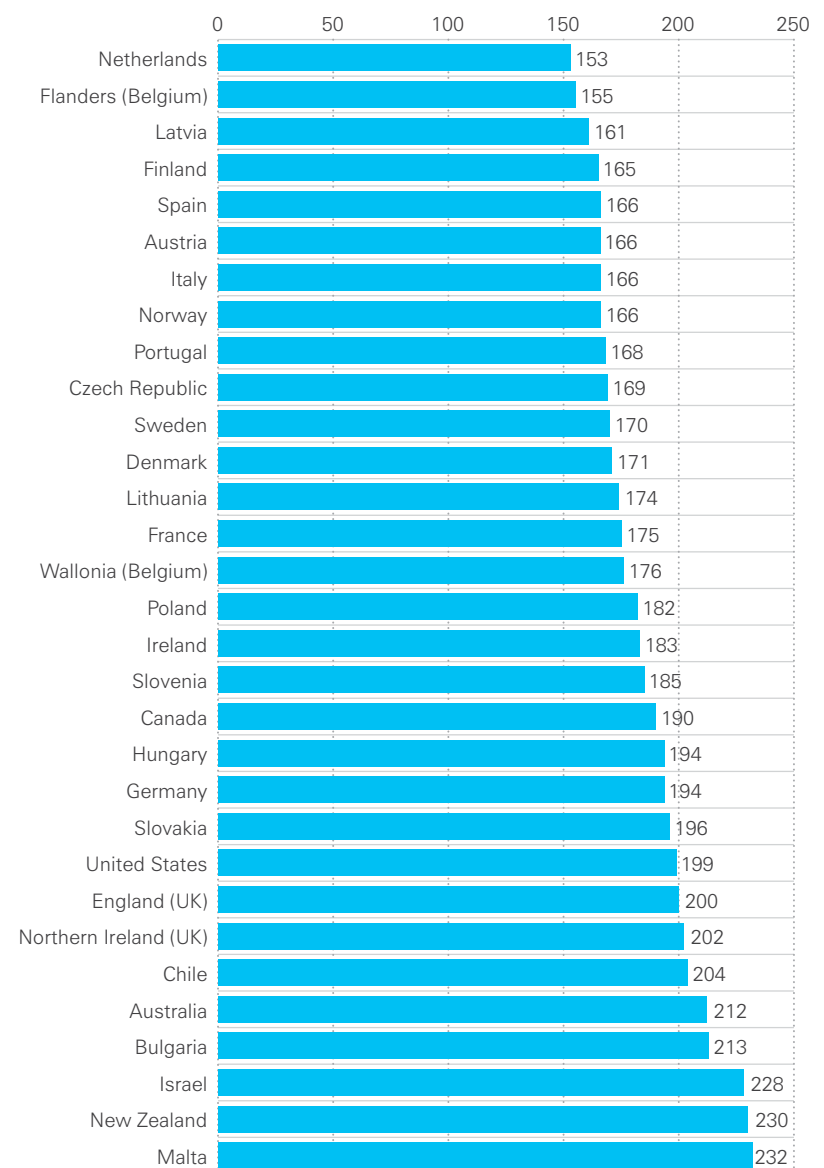
There are already large differences in children's skills when they start primary school.<sup>9</sup> Schools have a role to play in reducing these differences by bringing all children up to a good competency level in core subjects. Reading achievement at the end of primary school is particularly important, because it also affects a child's ability to do well in other subjects.

We used data from the Progress in International Reading Literacy Study (PIRLS 2016) to assess the extent of inequalities in reading comprehension. This international study tests nationally representative samples of approximately 4,000 Grade 4 students from 150 to 200 schools per country or territory. The average student doing the test is 10 years old. At this age, children have typically learned to read and are now reading to learn.

The PIRLS reading scale has four benchmarks for reading comprehension that can be used to compare the performance of students across diverse school systems: low (400), intermediate (475), high (550) and advanced (625). Children are expected to demonstrate certain abilities at each benchmark. At the lowest level, a child can read a simple text and locate information that is explicitly stated within the text. At the advanced level, a child can read a relatively complex text and interpret a character's motivations and feelings, even though these are not explicitly stated.

*Figure 8* ranks 31 school systems in 29 countries, based on the gap in reading scores between students who

**Figure 8: Where are the widest gaps in reading comprehension?**  
Performance gap in reading achievement at Grade 4 (2016)



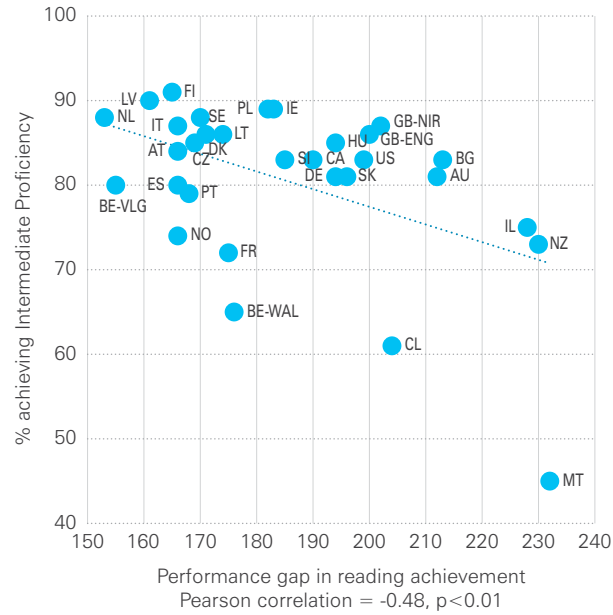
**Note:** Flanders (Belgium) or BE-VLG refers to the Flemish-speaking region in Belgium. Wallonia (Belgium) or BE-WAL refers to the French-speaking Wallonia-Brussels Federation in Belgium. The reading achievement scale has a mean of 500, corresponding to mean reading achievement in 2001, and a standard deviation of 100. The performance gap is measured as the absolute difference between the 90th and the 10th percentile of the reading score.  
**Source:** PIRLS 2016.

have done worse than most of their peers (10th percentile) and those who have done better than most (90th percentile).

The Netherlands has the smallest performance gap, 153 points, in the comparison. This is still a very large difference in the context of this international assessment, where the lowest and most advanced benchmarks are separated by only 225 points. A gap of 153 points means that students with the lowest scores are two benchmarks or proficiency levels below those with the highest scores in these countries. The divide is even wider in Israel, Malta and New Zealand, which have the largest gaps (228, 232 and 230 points, respectively) in reading comprehension scores – equivalent to three benchmark levels.

**Figure 9: Where performance inequality is higher, reading proficiency is generally lower**

Percentage of students achieving the Intermediate International Benchmark at Grade 4 is higher where the performance gap in reading achievement is lower (2016)



Note: See Figure 8. Source: PIRLS 2016.

### Box 4 What is the PIRLS Intermediate International Benchmark?

When reading a mix of simpler and relatively complex literary texts, students can:

- Independently locate, recognize and reproduce explicitly stated actions, events and feelings;
- Make straightforward inferences about the attributes, feelings and motivations of main characters;
- Interpret obvious reasons and causes, recognize evidence and give examples; and
- Begin to recognize language choices.

When reading a mix of simpler and relatively complex informational texts, students can:

- Locate and reproduce two or three pieces of information from the text;
- Make straightforward inferences to provide factual explanations; and
- Begin to interpret and integrate information to order events.

Source: Mullis, I.V.S., M.O. Martin, P.Foy and M. Hooper, PIRLS 2016 International Results in Reading, Boston College, TIMSS & PIRLS International Study Center, 2017.

The performance gap does not indicate absolute levels of reading comprehension. It shows the distance between the best and the worst readers. When we look at both the performance gap and the absolute level of reading proficiency, we find that children in countries with greater inequality in reading scores are less likely to achieve a good level of reading proficiency, as measured by the Intermediate International Benchmark (see Box 4). Israel, Malta and New Zealand have the largest performance gaps and some of the largest shares of students not reaching even this modest international benchmark.

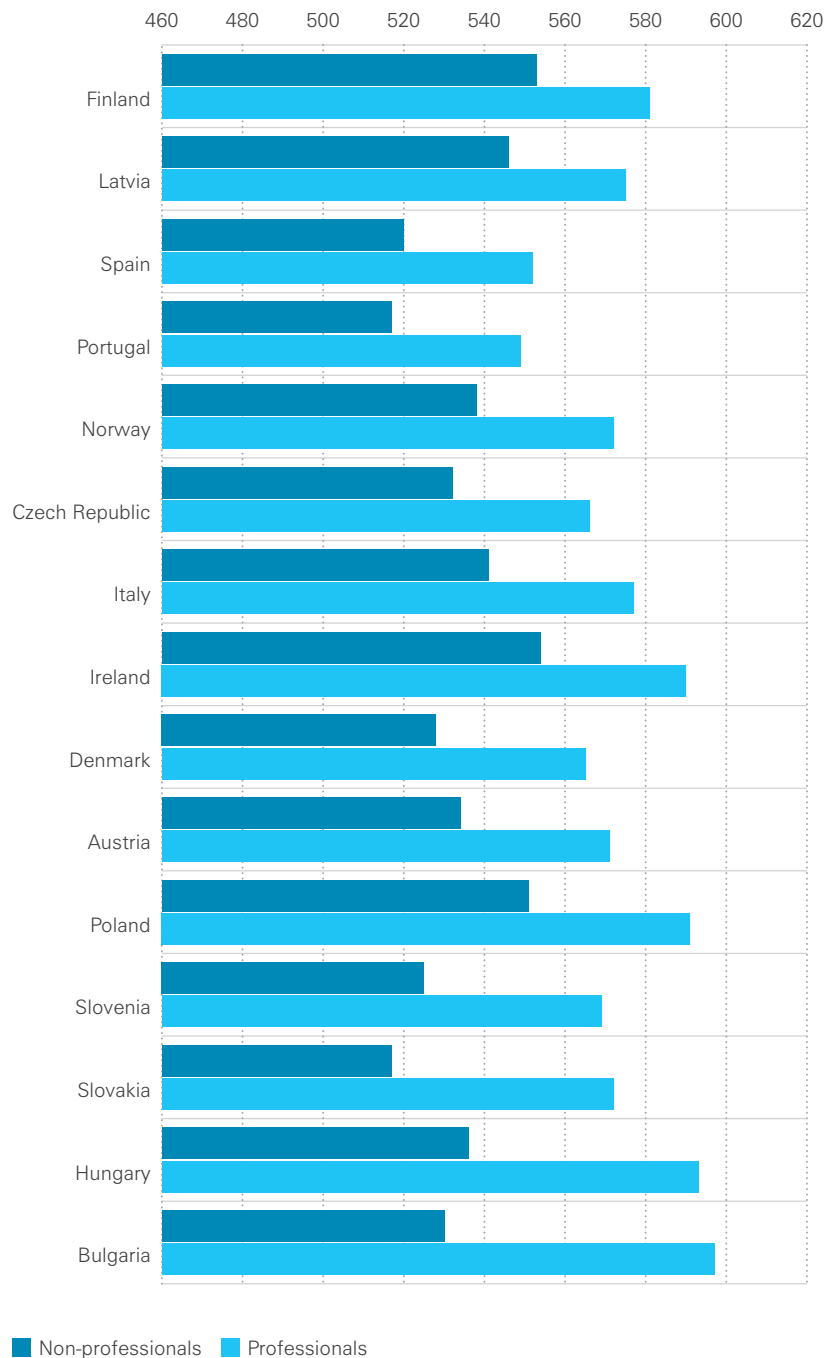
Figure 9 illustrates that this is not a straightforward relationship. Far fewer children achieve the intermediate benchmark in Chile, France, Malta and Wallonia (Belgium) than would be expected, given their performance gaps. Nevertheless, the overall trend suggests that countries with large gaps between their best and worst performers have lower levels of reading proficiency.

### Differences in parental occupation explain up to one third of the variation in children's reading scores

The circumstances in which children grow up influence how well they do at school.

Figure 10 compares reading scores of children with at least one parent working in a professional occupation with those of children of non-professionals. This is done for a subset of countries that have sufficiently high parental response rates for inclusion in this analysis. Professionals include corporate managers, senior officials, teachers, nurses, engineers and doctors.

**Figure 10: Children of professionals score higher in reading tests**  
Children's average reading scores at Grade 4, by parental occupation



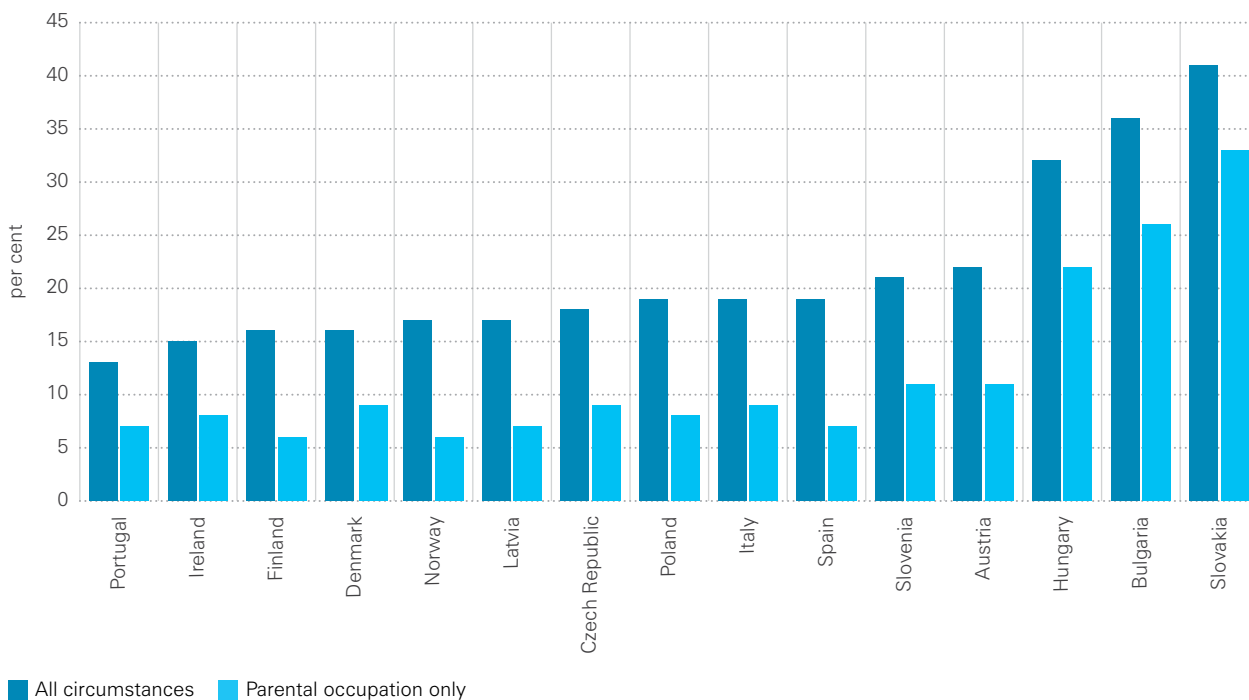
**Note:** Countries are sorted by the magnitude of the absolute parental occupation gap in reading scores. We exclude countries missing more than 15 per cent of the information on parental occupation. Professionals include corporate managers, senior officials, doctors, lawyers and engineers, as well as technicians or associate professionals (such as nurses or paralegals). Non-professionals include small business owners, clerical workers, skilled workers, general labourers, service or sales workers, craft or trade workers, plant or machine operators, and those who have never worked for pay.  
**Source:** PIRLS 2016.

In all countries analysed, children who have at least one professional parent have significantly higher reading scores than the children of non-professionals. The gap in scores between the children of professionals and non-professionals ranges from around 28 points in Finland to 66 points in Bulgaria.

Other characteristics of children or their parents affect a child’s reading achievement. These include the child’s gender, the language the child speaks at home, the location of the school, the child’s country of birth, the parents’ education, and whether the child comes to school hungry or tired. This set of

circumstances (including parental occupation), explains over 30 per cent of the variation in children’s reading scores in Bulgaria (36 per cent), Hungary (32 per cent) and Slovakia (41 per cent) (see Figure 11); but only 13 per cent in Portugal and 15 per cent in Ireland.

**Figure 11: What affects reading scores?**  
 Percentage of variation in children’s reading achievement at Grade 4 explained by personal and family circumstances



**Note:** Personal and family circumstances include the child’s gender, whether the child speaks the language of testing at home, the location of the school, whether a child is born abroad, parental occupation and education, and whether the child comes to school hungry or tired. See notes to Figure 10.  
**Source:** PIRLS 2016.

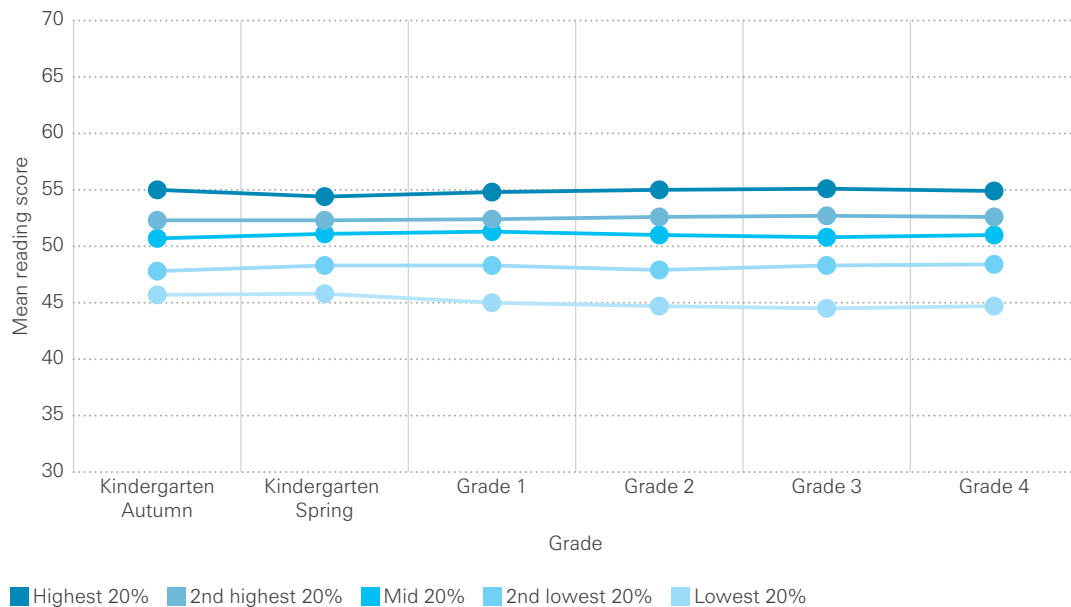
## Box 5 Educational inequalities between rich and poor in the United States of America

By the time children start school, there are substantial differences in their cognitive abilities linked to their family backgrounds. Research suggests that these differences can persist as children go through primary school. *Figure 12* shows scores in reading tests in a large and nationally representative sample of children entering kindergarten in the US in 2011. These children are then followed until Grade 4. Because children's reading generally improves as they get older, the scores have been put on a common scale with an average of 50 points to aid comparisons over time. Children have been

divided into five equally sized groups, based on average household income over the survey period.

There are already significant differences in reading scores between all five income groups when children enter kindergarten. These differences then persist up to Grade 4. There is no evidence of the gaps closing, but nor do they widen. So it is possible that schools might be counteracting the widening that might otherwise occur due to the cumulative advantages of children in higher-income households.

**Figure 12: Mean scores in reading by income group, US**



**Note:** The chart shows mean reading scores, standardized to have a mean of 50 and a standard deviation of 10 at each time point. The tests were conducted in the Autumn and Spring terms of the kindergarten year and the Spring terms of Grades 1 to 4. The scores are controlled for children's age and are weighted to be representative of the US population of schoolchildren in this cohort.  
**Source:** Early Childhood Longitudinal Study: K-2011, US.

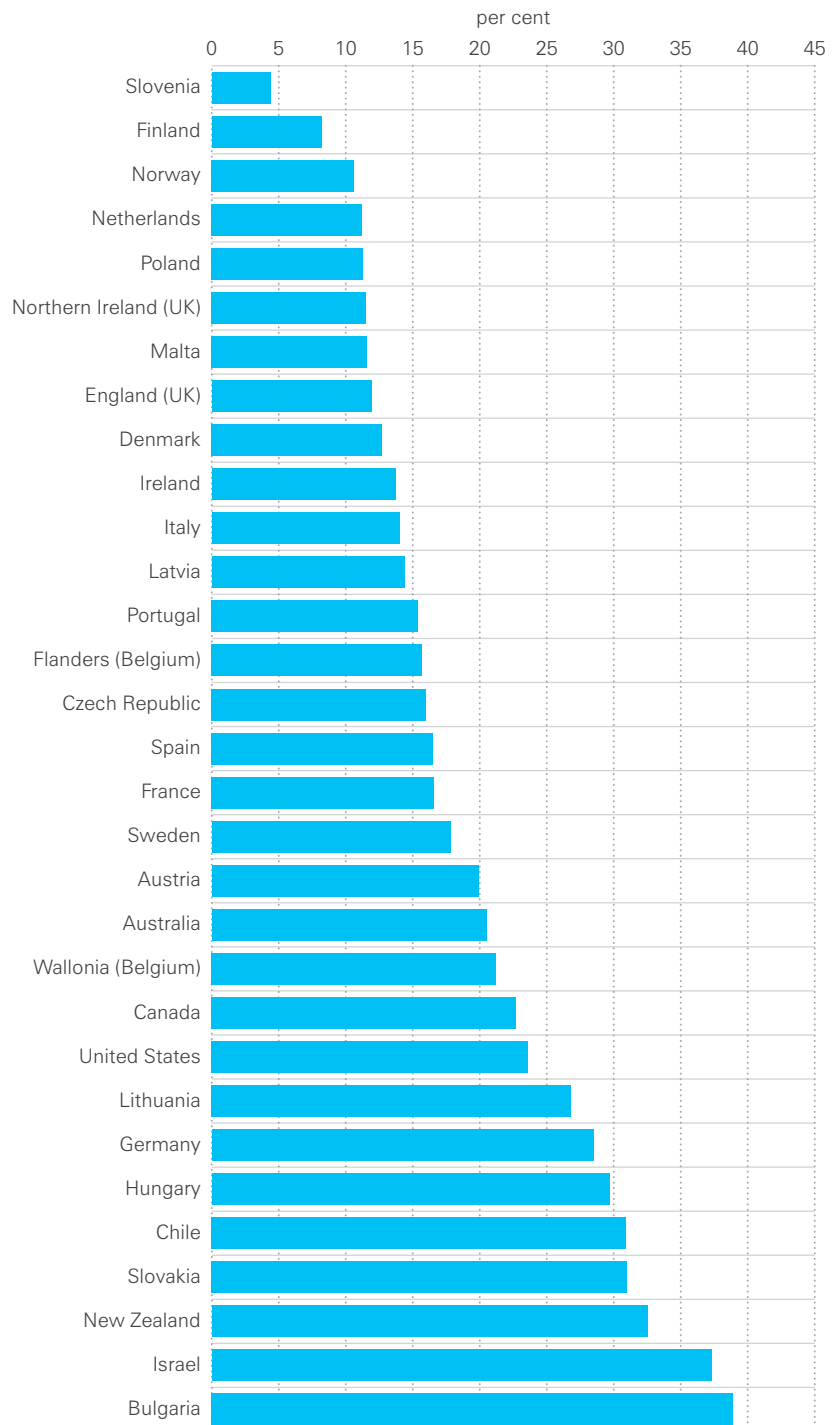
### Differences between schools explain one fifth of the variation in children's reading scores

Inequalities between children arise not only from differences in their family background, but also from differences between the schools they attend. A child could flourish in one school but languish in another. Schools differ, even within the same education system. These differences can be caused by the way a school selects students. For example, some select on the basis of academic ability or religious affiliation, some charge fees. The location of a school and the characteristics of the surrounding community can also create differences.

We looked at the total amount of variation in children's reading scores in each country and broke it down into two parts: the part due to differences between schools and the part due to differences between children attending the same school.

Figure 13 shows the share of the total variation in children's reading scores due to differences between schools. These differences account for 19 per cent of the total variation in children's reading achievement on average, across 31 school systems. This ranges from just 4 per cent in Slovenia to 39 per cent in Bulgaria. In another seven countries, schools account for at least 25 per cent of the variation in reading achievement: Chile, Germany, Hungary, Israel, Lithuania, New Zealand and Slovakia.

**Figure 13: Schools influence reading scores**  
Share of variation in reading scores at Grade 4 explained by school differences (2016)



Note: The length of each bar denotes the share of school-level variance obtained from a multilevel model.  
Source: PIRLS 2016.



## Box 6 Online tests and the gender gap

Online reading is not simply a transposition of traditional reading to the screen. It involves skills that are qualitatively different from those used offline: the use of search engines, hyperlinks, interactive ads or more evaluation of information reliability. These differences present both risks and opportunities for student achievement and well-being. The interactive nature of the digital environment means that children are exposed to more distractions. On a positive note, online tests are believed to lead to increased student engagement,<sup>10</sup> lower anxiety<sup>11</sup> and more focus on applied knowledge. Students enjoy them.<sup>12</sup> Since students learn more when they are engaged,<sup>13</sup> these positive characteristics might present an opportunity to improve the achievement of groups that have traditionally fallen behind in reading, such as boys.

The TIMSS & PIRLS International Study Center prepared ePIRLS, an online reading test with assignments in science and social studies, to see how students perform in an interactive environment. The test presents pupils with lessons on webpages with animations, graphics, tabs, ads, a guiding avatar and pop-up windows that imitate the Internet environment. It assesses pupils' understanding of the lessons. In 10 EU or OECD countries, the same Grade 4 students sat the paper test one day and took the computer-based test the next day. The two tests are designed to be directly comparable, and so we can see how the testing method affected the scores.

Girls perform better than boys in reading in every country, regardless of the testing method. However, the average gender gap shrank from 13 to 9 points in ePIRLS, while the average score increased.

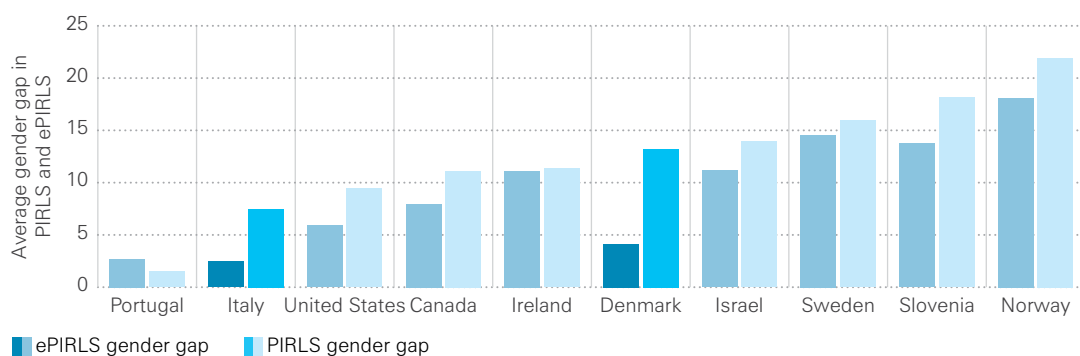
*Figure 14* presents the difference between online and paper reading.

In Denmark, Israel, Norway, Sweden and the US, both boys and girls do better in online tests than paper tests. In Ireland, boys perform better online, while girls' performance does not differ between tests.

No country has both worse performance and wider gender gaps when using online testing. In most countries, there is no trade-off between performance and gender equality. Three countries do better in both dimensions, while another three do better in least one of the dimensions and no worse in the other.

Gender gaps in Denmark and Italy are not statistically significant in online tests, which means we cannot say that in these countries girls perform better than boys in online reading. This suggests that not only the size but the very existence of gender gaps might be influenced by the testing method. It is unclear whether greater engagement by boys leads to better results in the online tests. The influence of interactive environments on reading scores requires further research.

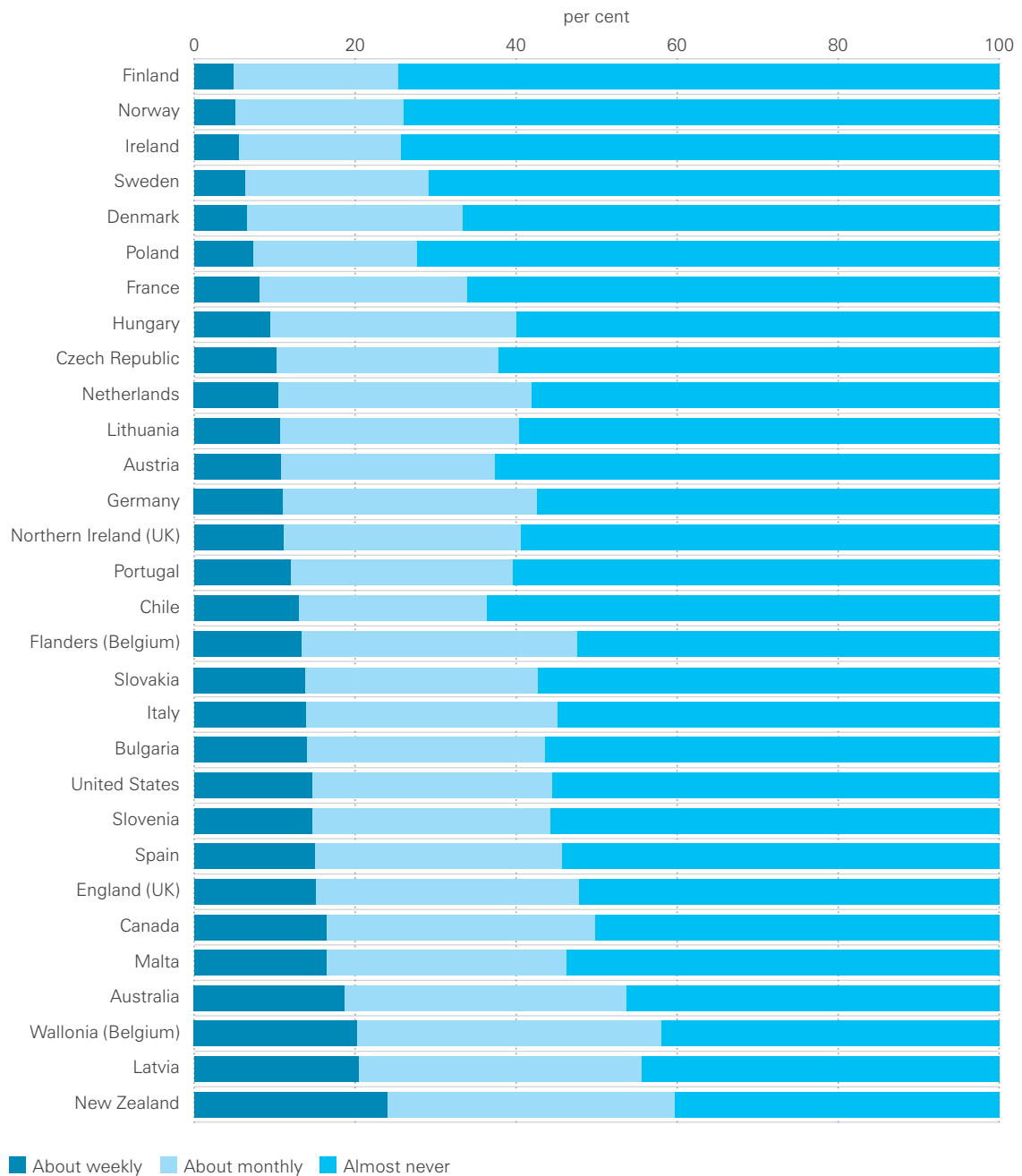
**Figure 14: The gender gap in reading scores was smaller in online tests**



**Note:** The darker shading within pairs indicates statistically significant differences in gender gaps between the online and paper tests.  
**Source:** ePIRLS and PIRLS 2016.

## Box 7 Bullying at school

**Figure 15: Percentage of Grade 4 children reporting bullying**



**Note:** No data for Israel.

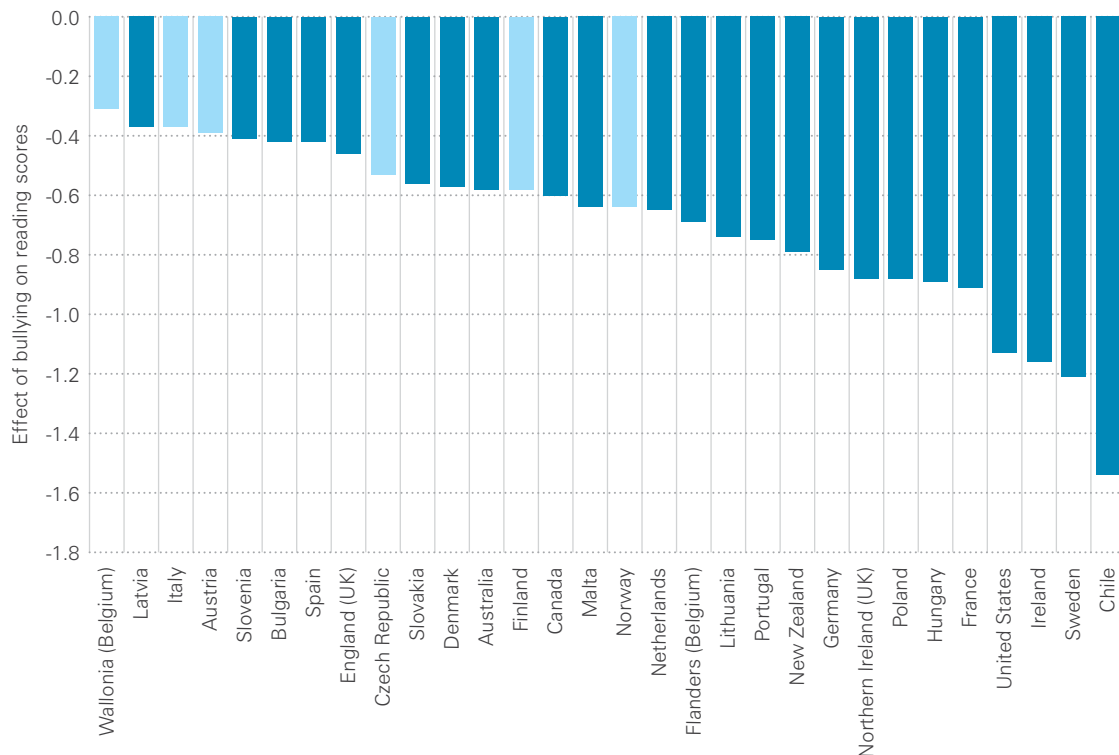
Based on the question "During this year, how often have other students from your school done any of the following things to you (including through texting or the Internet): 'made fun of me or called me names', 'left me out of their games or activities', 'spread lies about me', 'stole something from me', 'hit or hurt me', 'made me do things I didn't want to do', 'shared embarrassing information about me', 'threatened me'?"

Source: PIRLS 2016.

Bullying is one of the most common forms of violence experienced by children. It can cause long-lasting harm to victims, bystanders and the bullies themselves. It takes different forms, both physical and psychological, and happens face to face, through text messaging and over the Internet. *Figure 15* shows that about one child in four in Finland, Ireland and Norway say they experience bullying at least once a month. That ratio rises to one child in two in Australia, Latvia, New Zealand and Wallonia (Belgium). The survey covers Grade 4 children across the 30 school systems for which comparable data are available.

A school environment that allows bullying to thrive harms everyone, not just the victims. Grade 4 children who are bullied tend to score worse in reading literacy. Their schoolmates are also affected. The school-level prevalence of frequent bullying is associated with significantly lower individual reading achievement in all but 6 of the 30 school systems in the comparison (see *Figure 16*). This is after controlling for a range of other important individual and school-level characteristics influencing reading achievement. The association between school-level bullying and student reading scores is strongest in Chile and weakest in Wallonia (Belgium).

**Figure 16: The relationship between school-level bullying and reading scores**

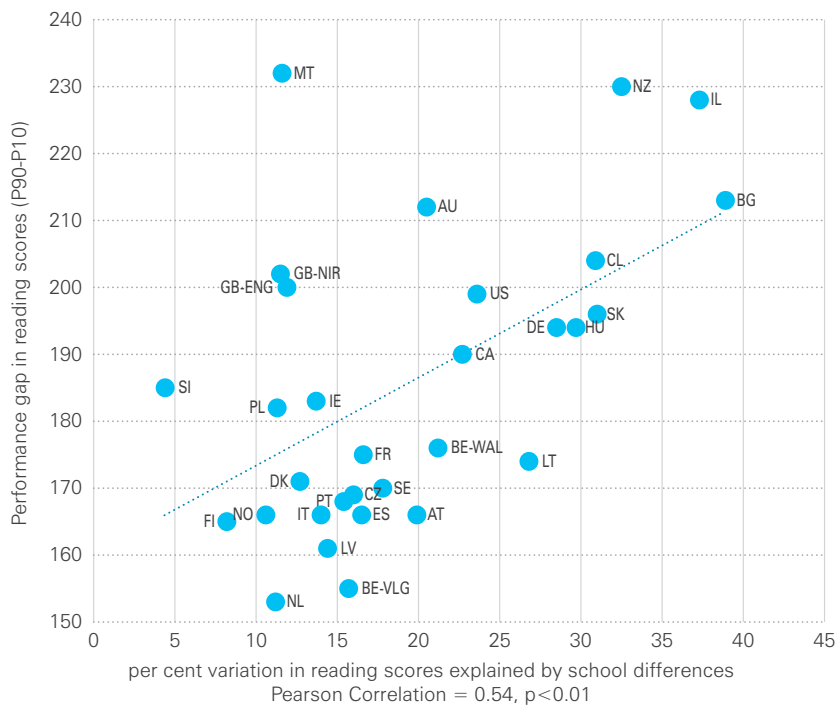


**Note:** The bars represent the statistical effect on reading achievement of a 1 percentage point higher school-level share of students reporting being bullied weekly, controlling for the child's gender, the language of testing and the language the child speaks at home, the location of the school, whether the child comes to school hungry or tired, or has breakfast on school days, the child's age, and principal-reported school composition by student socio-economic status.

School systems with statistically significant effects (at  $p < 0.05$ ) are shown with darker shading.

**Source:** PIRLS 2016.

**Figure 17: Unequal school systems produce unequal reading outcomes**  
 Performance gap in children’s reading scores at Grade 4 is larger where the share of school-level variance is greater



Note: Between-school inequality is obtained from an empty multilevel model.  
 Source: PIRLS 2016.

Figure 17 shows that the countries with higher inequality between schools tend to have larger gaps between the lowest- and highest-scoring students.

More than one factor accounts for the significant differences in the reading skills of children in Grade 4. Up to one third of those differences can be explained by parental occupation, with the children of non-professionals doing much worse than children of at least one parent in a professional job. A child’s family background matters, both because of what happens within the family and because children from similar families often attend the same school. We find large inequalities between schools in average student performance. When there are smaller differences between schools in an education system, there tend to be smaller differences between the reading scores of children in that system.

## SECTION 5

# SECONDARY SCHOOL

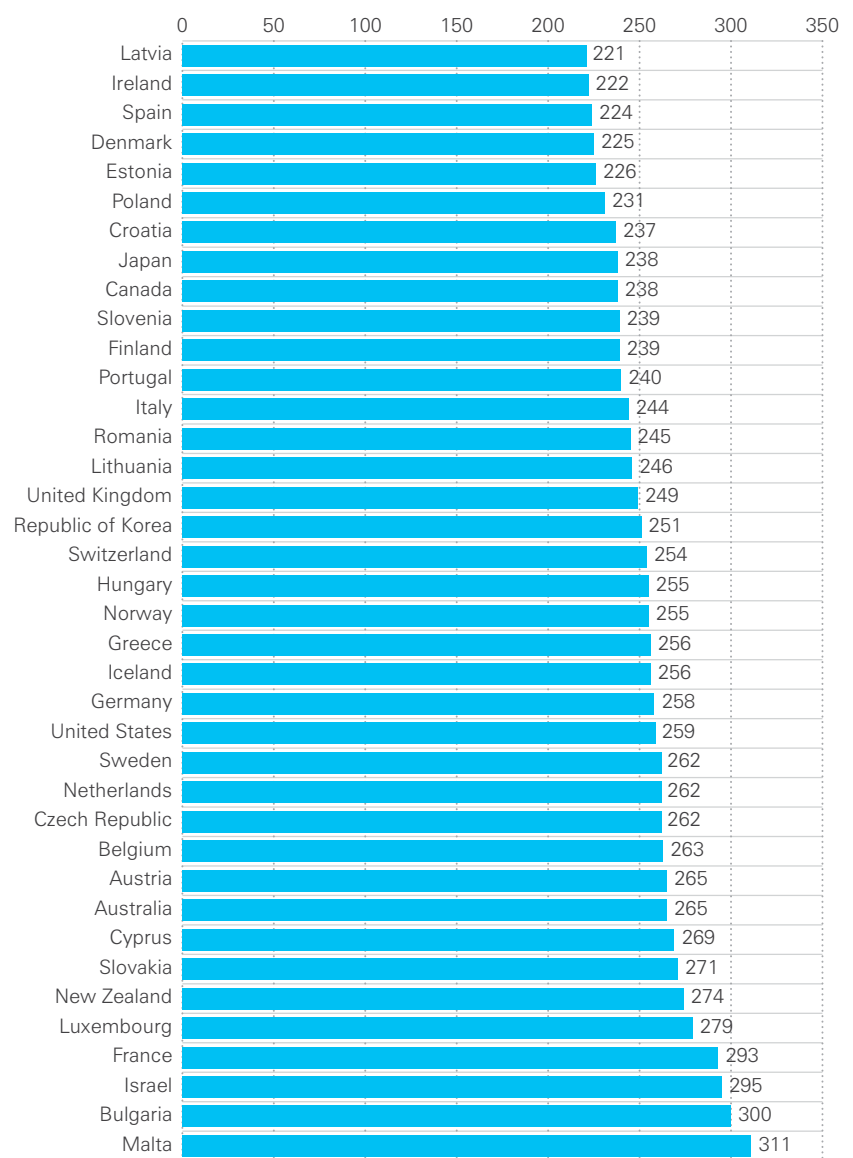
The end of compulsory schooling is an important stage in a child's journey through the education system. By the age of 15, which is when this stage of education ends in some countries, children should have acquired essential knowledge and the skills that will help them make their way in the world.

We address the same issues at the secondary school level as we did at the primary school level. We look at overall levels of inequality in reading performance. We consider inequalities in performance between individual children related to their characteristics and family backgrounds. Finally, we discuss inequalities between schools. The data come from the 2015 Programme for International Student Assessment (PISA), a study done by the OECD that tests large and nationally representative samples of 15-year-olds in all OECD and EU countries.

### All countries have large gaps between their best- and worst-performing students

Figure 18 shows the gap in each country between the best and worst performers. This approach is similar to that used in Figure 8 for children in primary school. The gap for older children ranges from 221 points in Latvia to 311 points in Malta. Even the smallest gaps show substantial inequality, with the lowest-scoring students falling far behind their peers.

**Figure 18: Where are the largest gaps in reading?**  
Performance gap in reading at age 15 (2015)



**Note:** The reading achievement scale has a mean of 500 and a standard deviation of 100 based on a reference group of countries. The performance gap is measured as the absolute difference between the 90th and the 10th percentiles of the reading score. Chile, Mexico and Turkey are not included in the rankings due to low coverage rates (below 80 per cent) in PISA, which means that their results may not be representative (OECD, PISA 2015 Results, Vol. II: Policies and Practices for Successful Schools, OECD Publishing, Paris, 2016, Table A2.1, Coverage Index 3).

**Source:** PISA 2015.

## Box 8 How do inequalities differ for reading and maths?

This report focuses on children’s reading scores because proficiency in reading is a necessary skill for studying many other subjects at school. Would the picture have been any different if we had focused on mathematics? The PISA study we used for reading also tests children in mathematics and science. If we compare the results for reading and for mathematics we see that they tell much the same story in most countries (see Figure 19). But in some countries, there are differences.

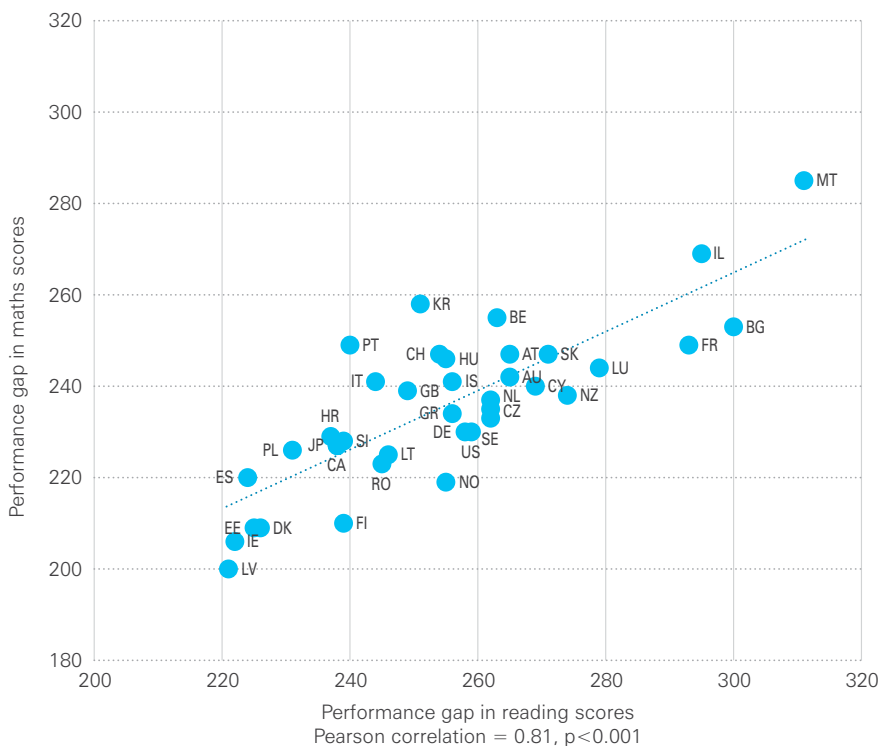
- Countries that are above the dotted line in the chart, such as Korea and Portugal, have relatively higher inequality in mathematics than reading.

- Countries that are below the dotted line, such as Finland, Latvia and Norway – have higher inequality in reading than mathematics.

There are also gender differences in inequalities in maths and reading. Girls do better than boys at reading in all countries (see Figure 22). However, in maths there is a much more mixed picture. Boys do significantly better in some countries. In others, there is no clear difference.

The relationship between parental occupation and maths is similar to the relationship between parental occupation and reading.

**Figure 19: Overall inequalities in reading and maths (at age 15)**



**Note:** The chart shows the gaps between children at the 10th and the 90th percentiles in mathematics and reading.  
**Source:** PISA 2015.

A country's rank for educational inequalities can change between the primary school and the secondary school surveys. Some countries have similar rankings in both. Finland, Italy, Latvia, Portugal and Spain are in the top third (most equal) systems in both surveys. Australia, Bulgaria, Israel, Malta, New Zealand and Slovakia are in the bottom third (most unequal) in both. Canada, Denmark, Ireland, Poland and Slovenia move from the middle third at primary school level to the top third at secondary school level. Some countries fall considerably from one ranking to the next. The Netherlands is ranked the most equal country for students in Grade 4, where the average age is 10 years, but is in the bottom third when children are 15 years old. Austria, Belgium and the Czech Republic also move from the top third to the bottom third (see Figure 2).

National averages can hide large differences between sub-national regions. PISA data are available for sub-national regions in four countries. In Belgium, there is not much difference between the gap observed within the Flemish-speaking community (a gap of 266 score points) and the gap within the French-speaking community (255 points). There are more substantial variations between the four constituent parts of the UK. Inequality is lowest in Wales (219) and Northern Ireland (220), higher in Scotland (235) and highest in England (254). In Spain, 17 different regions are identified in the PISA survey. The smallest gaps within regions are in Castile and León (212), Navarre (217) and the Valencian Community (218). The largest are in the Canary Islands (238) and Andalusia (239). In the 10 provinces in Canada, the lowest level of inequality within a province is in

Prince Edward Island (218) followed by Saskatchewan (222). The highest is in Ontario (244).

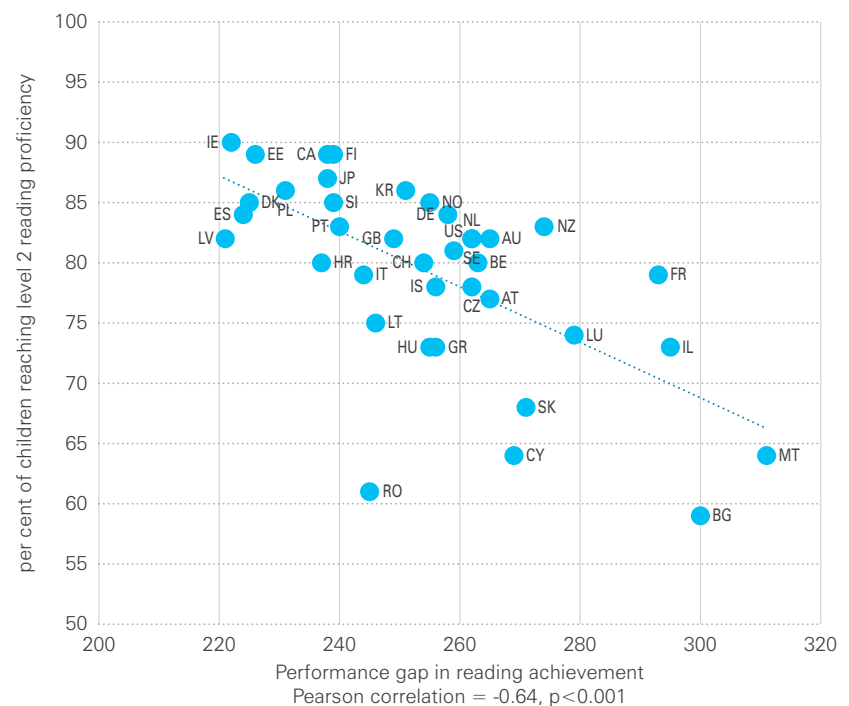
### Countries with greater equality of achievement tend to have better basic reading proficiency

Countries with wide gaps between their best- and worst-performing students tend to have fewer children reaching basic proficiency. We found the same relationship between overall inequality and reading proficiency for children in primary school. The PISA study for 15-year-olds has a different definition of reading proficiency than the PIRLS study for Grade 4 students (see previous section). PISA sets the baseline for proficiency at Level 2. Students at this level "begin to demonstrate the reading skills that

will enable them to participate effectively and productively in life".

Figure 20 shows the percentage of children in each country who reach this level of proficiency and the performance gap in reading scores discussed above. Latvia performs best on equality, while Ireland performs best on proficiency in reading at age 15. Bulgaria and Malta are at or near the bottom of the rankings for both. Most other countries range close to a line between these two extremes, with similar patterns for both measures. Romania stands out for having a much lower percentage of children reaching basic proficiency than would be expected, given its levels of inequality.

**Figure 20: More equal systems tend to have higher standards**  
Percentage of students achieving basic reading proficiency at age 15 is higher where the performance gap in reading achievement is lower (2015)



Note: Chile, Mexico and Turkey are not shown in this analysis (see Figure 18).  
Source: PISA 2015.

## Box 9 The impact of a parent’s vocabulary on a child in the UK

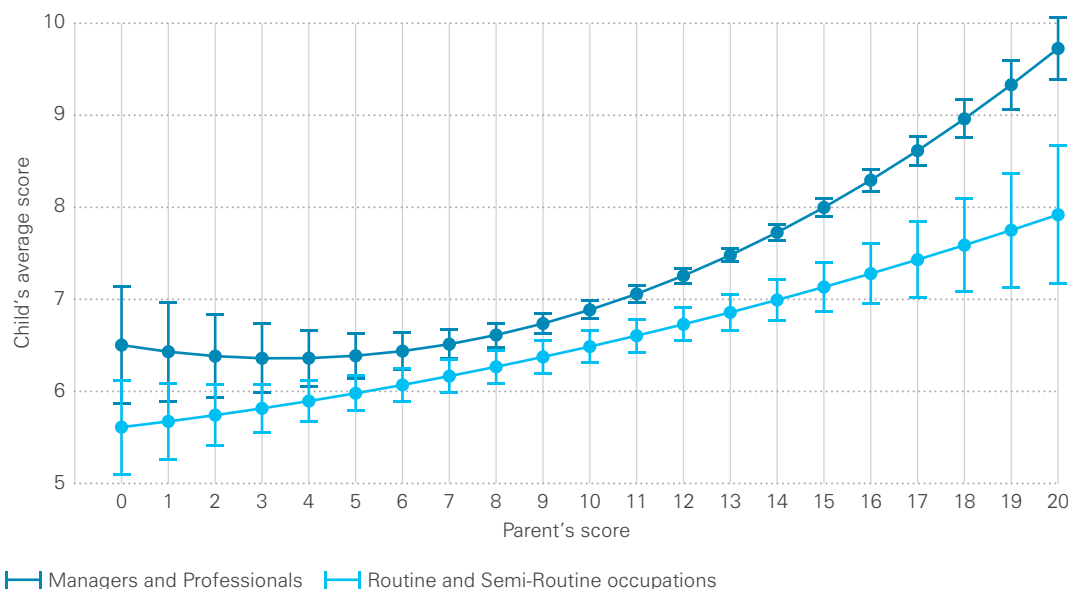
A good command of language is a prerequisite for reading. Children from wealthier families tend to score higher in assessments of verbal ability from an early age.<sup>14</sup> Evidence from the UK Millennium Cohort Study (MCS) suggests that differences in parental vocabulary account for some of this variation. Children and their resident parents completed a standardized vocabulary test measuring their understanding of 20 different words. The word lists were different for the 14-year-olds and their parents. One of the more difficult words on the children’s list was ‘indifferent’. Only 10 per cent of children selected the right answer (i.e. ‘uninterested’). Nearly half of those who got it wrong thought it meant ‘similar’.

Figure 21 plots the average number of words out of 20 that children identified correctly (vertical axis) against the number of correct words answered by the parent who acted as the main respondent in the survey (horizontal axis). These were predominantly mothers. The results are presented separately for children whose parents work in different occupations.

Children got seven words correct, on average. The children of managers and professionals chose 1.3 more words correctly on average than children whose parents work in routine and semi-routine occupations, such as cleaners or labourers. Parental occupation makes no difference to children’s scores if their parents scored below average in their own vocabulary test. However, social class makes progressively more of a difference for children whose parents score above average, with the social-class gap reaching 1.8 words.

Having a parent with a poor vocabulary puts children at a disadvantage, regardless of the family’s overall social background. Children from poorer social backgrounds would need their parents to have a progressively richer vocabulary to bridge the social-class gap. This only works up to a point because children whose parents work in professional and managerial occupations and have a very rich vocabulary (scoring at least 17 words out of 20) have the highest scores of all.

**Figure 21: Adolescent word gap and parental vocabulary**



**Note:** The analysis accounted for the weights and survey design. Parental occupation is based on the highest occupational category of the parent(s). Average children’s score: 7 out of 20; parental score: 11 out of 20. N = 10,014. Bars represent 95 per cent confidence intervals.  
**Source:** UK Millennium Cohort Study 2015 (6th sweep).



Greater equality of achievement is linked to having more children achieve a basic level of reading proficiency. There is no evidence that greater equality undermines educational standards. This is an important message for policy makers who fear that efforts to create a more equal system will push the top students down, rather than pull the bottom students up.

### Inequalities in reading between girls and boys are higher in secondary school

Educational researchers have long been interested in the differences in performance between girls and boys. There is evidence in some countries that gender gaps emerge in the early years<sup>15</sup> and persist across different stages in education.<sup>16</sup> These gender disparities can be in opposite directions for different subjects, for example, girls may do better at reading and boys at mathematics. Various reasons have been proposed for these gaps, including the internalization of gender roles and norms by children as they grow up, attitudes to gender, and the balance of female and male teachers.<sup>17</sup>

*Figure 22* shows the extent to which girls did better than boys in reading tests in the 28 countries that took part in both PIRLS 2016 and PISA 2015. The gap is expressed as a percentage based on the difference between the two scores divided by the boys' score. For example, if the mean score for girls was 550 and the mean score for boys was 500, then girls would be doing 10 per cent better than boys.

**Figure 22: Girls outperform boys in reading**  
The percentage by which girls score higher than boys in reading at Grade 4 and at age 15

| Country        | Grade 4 (PIRLS) | 15 years old (PISA) |
|----------------|-----------------|---------------------|
| Portugal       | ns              | 3.40%               |
| Austria        | 1.10%           | 4.30%               |
| Italy          | 1.40%           | 3.40%               |
| United States  | 1.50%           | 4.10%               |
| France         | 1.50%           | 6.00%               |
| Spain          | 1.60%           | 4.20%               |
| Slovakia       | 1.70%           | 8.20%               |
| Czech Republic | 1.90%           | 5.50%               |
| Netherlands    | 1.90%           | 4.80%               |
| Belgium        | 2.10%           | 3.30%               |
| Ireland        | 2.10%           | 2.30%               |
| Germany        | 2.10%           | 4.20%               |
| Canada         | 2.20%           | 5.10%               |
| Hungary        | 2.30%           | 5.40%               |
| Denmark        | 2.40%           | 4.50%               |
| Israel         | 2.50%           | 4.90%               |
| United Kingdom | 2.70%           | 4.50%               |
| Sweden         | 2.80%           | 8.20%               |
| Bulgaria       | 2.90%           | 11.50%              |
| Latvia         | 3.10%           | 9.00%               |
| Poland         | 3.20%           | 6.00%               |
| Slovenia       | 3.50%           | 8.90%               |
| Lithuania      | 3.80%           | 8.60%               |
| Norway         | 3.90%           | 8.10%               |
| Finland        | 3.90%           | 9.20%               |
| Australia      | 4.00%           | 6.50%               |
| New Zealand    | 4.20%           | 6.50%               |
| Malta          | 4.70%           | 9.90%               |

**Note:** The figure shows the percentage by which girls score higher than boys in reading in each country and stage, calculated as  $100 \times (\text{Girls' mean} - \text{Boys' mean}) / \text{Boys' mean}$ . All differences were statistically significant ( $p < 0.05$ ) except in Portugal at Grade 4. The shading shows the countries in the lowest (light blue), middle (medium blue) and highest (dark blue) third of the rankings among the 28 countries that took part in both surveys.

**Source:** PIRLS 2016 and PISA 2015.

- In all countries in both surveys, girls had higher mean reading scores than boys. In every case except Portugal, at Grade 4 (when the average age is 10) the gender gap was statistically significant. Girls also had significantly higher scores than boys in the other 11 countries that took part in PISA but not in PIRLS.
- The gender gap in reading was larger at age 15 than at Grade 4 in all countries. The two surveys test different reading skills, and so are not directly comparable; but it appears that the gap tends to widen as children get older.
- The shading shows the rankings of countries in three groups – low, medium and high gender gaps. Many countries are in the same group in both surveys. Eight of the ten most unequal countries at Grade 4 were also among the most unequal at age 15. There were, however, substantial changes in rankings in a few countries. Bulgaria, Slovakia and Sweden are all ranked as much more unequal at age 15 than at Grade 4.

To what extent are these gender differences unique to reading? PISA has also published findings on recent gender gaps in mathematics and science at age 15.<sup>18</sup>

- For mathematics, boys in most countries tended to score higher than girls. However, these differences were significant in only just over half of the countries covered in this report.
- For science, there is a more mixed picture. In some countries, boys do better than girls; in other countries, girls do better than boys. On average across countries there

is only a small gender gap of a few score points in favour of boys.

Gender differences vary across countries and subjects. However, the persistent gender gaps in reading at both educational stages are important because reading is a fundamental gateway skill for achievement in many other academic subjects. Furthermore, as discussed in *Box 11*, in most rich countries covered in this report girls tend to have higher expectations than boys of gaining a university degree. Educational statistics show a greater participation in higher education among girls than boys in most OECD countries.<sup>19</sup> The data suggest that boys are entering post-secondary education on an unequal footing with girls when it comes to reading.

### Gaps in reading scores in secondary school are still linked to parental occupation

The PISA study asks children what their parents do for a living and places their answers on a scale. Lower scores on this scale represent jobs like manual work. Higher scores relate to jobs like managerial work. In *Figure 23* we have divided children in each country into two halves, based on whether their parents had high-status or low-status occupations.

In all countries, children whose parents had high-status occupations tended to have significantly higher reading scores. The differences were much larger in some countries than in others. The average gap was less than 30 points in Iceland and Japan, but over 70 points in Bulgaria, Hungary and Luxembourg.

These patterns match the findings in previous sections. They reflect ongoing educational inequalities linked to family background as children near the end of compulsory schooling. *Box 9* shows that socio-

economic status and parents' own skills reinforce each other in influencing children's verbal scores.

### There are large inequalities in achievement between schools

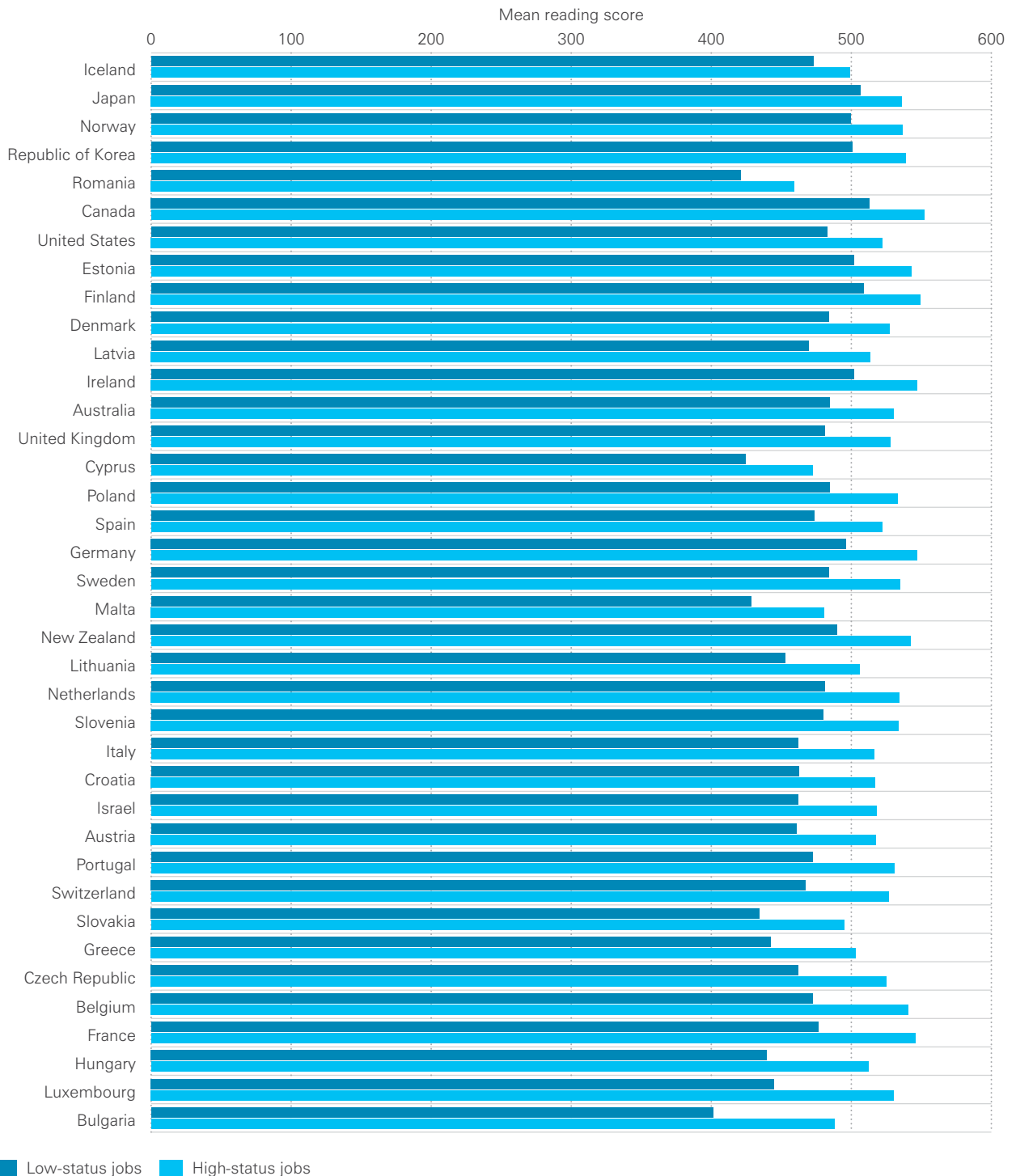
Children's educational opportunities can be substantially influenced by which school they attend. There are often large differences in average achievement between schools within the same country. Analysing these differences helps us understand the nature of educational inequalities and what might be done to reduce them.

We looked first at how much of the total variation in children's reading scores at the age of 15 in each country was between schools, rather than between children within schools. This is similar to the approach we used in the section on primary schools. The length of the bar in *Figure 25* shows the total variation between schools.

In Iceland, about 95 per cent of the inequality in reading scores is between children within schools, and only a small amount is between schools. In Bulgaria, Hungary and the Netherlands, there is more inequality between schools than within schools. In most other countries, at least one fifth of the variation is between schools.

Bulgaria and Hungary already had relatively high variation between schools at the primary level (see *Figure 13*). However, the Netherlands had relatively low variation of this kind at primary school, but has the most variation when children are 15 years old. Italy also has much greater variation between schools at the secondary level than at the primary level. New Zealand and the US had less between-school variation at secondary school than at primary school.

**Figure 23: Children of parents with high-status jobs have higher reading scores**  
Children's reading scores at age 15, by parental occupation (2015)



**Note:** The chart shows the mean scores for children whose parents were in the top and bottom half of the occupation classification in each country. The differences in means were statistically significant in all countries. The chart is ranked in order of the size of the gap, from smallest to largest.

**Source:** PISA 2015.

## Box 10 How migration affects reading ability

Children who move to a new country face challenges that directly or indirectly affect their educational progress. These can include getting used to a different way of life, making new friends, learning a new language and adapting to a new education system. Their family's economic circumstances may have been affected by the move. They could have experienced trauma before or during their journey. They could have faced prejudice and negative reactions on arrival in their new country. The children of immigrants also face some of these challenges.

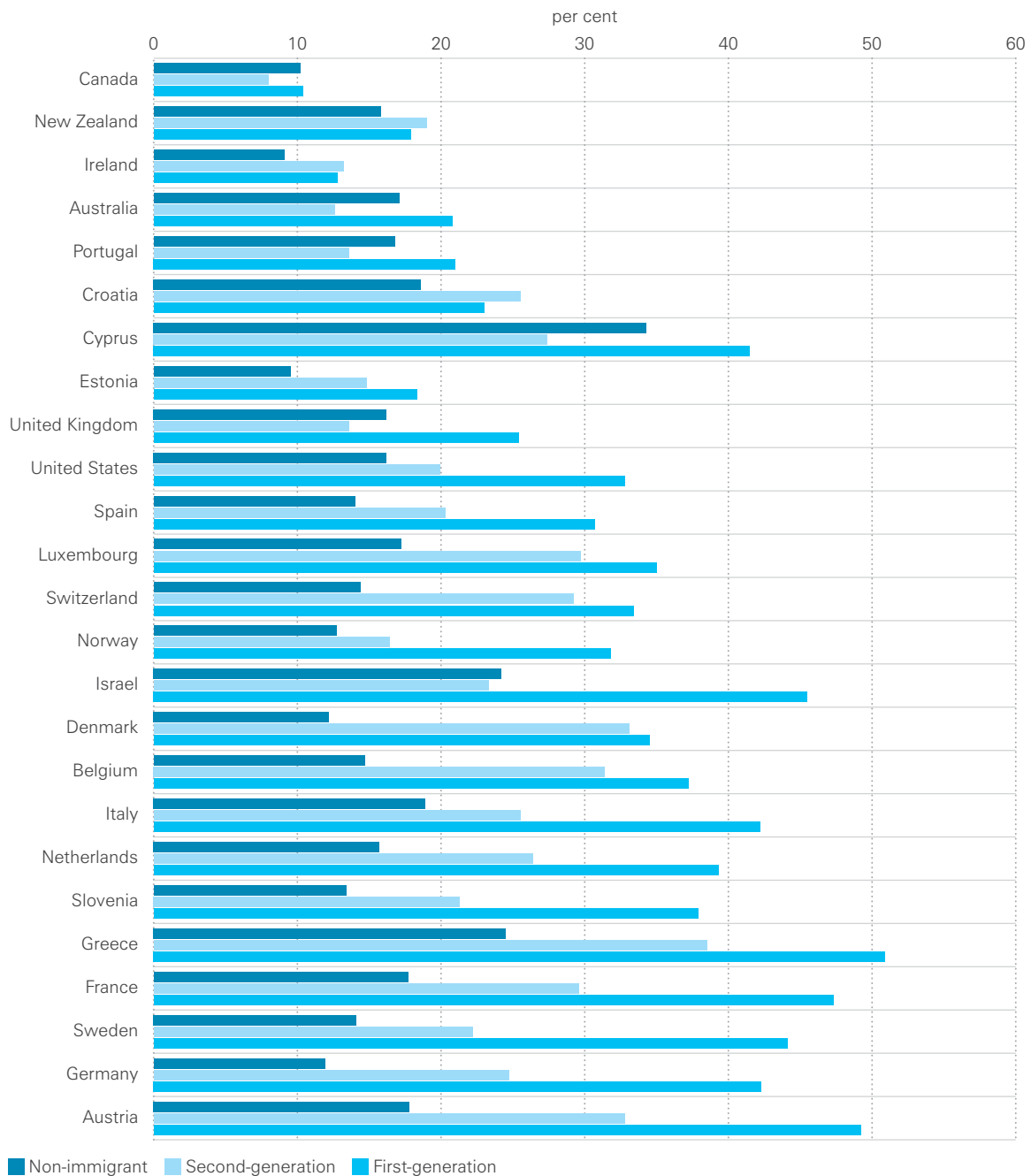
So how do child immigrants or the children of immigrants fare educationally in rich countries? We answer this question using the PISA data for 15-year-olds in 25 countries where at least 5 per cent of children are immigrant students. We use the three OECD categories to define immigration status:<sup>20</sup>

1. Non-immigrant students are children who have at least one parent who was born in the country, irrespective of whether the child was born there.
2. First-generation immigrant students are foreign-born children whose parents are also both foreign born.
3. Second-generation immigrant students are children who were born in the country and whose parents are both foreign born.

In most countries, first-generation immigrant children have significantly lower reading scores than non-immigrant children. That said, the difference between these groups is statistically significant in Australia, Canada, Estonia and New Zealand. Second-generation immigrant children had significantly lower reading scores than non-immigrant children in 15 countries. However, in Australia and Canada, they did better than their non-immigrant peers. *Figure 24* shows the percentage of children in each country who had not reached a basic level of reading proficiency in the test language at age 15.

These results may reflect different historical patterns of migration. For example, the OECD identifies Australia, Canada and New Zealand as 'settlement countries', where immigration is part of the heritage of the country, immigrants are often highly educated and may share English as a first language. Austria, Belgium, France and Germany are 'long-standing destination countries with many settled, low-educated migrants'. Greece, Italy and Spain have experienced substantial levels of immigration in recent years. This type of educational inequality cannot be tackled without a thorough understanding of these historical migration patterns.

**Figure 24: Percentage of 15-year-olds by migrant status, who have not reached Level 2 proficiency in reading**



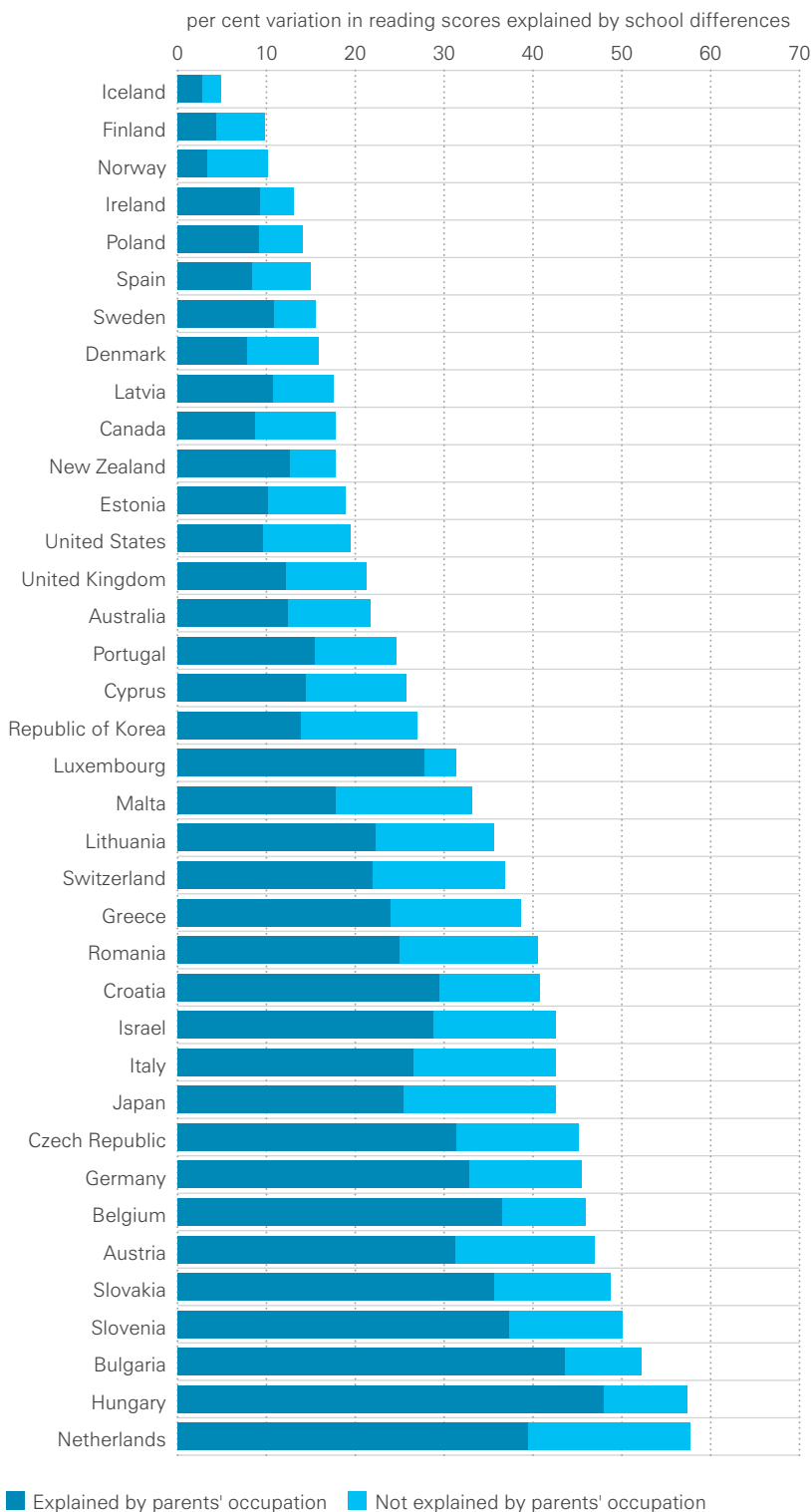
**Note:** The chart shows percentages for each group in all countries where at least 5 per cent of children were not born in the country. Countries are ranked on absolute gaps between non-immigrant and first-generation immigrants. Differences between non-immigrant children and first-generation migrant children were statistically significant in all countries except Australia, Canada, Estonia and New Zealand.  
**Source:** PISA 2015.

### Variations between schools are linked to the backgrounds of children in the school

There are many possible explanations for the existence of these substantial variations in average reading scores between schools. They include the school's location: Is the area urban or rural? Are residents mostly rich or poor? They also include the type of school: Is it public or private? Does it select students? Schools also vary in the resources available to them. There is evidence in the PISA survey of links between all these factors and average reading scores.<sup>21</sup>

Another important part of the picture is the family background of students within each school. This explains a substantial proportion of the variation in achievement between schools, which is shown by the darker part of the bar in *Figure 25*.

**Figure 25: Most countries have significant differences between schools**  
Share of variation in reading scores at age 15 explained by school differences (2015)



**Note:** The total length of each bar represents the percentage of total variance in test scores occurring between schools obtained from an empty multi-level model. As noted in the initial report on the PISA 2015 survey "In some countries, sub-units within schools were sampled instead of schools, and this may affect the estimation of the between-school variance components" (OECD, PISA 2015 Results, Vol. I: Excellence and Equity in Education, OECD Publishing, Paris, 2016, p. 294). In France, the PISA test happens around the time when children move between two stages of schooling. This makes it difficult to interpret variations between schools, and so France is not included in this chart.

**Source:** PISA 2015.

Once differences linked to parental occupation are considered, other factors – such as school location, type and resources – are much less strongly linked to performance inequalities between schools. Just as in primary school, the composition of the secondary school population in terms of family background is an important aspect of understanding educational inequalities.

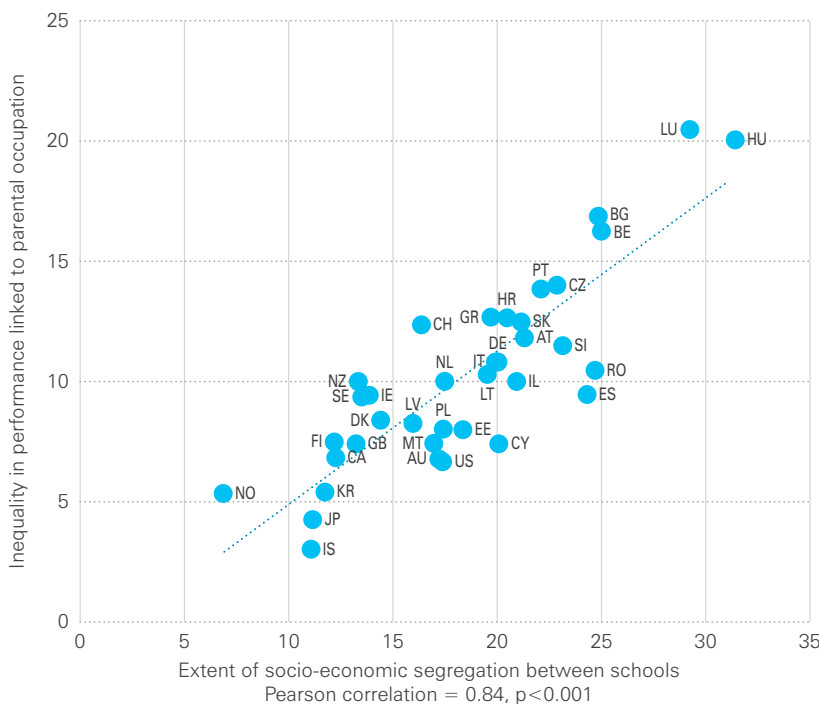
Social and economic differences among students are a feature of education systems in all countries. But they are much stronger in some countries than others. When children with the same social and economic position are clustered together in schools it is called socio-economic segregation.<sup>22</sup> Scandinavian countries tend to have low levels of this type of segregation, as do some East

Asian and English-speaking countries. The highest levels of this type of segregation are in Hungary and Luxembourg. Countries with greater socio-economic segregation between schools tend also to be ones that have greater inequality of achievement based on a parent's job (see Figure 26).

Socio-economic segregation has been recognized for some time as an important part of the picture of how educational inequalities due to family background develop and persist. A recent analysis suggests that levels of segregation within rich countries have changed little in recent decades.<sup>23</sup> The authors of that analysis point out that this type of segregation has persisted despite policy initiatives to reduce it. They conclude that policy makers need to be much more radical if they want to foster greater levels of integration between the rich and the poor.

This is a complex issue to tackle. There are many different factors that lead to socio-economic segregation of children between schools. Not all of them are directly related to the education system. In countries where there are large social and economic differences between geographic areas, residential segregation will occur naturally if children are assigned to their local school. Segregation can also be a consequence of education policy, which we discuss in the next section.

**Figure 26: Socio-economic inequalities in children's test scores are higher where there is more socio-economic segregation between schools**



**Note:** The vertical axis shows the R-squared from a regression of reading scores onto highest parental occupation. The horizontal axis shows the intra-class correlation coefficient from an empty multilevel model with parental occupation as the dependent variable. In France, the PISA test happens around the time when children move between two stages of schooling. This makes it difficult to interpret variations between schools, and so France is not included in this chart.

**Source:** PISA 2015.

## Box 11 Inequality and future expectations

Students in the rich countries of the world are on an unequal footing as they near the end of compulsory schooling. Parental occupation still predicts how well a child will read in secondary school. The segregation of students along social and economic lines contributes to the persistence of inequalities due to family background. Children whose parents work in lower-status occupations are less likely to say that they expect to complete tertiary education, even if they score as highly as their peers with high-status occupation parents (see *Box 11*).

The PISA study from which we drew our data has been compared to an X-ray of a country's education system: it does not give the full picture, but it highlights where things are going wrong. Fixing these problems is the job of education systems and policies, which we turn to next.

To what extent might the inequalities we have highlighted in this report be reflected in young people's participation in education as they move into adulthood?

The PISA study asked 15-year-olds what level of education they expected to complete. At 15, many children will have ideas not only about what they hope to do in the future, but also what they might realistically expect to do, given their circumstances and educational progress.

We focus here on children who expect to complete some form of tertiary education. This includes academically oriented education, such as a university degree, and practically oriented, post-secondary education. The percentage of children who said they expected to complete tertiary education ranged from less than 20 per cent in Germany and the Netherlands to just under 90 per cent in Korea. These variations in expectations between countries are rooted in a range of historical, cultural and economic differences. They may also reflect the structure of the different educational, vocational and occupational pathways open to young people in each country.

### **Socio-economic background affects expectations, regardless of achievement**

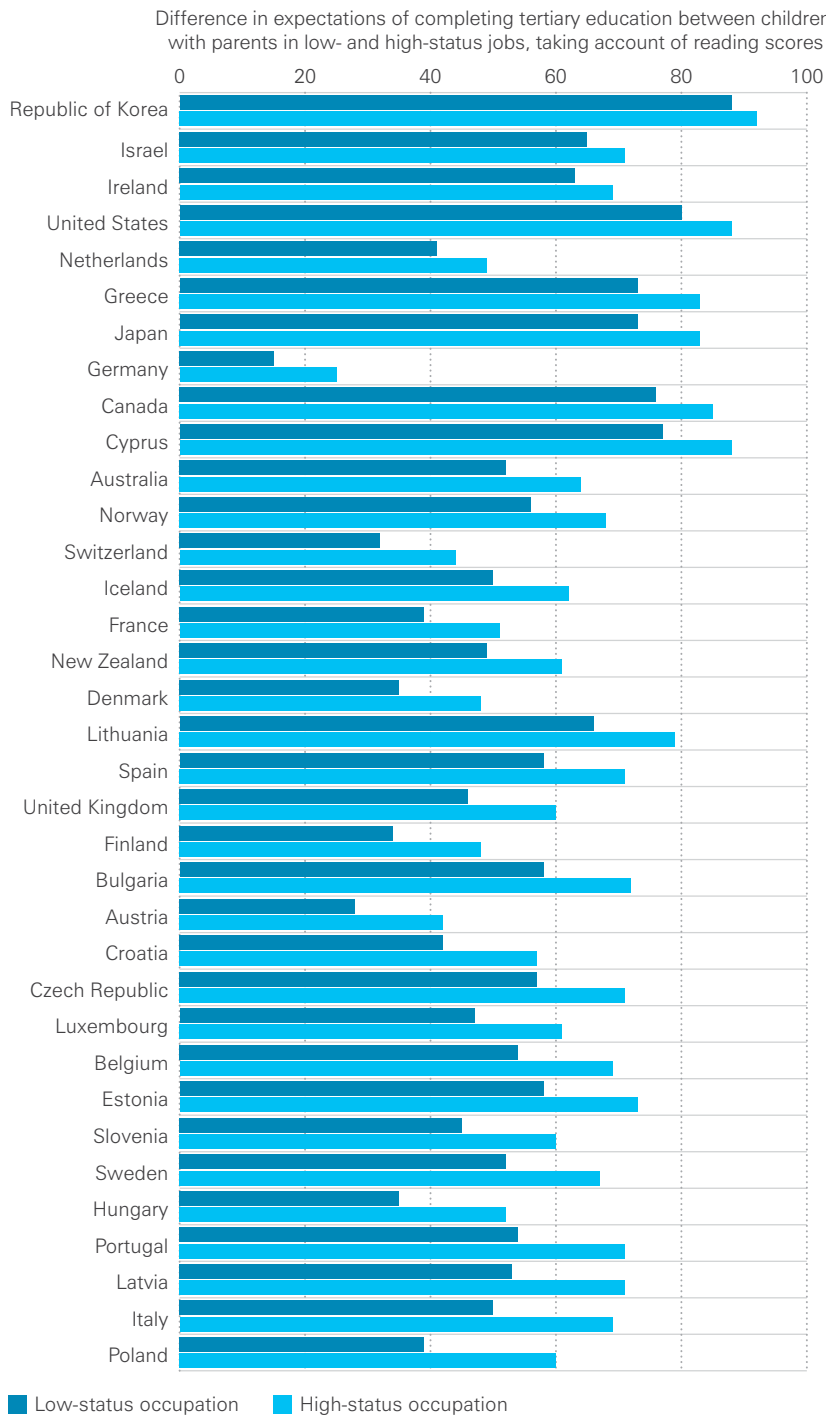
Children's expectations about completing some form of tertiary education are linked to their family circumstances. In every country, children whose parents work in high-status occupations were significantly more likely to expect to complete some form of tertiary education. To some extent this can be anticipated, because children from more privileged families tend to be doing better at school. But that is not the whole story. In all countries, there were significant differences by parental occupational status among children who were doing equally well at school. *Figure 27* shows the gap in expectations between those whose parents work in low- and in high-status occupations, adjusting for differences in reading scores between the two groups. This gap ranged from only around 4 per cent in the Republic of Korea to 20 per cent in Poland.

### **Girls and boys have unequal expectations in most countries**

In addition to differing expectations based on family background, expectations also differed by gender (not shown). In 29 of the 35 countries included in this analysis, females were significantly more likely than males to expect to complete tertiary education. The gender gap in expectations was largest (19 percentage points) in Bulgaria and Norway. There were six countries (Austria, France, Germany, Japan, the Netherlands and Switzerland) where the rates were similar for both genders.



**Figure 27: Expectation gap between children with the same reading scores by occupation status of their parents**



**Note:** The bars show the marginal expectations of completing tertiary education by the status of parental occupation (low vs. high) in each country, from a regression model controlling for reading scores. Countries are ranked in ascending order of the size of the difference between the two groups. The differences are significant in all countries. No valid data for Malta, Slovakia and Romania.  
Source: PISA 2015.

## SECTION 6

# EDUCATION SYSTEMS AND POLICIES

Education policies and practices can reduce or reinforce educational inequalities stemming from children's starting points and ongoing family circumstances. There is no one-size-fits-all policy guaranteed to produce the best results. Countries and regions differ in their social, cultural, economic and political make-up. What works for those at the top of our league table will not necessarily help those at the bottom to reduce educational inequalities.

*Figure 28* provides an overview of key characteristics of the school systems and illustrates the great diversity of educational experiences that children may have in different countries.

- Educational participation rates are generally high. However, in some countries the percentages indicate that a substantial number of 15-year-olds are no longer in school. Chile, Mexico and Turkey were not included in some of our rankings because the PISA study captured less than 80 per cent of 15-year-olds in these countries. There can be many reasons for this, including that these children had left school.
- The age at which children are first divided into different types of schools or programmes (sometimes called selection or tracking) varies from 10 years in Austria and Germany to 16 years in many others, including Australia, Estonia and the UK.
- Some countries have multiple types of schools or programmes, while some only have one. The Czech Republic has six. The Netherlands has seven. These may include pathways that are more vocationally oriented and others that are more academic. At some point a decision is made (by teachers and/or parents and/or children themselves) about which path a child will initially take. Often it is possible to switch tracks later.
- Some countries make extensive use of grouping children by ability within schools. This can take the form of putting children into different classes or into different groups within classes. This practice may apply to all subjects or to selected subjects. Over 90 per cent of schools in Ireland, Israel and the UK use these practices.
- In some countries, it is common for children to repeat at least one grade during their school career. This happens to over 30 per cent of children in Belgium, Luxembourg, Portugal and Spain. In other countries, such as Japan and Norway, this practice is very rare or does not happen at all.
- The balance of schools managed by public bodies and private bodies also varies widely. Latvia and Ireland are at the top of the league table of educational inequalities (see *Figure 2*) but are hugely different in this respect. In Ireland, 57 per cent of schools are managed privately, compared with 2 per cent in Latvia.

**Figure 28: Key characteristics of school systems that influence education equality**

|                   | Coverage rate (a) | First selection in the education system | Number of school types or programmes available to 15-year-olds | Within-school ability grouping (b) | Grade repetition (c) | Private school enrolment (d) |
|-------------------|-------------------|---|--|------------------------------------|----------------------|------------------------------|
| Country           | %                 | Student's age                           | N  | % of 15-year olds                  | %                    | %                            |
| Australia         | 90.6              | 16                                      | 1  | 88.1                               | 7.1                  | 43.7                         |
| Austria           | 83.4              | 10                                      | 4  | 16.4                               | 15.2                 | 12.6                         |
| Belgium           | 92.9              | 12                                      | 4  | 28.4                               | 34.0                 | N/A                          |
| Bulgaria          | 80.6              | 15 (e)                                  | 3  | 26.3                               | 4.8                  | 1.2                          |
| Canada            | 83.5              | 16                                      | 1  | 86.8                               | 5.7                  | 9.7                          |
| Chile             | 79.8              | 16                                      | 3  | 27.1                               | 24.6                 | 63.1                         |
| Croatia           | 90.8              | 14                                      | 1  | 22.9                               | 1.6                  | 2.3                          |
| Cyprus            | 94.9              | 15                                      | 2  | 27.0                               | 4.7                  | 16.0                         |
| Czech Republic    | 93.5              | 11                                      | 6  | 28.9                               | 4.8                  | 8.2                          |
| Denmark           | 89.0              | 16                                      | 1  | 25.2                               | 3.4                  | 23.2                         |
| Estonia           | 92.8              | 16                                      | 1  | 38.1                               | 4.0                  | 4.2                          |
| Finland           | 97.3              | 16                                      | 1  | 53.2                               | 3.0                  | 4.5                          |
| France            | 91.0              | 15                                      | 3  | 24.3                               | 22.1                 | 21.0                         |
| Germany           | 96.1              | 10                                      | 4  | 30.0                               | 18.1                 | 7.3                          |
| Greece            | 91.1              | 15                                      | 2  | 11.6                               | 5.0                  | 4.9                          |
| Hungary           | 89.6              | 11                                      | 3  | 35.1                               | 9.5                  | 18.0                         |
| Iceland           | 93.3              | 16                                      | 1  | 22.6                               | 1.1                  | 0.6                          |
| Ireland           | 96.5              | 15                                      | 4  | 95.9                               | 7.2                  | 57.3                         |
| Israel            | 93.7              | 15                                      | 2  | 97.8                               | 9.0                  | N/A                          |
| Italy             | 80.3              | 14                                      | 4  | 13.1                               | 15.1                 | 4.1                          |
| Japan             | 94.7              | 15                                      | 2  | 53.6                               | 0.0                  | 31.8                         |
| Latvia            | 88.8              | 16                                      | 5  | 18.7                               | 5.0                  | 2.0                          |
| Lithuania         | 90.2              | m                                       | 5  | 51.0                               | 2.5                  | 2.3                          |
| Luxembourg        | 87.6              | 13                                      | 4  | 71.8                               | 30.9                 | 15.6                         |
| Malta             | 97.7              | 15                                      | 3  | 75.5                               | 7.0                  | 41.8                         |
| Mexico            | 61.7              | 15                                      | 3  | 46.9                               | 15.8                 | 12.5                         |
| Netherlands       | 95.1              | 12                                      | 7  | 70.8                               | 20.1                 | 60.1                         |
| New Zealand       | 90.2              | 16                                      | 1  | 89.9                               | 4.9                  | 6.6                          |
| Norway            | 91.3              | 16                                      | 1  | 15.7                               | 0.0                  | 1.9                          |
| Poland            | 90.9              | 16                                      | 1  | 38.0                               | 5.3                  | 3.5                          |
| Portugal          | 87.6              | 15                                      | 3  | 11.6                               | 31.2                 | 5.5                          |
| Republic of Korea | 91.7              | 15                                      | 3  | 57.8                               | 4.7                  | 34.7                         |
| Romania           | N/A               | 16                                      | 2  | 46.2                               | 5.9                  | 1.1                          |
| Slovak Republic   | 89.2              | 11                                      | 5  | 34.6                               | 6.5                  | 11.6                         |
| Slovenia          | 92.8              | 14                                      | 3  | 34.7                               | 1.9                  | 2.6                          |
| Spain             | 90.9              | 16                                      | 1  | 40.3                               | 31.3                 | 31.3                         |
| Sweden            | 93.6              | 16                                      | 1  | 21.4                               | 4.0                  | 17.9                         |
| Switzerland       | 96.2              | 12                                      | 4  | 62.3                               | 20.0                 | 6.1                          |
| Turkey            | 69.9              | 11                                      | 3  | 30.5                               | 10.9                 | 4.8                          |
| United Kingdom    | 84.0              | 16                                      | 1  | 99.8                               | 2.8                  | 55.8                         |
| United States     | 83.5              | 16                                      | 1  | 82.6                               | 11.0                 | 7.7                          |

**Note:** (a) These figures are the coverage rate for participation in the PISA survey at 15 years old.

(b) Percentage of 15-year-olds enrolled in schools that practise ability grouping for some or all subjects.

(c) Percentage of students (self-reported) who repeated a grade at least once in primary or secondary school.

(d) Based on the OECD definition of private schools, "Schools that are directly or indirectly managed by a non-government organisation, such as a church, trade union, business, or other private institution".

(e) Starting age at some vocational schools is 14.

**Source:** Private school enrolment: OECD, PISA 2015 Results, Vol. II: Policies and Practices for Successful Schools OECD Publishing, Paris, 2016.

Enrolment of 15-year-olds and grade repetition: OECD, PISA 2015 Results, Vol. I: Excellence and Equity in Education, OECD Publishing, Paris, 2016.

Ability grouping: Results based on reports by school principals in PISA 2015 data collection (OECD).

First age at selection in the education system and number of education programmes: OECD, PISA 2012 Results: What makes schools successful? OECD Publishing, Paris, 2013, Table IV.2.5.

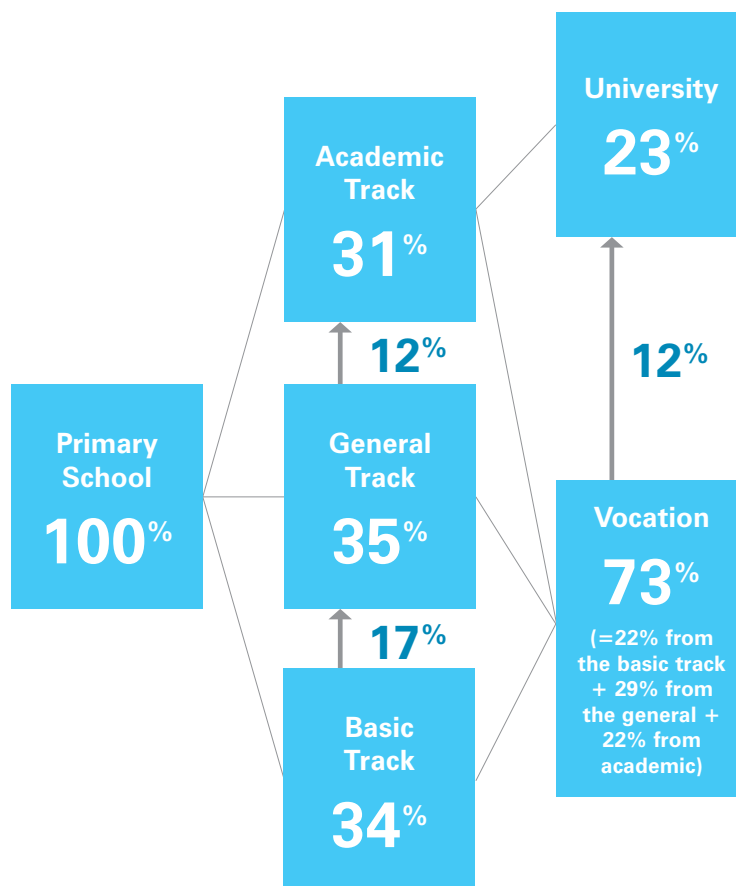
## Box 12 Sorting and inequality in Germany

Several key policies and practices have a bearing on inequalities both within and between schools in specific countries or contexts.<sup>24</sup> These include features highlighted in the table, such as grade repetition, streaming and tracking. Other policies relating to school choice and to school transfers and expulsions may reduce the diversity of children within schools, potentially increasing educational inequalities. Where children are sorted into different streams within schools or go to different schools based on their academic performance, children from less privileged families tend to be over-represented in the lower tracks, with fewer opportunities in the future. This is especially the case if sorting takes place at a very early age, when children have not yet managed to develop their potential (see Box 12).

It is tempting to use the above figure to try to identify features that are associated with greater educational equality. However, the fact that societies with such different approaches to school management as Latvia and Ireland can appear side by side at the top of the league table suggests that things are not simple (see Figure 2). Education policies within any country are drawn up and developed within that country's own economic, social and political context. It may be that individual policies and practices do not successfully transfer from one context to another. More analysis is needed at the country level, and more evidence is needed of what works and why before seemingly successful policies can be safely copied.

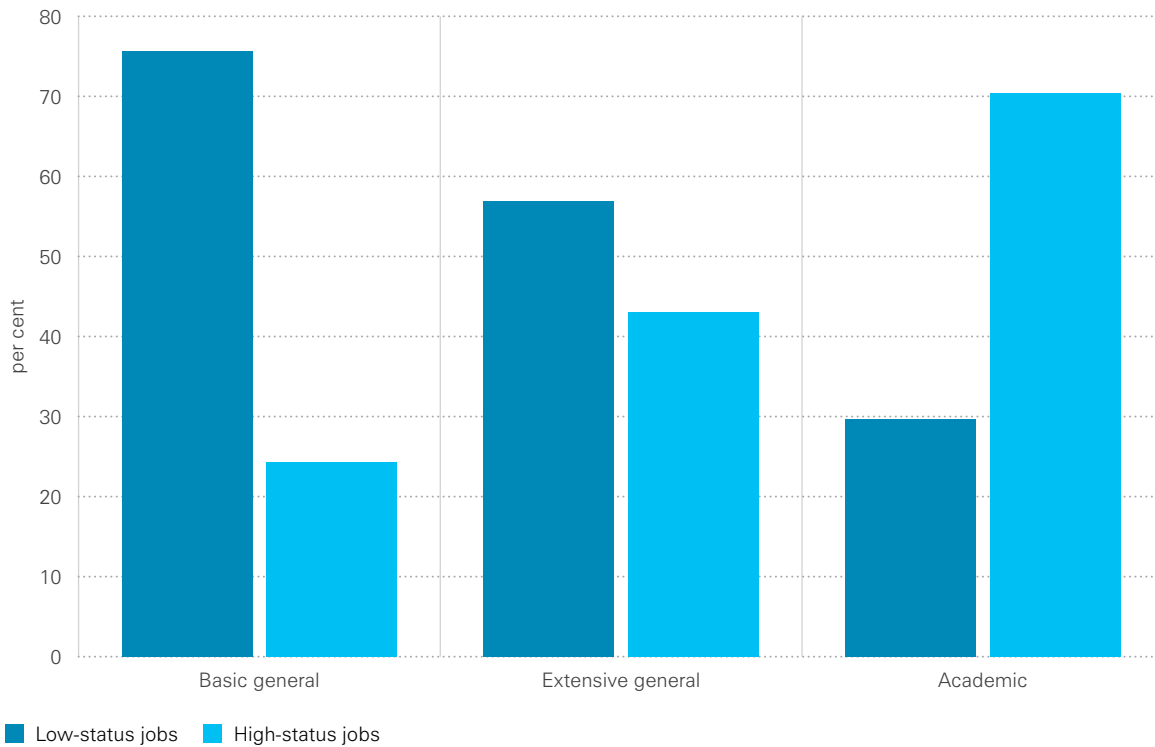
Austria and Germany start earlier than other rich countries to sort or track their students into different schools or programmes. This has an impact on what opportunities are available to students in the future. In Germany, after four years of primary school (Grundschule), most 10-year-olds are sorted by ability into one of three main tracks: academic, which leads to university-entry examination (Abitur), general and basic. The last two are more likely to lead to vocational training and, subsequently, to blue-collar jobs (see Figure 29). Some students are allowed to switch tracks.

**Figure 29: Educational pathways in Germany**



**Note:** All numbers on the graph refer to a proportion of the original cohort (100 per cent from the primary school). A number alongside an arrow indicates the percentage of the original cohort of primary students that switches track. For example, 17 per cent of all students went from the basic to the general track at some point. Downgrading is so rare that it is left out of the model. Percentages might not add up to 100 per cent because of the drop-outs from the system. Over the whole secondary cycle, 2 per cent of the cohort dropped out of the basic track, 2 per cent dropped out of the general track and 1 per cent dropped out of the academic track.

**Source:** Own presentation based on numbers calculated by Biewen and Tapalaga from the National Educational Panel Study (NEPS, starting cohort adults, SC6) based on a representative sample of people born between 1950 and 1979.<sup>25</sup>

**Figure 30: Percentage of children on different tracks by parental occupation**

**Note:** Families are split into two groups (low- and high-status jobs) on the median of the occupation ranking provided by PISA 2015 for Germany.  
**Source:** Own calculation based on PISA 2015.

Supporters of tracking believe it fosters specialization and allows schools to design a better course of studies for students in each track. Opponents say tracking increases inequalities without increasing average performance.<sup>26</sup> They say it gives parental status disproportionate influence and takes place at an age when many pupils are too young to show their potential.<sup>27</sup>

Sorting is based on the primary school's recommendation. In most regions, the recommendation can be challenged by parents, a process that requires effort, knowledge and

resources. Differences in parental status may affect tracking allocations. Among children who end up on the basic track, 76 per cent come from families with low-status occupations (*see Figure 30*). Four out of five children whose fathers have the Abitur go on to the academic track. The children of migrants to Germany can be affected by their parents' lack of a high-status occupation or knowledge of how to challenge a school's recommendation. Most of these children end up on the basic track, with only 20 per cent making it onto the academic track.<sup>28</sup>

## SECTION 7

# CONCLUSION AND RECOMMENDATIONS

“All of us do not have equal talent, but all of us should have an equal opportunity to develop those talents.” That observation, made in 1963 by US President John F. Kennedy to a group of university graduates, is at the heart of this *Report Card*. All children deserve the same chance to learn and develop the crucial skills needed for life. In the richest countries of the world, some children are being denied that opportunity.

We asked three sets of questions at the outset:

1. How much educational inequality is there in rich countries? Does it vary between countries?
2. To what extent do children’s starting points, circumstances and characteristics explain educational inequalities? How does this vary between countries and across the different stages of education?
3. To what extent do education systems and schools magnify or reduce inequalities between children? What policies and practices can help to reduce inequalities?

In our search for answers, we looked at milestones on the path that children take from pre-primary education to the end of compulsory schooling, and we looked at their future educational expectations. Our survey covered 41 countries in the EU and OECD. We used three measures of inequality in children’s reading performance: the dispersion

in the scores between the lowest- and highest-scoring students (i.e. the performance gap); differences in children’s reading scores due to circumstances outside their control (e.g. parental occupation; the child’s gender; country of birth); and differences between schools.

We found that educational inequality is pervasive, but that some affluent societies do better than others in making sure that the lowest-performing students do not lag too far behind their highest-scoring peers. This offers hope and the potential to learn from different education policies and practices. Societies as diverse as Latvia and Spain have low performance gaps in reading achievement among both primary and secondary school students. Contrary to the view that higher standards require greater inequality between children, there is no trade-off between lower performance gaps and higher average achievement. Making an education system more equal does not mean that standards must sink to the lowest common denominator. Both primary and secondary school students are more likely to achieve a good minimum level of reading proficiency in countries with smaller gaps.

The answers to the second question deliver a less optimistic story. Boys tend to do worse in reading than girls. Gender gaps are wider in secondary school. Children born outside the country of the test perform worse than their native-born

peers in most of the countries where there are sufficient numbers of foreign-born children to measure the difference.

Almost universally, children from less-privileged families do worse. Some of these inequalities emerge before primary school. In half of the European countries, preschool children aged 3 and older from lower-income households are less likely to attend centre-based education services. Grade 4 students whose parents work in professional occupations do better in reading in all the countries for which data are available. Parental occupation explains up to one third of the variation in reading scores at Grade 4. Toward the end of compulsory schooling at the age of 15, children whose parents work in lower-ranked occupations do worse in reading and are less likely to say that they expect to complete post-secondary education across all 35 countries in the comparison.

There is much more inequality within countries than there is between countries. Among 15-year-olds the largest gap in mean reading scores is 95 points – between Canada and Bulgaria. In comparison, the gap between children at the 10th and 90th percentiles in Canada is 238 points and in Bulgaria is 300 points (*see Figure 18*).

There is a lot of variation in inequality between schools in this assessment.

## Box 13 Who is left out of this report?

This *Report Card* has drawn on the best available data for international comparisons. Yet it does not paint a completely accurate picture of all children, because some are not captured in national or international surveys. Those left out include children who are not in school, perhaps because they are in institutions, are home schooled, or have severe health problems or disabilities. Children who are in special education are not well captured in the data. Nor are children who are not in standard housing because they are homeless, are in temporary accommodation or are part of an unregistered family. Then there are those less likely to attend school on the date of the survey due to health, truancy or other issues. The children we are unable to capture through statistics may face multiple, overlapping forms of disadvantage. The following case study of Roma children shows how disadvantages can build on each other.

### Roma children: Less likely to enrol, more likely to drop out

Roma are Europe's largest ethnic minority and one of the most disadvantaged groups on the continent. A recent survey indicated that 90 per cent of Roma live in households below national poverty lines and 40 per cent live in households where someone experienced hunger in the month preceding the survey.<sup>29</sup> They are more likely to live in sub-standard housing in segregated areas. Urban segregation and deprived housing exacerbate economic hardship. Some administrative practices are ill-adapted to these circumstances. For example, families without a residence certificate find it harder to register children for school. Low education is both the outcome of previous and a driver of future exclusions.

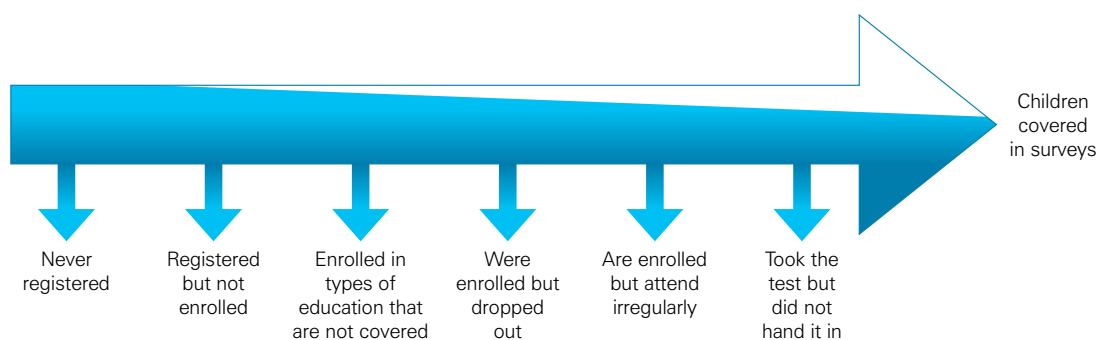
Roma are often missing from national statistics where data collection is organized around regular housing. Roma children are less visible in education statistics because they have a lower enrolment rate than non-Roma, they have a higher drop-out rate after the end of compulsory education, and they are more likely to be placed in special schools.

Around half of Roma children between the age of 4 and the start of compulsory education (which varies by country) do not attend preschool. On reaching the age of compulsory schooling, 14 per cent of Roma children are not in education, compared to 3 per cent of their non-Roma peers, in the 11 EU countries with a significant Roma presence.<sup>30</sup> Roma non-enrolment ranges from 5 per cent in Hungary to 43 per cent in Greece and is driven by poor housing conditions, among other factors. Among Roma children from informal settlements in France, 3 in 10 have never been registered for school, while two out of three do not go to school on a regular basis.<sup>31</sup>

Roma children are likely to drop out of school. Across the EU, 88 per cent of Roma aged 18–24 had not completed any sort of upper-secondary education. They are also more likely to be placed in special schools, a practice believed by some human rights organizations to amount to ethnic segregation.<sup>32</sup>

Non-enrolment, irregular attendance, high drop-out rates and special school segregation are only some of the factors that lead to the under-representation of children in international surveys. In every country, there are disadvantaged groups whose plight is not clearly captured by the official figures. This suggests that the educational inequalities presented in this report are likely to be much greater than the available data show.

**Figure 31: Why are children missing from national statistics?**





In Finland, less than 10 per cent of overall variation in reading performance is due to differences in average scores between schools (rather than among children within schools) at both primary and secondary levels. In Hungary, differences between schools account for nearly one third of the variation in reading scores at the primary level and for more than half of the variation at the secondary level. Similarities in children's family background within schools account for a substantial share of the between-school differences in most countries.

While the sources of these inequalities are complex, there is ample potential for policies and practices to mitigate them. We cannot prescribe solutions for individual countries. Still, there are general principles and recommendations that emerge from this comparison that apply to all the countries we analysed. They also offer guidance to other countries in working towards the SDGs.

### **1. Guarantee high-quality, early childhood education and care to all children**

All children should be able to access high-quality, age-appropriate, formal, early childhood education and care, including those with disabilities and special needs, and irrespective of their parents' employment, migration status or income.

Accessible and affordable centre-based childcare benefits children, their families and societies.

It teaches children to play and learn with their peers and allows parents to achieve a better balance of work and family life. Early group learning reduces educational inequalities by preparing all children for primary

education, regardless of their family background.

Yet access to formal childcare varies between and within countries, even for the children closest to starting primary school. Household income and location often act as barriers to access in the EU. Comparable data for non-European OECD countries are lacking, but national studies paint a similar picture. When only some children are in high-quality centre-based childcare, existing inequality due to family circumstances is entrenched rather than redressed.

### **2. Ensure that all children achieve a good minimum level of core skills**

A substantial proportion of students in primary and secondary school fail to achieve a minimum level of reading proficiency appropriate to their grade and age. The true figures are probably far greater than shown in large-scale international assessments, because some of the most vulnerable children in society are missing from these school-based assessments.

Policy makers need to ensure that no students fall so far behind that they lack the skills to participate fully in society. There is no inevitable trade-off between higher overall standards in reading achievement and narrower gaps between the lowest- and highest-performing students. Bringing the lowest achievers up does not necessarily mean bringing the highest achievers down.

To achieve competency in core subjects, children need smooth transitions between different stages of their education. This allows them to build on their skills progressively. Primary schools should be ready for

all children, including those who have missed out on preschool learning. Secondary schools need to offer an inclusive environment to children coming from diverse primary schools.

There also needs to be a more holistic emphasis on child well-being at school. We focus on student achievement in this *Report Card* but are aware that other experiences at school, such as bullying, can have a detrimental effect on a child's performance.

### **3. Reduce the impact of socio-economic inequalities**

Children from disadvantaged backgrounds often start compulsory education with fewer skills. Schools can help close these gaps. Yet certain features of school systems may inadvertently widen inequalities instead. Where children are sorted into different streams within schools, or go to different schools altogether based on their academic performance, children from less-privileged families tend to be over-represented in the lower tracks, with fewer opportunities in the future. Grouping children by their abilities is a long-standing feature of many school systems. There needs to be greater awareness of its role in reinforcing inequalities between children.

We found large inequalities between schools. In many countries, they are related to the socio-economic composition of children within schools. The countries where children with a similar family background are more likely to study together tend to be those where parental background plays a greater role in children's reading achievement. This reinforces inequality. More



children would have an opportunity to do well in school if this type of segregation were reduced. One of the aims of the UN Convention on the Rights of the Child and the SDGs is that all children should have an equal opportunity for high-quality education.

The degree to which socio-economic background matters to student achievement is, admittedly, an outcome of wider social and economic forces. Yet it is also a matter of political priorities and decisions. Through a combination of family allowances and public services, rich countries can ensure that all children have access to a decent breakfast, suitable equipment, and school events and enriching extra-curricular activities, so that they are able to enjoy learning, develop varied interests and achieve their full potential. This goes beyond education policy into the realm of social policy.

#### **4. Close the gender gaps in achievement**

International assessments show that boys tend to score higher in mathematics than girls in most countries and do better in science in some countries. But everywhere they do worse in reading. Policy makers and educators need to ensure equal engagement of boys and girls in all core subjects, paying attention to the gender mix of teachers and challenging gender stereotypes every step of the way. We need a better understanding of how girls and boys respond to different types of assessment.

#### **5. Produce better data**

There is an old saying that what gets measured gets done. We have found numerous gaps in data coverage and quality across rich

countries. To study international differences in the development of educational inequalities across different stages of education, we need more high-quality, cross-country, comparable evidence. Longitudinal studies that follow the same children as they grow older would be particularly valuable. To understand the depth of educational disadvantage, we need information on all children, including those who are missing from standard surveys.

#### **6. Focus on equality, not just averages**

Policy and public debates should also be more fully informed by the international surveys that are already available, such as those used in this report. International comparisons should consider not just how countries are faring in average educational performance, but also the amount of inequality among the students in each country. Greater equality does not come at a cost to average achievement. Both are necessary to give all children a fair start.



## ABBREVIATIONS

International abbreviations (ISO)  
for countries and regions covered in  
*Report Card 15*

|        |                       |
|--------|-----------------------|
| AT     | Austria               |
| AU     | Australia             |
| BE     | Belgium               |
| BE-VLG | Flanders (Belgium)    |
| BE-WAL | Wallonia (Belgium)    |
| BG     | Bulgaria              |
| CA     | Canada                |
| CH     | Switzerland           |
| CL     | Chile                 |
| CY     | Cyprus                |
| CZ     | Czech Republic        |
| DE     | Germany               |
| DK     | Denmark               |
| EE     | Estonia               |
| ES     | Spain                 |
| FI     | Finland               |
| FR     | France                |
| GB     | United Kingdom        |
| GB-ENG | England (UK)          |
| GB-NIR | Northern Ireland (UK) |
| GR     | Greece                |
| HR     | Croatia               |
| HU     | Hungary               |

|    |                          |
|----|--------------------------|
| IE | Ireland                  |
| IL | Israel                   |
| IS | Iceland                  |
| IT | Italy                    |
| JP | Japan                    |
| KR | Republic of Korea        |
| LT | Lithuania                |
| LU | Luxembourg               |
| LV | Latvia                   |
| MT | Malta                    |
| MX | Mexico                   |
| NL | Netherlands              |
| NO | Norway                   |
| NZ | New Zealand              |
| PL | Poland                   |
| PT | Portugal                 |
| RO | Romania                  |
| SE | Sweden                   |
| SI | Slovenia                 |
| SK | Slovakia                 |
| TR | Turkey                   |
| US | United States of America |

Abbreviations and acronyms used in  
*Report Card 15*

|          |   |
|----------|---|
| EU       | European Union  |
| Eurostat | Statistical Office of<br>the European Union   |
| ePIRLS   | Electronic (online) version<br>of the Progress in International<br>Reading Literacy Study |
| EU-SILC  | EU Statistics on Income<br>and Living Conditions  |
| ISO      | International Standards<br>Organization   |
| MCS      | Millennium Cohort Study   |
| NEPS     | National Educational<br>Panel Study   |
| OECD     | Organisation for Economic<br>Co-operation and Development                                 |
| PIRLS    | Progress in the International<br>Reading Literacy Study                                   |
| PISA     | Programme for International<br>Student Assessment   |
| SDG      | Sustainable Development Goal  |
| TIMSS    | Trends in International<br>Mathematics and Science Study                                  |
| UNESCO   | United Nations Educational,<br>Scientific and Cultural<br>Organization                    |
| UNICEF   | United Nations Children's Fund  |

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