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PISA 2018 AND THE EU

Striving for social fairness through education

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Training

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Directorate-General for Education, Youth, Sport and Culture
Directorate A — Policy Strategy and Evaluation
Unit A.4 — Evidence-Based Policy and Evaluation

E-mail: eac-unite-a4@ec.europa.eu

European Commission
B-1049 Brussels

PISA 2018 AND THE EU

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Executive summary

The OECD 'Programme for International Student Assessment' (PISA) tests reading, mathematics and science performance of 15-year-old pupils across the world. It takes place every three years and the 2018 wave has a special focus on reading. In an EU perspective, PISA results are particularly important because they feed into the strategic cooperation framework 'Education and Training 2020' (ET2020). They are the basis for one of the ET 2020 benchmarks: the rate of underachievers in reading, mathematics or science among 15 year-olds in the EU should be less than 15% by 2020. Underachievers in PISA are those pupils who fail to reach the minimum proficiency level necessary to participate successfully in society.

PISA also makes it possible to analyse national performance by gender, socio-economic status and immigrant background, and contains other contextual information on the school environment and pupils' attitudes, such as their plans for further education, their assessment of their own exposure to bullying and sense of belonging at school.

Overall, PISA 2018 results leave no room for complacency. The continued high share of underachievers at EU level is both a worrying social issue and a drag on EU future economic competitiveness. Fighting underachievement continues to be a priority for the EU when it comes to striving for social fairness.

The following points sum up the main findings of PISA 2018 for the EU education systems:

1. The EU has not met its ET2020 benchmark on underachievement. Around one in five 15 year-olds in the EU (21.7% in reading¹, 22.4% in mathematics and 21.6% in science) are underachievers. The EU average however masks wide differences among Member States. In the EU as a whole, underachievement increased in science and reading and remained stable in mathematics over the past decade. However, some countries were able to improve their performance over time. This shows that reducing underachievement is possible.
2. Gender differences in underachievement are rather small in mathematics and science, but remain sizeable in reading, where girls strongly outperform boys in many countries. A wide performance gap in reading also exists between pupils in general education and those in vocational programmes.
3. Education systems can pursue excellence and equity at the same time. Overall, countries with small proportions of underachievers tend to have also high proportions of top performers.
4. Socio-economic background strongly affects pupils' performance and their academic expectations in most EU countries. Moreover, countries with a large share of underachievers also tend to have large performance gaps between pupils from advantaged and disadvantaged socio-economic background.
5. A migrant background negatively affects pupils' reading performance, also after taking into account the impact of socio-economic background. The proportion of underachievers among pupils with a migrant background is much higher than among those with a non-migrant background in many EU Member States. The situation is usually worse for pupils born abroad than for native-born pupils with parents born abroad.
6. In some countries more than one in three pupils do not feel they belong at school. In a majority of EU countries, more than one in five report that they are bullied at least a few times a month. Both the absence of the feeling of belonging at school and exposure to bullying negatively affect pupils' reading performance.

¹ The 2018 EU average for reading excludes ES, as data for ES was not available at the time of writing.

1 Introduction

The OECD Programme for International Student Assessment (PISA) study targets 15 year-olds, takes place every three years and is the largest international competence test for school pupils. All EU Member States participated in PISA 2018, involving 7 854 schools and 207 851 pupils across the EU.

The three PISA domains of reading, mathematics and science are all tested in each wave of the survey, with one domain being chosen as 'core' each time. In PISA 2018, reading was the core domain.

PISA also makes it possible to analyse the national performance by gender, socio-economic status and immigrant background, and contains other contextual information on the school environment and pupils' attitudes, such as their plans for further education, their reported exposure to bullying and sense of belonging at school. Its detailed results are particularly suitable for formulating policy messages.

PISA provides the data for one of the EU-level benchmarks in the current cooperation framework Education and Training 2020 (ET2020): by 2020, the rate of underachievers in reading, mathematics or science among 15 year-olds' should be less than 15%². Underachieving pupils are those who perform below the minimum level necessary to participate successfully in society. Failing to meet this basic proficiency level lowers a pupil's future chances both on a personal and professional level.

In her Political Guidelines, the President of the European Commission Ursula Von der Leyen stated: *I want Europe to strive for more when it comes to social fairness*³. Reducing educational underachievement is key to fulfilling this goal and making principle 1 of the European Pillar of Social Rights⁴ a reality: *Everyone has the right to quality and inclusive education, training and life-long learning in order to maintain and acquire skills that enable them to participate fully in society and manage successfully transitions in the labour market*. Reducing underachievement also accords with one of the main goals of the European Education Area⁵, i.e. to improve the inclusive, lifelong-learning based and innovation-driven nature of Member States' education systems.

This report takes an EU-wide perspective on PISA 2018 findings:

- Part 2 analyses the EU performance vis-à-vis the ET2020 benchmark on underachievement in reading, mathematics and science in 2018 and in a ten-year perspective.
- Part 3 elaborates on gender differences, top performance, the role of funding and differences between general and vocational programmes.
- Part 4 extends the analysis to the inclusion-related aspects of PISA and covers the impact of socio-economic status, immigrant background and pupils' well-being on performance.

Examples of positive policy measures from different EU Member States are presented throughout the report.

The OECD has decided not to publish the PISA 2018 reading results for Spain, at the time of finishing this report, because of technical issues that hinder full international comparability of Spain's results at this moment⁶. Consequently, this report will only present results in mathematics and science for Spain.

² For each of the three tested domains, the OECD identifies seven proficiency levels. Level 2 is considered the baseline of proficiency, thus the pupils performing under this baseline are considered underachievers (the OECD refers to them as low achievers).

³ Von der Leyen, U. (2019). *A Union that strives for more. My agenda for Europe. Political Guidelines for the next European Commission 2019-2024*, p.8.

⁴ For more information, see the [European Pillar of Social Rights](#).

⁵ In 2017 the European Commission set a vision for a European Education Area by 2025, where all citizens should be able to learn study and train everywhere, without being hampered by borders or obstacles of any kind.

⁶ For more information, see the [OECD statement](#) on Pisa 2018 in Spain.

2 Underachievement in reading, mathematics and science in the EU

Key findings

On average across the EU, the ET2020 benchmark – an underachievement rate of less than 15% – has not been reached in any of the three domains tested by PISA 2018. In 2018, the underachievement rate stood at 21.7% in reading⁷, 22.4% in mathematics and 21.6% in science. Over the 2009-2018 period, performance in science and reading deteriorated at EU level, while remaining stable in mathematics. However, some countries have been able to improve their performance over time. PISA results suggest that countries tend to obtain similar results across the three domains. Countries such as Estonia, Finland, Ireland and Poland have low underachievement rates in all three domains. By contrast, in Bulgaria, Romania Cyprus and Malta, more than one in five pupils underachieve at the same time in all three domains.

2.1 Underachievement in reading

In 2018 reading performance showed a large variation across EU Member States (Figure 1). Four countries met the 15% ET2020 benchmark for underachievement: Estonia (11.1%), Ireland (11.8%), Finland (13.5%) and Poland (14.7%). Denmark was just above the benchmark (16.0%). By contrast, the underachievement rate exceeded 30% in Malta (35.9%), Slovakia (31.4%) and Greece (30.5%), and even 40% in Bulgaria (47.1%), Cyprus (43.7%) and Romania (40.8%).

Performance worsened in most countries compared to the previous 2015 PISA round (Figure 2), although the change was statistically significant⁸ only in Cyprus (+8.1 percentage points), the Netherlands (+6.0 percentage points), Latvia (+4.8 percentage points), Germany (+4.5 percentage points), Luxembourg (+3.6 percentage points), Slovenia (+2.7 percentage points) and Finland (+2.5 percentage points). No country achieved a statistically significant reduction in underachievement. This is reflected in the slightly increased EU average (21.7%)⁹ in 2018, compared with 20.1% in 2015.

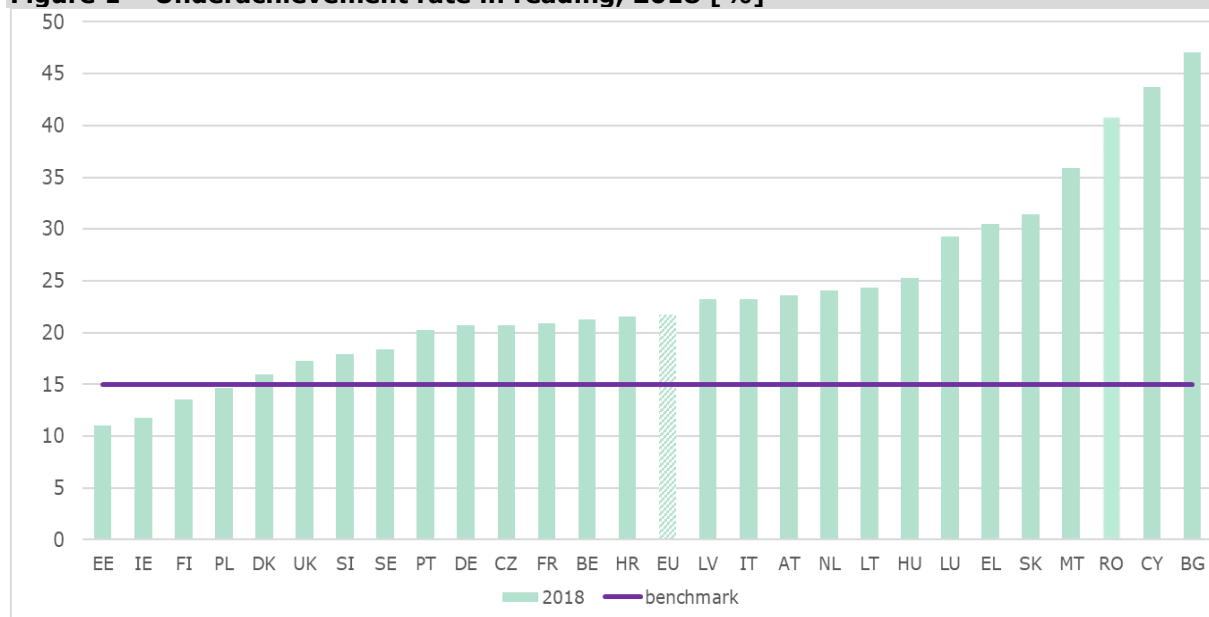
Looking at reading performance over a longer time span, performance did not significantly change in most countries between 2009 and 2018 (Figure 3). In eight countries (the Netherlands, Slovakia, Greece, Hungary, Finland, Latvia, Belgium and Luxembourg) the underachievement rate increased in a statistically significant way. Only Ireland and Slovenia experienced a statistically significant decline. Overall, EU reading performance deteriorated: the EU-average underachievement rate was 19.2% in 2009.

⁷ The 2018 EU average for reading excludes ES as the data for ES was not available at the time of writing.

⁸ The results of the PISA assessments are estimates, because they are obtained from samples of pupils, rather than from the total pupil population, and using a limited set of assessment tasks, not the universe of all possible assessment tasks. An observed difference between two estimates based on samples is called 'statistically significant' if it is likely that a real difference exists in the populations from which the samples are drawn.

⁹ All EU averages in reading exclude Spain.

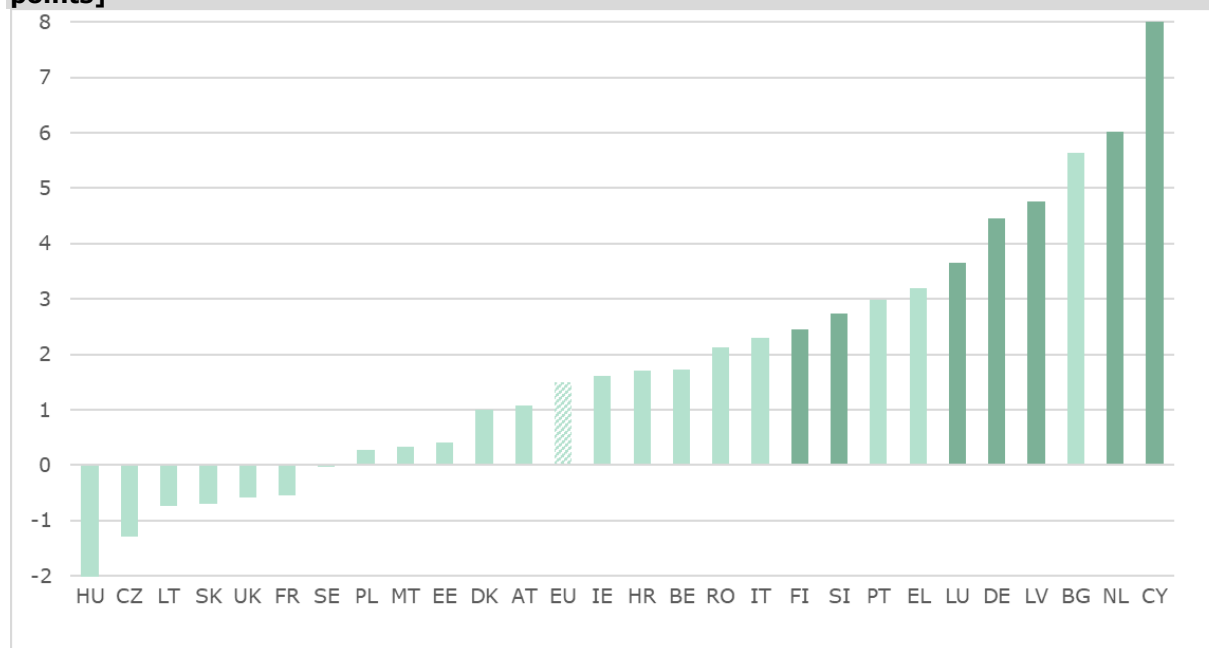
Figure 1 – Underachievement rate in reading, 2018 [%]



Source: PISA 2018, OECD.

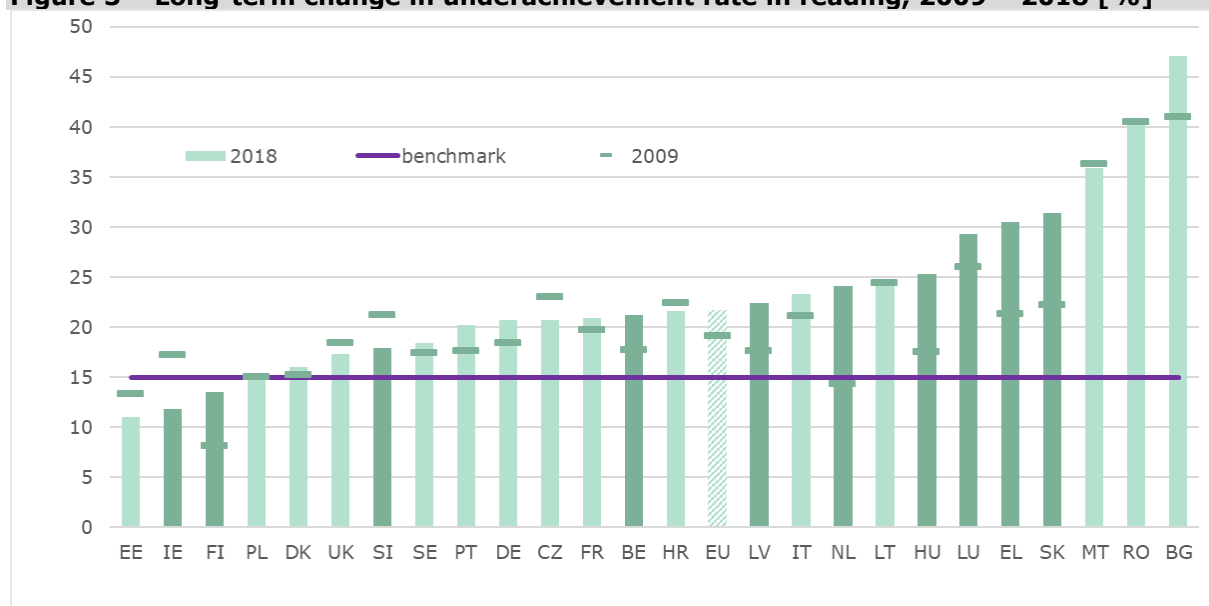
Note: Data not available for ES.

Figure 2 – Change in underachievement rate in reading, 2015 – 2018 [percentage points]



Source: PISA 2018, OECD.

Note: Darker vertical bars denote statistically significant changes between 2015 and 2018. Data not available for ES.

Figure 3 – Long-term change in underachievement rate in reading, 2009 – 2018 [%]


Source: PISA 2018, OECD.

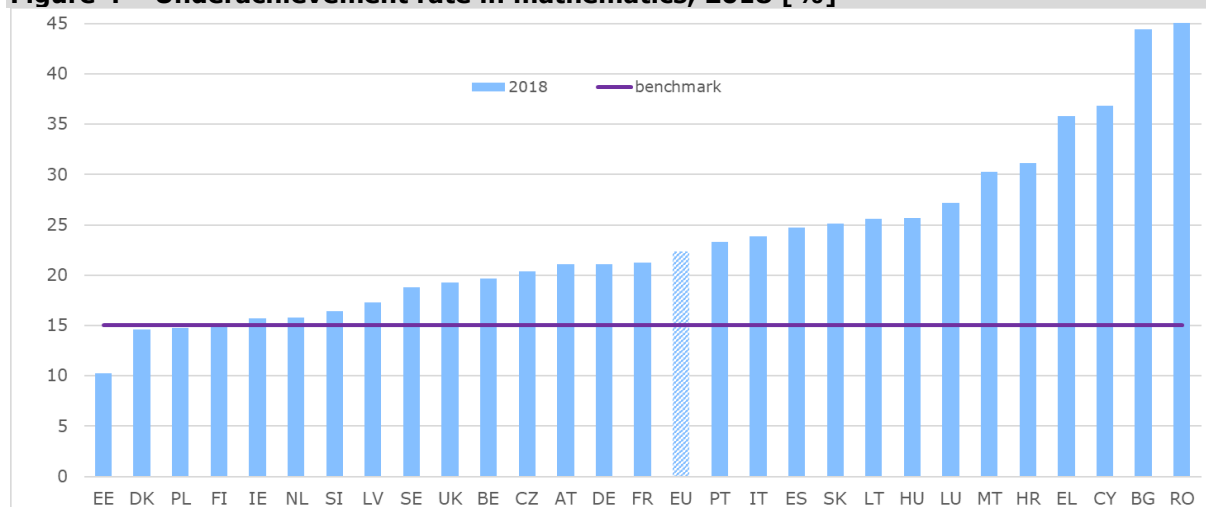
Note: Darker vertical bars denote statistically significant changes between 2009 and 2018. Data not available for AT, CY and ES.

2.2 Underachievement in mathematics

The 2018 pattern of underachievement in mathematics is similar to that of reading (Figure 4). Four countries met the 15% ET2020 benchmark: Estonia (10.2%), Denmark (14.6%), Poland (14.7%) and Finland (15.0%). Ireland (15.7%), the Netherlands (15.8%) and Slovenia (16.4%) were just above the benchmark. The underachievement rate exceeded 30% in Romania (46.6%), Bulgaria (44.4%), Cyprus (36.9%), Greece (35.8%), Croatia (31.2%) and Malta (30.2%). Performance remained rather stable in many Member States between 2015 and 2018 (Figure 5). A slight majority of countries experienced a decline in the underachievement rate, but it was statistically significant only in Cyprus (-5.7 percentage points) and Latvia (-4.1 percentage points). The only statistically significant increases took place in Romania (+6.6 percentage points) and Germany (+3.9 percentage points). Consequently, the EU average, at 22.4%, remained stable compared to 2015, when it stood at 22.2%.

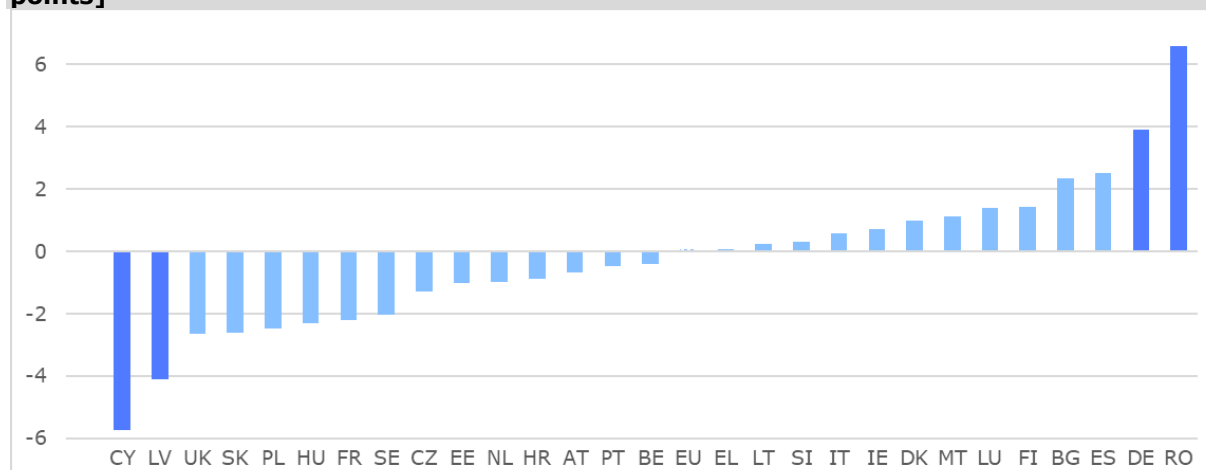
The EU average performance in mathematics remained stable also over 2009-2018, although trends differ across Member States (Figure 6). Three countries experienced a statistically significant increase of their share, namely Finland (+7.1 percentage points), Slovakia (+4.1 percentage points) and Luxembourg (+3.3 percentage points). At the same time, four Member States registered a statistically significant decrease: Poland (-5.8 percentage points), Latvia (-5.2 percentage points), Ireland (-5.1 percentage points) and Slovenia (-3.9 percentage points).

Figure 4 – Underachievement rate in mathematics, 2018 [%]



Source: PISA 2018, OECD.

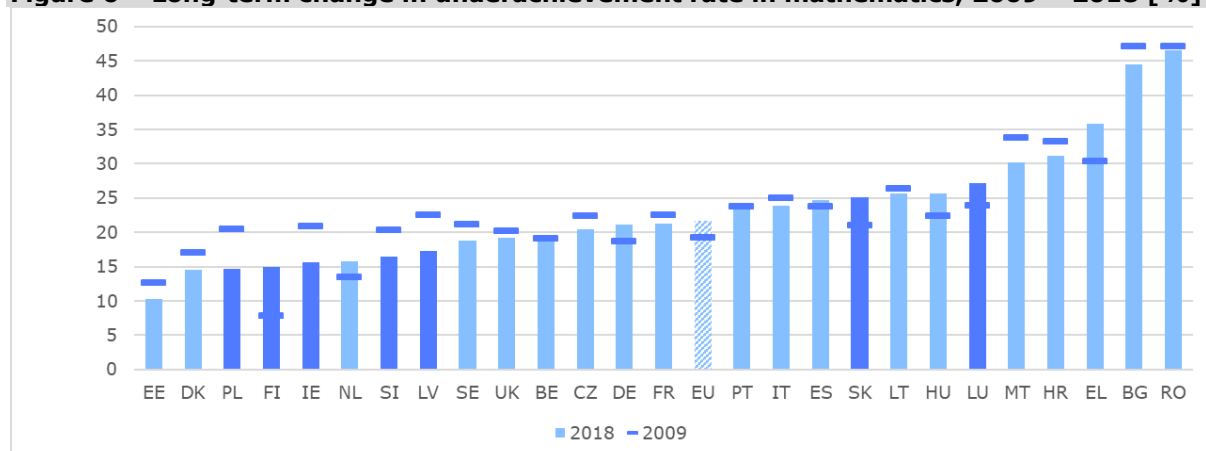
Figure 5 – Change in underachievement rate in mathematics, 2015 – 2018 [percentage points]



Source: PISA 2018, OECD.

Note: Darker vertical bars denote statistically significant changes between 2015 and 2018.

Figure 6 – Long-term change in underachievement rate in mathematics, 2009 – 2018 [%]



Source: PISA 2018, OECD.

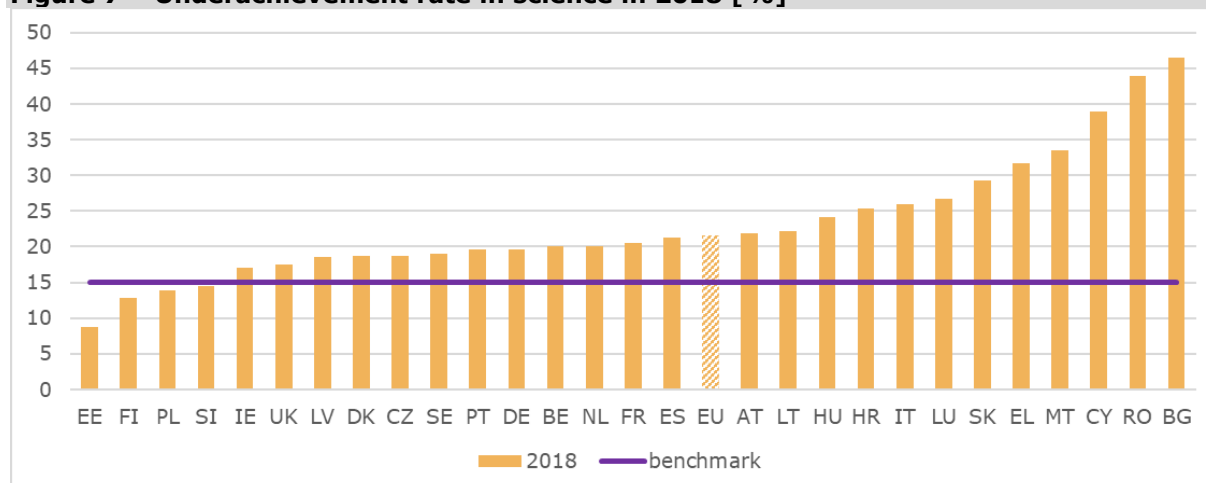
Note: Darker vertical bars denote statistically significant changes between 2009 and 2018. Calculations not available for AT and CY.

2.3 Underachievement in science

Underachievement in science also shows a mixed picture across EU countries (Figure 7). Four countries met the 15% ET2020 benchmark in 2018: Estonia (8.8%), Finland (12.9%), Poland (13.8%) and Slovenia (14.6%). By contrast, the underachievement rate was higher than 30% in Bulgaria (46.5%), Romania (43.9%), Cyprus (39.0%) and Greece (31.7%). In a few Member States the underachievement rate increased in a statistically significant way between 2015 and 2018 (+8.6 percentage points in Bulgaria, +3.0 percentage points in Spain, +2.8 percentage points in Denmark), while Cyprus and Poland experienced a statistically significant decline (-3.2 percentage points and -2.4 percentage points, respectively). The EU average slightly increased, from 20.6% to 21.6% (Figure 8).

Long-term trends (2009-2018) for science are more negative than for reading or mathematics (Figure 9). The EU-average underachievement rate increased by 4.2 percentage points over the past decade. No EU country was able to reduce significantly its proportion of underachievers over the decade, whereas the rate increased significantly in Hungary (+10.0 percentage points), Slovakia (+10.0 percentage points), Bulgaria (+7.7 percentage points), Croatia (+6.9 percentage points), Finland (+6.9 percentage points), Greece (+6.5 percentage points), Italy (+5.2 percentage points), Lithuania (+5.2 percentage points), Germany (+4.8 percentage points) and Latvia (+3.8 percentage points). In many cases, the largest increase took place between 2012 and 2015¹⁰.

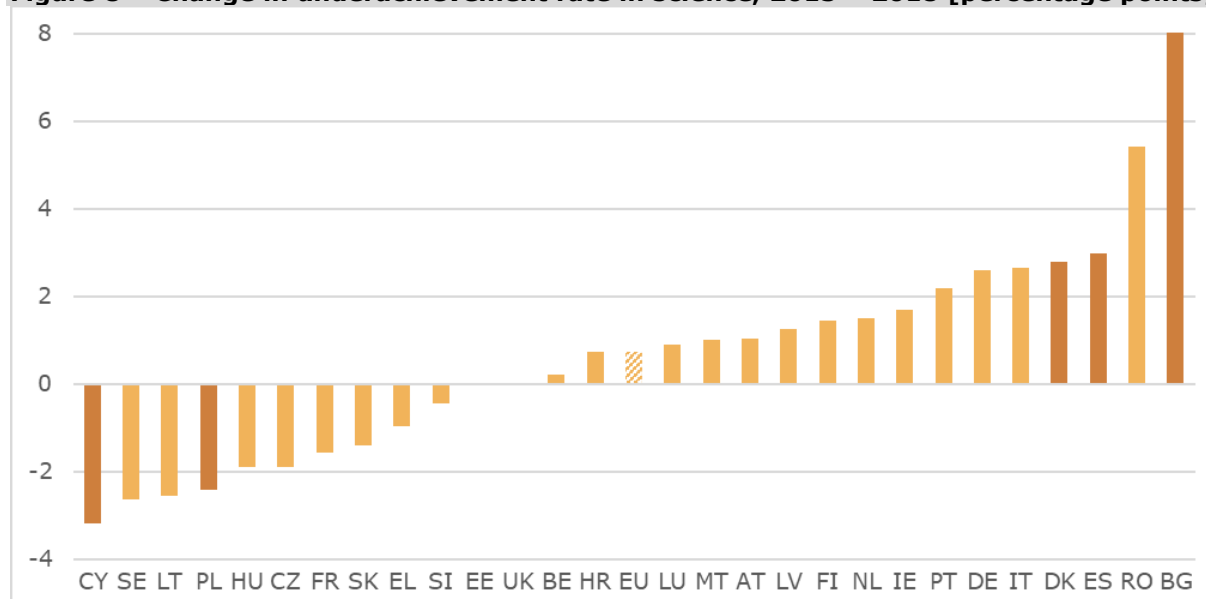
Figure 7 – Underachievement rate in science in 2018 [%]



Source: PISA 2018, OECD.

¹⁰ European Commission, (2016). PISA 2015: EU performance and initial conclusions regarding education policies in Europe.

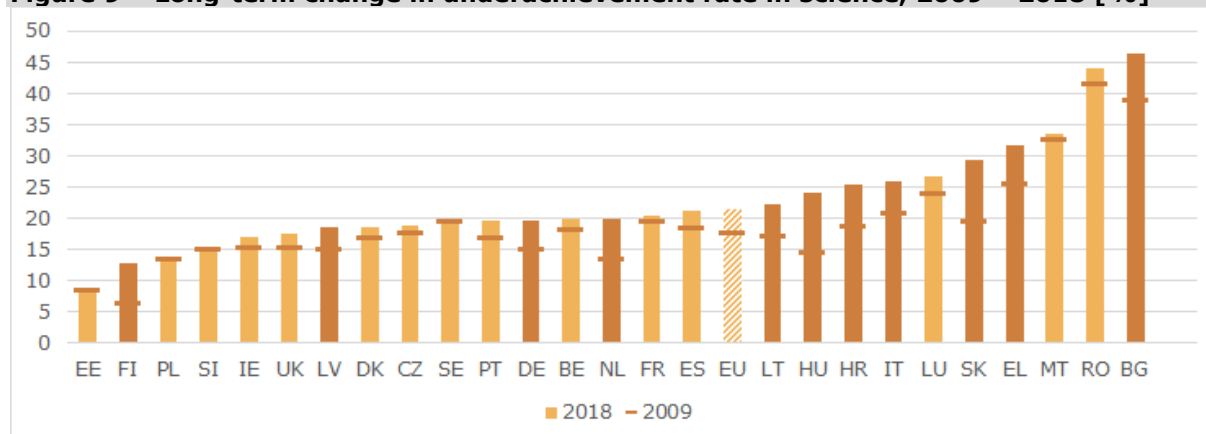
Figure 8 – Change in underachievement rate in science, 2015 – 2018 [percentage points]



Source: PISA 2018, OECD.

Note: Darker vertical bars denote statistically significant changes between 2015 and 2018.

Figure 9 – Long-term change in underachievement rate in science, 2009 – 2018 [%]



Source: PISA 2018, OECD.

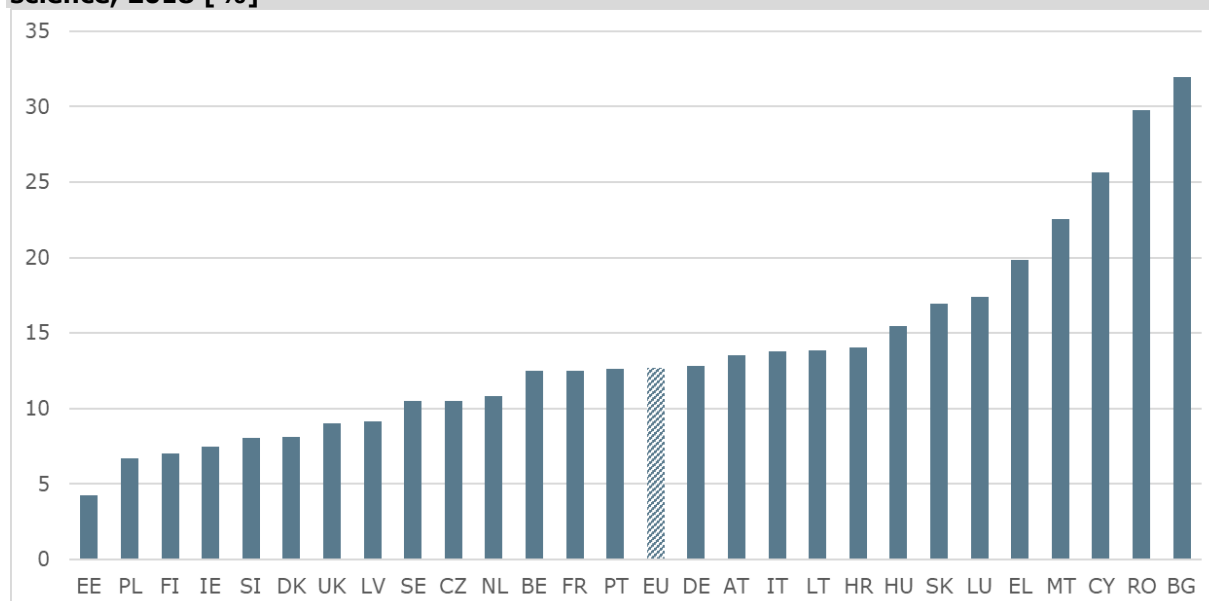
Note: Darker vertical bars denote statistically significant changes between 2009 and 2018. No calculations available for AT and CY.

2.4 Underachievement in all three domains

The PISA 2018 results, like previous PISA cycles, clearly indicate that performance is highly correlated across all three tested domains (reading, mathematics and science). Member States that show certain levels of basic skills in one area tend to perform similarly in the other areas. This is reflected in the percentage of pupils who underachieve in all three domains at the same time (Figure 10). Failing to meet the minimum standards required in all three subjects will likely translate into serious problems in further education, on the labour market and later in life.

Again, there are major differences between EU Member States. The underachievement rate ranges from 4.2% in Estonia to 31.9% in Bulgaria. It is below 10% in eight countries (Estonia, Poland, Finland, Ireland, Slovenia, Denmark, United Kingdom and Latvia) while it exceeds 20% in four countries (Malta, Cyprus, Romania and Bulgaria).

Figure 10 – Underachievement rate in all three domains: reading, mathematics and science, 2018 [%]



Source: PISA 2018, OECD.

Note: Data not available for ES. The chart shows the percentage of pupils who are underachievers in all three domains at the same time.

2.5 Main messages for the EU and Member States

The PISA 2018 results show that one in five pupils cannot complete basic tasks in reading, mathematics and science. This is not only a worrying social issue, but also a drag on EU future economic competitiveness. Yet, some EU countries have been able to improve their PISA performance over time, putting in place structural education reforms, increasing school autonomy, tackling inequalities from early years and investing in teachers.

Among Member States, Estonia, Ireland and Poland show constant outstanding results in PISA. Estonia's success can be explained by a continuing willingness to modernise, in a society where education is highly valued. Despite its good results, the country has kept questioning and addressing its weaknesses in order to become even more performant, basing their education on evidence-based policy making and making effective use of European funds. Estonia gives particular attention to equity and inclusiveness: every school has coordinators who provide services to pupils with special needs, and a mandate to give additional personalised support to prevent pupils from dropping out of education, so that no one is left behind. Compulsory attendance at school until completion or until the pupil is 17 years old, and the high autonomy of schools that are obliged to conduct self-evaluations every three years, contribute to the strong performance.

Increased school autonomy and higher participation in early childhood education and care are also among the key elements that contribute to Poland's good results. In 1999 the country introduced an educational reform setting up lower secondary schools (*gimnasia*), which delayed channelling learners into different educational tracks until the age of 16. These changes were followed by a new competence-based core curriculum, new examination and assessment systems as well as increased school autonomy. At the same time, there has been a rapid expansion of participation in early childhood education and care. Evidence shows that these reforms contributed to a significant reduction in educational inequalities, in particular among children from rural areas. Poland has also invested extensively in supporting teachers through continuous professional development programmes, as well as online teaching tools and resources with the use of European funds.

A stronger focus on equity is also one of the main features of the Irish education system. Over the past decade, Ireland has continued to improve the quality of education at all levels, expand participation in early childhood education and care and reduce educational inequalities from early years. Pupil performance has benefited from the 'Strategy to Improve Literacy and Numeracy', the 'Delivering equality of opportunity in schools' programme and from extensive support for special educational needs. These initiatives have made Irish secondary schools positive forces for inclusion: the impact of pupils' socio-economic background on their performance has been reduced, and this extends to pupils from an immigrant background. Teachers are recruited from among high academic performers, and they benefit from extensive professional development. Committed to continuous quality improvement, Ireland is continuing its reform momentum, updating its pedagogies to focus on pupil-centred learning, competence-based approach and cross-discipline collaboration.

3 The EU performance beyond the ET2020 benchmark: zooming on gender, top performers, the role of funding and vocational programmes

Key findings

Through a thematic analysis of PISA results, four main conclusions can be drawn:

1. Gender differences in underachievement are rather small in mathematics and science, but remain sizeable in reading, where girls strongly outperform boys in many countries. At EU level, the underachievement rate in reading is 16.9% for the former and 26.3% for the latter.
2. Education systems can pursue excellence and equity at the same time. Overall, countries with small proportions of underachievers tend to have also high proportions of top performers.
3. Countries with comparable level of expenditure on education perform differently. There is no correlation between the cumulative expenditure per pupil and the share of underachievers or top performers in reading. For some Member States, the challenge is to provide adequate spending to ensure higher quality and more equitable outcomes in education. For others, it is to spend more efficiently.
4. There is a wide gap between the performance of pupils enrolled in general education and those enrolled in vocational programmes.

3.1 Pupils' performance by gender

3.1.1 Underachievement in reading by gender

As in previous PISA cycles, girls outperform boys by a large margin in reading in all EU countries. The gap in underachievement between boys and girls ranges from 6.4 percentage points in the UK to 21.5 percentage points in Cyprus. The EU average is 26.3% for boys and 16.9% for girls (Figure 11). In PISA 2015 the gender gap had shrunk considerably in many countries. This has been attributed to the fact that PISA 2015 administered the test electronically for the first time, thus making it more accessible to boys¹¹. However, this trend was reversed, as the gender gap increased by 1.7 percentage points at EU level between 2015 and 2018 (Figure 12).

¹¹ Borgonovi, F. (2016). Video gaming and gender differences in digital and printed reading performance among 15-year-old pupils in 26 countries. *Journal of Adolescence*, 48, pp. 45-61. European Commission, (2016). PISA 2015: EU performance and initial conclusions regarding education policies in Europe.

No innate gender-related ability explains reading gender differences. These differences rather depend on the social and cultural context, pupils' non-cognitive abilities (motivation and self-esteem), and gender stereotypes that translate into parents', teachers' and pupils' gender oriented expectations¹². These factors play their role as early as during the first grades of primary education. Thus, throughout childhood, girls are more likely than boys to read and enjoy reading, and more willing to respond to the demands of school, showing more positive attitudes towards school¹³. Another issue is the limited range of reading material. On average boys are better at reading non-continuous texts and have a clear preference for expository texts, newspaper articles, comics and computer-based information¹⁴. Disengaged adolescent boys also face other barriers to becoming engaged readers, including a lack of male role models, both in school and outside. In European schools, women account for the large majority of teachers. Outside schools, boys may perceive reading as a female activity, not fitting a young man's self-image¹⁵.

Measures to close the gender gap should thus focus on motivating boys to read and write by¹⁶:

- Integrating new technologies into an effective pedagogical curriculum. The combination of digital tools, social interaction and formative feedback effectively reduces both learning gender gaps and underachievement trends in literacy (and mathematics)¹⁷.
- Promoting reading style that are appealing to boys and that involve male reading partners.
- Attracting more men into the educational professions.

Figure 11 – Underachievement rates of boys and girls in reading, 2018 [%]



Source: PISA 2018, OECD.

Note: Data not available for ES. All gender differences in 2018 are statistically significant.

¹² Pansu, P. Regner, I. Max, S. Cole, P., Nezelek, J. B. and Huguet, P. (2016). A burden for the boys: Evidence of stereotype threat in boys' reading performance. *Journal of Experimental Social Psychology*, 65, pp. 26-30. Marcenaro-Gutierrez, O. Lopez-Agudo, L. Ropero-Garcia, M. (2018). Gender Differences in Adolescents' Academic Achievement. *Young*, 26 (3), pp. 250-270.

¹³ OECD (2010). *Learning to Learn: Student Engagement, Strategies and Practices*.

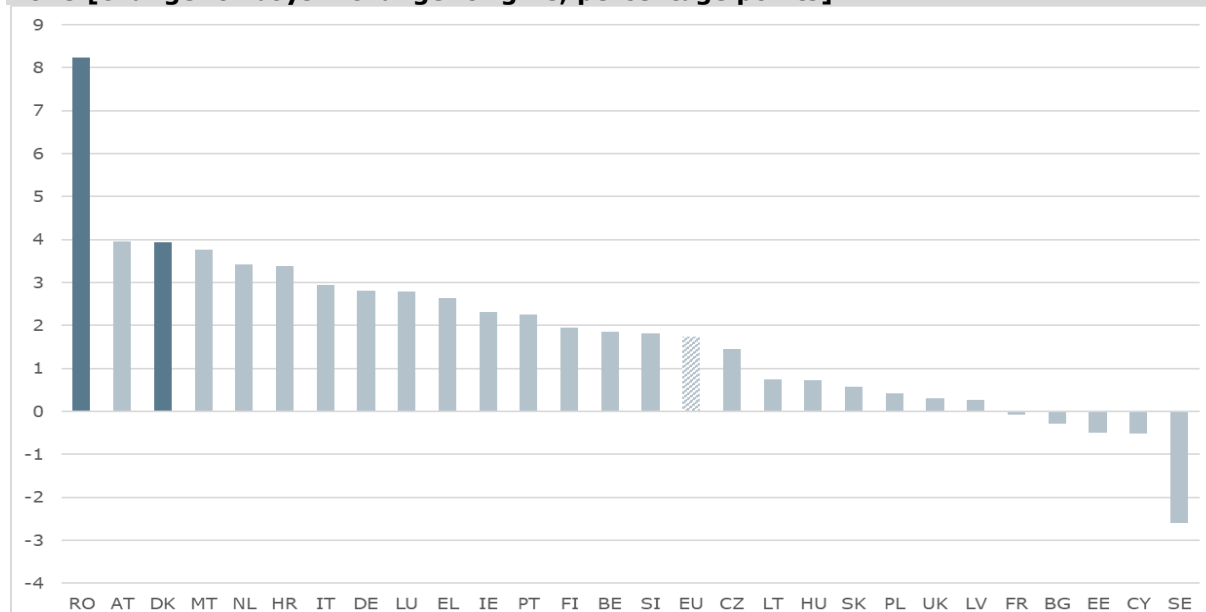
¹⁴ Smith, M. and Wilhelm, J. (2012). 'Reading don't fix no Chevys': Literacy in the lives of young men, Portsmouth: Boynton/Cook.

¹⁵ Freedmon, B. (2003). Boys and literacy: Why Boys? Which boys? Why now? Paper presented at the Annual Meeting of the American Educational Research Association.

¹⁶ European Commission (2012). *EU high level group of experts on literacy. Final report*.

¹⁷ Genlott, A. A. Gronlund, A. (2016). Closing the gaps – Improving literacy and mathematics by ICT-enhanced collaboration. *Computers & Education*, 99, pp. 68-80.

Figure 12 – Change in the gender difference in underachievement in reading, 2015 – 2018 [change for boys – change for girls, percentage points]



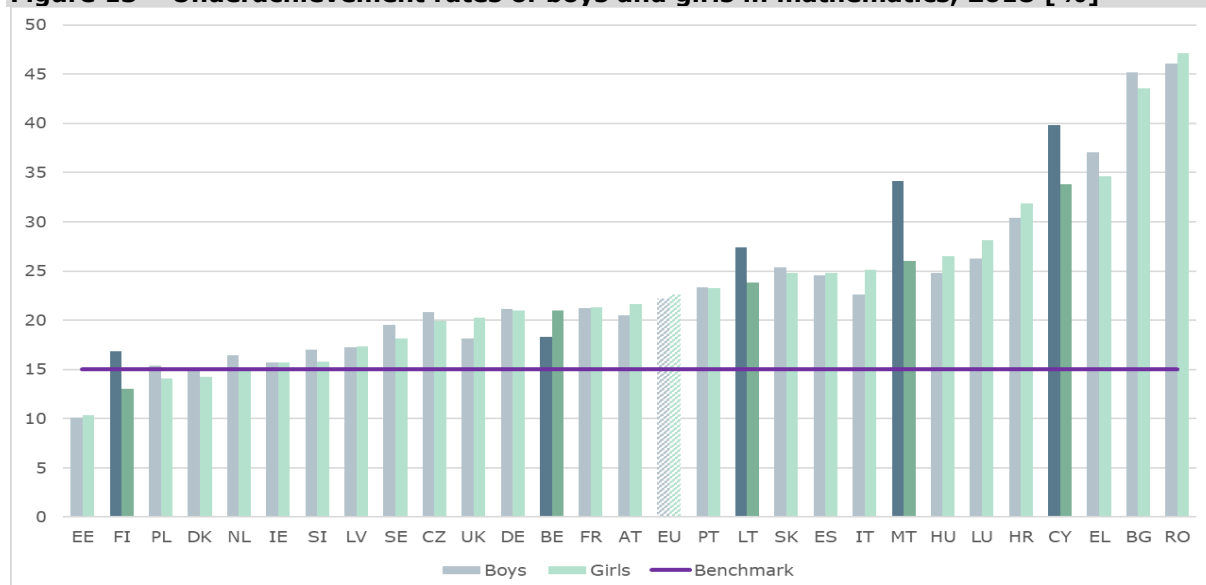
Source: PISA 2018, OECD.

Note: The figure shows the change in the percentage point difference between the underachievement rate of boys and the underachievement rate of girls. A positive (negative) value means that the situation of boys worsened (improved) compared to the situation of girls between 2015 and 2018. Data for ES is not available. Darker vertical bars denote that the change between 2015 and 2018 is statistically significant.

3.1.2 Underachievement in mathematics by gender

The picture in mathematics is more mixed than in reading (Figure 13). The differences between boys and girls are much smaller than in reading and vary from country to country. Only a few countries stand out as having statistically significant differences: girls perform better than boys in Malta (8.2 percentage points), Cyprus (6.0 percentage points), Finland (3.8 percentage points) and Lithuania (3.6 percentage points), while the opposite happens in Belgium (2.7 percentage points). Underachievement at EU level is similar among girls (22.6%) and boys (22.2%), while in 2015 boys still outperformed girls (Figure 14).

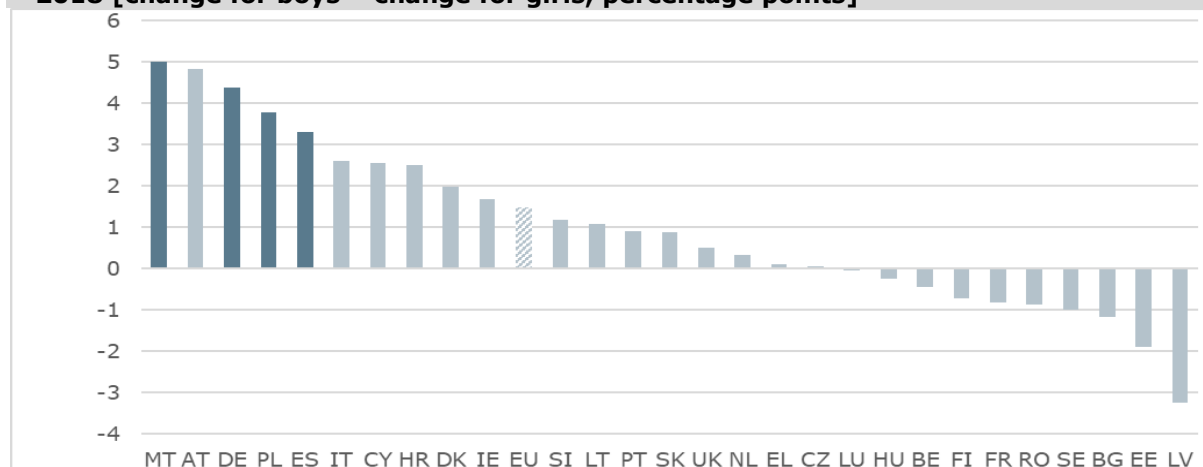
Figure 13 – Underachievement rates of boys and girls in mathematics, 2018 [%]



Source: PISA 2018, OECD.

Note: Darker vertical bars denote that the gender difference in 2018 is statistically significant.

Figure 14 – Change in the gender difference in underachievement in mathematics, 2015 – 2018 [change for boys – change for girls, percentage points]



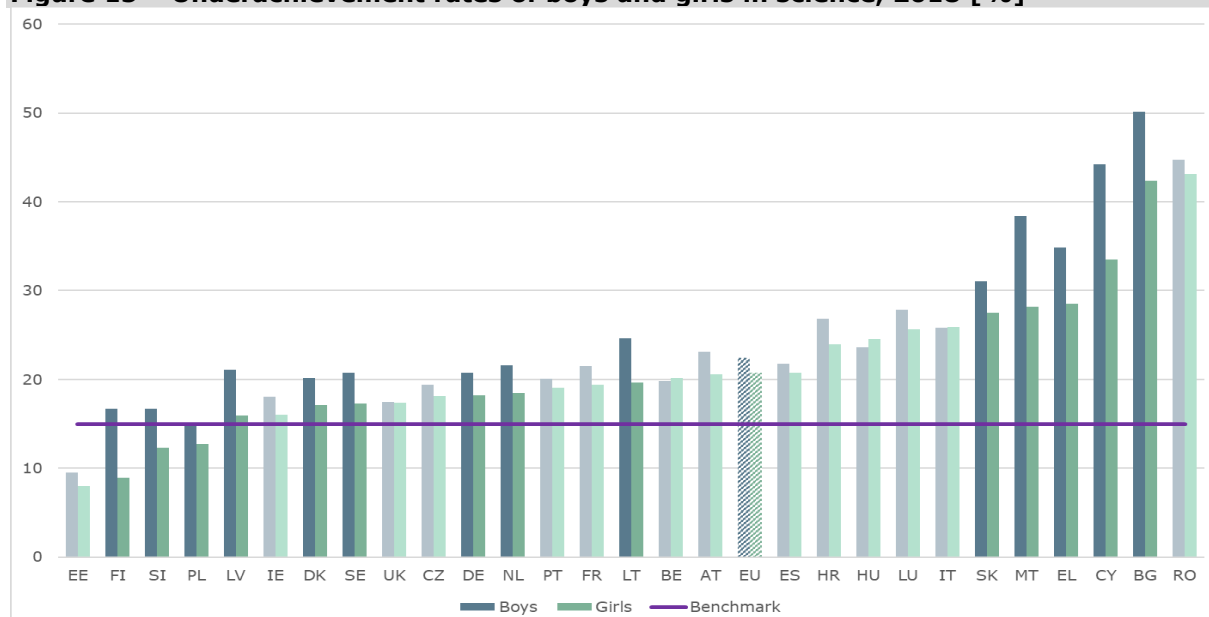
Source: PISA 2018, OECD.

Note: The figure shows the change in the percentage point difference between the underachievement rate of boys and the underachievement rate of girls. A positive (negative) value means that the situation of boys worsened (improved) compared to the situation of girls between 2015 and 2018. Darker vertical bars denote that the change between 2015 and 2018 is statistically significant.

3.1.3 Underachievement in science by gender

The picture for science is quite similar to mathematics (Figure 15). Gender differences are rather small, with generally the proportion of underachievement higher among boys than girls. This gender gap (in favour of girls) is statistically significant in Cyprus (10.7 percentage points), Malta (10.2 percentage points), Bulgaria (7.8 percentage points), Finland (7.7 percentage points), Greece (6.3 percentage points), Latvia (5.1 percentage points), Lithuania (5.0 percentage points), Slovenia (4.4 percentage points), Slovakia (3.5 percentage points), Sweden (3.5 percentage points), the Netherlands (3.2 percentage points), Denmark (3.1 percentage points), Germany (2.6 percentage points) and Poland (2.2 percentage points). At EU level, the advantage of girls over boys stands at 1.8 percentage points in 2018, with an increase of 1.4 percentage points compared to 2015 (Figure 16).

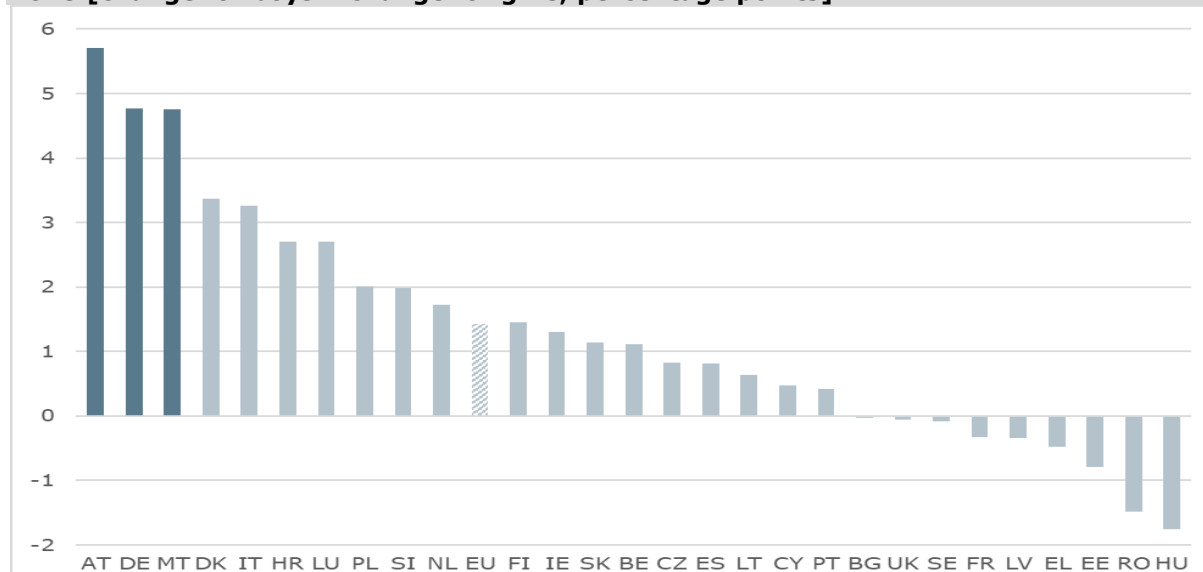
Figure 15 – Underachievement rates of boys and girls in science, 2018 [%]



Source: PISA 2018, OECD.

Note: Darker vertical bars denote that the gender difference in 2018 is significant.

Figure 16 – Change in the gender difference in underachievement in science, 2015 – 2018 [change for boys – change for girls, percentage points]



Source: PISA 2018, OECD.

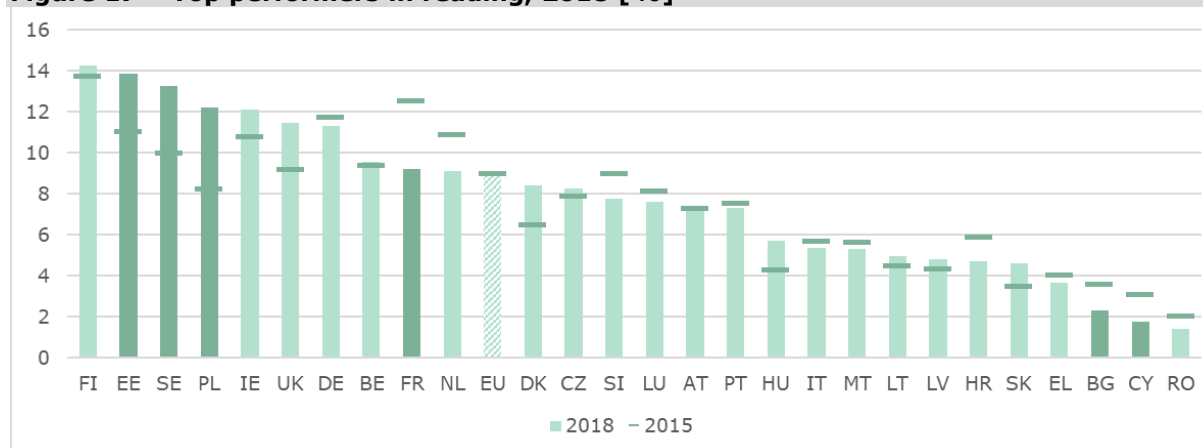
Note: The figure shows the change in the percentage point difference between the underachievement rate of boys and the underachievement rate of girls. A positive (negative) value means that the situation of boys worsened (improved) compared to the situation of girls between 2015 and 2018. Darker vertical bars denote that the change between 2015 and 2018 is statistically significant.

3.2 Top performers

Top performers are the pupils who reach PISA Level 5 or above in reading, mathematics or science. This indicator captures to what extent a school system can produce excellent results in basic skills. In 2018, the top performers in reading (Figure 17) ranged from 14.2% in Finland to 1.4% in Romania. In only seven countries did the proportion of top performers exceeded 10%: Finland (14.2%), Estonia (13.9%), Sweden (13.3%), Poland (12.2%), Ireland (12.1%), the UK (11.5%) and Germany (11.3%).

Looking into changes between 2015 and 2018, the following countries experienced a statistically significant increase in their shares of top performers in reading: Poland (+4.0 percentage points), Sweden (+3.3 percentage points) and Estonia (+2.8 percentage points). Top performers declined in a statistically significant way in France (-3.3 percentage points), Cyprus (-1.3 percentage points) and Bulgaria (-1.2 percentage points).

Figure 17 – Top performers in reading, 2018 [%]

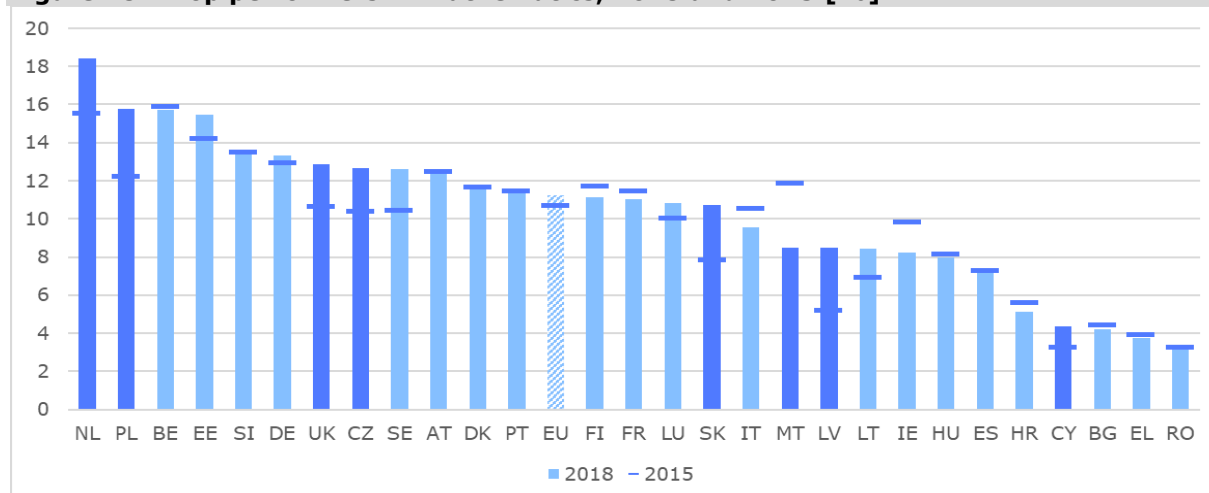


Source: PISA 2018, OECD.

Note: Darker vertical bars denote statistically significant changes between 2015 and 2018. Data for ES not available.

Concerning mathematics, the proportion of top performers is somewhat higher than in reading in most countries (Figure 18). In the Netherlands (18.4%), Poland (15.8%), Belgium (15.7%) and Estonia (15.5%), more than 15% of pupils are top performers. Compared to 2015, this percentage increased significantly in Poland (+3.6 percentage points), Latvia (+3.3 percentage points), the Netherlands (+2.9 percentage points), Slovakia (+2.9 percentage points), Czechia (+2.3 percentage points), the United Kingdom (+2.2 percentage points) and Cyprus (+1.2 percentage points), while it decreased significantly in Malta (-3.4 percentage points).

Figure 18 – Top performers in mathematics, 2018 and 2015 [%]

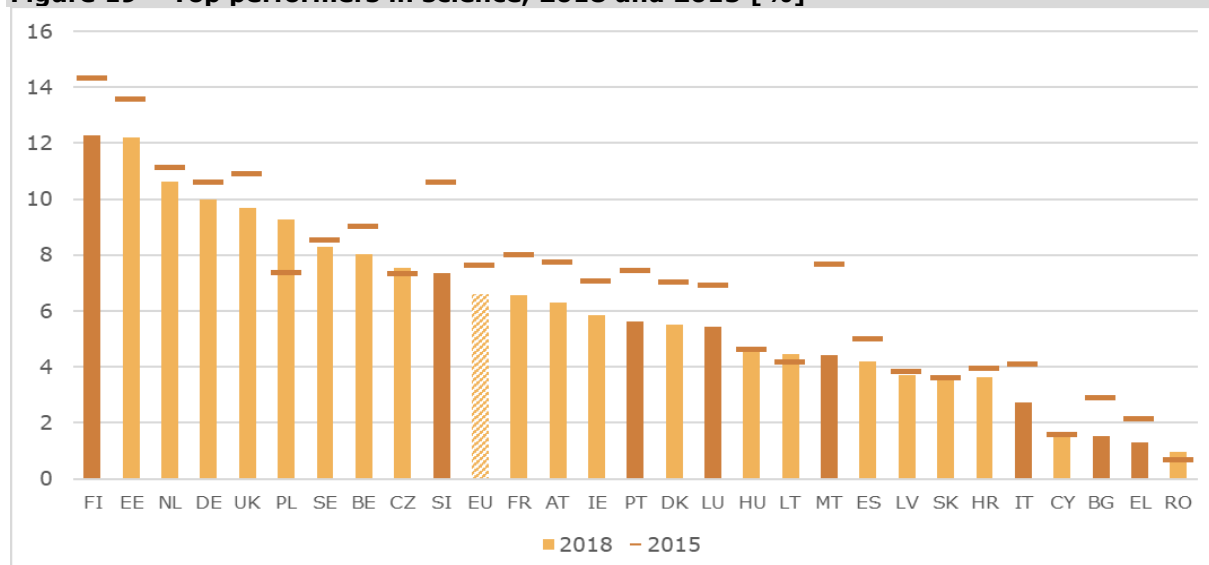


Source: PISA 2018, OECD.

Note: Darker vertical bars denote statistically significant changes between 2015 and 2018.

Moving to science (Figure 19), the proportions of top performers are the lowest among the three domains. The countries with the highest proportions are Finland (12.3%), Estonia (12.2%), the Netherlands (10.6%) and Germany (10%). In many countries the percentage decreased between 2015 and 2018; this decline was statistically significant in Slovenia (-3.3 percentage points), Malta (-3.2 percentage points), Finland (-2.1 percentage points), Portugal (-1.8 percentage point), Luxembourg (-1.5 percentage point), Bulgaria (-1.4 percentage point), Italy (-1.3 percentage point) and Greece (-0.8 percentage point). No country experienced a statistically significant increase.

Figure 19 – Top performers in science, 2018 and 2015 [%]



Source: PISA 2018, OECD.

Note: Darker vertical bars denote statistically significant changes between 2015 and 2018.

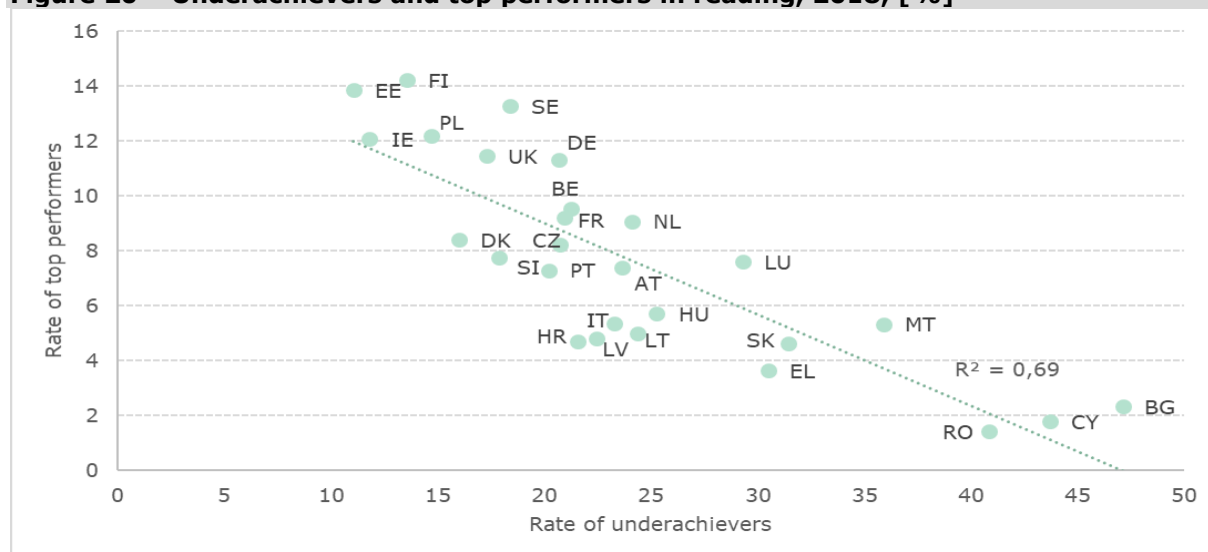
Overall, the results for top performance largely mirror the picture of underachievement: the countries with low shares of underachievers tend to have a high proportion of top performers (Figure 20). This suggests that excellence and equity of school education systems can be promoted at the same time, though obviously this is not a deterministic relationship. For instance, Belgium and Croatia have the same proportion of underachievers in reading, but the proportion of top performers in reading in Belgium is twice as high as in Latvia.

No single policy instrument can improve quality of education under all circumstances. However, two measures stand out as promising to increase both excellence and equity: making the teaching profession more attractive¹⁸ and coupling school autonomy with accountability¹⁹.

Appropriate salaries can help school systems attract the best candidates to the teaching profession²⁰, and underpin the social status of the education professions. Non-monetary conditions matter too, in particular high quality initial teacher education²¹ and measures to keep teachers motivated throughout their careers (e.g. career structures, opportunities for professional development, job security)²².

Autonomy, coupled with accountability, allows schools to adapt to their pupils' needs. Over the last three decades, many education and training systems have significantly increased individual schools' autonomy over curricula and resource allocation²³. The benefits of school autonomy depend on how prepared schools are to use their responsibility effectively and how accountable they are for their pupils' outcomes to parents, local communities and education authorities²⁴. The benefits of school autonomy also depend on the management capacity of schools: higher management skills tend to be associated with better pupil achievement²⁵.

Figure 20 – Underachievers and top performers in reading, 2018, [%]



Source: PISA 2018, OECD.

Note: Data for ES not available. EU average is not calculated.

¹⁸ Hanushek, E. A. Piopiunik, M. and Wiederhold, S. (2014). The value of smarter teachers: International evidence on teacher cognitive skills and student performance. NBER Working Paper 20727.

¹⁹ OECD (2016), School governance, assessment and accountability, in PISA 2015 Results (Volume II): Policies and Practices for Successful Schools, pp. 107-54. European Commission, (2018). Education and Training Monitor 2018. European Commission (2017). Study on governance and management policies in school education systems.

²⁰ Dolton, P. and Marcenaro-Gutierrez, O.D. (2011). 'If You Pay Peanuts Do You Get Monkeys? A Cross-country Analysis of Teacher Pay and Pupil Performance'. Economic Policy 26(65), pp. 5-55.

²¹ Braga, M. Checchi, D. Garrouste, C. and Scervini, F. (2019). Selecting or rewarding teachers? International evidence from primary schools. An IZA Discussion Paper 12200.

²² European Commission (2019). Education and Training Monitor 2019.

²³ OECD (2016). PISA 2015 results (Volume I): Excellence and Equity in Education.

²⁴ Hanushek, E. A. Link, S. and Woessmann, L. (2013). Does school autonomy make sense everywhere? Panel estimates from PISA. Journal of Development Economics, Vol. 104, pp. 212-232.

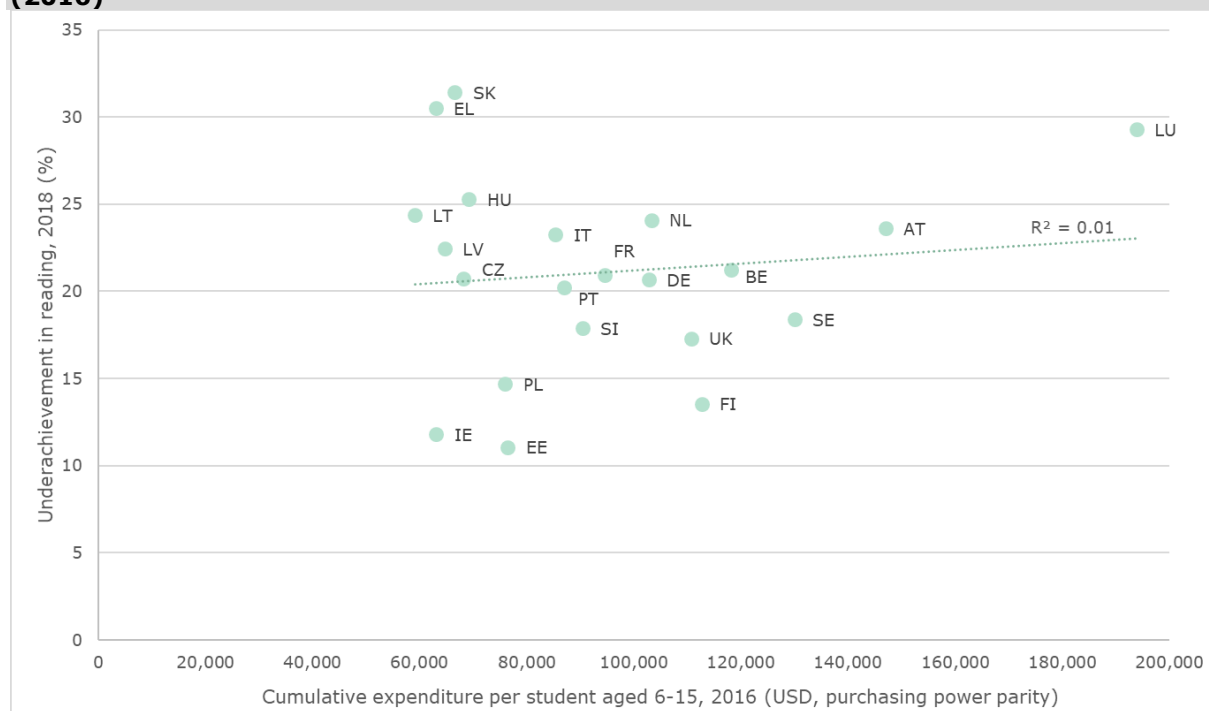
²⁵ Bloom, N. Lemos, R. Sadun, R. and Van Reenen, J. (2015). Does management matter in schools? The Economic Journal, vol. 125, pp. 647-674.

3.3 The role of funding

The role of funding is a frequently debated question in education. Boosting investment is indeed essential to improve educational systems when a country is below a certain level of expenditure²⁶. However, it is not the only factor that matters in improving schools and pupils outcomes. It has already been clear that countries with comparable level of expenditure perform differently: in previous PISA rounds, no correlation appeared between cumulative expenditure per pupil and pupil performance among EU countries²⁷.

The findings from PISA 2018 continue to show that there is no correlation between the cumulative expenditure per pupil over the theoretical duration of studies between the age of 6 and 15, and the share of underachievers or top performers in reading (Figure 21 and Figure 22). In other words, it is not possible to establish a linear relationship between spending and performance in reading. It can be concluded that, for some Member States, the challenge is to provide adequate spending to ensure higher quality and more equitable outcomes; while for others, it is to spend more efficiently.

Figure 21 – Underachievers in reading (2018) and cumulative expenditure per pupil (2016)



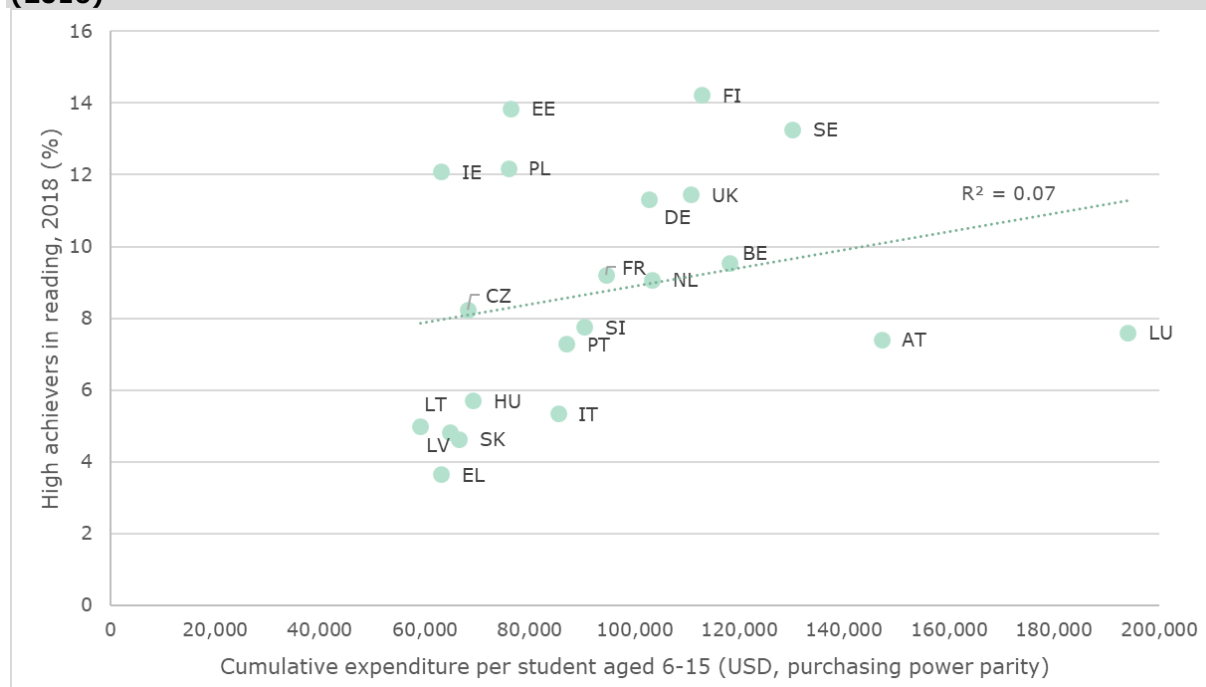
Source: PISA 2018, OECD; and OECD (2019). Education at a Glance, Web Table C1.6.

Note: Data not available for BG, CY, DE, DK, ES, HR, MT and RO. Cumulative expenditure is the total cumulative expenditure per pupil over the theoretical duration of studies for pupils aged 6-15. EU average is not calculated.

²⁶ The OECD puts this level at some 50 000 purchasing power adjusted USD cumulative spending per pupil aged 6 to 15. See OECD (2016). PISA 2015 results (Volume II): Policies and Practices for Successful Schools, p. 185-86.

²⁷ European Commission (2018). Education and Training Monitor 2018.

Figure 22 – Top performers in reading (2018) and cumulative expenditure per pupil (2016)



Source: PISA 2018, OECD; and OECD (2019). Education at a Glance, Web Table C1.6.

Note: Data not available for BG, CY, DE, DK, ES, HR, MT and RO. Cumulative expenditure is the total cumulative expenditure per pupil over the theoretical duration of studies for pupils aged 6-15. EU average not calculated.

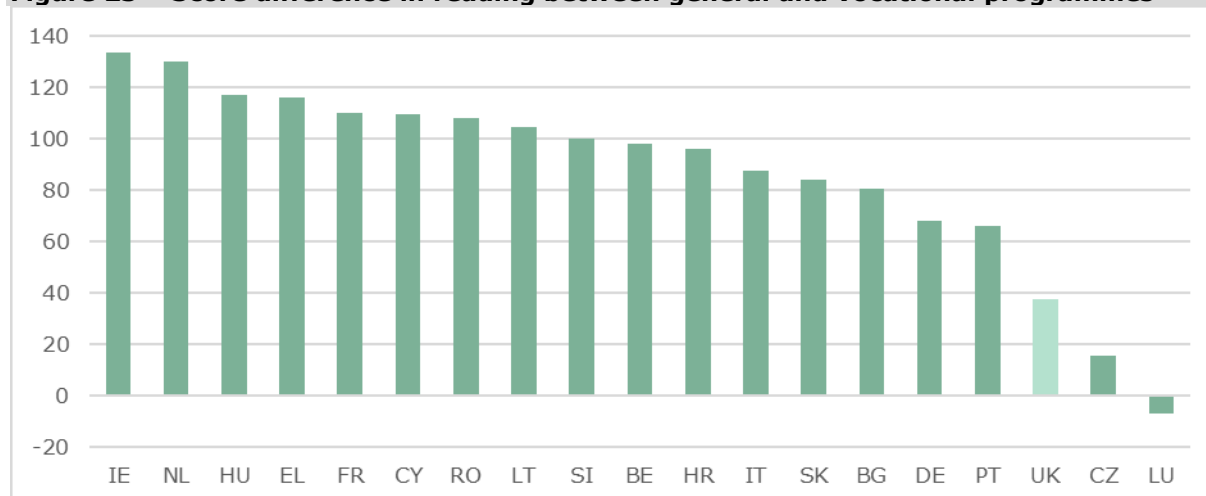
3.4 The role of vocational education and training

Offering high quality vocational education and training (VET) programmes is a key tool for promoting effective learning and social equity by focusing on future career trajectories among pupils with different social backgrounds²⁸. Providing pupils with job-specific skills and competences requested by the labour market represents the main aim of VET systems. However, ensuring that all pupils are equipped with strong basic skills is also an important objective. This is also a key challenge, as VET pupils come more frequently from disadvantaged backgrounds than those in general education.

In fact, PISA 2018 shows that the difference in reading performance between pupils enrolled in general education and vocational programmes is significant in most Member States. In Ireland, the Netherlands, Hungary, Greece, France, Cyprus, Romania and Lithuania it exceeds 100 score points, corresponding to around three to four years of schooling (Figure 23). An explanation is that in many countries pupils with a weak academic performance choose or are streamed into vocational programmes. Without a curriculum that effectively combines strong basic and job-related skills, VET programmes lose their main strength (bridging the gap between education and the job market): highly specialised job profiles are increasingly becoming obsolete due to a constantly evolving labour market. A rapidly changing modern economy requires adaptability to new skill-specific demands, which entails strong cognitive skills. The combination of curricular attention to basic skills' development and additional adult training in a lifelong-learning perspective provides pupils and workers with the necessary toolset to face the challenges of our economy²⁹.

²⁸ OECD (2018). Responsive School Systems – Connecting Facilities, Sectors and Programmes for Student Success. OECD Reviews of School Resources.

²⁹ Hanushek, E. A. Schwerdt, G. Woessmann, L. and Zhang, L. (2017). General Education, Vocational Education, and Labor-Market Outcomes over the Lifecycle. *Journal of Human Resources*, University of Wisconsin Press, 52(1), pp. 48-87.

Figure 23 – Score difference in reading between general and vocational programmes


Source: OECD PISA 2018.

Note: Darker bars denote statistically significant differences. Data not available for AT, DK, EE, ES, FI, LV, MT, PL and SE.

4 What does PISA tell about inclusion?

Key findings

Socio-economic background strongly affects pupils' performance and academic expectations in most EU countries. Moreover, countries with a large share of underachievers in reading also tend to have large performance gaps between pupils from advantaged and disadvantaged socio-economic background. School segregation by academic performance and socio-economic background is associated with higher proportions of underachievers in reading.

The proportion of underachievers in reading among pupils with a migrant background is much higher than among pupils with a non-migrant background in many EU Member States. The situation is usually worse for pupils born abroad than for native-born pupils with parents born abroad. A disadvantaged socio-economic status is often found in combination with a migrant background; however, pupils with a migrant background still score worse than those with a non-migrant background after removing the impact of socio-economic background.

In some countries more than one in three pupils do not feel they belong at school. In a majority of EU countries, more than one in five pupils report that they are bullied at least a few times a month. Moreover, the percentage of bullied pupils increased significantly in most countries between 2015 and 2018. The absence of the feeling of belonging at school and exposure to bullying negatively affect pupils' reading performance.

4.1 Pupils' performance by socio-economic status

4.1.1 Underachievement by socio-economic status

Education systems can be one of the main drivers in breaking negative social heritage and equipping pupils with the skills necessary to achieve their full potential in life. However, this does not happen in most EU Member States, where socio-economic background is a strong predictor of educational attainment. In PISA, pupils' socio-economic background is estimated by the PISA index of economic, social and cultural status (ESCS)³⁰, which is based on information about the pupils' home and background. As Figure 24 shows, the proportion of underachievers in reading in most

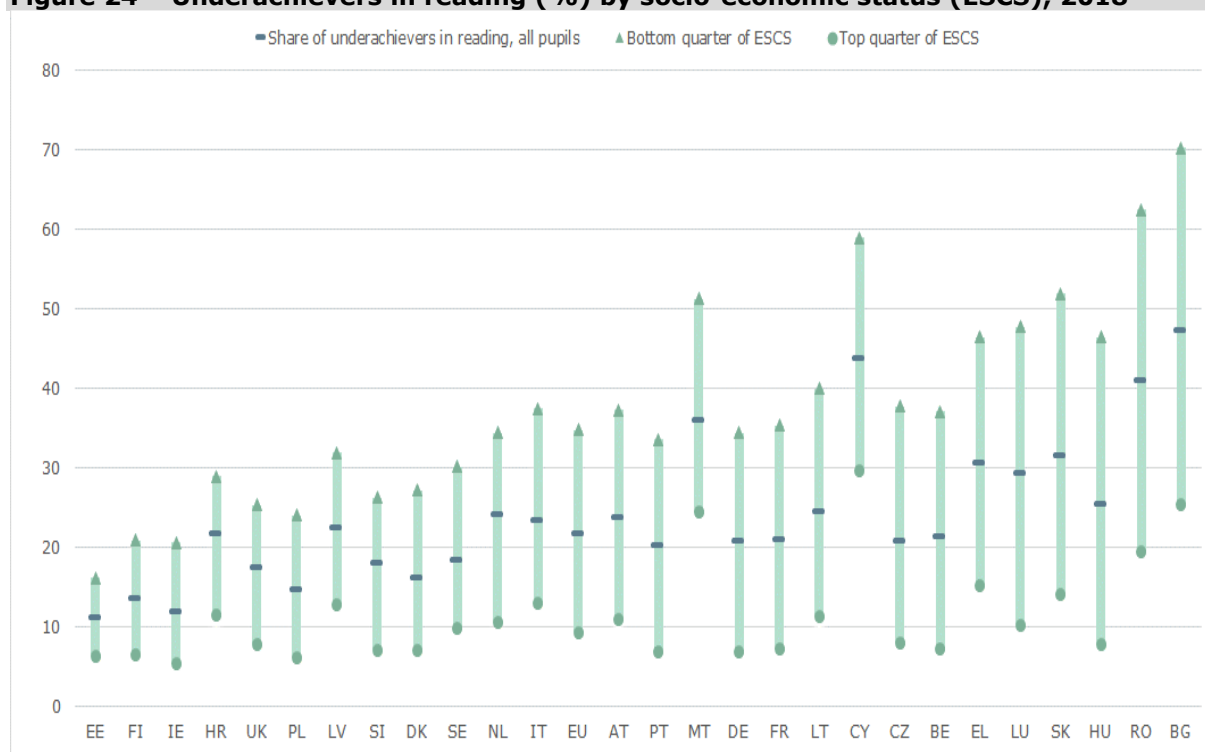
³⁰ OECD measures the ESCS index taking into consideration multiple variables related to pupils' family background, namely: parents' education, parents' occupation, home possessions, number of books and educational resources available at home.

countries is much larger in the bottom quarter of the ESCS index compared with pupils in the top quarter of ESCS, up to more than 40 percentage points in Romania and Bulgaria. On the other hand, some countries seem better able to counter the impact of socio-economic background on the educational success of pupils: for example, Estonia, Ireland, Finland, Poland, United Kingdom, Croatia and Latvia.

Overall, countries with a low share of underachievers in reading tend also to have a smaller difference in the proportions of underachievers at the top and bottom of the ESCS scale. Cyprus is an exception to this pattern. It has a very high share of underachievers, but socio-economic background seems to have a smaller impact on educational attainment compared to other similar Member States.

Addressing underachievement among socio-economically disadvantaged pupils is key to improving the overall performance of EU education systems. This requires a concerted effort involving many actors and resources. Any successful strategy should start from early childhood education and care. A large body of literature demonstrates that attending high quality early childhood education and care results in greater educational attainment and pro-social behaviour for all children. Such gains are larger for children from disadvantaged backgrounds³¹. Still, one in five children from families at risk of poverty or social exclusion do not participate in early childhood education and care³². In 2019 the EU adopted a Council recommendation on High Quality Early Childhood Education and Care to support Member States in their efforts to improve access to and quality of their early childhood education and care systems³³.

Figure 24 – Underachievers in reading (%) by socio-economic status (ESCS), 2018



Source: PISA 2018, OECD.

Note: Countries are sorted in ascending order according to the underachievement gap between the bottom and top quarter of the socio-economic index. Data not available for ES.

³¹ Duckworth, K. et al. (2009). Influences and leverage on low levels of attainment: a review of literature and policy initiatives. Centre for Research on the Wider Benefits of Learning Research Report 31, London: DCSF.

³² European Commission (2019). [Education and Training Monitor 2019](#).

³³ Council of the European Union (2019). [Council recommendation of 22 May 2019 on High-Quality Early Childhood Education and Care Systems](#), OJ C 189, 5.6.2019.

Making early childhood education and care compulsory from the age of three in France

France displays strong socio-economic inequalities in educational outcomes. Authorities seek to fight these tendencies through measures targeting very young children, since these kind of measures have proved to bring the greatest impact. Indeed, 80% of early school leavers already experienced learning difficulties in the first grade of primary, hence the need to ensure a better start for all. This is why the 2019 'Law for a school of trust' has lowered the starting age for compulsory education from six to three. While 97% of three year-olds already participate in early childhood education, the rate varies depending on administrative divisions and socio-economic backgrounds. Likewise, the actual attendance rate follows a similar pattern. The measure mainly aims to make early childhood education and care a 'school for language acquisition and fulfilment' in order to support future learning. Lowering the starting age of education can also contribute to improving the link between school and parents in order to help the latter to familiarise with the education system. This is particularly relevant for children from disadvantaged or migrant backgrounds. The law was adopted based on findings of the multi-disciplinary '*Assises de l'école maternelle*' that took place in March 2019. The measure targets those areas where pre-primary education lacks the necessary infrastructure and staff.

4.1.2 Socio-economic status and pupils' academic expectations

Socio-economic status is not only a predictor of academic performance. It also strongly affects pupils' educational expectations. In many EU Member States, more than 80% of pupils from advantaged families expect to complete tertiary education, while fewer than 50% of disadvantaged pupils do. France, Cyprus and Spain are the countries where pupils' expectations are more similar: the difference between advantaged and disadvantaged pupils is below 30 percentage points. This difference is highest in some Central and Eastern countries: Hungary (64.0 percentage points), Poland (57.2 percentage points), Romania (54.2 percentage points), Czechia (50.8 percentage points) and Slovakia (50.1 percentage points) (Figure 25).

Figure 25 – Pupils who expect to complete tertiary education [%], by socio-economic status (ESCS)



Source: OECD PISA 2018.

Note: Countries are ranked in descending order of the difference between pupils from the top and the bottom quarter of the ESCS. Countries are ranked in ascending order according to the expectations by pupils from the bottom quarter of the ESCS.

This finding points to a persistent risk of intergenerational transmission of poverty, as lower-educated people have lower earnings and are at greater risk of unemployment³⁴. Recent research shows that access for children and young people from low-income groups to good quality education reduces intergenerational transmission of disadvantage³⁵.

³⁴ European Commission (2018). Employment and Social Developments in Europe 2018.

³⁵ OECD (2017). Educational Opportunity for All: Overcoming Inequality throughout the Life Course.

This goal is enshrined in principle 1 of European Pillar of Social Rights: *Everyone has the right to quality and inclusive education, training and life-long learning in order to maintain and acquire skills that enable them to participate fully in society and manage successfully transitions in the labour market.* This is also embodied in one of the main goals of the European Education Area, i.e. to improve the inclusive, lifelong-learning based and innovation-driven nature of Member States' education systems.

Effective career guidance can ease transitions between different education levels and between education and the labour market. Career guidance systems starting at an early age, covering the whole education spectrum and tailored to the needs of the individual learner may help pupils manage their educational careers and develop the competences to succeed in life.

The Career Education Standard in UK-Scotland

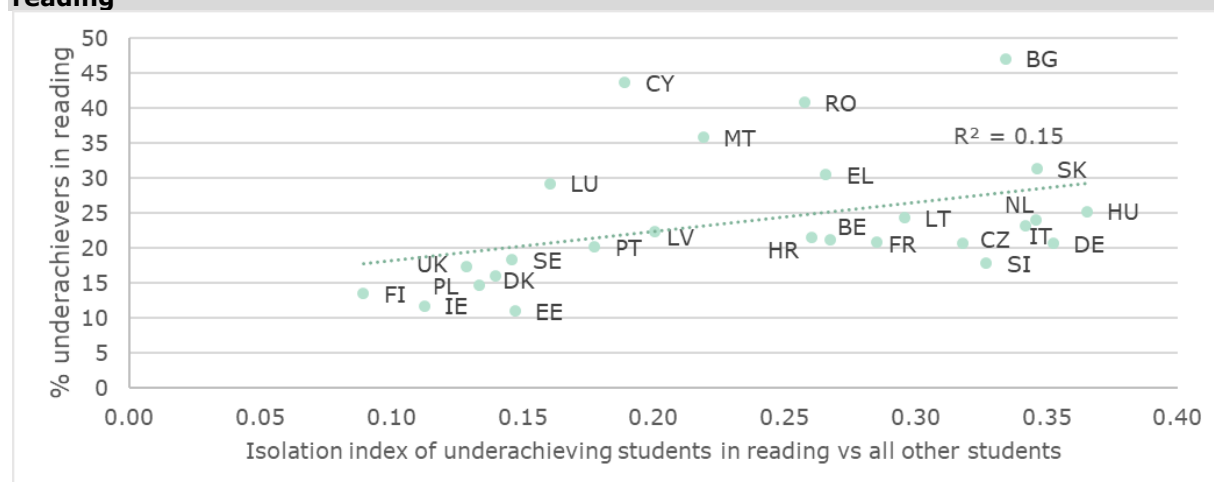
Scotland's Career Education Standard was developed in 2015 and covers children and young people aged 3-18. It includes four areas of competences: 1) *Self*: competences that enable individuals to develop their sense of self within society; 2) *Strengths*: competences that enable individuals to acquire and build on their strengths and to pursue rewarding learning and work opportunities; 3) *Horizons*: competences that enable individuals to visualise, plan and achieve their career aspirations throughout life; 4) *Networks*: competences that enable individuals to develop relations and networks of support. Placing the individual at the centre stage of all interventions, the related career education standards formulate the learning outcomes as 'I can' statements for different educational levels.

Source: European Commission (2018). [Staff Working Document accompanying the document Proposal for a Council recommendation on Key Competences for Lifelong Learning](#), SWD(2018) 14 final.

4.1.3 School segregation and underachievement

The PISA isolation index measures whether a certain type of pupils is more concentrated in some schools compared to the rest of the pupil population. It can be considered as an indicator of school segregation. For instance, it shows that the percentage of underachievers in reading tends to be higher in EU countries where underachieving pupils are more concentrated in some schools (Figure 26).

Figure 26 – Isolation index of underachieving pupils and share of underachievers in reading

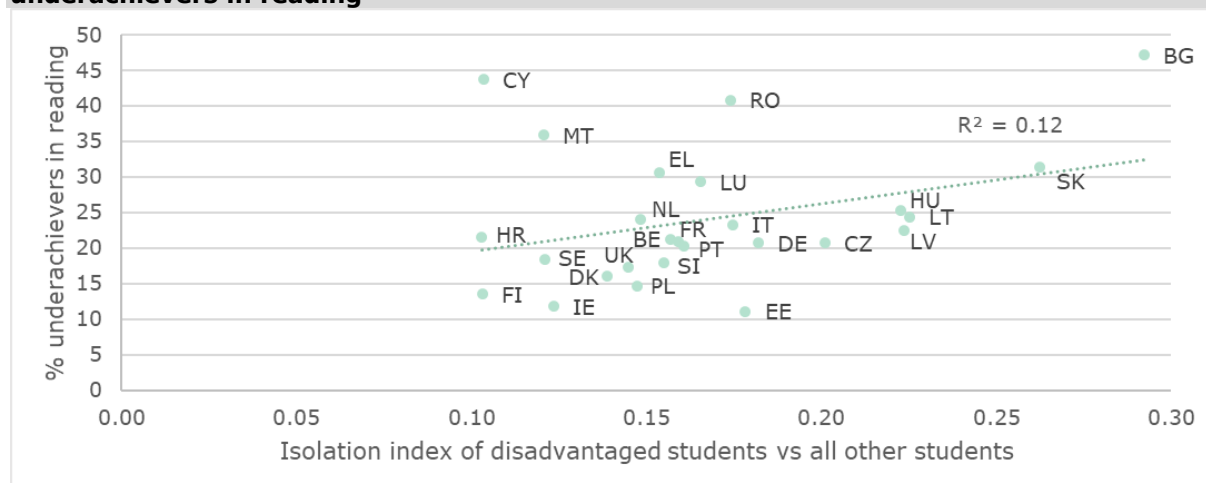


Source: DG EAC calculations on OECD PISA 2018 data.

Notes: The isolation index measures whether underachieving pupils are more concentrated in some schools. It ranges from 0 to 1, with 0 corresponding to no segregation and 1 to full segregation. Pearson correlation coefficient ($r=0.39$) statistically significant at 5% level. Data not available for ES.

The same association exists, to a somewhat lesser extent, between the percentage of underachievers in reading and the concentration of socio-economically disadvantaged pupils in some schools (Figure 27).

Figure 27 – Isolation index of socio-economically disadvantaged pupils and share of underachievers in reading



Source: DG EAC calculations on OECD PISA 2018 data.

Notes: The isolation index measures whether socio-economically disadvantaged pupils are more concentrated in some schools. It ranges from 0 to 1, with 0 corresponding to no segregation and 1 to full segregation. Pearson correlation coefficient ($r=0.34$) statistically significant at 10% level. Data not available for ES.

While these simple correlations do not necessarily represent a causal relationship, they are consistent with the literature on the effects of school segregation³⁶. Some performance differences between schools may stem from the composition of the school's pupil population. For instance, in some countries residential segregation, based on income or on cultural or ethnic background, often translates into disparities in the quantity and quality of resources³⁷. Disadvantaged and underachieving pupils generally benefit from sharing school with more advantaged peers³⁸.

'Cooperation for the Best School possible' in Sweden

'Cooperation for the Best School possible' is Sweden's most important government initiative to tackle inequalities. The National Agency for Education works closely with schools to improve their teaching and ultimately the learning outcomes of pupils. Support is allocated to schools that face the most severe challenges in providing high quality teaching and where a high proportion of pupils do not complete their education. The schools, identified by the National Agency for Education and the Swedish School Inspectorate, receive tailor-made support that is practice-oriented, based on evidence and experience and is accompanied by teachers' professional development. A group of universities led by the University of Stockholm provides scientific advice. The Agency and the school provider agree on a development plan with responsibilities, milestones, attainment targets and evaluation. The initiative, launched first in compulsory and upper secondary schools in 2015, was broadened to include pre-schools as from 2017. Surveys show that the programme is highly valued and school principals believe that it will lead to more collaborative learning among teachers, better school outcomes for pupils and improved equity between and within schools.

Source: European Commission (2018). *Education and Training Monitor 2018 – Sweden*.

³⁶ European Commission (2018). *Education and Training Monitor 2018*.

³⁷ Reardon, S. and Owens A. (2014). 60 years after Brown: Trends and consequences of school segregation. *Annual Review of Sociology*, Vol. 40/1, pp. 199-218.

³⁸ OECD (2016). *Low-Performing Students: Why They Fall Behind and How to Help Them Succeed*. European Commission (2017). Communication on *School development and excellent teaching for a great start in life*. SWD(2017) 165 final.

4.2 Pupils' performance by migrant background

The proportion of pupils with a migrant background³⁹ varies widely among EU Member States (Figure 28). To avoid calculations based on very small sample sizes, this report shows results only for EU Member States where the percentage of pupils with a migrant background is at least 5%.

Figure 28 – Percentage of pupils with a migrant background, 2018

	% born abroad	% native-born with parents born abroad
LU	24.5	30.4
IE	9.8	8.0
SE	9.6	10.9
CY	9.6	5.2
UK	8.4	11.3
BE	7.8	10.2
AT	7.8	14.9
ES	7.3	4.9
MT	6.6	2.1
DE	6.5	15.7
SI	5.2	3.6
FR	4.7	9.6
IT	4.6	5.5
FI	3.3	2.5
EL	3.2	8.5
PT	3.0	4.0
NL	2.7	11.0
DK	2.2	8.4
HR	1.3	7.7
LV	0.9	3.6
EE	0.7	9.6

Source: PISA 2018, OECD.

The proportion of underachievers in reading⁴⁰ among pupils with a migrant background is much higher than for pupils with a non-migrant background in many EU Member States. Language barriers can play a negative role in the reading performance of pupils with a migrant background, to a greater extent than for the other two tested subjects. The situation is usually worse for pupils born abroad (their underachievement rate exceeds 50% in Greece, Germany, the Netherlands and Sweden) than for native-born pupils with parents born abroad. Greece has the highest underachievement rate in the EU among foreign-born pupils (58%), while Germany is the country with the widest gap in underachievement rates in reading between pupils born abroad and pupils without a migrant background (40 percentage points) (Figure 29). Being born and growing-up in the country of assessment is an advantage compared to moving there as a child or a young person. It may help with learning the language of instruction and getting familiar with the country and its education institutions, but it is not usually sufficient to reach the same levels as pupils with a non-migrant background.

However, patterns are quite different among EU Member States. A few countries (Germany, Sweden, Slovenia, France, Estonia) face a large gap between pupils born abroad and non-migrant pupils, but native-born pupils with parents born abroad largely catch-up. In Finland, Austria, the Netherlands and Greece there is some catching-up, but the gap remains wide also between native-born pupils with parents born abroad and non-migrant pupils. In countries like Italy, Denmark and Luxembourg there is little variation between the two groups of pupils with a migrant background. Finally, only in Ireland, the UK, Croatia, Latvia, Malta and Cyprus the differences between both groups with a migrant background and pupils with non-migrant background are small. A possible explanation is the specific composition of migrant populations in those countries (related to e.g. knowledge of the language of instruction or cultural similarities).

³⁹ The definition of pupils 'born abroad' and pupils 'native-born with parents born abroad' employed in this report corresponds to what OECD defines respectively as 'first-generation immigrant students' and 'second-generation immigrant students'.

⁴⁰ Results by migrant background are available only in the main tested domain of each PISA round.

Figure 29 – Underachievers in reading [%] by migrant background, 2018


Source: PISA 2018, OECD.

Note: The countries are sorted in the ascending order of the underachievement rate among the pupils born abroad. Data not available for ES.

A disadvantaged socio-economic status may also affect the performance of pupils with a migrant background⁴¹. It is possible, however, to disentangle the specific effect of migrant background on PISA scores. Figure 30 shows that, after removing the impact of socio-economic background of pupils and schools (as well as of gender), pupils with a migrant background still score worse than those with a non-migrant background. Differences tend to become smaller, but are statistically significant in all countries, except for the UK, Croatia, Latvia and Malta. Cyprus is the only country where pupils with a migrant background score slightly better than those with a non-migrant background, but the difference is not statistically significant.

Policies that Member States' education systems can use to promote inclusion of migrant pupils range from language support for pupils whose mother tongue differs from the language of instruction, to education and career guidance as well as efforts to increase the flexibility and permeability of educational pathways. Crucial for better educational outcomes is participation in high quality early childhood education and care. In addition, it is important to promote a culture of inclusion in schools where diversity is increasing, and to this end, the availability of high quality resources and extracurricular activities has proved beneficial. Finally, equipping teachers with the skills they need to teach multicultural and multilingual classrooms requires appropriate initial teacher education and continuing professional development⁴².

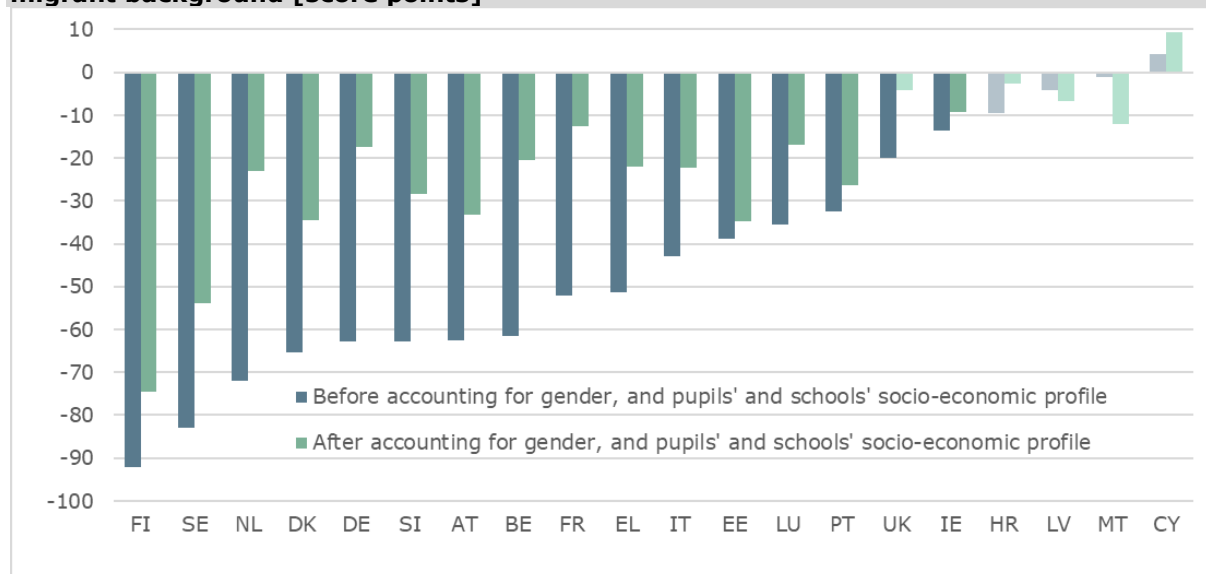
⁴¹ OECD (2018). The resilience of Students with an Immigrant Background, OECD Reviews on Migration Education. Mazza, J. (2019). The Effect of Classroom Segregation on Native Outcomes: Evidence from the EU. A JRC Technical Report.

⁴² OECD (2018). The resilience of Students with an Immigrant Background, OECD Reviews on Migration Education.

Language integration of migrants in Sweden

In the last 20 years, Sweden has received more than 300 000 migrants, mostly from non-EU countries. The share of foreign population aged less than 15 has increased by almost 85% between 2009 and 2018. To bridge the increasing performance gap between foreign-born and native pupils, Sweden has launched a skills mapping for newly arrived pupils. This serves as basis for placing pupils in a grade and for planning their instruction. Introductory programmes for migrants focused on language learning have been implemented at different age and education level. In compulsory education, pupils receive increased instruction and bilingual learning support for up to two years and are gradually integrated into the regular classes. For those who do not qualify for upper secondary education, there are four introductory programmes, helping them acquire the qualifications to continue education or enter the labour market. These include a language element. Introductory programmes for adult migrants are provided to help them to enter the labour market. From 2019, a new curriculum is being implemented in early childhood education and care, focussing strongly on learning Swedish to facilitate early integration.

Figure 30 – Difference in reading performance between pupils with migrant and non-migrant background [score points]

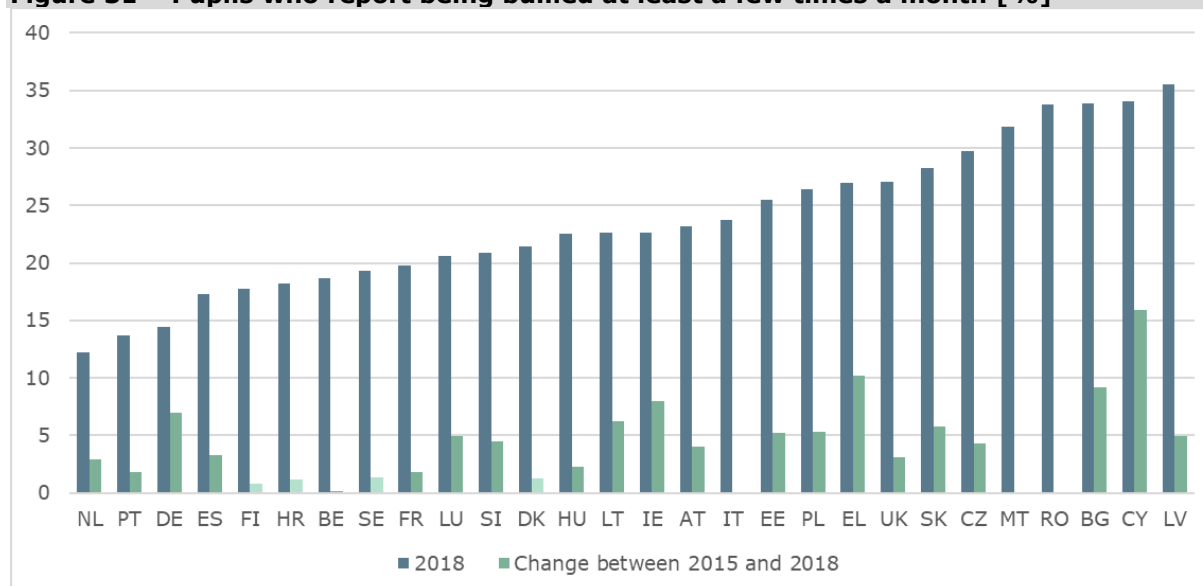


Source: PISA 2018, OECD.

Note: Darker bars denote statistically significant differences. Data not available for ES.

4.3 Pupils' well-being at school and performance

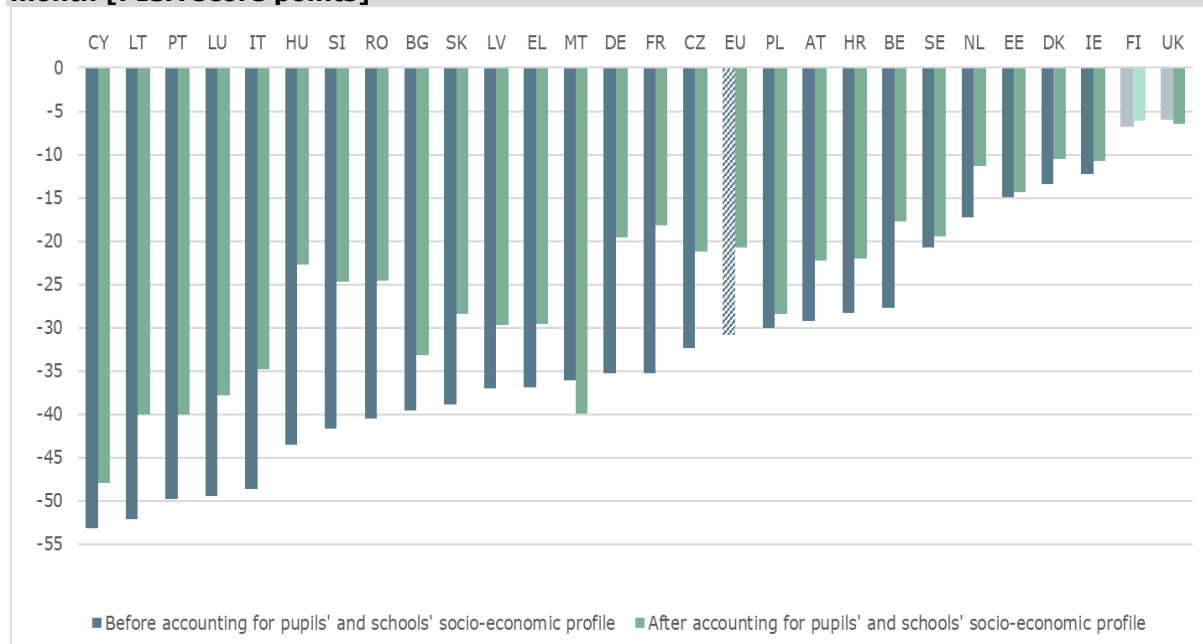
Children develop many of their social and emotional competences at school. Schools can help pupils become more resilient in the face of adversity. Bullying, including cyberbullying, and violence endanger both pupils' well-being and performance at school. PISA 2018 data are rather worrying in this respect, as in 19 EU Member States more than one in five pupils reported being bullied at least a few times a month. Moreover, the percentage of bullied pupils increased significantly in most countries between 2015 and 2018 (Figure 31).

Figure 31 – Pupils who report being bullied at least a few times a month [%]


Source: PISA 2018, OECD.

Note: The darker bars for change between 2015 and 2018 denote statistical significance. 2015 data not available for IT, MT and RO.

Even after accounting for pupils' and schools' socio-economic profile, being subject to bullying at least a few times a month significantly reduces pupils' performance in reading in all EU countries, except for Finland. In terms of PISA score points, the impact of bullying corresponds to between one and one-and-a-half year of schooling in Cyprus, Lithuania, Malta, Portugal, Luxembourg, Italy, Bulgaria, Latvia, Greece, Slovakia and Poland (Figure 32).

Figure 32 – Change in reading performance when pupils are bullied at least a few times a month [PISA score points]


Source: PISA 2018, OECD.

Note: Darker bars denote statistically significant differences. Data not available for ES.

Bullying is a multidimensional problem requiring a variety of responses from education, health and social actors and policymakers. Research suggests that some measures may help reduce bullying at school⁴³: parent training/meetings, teacher training, improved playground supervision, videos about the consequences of bullying, disciplinary methods, cooperative group work between professionals, school assemblies, support for parents, appropriate classroom management and rules. A curricular approach to social and emotional education is key for personal development to challenge a culture of violence in school.

Fighting against bullying and fostering pupils' well-being

The 'Skills for Life' programme in the Netherlands

Starting from 2003, the city of Rotterdam developed the 'Skills for Life' programme. The programme aims to enhance social and emotional competences, positive thinking and healthy behaviours, while reducing bullying and preventing problem behaviours with peers and teachers. Activities address competences such as self-awareness, emotional regulation, interpersonal and social problem-solving skills, and critical thinking. The programme is delivered by trained teachers and is embedded in the school curriculum with weekly lessons. An evaluation with more than 1 000 pupils aged between 13 to 17 years showed that programme pupils reported less frequent bullying and lower levels of alcohol consumption and smoking.

The 'KiVa Anti-bullying Programme' in Finland

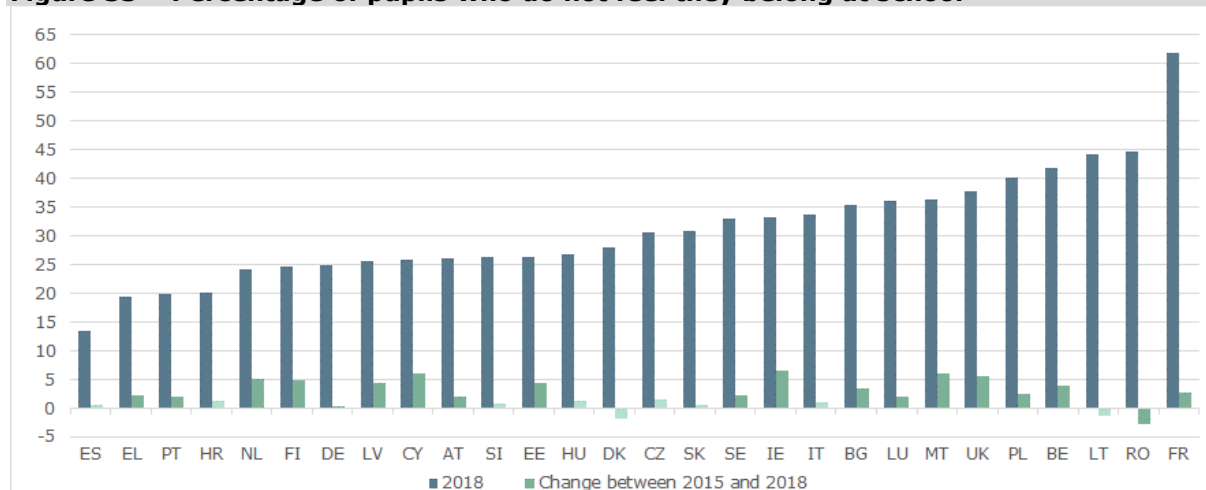
In the first rounds of PISA surveys, the satisfaction of Finnish pupils was quite low when compared to other countries. The Finnish Ministry of Education established a school welfare committee and a 2005 committee's report recommended a national anti-bullying programme. The 'KiVa Anti-bullying Programme', was developed and introduced in 2006. It was then rolled out nationally in 2009. KiVa targets all pupils and is delivered by classroom teachers during regular school hours. It provides teachers with a whole pack of activities to be carried out with pupils. It also harnesses the internet and virtual learning environments, and provides ways to enhance empathy, self-efficacy, and efforts to support victimised peers. The first evaluation, covering more than 30 000 pupils from all five provinces in Finland, showed that KiVa was not only effective in reducing bullying, cyberbullying and victimisation, but also anxiety and depression. Pupils who participated in the programme showed improvements in school satisfaction, academic motivation and academic performance.

Source: Cefai, C., Bartolo P. A., Cavioni. V, Downes, P. (2018). [Strengthening Social and Emotional Education as a core curricular area across the EU. A review of the international evidence](#), A NESET II report.

When pupils feel that they are a part of a school community, they are more motivated to learn⁴⁴. However, more than 30% of pupils in France (61.9%), Romania (44.6%), Lithuania (44.3%), Belgium (41.8%), Poland (40.2%), the United Kingdom (37.8%), Malta (36.2%), Luxembourg (36.1%), Bulgaria (35.5%), Italy (33.7%), Ireland (33.3%), Sweden (33.0%), Slovakia (30.8%) and Czechia (30.6%) do not feel they belong at school and the situation has worsened in most EU Member States between 2015 and 2018 (Figure 33).

⁴³ Downes, P. and Cefai, C. (2016). [How to Prevent and Tackle Bullying and School Violence: Evidence and Practices for Strategies for Inclusive and Safe Schools](#). A NESET II report.

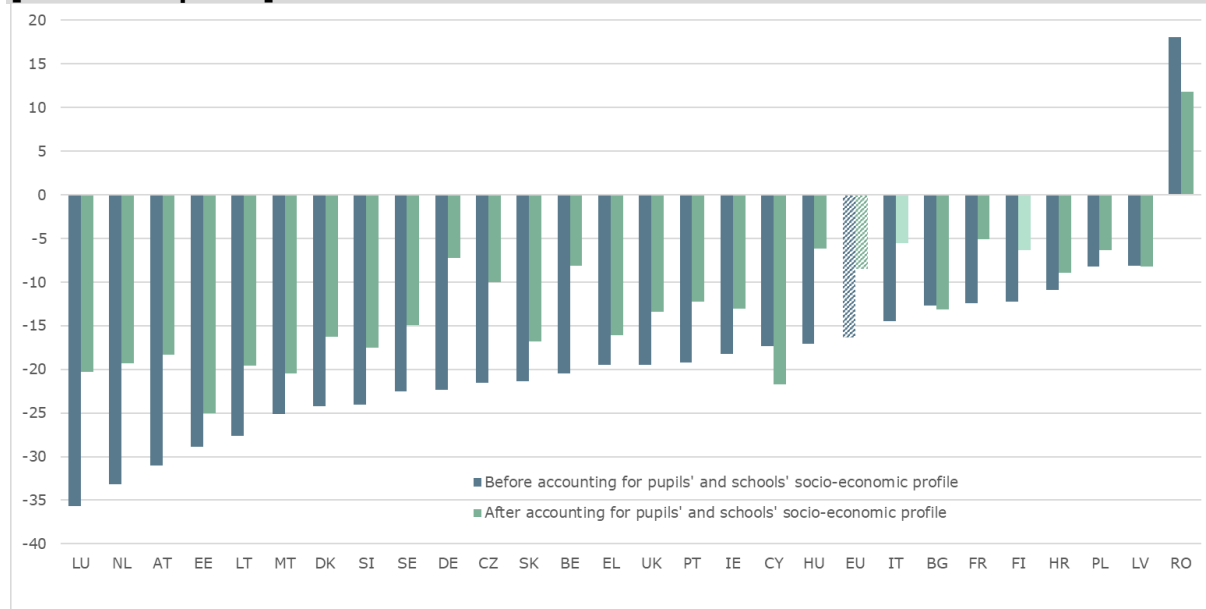
⁴⁴ OECD (2017). [PISA 2015 Results \(Volume III\): Students' Well-Being](#).

Figure 33 – Percentage of pupils who do not feel they belong at school


Source: PISA 2018, OECD.

Note: Darker bars denote statistically significant changes between 2015 and 2018.

The absence of this feeling of belonging at school has a similar impact to that of bullying. Although to a lesser extent, it negatively affects pupils' performance in reading in almost all EU countries, even after accounting for pupils' and schools' socio-economic profile (Figure 34). The only exceptions are Romania (where the effect is actually slightly positive), Finland and Italy (where the negative effect is not statistically significant).

Figure 34 – Change in reading performance when pupils do not feel they belong at school [PISA score points]


Source: PISA 2018, OECD.

Note: Darker bars denote statistically significant differences. Data not available for ES.

Annex: Country abbreviations

AT	Austria
BE	Belgium
BG	Bulgaria
CY	Cyprus
CZ	Czechia
DE	Germany
DK	Denmark
EE	Estonia
EL	Greece
ES	Spain
FI	Finland
FR	France
HR	Croatia
HU	Hungary
IE	Ireland
IT	Italy
LT	Lithuania
LU	Luxembourg
LV	Latvia
MT	Malta
NL	Netherlands
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom

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