



Department
for Education

PISA 2018 additional analyses: What differentiates disadvantaged pupils who do well in PISA from those who do not?

Research brief

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Background to research

Social mobility and improving the performance of disadvantaged pupils is a focus for policy in England, Northern Ireland and Wales. The findings from PISA 2018 provide a unique opportunity to explore the impact of disadvantage on pupils aged 15, to contextualise achievement outcomes with information about home-life and school, as well as providing an international perspective. In particular, PISA provides the opportunity to explore the impact of disadvantage on attainment using a more sophisticated measure of disadvantage than the binary 'eligible for free school meals or not' by measuring socio-economic status on a continuous scale based on pupils' responses to questions about their parents' background and education, and possessions in their homes.

This research brief summarises the key findings from the analysis of disadvantaged pupils in England, Wales and Northern Ireland. Comparisons are also made with three OECD countries; Estonia and Canada as high-achieving countries with greater equity, and the Republic of Ireland to complement the simultaneous analysis PISA 2018 additional analyses: Learning from other countries (Sizmur *et al.*, forthcoming).

The full report is available to download from the NFER's website:

[PISA 2018 additional analyses: What differentiates disadvantaged pupils who do well in PISA from those who do not?](#)

Research questions

This analysis focused on reading, mathematics and science performance in PISA to answer three questions:

1. How well are England, Wales and Northern Ireland doing at supporting the reading, maths and science performance of disadvantaged pupils compared with other countries, and has this changed over time?
2. How do resilient pupils' (high-achieving, disadvantaged pupils') attitudes differ from low-performing pupils from similar backgrounds and similarly performing pupils from more advantaged backgrounds?
3. In what circumstances do disadvantaged pupils tend to overcome barriers to perform better, and are there lessons that can be applied more widely?

Report structure

The report is structured as follows.

- Chapter 1 introduces the research questions.
- Chapter 2 outlines the policy context in England, Wales and Northern Ireland, defines the PISA measure of socio-economic status, the definition of disadvantaged for the purpose of the analysis in the report, and uses the definitions to compare the impact of socio-economic background on pupil performance in PISA 2018 countries.
- Chapter 3 compares the performance of disadvantaged pupils in England, Wales and Northern Ireland with their peers internationally, and in previous cycles of PISA. Reading was assessed in greater detail than mathematics and science in PISA 2018, and therefore the report looks at the performance of disadvantaged pupils in different aspects of reading.
- Chapter 4 analyses the characteristics of ‘resilient’ pupils, that is, disadvantaged pupils who, despite the odds, have attainment in PISA of a level considered to equip them for success in later life. We look at the characteristics which set them apart from other pupils, and the circumstances in which disadvantaged pupils tend to overcome barriers to perform better.
- Chapter 5 draws together the key findings and recommendations for policy.

How is socio-economic status defined in this report?

For the purposes of this report we use the Economic, Social and Cultural Status (ESCS) index as a measure of pupils’ socio-economic status. A score on the ESCS index is estimated for every pupil who participates in PISA. ESCS is based on pupils’ responses to questions about their parents’ background and education, and possessions in their homes. ESCS is a relative measure.

How is disadvantage measured in this report?

Pupils who are amongst the bottom 33% on the ESCS index in their country are considered disadvantaged.

This report, therefore, uses a relative measure of disadvantage within each country, and those considered disadvantaged in a more economically advanced country may nevertheless have a higher ECSC index than many pupils in less economically advanced countries.

How is ‘resilience’ defined in this report?

Pupils that are among the 33% most socio-economically disadvantaged pupils in their country but are able to achieve at or above “level 3” in all three PISA domains.

Key findings

How well are disadvantageded pupils supported?

As for all participating countries, more advantaged pupils in England, Wales and Northern Ireland performed better than their disadvantageded peers in reading, maths and science.

Wales had more equitable outcomes, on average, than England; the gap in performance between most- and least- disadvantageded pupils was statistically significantly greater in England than in Wales for reading, maths and science. This was driven by the higher performance of advantaged pupils in England compared with Wales. Northern Ireland sits somewhere in the middle, as the gap between most- and least- disadvantageded pupils was not significantly different from either England or Wales.

In England, Northern Ireland and Wales, socio-economic background had a smaller impact on performance amongst some of the most disadvantageded pupils than for their more advantaged peers. That is, there was a smaller difference in average achievement between a disadvantageded pupil and a marginally less disadvantageded peer but a larger difference in achievement between an advantaged pupil and a marginally less advantaged peer. In England, more advantaged pupils performed similarly to their peers in Canada and Estonia, indicating the importance of improving the performance of disadvantageded pupils.

There was no aspect of reading in which disadvantageded pupils in England, Wales or Northern Ireland were disproportionately weak.

Encouragingly, in England, Northern Ireland and Wales, the 2018 average scores for disadvantageded pupils in maths and reading were significantly higher than in previous cycles. Disadvantageded pupils' performance in science in each of the three countries has remained stable over time, whilst it has decreased in the comparator countries.

What characteristics of resilient pupils set them apart from similarly performing pupils from more advantaged backgrounds?

Around a third of the disadvantageded pupils in England, Northern Ireland and Wales were defined as 'resilient'. For the most part, there were no attitudinal differences found between resilient pupils and their similarly achieving, more affluent peers. For example, there were no differences between pupils' sense of belonging at school, life satisfaction or future aspirations. The exception to this was in Northern Ireland, where resilient pupils were less confident in their reading than their more affluent peers.

It was mainly indicators of family poverty which distinguished these pupils. Whilst it is perhaps unsurprising that wealth indicators can account for the differences between resilient pupils and those who are not disadvantageded and similarly achieving, it does

emphasise that households need sufficient household income to enable children to develop the skills they need to succeed in later life.

In what circumstances do disadvantaged pupils tend to overcome barriers to perform better?

In England, Northern Ireland and Wales, resilient pupils tended to use metacognitive strategies, had a growth mind-set and had high aspirations for their future education or careers. They were also less likely to truant (in England and Wales). Resilient pupils were less likely to report having found meaning in life (in England and Wales) and were less likely to report regularly feeling positive emotions (in Northern Ireland and Wales); these unexpected findings would benefit from additional research to understand further.

Recommendations

The report highlights several policy recommendations:

- programmes that support metacognition could be beneficial for disadvantaged pupils
- work towards countering the belief that intelligence is fixed for disadvantaged pupils
- further investigation into the connection between aspiration and resilience to identify how they are related and, therefore, how and where more targeted support would be most beneficial for disadvantaged pupils.



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