

Inequalities in GCSE results across England and Wales

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Executive Summary

Narrowing the achievement gap between children from rich and poor backgrounds is a priority for policymakers across the UK. With increasing divergence on schools' policy since devolution in 1999, there is great interest in how educational inequalities compare across the UK. There is particular interest in comparisons between England and Wales given the shared historical context and similar set of institutions. However, reforms to GCSEs and performance measures across England and Wales have made comparisons between the two nations extremely difficult using published data.

In this report we make use of similar administrative data for the two countries to derive consistent measures of the disadvantage gap at GCSE level. This makes it the first report to provide a comprehensive comparison of educational inequalities across the two nations over the last decade.

All data in this report relates to the period before the pandemic, with the final set of GCSE results from summer 2019. Different approaches to centre and teacher assessed grades would make comparisons for 2020 and 2021 inconsistent. Whilst this makes the analysis slightly out of date it provides an important pre-pandemic benchmark; all evidence suggests inequalities have probably worsened during the pandemic.

Overall approach and definitions

- We follow well-established Department for Education and Education Policy Institute methods for calculating a consistent disadvantage gap over time in England, despite changes to the way GCSE grades are calculated and scored.
- We define a common measure of average-points-scored per GCSE subject across England and Wales. This is then converted into an average rank within each nation and cohort over time. Disadvantage gaps and other inequalities are then calculated based on difference in average rank between groups. To aid interpretation this is further converted into months of educational progress using a common conversion metric across the two nations. We show that these disadvantage gaps and inequality measures are robust to a wide range of different assumptions.
- We class pupils as disadvantaged if they were eligible for free school meals in the previous six years. This equated to 25 per cent of year 11 pupils in England and 27 per cent in Wales in 2019.
- We class pupils as persistently disadvantaged if they were eligible for free school meals for 80 per cent of their time in school. This accounts for 9 per cent of pupils in England and 8 per cent in Wales in 2019.

Disadvantage gap across England and Wales

- The overall disadvantage gap in GCSE results is higher in Wales than in England. Progress in narrowing the disadvantage gap has been modest in both nations over the last decade.
- In England the disadvantage gap was equivalent to 18 months of educational progress in 2019, across all GCSE subjects and core GCSE subjects. This is down from about 20 months in 2011.
- In Wales the disadvantage gap in GCSE results was higher, at about 22-23 months of educational progress in 2019, and only very slightly down on 24 months in 2011.
- These levels and trends are robust to a range of different assumptions, including nation-specific points score measures, ways to treat resits and the inclusion of pupils at independent schools.

Role of persistent disadvantage

- There is a larger disadvantage gap for pupils experiencing persistent disadvantage in both nations, and almost no closing of this gap over time.
- In England the persistent disadvantage gap was equivalent to about 23 months of education in 2019, with almost no change since 2011
- In Wales the persistent disadvantage gap was about 29 months of educational progress in 2019, which is also unchanged from the level in 2011.

Educational mobility

- Pupils from disadvantaged backgrounds are much less likely to reach the top quintile of GCSE scores and more likely to be in the bottom quintile across both nations, with less mobility in Wales than in England.
- Only 4 per cent of pupils experiencing persistent disadvantage in Wales end up in the top quintile of GCSE scores in 2019, compared with 6 per cent in England. About 7 per cent of other disadvantaged pupils end up in the top quintile in Wales, compared with 10 per cent in England.
- 51 per cent of pupils experiencing persistent disadvantage end up in the bottom quintile of GCSE scores in Wales, as do 44 per cent of pupils experiencing persistent disadvantage in England. About 35 per cent of other disadvantaged pupils end up in the bottom quintile in Wales, which compares with 32 per cent in England.

Variation across local authorities

- In Wales, the average disadvantage gap for 2017-2019 is highest (25-28 months) in Wrexham, Merthyr Tydfil, Blaenau Gwent, Rhondda Cynon Taf, Torfaen, Pembrokeshire and Neath Port Talbot. In these seven Welsh local authorities the disadvantage gap is larger or equal to that seen in any local authority in England (Blackpool has the largest gap at 25 months).
- The Welsh local authorities with the lowest disadvantage gaps tend to be rural local authorities (Anglesey, Powys, Gwynedd and Ceredigion) or large cities, (Cardiff and Swansea). However, with disadvantage gaps of about 17-20 months, these best-performing Welsh authorities only match the average gap in England.
- The disadvantage gap is larger in Wales than in England for local authorities with similar levels of persistent disadvantage. The four local authorities with the biggest disadvantage gap in Wales (Torfaen, Merthyr Tydfil, Blaenau Gwent and Wrexham) have similar levels of persistent disadvantage to many areas of England with smaller disadvantage gaps. This includes many local authorities with similar socio-economic demographics to disadvantaged areas of Wales such as Barnsley, Gateshead, Portsmouth, Salford, Stockton-on-Tees and Rotherham.
- The lowest disadvantage gaps for 2017-19 in England are in London, with disadvantage gaps of under 6 months in Kensington and Chelsea, Tower Hamlets, Ealing, Redbridge and Westminster.

Other inequalities

- Pupils with statements of special educational needs are significantly behind their peers at GCSE, with a gap of about 41 months of educational progress in core subjects in both nations.

- There is a gap of about 29 months of educational progress for other forms of special educational needs in Wales, and 24 months in England. However, there are very different processes for identification of other forms of special educational needs in the two nations and the share of pupils with other forms of special educational needs is much higher in Wales (over 20 per cent) than in England (10 per cent). As a result, these gaps are not fully comparable.
- More year 11 pupils were from ethnic minority backgrounds in England (over 30 per cent) than in Wales (10 per cent) in 2019. Across both nations, pupils from Asian backgrounds perform significantly better than pupils from White British backgrounds, as do pupils from Mixed and White Other backgrounds. However, pupils from Black backgrounds tend to perform slightly worse. Given available sample sizes we are only able to examine these broad ethnic groups, but other data shows that there are wide differences in GCSE performance within these groups too.

Conclusions and policy implications

- Policymakers in both England and Wales need to do more to narrow the disadvantage gap, though the challenge is more substantial in Wales
- There is no evidence that policy divergence over the last decade between England and Wales has had any meaningful effects on the relative levels of the disadvantage gap across the two nations. The drivers of a higher disadvantage gap in Wales predate 2010.
- Neither is there any evidence that the specific Welsh approach to schools' policy has led to any meaningful reduction in educational inequality. The effects of some different choices are still to be felt, such as the curriculum and changes to assessments. However, these are generally not changes that are known to reduce educational inequality.
- Local authorities in Wales need to learn more from deprived areas of England with similar demographics that have managed to achieve smaller disadvantage gaps over time.
- To reduce the disadvantage gap policy and practice need to be aligned with empirical evidence on what works:
 - Targeted extra funding at more deprived schools has been shown to narrow the disadvantage gap. More funding should be specifically targeted at pupils experiencing persistent disadvantage in both nations.
 - A focus on teacher quality is crucial. This may include policies designed to improve recruitment and retention of high-quality teachers in more deprived areas, such as salary supplements, and access to high-quality professional development to improve the quality of teaching overall.
 - One-to-one and small group tutoring has been shown to be highly effective.
 - In the United States, the most successful charter schools focus on frequent teacher feedback, the use of data to guide instruction, high-dosage tutoring, increased instructional time, and maintaining a culture of high expectations.
- Finally, it is important to recognise that schools are unlikely to be able to close the disadvantage gap on their own. A significant narrowing of the disadvantage gap also requires a wider focus on child poverty, other parts of the education system (such as the early years), and other public services (such as children's services).

Introduction

Narrowing educational inequalities is a major priority for policymakers across the globe and there is great interest in how inequalities differ across countries. It can, however, be quite hard to discern clear policy implications from cross-national differences in educational performance given substantial differences in institutions, culture and socio-economic structures.

Greater similarity in institutions and socio-economic contexts means that cross-national differences within the UK offer good opportunities to understand educational inequalities. Indeed, until devolution in 1999, England and Wales shared a common set of school and education institutions. As we have shown in an earlier report comparing school institutions across the UK, policymakers have gradually been diverging on a range of policy areas, including curriculum and assessments.¹ It is therefore important to understand the consequences of these broad changes for educational inequalities across the two nations.

Separate reforms to GCSEs in England and Wales have made it particularly hard, if not impossible, to compare headline measures of GCSE performance and inequalities over time. In a previous report, we used survey data to compare cognitive development measures across the four nations of the UK, which showed similar levels across England and Wales, on average.² This could be seen in raw terms and with rich controls for family background, indicating that differences in family background only have a relatively small role to play in explaining differences across England and Wales. This analysis also found similar levels of cognitive development amongst children in England and Wales from disadvantaged backgrounds (low income or low parental education).³ We use the same data and show that children from low- and high-income backgrounds make less progress in vocabulary development between ages 3 and 7 in Wales than in England. However, both pieces of research are based on a single cohort of pupils born around 2000/2001. It therefore misses most of the trends over time and overall sample sizes for comparing sub-groups from different backgrounds are quite small, making analysis of inequalities less reliable.

Measures of educational inequality can also be derived using PISA data. Based on a cross-country index of economic, cultural and social status, disadvantaged children across Wales and England have similarly low reading scores (about 470 PISA points).⁴ However, children from the highest quintile score significantly lower in Wales than in England, leading to a lower gap between the top and bottom quintiles in Wales (50 points) compared with England (80 points). Such comparisons are informative, but it is not always clear how they relate to more familiar measures of deprivation and educational attainment in the UK. Furthermore, it is important to be able to look in detail over time, across local areas, specific subjects, and pupils with similar characteristics across a range of domains.

In this report, we make use of similar administrative data for pupils in England and Wales to derive similar measures of educational inequalities across pupils. These are based on GCSE attainment data, so relate to high-stakes measures of educational attainment that are used for access to further and higher education opportunities. We define measures of inequality that are less dependent on the precise ways in which GCSEs are graded, as this has changed over time. In particular, we apply the approach used in Education Policy Institute (EPI) annual reports to calculate disadvantage gaps based on pupils' percentile rank. Such measures have become popular in the empirical literature on inequality and social mobility because they are less dependent on the scale of the outcome in

question.⁵ The drawback of this approach is that one loses a connection to familiar absolute measures, such as the share of pupils achieving a specific threshold or well-known points scores. We therefore complement our analysis with more familiar measures within England and Wales over time. These comparisons give broadly similar results within each country, increasing confidence in the robustness of our main results.

The overall goal of this report is to improve policymaker and public understanding of inequalities and disadvantage gaps across England and Wales. In England, the recent white paper emphasises the important role that education can play in ‘levelling-up’ poorer areas of the country.ⁱ In Wales, the Minister for Education recently declared that ‘Now, more than ever, is the time for us to take radical and sustained action and create an education system that is equitable for all our children and young people.’ⁱⁱ We aim to inform these strategies with greater data and insight into the level and drivers of the disadvantage gap, with a particular emphasis on learning more across nations.

All data in this report relates to the period before the pandemic, with the final set of GCSE results from summer 2019. Different approaches to centre and teacher assessed grade would make comparisons for 2020 and 2021 inconsistent. Whilst this makes the analysis slightly out of date, it provides an important pre-pandemic benchmark. All evidence suggests inequalities have probably worsened during the pandemic.

This study makes use of anonymised data held in the Secure Anonymised Information Linkage (SAIL) Databank. We would like to acknowledge all the data providers who make anonymised data available for research.⁶ In particular, analysis for Wales is based on the National Pupil Database for Wales.ⁱⁱⁱ Analysis for pupils in England was conducted using the National Pupil Database for England using the ONS SRS platform.^{iv}

The rest of this report proceeds as follows. Section 1 documents the main reforms to GCSEs in England and Wales over time. Section 2 details our methodology, with section 3 showing our main analysis of inequalities across England and Wales. Section 4 examines differences by subject and section 5 shows the disadvantage gap across local areas in the two nations. Section 6 provides a concluding summary and details implications for policy and future analysis.

ⁱ <https://www.gov.uk/government/publications/levelling-up-the-united-kingdom>

ⁱⁱ <https://gov.wales/radical-action-needed-create-truly-equitable-education-system-all>

ⁱⁱⁱ We are very grateful to researchers at WISERD for their help in accessing the data and their comments on our analysis, particularly Katy Huxley and Chris Taylor.

^{iv} Responsibility for the interpretation of the data and information lies solely with the authors. SAIL bears no responsibility for the analysis or interpretation of these data. This work was produced using statistical data from ONS. The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. This work uses research datasets which may not exactly reproduce National Statistics aggregates

1. Reforms to GCSEs in England and Wales

Until the early 2000s England and Wales maintained a common set of academic qualifications, with almost all pupils sitting GCSE or equivalent qualifications at the end of year 11 (age 15/16). Since then, these qualifications have diverged across the two nations. Changes are discussed in detail in statistical releases produced by the Department for Education and Welsh Government (particularly for 2016/17) and in information produced by Ofqual and Qualification Wales.^v Here we summarise some of the key details and their implications for comparisons of educational inequality across the two nations:

- **Grading structures** – From 2016/17, England gradually introduced new GCSE specifications. These new GCSEs use a 9-1 grading structure, in place of the old A*-G system. All new GCSEs are linear, with all exams at the end of the course and no coursework. Any student resitting must take all exams again. From 2016/17, Wales introduced a separate set of Welsh GCSEs, regulated by Qualification Wales. In contrast to England, these new Welsh GCSEs retained the A*-G grading structure and allowed for both modular and linear assessment, with coursework retained. The content and subject material also differs from new GCSEs in England. In England, there is a points score conversion between letter and number grades, for example, a grade C is at least a grade 4 and an A* is nominally equivalent to 8.5 (though this is essentially arbitrary as no half marks are actually awarded). For Wales, there is a broad equivalency, with, for example, a grade C equivalent to a grade 4 in England. These reforms to grading structures make it hard to directly compare GCSE results across the two nations.
- **Resits and discounting** – From 2013/14 onwards in England, only students' first attempt at individual subjects is counted in overall performance measures. In Wales, students' best grade in a subject was counted up until 2017/18, with first attempt used from 2018/19. Furthermore, from 2013/14 onwards in England, the same subjects across different qualification types are 'discounted' (e.g. only one grade is used for pupils taking the same subject across GCSEs and BTECs). In Wales, such discounting only occurs within broad qualification type (e.g. a GCSE and BTEC in similar subjects would not be discounted). These differences are another source of inconsistency between the two nations and would be likely to slightly push-up performance measures in Wales relative to England, all else being equal, particularly before 2018/19.
- **Compulsory subjects** – There are also differences in the number of compulsory subjects in the two nations. Across both nations, it is compulsory to take English Language and most pupils take English Literature. In Wales, there has long been an additional requirement for pupils to study Welsh either a first or second language, with most then taking a GCSE in Welsh. It is also compulsory to take Mathematics across both nations. From 2016/17, pupils in Wales can also take an additional GCSE called "Mathematics – Numeracy." This is not compulsory, but most pupils do take it. In both nations, pupils are also required to take Science, though this can be single, double or triple award.

^v <https://www.gov.uk/government/collections/statistics-gcse-key-stage-4>, <https://gov.wales/examination-results>, <https://www.gov.uk/government/collections/gcse-as-and-a-level-reforms>, <https://www.qualificationswales.org/english/qualifications/gcse-and-a-levels/gcse/>,

- Additional benchmarks** - Both nations have also introduced additional benchmarks that can be achieved through particular groups of subjects. In England pupils enter the “EBacc” if they take GCSEs in English Language and Literature, maths, science (double or triple award), any modern or ancient foreign language and history or geography. This does not lead to an additional qualification but schools are often compared on the share of pupils entering the EBacc or the share of pupils getting particular grades in EBacc subjects. The Welsh Government introduced the ‘Welsh Baccalaureate’ in 2007, which is intended to provide a broader set of skills and experiences. To be awarded pupils must meet certain GCSE and A level exam requirements (GCSE at A*-C in English or Welsh and maths, three further GCSEs and two A levels). Pupils must then also achieve a Skills Challenge Certificate involving an individual project and challenges in three other areas: enterprise and employability skills; knowledge of global issues; and participation in community-based activities. Schools are encouraged to offer the Welsh Bacc to all pupils, but it is not compulsory.
- Vocational qualifications** – During the 2000s, GCSE-equivalent vocational qualifications were included in headline measures of performance in both England and Wales. The 2011 Wolf Review of Vocational Education concluded that a rapid uptake of vocational qualifications in England could account for a large part of the rise in headline performance over time. In response GCSE performance measures were substantially reformed in England from 2013/14 to restrict the contribution vocational qualifications could make. Only ‘high-quality’ qualifications could be included, they could only count as one GCSE in performance measures and a maximum of two could be included per pupil. Following a major review of qualifications in 2012 Wales also introduced limits on the contribution that vocational qualifications could make. From 2015/16, they could only count as a maximum of two GCSEs. From 2016/17, only two could count towards threshold measures and a maximum of six for point score measures. The different set of reforms are likely to mean more pupils taking vocational qualifications in Wales than in England, given that they can count more towards performance measures in Wales.
- Performance measures** – The overall benchmarks for pupil performance have also evolved over time. In the late 2000s both nations focused on the share of pupils achieving five or more GCSEs (or equivalent) at A*-C (including English/Welsh and maths). Since then, this measure has become much less comparable across the two nations given changing rules for vocational qualifications, resits/discounting, new GCSE specifications and the move to numerical grades in England. Furthermore, both nations have also started to focus more on points-score measures to account for the full distribution of pupil performance. In England ‘Attainment 8’ and ‘Progress 8’ points-score measures became standard from 2016.^{vi} Attainment 8 scores are calculated across 8 GCSE qualifications: English (double weighted), maths (double weighted); three other EBacc subjects and three other GCSE qualifications. Progress 8 then represents how pupils score in Attainment 8 relative to the national average, given their performance at age 11 in Key Stage 2 tests. In Wales the current performance measure is total points scored across 9 GCSE or equivalent qualifications. Three slots are reserved for pupils’ best performance in literacy (Welsh

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https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/561021/Progress_8_and_Attainment_8_how_measures_are_calculated.pdf

or English), numeracy (maths or numeracy) and science. The other six slots are filled with pupils' best six results across other GCSE or equivalent qualifications approved for pre-16 delivery.^{vii} As described in section 2, this point score has been slightly modified over time to change the number of subject specific slots.

With these changes in mind, Figure 1.1 (England) and 1.2 (Wales) show overall measures of GCSE performance broken by free school meal status across both nations.

In England, the multiple changes to GCSEs and performance measures described above reduce the consistency of these measures over time. This includes changes to rules on resits and vocational qualifications from 2013/14 and the shift to new GCSEs with letter grades in 2016/17. Partly because of these changes, we show two measures for England: the share getting five or more GCSEs (or equivalent) at A*-C, including English and maths (the dashed lines); and the share achieving at least a grade 4/C in English and maths (solid lines). Whilst these changes clearly affect the overall level of performance, the gap in performance between pupils eligible for free school meals and other pupils actually remains close to 27-28 percentage points throughout the whole period.

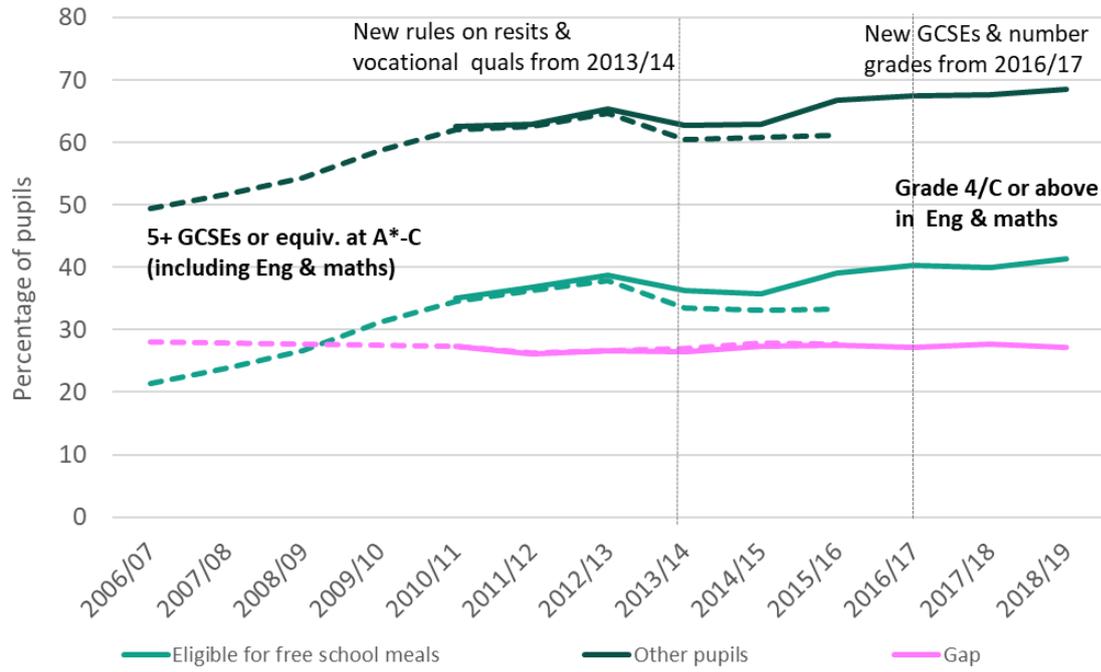
In Wales, the changes in 2016/17 had a clear effect on the share of pupils achieving five or more GCSEs at A*-C (including English/Welsh and maths). However, the gap in performance between pupils eligible for free school meals and other pupils has remained around 32-33 percentage points for the last 8 years.

The various sources of inconsistency within and across the two nations suggest it would be inappropriate to directly compare the level of performance, or the performance for specific groups of pupils, using these specific performance measures. The stability of the gap or inequality measures across various reforms indicates that our goal of comparing inequalities across the two nations is more reasonable. Indeed, these raw measures of inequality suggest a picture of higher educational inequality in Wales than in England, with very little change over time. This is a very similar pattern to what we later show based on more sophisticated methods.

In the next section we turn to our methods for calculating inequality measures that are less sensitive to changes to GCSE grading, specifications and rules within and across the two nations over time. We calculate inequality measures based on pupils' average percentile rank and show that inequality measures are very similar across different performance measures, discounting rules, points score metrics and different assumptions for compulsory subjects.

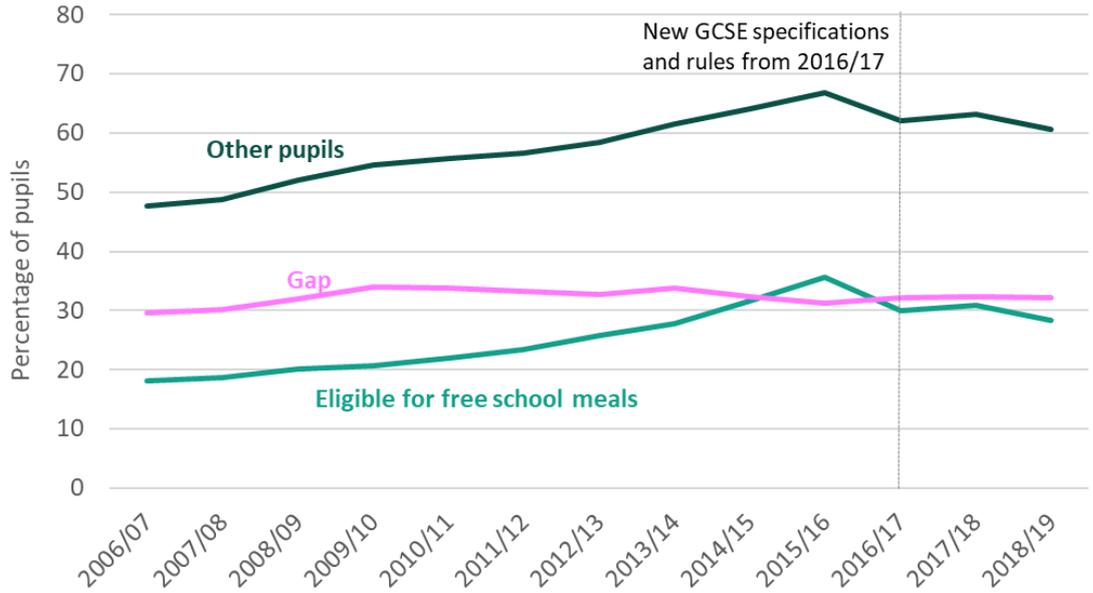
^{vii} <https://gov.wales/capped-9-points-score-interim>

Figure 1.1 GCSE performance by eligibility for free school meals in England over time. Share achieving five or more GCSEs at A*-C, including English and maths (dotted lines) and share achieving at least grade 4/C in English and maths (solid line)



Sources: Department for Education, GCSE and equivalent attainment by pupil characteristics: 2010 (<https://www.gov.uk/government/statistics/gcse-and-equivalent-attainment-by-pupil-characteristics-england-academic-year-2009-and-2010>), GCSE and equivalent results in England: 2015 to 2016 (<https://www.gov.uk/government/statistics/revised-gcse-and-equivalent-results-in-england-2015-to-2016>), GCSE and equivalent results 2018 to 2019 (<https://www.gov.uk/government/statistics/key-stage-4-performance-2019-revised>)

Figure 1.2 Overall GCSE performance by eligibility for free school meals in Wales over time. Share of pupils achieving five or more GCSEs at A*-C, including English or Welsh and maths



Sources and notes: Welsh Government, Examination Results 2018 to 2019 (<https://gov.wales/examination-results-september-2018-august-2019>). Pupils in Year 11 up to 2015-16, pupils aged 15 from 2016-17 onwards.

2. Methodology

Reforms to GCSEs have differed significantly across England and Wales over the past 10 years. This has made it near impossible to compare relative performance and inequality in pupil performance across England and Wales using published data.

In this section we describe our methodology for creating inequality measures that are less dependent on grading scales for GCSE and equivalent qualifications across the two nations. In particular, we use the same broad approach taken by the Department for Education (DfE) and Education Policy Institute (EPI) in analysing disadvantage gaps over time. This approach is directly focused on accounting for the changes to GCSE measures within England over time (such as the shift from letter to numerical grades) and is therefore highly suited to comparing inequalities across the two nations over time.

Broadly speaking, we calculate the average GCSE grade per subject taken, with a constant (largely arbitrary) points scoring system, over time. We then convert this into a rank within each year 11 cohort, within each nation. The disadvantage gap is the difference in the average percentile rank amongst disadvantaged pupils and the reference group (or between ethnic groups, or between those with and without special educational needs). The use of percentile ranks to compute measures of inequality have become popular in the recent empirical literature on inequality as they are less scale-dependent.⁷

We further express this in terms of months of educational progress to aid interpretation. This allows us to compare relative inequalities across England and Wales over time. For robustness, we also define percentile ranks using more familiar points score measures in the English and Welsh systems, which show similar patterns. We also perform a range of robustness checks across alternative measures and points scores, which show a very similar level and set of trends for educational inequality across both nations.

Data and sample selection

The analysis for England is based on the following files from the National Pupil Database:

- **National pupil database (NPD), KS4 attainment data** (from 2011 to 2019) - This provides a record of the assessments of learners by the end of year 11 of schooling in England. We only calculate the gaps from 2011 onwards as prior to that the NPD variables that defined attainment in GCSE English and maths (according to the definition used in the English Baccalaureate) were not available. From 2011 DfE has provided NPD variables that define this as well as published the syllabus included in each subject.
- **School Census** (from 2006 to 2019) - This is an annual census of all pupils and schools in England in Spring. It allows us to get information on a number of pupil characteristics, including eligibility for free school meals, special educational needs, gender and ethnicity.
- **Pupil-level annual school census (PLASC)** (from 2002 to 2005) – An annual census of all pupils in England. It is used to define pupil characteristics such as eligibility for free school meals, special educational needs, gender and ethnicity.
- **Geographical data** (from 2011 to 2019) – This provides information on the location of schools.

This analysis for Wales is based on the following files from the National Pupil Database (NPD) for Wales:

- **Pupil-level annual school census (PLASC)** (from 2003 to 2019) – An annual census of all pupils and schools in Wales each January. It is used to define key pupil characteristics, such as eligibility for free school meals, special educational needs, gender, ethnicity and type of school attended.
- **Wales Examination Database** (2009 to 2019) – This provides a record of all exam results for pupils in schools in Wales and comes in three parts. The first part provides key summary measures used in official statistics, the second provides subject-level results (based on official methods for ‘discounting’ qualifications in the same subject). The third contains raw subject-level results without any discounting. We make use of all three databases and focus on qualifications completed up to the end of Year 11.

The Wales exam database only includes pupils in state-funded secondary and all-through schools (confusingly known as middle schools), and special schools. We exclude pupils in pupil referral units and children in ‘education other than at school’ settings. This helps ensure comparability with figures for England. We also exclude pupils where one or more key GCSE-based outcomes are missing (a very small number in any given year). This exclusion is to ensure that any differences across measures are not driven by differential sample selection. These exclusions cover a very small number of pupils and have a negligible impact on our measures of educational inequality,

Given the data available, we focus on exams taken in Wales between 2009 and 2019. This range is chosen because of the lower quality of data available prior to 2009 and because in 2020 qualifications were awarded using the very different process of ‘Centre Assessed Grades’, due to the pandemic. Using this dataset allows for a consistent comparison with England from 2011 through to 2019. We extend the Wales data further back in time in order to ensure the longest historical context possible.

The overall pupil sample sizes used in the analysis are shown in Figure 2.1 below for (a) England and (b) Wales. In England the total number of pupils reduces over time from 566,430 in 2011 to 522,110 in 2018 then 541,140 in 2019. This reflects declining cohort sizes at age 15 over time. In Wales the total number of pupils also reduces over time.

Figure 2.1 Sample size over time

(a) England

| Year | Sample size |
|------|-------------|
| 2011 | 566,430 |
| 2012 | 560,760 |
| 2013 | 570,725 |
| 2014 | 557,845 |
| 2015 | 552,700 |
| 2016 | 539,295 |
| 2017 | 526,265 |
| 2018 | 522,110 |
| 2019 | 541,140 |

(b) Wales

| Year | Sample Size |
|------|-------------|
| 2009 | 35,755 |
| 2010 | 35,240 |
| 2011 | 34,350 |
| 2012 | 33,580 |
| 2013 | 35,200 |
| 2014 | 33,800 |
| 2015 | 32,775 |
| 2016 | 31,625 |
| 2017 | 30,825 |
| 2018 | 29,700 |
| 2019 | 30,575 |

Notes and sources: Authors calculations using National Pupil Database for Wales; National Pupil Database for England. Sample sizes have been rounded to the nearest 5.

In Figure 2.2, we show the types of schools attended by these pupils over time. Given the very different school structures, the types shown for (a) England and (b) Wales are different.

In England the number of academies rises from 274 in 2011 to 2612 in 2019, and thus now represent the majority of schools with pupils in year 11. The number of maintained schools, in turn, decreases from 2760 in 2011 to 838 in 2019. These include secondary schools and all-through schools. The number of Special or Alternative Provision schools in the sample drops over time, indicating fewer pupils from these schools were entered for GCSE qualifications over time.

In Wales, there are no academies: all state-funded schools are local-authority maintained. The number of secondary schools in Wales falls over time from 222 in 2009 to 186 in 2019. This is mostly made-up for by growing numbers of middle (or all-through) schools. The number of maintained special schools with pupils in the exam database fluctuates around 27 schools.

Figure 2.2 – School types over time

(a) England

| | Academy | Maintained | Special or Alternative Settings |
|------|---------|------------|---------------------------------|
| 2011 | 274 | 2760 | 741 |
| 2012 | 996 | 2037 | 730 |
| 2013 | 1469 | 1602 | 687 |
| 2014 | 1750 | 1362 | 664 |
| 2015 | 1941 | 1227 | 633 |
| 2016 | 2111 | 1120 | 604 |
| 2017 | 2271 | 1038 | 571 |
| 2018 | 2442 | 930 | 536 |
| 2019 | 2612 | 838 | 499 |

(b) Wales

| Year | Maintained secondary schools | Maintained middle schools | Maintained special schools |
|------|------------------------------|---------------------------|----------------------------|
| 2009 | 222 | 0 | 24 |
| 2010 | 222 | 0 | 27 |
| 2011 | 221 | 0 | 25 |
| 2012 | 220 | 0 | 27 |
| 2013 | 216 | 4 | 28 |
| 2014 | 212 | 4 | 27 |
| 2015 | 206 | 6 | 29 |
| 2016 | 205 | 7 | 25 |
| 2017 | 202 | 10 | 27 |
| 2018 | 196 | 12 | 27 |
| 2019 | 186 | 18 | 27 |

Notes and sources: Authors calculations using National Pupil Database for Wales; National Pupil Database for England. Sample sizes have been rounded to the nearest 5.

We do not include independent schools in our analysis. This is potentially a source of bias as a larger share of pupils in England (6-7 per cent) attend independent schools than in Wales (just over 2 per cent).^{viii} As a robustness check, we re-calculate average rank when including GCSE results for pupils in independent schools across both nations (where available). This has very little effect on the size of the disadvantage gap over time.

Defining key characteristics

We define the following key characteristics using the Spring Census/PLASC in England and PLASC in Wales:

- **Free school meals (FSM) eligibility** – we use this to define three measures: current eligibility, whether pupils have been eligible at any point in the past six years and whether they have been eligible for 80% of their time in school.^{ix} In both England and Wales this is measured in an extremely similar way, based on eligibility as recorded in the Spring or January census.
- **Ethnicity** – this is aggregated up to broad groupings to ensure sufficient sample sizes (White-British, White-Other, Black backgrounds, Asian backgrounds, mixed backgrounds and all other ethnic backgrounds). We use these broad groupings as sample sizes are relatively lower in Wales, but recognise that there are important intra-group differences that are missed as a result of this method.
- **Special education needs (SEN) status** – we look at whether a pupil has a statement of special educational needs or Education and Healthcare Plan (EHCP), an other special educational need marker (such as School Action or School Action Plus) or no special educational needs.

^{viii} <https://explore-education-statistics.service.gov.uk/find-statistics/education-and-training-statistics-for-the-uk>

^{ix} As not all cohorts can be tracked all the way back to Reception, we only look at FSM eligibility back to Year 2. In all cases, this relates to eligibility as captured in January or the Spring Term.

In Figure 2.3, we compare the level and trends in the share of disadvantaged pupils over time across England and Wales. As shown, the share of pupils in Wales eligible for FSM rose from about 14 per cent in 2009 up to about 16 per cent in 2015 and 2016, before falling back to 15 per cent by 2019. In England, the share of pupils eligible for FSM fell from 17 per cent in 2011 to 14 per cent in 2019. As a result, the share of pupils eligible for FSM in any given year is slightly lower in England than in Wales.

The share of pupils who have been eligible for FSM in the past six years is naturally larger, at about 27-28 per cent in Wales. However, it follows the same trend as those eligible for FSM in any given year, with a largely unchanged picture since 2010/2011. In England the share of pupils that have been eligible for FSM in the past six years rose from 23.5 per cent in 2011 to around 26-27 per cent in 2013, and stayed stable until falling to about 25 per cent in 2019. This makes the level slightly lower in England than in Wales. In both cases, this represents our main measure of disadvantage.

In Wales, about 8-9 per cent are persistently eligible for FSM, down from 10-11 per cent ten years ago. In England the share of persistently disadvantaged pupils is slightly larger, at 9-10 per cent during the time period analysed, and appears more stable over time. Therefore, despite slightly higher overall levels of eligibility for FSM in Wales, a lower share of pupils appear to be persistently eligible. We use this as our main marker of persistent or sustained disadvantage.

Since 2019 the share of pupils eligible for FSM has been increasing in both England and Wales. In England, the share of *all* pupils eligible for FSM increased from about 15 per cent in January 2019 to over 22 per cent in January 2022.^x In Wales, the share of pupils aged 5-16 eligible for FSM increased from 18 to 27 per cent over the same time frame.^{xi} These increases reflect increased eligibility during the pandemic and transitional protection from the roll-out of Universal Credit (UC). Since April 2018 in England and April 2019 in Wales any pupils eligible for FSM will retain their FSM eligibility until the end of the UC roll-out (summer 2023 at the earliest) and until their phase of education ends. This transitional protection will therefore continue to increase the share of pupils eligible for FSM in England and Wales over the next few years.

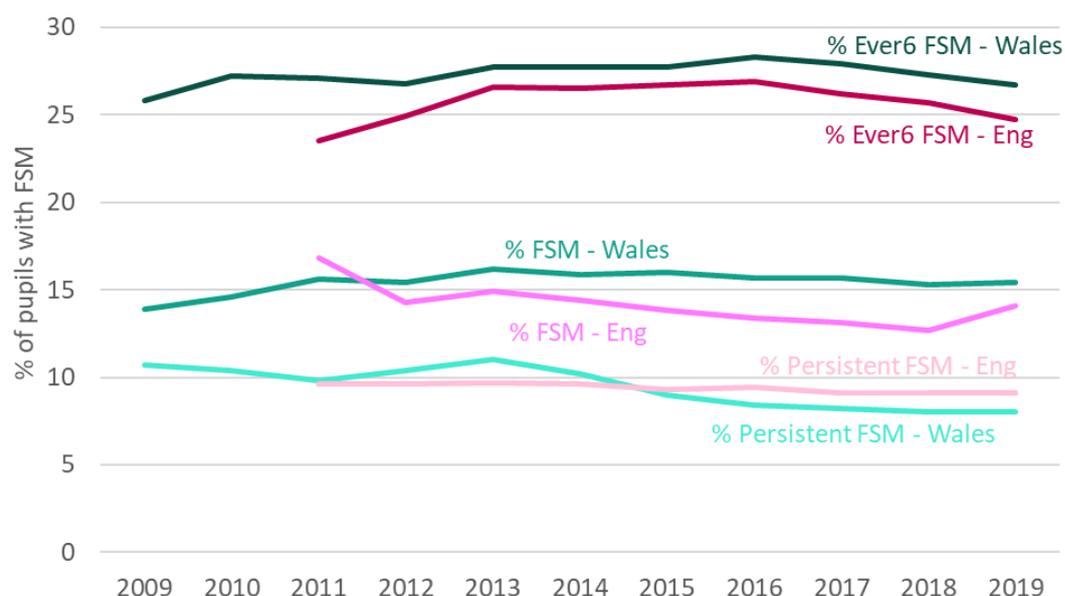
There are minimal implications for our analysis of this transitional protection and increase in the share of pupils eligible for FSM, as our main measure of disadvantage is the share of pupils eligible for free school meals in the past six years, which will be unaffected in January 2019. However, in future years, analysis is likely to become more difficult as the share of disadvantaged pupils increases over time.^{xii}

^x <https://explore-education-statistics.service.gov.uk/find-statistics/school-pupils-and-their-characteristics>

^{xi} <https://gov.wales/schools-census-results-february-2022-provisional>

^{xii} <https://www.nfer.ac.uk/investigating-the-changing-landscape-of-pupil-disadvantage/>

Figure 2.3 Free School Meal Eligibility over time in England and Wales



Data for Wales

| Year | Eligible for FSM (%) | Eligible for FSM in last 6 years (%) | Persistently eligible (%) |
|------|----------------------|--------------------------------------|---------------------------|
| 2009 | 13.9 | 25.8 | 10.7 |
| 2010 | 14.6 | 27.2 | 10.4 |
| 2011 | 15.6 | 27.1 | 9.8 |
| 2012 | 15.4 | 26.8 | 10.4 |
| 2013 | 16.2 | 27.7 | 11.0 |
| 2014 | 15.9 | 27.7 | 10.2 |
| 2015 | 16.0 | 27.7 | 9.0 |
| 2016 | 15.7 | 28.3 | 8.4 |
| 2017 | 15.7 | 27.9 | 8.2 |
| 2018 | 15.3 | 27.3 | 8.0 |
| 2019 | 15.4 | 26.7 | 8.0 |

Data for England

| | Eligible for FSM (%) | Eligible for FSM in last 6 years (%) | Persistently eligible (%) |
|------|----------------------|--------------------------------------|---------------------------|
| 2011 | 16.8 | 23.5 | 9.6 |
| 2012 | 14.3 | 24.9 | 9.6 |
| 2013 | 14.9 | 26.6 | 9.7 |
| 2014 | 14.4 | 26.5 | 9.6 |
| 2015 | 13.8 | 26.7 | 9.3 |
| 2016 | 13.4 | 26.9 | 9.4 |
| 2017 | 13.1 | 26.2 | 9.1 |
| 2018 | 12.7 | 25.7 | 9.1 |
| 2019 | 14.1 | 24.7 | 9.1 |

Notes and sources: Authors calculations using National Pupil Databases for Wales and England.

In Figure 2.4, we compare the ethnic mix of pupils taking GCSEs in England and Wales in 2011 and 2019. In Wales the majority of pupils come from a White-British background, though this has shrunk slightly over time from 93 per cent of year 11 pupils in 2011 to 90 per cent in 2019. Only about 1 per cent of pupils came from Black backgrounds in 2019 and 2 per cent from Asian backgrounds.

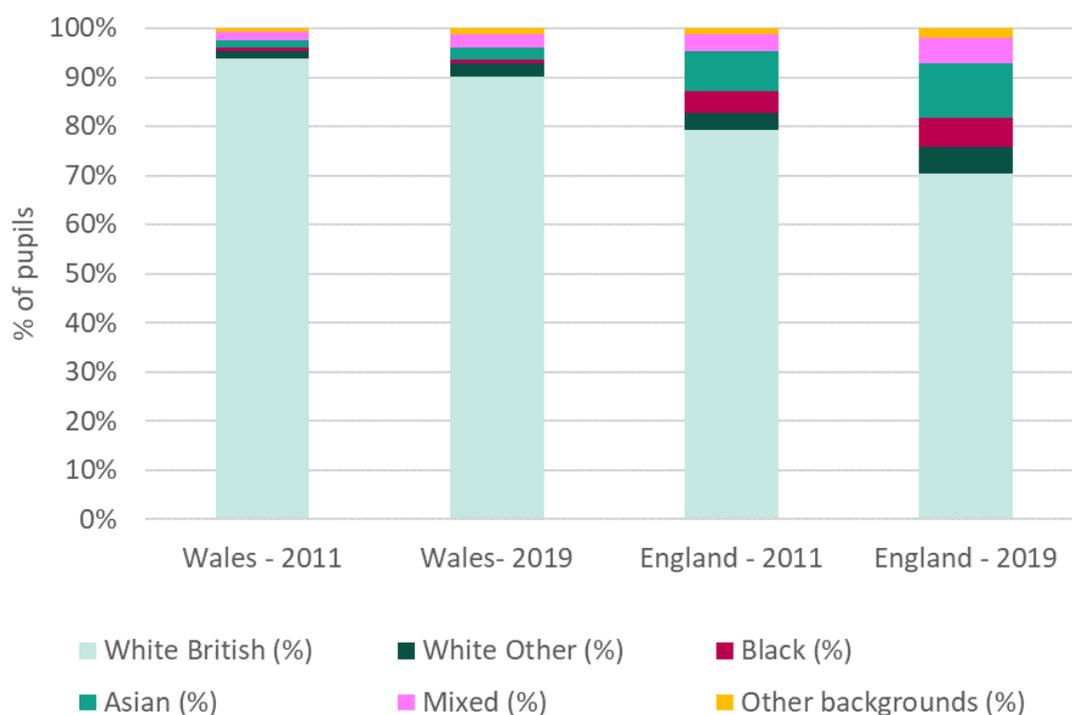
In England the majority of pupils also come from a White-British background, though the share is lower than in Wales at 69 per cent of pupils in 2019. This is down from 78 per cent in 2011.. The second largest ethnicity group is pupils from an Asian background (11 per cent in 2019, up from 8 per cent in 2011). There have also been increases in the share of pupils from White-Other (up from 5.5 per cent), Mixed (up from 4 to 5 per cent), Black (up from 4.5 to 6 per cent) and other ethnic backgrounds (up from 1 to 2 per cent) over time.

These differences are important to note as previous analysis has shown that pupils from ethnic minority backgrounds have different levels of GCSE attainment than pupils from White-British backgrounds. For example previous EPI analysis for England has shown that, relative to pupils from White-British backgrounds, pupils from Chinese backgrounds are about 24 months ahead, pupils from Indian backgrounds are 11 months ahead and pupils from Bangladeshi backgrounds are 5 months ahead (EPI Annual Report, 2020). In contrast, pupils from Pakistani and Black-African backgrounds have similar levels of GCSE attainment to pupils from White-British backgrounds, pupils from Black-Caribbean backgrounds are 11 months behind and pupils from Roma/Gypsy/Traveller background are over 24 months behind.

Unfortunately, population sizes for Wales make it difficult to produce similar analysis for disaggregated ethnic groups. This is why we focus on larger, broad ethnic groups in our analysis. Such figures are unlikely to be fully comparable across Wales and England as the broad ethnic groups conceal differences between smaller categories. For example, according to the respective pupil censuses for January 2020, about 80 per cent of pupils from Black backgrounds in Wales come from a Black African backgrounds (higher achieving than pupils from Black Caribbean backgrounds), whilst in England the comparable share is about 68 per cent.^{xiii} Whilst they are not fully comparable, it is still informative to produce measure of differential attainment across ethnicities to get a full sense of inequalities within each nation.

^{xiii} <https://explore-education-statistics.service.gov.uk/find-statistics/school-pupils-and-their-characteristics/2019-20>; <https://gov.wales/schools-census-results-january-2020>

Figure 2.4 Ethnic mix of pupils in 2011 and 2019 across Wales and England



Data for Wales

| Year | White British (%) | White Other (%) | Black (%) | Asian (%) | Mixed (%) | Other backgrounds (%) |
|------|-------------------|-----------------|-----------|-----------|-----------|-----------------------|
| 2009 | 92.8 | 1.3 | 0.5 | 1.5 | 1.5 | 0.6 |
| 2010 | 93.1 | 1.2 | 0.6 | 1.5 | 1.6 | 0.7 |
| 2011 | 93.0 | 1.4 | 0.6 | 1.5 | 1.7 | 0.8 |
| 2012 | 92.5 | 1.2 | 0.5 | 1.8 | 1.8 | 0.8 |
| 2013 | 92.8 | 1.4 | 0.6 | 1.7 | 1.9 | 0.8 |
| 2014 | 92.1 | 1.7 | 0.7 | 1.9 | 1.9 | 1.0 |
| 2015 | 92.0 | 1.8 | 0.7 | 1.9 | 2.1 | 1.0 |
| 2016 | 91.0 | 2.1 | 0.7 | 2.2 | 2.2 | 1.2 |
| 2017 | 91.1 | 2.1 | 0.8 | 2.1 | 2.1 | 1.1 |
| 2018 | 90.8 | 2.2 | 0.8 | 2.2 | 2.3 | 1.3 |
| 2019 | 89.8 | 2.5 | 0.8 | 2.4 | 2.7 | 1.3 |

Data for England

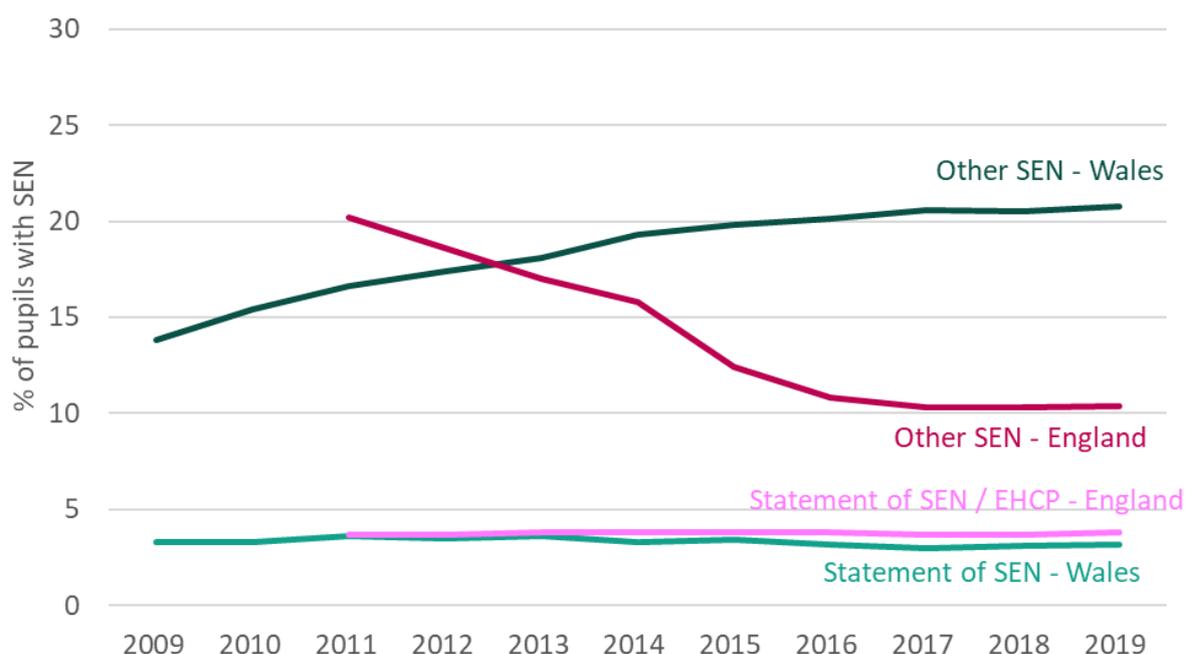
| | White British (%) | White Other (%) | Black (%) | Asian (%) | Mixed (%) | Other backgrounds (%) |
|------|-------------------|-----------------|-----------|-----------|-----------|-----------------------|
| 2011 | 78.3 | 3.5 | 4.5 | 8 | 3.3 | 1.3 |
| 2012 | 77.4 | 3.6 | 4.7 | 8.4 | 3.6 | 1.4 |
| 2013 | 76.7 | 3.7 | 4.8 | 8.6 | 3.8 | 1.4 |
| 2014 | 75.7 | 4.1 | 4.8 | 9 | 3.9 | 1.5 |
| 2015 | 74.7 | 4.4 | 4.9 | 9.3 | 4.1 | 1.6 |
| 2016 | 73.3 | 4.9 | 5.2 | 9.9 | 4.2 | 1.7 |
| 2017 | 71.8 | 5.1 | 5.3 | 10.4 | 4.5 | 1.8 |
| 2018 | 70.4 | 5.3 | 5.5 | 11 | 4.7 | 1.9 |
| 2019 | 69.3 | 5.5 | 5.7 | 11.1 | 5 | 2 |

Notes and sources: Authors calculations using National Pupil Database for Wales; National Pupil Database for England.

Figure 2.5 shows the share of pupils with special educational needs (SEN) in England and Wales over time. The share of pupils with a statement of SEN or EHCP is mostly similar across England and Wales over time. In Wales, the share of pupils with a statement of SEN has fallen very slightly over time, from 3.6 per cent of year 11 pupils in 2011 to 3.2 per cent in 2019. In England, the share of pupils with a statement of SEN or EHCP is higher, but has remained around 3.7-3.8 per cent of pupils since 2011.

In contrast, there have been very different trends in the shares of pupils with other (mostly less severe) forms of SEN. In Wales, the share of pupils with other forms of SEN has risen from about 14-15 per cent in 2009/2010 to 21 per cent by 2019. In England, we see a totally different trend: the share of pupils with other forms of SEN fell sharply from 20 per cent in 2011 to just over 10 per cent by 2019. Most of this fall occurred after major reforms to the SEN system in 2014, which increased thresholds for the identification of SEN support. Evidence also suggests that there is large variation in the identification of SEN across schools in England (Hutchinson, 2021). These different levels and trends are highly likely to affect the composition of SEN groups across England and Wales, as well as the resultant SEN gaps and their comparability across the two nations.

Figure 2.5 SEN rates across time across Wales and England



Data for Wales

| Year | Statement of SEN (%) | Other SEN (%) |
|------|----------------------|---------------|
| 2009 | 3.3 | 13.8 |
| 2010 | 3.3 | 15.4 |
| 2011 | 3.6 | 16.6 |
| 2012 | 3.5 | 17.4 |
| 2013 | 3.6 | 18.1 |
| 2014 | 3.3 | 19.3 |
| 2015 | 3.4 | 19.8 |
| 2016 | 3.2 | 20.1 |
| 2017 | 3.0 | 20.6 |
| 2018 | 3.1 | 20.5 |
| 2019 | 3.2 | 20.8 |

Data for England

| | Statement of SEN / EHCP | Other SEN |
|------|-------------------------|-----------|
| 2011 | 3.7 | 20.2 |
| 2012 | 3.7 | 18.6 |
| 2013 | 3.8 | 17 |
| 2014 | 3.8 | 15.8 |
| 2015 | 3.8 | 12.4 |
| 2016 | 3.8 | 10.8 |
| 2017 | 3.7 | 10.3 |
| 2018 | 3.7 | 10.3 |
| 2019 | 3.8 | 10.4 |

Notes and sources: Authors calculations using National Pupil Database for Wales; National Pupil Database for England. Other SEN includes School Action and School Action Plus.

Defining Key Stage 4 and GCSE outcomes

In order to maximise the insight and robustness of our analysis, we use a range of Key Stage 4 and GCSE-based outcomes between 2009 and 2019 for Wales, and between 2011 to 2019 for England, some of which are only defined within England or Wales.

Our main measures defined across England and Wales are as follows:

- **Average GCSE grade** – We define this measure ourselves using GCSE qualifications for each subject in the subject-level data for each nation. For consistency, all GCSE qualifications are allocated a points score based on the grade achieved at the first attempt in that subject. To ensure comparability between England and Wales, the points score matches the one used for GCSEs with letter grades in the EPI Annual report.^{xiv} In principle, the gradual movement to

^{xiv} A* = 8.5, A = 7, B = 5.5, C = 4, D = 3, E = 2, F = 1.5, G = 1, with a score of zero for all subject entries with a missing or ungraded score. AS Levels taken in Year 11 are given scores of A = 10.75, B = 8.88, C = 7, D = 5.13, E =

numerical scores of 9-1 in England from 2016 onwards creates a source of inconsistency. However, the fact that we focus on differences in percentile rank makes the effect of this change relatively minor. The change in the points metric would need to be very big to change the overall ranking. We define this measure using the ‘discounted’ data and the raw data. The average scores are very similar over time across both measures (where they are both available) and almost identical when we examine differences in percentile rank.

- **Average GCSE grade in core subjects** – This is defined in a similar way to average GCSE grade except that we only focus on core subjects (English/Welsh, Maths, Science). We create an average for each core subject, including Welsh as a first language but not as a second language, and then create an equally weighted average across the three core subjects. For consistency with England, we do not include “Mathematics – Numeracy” in the average for Maths in Wales.

The raw average values of these outcomes are shown over time in Figure 2.6. In England, average GCSE points per subject and core subject points per subject have increased over time. By 2019, the average grade for all subjects and core subjects was about 4.5. Up to 2015, the GCSE points per subject had a different scale,^{xv} but this is converted to a percentile rank for consistency and is highly unlikely to have any material effects on the results.

In Wales, the average GCSE points per subject entry has increased very gradually over time from about 3.7 to 4.0. However, average points scores remain close to 4 or a grade C over time. The table shows measures based on official discounting rules in Wales (W2 data) and before such rules have been applied (W3 data). The average values are very similar in years where both datasets are available, suggesting that discounting rules are having very little effect on the average over time.

In all cases, average grades in Wales are about half a grade lower than in England. This partly reflects a slightly different grade distribution across the two nations. Our use of percentile rank comparisons in average points scores aims to address this difference, both in the overall approach and through the various robustness checks we use.

Figure 2.6 Raw values of GCSE outcomes over time in England and Wales

a) England

| | GCSE points per subject | Core subject points per subject |
|------|--------------------------------|--|
| 2011 | 37.91 | 4.26 |
| 2012 | 38.09 | 4.27 |
| 2013 | 38 | 4.31 |
| 2014 | 38.12 | 4.26 |
| 2015 | 38.39 | 4.27 |
| 2016 | 4.82 | 4.31 |
| 2017 | 4.3 | 4.52 |
| 2018 | 4.43 | 4.54 |
| 2019 | 4.46 | 4.56 |

3.5, 0 otherwise. This matches the points scores used in the Department for Education methodology for Key Stage 4 performance tables.

^{xv} A* = 58, A = 52, B = 46, C = 40, D = 34, E = 28, F = 22, G = 16, with a score of zero for all subject entries with a missing or ungraded score. AS Levels taken in Year 11 are given scores of A = 67.5, B = 60, C = 52.5, D = 45, E = 37.5, 0 otherwise.

b) Wales

| Year | GCSE points per subject (W2 data) | GCSE points per subject (W3 data) | Core subject points per subject (W2 data) | Core subject points per subject (W3 data) |
|------|-----------------------------------|-----------------------------------|---|---|
| 2009 | | 3.70 | | 3.65 |
| 2010 | | 3.70 | | 3.85 |
| 2011 | | 3.71 | | 3.86 |
| 2012 | | 3.72 | | 3.81 |
| 2013 | | 3.73 | | 3.85 |
| 2014 | 3.73 | 3.73 | 3.87 | 3.87 |
| 2015 | 3.75 | 3.74 | 3.89 | 3.89 |
| 2016 | 3.78 | 3.78 | 3.94 | 3.94 |
| 2017 | 3.84 | 3.85 | 4.13 | 4.13 |
| 2018 | 3.80 | 3.80 | 3.93 | 3.93 |
| 2019 | 3.96 | 3.98 | 4.05 | 4.07 |

Notes and sources: Authors calculations using National Pupil Database for Wales; National Pupil Database for England.

For each of these measures, and separately for England and Wales, we then rank each individual's score within the sample for their year 11 cohort to get their percentile rank. This allows us to calculate inequalities in percentile rank for various groups of pupils in each nation over time.

For ease of interpretability, this is expressed in terms of months of educational progress using the same conversion factor as used in the 2020 EPI Annual Report, which has been used for all EPI analysis of the disadvantage gap since 2016.^{xvi} It is calculated based on the estimated effect of month of birth on percentile rank in the distribution of GCSE scores, all else being equal. Therefore, a disadvantage gap of 18 months is equivalent to more than 1.5 times the difference between the expected GCSE results of a child born in September and a child born in August. As a result, gaps in months of progress should not be interpreted in a direct causal way or linked through to policy solutions. It cannot be concluded that if a disadvantaged child stayed in school for 18 months longer, then the gap would close. The gaps in months of progress are simply a different representation of the differences in the percentile rank. The use of the months progress conversion has no effect at all on the relative differences in inequalities across England and Wales.

We also employ a variety of robustness checks to ensure the validity of our results within Wales over time, given the different rules used over time. First, we define an alternative points score (A*-8, A=7,...,G= 1). Second, we use 'best' attempt rather than 'first attempt' within subjects over time. Third, we expand the core subject measure to include the Numeracy GCSE. These alternative measures show near identical results over time.

To provide further evidence on the distribution of scores, we also show the share of individuals from disadvantaged and non-disadvantaged backgrounds who end up in different quintiles of the distribution of average GCSE grade per subject, e.g. the share of disadvantaged pupils that end up in the top 20 per cent and bottom 20 per cent of scores. This is shown for both nations.

^{xvi} https://epi.org.uk/wp-content/uploads/2020/08/Technical-Appendix_AR_2020_EPI.pdf.

As a further robustness check, we also define percentile ranks using official and more familiar measures of GCSE attainment within each nation over time. These include the effect of nation-specific rules on repeat entry, discounting and also include GCSE-equivalent qualifications according to each nation’s equivalency rules over time.

For Wales, we focus on the following scores, with the average values shown over time in Figure 2.7:

- **Capped Points Score 8** – This is a continuous points score based on the best 8 results for each pupil in Key Stage 4 qualifications. This is defined within the exam database from 2014 to 2019
- **Capped Points Score 9** - This is a continuous points score based on the best 9 results for each pupil in Key Stage 4 qualifications, with subject specific requirements in English/Welsh, Maths and Science. This is defined within the database from 2014 to 2019
- **New Capped Points Score 9** - This is an updated points score based on the best 9 results for each pupils in Key Stage 4 qualifications, with subject specific requirements in English/Welsh, Maths and Science. The main change has been to reduce the number of GCSE subject specific slots from 5 to 3, so more subjects can count towards the points score. This is defined within the database from 2014 to 2019

Table 2.7 Official Key Stage 4 points score measures in Wales over time

| Year | Capped Points Score 8 | Capped Points Score 9 | New Capped Points Score 9 |
|------|-----------------------|-----------------------|---------------------------|
| 2014 | 340.3 | 374.5 | 377.5 |
| 2015 | 342.2 | 377.2 | 380.6 |
| 2016 | 343.7 | 379.0 | 382.5 |
| 2017 | 328.8 | 356.8 | 363.1 |
| 2018 | 330.2 | 356.2 | 361.3 |
| 2019 | 330.1 | 353.2 | 360.8 |

Notes and sources: Authors calculations using National Pupil Database for Wales.

For England, we focus on the following outcomes, with average value shown in Figure 2.8:

- **Attainment 8** – This is based on pupils’ performance across 8 qualifications. It includes: (a) a double weighted maths element that contains the point score of the EBacc maths qualification; (b) an English element based on the EBacc English language or English literature, double weighted if the pupil has sat on both; (3) the three highest point scores from any of the EBacc qualifications in science subjects, computer science, history, geography and languages, (4) the three highest point scores in any three other subjects. This is available within the database from 2016 to 2019.
- **Progress 8 (unadjusted)** - This aims to capture pupil progress from the end of primary school to the end of Key Stage 4. A progress 8 score is calculated for each pupil by comparing their Attainment 8 score with the average Attainment 8 score of all pupils at national level that had similar attainment at the end of primary school. This is defined within the database in 2018 and 2019.
- **Progress 8 (adjusted)** – This is similar to the measure above but adjusts the scores of pupils with extremely negative progress scores (for example, pupils that are high achievers at key stage 2 and much worse achievers at key stage 4 compared to the national average for others will

similar previous attainment, for factors beyond school control). A minimum progress score is set for pupils from a prior attainment group in which very negative scores exist.

Figure 2.8 Official Key Stage 4 points score measures in England over time

| | Attainment 8 | Unadjusted Progress 8 | Adjusted Progress 8 |
|------|--------------|-----------------------|---------------------|
| 2016 | 49.99 | | -0.03 |
| 2017 | 46.38 | | -0.03 |
| 2018 | 46.61 | -0.02 | -0.02 |
| 2019 | 46.77 | -0.03 | -0.02 |

Notes and sources: Authors calculations using National Pupil Database for England.

To provide further context, Figures 2.9 and 2.10 show the number of GCSE and equivalent qualifications taken by disadvantaged and other pupils over time in England and Wales, respectively. Because of differences in the data, the precise measures are not fully comparable.

In England, non-disadvantaged pupils take a higher number of GCSE and equivalent qualifications than disadvantaged pupils, on average. However, for both groups the number of GCSE and equivalent qualifications taken has decreased through time, partly reflecting how vocational qualifications count in performance measures. In 2011, non-disadvantaged pupils took, on average, 11.8 qualifications, which then fell to 8.4 qualifications in 2019. Disadvantaged pupils took 10.7 qualifications in 2011 and 7.5 in 2019 on average. This makes for a gap equivalent to about one GCSE. The number of BTECS taken is small throughout the years, declining over time, and does not vary greatly between groups. Similarly, pupils from both disadvantaged and non-disadvantaged backgrounds took very few vocational qualifications. Where data is available, we see that pupils from disadvantaged and non-disadvantaged backgrounds took about 0.5 short GCSEs, on average.

In 2009 in Wales, disadvantaged pupils took about 7.5 GCSEs, on average, about two less than the 9.6 GCSEs taken by other pupils. Disadvantaged and other pupils both took about one equivalent qualification, on average. Between 2009 and 2015, the number of GCSEs taken by both groups fell, though the gap remained steady at a difference of about 2 GCSEs. At the same time, both groups took more and more equivalent qualifications, reaching a high-point of 5.5-6 equivalent qualifications in 2016. This is clearly far higher than in England. Disadvantaged pupils in Wales were also likely to take slightly more equivalent qualifications, on average.

Since 2016, this trend in Wales has reversed slightly with pupils likely to take more GCSEs and a smaller gap in the average number taken by disadvantaged and other pupils. The number of equivalent qualifications taken by both groups has also halved to just over three qualifications.

The net result of these very different trends is that pupils in Wales are likely to be taking more qualifications than in England in 2019, though with a similar gap across disadvantaged and non-disadvantaged pupils. In England, disadvantaged pupils were taking close to 8 GCSE or equivalent qualifications in 2019, compared with 9 for non-disadvantaged pupils. In Wales, disadvantaged pupils were taking about 8 GCSEs and non-disadvantaged pupils were taking about 9 GCSEs, but both groups also took about 3-3.5 non-GCSE qualifications.

Combining this with our analysis for average results, it suggests that pupils in Wales seem to be taking more qualifications, but with lower average results. Whilst this result is not causal, it does suggest a potential trade-off between quality and quantity.

Figure 2.9 Number of qualifications taken over time by level of disadvantage in England

a) 2011-2019

| Year | GCSE and equivalents | | | BTECs | | | Double award vocational GCSEs | | |
|------|----------------------|----------------|-----|-------------------|----------------|------|-------------------------------|----------------|-----|
| | Not-disadvantaged | Dis-advantaged | Gap | Not-disadvantaged | Dis-advantaged | Gap | Not-disadvantaged | Dis-advantaged | Gap |
| 2011 | 11.8 | 10.7 | 1.1 | 0.5 | 0.6 | -0.1 | 0.1 | 0.1 | 0 |
| 2012 | 11.9 | 10.9 | 1 | 0.8 | 1.1 | -0.3 | 0 | 0 | 0 |
| 2013 | 11.6 | 10.7 | 0.9 | 0.8 | 1.2 | -0.4 | 0 | 0 | 0 |
| 2014 | 9.3 | 7.9 | 1.4 | 0.5 | 0.7 | -0.2 | 0 | 0 | 0 |
| 2015 | 9.5 | 8.2 | 1.3 | 0.4 | 0.5 | -0.1 | 0 | 0 | 0 |
| 2016 | 9.7 | 8.7 | 1 | 0.3 | 0.4 | -0.1 | 0 | 0 | 0 |
| 2017 | 9.6 | 8.7 | 0.9 | 0.2 | 0.3 | -0.1 | 0 | 0 | 0 |
| 2018 | 8.5 | 7.6 | 0.9 | 0.2 | 0.3 | -0.1 | 0 | 0 | 0 |
| 2019 | 8.4 | 7.5 | 0.9 | 0.2 | 0.3 | -0.1 | n/a | n/a | n/a |

b) 2011-2014

| Year | Full GCSE | | | Short GCSE | | |
|------|-------------------|---------------|-----|-------------------|---------------|-----|
| | Not-disadvantaged | Disadvantaged | Gap | Not-disadvantaged | Disadvantaged | Gap |
| 2011 | 7.7 | 5.8 | 1.9 | 0.6 | 0.5 | 0.1 |
| 2012 | 7.7 | 5.8 | 1.9 | 0.5 | 0.4 | 0.1 |
| 2013 | 8 | 6.2 | 1.8 | 0.4 | 0.4 | 0 |
| 2014 | 8.4 | 6.8 | 1.6 | n/a | n/a | n/a |

Notes and sources: Authors calculations using National Pupil Database for England.

Figure 2.10 Number of qualifications taken over time by level of disadvantage in Wales

| Year | GCSEs | | | Other qualifications | | |
|------|-------------------|---------------|-----|----------------------|---------------|------|
| | Not-disadvantaged | Disadvantaged | Gap | Not-disadvantaged | Disadvantaged | Gap |
| 2009 | 9.6 | 7.5 | 2.1 | 0.9 | 1.2 | -0.3 |
| 2010 | 9.6 | 7.5 | 2.1 | 1.2 | 1.6 | -0.3 |
| 2011 | 9.5 | 7.4 | 2.1 | 2.0 | 2.3 | -0.3 |
| 2012 | 9.3 | 7.2 | 2.1 | 3.3 | 3.5 | -0.2 |
| 2013 | 9.0 | 6.8 | 2.1 | 4.6 | 4.8 | -0.2 |
| 2014 | 8.9 | 6.7 | 2.2 | 5.0 | 5.4 | -0.3 |
| 2015 | 8.9 | 6.7 | 2.2 | 5.4 | 5.8 | -0.4 |
| 2016 | 9.1 | 7.0 | 2.0 | 5.5 | 6.1 | -0.6 |
| 2017 | 9.9 | 8.2 | 1.7 | 2.8 | 3.4 | -0.6 |
| 2018 | 9.4 | 7.8 | 1.6 | 3.3 | 3.7 | -0.3 |
| 2019 | 9.2 | 7.7 | 1.5 | 3.2 | 3.5 | -0.3 |

Notes and sources: Authors calculations using National Pupil Database for Wales.

Subject-level analysis

We also examine disadvantage gaps within GCSE subjects in England and Wales. In Wales, we group GCSEs into 35 different subjects. Individual subjects with relatively small sample sizes (less than 100) are grouped into 'Other Languages' or 'Other Subjects'. In England, the number of subjects included is lower given that the spread of subjects taken has fallen over time.

We then calculate the share of disadvantaged and other students who have taken one or more GCSE in that subject up to Year 11. Amongst those taking the subject, we calculate average points score per GCSE and percentile rank in an identical way to the overall measures. This allows us to define a participation and disadvantage gap within individual subjects.

In all cases, the disadvantage gap will be highly driven by the sorts of pupils who chose to take each subject in each nation and are more dependent on the distribution of grades within each subject by nation. The disadvantage gaps for each subject are therefore not fully comparable. However, the results are still informative within each nation.

Local authority-level analysis

We also examine disadvantage gaps within local authorities over time. This is calculated in an identical way to the overall disadvantage gap, with two exceptions. First, we focus on points per core subject to avoid any differences being driven by differential subject choices across areas. Second, the disadvantage gap is defined relative to the position of the national average for non-disadvantaged pupils across each nation. This ensures that any differences across local authorities are purely driven by the relative performance of disadvantaged students, as opposed to a different mix of non-disadvantaged students.

3. Inequalities over time in England and Wales

There are large inequalities in GCSE results in England and Wales based on disadvantage, educational needs and ethnic background. These inequalities have also been remarkably persistent over time, particularly those related to socio-economic background. In what follows, we describe the key trends in inequalities based on disadvantage, special educational needs and ethnic background.

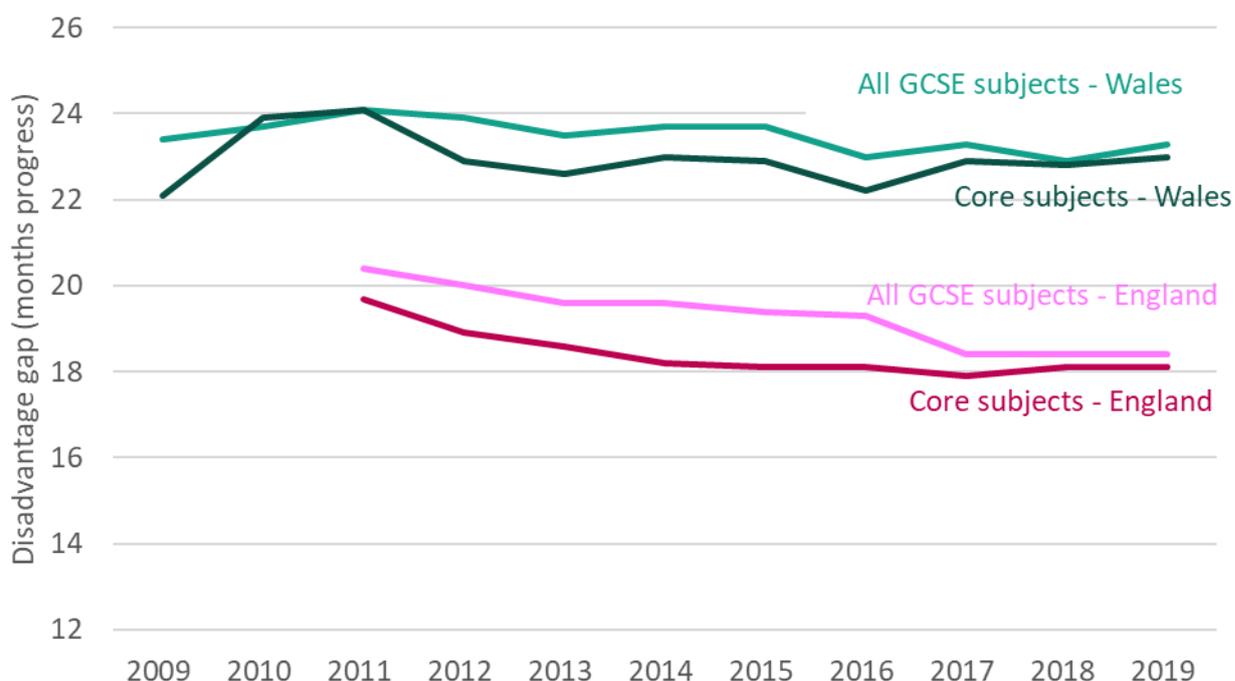
Disadvantage gaps

Figure 3.1 shows the disadvantage gap over time for GCSE results in Wales between 2009 and 2019 and for England between 2011 and 2019. Pupils are defined as disadvantaged if they were ever eligible for FSM in the past six years and the disadvantage gap is expressed in months of educational progress. This is shown for our core measures (GCSE points per subject and points scored in core subjects). To aid interpretation, Appendix Table A1 shows the percentile ranking scores for each disadvantaged group over time. Figure 3.2 shows the disadvantage gap based on the GCSE outcomes used in Wales and Figure 3.3 shows the disadvantage gap based on the GCSE outcomes used in England.

Starting with our main measures, we see that the disadvantage gap in England in 2019 was around 18 months. In Wales, it was higher at 23 months, or nearly two years. In both nations, the gap is slightly wider for all subjects than core subjects, but this difference is generally less than 0.5 months.

Looking at trends over time, the disadvantage gap has come down over time, but progress in narrowing this attainment gap has been extremely slow. In England, the disadvantage gap has come down from 20 months in 2011 to 18 months in 2019. In Wales, progress has been even slower, with the gap only coming down from 24 months in 2011 to 23 months in 2019.

Figure 3.1 Disadvantage gap in GCSE results in Wales and England over time (months of educational progress, disadvantaged defined as ever eligible for FSM in past six years)



Data for Wales (disadvantage gap, months of educational progress)

| | Capped Points Score 8 | Capped Points Score 9 | New Capped Points Score 9 | GCSE points per subject | Alternative Mean Points | Mean Points (Best Grade) | GCSE points per core subject | Alternative Core Points |
|------|-----------------------|-----------------------|---------------------------|-------------------------|-------------------------|--------------------------|------------------------------|-------------------------|
| 2009 | | | | 23.4 | 23.3 | 23.4 | 22.1 | 22.1 |
| 2010 | | | | 23.7 | 23.6 | 23.7 | 23.9 | 23.9 |
| 2011 | | | | 24.1 | 24.0 | 24.0 | 24.1 | 24.1 |
| 2012 | | | | 23.9 | 23.9 | 23.9 | 22.9 | 22.9 |
| 2013 | | | | 23.5 | 23.6 | 23.5 | 22.6 | 22.6 |
| 2014 | 21.5 | 21.6 | 22.3 | 23.7 | 23.8 | 23.7 | 23.0 | 23.0 |
| 2015 | 21.0 | 21.2 | 22.3 | 23.7 | 23.7 | 23.5 | 22.9 | 22.9 |
| 2016 | 19.9 | 20.2 | 21.2 | 23.0 | 23.0 | 22.7 | 22.2 | 22.2 |
| 2017 | 22.1 | 22.2 | 22.3 | 23.3 | 23.2 | 23.2 | 22.9 | 23.1 |
| 2018 | 21.6 | 22.4 | 22.1 | 22.9 | 22.9 | 22.7 | 22.8 | 22.9 |
| 2019 | 21.7 | 22.8 | 22.4 | 23.3 | 23.4 | 23.3 | 23.0 | 23.2 |

Data for England (disadvantage gap, months of educational progress)

| | All GCSE subjects | Core subjects | Attainment 8 | Unadjusted Progress 8 | Adjusted Progress 8 |
|------|-------------------|---------------|--------------|-----------------------|---------------------|
| 2011 | 20.4 | 19.7 | | | |
| 2012 | 20 | 18.9 | | | |
| 2013 | 19.6 | 18.6 | | | |
| 2014 | 19.6 | 18.2 | | | |
| 2015 | 19.4 | 18.1 | | | |
| 2016 | 19.3 | 18.1 | 19.1 | | 11.1 |
| 2017 | 18.4 | 17.9 | 18 | | 10.9 |
| 2018 | 18.4 | 18.1 | 18.4 | 12 | 12 |
| 2019 | 18.4 | 18.1 | 18.5 | 11.8 | 11.8 |

Notes and sources: Authors calculations using National Pupil Databases for Wales and England.

As shown in Table A1, disadvantaged students in Wales score around the 33rd percentile, on average, across all subjects, and around the 35th percentile for core subjects. In England, disadvantaged students score around the 36th percentile, on average, across all subjects and just in core subjects.

Figure 3.2 shows the disadvantage gap for a wider set of GCSE measures in Wales to test the robustness of our results. The disadvantage gap in the new capped points score across nine subjects is only available back to 2014, but this shows a very similar sized gap (22 months) and almost no narrowing over time. The disadvantage gap for the two older points score measures is smaller and narrowed from 21 months in 2014 to 20 months in 2016. These measures then increased in 2017 when GCSE performance measures were changed in Wales and now provide a very similar level of 21.5-22.5 months.

Figure 3.2 also shows the disadvantage gap in Wales if we instead use pupil's best grade in a subject (as opposed to their first attempt) and using an alternative points score metric with equal distance between grades. These give near identical levels and trends for the disadvantage gap over time. Similarly, we calculate the disadvantage gap in core subjects if we also include Welsh as a second language and the numeracy GCSE. Again, the overall gap is near identical in level and trends to our main core subject measure.

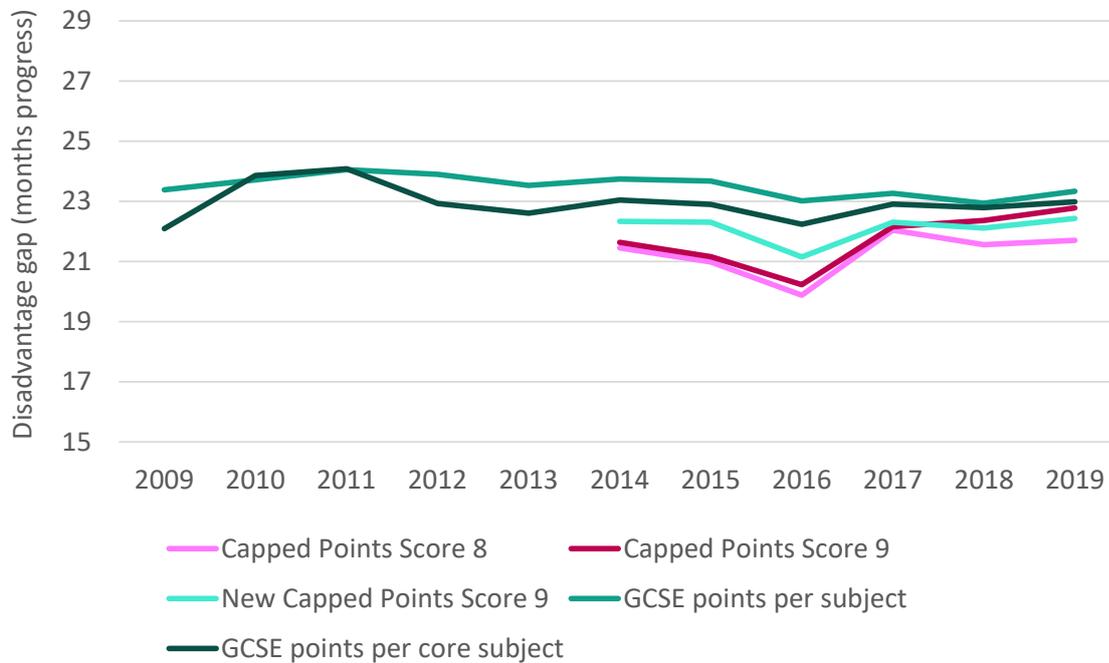
These robustness checks are reassuring from a methodological perspective. They give a clear picture that the GCSE disadvantage gap in Wales was the equivalent of about 22-23 months of educational progress, and that it has only reduced very slightly over the last 10 years.

In Figure 3.3, we compare trends in the main disadvantage gap for England with what are observed based on Attainment 8 and Progress 8 measures. The trends in the disadvantage gap for Attainment 8 are nearly identical to those seen for GCSE points per subject. This further backs up the robustness of the methodology. For Progress 8, we see a lower disadvantage gap of 11-12 months. This is to be expected given that this takes attainment at the end of primary school as given and only measures the gap in progress made during secondary school.

One key difference between Wales and England is the higher share of pupils in independent schools in England. This will lead to more pupils excluded from our analysis in England. In Appendix Figure A1

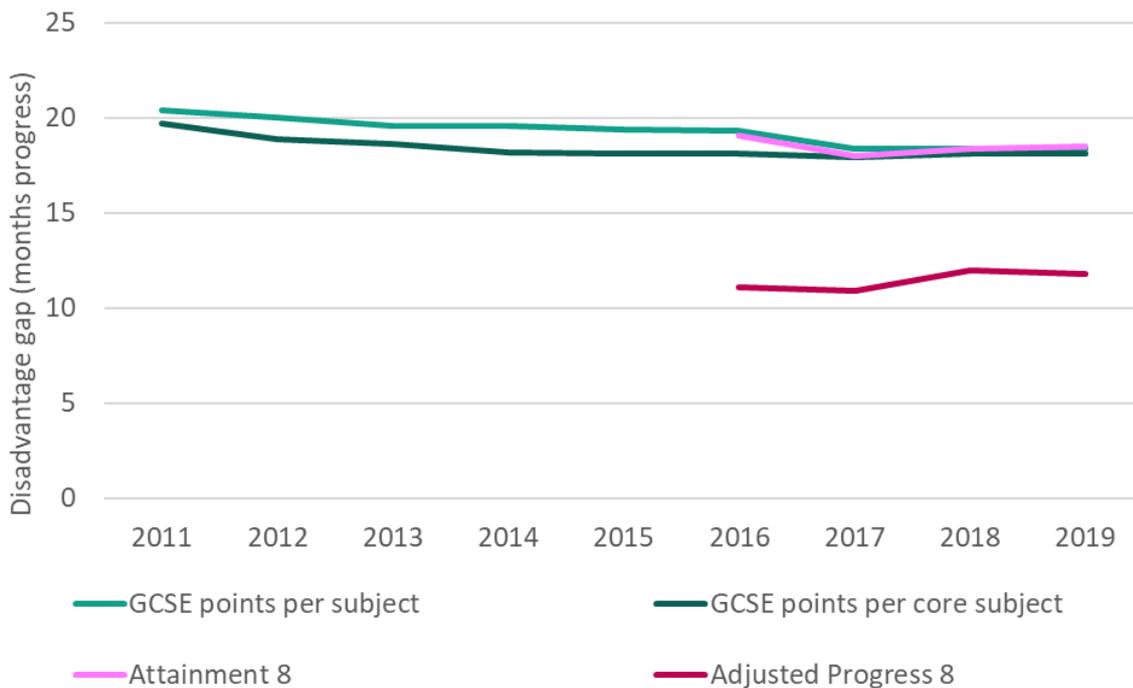
and A2, we therefore show the disadvantage gaps for Wales and England when including the results for pupils in independent schools in the calculation of percentiles. In both cases, the disadvantage gap is largely unchanged.

Figure 3.2 Disadvantage gap in GCSE results over time in Wales – multiple measures



Notes and sources: Authors calculations using National Pupil Database for Wales

Figure 3.3 Disadvantage gap in GCSE results over time in England – multiple measures



Notes and sources: National Pupil Database for England.

Figure 3.4 illustrates that the disadvantage gap is even wider for those experiencing persistent levels of disadvantage across both nations (defined as being eligible for FSM for 80 per cent of their time in school). These gaps are shown relative to the same non-disadvantaged group as Figure 3.1, i.e. those who haven't been eligible for FSM in the past 6 years.

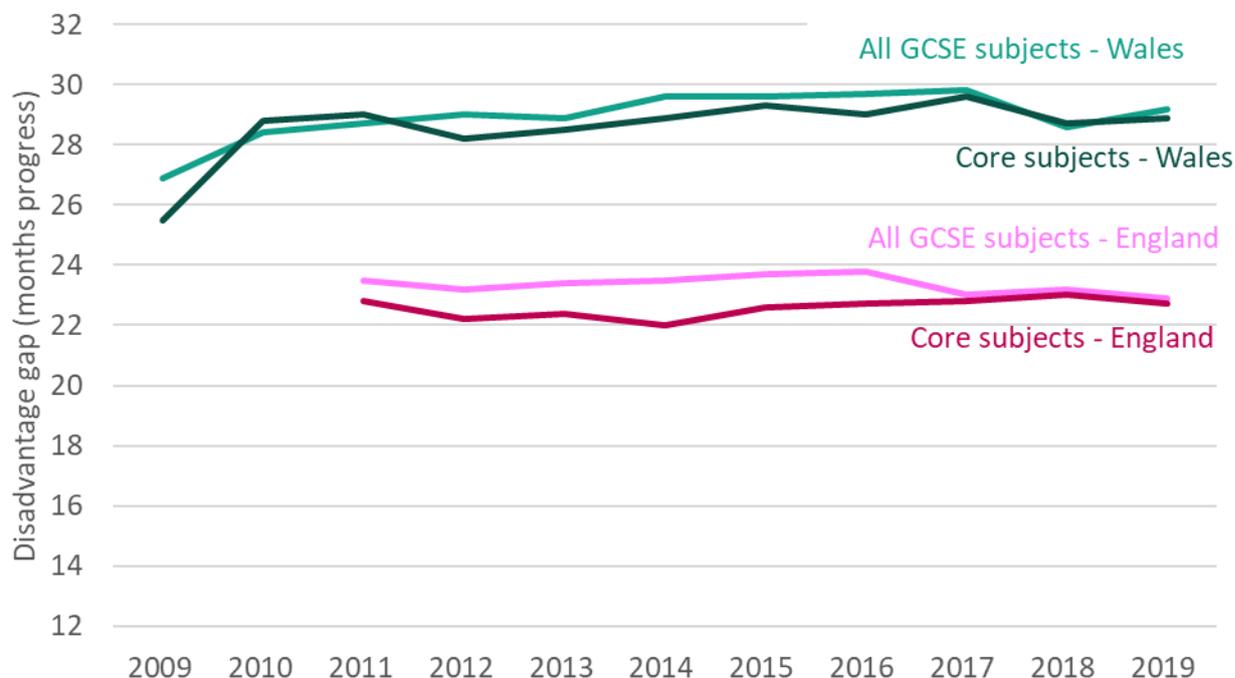
In Wales, the persistent disadvantage gap is 29 months of educational progress for all GCSE subjects and core subjects (or 28 months for the new capped points score across nine subjects). All these gaps represent large and extremely concerning levels of inequality, and are largely unchanged over time. Those experiencing persistent disadvantage score around the 27th percentile for all GCSE subjects and the 29th percentile for core subjects (Appendix Table A1).

In England, the persistent disadvantage gap is lower at 23 months of educational progress. As in Wales, we see almost no reduction over time.

As further confirmed in the data table for Figure 3.4, the persistent disadvantage gap in all GCSE subjects in Wales is largely identical if we use pupil's best grade instead of their first attempt and if we use the alternative points score metric. The disadvantage gap in core subjects is also largely unchanged if we include Welsh as a second language and the GCSE in numeracy.

The overall key message is that the disadvantage gap in Wales is even larger (28-29 months of educational progress) if we focus on pupils who are persistently disadvantaged over time, and notably larger than in England. There is also little evidence of any decline over time.

Figure 3.4 Persistent disadvantage gap in GCSE results in Wales and England over time (months of educational progress, defined as eligible for FSM for 80% of their school career)



Data for Wales (months progress)

| | Capped Points Score 8 | Capped Points Score 9 | New Capped Points Score 9 | GCSE points per subject | Alternative Mean Points | Mean Points (Best Grade) | GCSE points per core subject | Alternative Core Points |
|------|-----------------------|-----------------------|---------------------------|-------------------------|-------------------------|--------------------------|------------------------------|-------------------------|
| 2009 | | | | 26.9 | 26.8 | 26.9 | 25.5 | 25.5 |
| 2010 | | | | 28.4 | 28.4 | 28.3 | 28.8 | 28.8 |
| 2011 | | | | 28.7 | 28.7 | 28.6 | 29.0 | 29.0 |
| 2012 | | | | 29.0 | 29.0 | 29.0 | 28.2 | 28.2 |
| 2013 | | | | 28.9 | 28.9 | 28.9 | 28.5 | 28.5 |
| 2014 | 26.7 | 27.0 | 28.0 | 29.6 | 29.6 | 29.5 | 28.9 | 28.9 |
| 2015 | 26.2 | 26.5 | 28.0 | 29.6 | 29.7 | 29.3 | 29.3 | 29.3 |
| 2016 | 25.1 | 25.7 | 27.1 | 29.7 | 29.7 | 29.4 | 29.0 | 29.0 |
| 2017 | 28.5 | 28.6 | 28.7 | 29.8 | 29.8 | 29.7 | 29.6 | 29.8 |
| 2018 | 27.1 | 28.2 | 27.8 | 28.6 | 28.6 | 28.3 | 28.7 | 28.9 |
| 2019 | 26.9 | 28.5 | 27.9 | 29.2 | 29.2 | 29.1 | 28.9 | 29.2 |

Data for England (months progress)

| | GCSE points per subject | GCSE points per core subject | Attainment 8 | Unadjusted Progress 8 | Adjusted Progress 8 |
|------|-------------------------|------------------------------|--------------|-----------------------|---------------------|
| 2011 | 23.5 | 22.8 | | | |
| 2012 | 23.2 | 22.2 | | | |
| 2013 | 23.4 | 22.4 | | | |
| 2014 | 23.5 | 22 | | | |
| 2015 | 23.7 | 22.6 | | | |
| 2016 | 23.8 | 22.7 | 23.7 | | 14 |
| 2017 | 23 | 22.8 | 22.7 | | 13.7 |
| 2018 | 23.2 | 23 | 23.3 | 15.2 | 15.2 |
| 2019 | 22.9 | 22.7 | 23.1 | 14.9 | 14.9 |

Notes and sources: Authors calculations using National Pupil Database for Wales; National Pupil Database for England.

Figures 3.5 and 3.6 take an alternative approach to looking at disadvantage gaps by showing the share of pupils getting into the top 20 per cent and bottom 20 per cent of GCSE scores based on their level of disadvantage (persistently disadvantaged, other disadvantaged, all other pupils). The full data is then shown in the tables below.

This provides an incredibly stark comparison. Disadvantaged pupils are disproportionately likely to end up in the bottom 20 per cent of GCSE scores. In Wales, about 50 per cent of pupils experiencing persistent disadvantage end up in the bottom 20 per cent, as do 35 per cent of other disadvantaged pupils. This compares with 12 per cent of pupils not experiencing disadvantage. This makes pupils experiencing persistent disadvantage nearly four times more likely to end up in the bottom 20 per cent than pupils not experiencing disadvantage, whilst other disadvantaged pupils are three times more likely.

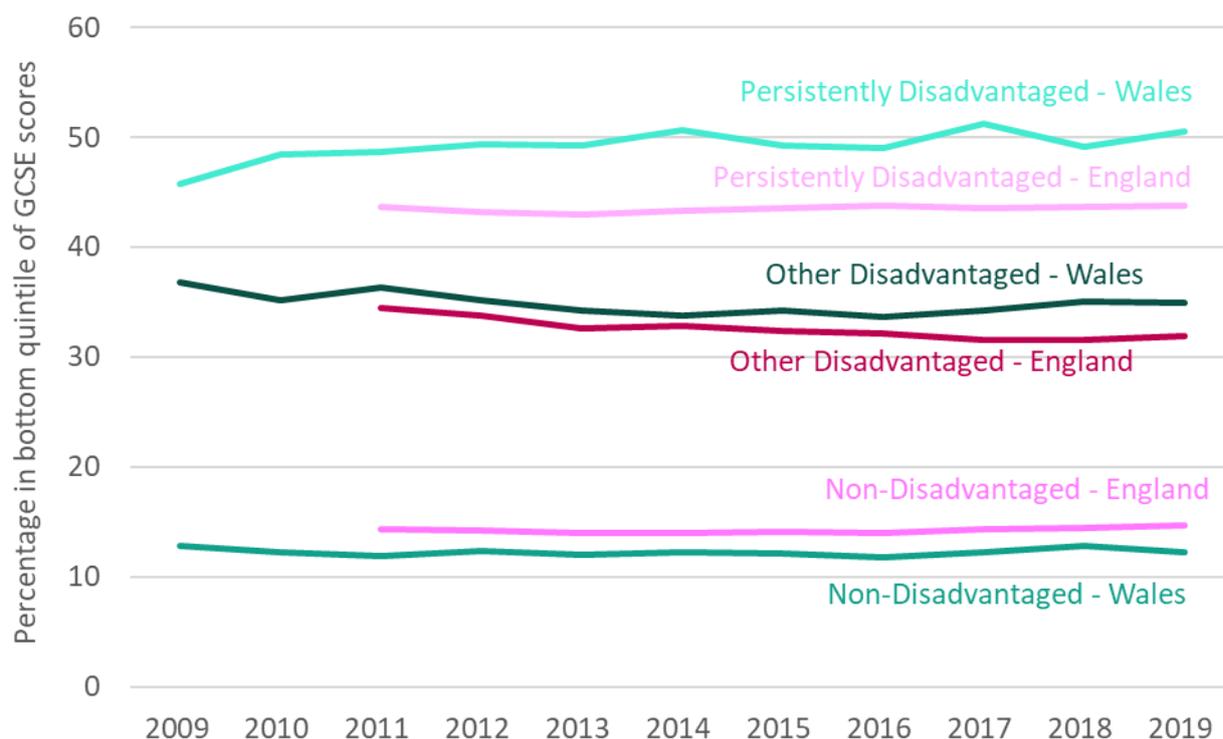
In England, disadvantaged pupils are also disproportionately likely to end up in the bottom quintile. In 2019, around 35 percent of disadvantaged pupils in England ended up in the bottom 20 percent of the GCSE scores, similar to Wales. About 44 percent of persistently disadvantaged pupils ended in the bottom quintile, which is about six percentage points lower than in Wales. However, just as in England, trends have been relatively steady over time.

At the other end of the distribution, approximately 25 per cent of pupils in Wales not experiencing disadvantage end up in the top 20 per cent. This compares with just four per cent of pupils in Wales experiencing persistent disadvantage and seven per cent of other disadvantaged pupils. This makes pupils in Wales experiencing persistent disadvantage five times less likely to end up in the top 20 per cent than pupils not experiencing disadvantage, with other disadvantaged pupils about 3.5 times less likely.

In England, only about six per cent of persistently disadvantaged pupils and only about 10 per cent of disadvantaged pupils ended up in the top quintile, both figures being higher than in Wales. This compares with 24 per cent of non-disadvantaged pupils.

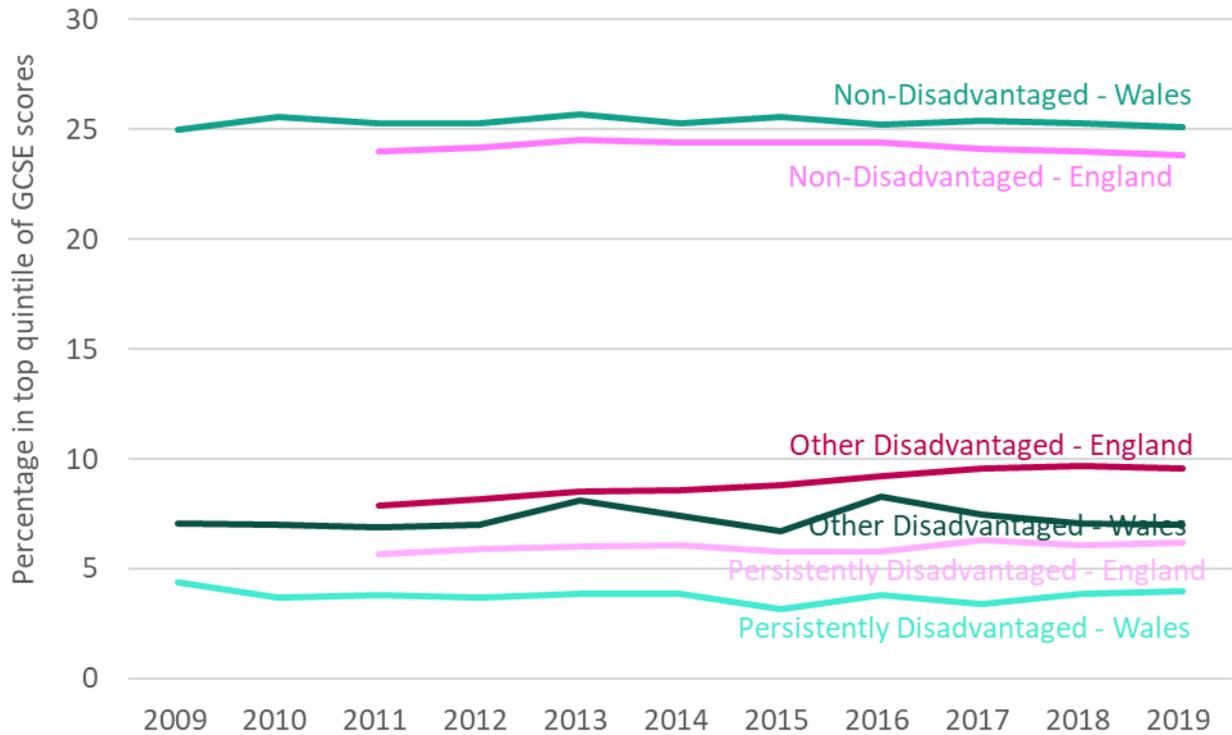
Whilst some disadvantaged pupils do end up towards the top of the distribution of GCSE scores, the overall numbers are small. There also appears to be less mobility in Wales than in England.

Figure 3.5 Percentage chance of getting into bottom quintile of GCSE point score per subject by level of disadvantage over time in England and Wales over time



Notes and sources: Authors calculations using National Pupil Database for Wales; National Pupil Database for England.

Figure 3.6 Percentage chance of getting into top quintile of GCSE point score per subject by level of disadvantage over time in England and Wales over time



Notes and sources: Authors calculations using National Pupil Database for Wales; National Pupil Database for England.

Data for Wales

| | % in top quintile | | | % in bottom quintile | | |
|------|-------------------|---------------------|----------------------------|----------------------|---------------------|----------------------------|
| | Non-Disadvantaged | Other Disadvantaged | Persistently Disadvantaged | Non-Disadvantaged | Other Disadvantaged | Persistently Disadvantaged |
| 2009 | 25.0 | 7.1 | 4.4 | 12.8 | 36.8 | 45.8 |
| 2010 | 25.6 | 7.0 | 3.7 | 12.3 | 35.2 | 48.4 |
| 2011 | 25.3 | 6.9 | 3.8 | 11.9 | 36.3 | 48.7 |
| 2012 | 25.3 | 7.0 | 3.7 | 12.4 | 35.2 | 49.4 |
| 2013 | 25.7 | 8.1 | 3.9 | 12.0 | 34.2 | 49.2 |
| 2014 | 25.3 | 7.4 | 3.9 | 12.2 | 33.8 | 50.6 |
| 2015 | 25.6 | 6.7 | 3.2 | 12.1 | 34.3 | 49.3 |
| 2016 | 25.2 | 8.3 | 3.8 | 11.8 | 33.7 | 49.0 |
| 2017 | 25.4 | 7.5 | 3.4 | 12.3 | 34.2 | 51.2 |
| 2018 | 25.3 | 7.1 | 3.9 | 12.8 | 35.1 | 49.1 |
| 2019 | 25.1 | 7.0 | 4.0 | 12.3 | 35.0 | 50.5 |

Data for England

| | <u>% in top quintile</u> | | | <u>% in bottom quintile</u> | | |
|------|--------------------------|---------------------|----------------------------|-----------------------------|---------------------|----------------------------|
| | Non-Disadvantaged | Other Disadvantaged | Persistently Disadvantaged | Non-Disadvantaged | Other Disadvantaged | Persistently Disadvantaged |
| 2011 | 24 | 7.9 | 5.7 | 14.4 | 34.5 | 43.7 |
| 2012 | 24.2 | 8.2 | 5.9 | 14.2 | 33.8 | 43.2 |
| 2013 | 24.5 | 8.5 | 6 | 14 | 32.6 | 43 |
| 2014 | 24.4 | 8.6 | 6.1 | 14 | 32.9 | 43.3 |
| 2015 | 24.4 | 8.8 | 5.8 | 14.1 | 32.4 | 43.6 |
| 2016 | 24.4 | 9.2 | 5.8 | 14 | 32.2 | 43.8 |
| 2017 | 24.1 | 9.6 | 6.3 | 14.4 | 31.6 | 43.6 |
| 2018 | 24 | 9.7 | 6.1 | 14.5 | 31.6 | 43.7 |
| 2019 | 23.8 | 9.6 | 6.2 | 14.7 | 31.9 | 43.8 |

Notes and sources: Authors calculations using National Pupil Database for Wales; National Pupil Database for England.

Special educational needs

Pupils with special educational needs (SEN) also end up with much lower levels of educational achievement. Whilst this is unsurprising, it is important to highlight the size of these gaps.

In what follows, we compare the SEN gaps for pupils in England and Wales. When doing so, it is important to recall the different level and trends in the share of pupils identified with SEN across England and Wales, particularly since the reforms to the SEN system in England in 2014. In Wales, the share of pupils with a statement of SEN has been largely constant at about 3-3.5 per cent of all pupils, whilst the share of pupils with other forms of SEN has risen from about 14-15 per cent in 2009/2010 to 21 per cent by 2019. In England, the share of pupils with a statement of SEN or EHCP is slightly higher at 3.7-3.8 per cent of pupils, but also constant up to 2019. In contrast, the share of pupils with other forms of SEN in England has fallen sharply from 20 per cent in 2011 to just over 10 per cent by 2019, with most of the fall occurring after the 2014 reforms increased the thresholds for identification of SEN support. These different levels and trends are highly likely to affect the composition of SEN groups across England and Wales, as well as the resultant SEN gaps.

Figure 3.7 shows that pupils with a statement of SEN or EHCP achieve significantly lower GCSE results across both England and Wales. Focusing on core subjects, the SEN gap for those with a statement of SEN in Wales is about 40-41 months, or about 3.5 years. It has remained close to this level since 2010. In England, the SEN gap for those with a statement or EHCP is extremely similar to Wales at about 41 months. However, in contrast to Wales, the gap has come down from a higher level of 43-44 months in 2011 and 2012.

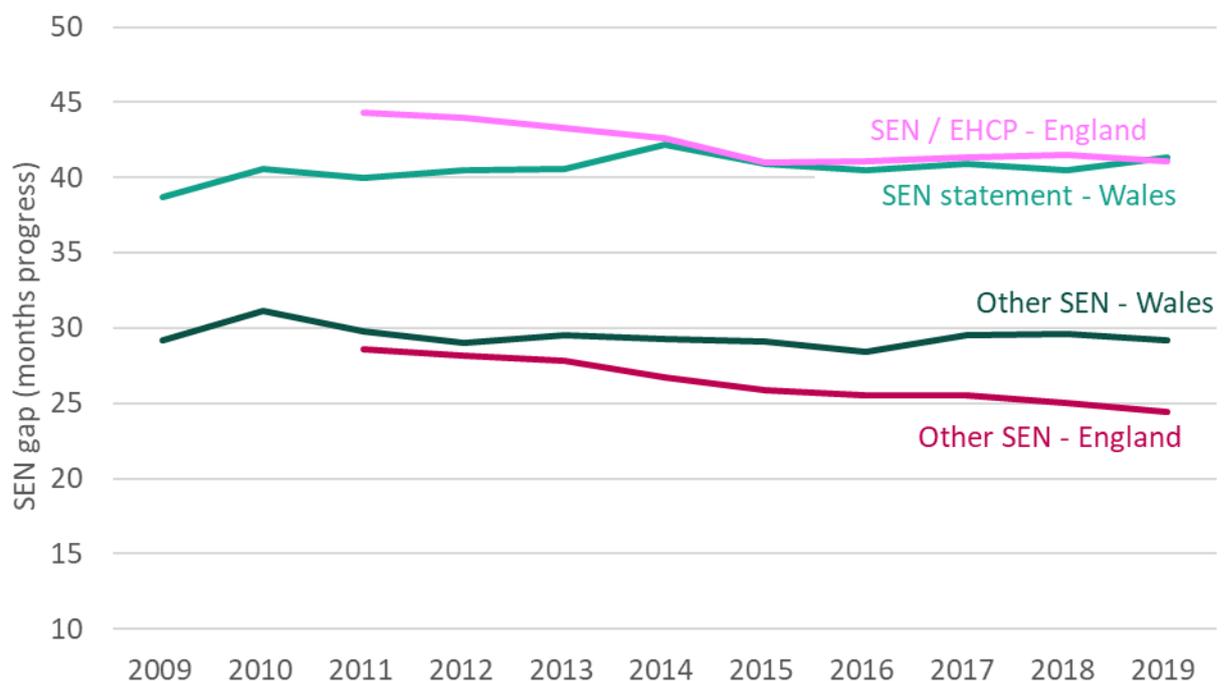
The data tables below the figure show that the SEN statement gap for all subjects (38-39 months) in Wales is lower than for core subjects (40-41 months) and has risen over time from about 35-36 months a decade earlier. The SEN statement gap for the capped points score across nine subjects has been stable at about 40 months in recent years in Wales, only slightly below the gap seen for core subjects. In England, the SEN statement gap is also lower for all subjects (39 months) and has come down by slightly less than is the case for core subjects since 2011.

The SEN gap for those with other forms of SEN in Wales – mostly those with School Action or School Action Plus – is lower, but still very large at 29 months across all three measures. The gap has also been mostly stable over time, despite rises in the share of pupils with other forms of SEN in Wales

In England, the gap for those with other forms of SEN has fallen significantly over time. Around 2011/2012, the gap for core subjects was about 28-29 months of educational progress, almost identical to that seen in Wales. This SEN gap in England has since fallen to about 24 months by 2019. This is almost certainly linked to the reform of the SEN system in England in 2014 and the subsequent fall in the share of pupils with other forms of SEN over time. However, it is somewhat surprising that the gap would fall over time if we think the 2014 reforms led to a rise in the average severity of SEN within this group. In previous EPI analysis, we hypothesised that this could be explained if those removed from the SEN Action group were not actually receiving significant levels of support and lower levels of attainment.⁸ Removing this group of pupils from the ‘Other SEN’ group could increase the average performance of those with ‘Other SEN’ and reduce the average performance of the non-SEN group.

In both England and Wales, the SEN gap for those without statements is generally very similar when considering all subjects or just focusing on core subjects.

Figure 3.7 SEN gaps in GCSE results in Wales and England over time (months of educational progress, statement of SEN and other SEN)



Data for Wales

| | SEN statement (all subjects) | SEN statement (core subjects) | Other SEN (all subjects) | Other SEN (core subjects) | SEN statement (capped 9) | Other SEN (capped 9) |
|------|------------------------------|-------------------------------|--------------------------|---------------------------|--------------------------|----------------------|
| 2009 | 34.6 | 38.7 | 29.1 | 29.2 | | |
| 2010 | 36.6 | 40.6 | 29.6 | 31.1 | | |
| 2011 | 35.5 | 40.0 | 28.4 | 29.8 | | |
| 2012 | 36.6 | 40.5 | 28.0 | 29.0 | | |
| 2013 | 36.2 | 40.6 | 28.7 | 29.5 | | |
| 2014 | 38.3 | 42.2 | 28.3 | 29.3 | 40.3 | 27.3 |
| 2015 | 37.0 | 40.9 | 28.0 | 29.1 | 40.1 | 26.6 |
| 2016 | 36.9 | 40.5 | 27.7 | 28.4 | 39.1 | 25.8 |
| 2017 | 37.5 | 40.9 | 28.8 | 29.5 | 39.3 | 28.4 |
| 2018 | 38.0 | 40.5 | 28.9 | 29.6 | 39.6 | 28.9 |
| 2019 | 38.7 | 41.3 | 28.5 | 29.2 | 40.3 | 28.5 |

Data for England

| | SEN statement / EHCP (all subjects) | SEN statement / EHCP (core subjects) | Other SEN (all subjects) | Other SEN (core subjects) |
|------|-------------------------------------|--------------------------------------|--------------------------|---------------------------|
| 2011 | 41.8 | 44.3 | 28.5 | 28.6 |
| 2012 | 41.7 | 44 | 27.9 | 28.2 |
| 2013 | 41 | 43.3 | 27.5 | 27.8 |
| 2014 | 41.1 | 42.6 | 26.8 | 26.7 |
| 2015 | 39.9 | 41 | 26.2 | 25.9 |
| 2016 | 40 | 41.1 | 25.9 | 25.5 |
| 2017 | 40.1 | 41.3 | 25.5 | 25.5 |
| 2018 | 40 | 41.5 | 24.5 | 25 |
| 2019 | 39.6 | 41.1 | 23.9 | 24.4 |

Notes and sources: Authors calculations using National Pupil Database for Wales; National Pupil Database for England.

Ethnic differences

In Figure 3.8(a), we show ethnic gaps in GCSE performance over time in Wales (all shown relative to pupils from White British backgrounds). This figure only shows the ethnic gap for our derived measure based on GCSE points per subject. As we have already seen, the share of pupils from Minority Ethnic backgrounds in Wales is relatively low. To ensure sufficient sample sizes, we therefore examine relatively broad ethnic groups.

Pupils from Asian backgrounds comprise a small, but growing, share of the pupil population in Wales (growing from about 1.5 per cent of Year 11 pupils in 2009 to nearly 2.5 per cent in 2019). Their educational performance has also improved over time, from a similar level to White British pupils in 2009 to 2010 to being over 10 months ahead, on average, by 2019.

The share of pupils from mixed ethnic backgrounds has almost doubled over the last decade, reaching 2.7 per cent of Year 11 pupils in 2019. Their performance is consistently higher than pupils from White British backgrounds, but only about by about 3-4 months over time.

The number of pupils from other White Backgrounds has also almost doubled over time, to reach 2.5 per cent of Year 11 pupils in 2019. Apart from a dip around 2014-2016, their GCSE performance has been about 2-3 months higher than pupils from White British backgrounds.

The share of pupils from Black backgrounds is smaller (0.8 per cent of pupils in 2019) and has not grown by as much over time. Their performance is also lower than pupils from White British backgrounds. Given the small size of the group, there is more variation over time, but the deficit is about 2-6 months compared with pupils from White British backgrounds (with the exception of a larger deficit in 2009).

Finally, pupils from other ethnic backgrounds are about four to five months ahead of pupils from White British backgrounds. However, this group will include some ethnic groups with relatively high performance and some with relatively low performance (e.g. pupils from Gypsy and Traveller backgrounds).

Looking across all ethnic groups in Wales, the broad picture is one of pupils from ethnic minority backgrounds generally improving their performance relative to White-British pupils over time. As a result, most ethnic minorities (with the exception of pupils from Black backgrounds) perform higher than those from White British backgrounds.

In Figure 3.8(b), we show the same gaps for England. As already noted in the methods section, these are unlikely to be fully comparable with England due to different compositions of broad ethnic groups. Having said this, the patterns by broad ethnic group are actually quite similar.

In England, the pupils that saw the largest increase in relative performance were Asian pupils. In 2011, they were five months ahead of White British pupils and 8 months ahead in 2019. This is similar to the pattern for Wales, though there was faster growth in performance amongst Asian pupils in Wales over this time, who were about 11 months ahead of White-British pupils in Wales by 2019.

Pupils from a mixed background in England saw their relative performance increase slightly by around one month during the last decade. This is a similar picture to Wales, though pupils from mixed backgrounds in Wales were slightly further ahead of White-British pupils in 2019 (four months) than was the case in England (two months).

The gap for pupils from other White backgrounds in England was relatively stable at around one to two months ahead of White-British pupils. A similar level can be observed in Wales, but with a more unstable trend over time.

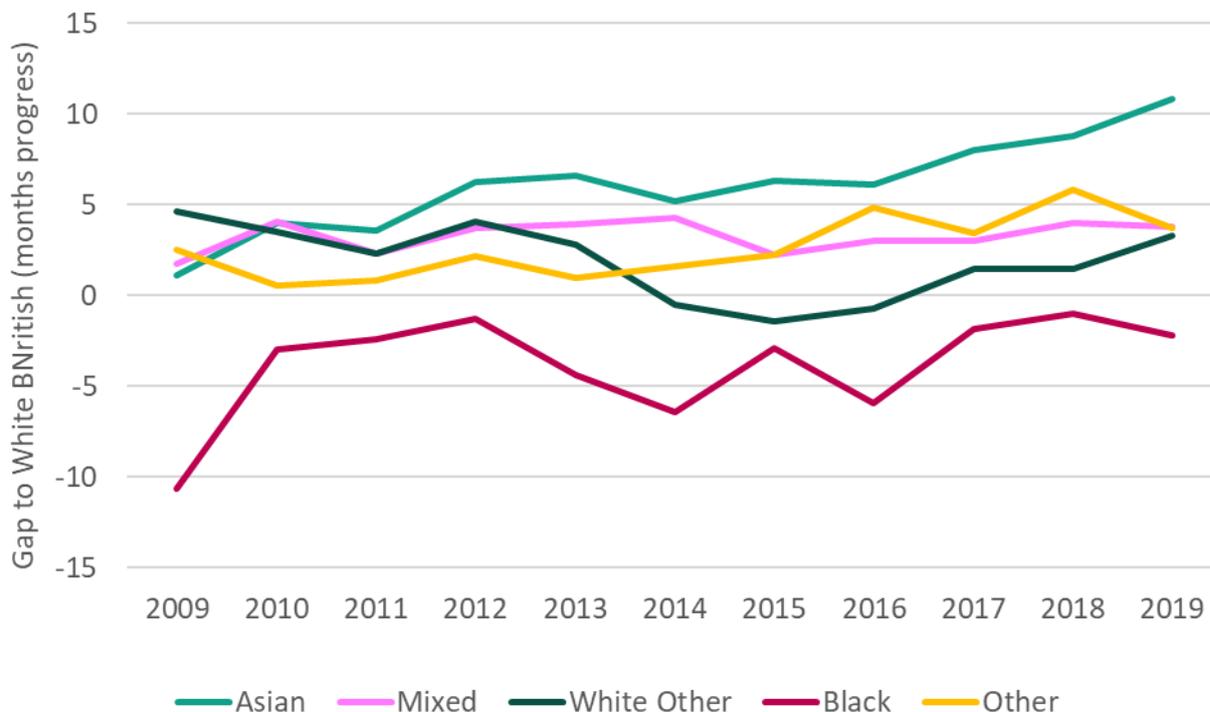
Black pupils in England, however, performed about two months below their White-British counterparts in 2019, with a slight narrowing of the gap over time. A similar gap can be observed for pupils from Black backgrounds in Wales over 2017-2019, but the trends before that are more variable.

Pupils from other ethnic backgrounds in England tend to be about two months behind pupils from White-British backgrounds over time. This contrasts with Wales, where pupils from other

backgrounds tend to be about three to four months ahead. However, these groups are probably the least comparable as they are likely to be made up of pupils from very different backgrounds.

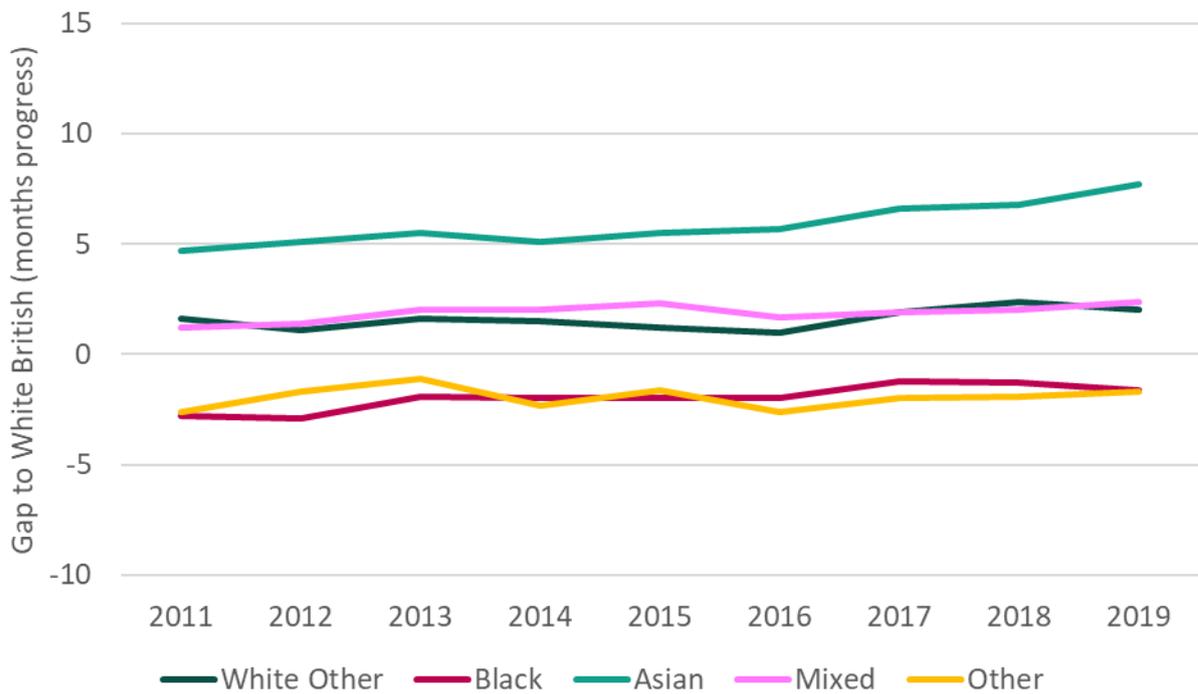
Figure 3.8 Ethnic gaps in GCSE results in Wales and England over time (months of educational progress, relative to pupils from White British backgrounds)

(a) Wales



| | White Other | Black | Asian | Mixed | Other |
|------|-------------|-------|-------|-------|-------|
| 2009 | 4.6 | -10.6 | 1.1 | 1.8 | 2.5 |
| 2010 | 3.5 | -3.0 | 4.0 | 4.1 | 0.5 |
| 2011 | 2.3 | -2.4 | 3.6 | 2.3 | 0.8 |
| 2012 | 4.1 | -1.3 | 6.2 | 3.7 | 2.1 |
| 2013 | 2.8 | -4.4 | 6.6 | 3.9 | 1.0 |
| 2014 | -0.5 | -6.4 | 5.2 | 4.3 | 1.6 |
| 2015 | -1.4 | -2.9 | 6.3 | 2.2 | 2.2 |
| 2016 | -0.7 | -5.9 | 6.1 | 3.0 | 4.9 |
| 2017 | 1.5 | -1.8 | 8.0 | 3.0 | 3.4 |
| 2018 | 1.5 | -1.0 | 8.8 | 4.0 | 5.8 |
| 2019 | 3.3 | -2.2 | 10.9 | 3.8 | 3.7 |

(b) England



Data for England

| | White Other | Black | Asian | Mixed | Other |
|------|-------------|-------|-------|-------|-------|
| 2011 | 1.6 | -2.8 | 4.7 | 1.2 | -2.6 |
| 2012 | 1.1 | -2.9 | 5.1 | 1.4 | -1.7 |
| 2013 | 1.6 | -1.9 | 5.5 | 2 | -1.1 |
| 2014 | 1.5 | -2 | 5.1 | 2 | -2.3 |
| 2015 | 1.2 | -2 | 5.5 | 2.3 | -1.6 |
| 2016 | 1 | -2 | 5.7 | 1.7 | -2.6 |
| 2017 | 1.9 | -1.2 | 6.6 | 1.9 | -2 |
| 2018 | 2.4 | -1.3 | 6.8 | 2 | -1.9 |
| 2019 | 2 | -1.6 | 7.7 | 2.4 | -1.7 |

Notes and sources: Authors calculations using National Pupil Database for Wales; National Pupil Database for England.

Summary

There are wide disadvantage gaps in GCSE attainment in both England and Wales, but the gap is clearly much larger in Wales. The disadvantage gap is the equivalent to about 18 months of educational progress in England, but about 22-23 months in Wales. In both cases, the gap has come down slightly over the last decade (by about two months in England and by even less in Wales), but progress has clearly been slow. These gaps are similar in level and trends over time across a wide range of alternative GCSE outcomes (including specific points measures used within each nation), which makes it highly unlikely that the differences across nations are driven by reforms to GCSEs across England and Wales over time. Indeed, the disadvantage gap was much higher in Wales in 2011 and 2012, well before recent changes to GCSEs.

The disadvantage gap is even larger for those experiencing persistent disadvantage, with a persistent disadvantage gap of 23 months of educational progress in England, and 29 months in Wales. In both nations, there has been practically no progress in narrowing the persistent disadvantage gap over the last decade. This is a major concern for policymakers concerned with narrowing educational inequalities based on socio-economic background.

There are even larger gaps in GCSE attainment for those with special educational needs (SEN). For those with a statement of SEN or EHCP, the SEN gap was about 40-41 months of educational progress in England and Wales for core GCSE subjects in 2019. For England, this is down on a higher level of 44 months in 2011, but mostly unchanged over time in Wales. In both nations, the share of pupils with a statement of SEN or EHCP have been largely unchanged over time, at about three to four per cent of pupils. For those with other (less severe) forms of SEN, the gap for core subjects was about 29 months in Wales and 24 months in England in 2019. However, the level and trends in the share of pupils with other forms of SEN are totally different across the two nations. In Wales, the share of pupils with other forms of SEN rose from 14 to 19 per cent over the decade up to 2019, whilst in England the share fell from 20 per cent in 2011 to 10 per cent in 2014, with most of the change driven by major reforms to the SEN system in 2014.

4. Inequalities within subject

In this section, we explore the disadvantage gap within individual GCSE subjects, as well as differences in the likelihood that students take different subjects by levels of disadvantage. This is undertaken separately for England and Wales, given different patterns of subject choice and availability across the two nations.

It is also important to recognise that disadvantage gaps across subjects are likely to be partly driven by the share of pupils from different backgrounds taking each subject. Disadvantage gaps within individual subjects could naturally change if the share of pupils from different backgrounds taking each subject changed. It should also be noted that the disadvantage gaps by subject are not fully comparable with the overall disadvantage gap across subjects as there is greater bunching of points scores within individual subjects.

Subject-level analysis for Wales

In Wales, subjects are grouped into one of 35 different subject groupings, with small subjects grouped into either “Other Languages” or “Other Subjects.” Figure 4.1 then shows the average percentile of disadvantaged and other pupils within individual subjects in 2019, which is used to calculate the disadvantage gap within subject. The final columns then show the proportion of disadvantaged and other pupils taking individual subjects and the relative gap in participation (the difference divided by the participation of other students). Figure 4.2 plots the disadvantage gap against the participation gap for individual subjects, with the size of the bubble proportionate to the participation level of disadvantaged students.

There appear to be a number of clusters of subjects by the disadvantage and participation gap. First, there are some subjects with small participation gaps, but relatively high disadvantage gaps. This includes widely taken subjects like English language, maths and maths – numeracy, where the disadvantaged gaps are equivalent to 20-22 months of educational progress. This is obviously a source of concern, given the importance of these subjects in shaping future educational and life chances.

Second, there are some subjects with both high disadvantage and participation gaps. This includes physical education (PE), German, Welsh (first language) and music. Disadvantaged pupils are over 40 per cent less likely to take these subjects and disadvantage gaps are 20-25 months of educational progress. These are subjects that disadvantaged pupils are less likely to take and, amongst those who do to take them, disadvantaged pupils appear to achieve much lower grades than their peers.

Third, there is a group of subjects where disadvantaged pupils are still less likely to take them, but there are notably lower disadvantage gaps (15-20 months of educational progress). This includes individual sciences, history, geography, French, Welsh literature and business studies.

Fourth, there are some subjects with relatively small participation gaps and smaller disadvantage gaps (15-20 months of educational progress). This includes Welsh (second language), design & technology (D&T), computing and religious studies (RS).

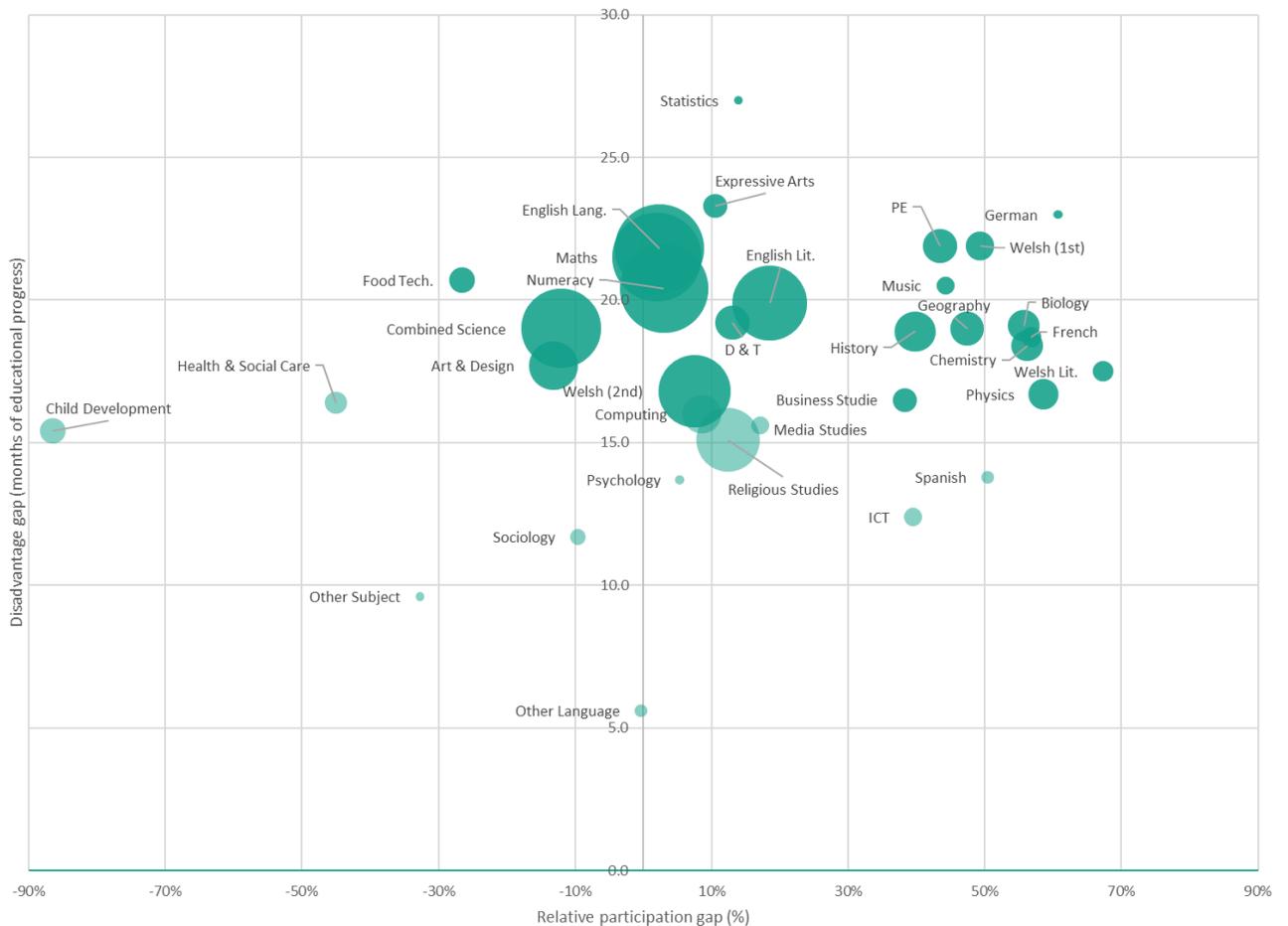
Finally, there are some subjects that are more likely to be taken by disadvantaged students and for which there are relatively small disadvantage gaps. This includes combined science, art & design, health & social care, sociology and child development.

Figure 4.1 – Pupil performance and participation by subject and level of disadvantage in Wales, 2019

| Subject | Average Percentile Rank | | | % taking subject | | Relative Participation Gap |
|--------------------------------|-------------------------|---------------|-------------------------|-------------------|---------------|----------------------------|
| | Non Disadvantaged | Disadvantaged | Disadvantage Gap (mths) | Non Disadvantaged | Disadvantaged | |
| Statistics | 63.1 | 35.8 | 27.0 | 1% | 1% | 13.9% |
| Dance, Drama & Expressive Arts | 65.7 | 42.2 | 23.3 | 8% | 7% | 10.5% |
| German | 61.9 | 38.6 | 23.0 | 2% | 1% | 60.7% |
| Welsh (first language) | 63.9 | 41.8 | 21.9 | 20% | 10% | 49.3% |
| Physical Education | 62.6 | 40.5 | 21.9 | 25% | 14% | 43.4% |
| English Language | 64.5 | 42.5 | 21.8 | 98% | 96% | 2.3% |
| Mathematics | 62.6 | 40.9 | 21.5 | 98% | 97% | 2.0% |
| Food Technology | 66.3 | 45.3 | 20.7 | 6% | 8% | -26.6% |
| Music | 63.9 | 43.2 | 20.5 | 8% | 4% | 44.2% |
| Mathematics - Numeracy | 62.4 | 41.7 | 20.4 | 98% | 95% | 3.0% |
| English Literature | 64.7 | 44.5 | 19.9 | 83% | 68% | 18.5% |
| Design & Technology | 62.5 | 43.1 | 19.2 | 17% | 14% | 13.0% |
| Biology | 63.2 | 43.9 | 19.1 | 27% | 12% | 55.7% |
| Combined Science | 60.0 | 40.9 | 19.0 | 69% | 77% | -12.0% |
| Geography | 61.5 | 42.4 | 19.0 | 26% | 14% | 47.4% |
| History | 61.1 | 42.0 | 18.9 | 34% | 20% | 39.8% |
| French | 61.4 | 42.5 | 18.7 | 11% | 5% | 56.8% |
| Chemistry | 63.1 | 44.5 | 18.4 | 27% | 12% | 56.2% |
| Art & Design | 64.7 | 46.8 | 17.7 | 25% | 29% | -13.2% |
| Welsh Literature | 62.0 | 44.4 | 17.5 | 14% | 5% | 67.3% |
| Welsh (second language) | 61.0 | 44.0 | 16.8 | 69% | 64% | 7.5% |
| Physics | 62.7 | 45.9 | 16.7 | 26% | 11% | 58.6% |
| Business Studies & Economics | 60.9 | 44.2 | 16.5 | 11% | 7% | 38.3% |
| Health & Social Care | 63.5 | 46.9 | 16.4 | 4% | 6% | -45.0% |
| Geology | 58.4 | 42.2 | 16.0 | 0% | 0% | 37.5% |
| Computing | 62.0 | 45.8 | 16.0 | 19% | 18% | 8.6% |
| Media, Film & TV Studies | 61.9 | 46.2 | 15.6 | 5% | 4% | 17.1% |
| Child Development | 64.4 | 48.8 | 15.4 | 4% | 8% | -86.5% |
| Religious Studies | 57.8 | 42.6 | 15.1 | 56% | 49% | 12.4% |
| Spanish | 60.2 | 46.2 | 13.8 | 5% | 2% | 50.4% |
| Psychology | 59.8 | 46.0 | 13.7 | 1% | 1% | 5.3% |
| ICT | 58.9 | 46.4 | 12.4 | 7% | 4% | 39.5% |
| Sociology | 59.5 | 47.6 | 11.7 | 3% | 3% | -9.6% |
| Other Subject | 60.4 | 50.6 | 9.6 | 1% | 1% | -32.7% |
| Other Language | 57.1 | 51.4 | 5.6 | 2% | 2% | -0.3% |

Notes and sources: Authors calculations using National Pupil Database for Wales.

Figure 4.2 – Disadvantage and participation gap by subject in Wales, 2019



Notes and sources: Authors’ calculations using National Pupil Database for Wales. Bubble sizes are proportionate to share of disadvantage pupils taking each subject

Subject-level analysis for England

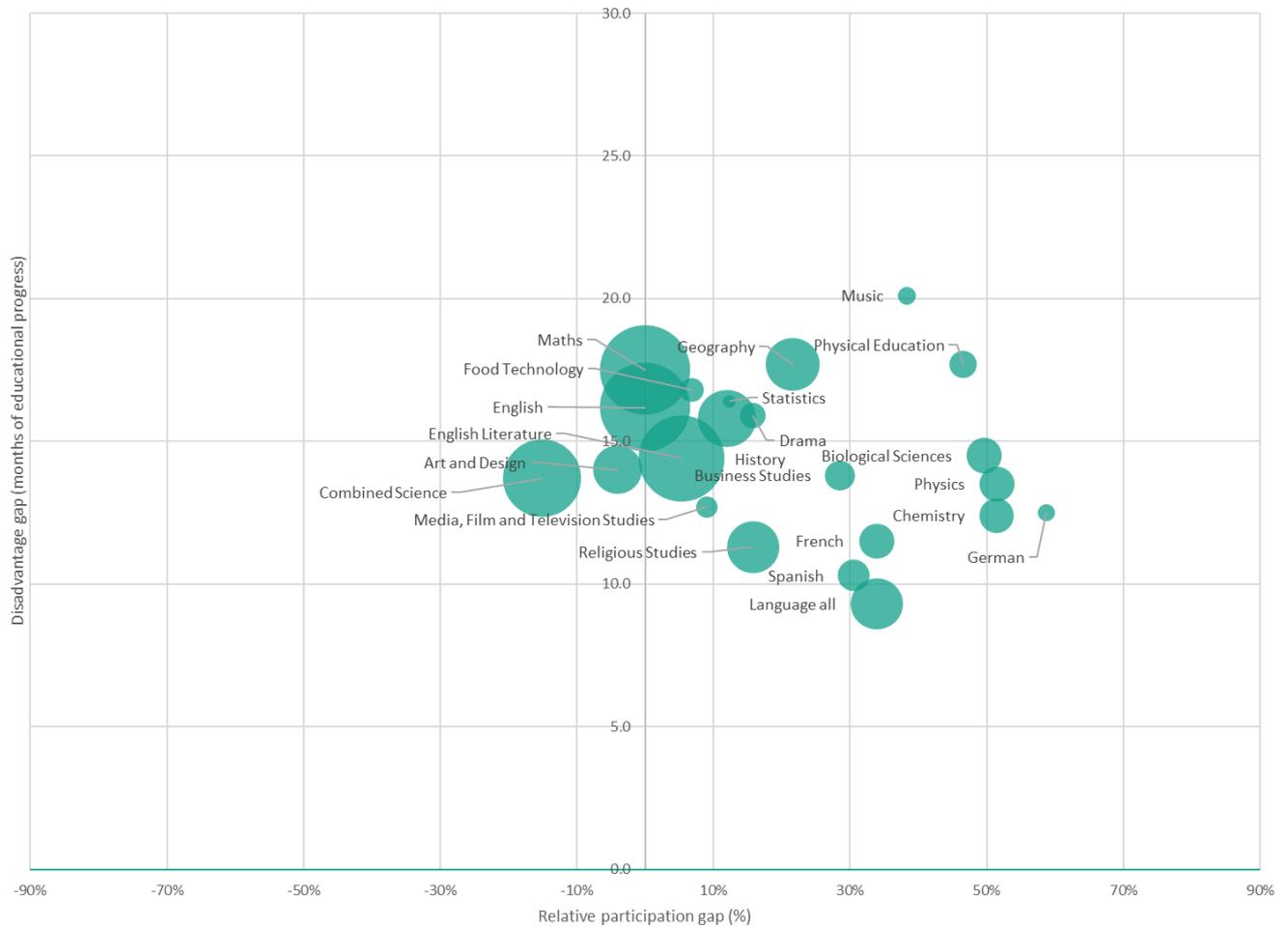
Figures 4.3 and 4.4 chart the same relationship between the disadvantage gap and relative participation gap for England. As noted in the methodology section, the spread of subjects is smaller than in Wales and the disadvantage gaps are not fully comparable due to different patterns of subject participation across the two nations. While no clear correlation emerges, there are some interesting patterns of note.

The most inegalitarian subjects in England are music and PE, which have both high disadvantage gaps and high participation gaps. Disadvantaged pupils are 38 per cent less likely than non-disadvantaged pupils to take music at GCSE and, when they do, they score the equivalent of 20 months behind their wealthier peers. A similar pattern for these subjects was observed in Wales. This may be driven by parental investments in sport and music outside of school, such as private music and swimming lessons, that are less accessible for disadvantaged pupils. Disparities in schools’ ability to provide equipment and facilities (such as playing fields and musical instruments) may also play a role.

Figure 4.3 – Pupil performance and participation by subject and level of disadvantage in England, 2019

| Subject | Disadvantage Gap (mths) | % taking subject | | Relative Participation Gap |
|------------------------------------|-------------------------|-------------------|---------------|----------------------------|
| | | Non Disadvantaged | Disadvantaged | |
| Music | 20.1 | 6.3% | 3.9% | 38.3% |
| Physical Education | 17.7 | 17.0% | 9.1% | 46.5% |
| Geography | 17.7 | 45.7% | 35.9% | 21.6% |
| Maths | 17.5 | 100.0% | 100.0% | 0.0% |
| Food Technology | 16.8 | 8.1% | 7.5% | 6.8% |
| Statistics | 16.4 | 2.4% | 2.1% | 12.3% |
| English | 16.2 | 100.0% | 100.0% | 0.0% |
| Drama | 15.9 | 9.9% | 8.3% | 15.8% |
| History | 15.8 | 47.8% | 42.1% | 12.0% |
| Japanese | 14.7 | 0.1% | 0.0% | 54.2% |
| Biological Sciences | 14.5 | 31.1% | 15.7% | 49.6% |
| English Literature | 14.4 | 97.5% | 92.3% | 5.3% |
| Latin | 14 | 0.8% | 0.2% | 72.8% |
| Art and Design | 14 | 28.5% | 29.7% | -4.0% |
| Business Studies | 13.8 | 16.5% | 11.8% | 28.5% |
| Combined Science | 13.7 | 66.4% | 76.5% | -15.1% |
| Physics | 13.5 | 30.9% | 15.0% | 51.5% |
| Media, Film and Television Studies | 12.7 | 6.4% | 5.9% | 9.0% |
| German | 12.5 | 8.4% | 3.5% | 58.7% |
| Chemistry | 12.4 | 30.9% | 15.0% | 51.4% |
| Chinese | 11.6 | 0.3% | 0.2% | 31.4% |
| French | 11.5 | 23.4% | 15.4% | 33.9% |
| Religious Studies | 11.3 | 40.4% | 34.0% | 15.8% |
| Bengali | 10.3 | 0.1% | 0.2% | -204.5% |
| Spanish | 10.3 | 18.3% | 12.7% | 30.5% |
| Polish | 9.5 | 0.7% | 0.3% | 60.7% |
| Language all | 9.3 | 51.0% | 33.7% | 33.9% |
| Panjabi | 7.7 | 0.1% | 0.1% | 16.2% |
| Modern Hebrew | 7 | 0.0% | 0.0% | 66.2% |
| Urdu | 6.4 | 0.4% | 0.6% | -55.5% |
| Portuguese | 6.2 | 0.4% | 0.4% | -15.0% |
| Modern Greek | 5.6 | 0.0% | 0.0% | 53.8% |
| Italian | 2.1 | 0.7% | 0.4% | 43.0% |
| Language other | 2.1 | 0.1% | 0.0% | 87.3% |
| Russian | 0.1 | 0.2% | 0.1% | 51.6% |
| Turkish | 0 | 0.2% | 0.6% | -133.5% |
| Gujarati | -2 | 0.1% | 0.0% | 84.1% |
| Arabic | -2.3 | 0.2% | 0.7% | -228.1% |
| Persian | -3.5 | 0.0% | 0.1% | -246.2% |

Figure 4.4 – Disadvantage and participation gap by subject in England, 2019



Notes and sources: EPI Annual Report, 2020. Bubble sizes are proportionate to share of disadvantage pupils taking each subject. We only show subjects taken by more than 5,000 pupils. We also remove outliers (subjects in which the relative participation gap was below 100 percent).

The two effectively compulsory subjects at GCSE – English and maths – have relatively large disadvantage gaps in England compared to other subjects: 17.5 months in maths and 16.2 months in English. Again, a similar hierarchy was observed in Wales, though the actual disadvantage gaps are larger in Wales.

Science subjects in England tend to have middling disadvantage gaps: 12.4 months for chemistry, 13.5 for physics, 13.7 for combined science and 14.5 for biological science. However, disadvantaged pupils are 15 per cent more likely to take combined science than their non-disadvantaged peers, and around 50 per cent less likely to take dual or triple sciences at GCSE. Given that dual/triple science subjects are taken by a relatively small proportion of the pupil population, it is perhaps surprising that their disadvantage gaps are not larger. However, this could be explained by selection of higher-attaining disadvantaged pupils into these subjects through ‘ability’ grouping at an early stage. Again, a very similar pattern emerged in the analysis for Wales, with middling disadvantage gaps for science subjects, though the absolute size of these gaps was higher in Wales.

Language subjects in England tend to have smaller disadvantage gaps, though they are also taken by much smaller shares of the pupil population. Interestingly, this is an area where we saw larger disadvantage gaps in Wales, particularly in French and German, and large gaps in participation.

Notably, in the humanities, geography and religious studies have similar participation gaps, but Geography has a much larger disadvantage gap of 17.7 months compared to 11.3 months for Religious Studies. Meanwhile, history has a disadvantage gap of 15.3 months, and a relatively small participation gap of 12 per cent. In Wales, we saw larger disadvantage gaps for history and geography (19 months) and much bigger gaps in participation gaps (relative participation gaps of 40-50% as compared with 20% or under in England).

5. Differences by local authority across England and Wales

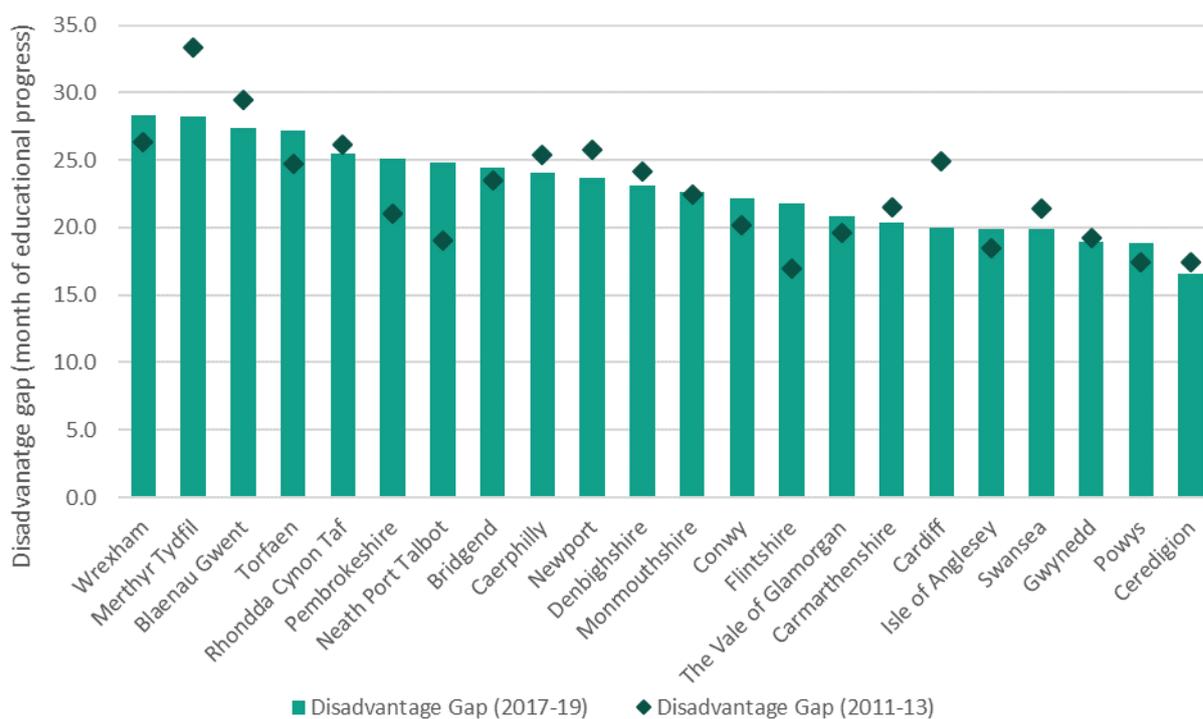
In this section, we examine how the disadvantage gap varies across local authorities in England and Wales. To some extent, this allows us to analyse how the disadvantage gap compares across local areas in England and Wales experiencing similar overall levels of disadvantage. We start by examining local areas in England and Wales separately, before then comparing them.

Local area differences in Wales

In order to understand geographical patterns in the disadvantage gap across Wales, Figure 5.1 shows the disadvantage gap for different local authorities. This is based on GCSE points per core subject to ensure that any differences are not driven by subject choice patterns. Furthermore, figures are pooled for 2011-2013 and 2017-2019 in order to improve reliability. In all cases, the disadvantage gap is shown relative to the national average performance levels of non-disadvantaged students in Wales (in percentile rank terms). This ensures that any differences across local authorities are purely driven by the performance of disadvantaged students. Figure 5.2 provides further context by showing the levels of disadvantage in individual local authorities.

As can be seen from Figure 5.1, there is wide variation in the disadvantage gap across local authorities. It is relatively high (25-28 months of educational progress) in Wrexham, Merthyr Tydfil, Blaenau Gwent, Rhondda Cynon Taf, Torfaen, Pembrokeshire and Neath Port Talbot. In some of these cases, the disadvantage gap is down on even higher levels about a decade ago (Merthyr Tydfil and Blaenau Gwent), whilst in other cases, the disadvantage gap has risen to high levels (Neath Port Talbot, Torfaen, Wrexham and Pembrokeshire).

Figure 5.1 Disadvantage gap by local authority in Wales, 2011-2013 and 2017-2019



Notes and sources: Authors' calculations using National Pupil Database for Wales

Part of the explanation for high disadvantage gaps in these local authorities results from high levels of persistent disadvantage. For example, the share of pupils experiencing persistent disadvantage ranges from 11-13 per cent across Merthyr Tydfil, Blaenau Gwent, Rhondda Cynon Taf and Neath Porth Talbot. However, this is clearly not the sole explanation, with high disadvantage gaps also seen in areas like Pembrokeshire and Wrexham, areas with lower levels of persistent disadvantage.

The disadvantage gap is lowest in rural areas, including Carmarthenshire, Anglesey, Gwynedd, Powys and Ceredigion, and in the large cities of Cardiff and Swansea. Indeed, it is very notable that the disadvantage gap has come down significantly over time in Cardiff (from 25 to 20 months of educational progress between 2011-2013 and 2017-2019). However, with gaps ranging from 17 to 20 months of progress, these lower disadvantage gaps within these parts of Wales only match the average picture of 18 months seen in England.

Figure 5.2 Disadvantage gaps and levels by local authority over time in Wales

| Local authority | % Disadvantaged, 2019 | Persistently Disadvantaged, 2019 | Disadvantage Gap (2017-19) Months progress | Disadvantage Gap (2011-13) Months progress |
|-------------------|-----------------------|----------------------------------|--|--|
| Wrexham | 27% | 7% | 28.3 | 26.3 |
| Merthyr Tydfil | 34% | 13% | 28.2 | 33.3 |
| Blaenau Gwent | 40% | 12% | 27.4 | 29.5 |
| Torfaen | 29% | 7% | 27.2 | 24.7 |
| Rhondda Cynon Taf | 32% | 12% | 25.5 | 26.2 |
| Pembrokeshire | 26% | 8% | 25.1 | 21.1 |
| Neath Port Talbot | 30% | 11% | 24.8 | 19.0 |
| Bridgend | 26% | 8% | 24.4 | 23.4 |
| Caerphilly | 32% | 10% | 24.0 | 25.4 |
| Newport | 28% | 9% | 23.6 | 25.8 |
| Denbighshire | 25% | 7% | 23.1 | 24.1 |
| Monmouthshire | 19% | 5% | 22.6 | 22.4 |
| Conwy | 26% | 8% | 22.2 | 20.2 |
| Flintshire | 21% | 4% | 21.8 | 16.9 |
| Vale of Glamorgan | 20% | 5% | 20.9 | 19.6 |
| Carmarthenshire | 23% | 8% | 20.3 | 21.5 |
| Cardiff | 30% | 9% | 20.0 | 24.9 |
| Isle of Anglesey | 31% | 8% | 19.9 | 18.5 |
| Swansea | 29% | 8% | 19.8 | 21.4 |
| Gwynedd | 19% | 4% | 19.0 | 19.3 |
| Powys | 19% | 5% | 18.8 | 17.4 |
| Ceredigion | 16% | 5% | 16.6 | 17.4 |

Notes and sources: Authors calculations using National Pupil Database for Wales

Local area differences in England

We now consider differences in the disadvantage gap across local authorities in England. As in Wales, we define the disadvantage gap based on percentiles of GCSE points per core subject from 2017-2019 (averaged), with comparisons relative to the national average for non-disadvantaged pupils.

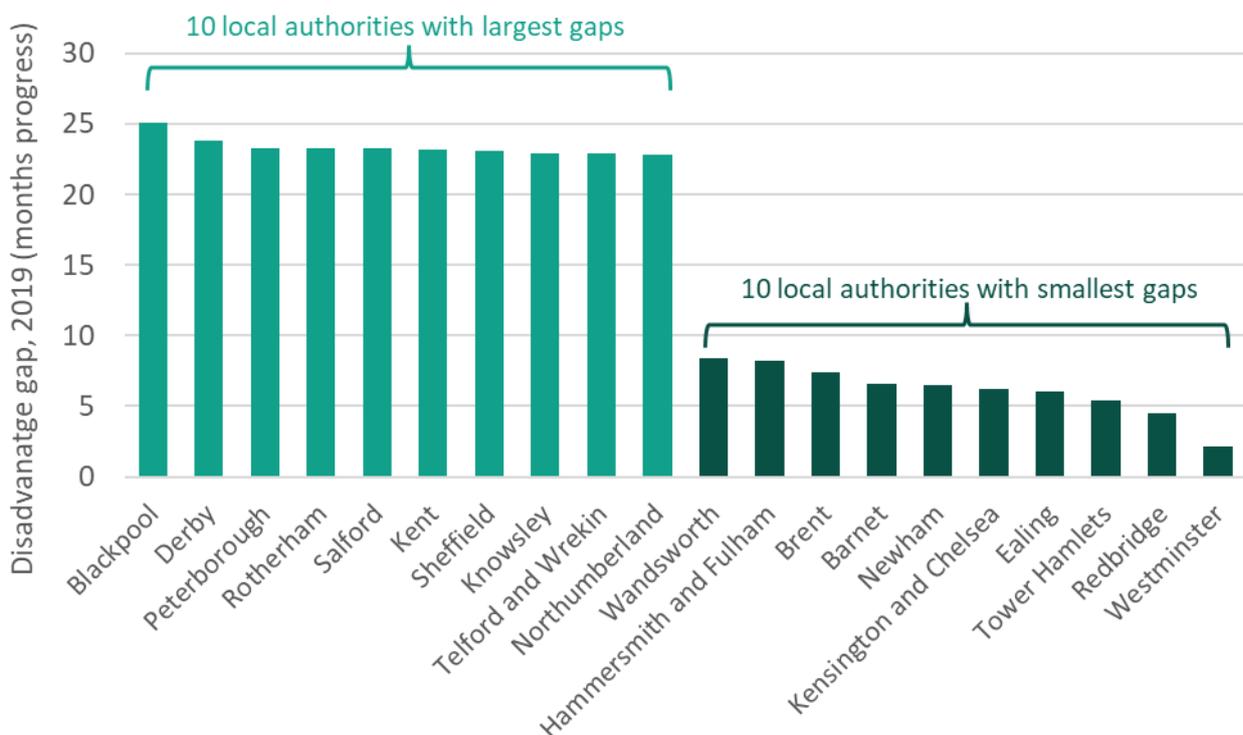
With over 150 local authorities in England, this is more challenging to illustrate. Figure 5.3 therefore starts by showing the ten local authorities with the highest and lowest disadvantage gaps. Appendix Table A4 show the full breakdown by local authority for 2017-2019 and the level of the disadvantage gap in 2012.

As can be seen, large disadvantage gaps equivalent to 23 months of progress or more can be seen across a range of local authorities. This includes areas of high-deprivation in northern England, such as Blackpool, Derby, Rotherham, Salford, Sheffield and Knowsley. However, it also includes a range of more rural local authorities, such as Kent and Northumberland.

It is already clear from these figures that the disadvantage gap is far larger in many local authorities in Wales than in England. The largest disadvantage gap in England is in Blackpool (25 months of progress). In Wales, there are seven local authorities with similar or even larger gaps (Wrexham, Merthyr Tydfil, Blaenau Gwent, Torfaen, Rhondda, Pembrokeshire and Neath Port Talbot). Furthermore, the average disadvantage gap in Wales (23 months of progress) is equivalent to the gap needed to get into the ten local authorities with the highest gaps in England.

The lowest disadvantage gaps in England are mainly in local authorities in London. The disadvantage gap is under 6 months in Kensington and Chelsea, Tower Hamlets, Ealing, Redbridge and Westminster. These lower attainment gaps are well-known in research looking at the “London effect” in school performance⁹. This provides important context for the comparison with Wales. However, it is also important to note that the socio-economic and demographic context is very different, with the research on London schools emphasising the role of the different mix of pupils, particularly high-performing pupil from immigrant and ethnic-minority backgrounds.

Figure 5.3 Ten local authorities with highest and lowest disadvantage gaps in England, 2017-2019



Notes and sources: Authors calculations using National Pupil Database for England.

Comparing local area differences

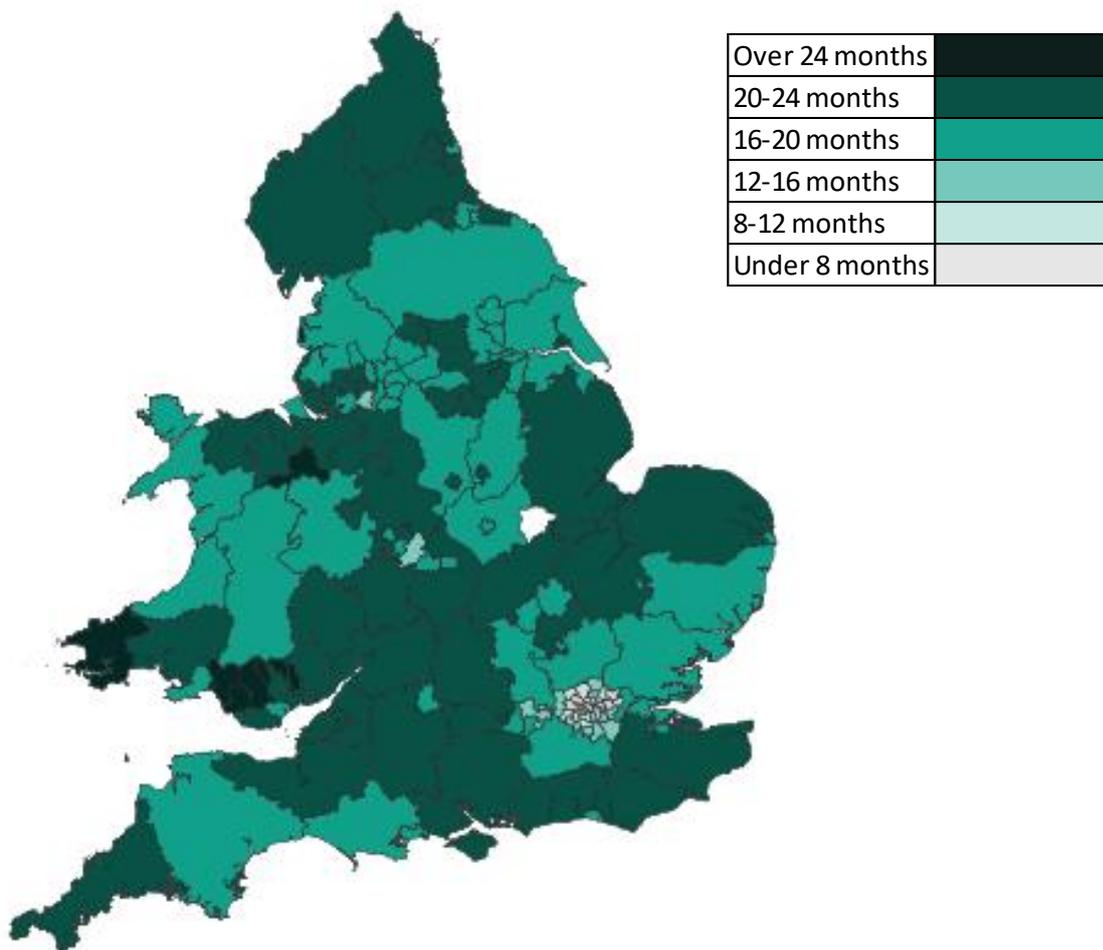
We now move on to more explicit comparisons of the disadvantage gap across local authorities in England and Wales.

Figure 5.4 maps the disadvantage gap across local authorities in England and Wales in 2019. This makes it very clear that the disadvantage gap is generally higher across local authorities in Wales than in England. There are seven local authorities in Wales where the disadvantage gap is higher than 24 months, including: Blaenau Gwent; Bridgend; Merthyr Tydfil; Neath Port Talbot; Rhondda Cynon Taf; Pembrokeshire; and, Torfaen. However, this only applies to Blackpool in England. In general, the

disadvantage gap in Wales is similar or higher to parts of England with similar socio-demographics, such as Yorkshire, the North-West and North-East of England.

There are some local authorities in Wales with relatively low disadvantage gaps of 16-20 months, including the cities of Cardiff and Swansea, as well as to some rural areas such as Ceredigion, Powys, Gwynedd and Anglesey. However, this applies to a larger share of areas of England. There are also no local authorities in Wales where the gap is under 12 months, whilst this can be seen for a range of local authorities in the London area.

Figure 5.4 Disadvantage gap across local authorities in Wales and England, 2019



Notes and sources: Authors' calculations using National Pupil Database for Wales; National Pupil Database for England. We exclude from our analysis the Isles of Scilly, the City of London and Rutland due to small sample sizes.

In our previous EPI annual reports on the disadvantage gap in England, we have highlighted the role of persistent disadvantage in driving the level of the disadvantage gap across areas¹⁰. Figure 5.5 continues this theme by plotting the level of persistent disadvantage (x-axis) against the disadvantage gap in each area (y-axis). The green dots show Welsh local authorities, whilst the pink dots show the pattern for English local authorities.

This is striking as it shows that the disadvantage gap is generally larger in Wales than in England for local authorities *with similar levels of persistent disadvantage*. The four local authorities with the

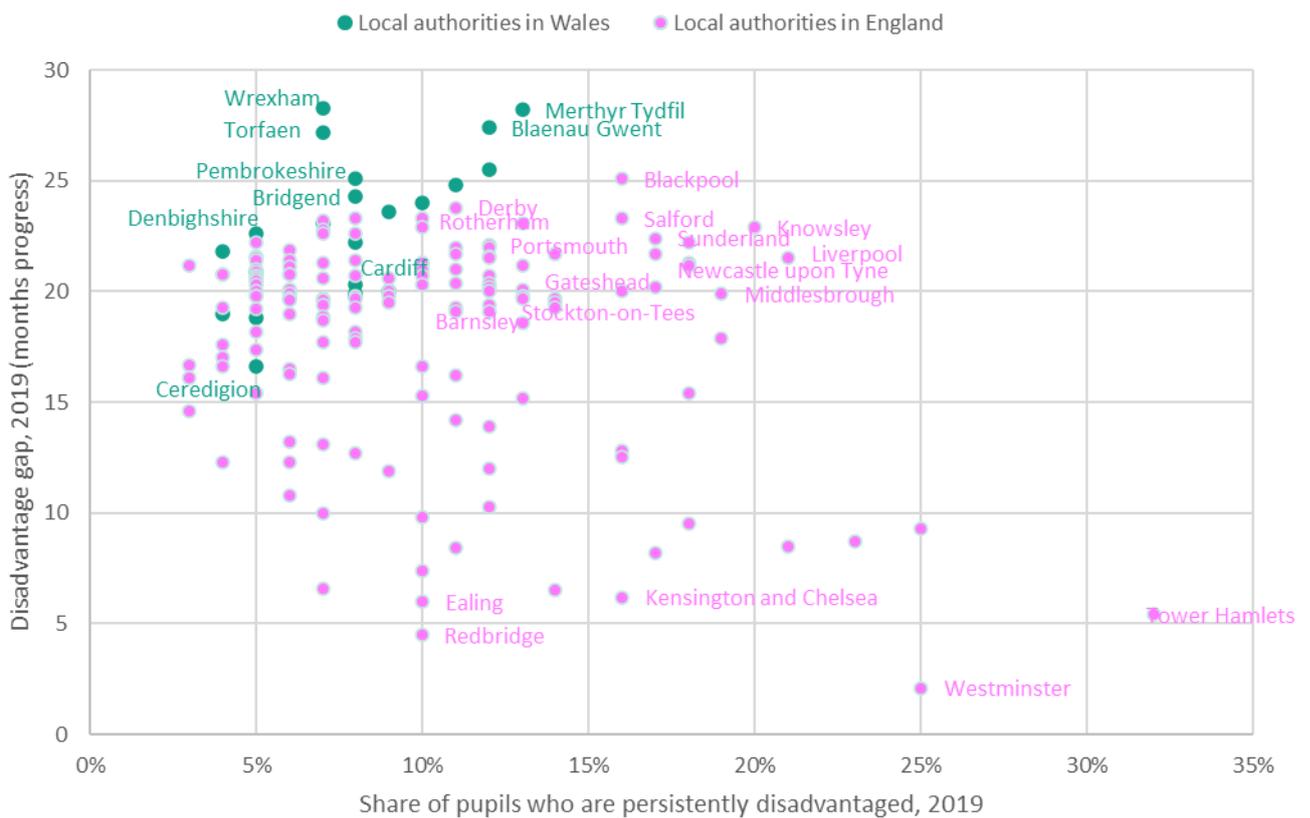
highest disadvantage gap in Wales (Torfaen, Merthyr Tydfil, Blaenau Gwent and Wrexham) have similar levels of persistent disadvantage to many areas of England with lower disadvantage gaps. This includes many local authorities with similar socio-economic demographics to disadvantaged areas of Wales, such as Barnsley, Gateshead, Portsmouth, Salford, Stockton-on-Tees and Rotherham.

Furthermore, there are many local authorities in England that have similar disadvantage gaps to parts of Wales, despite experiencing much higher levels of persistent disadvantage. For example, the disadvantage gap in Bridgend, Denbighshire and Pembrokeshire is around 22-25 months of progress, similar to that seen in Middlesborough, Sunderland, Knowsley, Liverpool and Newcastle, despite persistent disadvantage being far higher in these areas of England.

There are some local authorities in Wales with lower disadvantage gaps, such as Cardiff and Ceredigion, but this more closely aligns with the average picture across local authorities in England.

The inescapable, and worrying, conclusion is that the disadvantage gap appears to be notably higher in Wales than in England, even for areas experiencing similar levels of persistent disadvantage.

Figure 5.5 Relationship between persistent disadvantage and the disadvantage gap across local authorities in Wales and England



Notes and sources: Authors' calculations using National Pupil Database for Wales; National Pupil Database for England. We exclude from our analysis the Isles of Scilly, the City of London and Rutland due to small sample sizes.

6. Conclusions and policy implications

In summary, there are wide disadvantage gaps in GCSE attainment in both England and Wales, but the gap is clearly much larger in Wales. The disadvantage gap is the equivalent to about 18 months of educational progress in England, but about 22-23 months in Wales. In both cases, progress in narrowing the gap has clearly been slow over the past decade. The disadvantage gap is also larger for pupils experiencing persistent disadvantage, with almost no closing of the gap over time in England or Wales. Therefore, the overriding policy implication is that policymakers in England and Wales need to be doing more to narrow the disadvantage gap.

With a larger disadvantage gap, the challenge is more substantial in Wales than in England. However, despite the large amount of school policy divergence between England and Wales over the last decade, there is no evidence that differences on Academies, the curriculum or differing reforms to GCSEs have had any meaningful effects on the relative levels of the disadvantage gap across the two nations. The drivers of a higher disadvantage gap in Wales predate 2010. Nor is there any evidence that the specific Welsh approach to school policy and a high salience attached to inequality have led to any meaningful reduction in educational inequality. The effects of some different choices are still to be felt, such as the new Curriculum for Wales or recent changes to assessments. However, these are not changes that are known to have substantial effects on educational inequality. The clear conclusion for Wales is that efforts to reduce the disadvantage gap over the last decade have been insufficient or misplaced.

Wales also includes the local authorities with the highest disadvantage across England and Wales. In seven local authorities (Wrexham, Merthyr Tydfil, Blaenau Gwent, Rhondda Cynon Taf, Torfaen, Pembrokeshire and Neath Port Talbot), the disadvantage gap is larger than that seen across all 150 plus local authorities in England. Indeed, the disadvantage gap is larger in Wales than in England for local authorities experiencing similar levels of persistent disadvantage. Local authorities in Wales need to learn more from deprived areas of England with similar demographics, and which have managed to achieve smaller disadvantage gaps over time

More generally, there are also now clear lessons from the academic literature on the most effective ways to reduce educational inequalities in schools.¹¹ Policy and practice in England and Wales should be better aligned with such evidence.

First, there is now a strong academic consensus on the positive effects of school spending, with a larger effect on more disadvantaged pupils.¹² This emphasises the importance and beneficial effects of targeting extra funding at schools with more disadvantaged pupils, such as through the Pupil Premium in England and the Pupil Development Grant in Wales. However, the real-terms value of the Pupil Premium in England has been eroded by inflation and the extra funding targeted at more deprived schools in Wales is lower than it is in England.¹³ Funding targeted at disadvantaged pupils should be increased in both England and Wales. More funding should also be targeted at pupils experiencing persistent disadvantage, given the higher levels of educational inequality seen for this highly disadvantaged group.

Second, a focus on teacher quality is also crucial given the evidence on the importance of teacher quality and lower levels of teacher quality in more deprived areas.¹⁴ This may include policies

designed to improve recruitment and retention of high-quality teachers in more deprived areas, such as salary supplements, or access to high-quality professional development.¹⁵

Third, reviews produced in response to the pandemic have demonstrated the high effectiveness of one-to-one and small group tutoring.¹⁶ This evidence suggests that tutoring can improve educational outcomes for pupils who are struggling by over 0.3 standard deviations, on average, and even more when tutoring is delivered by highly-trained staff and when there are strong connections to existing school operations. Tutoring within schools should be expanded across both nations.

Fourth, there are strong lessons on overall best practice from the literature on charter schools. The evidence suggests that the most successful charter schools focus on frequent teacher feedback, the use of data to guide instruction, high-dosage tutoring, increased instructional time, and maintain a culture of high expectations.¹⁷ Interestingly, such practices do not necessarily need to be implemented in a system with charter schools or academies. In a very informative experiment in Houston, research shows how adopting these five key policies led to dramatic improvements in traditional public schools.¹⁸

Finally, it is important to recognise that schools are unlikely to be able to close the disadvantage gap on their own. The empirical evidence shows the fundamental importance of family background and parental investments as driving forces.¹⁹ Indeed, about 25 per cent of the disadvantage gap is established even before children start school.²⁰ A significant narrowing of the disadvantage gap therefore also requires a wider focus on child poverty, other parts of the education system, such as the early years, and other public services, such as children's services.

Appendix A

Table A1 – Average percentile ranking by level of disadvantage in Wales and England

a) GCSE points per subject – average percentile ranking in Wales

| | Non-Disadvantaged | Disadvantaged | Persistently Disadvantaged |
|------|-------------------|---------------|----------------------------|
| 2009 | 56.3 | 32.6 | 29.1 |
| 2010 | 56.7 | 32.7 | 28.0 |
| 2011 | 56.7 | 32.4 | 27.8 |
| 2012 | 56.6 | 32.5 | 27.3 |
| 2013 | 56.7 | 33.0 | 27.5 |
| 2014 | 56.8 | 32.8 | 26.9 |
| 2015 | 56.8 | 32.9 | 26.9 |
| 2016 | 56.7 | 33.5 | 26.7 |
| 2017 | 56.7 | 33.2 | 26.6 |
| 2018 | 56.4 | 33.3 | 27.5 |
| 2019 | 56.4 | 32.8 | 27.0 |

b) GCSE points per core subject – average percentile ranking in Wales

| | Non-Disadvantaged | Disadvantaged | Persistently Disadvantaged |
|------|-------------------|---------------|----------------------------|
| 2009 | 57.7 | 35.4 | 31.9 |
| 2010 | 58.5 | 34.4 | 29.4 |
| 2011 | 58.6 | 34.2 | 29.3 |
| 2012 | 58.2 | 35.0 | 29.6 |
| 2013 | 58.4 | 35.5 | 29.6 |
| 2014 | 58.6 | 35.3 | 29.3 |
| 2015 | 58.5 | 35.3 | 28.8 |
| 2016 | 58.4 | 35.9 | 29.1 |
| 2017 | 58.5 | 35.3 | 28.6 |
| 2018 | 58.1 | 35.1 | 29.1 |
| 2019 | 58.0 | 34.7 | 28.8 |

c) GCSE points per subject – average percentile ranking in England

| | Non-Disadvantaged | Disadvantaged | Persistently Disadvantaged |
|------|-------------------|---------------|----------------------------|
| 2011 | 0.55 | 0.34 | 0.31 |
| 2012 | 0.55 | 0.35 | 0.32 |
| 2013 | 0.55 | 0.35 | 0.32 |
| 2014 | 0.55 | 0.35 | 0.32 |
| 2015 | 0.55 | 0.36 | 0.31 |
| 2016 | 0.55 | 0.36 | 0.31 |
| 2017 | 0.55 | 0.36 | 0.32 |
| 2018 | 0.55 | 0.36 | 0.31 |
| 2019 | 0.55 | 0.36 | 0.31 |

d) GCSE points per core subject – average percentile ranking in England

| | Non-Disadvantaged | Disadvantaged | Persistently Disadvantaged |
|------|-------------------|---------------|----------------------------|
| 2011 | 0.55 | 0.35 | 0.32 |
| 2012 | 0.55 | 0.36 | 0.32 |
| 2013 | 0.55 | 0.36 | 0.32 |
| 2014 | 0.55 | 0.37 | 0.33 |
| 2015 | 0.55 | 0.37 | 0.32 |
| 2016 | 0.55 | 0.37 | 0.32 |
| 2017 | 0.55 | 0.37 | 0.32 |
| 2018 | 0.55 | 0.36 | 0.31 |
| 2019 | 0.55 | 0.36 | 0.32 |

Notes and sources: Authors' calculations using National Pupil Database for Wales; National Pupil Database for England.

Table A2 – Average percentile ranking by special educational needs status in Wales and England

a) GCSE points per subject – average percentile ranking in Wales

| | SEN Statement | SEN other | Non-SEN |
|------|---------------|-----------|---------|
| 2009 | 20.5 | 26.0 | 55.4 |
| 2010 | 19.0 | 26.1 | 56.0 |
| 2011 | 20.4 | 27.5 | 56.2 |
| 2012 | 19.4 | 28.0 | 56.4 |
| 2013 | 20.2 | 27.8 | 56.7 |
| 2014 | 18.3 | 28.4 | 56.9 |
| 2015 | 19.6 | 28.7 | 57.0 |
| 2016 | 19.7 | 29.0 | 57.0 |
| 2017 | 19.3 | 28.1 | 57.2 |
| 2018 | 18.8 | 28.1 | 57.3 |
| 2019 | 18.2 | 28.6 | 57.3 |

b) GCSE points per core subject – average percentile ranking in Wales

| | SEN Statement | SEN other | Non-SEN |
|------|---------------|-----------|---------|
| 2009 | 18.1 | 27.8 | 57.3 |
| 2010 | 17.2 | 26.8 | 58.2 |
| 2011 | 18.0 | 28.4 | 58.4 |
| 2012 | 17.6 | 29.2 | 58.5 |
| 2013 | 17.9 | 29.1 | 58.9 |
| 2014 | 16.6 | 29.7 | 59.2 |
| 2015 | 18.0 | 29.9 | 59.3 |
| 2016 | 18.2 | 30.4 | 59.1 |
| 2017 | 18.1 | 29.6 | 59.4 |
| 2018 | 18.2 | 29.3 | 59.2 |
| 2019 | 17.5 | 29.8 | 59.2 |

(c) GCSE points per subject – average percentile ranking in England

| | SEN Statement | SEN other | Non-SEN |
|------|---------------|-----------|---------|
| 2011 | 0.15 | 0.29 | 0.57 |
| 2012 | 0.15 | 0.29 | 0.57 |
| 2013 | 0.15 | 0.28 | 0.56 |
| 2014 | 0.14 | 0.29 | 0.56 |
| 2015 | 0.14 | 0.28 | 0.55 |
| 2016 | 0.14 | 0.28 | 0.54 |
| 2017 | 0.14 | 0.28 | 0.54 |
| 2018 | 0.14 | 0.29 | 0.54 |
| 2019 | 0.14 | 0.30 | 0.54 |

(d) GCSE points per core subject – average percentile ranking in England

| | SEN Statement | SEN other | Non-SEN |
|------|---------------|-----------|---------|
| 2011 | 0.13 | 0.29 | 0.58 |
| 2012 | 0.13 | 0.28 | 0.57 |
| 2013 | 0.13 | 0.28 | 0.56 |
| 2014 | 0.13 | 0.29 | 0.56 |
| 2015 | 0.13 | 0.29 | 0.55 |
| 2016 | 0.13 | 0.29 | 0.54 |
| 2017 | 0.12 | 0.28 | 0.54 |
| 2018 | 0.12 | 0.29 | 0.54 |
| 2019 | 0.13 | 0.30 | 0.54 |

Notes and sources: Authors calculations using National Pupil Database for Wales; National Pupil Database for England.

Table A3 – Average percentile ranking in GCSE points per subject, by ethnicity

(a) Wales

| | White British | White Other | Black | Asian | Mixed | Other |
|------|---------------|-------------|-------|-------|-------|-------|
| 2009 | 50.1 | 54.8 | 39.3 | 51.2 | 51.8 | 52.6 |
| 2010 | 49.9 | 53.5 | 46.9 | 53.9 | 54.1 | 50.5 |
| 2011 | 50.0 | 52.3 | 47.6 | 53.6 | 52.3 | 50.8 |
| 2012 | 49.8 | 53.9 | 48.5 | 56.1 | 53.6 | 52.0 |
| 2013 | 49.9 | 52.7 | 45.4 | 56.5 | 53.9 | 50.9 |
| 2014 | 50.0 | 49.5 | 43.5 | 55.2 | 54.3 | 51.6 |
| 2015 | 50.0 | 48.5 | 47.0 | 56.3 | 52.2 | 52.2 |
| 2016 | 49.9 | 49.2 | 43.9 | 56.1 | 53.0 | 54.8 |
| 2017 | 49.8 | 51.3 | 47.9 | 57.8 | 52.8 | 53.2 |
| 2018 | 49.7 | 51.2 | 48.7 | 58.6 | 53.8 | 55.5 |
| 2019 | 49.6 | 52.9 | 47.4 | 60.6 | 53.4 | 53.3 |

(b) England

| | White British | White Other | Black | Asian | Mixed | Other |
|------|---------------|-------------|-------|-------|-------|-------|
| 2011 | 0.5 | 0.51 | 0.5 | 0.54 | 0.51 | 0.47 |
| 2012 | 0.5 | 0.51 | 0.5 | 0.55 | 0.51 | 0.48 |
| 2013 | 0.49 | 0.51 | 0.5 | 0.55 | 0.52 | 0.48 |
| 2014 | 0.5 | 0.51 | 0.5 | 0.55 | 0.52 | 0.47 |
| 2015 | 0.49 | 0.51 | 0.5 | 0.55 | 0.52 | 0.48 |
| 2016 | 0.49 | 0.5 | 0.5 | 0.55 | 0.51 | 0.47 |
| 2017 | 0.49 | 0.51 | 0.5 | 0.56 | 0.51 | 0.47 |
| 2018 | 0.49 | 0.52 | 0.5 | 0.56 | 0.51 | 0.47 |
| 2019 | 0.49 | 0.51 | 0.5 | 0.57 | 0.51 | 0.47 |

Notes and sources: Authors calculations using National Pupil Database for Wales; National Pupil Database for England.

Table A4 – Disadvantage gaps and levels of disadvantage by local authority in England

| | % Disadvantaged, 2019 | % Persistently disadvantaged, 2019 | Disadvantage Gap (2017-2019) Months progress | Disadvantage Gap (2011-2013) Months progress |
|---------------------------|-----------------------------|--|--|--|
| Blackpool | 37% | 16% | 25.1 | 23.9 |
| Derby | 29% | 11% | 23.8 | 22.5 |
| Peterborough | 27% | 8% | 23.3 | 24.4 |
| Rotherham | 28% | 10% | 23.3 | 22.4 |
| Salford | 38% | 16% | 23.3 | 21.2 |
| Kent | 20% | 7% | 23.2 | 23 |
| Sheffield | 31% | 13% | 23.1 | 24.2 |
| Knowsley | 40% | 20% | 22.9 | 24.9 |
| Telford and Wrekin | 28% | 10% | 22.9 | 21.6 |
| Northumberland | 21% | 7% | 22.8 | 25 |
| Cheshire West and Chester | 20% | 7% | 22.6 | 23.8 |
| Isle of Wight | 24% | 8% | 22.6 | 24.7 |
| Sunderland | 32% | 17% | 22.4 | 22.4 |
| Hartlepool | 39% | 18% | 22.2 | 23 |
| South Gloucestershire | 14% | 5% | 22.2 | 21.7 |
| Portsmouth | 32% | 12% | 22.1 | 25.3 |
| Dudley | 26% | 11% | 22 | 22.1 |
| Southampton | 30% | 12% | 22 | 21.1 |
| Staffordshire | 18% | 6% | 21.9 | 21.6 |
| Newcastle upon Tyne | 38% | 17% | 21.7 | 23.5 |
| Plymouth | 28% | 11% | 21.7 | 21.5 |
| Walsall | 36% | 14% | 21.7 | 22.2 |
| Herefordshire | 18% | 5% | 21.6 | 21.9 |
| Redcar and Cleveland | 30% | 12% | 21.6 | 23.5 |
| Hampshire | 16% | 5% | 21.5 | 22.8 |
| Liverpool | 43% | 21% | 21.5 | 21 |
| Stoke-on-Trent | 31% | 12% | 21.5 | 24.2 |
| Lincolnshire | 21% | 6% | 21.4 | 21.9 |
| Reading | 25% | 8% | 21.4 | 21.8 |
| Somerset | 18% | 5% | 21.4 | 21.8 |
| East Sussex | 20% | 7% | 21.3 | 21.9 |
| North Tyneside | 24% | 10% | 21.3 | 19.7 |
| Nottingham | 38% | 18% | 21.3 | 23.4 |
| Torbay | 27% | 10% | 21.3 | 21.1 |
| Bristol City of | 31% | 13% | 21.2 | 23.8 |
| Halton | 38% | 18% | 21.2 | 17.4 |
| West Berkshire | 11% | 3% | 21.2 | 23.1 |
| Worcestershire | 19% | 6% | 21.1 | 22 |
| North Somerset | 19% | 5% | 21 | 21.6 |
| Sefton | 25% | 10% | 21 | 19.1 |
| St. Helens | 27% | 11% | 21 | 23.2 |

| | | | | |
|------------------------------|-----|-----|------|------|
| Gloucestershire | 17% | 5% | 20.9 | 20.4 |
| Cornwall | 20% | 6% | 20.8 | 20.4 |
| Cumbria | 17% | 6% | 20.8 | 24.3 |
| West Sussex | 15% | 4% | 20.8 | 22.1 |
| Wiltshire | 15% | 4% | 20.8 | 22.5 |
| Bath and North East Somerset | 16% | 5% | 20.7 | 22.6 |
| Bradford | 31% | 12% | 20.7 | 21.1 |
| Darlington | 29% | 10% | 20.7 | 20.1 |
| Wigan | 24% | 8% | 20.7 | 19 |
| Cambridgeshire | 17% | 5% | 20.6 | 22.3 |
| Central Bedfordshire | 15% | 5% | 20.6 | 21.7 |
| Norfolk | 21% | 7% | 20.6 | 22.2 |
| Wakefield | 25% | 9% | 20.6 | 22 |
| Warwickshire | 16% | 5% | 20.5 | 20.1 |
| Durham | 29% | 12% | 20.4 | 20.7 |
| Leeds | 29% | 11% | 20.4 | 24.2 |
| Doncaster | 29% | 10% | 20.3 | 24.5 |
| Oxfordshire | 15% | 5% | 20.3 | 21.8 |
| Bolton | 30% | 12% | 20.2 | 19.5 |
| Kingston upon Hull City of | 36% | 17% | 20.2 | 24.5 |
| Cheshire East | 15% | 6% | 20.1 | 22.1 |
| Gateshead | 30% | 13% | 20.1 | 20.4 |
| Northamptonshire | 19% | 6% | 20.1 | 22 |
| Bury | 24% | 9% | 20 | 15.6 |
| Coventry | 29% | 12% | 20 | 20.2 |
| Shropshire | 17% | 5% | 20 | 20.8 |
| South Tyneside | 34% | 16% | 20 | 22 |
| Middlesbrough | 41% | 19% | 19.9 | 24 |
| Southend-on-Sea | 23% | 6% | 19.9 | 24 |
| Bracknell Forest | 15% | 5% | 19.8 | 19 |
| Derbyshire | 22% | 8% | 19.8 | 22.2 |
| Essex | 19% | 5% | 19.8 | 21 |
| Stockport | 22% | 9% | 19.8 | 18.7 |
| Wirral | 29% | 13% | 19.8 | 17.1 |
| Bedford | 22% | 7% | 19.7 | 21.4 |
| Kirklees | 26% | 14% | 19.7 | 18 |
| Lancashire | 22% | 8% | 19.7 | 21 |
| Sandwell | 33% | 13% | 19.7 | 20.9 |
| Suffolk | 21% | 6% | 19.7 | 23.5 |
| Warrington | 17% | 6% | 19.7 | 19.8 |
| Dorset | 16% | 6% | 19.6 | 20 |
| Swindon | 19% | 7% | 19.6 | 22.2 |
| Brighton and Hove | 23% | 9% | 19.5 | 20.5 |
| Oldham | 35% | 14% | 19.5 | 20.3 |

| | | | | |
|--------------------------|-----|-----|------|------|
| Barnsley | 30% | 12% | 19.4 | 28.7 |
| Medway | 22% | 7% | 19.4 | 21.8 |
| Leicester | 30% | 11% | 19.3 | 19 |
| Leicestershire | 14% | 4% | 19.3 | 22.8 |
| North East Lincolnshire | 25% | 8% | 19.3 | 24.3 |
| Wolverhampton | 35% | 14% | 19.3 | 19.1 |
| North Yorkshire | 15% | 5% | 19.2 | 20.3 |
| Stockton-on-Tees | 28% | 12% | 19.1 | 24.3 |
| Tameside | 31% | 11% | 19.1 | 20.5 |
| Milton Keynes | 23% | 6% | 19 | 19.1 |
| Devon | 18% | 7% | 18.9 | 18.3 |
| Nottinghamshire | 20% | 7% | 18.7 | 22.3 |
| Rochdale | 37% | 13% | 18.6 | 18.7 |
| East Riding of Yorkshire | 17% | 5% | 18.2 | 20.2 |
| North Lincolnshire | 25% | 8% | 18.2 | 24.1 |
| Manchester | 45% | 19% | 17.9 | 18.5 |
| Thurrock | 23% | 8% | 17.9 | 19.8 |
| Calderdale | 24% | 8% | 17.7 | 20.4 |
| Solihull | 18% | 7% | 17.7 | 17.5 |
| Surrey | 13% | 4% | 17.6 | 19.1 |
| Hertfordshire | 16% | 5% | 17.4 | 17.4 |
| York | 14% | 4% | 17 | 19.9 |
| Buckinghamshire | 12% | 3% | 16.7 | 17.3 |
| Luton | 30% | 10% | 16.6 | 14.1 |
| Poole | 15% | 4% | 16.6 | 20.2 |
| Bexley | 20% | 6% | 16.5 | 17 |
| Havering | 21% | 6% | 16.3 | 15 |
| Blackburn with Darwen | 27% | 11% | 16.2 | 15.9 |
| Bournemouth | 21% | 7% | 16.1 | 19.5 |
| Wokingham | 9% | 3% | 16.1 | 19.9 |
| Birmingham | 43% | 18% | 15.4 | 15.1 |
| Bromley | 18% | 5% | 15.4 | 14.7 |
| Croydon | 32% | 10% | 15.3 | 14.3 |
| Lewisham | 37% | 13% | 15.2 | 14.6 |
| Windsor and Maidenhead | 12% | 3% | 14.6 | 17.4 |
| Enfield | 33% | 11% | 14.2 | 14.6 |
| Greenwich | 35% | 12% | 13.9 | 11.4 |
| Sutton | 18% | 6% | 13.2 | 14 |
| Trafford | 17% | 7% | 13.1 | 15.7 |
| Lambeth | 46% | 16% | 12.8 | 9.3 |
| Hillingdon | 26% | 8% | 12.7 | 14.3 |
| Haringey | 41% | 16% | 12.5 | 12.2 |
| Kingston upon Thames | 17% | 4% | 12.3 | 12.3 |
| Slough | 22% | 6% | 12.3 | 15 |
| Barking and Dagenham | 33% | 12% | 12 | 13.2 |

| | | | | |
|------------------------|-----|-----|------|------|
| Merton | 23% | 9% | 11.9 | 12 |
| Richmond upon Thames | 15% | 6% | 10.8 | 15.4 |
| Waltham Forest | 32% | 12% | 10.3 | 12.6 |
| Harrow | 23% | 7% | 10 | 9.4 |
| Hounslow | 30% | 10% | 9.8 | 12 |
| Southwark | 48% | 18% | 9.5 | 8.3 |
| Islington | 59% | 25% | 9.3 | 10.4 |
| Hackney | 53% | 23% | 8.7 | 9.9 |
| Camden | 53% | 21% | 8.5 | 8.6 |
| Wandsworth | 34% | 11% | 8.4 | 11.7 |
| Hammersmith and Fulham | 43% | 17% | 8.2 | 8.5 |
| Brent | 32% | 10% | 7.4 | 9.7 |
| Barnet | 25% | 7% | 6.6 | 9.3 |
| Newham | 51% | 14% | 6.5 | 7.9 |
| Kensington and Chelsea | 43% | 16% | 6.2 | 1.1 |
| Ealing | 28% | 10% | 6 | 9.9 |
| Tower Hamlets | 58% | 32% | 5.4 | 6.2 |
| Redbridge | 24% | 10% | 4.5 | 6.9 |
| Westminster | 51% | 25% | 2.1 | 2.7 |

Notes and sources: Authors calculations using National Pupil Database for England. We exclude from our analysis the Isles of Scilly, the City of London and Rutland due to small sample sizes.

Figure A1 – Disadvantage gap in GCSE results over time in Wales –including independent schools in the ranking

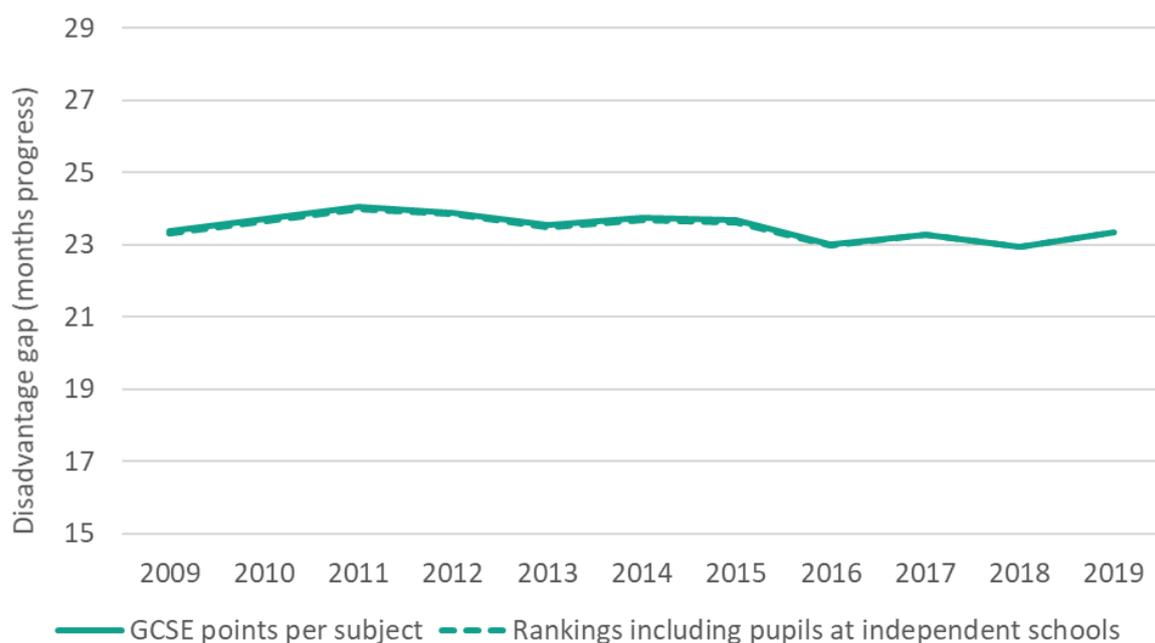
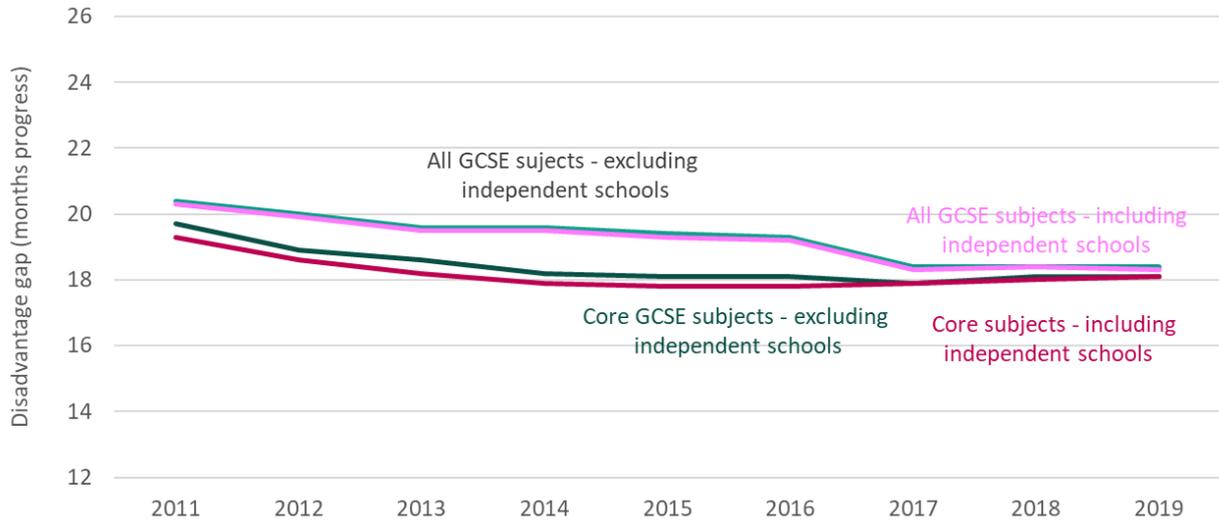


Figure A2 – Disadvantage gap in GCSE results over time in England – multiple measures (including independent schools in the ranking)



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- ¹ John Jerrim and Luke Sibieta, 'A Comparison of School Institutions and Policies across the UK', Education Policy Institute, 2021, <https://epi.org.uk/publications-and-research/a-comparison-of-school-institutions-and-policies-across-the-uk/>.
- ² Joshua Fullard and Luke Sibieta, 'The Evolution of Cognitive Skills during Childhood across the UK', Education Policy Institute, 2021, <https://epi.org.uk/publications-and-research/the-evolution-of-cognitive-skills-during-childhood-across-the-uk/>.
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- ⁶ David V Ford et al., 'The SAIL Databank: Building a National Architecture for e-Health Research and Evaluation', *BMC Health Services Research* 9, no. 1 (December 2009): 157, <https://doi.org/10.1186/1472-6963-9-157>; Ronan A Lyons et al., 'The SAIL Databank: Linking Multiple Health and Social Care Datasets', *BMC Medical Informatics and Decision Making* 9, no. 1 (December 2009): 3, <https://doi.org/10.1186/1472-6947-9-3>.
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- ¹⁰ Coleman et al., 'Covid-19 and Disadvantage Gaps in England 2020'.
- ¹¹ Jo Blanden, Matthias Doepke, and Jan Stuhler, 'Educational Inequality' (Cambridge, MA: National Bureau of Economic Research, April 2022), <https://doi.org/10.3386/w29979>.
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