



Department  
for Education

# **Valuing educational progress in England: the economic benefits of the progress made in GCSE performance**

**Research report**

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## Introduction

It is well established that gaining good quality educational qualifications has benefits for individuals, in terms of increased wages and probability of being in employment; and the wider economy by making individuals more productive<sup>1</sup>. In this report, we examine the economic benefit from the recent progress made by pupils sitting GCSEs in England. We do this by looking at how the proportion of pupils achieving a good level of GCSE performance<sup>2</sup> in maintained non-special schools<sup>3</sup> changed between 2010 and 2014. For the purposes of this report, we define a good level of performance as getting five or more GCSEs at grades A\*-C including both English and maths.

In order to estimate the economic benefit of the educational progress that has been made between 2010 and 2014, we apply the pass rate in 2014 to the 2010 population<sup>4</sup>, and combine this with an estimate of the lifetime productivity of a good level of performance. In our calculation we assume that any additional pupils achieving a good level of performance would have otherwise achieved 3-4 good GCSEs and that the value of the economic benefit remains constant over time. The Department for Education (DfE) estimates that the increase in productivity for someone who achieved 5-7 GCSEs at grades A\*-C (including English and maths) compared to someone who achieved 3-4 good GCSEs, is worth approximately £60,000 to an individual over a lifetime<sup>5</sup>. This takes no account of the wider benefits from improved educational attainment such as improved health outcomes or reduced crime. We assume that this benefit remains constant regardless of the proportion of the population who achieve a good level of performance. Our analysis also takes no account of the increased numbers of pupils progressing to higher qualification levels (such as A- levels, apprenticeships or degrees) from improved GCSE performance.

We examine the performance at a national, regional and local level. We also look at the change in performance achieved by disadvantaged pupils. For the national scenario, we provide an illustration of the potential future benefits by carrying out simple extrapolations of historic trends.

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<sup>1</sup> See, for example: BIS (2011) Research Paper Number 53, 'Returns to Intermediate and Low Level Vocational Qualifications'.

<sup>2</sup> All performance figures are calculated using the National Pupil Database. Our GCSE measure is made up of all Full GCSEs (including double awards where appropriate and excluding short GCSEs and equivalent qualifications). We focus on this measure of educational performance because it is the measure of educational performance where the economic benefits can be most consistently estimated through time.

<sup>3</sup> The following schools are included in this definition: Academy Converter – Free School, Academy Converter – Mainstream, Academy Sponsor Led, City Technology College, Community School, Foundation School, Free School – Studio School, Free School – University Technical College, Voluntary Aided School, and Voluntary Controlled School.

<sup>4</sup> We keep the cohort size constant between 2010 and 2014 to avoid attributing any benefit to there simply being a higher number of pupils going through the system.

<sup>5</sup> DfE (2014) 'The Economic Value of Key Intermediate Qualifications: Estimating the returns and lifetime productivity gains to GCSEs, A levels and apprenticeships' by Hayward, Hunt and Lord.

## Executive Summary

There were **21,600 more pupils in 2014** who obtained a **good level of performance** in their GCSEs than in 2010. This is worth an estimated **economic benefit of around £1,300 million** in terms of these pupils' higher productivity over their working lifetimes.

From this total economic benefit, we can calculate how much was contributed by various sub groups<sup>6</sup>:

**£430 million** of the benefit was due to **improvements in the results of disadvantaged pupils<sup>7</sup>**, with 7,150 more disadvantaged pupils achieving a good level of GCSE performance.

**The region** that made the **most progress** in the proportion of its pupils achieving a good level of performance was **London**, which contributed an **economic benefit of £310 million**. Within London, £120 million of the estimated economic benefit was due to improvements in the results of disadvantaged pupils.

**The three local authorities** that made the **most progress** in the proportion of their pupils achieving a good level of GCSE performance were **Sandwell, Halton and Haringey** which each contributed an **economic benefit of around £20 million, £15 million and £20 million** respectively.

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<sup>6</sup> Pupils can be in multiple sub-groups.

<sup>7</sup> We define this as a pupil who has been recorded as eligible for free school meals in any termly census, Alternative Provision census or Pupil Referral Unit census in the last six years.

# The picture at the national level

## All pupils

In 2010, 44.1% of pupils in state schools in England achieved a good level of performance in their GCSEs. This increased by almost 4 percentage points to 47.8% by 2014. This meant that 21,600 more pupils achieved a good level of performance in their GCSEs in 2014 than in 2010 if we assume a constant cohort size.

By combining the higher proportion of pupils achieving a good level of GCSE performance with the corresponding DfE lifetime productivity estimate, we estimate that this will produce an estimated **economic benefit of around £1,300 million in 2013 prices over their lifetime**. This takes no account of the wider benefits from improved educational attainment such as improved health outcomes or reduced crime. It also takes no account of the increased numbers of pupils progressing to higher qualifications (such as A-levels, apprenticeships or degrees), due to improved GCSE performance.

Using these historic trends in performance, we can explore three illustrative scenarios for future GCSE performance to illustrate possible economic gains in the future. These are:

- (a) the average annual rate improvement over the period 2010 to 2014 will be exactly maintained each year in the future;
- (b) the historic rate of improvement falls by 5% for each additional year into the future; and
- (c) the historic rate of improvement falls by 10% for each additional year into the future.

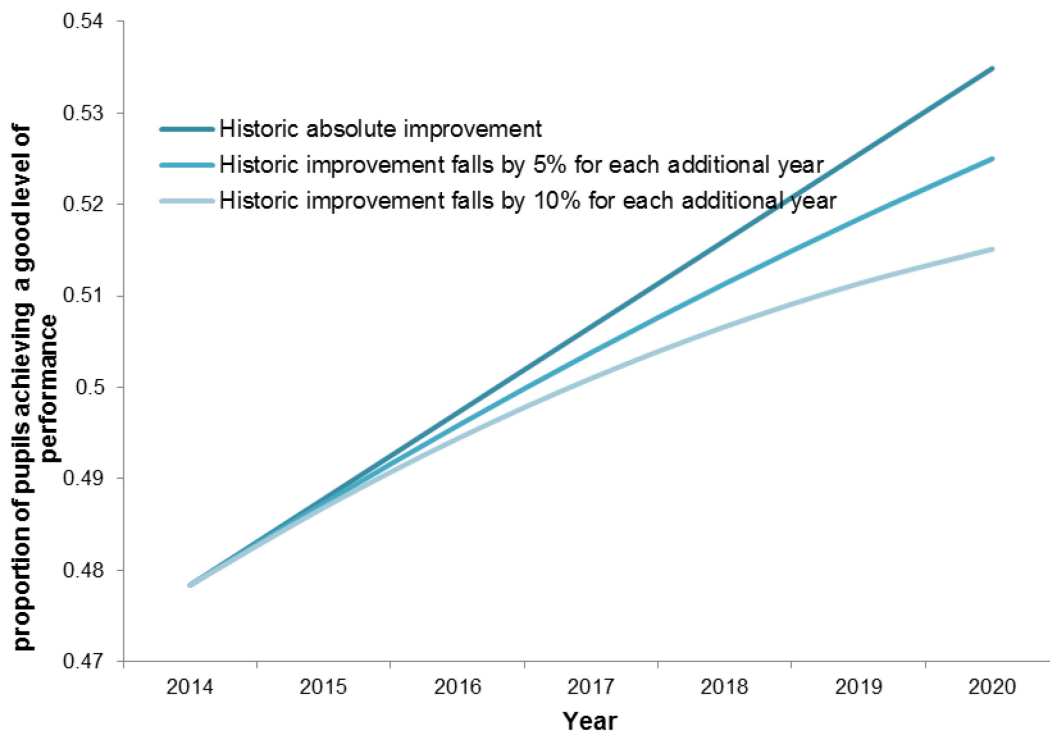
The last two scenarios have the effect of reducing the hypothetical rate of improvement for each year into the future. For example, for scenario B, a 10% rate of improvement in scenario A will be reduced to 9.5% and 9% respectively in forecast year 2 and forecast year 3. For scenario C, a 10% rate of improvement in scenario A will be reduced to 9% and 8% respectively in forecast year 2 and forecast year 3. Building in this 'fade-out' in the rate of improvement in scenarios B and C reflects that it might become harder to improve pupil performance from a higher base.

In Figure 1 we show how the proportion of pupils who achieve a good level of performance change with time under the three scenarios. Assuming a 10% fall in the historic rate of improvement has a dramatic impact on the proportion of pupils achieving a good level of performance, with a decline of over 2 percentage points compared to our baseline (continued historic improvement) by 2020.

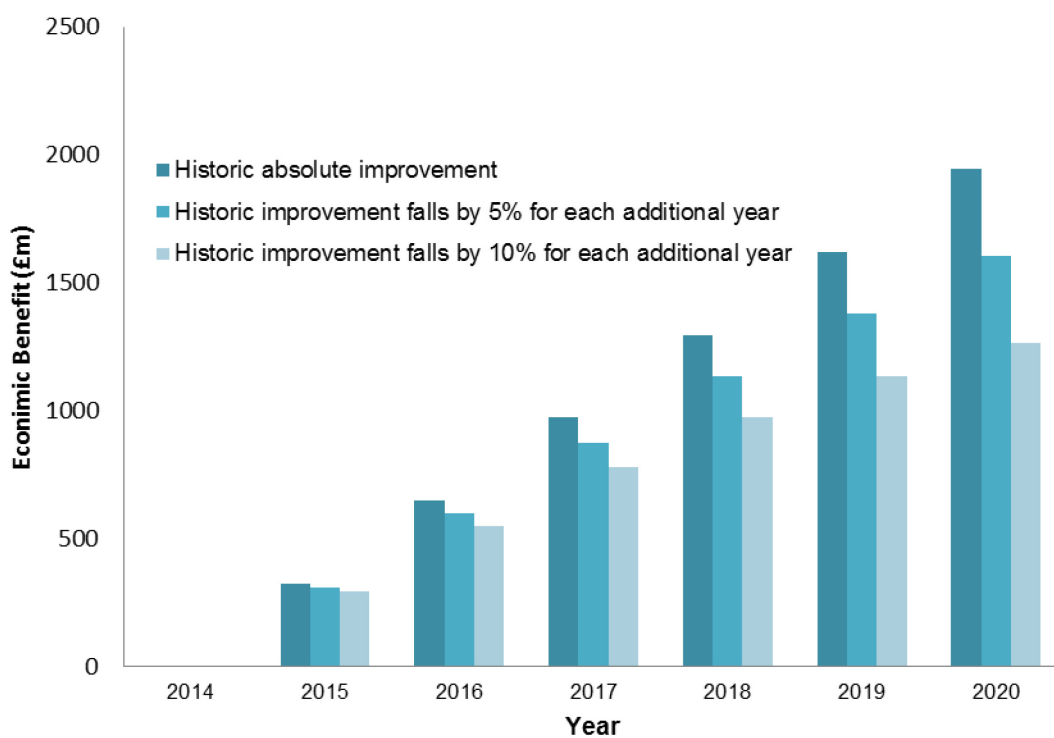
Figure 2 shows how the economic benefit of the additional pupils who achieved a good level of performance could change through time under the scenarios, relative to 2014. It shows that if we continue to see improvements in the number of pupils achieving a good level of performance, the total economic benefit which could accrue due to pupils

completing their GCSEs between 2015 and 2020 could exceed £6,800 million over their lifetime.

**Figure 1: Shows how the proportion of pupils achieving a good level of performance change with time under the three scenarios**



**Figure 2: Shows how the economic benefit of the additional pupils who achieved a good level of performance could change through time under different scenarios, relative to 2014**



## Disadvantaged pupils

In 2010, 27.5% of disadvantaged pupils<sup>8</sup> in state schools in England achieved a good level of performance. This increased by over six percentage points to 32.9% by 2014. This meant that 7,150 more disadvantaged pupils achieved a good level of performance in their GCSEs in 2014 than in 2010 if we assume a constant cohort size.

Using the DfE lifetime productivity estimate in combination with the estimate of the increased number of disadvantaged pupils achieving a good level of GCSE performance results in an estimated **economic benefit of around £430 million over their lifetime**.

Using the historic trends in performance, we can illustrate the possible economic gains under our three illustrative forecast scenarios for disadvantaged pupils.

In Figure 3 we show how the proportion of disadvantaged pupils who achieve a good level of performance could change through time. Similar to our earlier pupil projections, assuming a 10% fall in the historic rate of improvement has a dramatic impact on the proportion of pupils achieving a good level of performance by 2020. Specifically, the impact on disadvantaged pupils is more marked than our previous projection for all pupils, with a reduction of around 5 percentage points compared to our baseline.

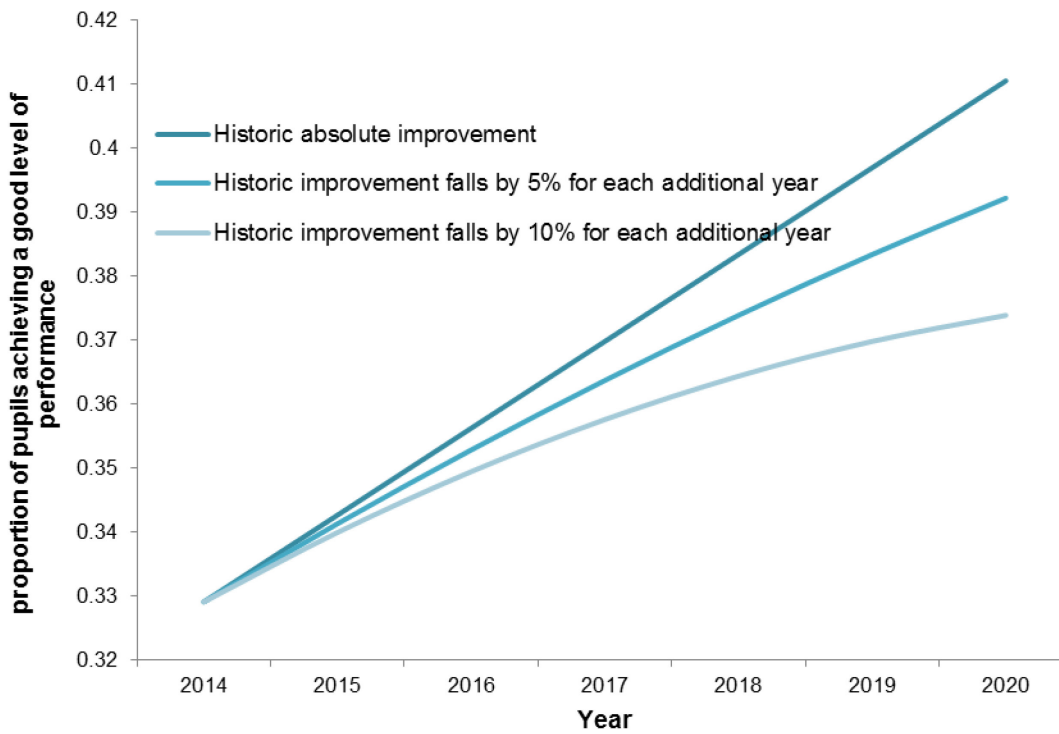
Figure 4 shows how the economic benefit over the lifetime of the additional number of disadvantaged pupils who obtain good GCSEs in that year could change with time with a constant cohort size, relative to 2014. It shows that if we continue to see improvements in the number of disadvantaged pupils achieving a good level of performance then the economic benefit which could accrue to disadvantaged pupils completing their GCSEs between 2015 and 2020 could exceed £2,200 million over their lifetime.

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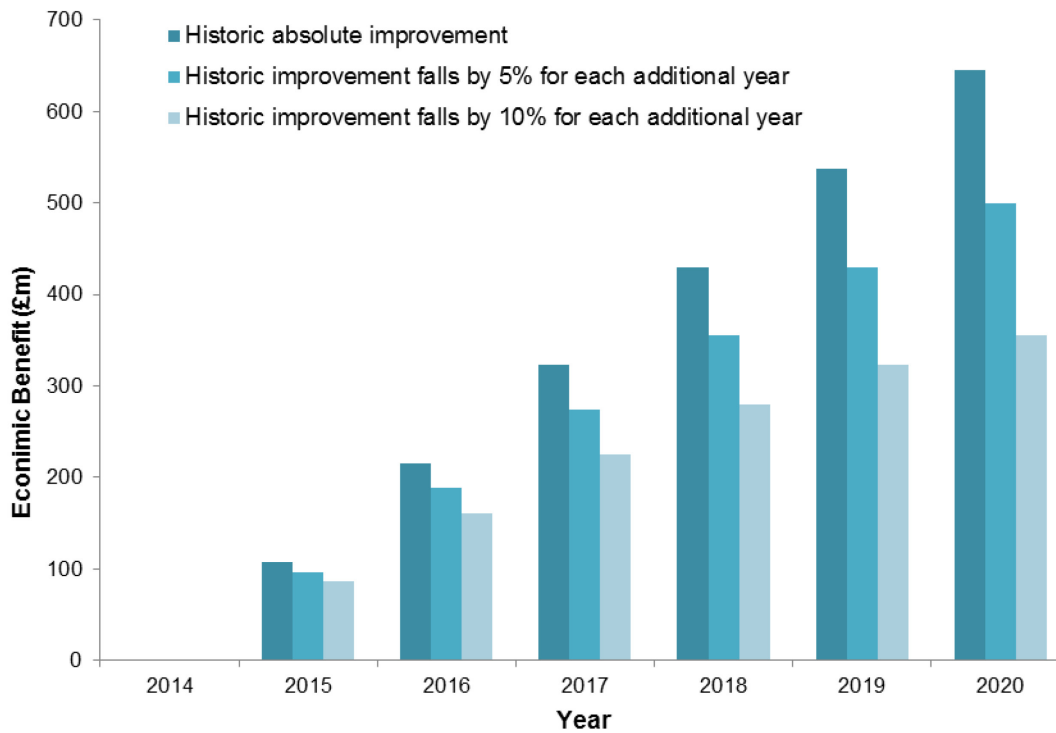
<sup>8</sup> A pupil who has been recorded as eligible for free school meals in any termly census, Alternative Provision census or Pupil Referral Unit census in the last six years



**Figure 3: Shows the proportion of disadvantaged pupils achieving a good level of performance under the three scenarios**



**Figure 4: Shows how the economic benefit of the additional disadvantaged pupils who achieved a good level of performance could change through time under different scenarios, relative to 2014**



## The picture at the regional level

### All pupils

The London region made the largest improvement in the proportion of its pupils achieving a good level of performance in their GCSEs between 2010 and 2014. In 2010, 47.5% of pupils in state schools in the London region achieved a good level of performance in their GCSEs. By 2014 this had increased to 54.5%. This is a relative improvement of 14.7% and an absolute increase of 7.0 percentage points. As a comparison, the improvements at the National level were 8.5% and 3.8 percentage point increases respectively.

London progressed from being the second-best performing region in 2010 to the best performing region in 2014. The region which made the second largest improvement over this time period was the North East.

This means 4820 more pupils at school in the London region achieved a good level of performance in their GCSEs in 2014 than in 2010, if we assume a constant cohort size. We estimate that this produces an estimated **economic of around £310 million over their lifetime as a result of the progress that has been made in this GCSE performance measure.**

### Disadvantaged pupils

The London region also made the largest improvement in the proportion of its disadvantaged pupils achieving a good level of performance in their GCSEs between 2010 and 2014. In 2010, 37.6% of disadvantaged pupils in state schools in the London region achieved a good level of performance in their GCSEs. This increased to 44.8% by 2014.

This is a relative improvement of 19.3% and an absolute improvement of 7.3 percentage point increases. As a comparison, these improvements at the national level were 19.8% and 5.4 percentage points respectively.

This allowed London to retain its position as the best performing region for disadvantaged pupils over this period. The region which made the second largest improvement over this time period for disadvantaged pupils was the East Midlands.

This means 1950 more disadvantaged pupils at school in the London region achieved a good level of performance in their GCSEs in 2014 than in 2010 if we assume a constant cohort size. This produces an estimated **economic benefit of around £120 million over their lifetime as a result of the progress that has been made in this GCSE performance measure.**

## The picture at the local authority level

### All pupils

The local authority of Sandwell (West Midlands), Halton (North West), and Haringey (London) made the largest improvements in the proportion of their pupils achieving a good level of performance in their GCSEs between 2010 and 2014.

All three of these local authorities experienced a relative improvement of over 45% between 2010 and 2014. We carried out a case study in one of these local authorities – Haringey – to better understand what was driving improvements in this area. The case study<sup>9</sup> carried out a series of interviews with representatives from Haringey Council and local head teachers. They identified four factors as being key to Haringey's performance improvement between 2010 and 2014. These were: (1) High quality and stable leadership (2) Collaboration and competition between all schools and staff facilitated by the local authority (3) Extensive use of data to respond to changes in school/pupil performance; and (4) High quality teaching driven by performance monitoring and CPD.

We estimate that if we assume a constant cohort size, these performance improvements mean that:

- 360 more pupils in Sandwell achieved a good level of performance in 2014 than in 2010. We estimate that this produces an **estimated economic benefit of around £20 million over their lifetime.**
- 230 more pupils in Halton achieved a good level of performance in 2014 than in 2010. We estimate that this produces an **estimated economic benefit of around £15 million over their lifetime.**
- 330 more pupils in Haringey achieved a good level of performance in 2014 than in 2010. We estimate that this produces an **estimated economic benefit of around £20 million over their lifetime.**

Tables 2 and 3 show the ten local authorities which have made the most progress in an absolute and relative sense respectively.

The London local authorities are known to have performed well over this period. Hence, tables 4 and 5 show the ten local authorities outside of London which have made the most progress in an absolute and relative sense respectively.

Figure 6 illustrates on a map the relative performance improvement that each local authority has made between 2014 and 2010. The map shows that the best performing

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<sup>9</sup> DfE (2014) 'School Improvement in Haringey: a case study' by North and Donnelly

local authorities tend to be grouped together in London, the North-East; and the North-West.

**Table 1: The top local authorities (including London local authorities) who made the biggest relative improvement between 2010 and 2014**

Local Authority	2014 performance (%)	Relative improvement (%)	Percentage point improvement	Region
Sandwell	32.3	45.9	10.2	West Midlands
Halton	49.0	45.7	15.4	North West
Haringey	47.5	45.5	14.9	London
Islington	50.9	39.1	14.3	London
Portsmouth	39.1	37.9	10.8	South East
Barking and Dagenham	44.5	37.2	12.1	London
Isle of Wight	41.5	34.2	10.6	South East
Tameside	47.4	33.9	12.0	North West
Bristol	44.8	33.3	11.2	South West
Greenwich	51.7	30.2	12.0	London

**Table 2: The top local authorities (including London local authorities) who made the biggest absolute improvement between 2010 and 2014**

Local Authority	2014 performance (%)	Relative improvement (%)	Percentage point improvement	Region
Halton	49.0	45.7	15.4	North West
Haringey	47.5	45.5	14.9	London
Islington	50.9	39.1	14.3	London
Barking and Dagenham	44.5	37.2	12.1	London
Greenwich	51.7	30.2	12.0	London
Tameside	47.4	33.9	12.0	North West
Westminster	60.1	23.5	11.5	London
Southwark	50.4	29.2	11.4	London
Bristol	44.8	33.3	11.2	South West
Tower Hamlets	49.3	28.0	10.8	London

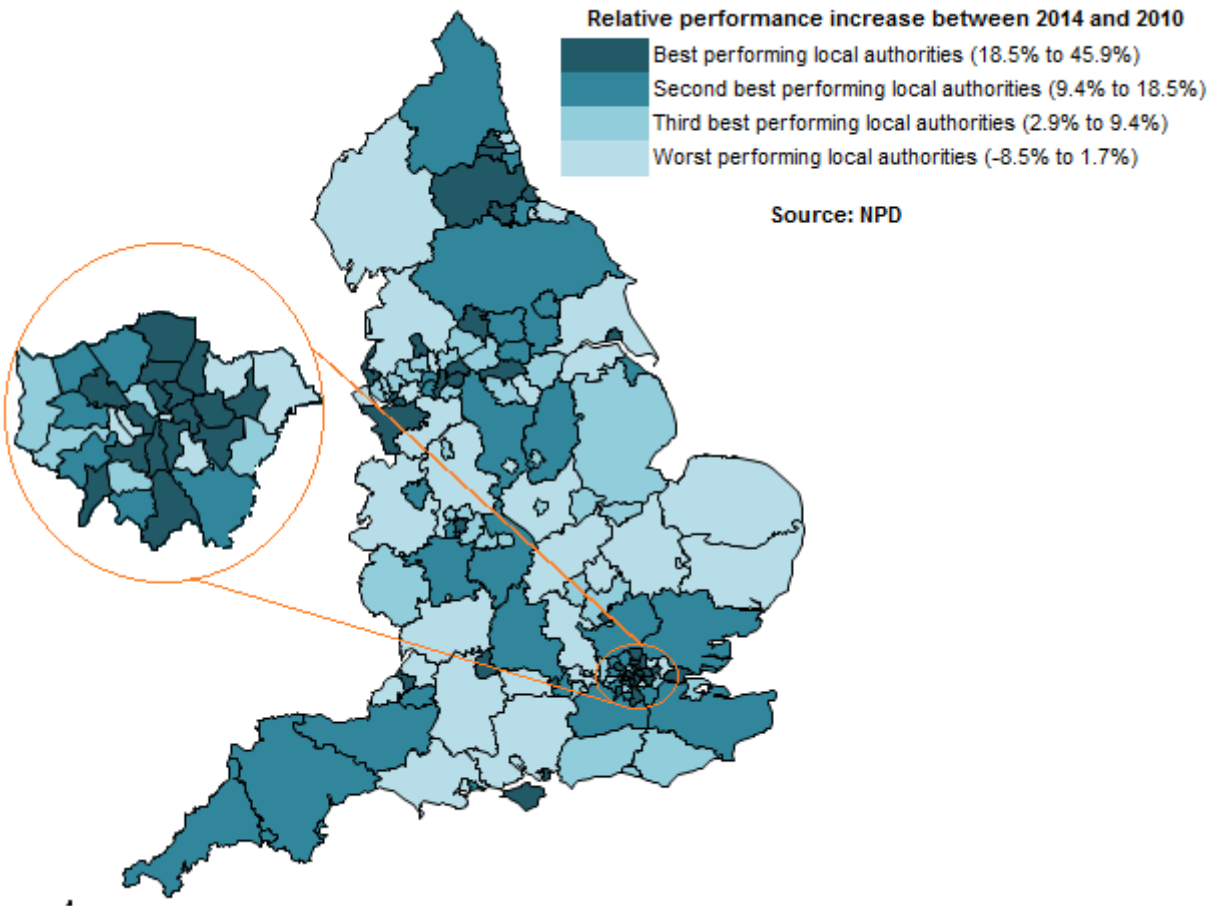
**Table 3: The top local authorities (excluding London local authorities) who made the biggest relative improvement between 2010 and 2014**

Local Authority	2014 performance (%)	Relative improvement (%)	Percentage point improvement	Region
Sandwell	32.3	45.9	10.2	West Midlands
Halton	49.0	45.7	15.4	North West
Portsmouth	39.1	37.9	10.8	South East
Isle of Wight	41.5	34.2	10.6	South East
Tameside	47.4	33.9	12.0	North West
Bristol	44.8	33.3	11.2	South West
Barnsley	33.6	29.4	7.7	Yorkshire and the Humber
Thurrock	42.9	29.0	9.7	East of England
Manchester	38.8	27.6	8.4	North West
Darlington	49.7	27.6	10.8	North East

**Table 4: The top local authorities (excluding London local authorities) who made the biggest absolute improvement between 2010 and 2014**

Local Authority	2014 performance (%)	Relative improvement (%)	Percentage point improvement	Region
Halton	49.0	45.7	15.3	North West
Tameside	47.4	33.9	12.0	South West
Bristol	44.8	33.3	11.2	South West
Portsmouth	39.1	37.9	10.8	South East
Darlington	49.7	27.6	10.8	North East
Isle of Wight	41.5	34.1	10.6	South East
Sandwell	32.3	45.9	10.2	West Midlands
Reading	56.7	20.9	10.0	South East
Cheshire West and Chester	52.3	22.9	9.8	North West
Thurrock	42.9	29.0	9.7	East of England

**Figure 5: Grouping local authorities with colour identifiers based their relative performance improvement between 2014 and 2010. Top performing local authorities tend to be grouped together.**



## Conclusion

This report estimates the economic benefit from the educational progress that has been made in England between 2010 and 2014. We estimate that the total economic benefit from the increased numbers of pupils achieving good GCSEs in 2014 compared to 2010 is around £1,300 million, over the lifetime of these pupils. This takes no account of the wider benefits from improved educational attainment such as improved health outcomes or reduced crime. It also takes no account of the increased numbers of pupils progressing to higher qualifications beyond GCSEs and how this might affect the estimated economic benefits.

We estimate the contribution to this economic benefit made by various sub groups. Although based on a limited dataset and some strong assumptions about the future rate of improvement, our analysis shows the magnitude of economic benefits which could be delivered through continuing to drive up the level of GCSE performance. The total economic benefit which could accrue to pupils completing their GCSEs between 2015 and 2020 could exceed £6,800 million over their lifetime. This underlines the large economic premium that can be achieved by continuing to improve educational outcomes for all pupils, regardless of where in the country they live.

## References

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