School funding and the disadvantage gap at local level

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Natalie Perera and Jon Andrews

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About the authors

Natalie Perera is the Executive Director and Head of Research at the Education Policy Institute. She has led in this role since co-founding the organisation in 2016. From 2010 to 2014, Natalie was the Head of the School Funding Reform Unit in the Department for Education where she led on the design of a new National Funding Formula, allocation of the Pupil Premium, reform of academies funding, and funding for universal free school meals.

Jon Andrews is Deputy Head of Research and Director for School System and Performance in EPI. He has published a wide range of studies including: 'The performance of multi-academy trusts and local authorities', 'School revenue balances in England', 'Access to special schools in England', and 'Grammar schools and social mobility'. He worked in the Department for Education from 2003 to 2016 as a statistician including as head of the Revenue Funding Analysis Unit.

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Summary

This paper provides a summary of the current school funding system in England including the origins of the national funding formula (NFF) and how its current formulation distributes funding across the country and different demographics. It draws on data from EPI's annual report to explore which areas of the country have the largest disadvantage gaps, how these have been affected by recent reforms to school funding, and how they relate to measures of disadvantage in the NFF – and hence whether funding can be better targeted to these areas under the current structure of the NFF. It concludes by considering how funding could be better targeted to address disadvantage gaps.

It finds that:

- The introduction of the national funding formula represented a significant change in the way that schools in England are funded. Reforms to school funding between 2003 and 2011 locked in many historic funding decisions and this had meant that funding continued to be targeted towards those areas that were deprived, and tended to be underperforming, at the turn of the century, rather than directly addressing need.
- When it was introduced in 2018, the NFF was designed to address some of these inequalities in school funding. But the reforms did not necessarily address inequalities in opportunity.
- Through the NFF and subsequent initiatives such as 'levelling-up' school funding, the government has weakened the link between funding and need. While there have been large differences in funding across schools and local authorities, recent policies have meant that pupils from more affluent backgrounds are attracting larger increases to funding rates compared to those from more disadvantaged backgrounds.
- Furthermore, there is only a weak relationship between the areas that have seen the largest increases, and the size of the disadvantage gap. Because of an additional weak relationship between measures of deprivation in the NFF and attainment gaps at local authority level, varying the amounts in the NFF that are associated with deprivation is unlikely to lead to a shift of funding from areas with small attainment gaps to those with the largest.
- Depth of poverty is a key driver of attainment. While there currently no direct measures of depth of poverty, incorporating a persistent disadvantage factor into the NFF would go some way to shifting funding towards those areas with the largest disadvantage gaps. But the pattern is not uniform. Some of the areas with the largest gaps would be unlikely to gain by much and others could even lose out.
- Area-based classifications such as the ONS' neighbourhood 'pen portraits' might be another way to better target funding towards those communities where attainment is lowest without introducing perverse incentives on schools.

Analysis

The reasons for significant differences in per-pupil funding across the country

To understand the reasons behind the current distribution of school funding, it is important to understand some of the historical decisions that have led to where we are now.

Until 2003, education funding for each local authority was determined by the government alongside other local public services. In setting education budgets, the government considered issues including salary costs and the level of social need in local areas. This meant that relatively more funding was allocated to London and other urban areas (such as Birmingham and Manchester) which, at the time, had high levels of deprivation, more pupils from Black and Minority Ethnic backgrounds and, in the case of London, faced higher staffing costs.

Funding for these public services was then pooled together into a single allocation for each local authority, and local authorities were then free to spend their total grant in accordance with their own priorities. There was, at this point, no 'ring-fenced' money for schools or education services and so local authorities could decide to spend either less or more money on schools than had been included in the government's allocation.

In 2003, and in response to what has been widely perceived as a 'school funding crisis', the then Secretary of State for Education and Skills, Charles Clarke, announced a series of changes to the calculation and administration of school budgets. The introduction of the Dedicated Schools Grant followed in 2006 and provided a ringfenced education budget for all local authorities in England. However, in seeking to provide stability to local areas, the Department made a commitment that 'no authority [will receive] less funding per pupil for schools than its current level of spending plus an annual increase which takes account of pupil numbers'.

It was this commitment that meant the historical spending decisions of different local authorities across the country were 'locked in' through the introduction of the Dedicated Schools Grant.

In addition, there were also a number of individual grants issued by the Department for Education to local authorities to target funding to deprived areas, those with large proportions of Black and minority ethnic pupils and pupils with English as an additional language. Those individual grants were combined in 2007 into a single School Standards Grant and then, in 2011, the Coalition Government incorporated the School Standards Grant fully into the Dedicated Schools Grant.

This meant that, not only did the Dedicated Schools Grant lock in spending patterns dating back to before 2003, in 2011 more money was included and targeted to areas that were deprived and tended to be under-performing in the early 2000s. This meant that the per pupil funding in areas such as London, Birmingham and Manchester remained significantly higher than the rest of the country.

At the time of the Dedicated Schools Grant allocations in 2011-12, the difference in funding between the highest funded local authority (Tower Hamlets) and the lowest funded local authority (Leicestershire) was £3,623 per pupil.

These disparities led to widespread calls for reform to the school funding system, with many arguing that the system was based on out of date assessments of pupil need and unjustified variations in school allocations.

In 2011, the Coalition Government stated its intention to reform the school funding system and consulted on the rationale and principles for a new national funding formula (NFF). However, the complexities of introducing a new formula and political nervousness about creating different sets of 'winners' and 'losers' meant that the NFF was not implemented until April 2018.

In the meantime, in an attempt to address some of the variation in local funding levels and to address the disappointment from those who were campaigning for a new formula, the DfE increased the Dedicated Schools Grant by an additional £390m in 2015-16. This was allocated using Minimum Funding Levels which meant that a minimum cash value was identified across a range of pupil and school characteristics. If a local authority's Schools Block per pupil allocation fell below the Minimum Funding Level, then it would be topped up to that amount. This resulted in 69 local authorities receiving varying levels of additional funding in 2015-16.

The construction and roll-out of the national funding formula

The NFF was finally introduced in April 2018. The formula was based on how to share the existing pot, not about how much it costs to deliver education as there is no clear and uncontested evidence about the cost of running a school. There are models which help to plan budgets depending on class sizes and teaching hours, but these are based on top-down approaches and do not consider the cost of teaching differentiation for pupils. All schools are different, and so there is not a single model of what works.

Formula factors can therefore only ever be 'proxies' for additional needs. There are many factors and characteristics which could have an impact on the level of support required by an individual child or indeed an entire school. The NFF factors represent a combination of evidence (for example, the link between economic deprivation and attainment) and historic spending patterns.

Even where there is compelling evidence of the need for additional support, defining a consistent and available measure to identify children with greater needs presents further difficulties. For example, research published by the DfE found that parental occupation, parental education and other household indicators were slightly better predictors of pupil achievement than eligibility for free school meals (FSM), but that FSM measures (including the 'Ever-6 Measure') provided a more practical, cost-effective method of predicting pupil attainment than introducing new data collections.¹

A further challenge for DfE has been how to deal with small school in rural areas. It has been clear that the majority of funding should be based on pupil numbers and need and not on the physical characteristics of individual schools. This is consistent with the aim of having a dynamic school system which enables successful schools to grow (in theory) and unpopular schools to shrink and, in some cases, to close. It also supports efficiency in the school system, where there are potentially savings to be made through greater economies of scale.

¹ A. Sutherland, S. Ilie, and A. Vignoles, 'Factors associated with achievement: Key stages 2 and 4', November 2015

However, a system that is predominantly based on pupil numbers and need, and intentionally drives efficiency in the school market, poses a risk to the viability of small schools, particularly those in rural areas. The DfE has, therefore, sought to address this by including a sparsity factor and a lump sum in the national funding formula.

However the DfE constructs the NFF, it will only ever represent an approximation of the need of pupils in a particular school. The construction of the national funding formula is set out below:²





In 2018-19, the national funding formula was set so that schools would be allocated a minimum of 0.5 per cent increase per pupil, rising to 1.0 per cent in 2019-20. Schools set to gain under the formula would see increases of up to 3 per cent in each of those two years. Minimum funding levels per pupil were also increased. For primary schools, the value was £3,300 in 2018-19 rising to £3,500 in 2019-20. For secondary, the value was £4,600 in 2019-19, rising to £4,800 in 2019-20.

However, local authorities were still able to make adjustments to school-level allocations in order to reflect local needs. This included the ability to set losses slightly lower than the national funding formula and allow school losses of up to 1.5 per cent per-pupil.

So it wasn't the case that all schools would see increases to their funding. Some might have lost funding due to having fewer pupils or due to local decision-making.

² Funding for factors in italics are allocated to local authorities based on historical spending patterns.

Recent funding announcements and their impact on particular groups

In August 2019, the government announced that funding for schools would increase by an additional £7.1bn in 2022-23, compared with 2019-20. This included an additional £2.6bn in 2020-21 (of which £780m was earmarked for high needs funding). The government also announced that, from 2020-21, minimum per-pupil funding levels would increase to £5,000 for secondary schools and £4,000 for primary schools. The government also confirmed that it would be compulsory for all local authorities to use these national minimum per-pupil funding levels in their own funding formulae.³

The latest national funding formula allocations for 2021-22 were announced in July this year. In 2021-22, total Schools Block funding will be £38.8bn, representing a cash increase of £1.4bn on allocations for 2020-21, or 3.1 per cent on a per pupil basis – just over one per cent after allowing for inflation.

In August this year, EPI analysed the effect of the 2021-22 national funding formula allocations on different pupil characteristics.⁴ We found that while pupils eligible for free school meals, those with English as an additional language and those from non-White British backgrounds will still attract more per-pupil funding than their respective peers, the differences in funding rates are falling. In other words, non-FSM pupils, those without EAL and those from White British backgrounds are receiving larger increases (the only exception here is in secondary schools where FSM and non-FSM pupils will receive the same level of increases between 2020-21 and 2021-22).





³ Department for Education, 'The national funding formula tables for schools and high needs: 2020-21', October 2019

⁴ J. Andrews, 'Analysis: school funding allocations 2021-22', August 2020



Figure 3: Change in per pupil funding by pupil characteristics between 2020-21 and 2021-22 – secondary schools (in 2021-22 prices)⁴

But this is not just a one-year trend. When we looked at changes in funding by pupil characteristic between 2017-18 (the year before the introduction of the national funding formula) and 2021-22, we found that:

- pupils that have English as an additional language have received increases at half the rate of other pupils in both primary and secondary schools;
- pupils from non-White British backgrounds have received increases at just over half the rate of other pupils in both primary and secondary schools; and
- pupils who are eligible for free school meals have received increases at around two-thirds of the rate of non-FSM pupils.





It is clear that, in seeking to 'level-up' funding through the national funding formula and additional money for schools since 2018, the government has in fact weakened the link between funding and need. While there have been large differences in funding across schools and local authorities, recent policies have meant that pupils from more affluent backgrounds are attracting larger increases to funding rates compared to those from more disadvantaged backgrounds.

Funding announcements and the areas with the largest disadvantage gaps

Our annual report showed that, in 2019, by the time they sat their GCSEs the gap between pupils from disadvantaged pupils and their peers was 18 months.⁵ Furthermore, progress in closing this gap had stagnated even before the COVID-19 pandemic.

The analysis above suggests a funding system that will do little to address this challenge since money will be disproportionately directed towards more affluent pupils. But it is also the case that there are significant differences in the outcomes of pupils from disadvantaged pupils across the country.

In some areas, poorer pupils are over two full years of education behind their peers by the time they take their GCSEs, including in Blackpool (26.3 months), Knowsley (24.7 months) and Plymouth (24.5 months). In contrast, there are very low GCSE disadvantage gaps concentrated in London, including in Ealing (4.6 months), Redbridge (2.7 months) and Westminster (0.5 months).

Another way to assess recent funding reform is to consider the extent to which the areas with the largest gaps are receiving the largest increase. In essence, is 'levelling-up' helping those areas where the outcomes for pupils from disadvantaged backgrounds are the lowest? In Figure 5 we plot the increases in per-pupil funding since the introduction of the NFF against the disadvantage gap at the end of Key Stage 4 at local authority level.

We see at least some relationship between the size of the disadvantage gap and the increases that different areas receive, those with the largest gaps have tended to see the largest increases. This relationship is however weak (r-squared = 24 per cent) and is largely driven by differences between London and the rest of the country rather than a systematic targeting of attainment gaps. When we separate these two groups of authorities, we find almost no relationship between the size of the disadvantage gap in an area and increases in per pupil funding. In fact, we can see authorities where the attainment gap is below average, yet the increases are well above and vice-versa.

⁵ J. Hutchinson, M. Reader, and A. Akhal, *'Education in England: annual report 2020'*, August 2020.

Figure 5: Relationship between the disadvantage gap at Key Stage 4 and changes in per pupil funding between 2017-18 and 2021-22⁶



The limitations of current deprivation measures in targeting areas with the largest gaps

The question then becomes how can we target funding to those areas where pupils from disadvantaged backgrounds are furthest behind? One approach may be to change the level of funding delivered through the deprivation factors of the NFF. The NFF has three strands of deprivation funding:

- current free school meal eligibility;
- eligibility for free school meals at any point in the last six years (ever6); and
- area based deprivation (IDACI) in six bands (plus a zero funded band).⁷

The first of these is to provide funding for the delivery of free school meals rather than to address lower attainment of disadvantaged pupils so in reality there are two deprivation factors that are concerned with the lower attainment of pupils from such backgrounds. In addition, pupils from disadvantaged backgrounds are more likely to have low prior attainment and therefore disproportionately benefit from the low prior attainment factor, but it is the explicitly 'deprivation funding' variables that we concern ourselves with here and how they relate to the disadvantage gap.

⁶ Changes in per pupil funding at local authority level derived from published local authority per pupil schools block allocations in *DfE 'National funding formula tables for schools and high needs: 2021 to 2022'* and baseline schools block allocations in DfE *'National funding formula tables for schools and high needs: 2019 to 2020'*. Prices adjusted using HMT GDP deflator. Note that allocations for 2021-22 are not final as final pupil numbers and funding for growth are not included.

⁷ The Income Deprivation Affecting Children Index – a measure of the percentage of children in an area who live in low-income families

When we compare the proportion of pupils who are disadvantaged (the ever6 measure) and the disadvantage gap at Key Stage 4 at local authority level, we see little relationship (Figure 6). In fact, London authorities are disproportionately amongst those with the highest disadvantage but also the smallest disadvantage gaps – these areas would in fact benefit the most from any increase in disadvantage, 'ever6', funding.

It is a similar situation when we look at area-based deprivation. The NFF contains six IDACI bands of funding. In Figure 7 we rank local authorities by the percentage of pupils who attract funding through this factor – the amount of additional funding is highest in band A and lowest in band F, pupils in a seventh 'band G' do not attract any additional funding – and also plot the Key Stage 4 disadvantage gap.

Again, there is no clear relationship between attracting funding through area-based funding and the disadvantage gap. While not highlighted on the chart, London authorities make up a disproportionate number of the authorities on the left of the chart.





Percentage of Key Stage 4 cohort who are disadvantaged

⁸ Derived from local authority level data in *'Education in England: annual report 2020'* available to download from https://epi.org.uk/education-gap-data/



Figure 7: Percentage of secondary aged pupils in IDACI bands A-C, D-F, and G and Key Stage 4 disadvantage gap by local authority⁹

None of this is to say that disadvantaged pupils would not benefit from increased funding, and research evidence suggests that such pupils benefit more than others from increased spending. Furthermore, ultimately a fully efficient funding system would show no clear relationship between funding and outcomes – since the school funding system is designed to give more money towards pupils who are likely to achieve lower results in order to address that disadvantage.

An additional complexity in interpreting these results is that, under the NFF, it is not local authorities that are funded but individual schools (and in fact the funding formula is largely about an individual pupil). So even in areas with low levels of disadvantage whether measured by ever6 or IDACI, there may be schools that have a disproportionate number of disadvantaged pupils and hence disadvantage funding.

But what this analysis demonstrates is that varying the amounts in the NFF that are associated with deprivation is unlikely to lead to a shift of funding from areas with small attainment gaps to those with the largest. In other words, if that is the intention, we need to explore the possibility of new factors.

⁹ IDACI rates derived from 'local authority funding proforma data' in ESFA '*Schools block funding formulae* 2019 to 2020', June 2019.

Better targeting of funding using measures of persistent poverty

Our annual report explored, for the first time, how attainment varies by different depths of deprivation as measured by the length of time eligible for free school meals. It found that:

- Children with a high persistence of poverty (those on free school meals for over 80 per cent of their time at school) have a learning gap of 22.7 months – twice that of children with a low persistence of poverty (those on free schools meals for less than 20 per cent of their time at school), who have a learning gap 11.3 months.
- Progress in closing the gap has been slowest for pupils with a high persistence of poverty, with the gap remaining much the same after almost a decade. Disadvantaged pupils with lower persistence of poverty have also experienced worsening gaps, although to a lesser degree.
- Significantly, the proportion of pupils with a high persistence of poverty is on the rise. Since 2017, the proportion of pupils in this group has risen from 34.8 per cent to 36.7 per cent. This recent increase appears to be an important contributor to the lack of progress with the gap overall.

The report also presented results that showed the disadvantage gap at a local level after having controlled for high persistence of poverty in each area. It revealed that differences in local demographics are essential to understanding why gaps are different in different parts of the country. Under the adjusted measure, many areas that currently rank as some of the worst in the country substantially improve their position once high persistent poverty levels are considered

Therefore, there is a strong policy argument for a more targeted approach to deprivation funding that accounts for the depth of poverty experienced. This is likely to benefit areas with entrenched long-term poverty in comparison to those areas where families are more likely to move in and out of economic disadvantage.

There are no direct measures of depth of poverty, but we can use the measure of persistent disadvantage which has been shown to be related to outcomes. In Figure 8 we plot, for each local authority, the percentage of the Key Stage 4 cohort in 2019 who were identified as disadvantaged (eligible for free school meals at any point in the last six years) and the percentage that were identified as persistently disadvantaged (eligible for free school meals for at least 80 per cent of their time at school).

The curved line represents the point at which the ratio between disadvantage and persistently disadvantaged was in line with national averages. In local authorities above this line, the percentage of pupils who are persistently disadvantaged was higher than you would expect for that level of disadvantage. This includes, most notably, several authorities in the North East – Newcastle, Sunderland, South Tyneside, Hartlepool, and Middlesbrough – and several authorities from the Liverpool City Region – Liverpool, Knowsley, and Halton. Authorities in London are predominantly below the line, meaning that while they may have high numbers of persistently disadvantaged pupils these numbers are lower than you would expect given their overall level of disadvantage.



Figure 8: Percentage of Key Stage 4 cohort who are disadvantaged and the percentage that are persistently disadvantaged by local authority⁸

These differences are important. If we included in the NFF a factor for persistent disadvantage but kept the overall pot that targeted disadvantage the same, then it would mean areas above the line would see funding gains at the expense of those below the line.

In Figure 9 we rank local authorities by their attainment gap at the end of Key Stage 4 and highlight the same authorities as in Figure 8. i.e. those authorities that have a particularly high rate of persistent disadvantage given the overall level of disadvantage, and the those that have a particularly low rate of persistent disadvantage given the overall level of disadvantage.

This suggests that incorporating a persistent disadvantage factor into the NFF would go some way to shifting funding towards those areas with the largest disadvantage gaps, if it meant a transfer from general disadvantage funding. With the exception of Tower Hamlets, all of those areas that would benefit the most have disadvantage gaps that are above, and in some cases well above, the national average. All of those areas that would lose the most have gaps that are already below the national average. In particular, it would mean a shift of funding out of London.

But the pattern is not uniform. Some of the areas with the largest gaps such as Blackpool, Plymouth, South Gloucestershire, and Portsmouth would be unlikely to gain by much. Others such as Torbay and the Isle of Wight could even lose out. Figure 9: Local authorities ranked by disadvantage gap at the end of Key Stage 4. Authorities where level of persistent disadvantage is much higher (purple) or lower (green) than expected given overall disadvantage are highlighted⁸



Targeting funding towards lower outcomes directly

If we want areas with the largest attainment gaps to receive higher funding, then clearly the simplest solution would be to incorporate a local gap measure into the NFF. This of course creates an obvious perverse incentive for schools not to improve the outcomes for disadvantaged pupils since it would lead to a reduction in funding, even with accountability measures to counter this effect.

There are however ways in which the way some groups achieve lower outcomes could be incorporated better into the funding system using area-based measures. The NFF already includes area-based deprivation through IDACI, but as we have seen from the analysis above, its relationship with the disadvantage gap at local level is inconsistent. This is because having the same IDACI score in different parts of the country can have very different meaning (because, for example, of the issue of the depth or duration of poverty), and the characteristics of pupils with the same IDACI score can vary considerably.

In our 2019 report on free schools we explored the use of the Office for National Statistics (ONS) neighbourhood 'pen portraits'.¹⁰ These are residential-based area classifications produced by the ONS and based on 2011 census data. Each of the 391 UK local authority districts were placed into different groups (clusters) based on their 2011 census characteristics, with similar local authorities grouped together, and more detailed clusters were identified at smaller geographical levels (LSOAs). These were based on five main census dimensions: demographic, household composition, housing,

¹⁰ B. Mills, E. Hunt, and J. Andrews, 'Free schools in England: 2019 report', October 2019

socio-economic, and employment. In this way, localities across the UK can be compared and classified according to these particular census characteristics.

In Figure 10 we plot the proportion of Key Stage 4 pupils that live in each area type along with the average Progress 8 score (this is a pupil's GCSE attainment after controlling for prior attainment in which a score of +1 means that pupils achieved one grade higher in each GCSE subject than pupils with similar prior attainment nationally). We have also split out the Progress 8 score to show scores separately for pupils that are eligible for free school meals and other pupils.



Figure 10: Proportion of pupils and average Progress 8 scores by neighbourhood characteristics 2018

These results show that the circumstances and outcomes for pupils with seemingly the 'same' characteristic – eligibility for free school meals – can differ greatly. Nationally, pupils eligible for free school meals typically achieved a Progress 8 score of around -0.5 (meaning they achieve half a grade lower in each subject than pupils with similar prior attainment nationally). In neighbourhood types such as 'affluent communities', 'highly qualified professionals', and 'Asian traits', the disadvantage 'penalty' was less than half of that. Amongst 'young ethnic communities' and 'inner city cosmopolitan', pupils who are eligible for free school meals achieved outcomes in line with what you would expect given prior attainment (though note they are still behind non-FSM pupils in the same neighbourhood types).

At the other end of the scale, pupils in 'hampered neighbourhoods' and 'challenged white communities' achieved lower results regardless of whether they themselves are eligible for free school meals. In fact, non-FSM pupils from these neighbourhood types achieved average results that were below those of FSM pupils in higher achieving neighbourhood types.

These types of measures are less prone to perverse incentives and manipulation since they are based on pupils across a wide range of locations (and schools are likely to attract pupils from a

variety of neighbourhood types). Therefore, measures such as these might be a better way of targeting low achieving groups than the achievement gap of a particular area.

Conclusion

The introduction of the national funding formula represented a significant change in the way that schools in England are funded. Reforms to school funding between 2003 and 2011 had locked in many historic funding decisions and this had meant that funding continued to be targeted towards those areas that were deprived, and tended to be underperforming, at the turn of the century, rather than directly addressing need. When it was introduced in 2018, the NFF was designed to address some of these inequalities in school funding. But the reforms did not necessarily address inequalities in opportunity.

Our annual report showed that, in 2019, the gap between pupils from disadvantaged pupils and their peers was 18 months by the time those pupils sat their GCSEs. Furthermore, progress in closing this gap had stagnated even before the COVID-19 pandemic. In some areas, poorer pupils are over two full years of education behind their peers by the time they take their GCSEs yet there is only a weak relationship between the areas that have seen the largest increases, and the size of the disadvantage gap.

It is clear that in seeking to 'level-up' funding through the NFF and additional money for schools since 2018, the government has in fact weakened the link between funding and need. While there have been large differences in funding across schools and local authorities, recent policies have meant that pupils from more affluent backgrounds are attracting larger increases to funding rates compared to those from more disadvantaged backgrounds.

Because of an additional weak relationship between measures of deprivation in the NFF and attainment gaps at local authority level, varying the amounts in the NFF that are associated with deprivation is unlikely to lead to a shift of funding from areas with small attainment gaps to those with the largest. If the government wants to target those areas where the attainment gaps are largest then it may need to look to additional factors within the NFF.

Our annual report highlighted that depth or persistence of poverty is a key driver of attainment. Pupils who have been eligible for free school meals for at least 80 per cent of their time in school are on average 22.7 months behind their peers. What is more, the proportion of pupils that are in persistent poverty has been increasing. Incorporating a persistent disadvantage factor into the NFF would go some way to shifting funding towards those areas with the largest disadvantage gaps. But our initial analysis suggests that the pattern is not uniform. Some of the areas with the largest gaps would be unlikely to gain by much and others could even lose out.

Policy makers may need to look beyond traditional education data to better understand the circumstances that schools are operating in and hence better target funding to where the need is greatest. Area-based classifications such as the ONS' neighbourhood 'pen portraits' might be one way to better target funding towards those communities where attainment is lowest without introducing perverse incentives on schools.