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To cite this article: Stephen Gorard, Nadia Siddiqui & Beng Huat See (2023) Lessons for addressing educational disadvantage from a range of studies, Cogent Education, 10:2, 2262258, DOI: [10.1080/2331186X.2023.2262258](https://doi.org/10.1080/2331186X.2023.2262258)

To link to this article: <https://doi.org/10.1080/2331186X.2023.2262258>



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Published online: 25 Sep 2023.



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Received: 24 March 2023
Accepted: 16 September 2023

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EDUCATION POLICY | RESEARCH ARTICLE

Lessons for addressing educational disadvantage from a range of studies

Stephen Gorard^{1*}, Nadia Siddiqui¹ and Beng Huat See¹

Abstract: Governments and education systems worldwide have tried using additional cash transfers to encourage school enrolment and attendance, and to reduce the attainment gap between disadvantaged students and their peers. There are now many strands of evidence on the success of such schemes. This paper presents the results of international structured reviews of the existing evidence, coupled with a natural experiment in India and Pakistan, and a summary of the new findings from a 14-year evaluation of the impact of the Pupil Premium policy in England. The paper addresses the key issue of whether funding is best provided to poorer regions, to schools, families, or individual students. The synthesised results are clear. However, the results differ slightly in terms of whether attendance or attainment is the key objective, and with the age of the students, and the level of development of any education system. Regardless, cash transfers need to have conditions attached, and these conditions must be audited. A key condition for giving money to schools, rather than individuals, should be that it is only used to provide evidence-led programmes and processes.

Subjects: Education Policy & Politics; Educational Research; Sociology of Education

Keywords: conditional cash transfers; educational disadvantage; socio-economic segregation; attainment gap; use of research evidence

1. Introduction

On average, socio-economically less advantaged students in any school system have lower attainment outcomes at school, and poorer opportunities for continued education once they have left school (Gorard & See, 2008; Hanushek et al., 2019; Lessof et al., 2018; Rutkowski et al., 2018). On average (and only on average), disadvantaged pupils can present the schools they attend with greater challenges to successful teaching. This may be due to a variety of factors including health, learning difficulties, having other priorities, and having fewer relevant resources at home. This can then lead to an attainment and opportunity gap based on relative poverty and other indicators of disadvantage. This paper looks at how such attainment gaps can be successfully addressed, and is relevant both to more and less developed school systems.

This paper recognises that long-term, structural health and even hereditary factors may be involved in the scale of the attainment gap, but here focuses on those factors that are most malleable, and that can be addressed most easily via policy and practice in education itself. Whatever the reasons for the gap, society is weaker when the gap is large. And presumably no

one would wish there to be such a gap in the kind of society that most of us would want if we had to decide before knowing where we would be born into it—Rawl’s notion of a veil of ignorance (Cameron et al., 2018).

The paper is based on a number of our studies, that include several structured reviews of the existing evidence on school attendance and improving attainment (Gorard et al., 2023), a large-scale study of school attendance in India and Pakistan (Siddiqui et al., 2022), and an analysis over 14 years of the impact of Pupil Premium funding in England (Gorard et al., 2022). It covers issues of access to schools, enrolling in and attending them, the nature of school intakes, and the best bets in the deployment of cash transfers to schools and related interventions to improve attendance and attainment.

2. Summary of methods

This paper provides a summary of four linked and large-scale projects, and there is insufficient space to provide detailed methods for all aspects. Instead, readers will have to rely largely on citations. This is the first paper to bring these bodies of evidence together.

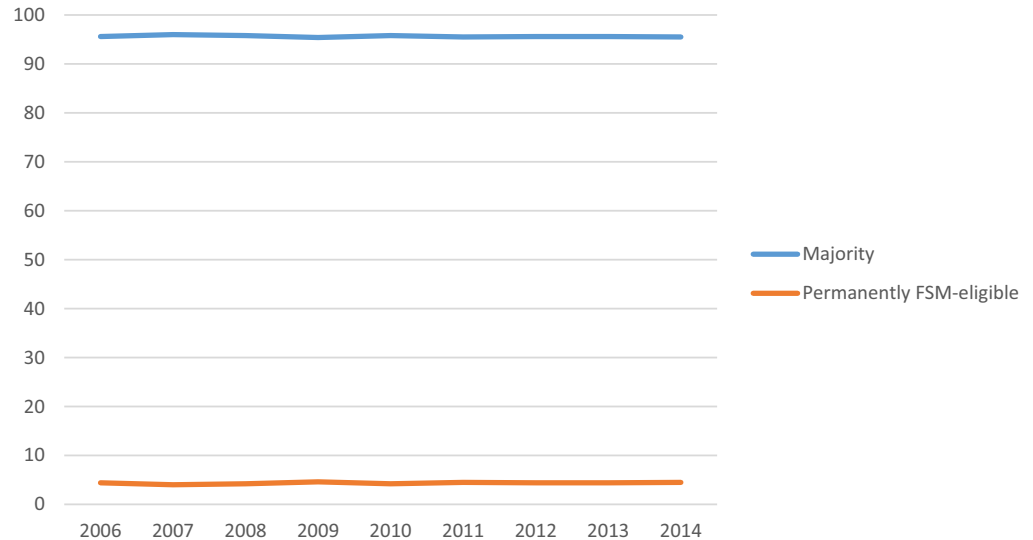
In each of our reviews (of international evidence on school attendance and attainment), we employed a broadly similar protocol, only really differing in terms of the syntax used for each research question (Gorard et al. 2023). Each involved a broad keyword search for causal studies worldwide, but available in English, applied to the main educational, psychological and sociological electronic databases. “Causal” here means of a suitable design to be able to draw conclusions about impact (see below). Each study included in our syntheses was assessed for its quality, and rated from 0 to 4 🛡️ for trustworthiness based on the suitability of the design for a causal question, and the study’s scale, attrition, and data quality (Gorard, 2021). In total, over 100 relevant studies were summarised.

Our fieldwork in rural villages in India and Pakistan looked at the differences in development between young children who attended school and those who did not, over one year (Siddiqui et al., 2022). In both countries school enrolment is substantially less than 100%, providing the opportunity for a natural comparison. We started with 1,129 children aged 4+ from 783 households, and were not able to follow up 106 (9%) of these a year later, partly due to the onset of Covid. The results presented are for the 1,023 children and their families who took part in both waves. We used an adaptation of the International Development and Early Learning Assessment (IDELA), developed by Save the Children. Because of the Covid lockdown, we had to curtail the assessment by eliminating exercises which required the child to perform physical activities involving contact, such as completing jigsaw puzzles, sorting shapes, writing their names, drawing, and hopping. Other than that the test included observations, literacy, numeracy, and social and emotional components (The IDELA Tool | IDELA (idela-network.org)). There were also discussions with children, and interviews with their families.

For the analysis of Pupil Premium funding in England our main data source was the combined National Pupil Database (NPD), for the complete Key Stage 4 (KS4) cohorts completing their KS4 school years at age 16 from 2006 to 2019, and for the KS2 cohorts completing KS2 at age 11 over the same period (Gorard et al. 2022). Each cohort had between 550,000 and 640,000 pupils in state-funded schools, with a total dataset of around 8 million. In order to create two stable groups for comparison from long before Pupil Premium was thought of, to as late as possible afterwards, in any economic era, we looked at those pupils known to be eligible for free school meals (FSM) for their entire time at school (11 consecutive years). We ignore the Service Premium whereby smaller payments are made to schools taking the children of parents in the Armed Forces, and we have shown elsewhere how closely matched the results are for poverty and children living in state care. Figure 1 shows that using permanent disadvantage creates a relatively stable group of just over 4% of each cohort. This allows a fair comparison of what happened to the most disadvantaged pupils before and after the introduction of Pupil Premium funding in 2011, which was intended to improve school allocations and outcomes for poorer children.

Figure 1. Percentage of all pupils of each FSM status, 2006 to 2014 KS2 cohorts.

Notes: 2006 is the first year of reasonably complete data for the National Pupil Database. 2014 is the most recent year for primary school intakes that permits us to see what happens to them once they complete primary school five years later.



We summarise the results from each study, and then consider the overall lessons for both developed and less developed school systems.

3. Summary of findings

3.1. Why school attendance matters

Many commentators have observed that schools can harm their students, directly via abuse or bullying, or indirectly by stifling innovation and critique (e.g. *Alternatives to school*, n.d.; Harber, 2005; University of York, 2020). And our new study in India and Pakistan found many examples of such harm, as reported by children and their families.

One of the reasons some children reportedly dropped out from school was that they faced learning challenges. Children struggling in school were sometimes unhappy, and teachers with no special training for dealing with such issues might not be able to cope. Eventually parents stopped sending them to school. Some parents said that schools were hostile places:

School teacher was so unfriendly with my child. My child wasn't happy. She used to cry all day in the school.

He was always unhappy at school. He is slow in learning and the teacher always complained about him. We changed school as well, but he never liked going to school because it was difficult for him. He is at home now and we have arranged a private tutor for him. At least he is happy now and doesn't cry every morning.

Sometimes absence from school is more about safety (coupled with lack of appreciation of what schools provide):

I can't leave my younger child alone at home. She is a toddler. Her elder sister look after her. I can't afford to send them to school unless both go to school. I know my elder daughter is missing school but there is no other way. None in our family have ever gone to school ... we just don't bother. Children are happy like this.

Or the problem is about economic demands, again coupled with lack of appreciation of what schools might provide:

I have a 12 year-old daughter who works now. When my husband lost job in the pandemic we had no means to support our family. He worked in the city and we were in the village where there was no work for him. We were in real difficult times after a few months and then someone asked if we could send our elder daughter to work as house cleaner and helper for a family in the city. We had no choice.

Another common theme was child safety, which was a particular issue for families where both parents were working away from home, and reportedly for girls in more rural areas.

I leave children at home because they are safe inside rather than on the street. I don't like the idea that they walk to school by themselves. I feel streets are unsafe for children. We can't do pick and drop service to school because we are both working. We can't afford school fees and transport services. It is a walking distance from my house to school but streets are not safe for children.

However, notwithstanding recognition of the harm that sometimes occurs, the overall impact of school attendance is generally considered beneficial by the families in our study. It can be beneficial for a number of social, developmental and equity reasons, and for boosting a child's progress in literacy, numeracy and wider learning. Previous studies, based on powerful regression discontinuity designs, have estimated that attending school boosts progress in literacy, numeracy and science at primary school by around 40% compared to not attending school (Luyten, 2006; Luyten et al., 2017).

This is an important point. Young children learn a great deal outside school, or even if they do not attend at all. The learning gains from growing up, experiences, peers, and the media are important. However, attending school can then boost these gains substantially. We confirmed this with our results from the natural experiment in India and Pakistan, comparing naturally occurring groups of children either attending or not attending school in each year.

The young children who attended schools in the rural areas we visited are different, on average, from those who did not attend, and are likely to have higher literacy and numeracy outcomes anyway. This is illustrated in Table 1. The highest scores in 2020, at the outset, are for those children who went on to attend school in both 2020 and 2021. The difference is considerable, compared to those children who did not attend at least one year.

However, our concern is with the progress made due to attending school. In line with previous studies, Table 2 shows that children generally made large gains in literacy and numeracy, whether they attended school or not. But the relative situation has changed. Although the children

Table 1. Learning outcomes in 2020 by patterns of school attendance in 2020 and 2021

	Attended both years	Attended first year	Attended second year	Did not attend school
Literacy score	57.1	33.4	26.2	28.6
Numeracy score	79.8	63.8	43.3	45.0

Notes: scores from IDELA test.

Table 2. Learning outcomes in 2021 by patterns of school attendance in 2020 and 2021

	Attended both years	Attended first year	Attended second year	Did not attend school
Literacy score	66.9	43.5	49.6	41.2
Numeracy score	85.3	61.5	69.2	54.5

attending school for two years clearly still have the highest scores, those who attended for only the second year now have the second highest scores. This is perhaps the clearest way of visualising the benefit of schooling. These same children have gone from easily the lowest scoring to the second highest in one year, and are actually catching up with the children who attended school from the outset. Those who have never attended school now generally have the lowest scores. This is part of the reason why attendance at school matters.

Schools provide more than opportunities for curriculum learning. They are also mini-societies in which children can learn to play with others and engage with adults (Gorard & Smith, 2010). Children can enjoy the social interactions. One girl aged 6 in our new study said:

I had lots of friends. I used to go to school. I had many cousins to play with. When we came in the city it is better, but I don't go to school anymore and I miss all my friends and cousins who I used to play with. Here we have a TV only and I just spend all day watching dramas. There is no one to talk. School is so much fun. I had friends and we play. At home it is nice but boring.

Such experiences are represented in our headline findings for social emotional development. The pattern here is similar to that for learning outcomes. School attenders score better on this outcome, and the social emotional scores are lower, on average, for children not attending school in 2020 at the outset (Table 3).

Again, the scores improved somewhat for all groups, but it improved most for those who attended school in 2021 (Table 4). School attendance matters for a number of reasons, including social emotional development, and learning to deal with others.

3.2. How to encourage attendance

Our reviews of worldwide approaches to increasing enrolment in school and subsequent attendance provide some clear advice on how full attendance can be achieved (Gorard et al. 2023). A school system has to provide sufficient school places for all students, within a reasonable travelling distance. Successful schemes in less developed systems have used funding to create new school places, or make existing fee-paying places free. Much non-attendance can therefore be resolved by the simple expedient of providing more places. This has been shown to be of special benefit for girls in less developed systems, and for poorer families often living in more isolated rural areas (e.g. Burde & Linden, 2009; Levy et al., 2009). Part of the mission of universal state-funded schools is to reduce the impact of family background on a child's future prospects. Children from rich, urban families will generally have advantages that other do not, unless they go to school. Left unaddressed, this can lead to a poverty attainment gap (see below).

Table 3. Social emotional outcomes in 2020 by patterns of school attendance in 2020 and 2021

	Attended both years	Attended first year	Attended second year	Did not attend
Social emotional score	56.3	50.6	42.9	43.5

Table 4. Social emotional outcomes in 2021 by patterns of school attendance in 2020 and 2021

	Attended both years	Attended first year	Attended second year	Did not attend
Social emotional score	64.4	51.7	53.5	47.0

Most of the research on how to improve attendance any further also involves the use of money—usually in the form of conditional cash transfers to school, family or students. Therefore, this issue is what the strongest evidence from our reviews concerns. But it must be remembered that there may be other effective solutions that are simply untried or not properly evaluated yet.

The reviews found 55 distinct studies able to address, at least in part, the causal question of how to improve school attendance. Cash transfers are effective, conditional on a certain level of attendance, paid to the parents of young children or to older students themselves. These funds can help families with the income lost from children no longer working, or to arrange safe transport to or from school. Other approaches such as providing more information to families, or health and nutrition interventions, may be useful in their own right but are not as clearly effective as cash transfers. The strongest evidence suggests that giving money to schools to deal with attendance, or spending it on interventions to increase attendance, is not as effective as simpler conditional transfers to individual students or their families. Most effective is not to simply link the transfer to attendance but to make payment contingent on identifiable attendance outcomes or transitions such as moving to a subsequent phase of education.

Once students are attending schools we can consider the balance of school student intakes and their attainment outcomes.

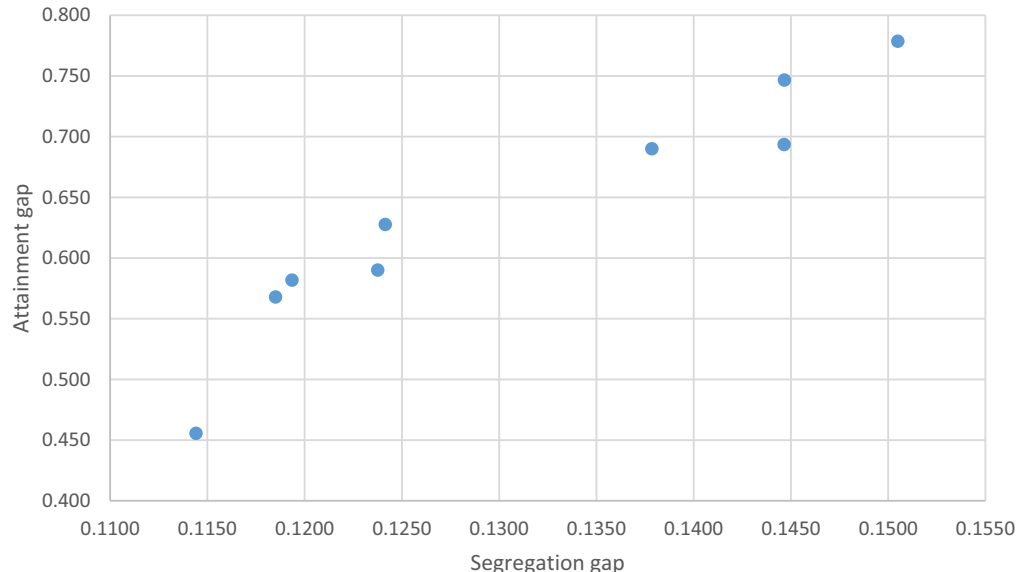
3.3. The clustering of school intakes

As noted above, a school system must provide enough convenient school places for the population. There is then generally no need for the system to provide different kinds of schools and school places for different parts of the population, of the same school age. Yet this is what most more developed school systems do. The claim is regularly made by policy-makers that different types of school are more or less effective than each other, or more effective for certain types of pupils—selective grammar schools for the most able, technical or vocational schools for the less able, for example. There is little or no evidence for these claims (Gorard & Siddiqui, 2018, 2019). Diversity of schooling (as opposed to providing bespoke programmes for some students for some sessions in any school) make no clear difference to differential attainment. But diversity of schooling does tend to segregate students by their background characteristics—selection segregates students by poverty, faith-based schools segregate by ethnicity as well, and so on. Such diversity in the type of schools provided in one system is strongly associated with the increased clustering of poorer children within specific schools and between economic areas (Gorard, 2018).

This kind of clustering, of students with indicators of potential disadvantage, is then linked to undesirable school outcomes. As examples, exposure to a more varied set of possible friends at school leads to improved role models for lower attaining pupils (Gorard, 2018), and more tolerant wider pupil attitudes such as trust in others (Bhattacharya, 2021). Socioeconomic segregation between schools, on the other hand, is strongly associated with higher degrees of social reproduction (Reichelt et al., 2019). Equivalent student behaviours, interactions and achievements are often interpreted differently by teachers and others in different settings as defined by the peer group. Children clustered in low ability groups tend to demonstrate more hyperactivity and emotional problems (Papachristou et al., 2021). Going to school in segregated settings is therefore potentially damaging in a variety of ways (Horgan, 2007)—such as lowering aspiration, expectations, and participation for individuals. It tends to reduce national and regional social and ethnic cohesion (Danhier, 2018; Hewstone et al., 2018), and decreases trust in public institutions (Molina & Lamb, 2021).

Perhaps the most obvious issue is the link between segregation of pupils experiencing long-term poverty as assessed by permanent eligibility for free school meals in England, and the poverty attainment gap (Figure 2). This link between segregation and the attainment gap is very clear over time. In general, years that have had higher levels of poverty segregation between schools also have higher poverty attainment gaps. And the link is equally clear over place—geographical

Figure 2. Scatterplot of segregation (y axis) by attainment gaps (x axis) for economic areas of England.



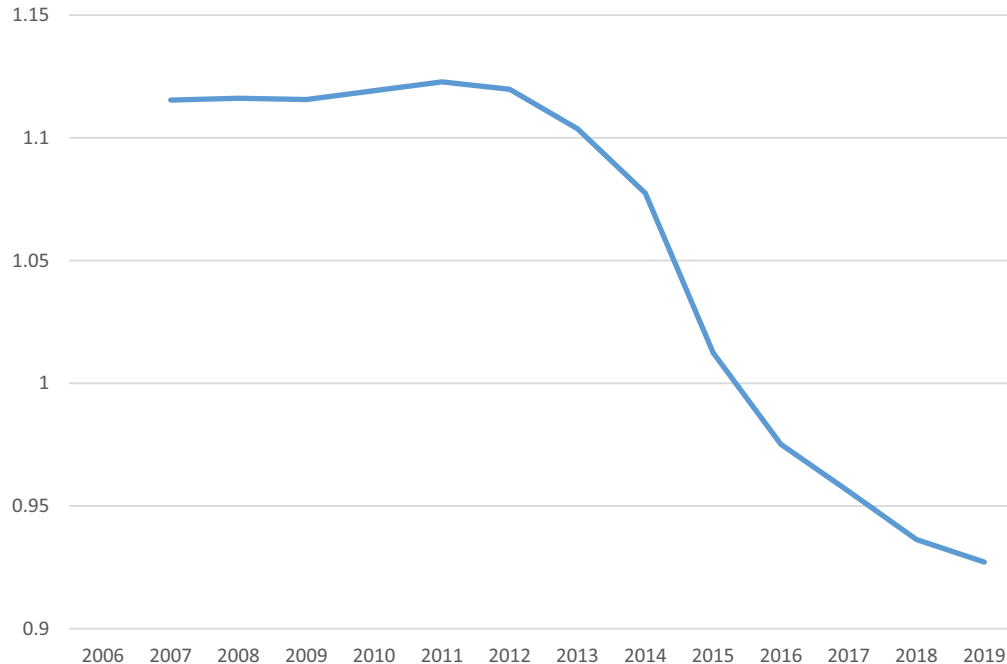
variation as represented by the Economic Areas of England, and for local authorities. Figure 2 shows the cross-plot for the Economic Area figures for both values from the 2014 KS2 cohort, as an example. The figures for segregation and the attainment gap at regional level correlate with $R=+0.95$ (R -squared of over 0.90). Clearly, areas with less segregation have correspondingly low attainment gaps between the long-term poor and the rest, and vice versa. Segregation of poverty between schools might matter a lot for the fair distribution of educational outcomes (Gorard, 2018).

Evidence for what can be done to reduce segregation between schools comes from a specific form of cash transfer. The Pupil Premium policy in England, implemented in 2011, gave additional funding to schools in proportion to the number of disadvantaged students that they took. Disadvantage was largely defined in terms of eligibility for free school meals. The funding was significant, and could be construed as offering an incentive to schools to admit students who might be harder to teach, on average. Or it could be seen as offering schools the funds necessary to provide additional programmes to help those students who were harder to teach (see below). Either way, and based on a fair comparison of two stable groups of those always eligible for FSM and the rest, there is evidence that the policy has made a difference to school intake segregation (Figure 3).

Looking at the difference (“effect” size) between the gap in the average segregation between schools attended by FSM-eligible pupils and their peers, when they first arrive at school, Figure 3 shows that the gap remains about the same from 2006 to 2011 (just over 1.1). This is a large “effect” size. Poorer children are certainly attending schools with more socially segregated intakes than the majority of children do. Then, from 2011 onwards, for as long as we have accurate figures, pupils arriving in the first year of primary school are clearly less clustered by poverty every year. This would be what would be expected if the Pupil Premium funding, introduced in 2011, was linked to a change in the “attractiveness” of disadvantaged pupils to schools, when new school places are being allocated. This change occurs at exactly the right time for it to be Pupil Premium impact, and is otherwise unexpected according to the prior trend (for as many years as are available). The pattern cannot be explained by economic factors, or other changes in policy. There is also a feasible model of how this “impact” could take place.

The impact of the funding incentive on Year 1 school places could have been immediate. The 2011 entry cohort, for the first time, brought additional funding to their schools if the pupils were

Figure 3. Change in “effect” size for the gap between FSM-eligible pupils and the rest, FSM segregation in Year 1, 2006–2019.



registered as coming from families living in poverty. Coming from a poor family is not necessarily an indication that a child will be harder to teach than average—the link between SES and attainment at school is only ever on average. This means that schools could take more poor children in Year 1, gain extra funding and face no more problems in teaching the new cohort than any previous ones. Alternatively, where some disadvantaged pupils are harder to teach, the new funding can provide the resources to cope with this better, making such pupils “less unattractive”.

Poverty segregation between schools can be further reduced or held in check by not reinforcing residential housing segregation through allocating over-subscribed school places on the basis of where people live. It can be minimised by not encouraging school diversity. And as the evidence here suggests, it could be combatted by judicious use of a targeted cash transfer.

3.4. Addressing the poverty attainment gap

How else can the poverty attainment gap be addressed? A poverty attainment gap is a scaled difference between the attainment scores of children from poorer families and the rest. Its precise nature changes depending on the assessment involved, the age/stage of the students, and the precise definition of disadvantage used.

For example, there is a clear difference between the average attainment scores for the group of pupils in England who have never been recorded as living in poverty—never FSM-eligible pupil group (zero years at secondary school spent as FSM-eligible)—and the remaining pupils who have been recorded as living in poverty while at secondary school. But there is also a clear gradient of scores linked to the number of years a student has been known to be poor/FSM-eligible by the end of KS4 (Table 5). The students facing the longest-term disadvantage tend to have the worst attainment scores, by some margin. They have lower points scores, and they even have worse value-added progress scores (which are meant to be independent of raw-score attainment). So, in years when more pupils become temporarily FSM-eligible because of an economic decline or a change in policy, the apparent attainment gap between FSM-eligible pupils and the rest (the official attainment gap) will tend to reduce, because these short-term disadvantaged pupils have higher average attainment than the core group of long-term disadvantaged pupils. If this factor is

Table 5. Outcome measures by length of FSM-eligibility, all years 2006–2019 combined

Years FSM-eligible by KS4	KS4 Capped points z-score	KS4 value-added Residual
0 years	+0.16	+0.10
1 years	−0.43	−0.29
2 years	−0.54	−0.37
3 years	−0.63	−0.43
4 years	−0.70	−0.48

N=7,895,115.

not taken into account, changes in the apparent attainment gap due to economic events or changes in the law will be mistakenly attributed to the work of schools.

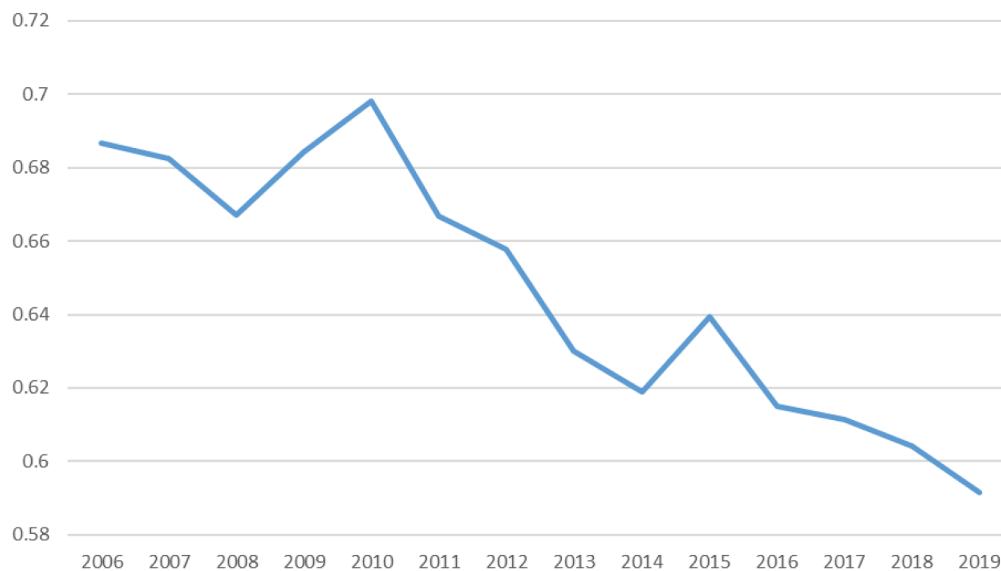
In our work we overcome this problem by comparing the attainment of those students in England who are permanently eligible for free school meals throughout their time at school (for 11 years), with everyone else at school. This creates two stable groups, and the disadvantaged group would clearly have been disadvantaged in any era under any economic or policy circumstances.

This poverty attainment gap matters where it is due to injustice and factors beyond individual's control. Countries from China to England are using contextual factors when selecting students for intakes to university (Gorard & Siddiqui, 2019). The (valid) argument underlying this is that the prior of attainment of disadvantaged students does not always represent their potential for the next stage of education, in just the same way that children who start school younger in their year (the summer born in England) have clearly lower average attainment (Gorard, 2018). This is not their responsibility (Fleurbaey, 1996; Roemer, 1996). So, the poverty attainment gap in early schooling is at least partly due to factors for which the poorer students are not responsible.

Our reviews of approaches to improving attainment for disadvantaged students focused on funding, again because this is where the strongest causal evidence is (Gorard et al. 2022). The results are not quite as clear as for attendance. Cash transfers to individuals, conditional on attainment, can be effective. But unlike school attendance or enrolment which everyone understands easily, motivating individuals to perform better in tests is harder if they do not understand how to improve. There is some evidence that incentives are more effective if they are provided for the elements underlying attainment such as behaving in class or completing homework on time. However, unlike attendance, there is more scope to provide the cash to schools so that they can use interventions or put on programmes to reduce the attainment gap. The key, in that case, is ensuring that schools use the most promising programmes to use the cash efficiently. Our other reviews suggest that this should not include approaches like use of EdTech *per se*, increasing parental involvement, or raising aspirations.

The Pupil Premium policy in England is such an example of providing cash to schools, for them to use to improve the attainment of disadvantaged students. It seems to be working. Figure 4 shows a pattern over time for the Key Stage 1 attainment gap (for pupils who would be disadvantaged for all six years while at primary school) that is very similar to changes in the segregation gap in primary schools (above). KS1 assessments in literacy and maths took place at the end of Year 2 in primary schools, up to 2019. The figures show a period of slight volatility from 2006, with no overall pattern until 2010. There was a widespread boycott of KS assessments by teachers in 2010, and so the result (a sudden apparent growth in the gap) for this year may not be directly comparable with others. Nevertheless, after 2010 there is a substantial decline in the attainment gap, with the gap at its lowest ever level in 2019. As with the pattern for segregation, this is consistent with the era of Pupil Premium funding, and we have failed to explain it in terms of economic or other changes over the

Figure 4. Change in “effect” size for the gap between long-term disadvantaged pupils and the rest, KS1 points, 2006–2019.



same period (Gorard et al. 2002) This improvement in equity occurred at the same time as an improvement in KS1 scores for both groups, which is important. It represents levelling up, not down.

Looking at the long-term disadvantaged group of students, who would presumably have attracted Pupil Premium funding in any era, whatever the conditions in place, it is clear not only that they have improved their level of attainment but also that they are slowly catching up with those pupils who have only been temporarily FSM-eligible and with the pupils who have never been eligible. For KS1 cohorts, it looks as though the Pupil Premium funding era is linked to success in meeting its two objectives—reduced segregation of school intakes, and a lower poverty attainment gap.

There was the beginning of a reduction in the attainment gap at KS2, since Pupil Premium funding was introduced, and the gap is still lower than it was before 2010. The picture at KS4 is more mixed. The attainment gap dropped and then began to grow again from 2014 onwards, seemingly linked to changes in difficulty, scoring, and value-added scores. This has confused the picture, and it seems that the Pupil Premium policy may be being contradicted by other governmental interventions.

4. Discussion

The evidence presented here comes from a mixture of sources and projects, and it includes strong experimental findings, very large-scale and long-term time series, and in-depth accounts. It is hard to envisage any combined dataset that would be of higher quality in real-life. This means that despite the limitations in any one data source, some clear conclusions can be drawn.

Unsurprisingly, money can make school systems better and help to reduce the poverty attainment gap via education. But the best use of the funding depends on its purpose, the age of the students, and the stage of development of the school system. In less developed systems, money can help to create extra school places which will tend to benefit the poorest, often rural or female, children who would otherwise not have the opportunity to attend school. Money can then be used to improve school infrastructure, resources, and student transportation. So, one quick and simple way to address the poverty attainment gap worldwide is to ensure that all children have a free place at a nearby school.

Once there are sufficient school places within reach of all families, schooling should be free at the point of delivery, easy to access, and compulsory. Offering incentives for school attendance has

promising results. Monetary incentives to compensate for loss of income through school attendance is an effective way to increase enrolment and participation in school, presumably as a temporary measure in less developed systems. This kind of funding is best provided directly to students or families—not to schools, areas, or teachers—as an incentive for attendance, conditional on appropriately full attendance.

Schools can then provide practical, safe environments where learning can happen under the supervision and care of trained teachers and other staff members. Our evidence from Pakistan and India shows that in the absence of school, learning can be hindered, and that poorer parents do not always prioritise their children's education over more basic economic needs. In more developed school systems like England, near-universal school attendance has been achieved, and this has changed and, in some cases, reversed previous patterns of social inequality, with girls now getting higher attainment than boys at school, on average, and the results for pupils from many different ethnic groups converging in attainment, for example.

Once school systems are more developed, and there are free local places for all, attention can turn to the nature of each school intake. An even distribution of disadvantage between schools makes the whole school system fairer, and allows individual schools to focus their energy where it is most needed. There is also worldwide evidence that average attainment is higher in the most mixed school systems. This kind of desegregation of socio-economic disadvantage between schools has many societal, individual and educational benefits, and so should be a priority for any school system once there are enough places for all. Money can play an important role in equalising the nature of school intakes. Our large-scale analysis of Pupil Premium funding in England shows that money provided for schools as an incentive/recompense for providing places to disadvantaged students, and allowing them to prioritise such students, is linked to a reduction in the extent to which these potentially harder-to-teach students are clustered in specific schools, or types of schools. Overall, we can say that the Pupil Premium seems to have worked for long-term disadvantaged pupils at primary age. They are less clustered in schools, have better KS1 scores, and somewhat better KS2 scores than before 2011. The age cohort that arrived at school in 2011 is mostly still in school at time of writing. In policy terms, the Pupil Premium is quite young.

The national drop in segregation is most obvious in Years 1 and 7, which is where Pupil Premium would be initially expected to make the most difference. This shift cannot be explained by economic or legal changes, nor by a recent reduction in the diversity of schooling, substantial changes to admissions arrangements, or the abolition of selection by faith or ability (Gorard, 2018). Pupil Premium funding is currently the best explanation for the improvement, which suggests that the policy should be continued for the time being in England, and that similar schemes could be rolled out in other developed systems on the basis of this evidence.

One reason an over-subscribed school might be reluctant to offer places to poorer children (even if unconsciously) is that, on average, they could be harder to teach. The extra funding given to schools as Pupil Premium (or similar) can be used to implement evidence-based catch-up programmes or pay for the cost of extra staff time in supporting poorer children. This is what makes the policy clever—it is both an incentive to desegregate, and a way of funding programmes to reduce the poverty gap. Having free places at equivalent schools for every child, ensuring that every child attends, and discouraging any form of needless segregation between schools, are the basic elements of a good school system. They will tend to encourage overall levels of attainment and minimise differences in attainment outcomes—linked to a reduction in the poverty attainment gap, as illustrated in this paper.

Given a choice between providing incentives for teachers, families or students, general funding for schools, and the kind of targeted resource represented by Pupil Premium funding, education systems should prefer the latter on the basis of the overall evidence. The funding must be tied to school intakes (following students if they move) and not to schools or areas, and its use must be

exclusively for the most promising evidence-led resources and interventions. This use would have to be audited better than it is now, in order to make the payments conditional on coherent evidence use.

Going further than these basic elements involves consideration of how funding is spent by schools, and what happens in classrooms at school, and so depends on the priorities and decisions of local authorities, teaching staff and school leads. These considerations need to be guided by the best available evidence-syntheses.

There is increasing evidence on school, family and classroom interventions/resources that can help reduce the attainment gap (See & Gorard, 2020). But it seems that schools are still too often using funding on programmes and activities that are meant to improve attainment but are either known not to do so, or for which there is currently no clear evidence. Given scarce and limited educational resources, these are approaches that money should not be spent on at present, while there are more evidence-led approaches available.

Such ideas that are sufficiently evidence-led include enhanced parental involvement (See et al., 2021; See & Gorard, 2015), increasing cultural capital (Stopforth & Gayle, 2022), extra-curricular activities in general (Kravchenko & Nygård, 2022), encouraging positive attitudes to education, high aspirations, and a positive self-concept (Gorard, 2012), and investing heavily in IT or EdTech (See et al., 2021, 2021). In terms of how funding is actually used in schools, over and above its incentive value, more work is needed to ensure that any interventions, programmes and practices used in schools are evidence-led.

Unlike for segregation, it is not likely that the mere existence of Pupil Premium funding would produce a reduction in the poverty attainment gap. Schools in England are increasingly encouraged to ensure that the programmes they invest this extra funding in are “backed by evidence” (Schools Week 2021). There is limited but growing evidence of what has worked to improve the average attainment of poorer children. We need more of this robust evidence, and much more and better research on how to get that evidence into use most appropriately.

Why has the same clear improvement as seen in the segregation gap not also occurred with the attainment gap for older students, and as it did at KS1 in primary schools? It may be that the improvements in primary schools need longer to feed through the system before manifesting themselves in improved KS4 outcomes. However, the changes to the nature of KS4 assessment from 2014 onwards have not helped. This is not to say that the changes were wrong. But it is not clear that their clash with the Pupil Premium objectives was ever considered and accepted as a necessary cost by policy-makers.

However, another possible explanation is the relative lack of evidence on how to use Pupil Premium funding at KS4 level. The Education Endowment Foundation (EEF) in England, whose role is to provide schools with the necessary evidence to lower the attainment gap, has reported complete evaluations of 120 distinct interventions, of which 17 were listed as “promising”. Promising here means that the evaluation succeeded, the results are deemed trustworthy, and that the intervention was reported as having benefits for pupil attainment. This 10% to 15% of positive outcomes for otherwise plausible (i.e. with equipoise) approaches is to be expected, and consistent with the success rate or plausible interventions in other countries and different fields. Of the 120 approaches trialled by EEF, 80 (67%) were for early years or primary phases. Of the 17 promising approaches, 12 were for the primary phase (71%). This means that schools and networks seeking evidence on how best they might use their Pupil Premium funding have a much greater number of promising interventions if they teach younger children. This may be part of the reason why the attainment gap has reduced more, in the Pupil Premium era, at KS1 and even at KS2 than at KS4. As always, more research is needed, but it has to be robust and targeted at these areas and age-groups for which there is most need.

The key point is that the most appropriate interventions or programmes appear to be linked to the state of development in each school system. Reducing socio-economic segregation between schools is not a priority until there are enough free school places for all, and attendance is at or near 100%. Then incentives can shift from those paid to families or students to those like Pupil Premium paid to schools. This can then help to desegregate schools, and provide evidence-led programmes to improve disadvantaged students' attainment.

Acknowledgments

The authors would like to thank colleagues including: Smruti Bulsari, Keeran Pandey, Sahar Saeed, Saba Saeed, Hamza Sarfaraz and Pauline Dixon, for the crucial fieldwork in India and Pakistan, and Binwei Lu, Nada El-Soufi, and Lorraine Hitt for their help with parts of the reviews. This work contains some statistical data from ONS, which is Crown Copyright. 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.

Funding

Some of the research described here was funded by a British Academy (grantcode ECE190026). However, most of the work was completed as an unfunded "labour of love".

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Citation information

Cite this article as: Lessons for addressing educational disadvantage from a range of studies, Stephen Gorard, Nadia Siddiqui & Beng Huat See, *Cogent Education* (2023), 10: 2262258.

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