Measuring pupil inclusion in school groups

Methodology discussion paper

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About the author

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The analysis and interpretation presented in this paper is entirely the responsibility of EPI and not of our external associates.

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Introduction

The majority of schools in England do not work in isolation. Schools often work as part of wider groups and networks, such as academy trusts, federations, charitable trusts, dioceses, and other schools in the local authority. These different school groupings play an important role in the outcomes of young people in England, particularly the most disadvantaged, and yet little is known about how schools operate in groups effectively.

Furthermore, much of the work to date on the performance of academy trusts and other types of school groups has focused on pupil progress and attainment. Less work has focused on assessing the inclusiveness of school groups, and this is partly due to challenges posed by methodological issues and lack of data.

This discussion paper proposes a range of new metrics for assessing the inclusiveness of school groups in England, drawing on EPI's existing work and the broader evidence base. We welcome feedback and details on the consultation can be found at the end of this paper.

School groups in England

Over three-quarters of secondary-aged pupils and nearly two in every five primary-aged pupils are now being educated in academies and free schools.[1] Nevertheless, academy trusts are just one way in which schools can be grouped together. A significant proportion of schools, particularly primary schools, remain outside the academy system. In 47 of the 152 local authority areas in England, less than a quarter of primary schools are part of academies or free schools.[2]

Our mixed system also encompasses schools in federations, foundation school trusts, and those of religious denomination which have relationships with their diocese. Local authorities are also a type of grouping: schools in the same local authorities are not grouped by governance but nevertheless are linked through local communities, leadership networks and, not least, their relationships with their local children's services. This relationship can influence a range of things including budget, admissions and school improvement.

School groups are set to remain a key feature of the school system and will likely remain central to the government's school improvement strategy. We must get better at measuring effectiveness at group level.

Our previous research projects have developed measures of school performance to compare school groups, specifically MATs with local authorities. Overall, we found little difference in the performance of the two types of grouping and concluded that 'the type of school – academy or local authority – is … less important than being in a *high performing school group*'.[3]

[1] DfE, 'Schools, pupils and their characteristics', Academic Year 2020/21.
[2] EPI analysis of 'Get Information About Schools', 4th November 2021, includes all-through schools and middle schools that are deemed primary.
[3] Jon Andrews, "School Performance in Academy Chains and Local Authorities - 2017" (Education Policy Institute, June 2018).

The question is therefore not which type of group is best, but which are the best examples of high performing individual groups.

Previous work has also mainly focused on pupil progress and attainment, and on school improvement in terms of these pupil outcomes. This is a serious limitation in judging the effectiveness of school groups, as evidence gives us cause to suggest that the current school accountability system introduces perverse incentives which can lead to exclusionary practices, for example, the minority of secondary schools that appear to move pupils off their roll just before they sit their GCSEs.[4]

So the key follow-on question to 'which are the most effective school groups' is 'which metrics should we prioritise when identifying the best examples of highly effective school groups'.

We cannot look only at progress and attainment as these measures in isolation may mask practices which do not serve all pupils in the community. We must also look at positive examples of inclusion (and also workforce sustainability and financial efficiency, both of which form part of our overall program of work on the effectiveness of school groups).

This working paper is part of a large-scale project by Education Policy Institute which aims to develop a range of robust metrics which enable us to identify the most effective school groups. We aim to identify the groups which not only enable strong pupil outcomes in terms of progress and attainment but do so whilst also achieving high standards in pupil inclusion, ensuring workforce sustainability and balancing financial efficiency.

Measuring pupil inclusion in school groups

This paper presents for discussion and feedback a detailed proposal of a suite of metrics which, taken together, aim to provide an accurate picture of a school group's progress towards achieving a high standard of pupil inclusion.

Our focus in this paper is on quantitative metrics which can be constructed using national administrative data. There are many important aspects of pupil inclusion which either are not suited to quantitative measurement or for which appropriate or reliable data does not exist; examples are behaviour policies, uniform and hair policies, the key stage 3 curriculum and safeguarding. As part of our broader research program, we will also be conducting a panel survey and in-depth qualitative interviews. School policies and Ofsted reports are also publicly available and can be referred to as we build up more detailed pictures of specific school groups. This qualitative work can plug this data gap to a certain extent, and we will look to link all these data sources up for individual school groups as we build our datasets.

Another area that is important to inclusion in schools, but which is not covered in detail in this paper, is the support of pupil wellbeing and mental health. The recent experience of the pandemic has highlighted the importance of wellbeing for enabling participation and learning. While this paper focuses on metrics which can be extracted from existing national data, we also wish to recognise the limitations of this data for capturing a full picture of pupil inclusion in schools. To help improve data

[4] Jo Hutchinson and Whitney Crenna-Jennings, "Unexplained Pupil Exits from Schools: Further Analysis and Data by Multi-Academy Trust and Local Authority" (Education Policy Institute, October 2019).

in the long term, EPI is working with other organisations and universities to build capacity and knowledge around tracking pupil wellbeing.

Regarding the metrics we are focusing on in this paper, we split them into three sub-domains:

- School choice and admissions
- Attendance and exclusions
- Pupil achievement

Our assertion is that an effective school group is one that meets the needs of all pupils in the communities it serves.

To be inclusive, an effective school group should:

- Have an intake which broadly reflects the characteristics of its local communities: particularly in terms of disadvantage, ethnic background and special educational needs.
- Support all pupils to pursue an appropriate quality education within the school once they are admitted: attendance should be encouraged, and school-driven mobility (exclusions, managed moves, unexplained exits) avoided where possible unless in the best interest of the pupil and the safety of others. Cohorts should not become more socially-selective as they move through the school, which would suggest that pupils of certain social or ethnic backgrounds or pupils with additional needs are more likely than others to be excluded, "off-rolled" or to exit the school for other reasons.
- Support all pupils to achieve their best: disadvantaged pupils and other vulnerable pupil groups should be supported effectively in their learning, so that attainment gaps are narrowed between these pupils and their peers.

Data-driven metrics can help identify which school groups are already strong in certain areas. They can point to areas of best practice and highlight areas which need improving. Measuring these things informs the system and has potential to help improve it, but there are a number of issues particular to pupil inclusion which make this measurement challenging.

Firstly, lack of data is a common issue. A prime example of this is attempts to quantify the extent of 'off-rolling' in the system, where, by definition, these types of school exits are not explicitly recorded in current data.

A second challenge is that some of the outcomes we are trying to measure are shaped by very complex drivers. Analysing school preference data is an example of this. Preferences data cannot be treated as 'true' preferences among parents and carers. This is because some but not all parents will state their preferences based on the school to which they think they have a better chance of being admitted. Within this, we know that parents and carers of different social backgrounds appear to display different preferences in terms of the number of preferences they state and how likely they are to apply to an Ofsted-rated good school. These complex drivers need to be accounted for when we are trying to isolate and understand the inclusion practices of a school group.

Some of the topics covered in this paper defy benchmarking, for example there is a live debate over what is the 'right' level of permanent exclusions. It seems for this topic there is no desirable level, but rather the appropriate level of permanent exclusions depends on the context of the school and pupil.

As we have just mentioned, there are live and contentious debates around key issues in inclusion. An example, in addition to permanent exclusions, is what constitutes an appropriately broad and ambitious curriculum for all and disadvantaged pupils.

An essential part of contending with these challenges is contextualisation. This means accounting for differences between school groups such as pupil intake and historical performance profile. Particularly in the case of school *groups* whose system role (for MATs) is to sponsor schools in need of improvement, our metrics must not penalise groups which take on challenging schools. We must also consider how we adjust our metrics to recognise school groups which operate units for pupils with special educational needs (SEND units), special schools and alternative provision.

There is a key opportunity that comes with looking at pupil inclusion through the lens of school groups: pupil inclusion inherently involves looking at the outcomes of a typically small number of pupils. Looking at pupils across multiple schools gives more confidence around metrics (though we must acknowledge the variation that goes on *within* school groups and our metrics attempt to reflect this).

This paper:

- Works through our three sub-domains (school choice and admissions; attendance and exclusions; and pupil achievement) and goes into detail on our current knowledge of these areas, the challenges and considerations particular to measuring them, and our proposed suite of metrics. These are summarised in Figure 1.2.
- Outlines some general methodological considerations we will make, such as:
    - Contending with small numbers
    - Reporting within-group variation
    - Different approaches to contextualisation
- Discusses 'radar plots' as our proposed method for visualising and communicating data (Figure 1.1).

Figure 1.1: A selection of our proposed inclusion metrics for a fictional school group, fake data for illustration only

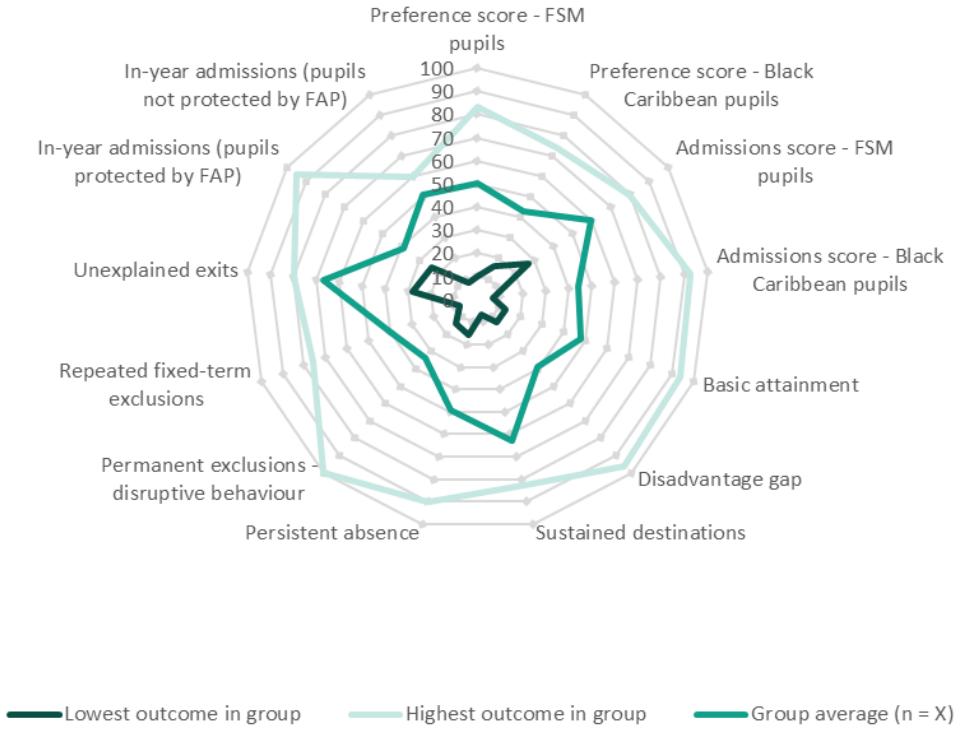

Figure 1.2: Summary of proposed metrics

		Metric produced for special schools
School choice and admissions	Odds ratios: that FSM pupil applies to a school in the group, compared with other local non-FSM pupils (we would produce this metric for pupils of Asian, Black African, Black Caribbean and White 'Other' backgrounds separately, compared with White British pupils; for SEND pupils with and without an EHCP; and for looked after children)	
	Odds ratios: that FSM pupil is offered a place in a school in the group when they apply for a place, compared with other local non-FSM pupils who apply for a place (we would produce this metric for same pupil groups as above)	
	Number of FSM pupils who applied to a school in the group compared with the number predicted to apply, based on logistic regression on school and local characteristics (we would produce this metric for same pupil groups as above)	
	Number of FSM pupils offered a place in a school in the group compared with the number predicted to be offered, based on logistic regression on school and local characteristics (we would produce this metric for same pupil groups as above)	
Attendance and exclusions	Rate of persistent absence	X
	Rate of repeated fixed term exclusion	X
	Rate of permanent exclusion due to persistent disruptive behaviour	X
	Average termly rate of unexplained exits	
	In-year admissions as proportion of local in-year admissions, pupil groups covered by Fair Access Protocols	
	In-year admissions as proportion of local in-year admissions, pupil groups not covered by Fair Access Protocols	
Pupil achievement	Disadvantage attainment gap – KS2 and KS4	X
	Percentage of pupils achieving the expected standard in reading, writing and maths – all pupils and disadvantaged pupils	X
	Percentage of pupils achieving grade 4 in English and maths GCSE – all pupils and disadvantaged pupils	X
	Sustained destinations for disadvantaged pupils completing 16-18 study	

Note: All metrics will be converted to national percentiles separately for each phase. Metrics will also be published separately for each phase at school group level. Methods for contextualising metrics to account for underlying pupil characteristics are discussed in the section titled 'methodological considerations – all metrics'

School choice and admissions

Existing literature finds that social segregation is a longstanding phenomenon in schools in England.[5,6] By social segregation we mean the clustering of children from poorer backgrounds within certain schools.

We also know that social segregation is more prevalent in certain types of school. Faith schools tend to have disproportionately White and advantaged intakes, even after controlling for local characteristics.[7,8] High-performing comprehensive schools in affluent areas can have less comprehensive intakes due to not taking disadvantaged students from the local areas in proportionate numbers.[9]

This is a matter for concern because the school a child attends has an impact on their future outcomes. A report on school admissions by the Sutton Trust notes that, while estimates vary, about 10-20 per cent of the difference in pupils' academic outcomes is explained by the school attended.[10] Social selection can also be a vicious cycle: schools with more advantaged pupil intakes tend to be advantaged in other ways. For example, these schools may attract and retain higher quality staff, have stronger Ofsted grades and achieve better test scores, thereby potentially further altering their intakes and perpetuating educational inequalities.

The drivers behind this social segregation are very complex: they relate both to parent choice, the mix of schools available in a local area, and school admissions policies. These drivers need to be teased apart to understand the school (group)'s role in shaping social segregation so we can appraise it in terms of inclusive practices.

What we know from existing research, data and methodological considerations

The school choice system in England involves parents and carers submitting an ordered list of their school preferences. For use in the case of oversubscription, schools also publish admissions criteria which will apply if places available do not meet demand. Provisions are made in the guidance for admissions criteria to protect against discrimination and to protect certain groups of vulnerable young people (such as Looked After Children and those with Education Health and Care Plans or EHCPs). Local authorities then allocate placements with their own algorithms.

We can study trends in school preferences and admissions by linking preferences data to the National Pupil Database and to school-level data, for example Ofsted and Get Information About Schools.

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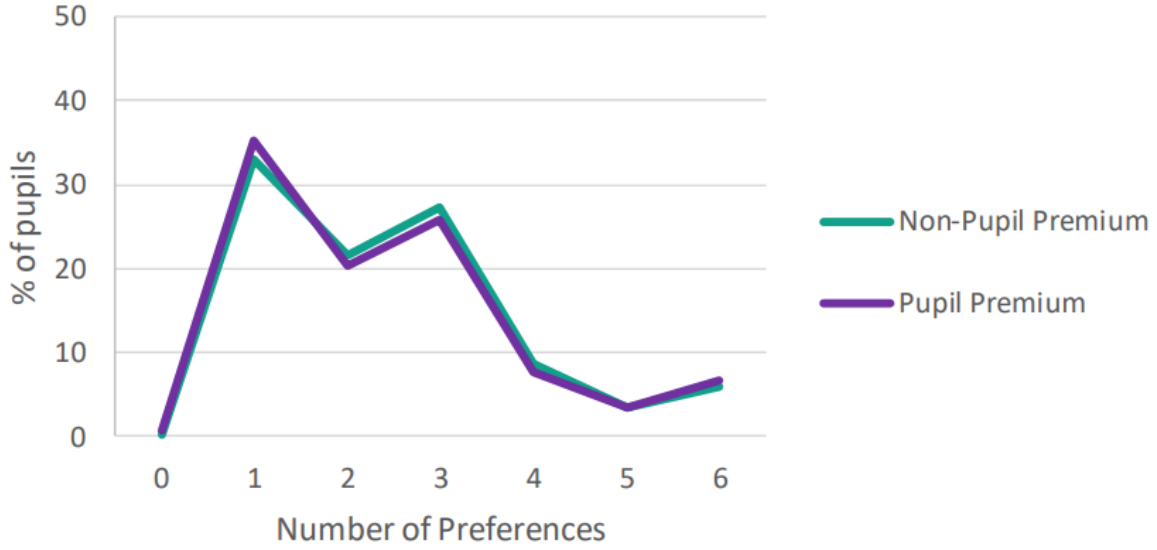
[5] Stephen Gorard and John Fitz, "Investigating the Determinants of Segregation between Schools," *Research Papers in Education* 15, no. 2 (January 1, 2000): 115–32.
[6] Rebecca Allen and Anna Vignoles, "What Should an Index of School Segregation Measure?," *Oxford Review of Education* 33, no. 5 (November 2007): 643–68.
[7] Matthew Weldon, "Secondary School Choice and Selection: Insights from New National Preferences Data," Department for Education Research Report (Lancaster University, Department of Economics, August 2018).
[8] Jon Andrews and Rebecca Johnes, "Faith Schools, Pupil Performance, and Social Selection" (Education Policy Institute, December 2016).
[9] Simon Burgess, Ellen Greaves, and Anna Vignoles, "School Places: A Fair Choice? School Choice, Inequality and Options for Reform of School Admissions in England" (Sutton Trust, February 2020).
[10] Burgess, Greaves, and Vignoles, 2.

Analysis of secondary school preferences in England reveals that there are key similarities and differences between families of different characteristics in how school preferences are used.

In terms of how many preferences are used (the number available varies between local authorities), there is no difference between families of pupils who are eligible for free school meals and those who are not eligible for free school meals (Figure 2.1).[11,12] This indicates that families of more disadvantaged pupils are no less engaged in the school choice system than their more affluent peers.

Figure 2.1: Number of preferences stated, by pupil premium eligibility, 2016 Preferences data[13]



However, analysis has also found that other characteristics do have an association with the number of preferences used. Some parents are more likely than others to express a preference for just one school: families identifying as White British, and those with English as a first language, are more likely to apply to just one school.[14]

There are also differences in preferences expressed for quality of school, as indicated by Ofsted ratings of first choice schools. Analysis finds that Black (90 per cent), Asian (86 per cent) and Chinese (92 per cent) families are all more likely than White British (81 per cent) families to apply for a Good or Outstanding or school as their first choice. This gap exists nationally and also within London.[15]

So, we know that not all families express similar preferences for their local schools. Relatedly, strictly speaking parents do not 'choose' schools, they merely state their preferences. Moreover, these may not truly reflect the schools that parents want their child to attend if they behave strategically or are poorly informed. There may be real or perceived barriers preventing families from nominating a truly preferred school – for example due to onerous application forms, requiring prospective pupils to travel to attend "fair banding tests", and charges for uniform or a general sense that a school is 'not for families like us'.

[11] Burgess, Greaves, and Vignoles, 9.
[12] Emily Hunt, "Secondary School Choice in England" (Education Policy Institute, September 2018), 9.
[13] Hunt, 9.
[14] Hunt, 9.
[15] Hunt, 16.

The statutory guidance contained in the School Admissions Code stipulates that in the instance of oversubscription, priority must be given to looked after children and all previously looked after children.[16] In addition, all pupils whose Education Health and Care Plan (EHCP) names the school must be offered a place. Parents and corporate parents of pupils with an EHCP may have a particular preferred school that is known to be particularly inclusive, and our measures may be able to identify where schools and school groups are particularly favoured or otherwise by parents and carers of pupils with EHCPs.

Similarly, where a school's intake does not reflect its applicants, this may or may not mean schools are explicitly favouring certain groups in admissions. It could instead reflect some families struggling to adhere to the process, having more 'ambitious' preferences or being lower priority in admissions due to the school's oversubscription criteria.

In summary, we have seen that school preferences do not necessarily represent parents' true preference for a school, and that families of different characteristics may behave differently in terms of the number of preferences they submit and their relative preference for good and outstanding schools.

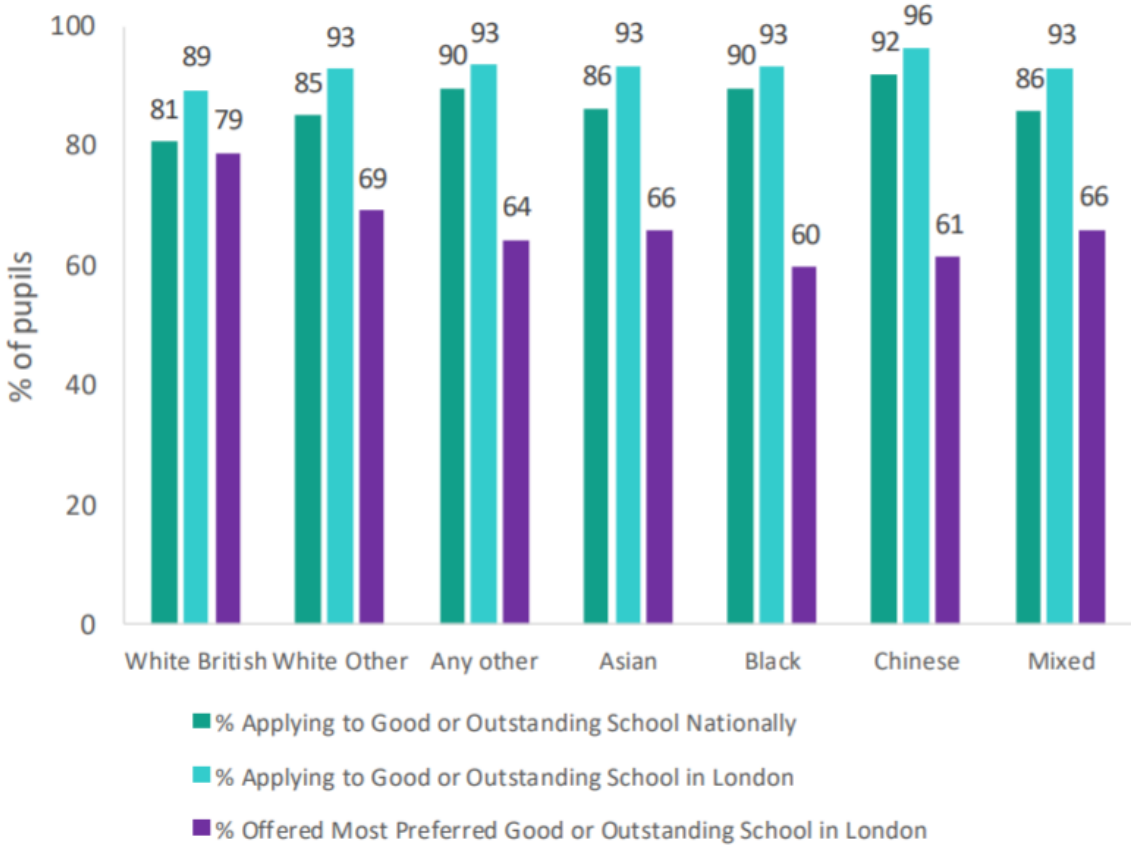
A measure of school group inclusiveness relating to school admissions needs to take these different preference behaviours into account to avoid confusing a school that is preferred for inclusive practices over one that is preferred by virtue of it being high performing.

In addition to variation in preferences, we also know that pupils of different characteristics have different likelihoods of being offered a school place **once they have applied.**

For example, EPI analysis of 2016 preferences data found that when White families who live in London apply to good or outstanding schools as their first preference, they are 18-19 percentage points more likely than Black or Chinese families to be offered their first preference (Figure 2.2).[17]

[16] "School Admissions Code" (Department for Education, September 2021).
[17] Hunt, "Secondary School Choice in England," 16.

Figure 2.2: Percentage of families who live in London applying to and offered good or outstanding schools, by major ethnic group[18]



Families who are not satisfied with the school they are offered have recourse to appeals or waiting lists and, in 2016/17, 13,000 families successfully appealed or used waiting lists to secure their top choice of school. However, for pupils in the least deprived areas, the odds of securing a first choice school through the appeals and waiting lists system are twice as high as those living in the most deprived areas. In addition, Black and Asian pupils are less likely to get a place in their top choice of school through the appeals and waiting lists system than White British and Chinese pupils. Just 10 per cent of Black pupils and 12 per cent of Asian pupils get their first choice through this route, compared to 21 per cent of White British pupils and 17 per cent of Chinese pupils.[19]

Our proposed metrics

We have seen from our review of the existing evidence that our measures of pupil inclusion in school choice and admissions must take into account some of the complex drivers that underly how school places are distributed.

Option 1: Odds ratios

The first option uses odds ratios to compare the odds of a pupil with a certain characteristic in comparison to another local pupil who does not share that characteristic, of applying to and then being admitted to a school in a certain school group. For example, we will compare the odds of

[18] Hunt, "Secondary School Choice in England."
[19] Emily Hunt, "Fair Access to Schools? The Impact of the Appeals and Waiting List System" (Education Policy Institute, April 2019).

pupils eligible for the Pupil Premium, in comparison with local pupils who are not eligible for pupil premium, of applying to a school, and then separately the odds of being admitted if a place is applied for.

We propose to create two separate odds ratios for each school group, one focusing on the background of those who apply to the school, and one on how a school chooses among applicants when its places are oversubscribed. In each instance, this involves comparing a school group's *actual* level of preferences received and actual intake with those pupils who could have *potentially* applied and been admitted. These measures would therefore capture selection over and above where people live (residential selection).

The calculations would be as follows:

'Parental Preferences' score	*'School Admissions' score*
% FSM of **applicants**/% non-FSM of applicants	% FSM of **intake**/% non-FSM of intake
% FSM of **local area**/% non-FSM of local area	% FSM of **applicants**/% non-FSM of applicants

To do this we would match preferences data with the national pupil database (NPD). The preferences data is a national census of all the state schools that parents have applied to on their secondary school application form.

A score of less than 1 would indicate a given school has fewer pupils with the characteristic of interest than would be expected given its location; a score above 1, would indicate the school has more pupils; and around 1, the school's intake is broadly in-line with its locality. We would **estimate this 'odds ratio' for each state secondary and primary school across key pupil dimensions using matched National Pupil Database (NPD) data, such as socio-economic disadvantage based on FSM eligibility, ethnicity, and special educational needs.**

Figure 2.3: Example output of odds ratios: dummy data, for illustration only

	Families eligible for pupil premium likely to apply to schools in this group, compared with non-eligible families in local areas served by the group	Families of Black backgrounds likely to apply to schools in this group, compared with White British families in local areas served by the group	Families eligible for pupil premium more likely to be offered a school place in this group (having applied), compared with non-eligible families who applied in local areas served by the group	Families of Black backgrounds more likely to be offered a school place in this group (having applied), compared with White British families who applied in local areas served by the group
Established Trust A	0.7	1.7	0.8	1
Diocese B	2.3	2.5	3	1.8
Local Authority C	3	0.7	2	1.5
Interpretation for Trust A	Pupils eligible for the pupil premium are slightly less likely (0.7 times as likely) to apply to schools in this group, compared with local pupils who are not eligible for the pupil premium.	Families of Black backgrounds are almost twice as likely (1.7 times more likely) to apply for schools in this group than local White British families	Pupils eligible for the pupil premium are slightly less likely (0.8 times as likely) to be offered a place in this school group, compared with local pupils who are not eligible for the pupil premium.	Families of Black backgrounds are equally as likely to be offered a place in the school group as White British families, when they apply

The benefits of this approach is that it is relatively simple and intuitive. Odds ratios are (to an extent) simple to communicate and results can be grasped intuitively. Focusing on selection of pupils from the pool of *potential* pupils in that area enables a focus on selection over and above 'residential selection'.

The drawbacks of this approach are that it does not account for some of the underlying drivers of why a particular family might prefer a particular school: we know that some families demonstrate on average stronger preferences for good and outstanding schools. A school may appear to be more strongly preferred among Black families than among White British families, but this may be due to it being high performing as opposed to being especially inclusive. The odds ratio approach does not account for intersectionality or interactions of characteristics. For example, disadvantaged Black families might on average act differently regarding school preferences compared to more affluent Black families.

Relatedly, preferences are contingent on the other schools available in the local area that a pupil could potentially attend. This metric design does not account for the other schools that parents are choosing from in a local area. Given that the focus of the project is on inclusiveness of school practices, as opposed to how overall attractive a school is to attend, then we must isolate this from schools being preferred because they are more highly performing than their neighbours.

Another reason why other schools in the local area are relevant is because they might be associated with the same school group. Particularly when considering local authorities, several schools in the local area will be part of a single group. If groups are locally clustered (as many are) then families will be more likely to state preferences for them than in areas where groups are not clustered simply by virtue of the fact that families have a limited number of schools they can choose. This is an argument for looking at school preferences at school-level in the first instance

The are further questions about how to aggregate odds ratios to group level, if we were to calculate them at school level in the first instance. Using a weighted average of log odds is an established method for pooling odds ratios, however this may not be straightforwardly interpretable.

Option 2: Logistic regression

An alternative method would use **logistic regression** to account for differences driven by characteristics at family-, school- and local-level which affect how likely it is for a given family to apply to a given school; or to be accepted to that school once they apply.

Pupils would be matched to all schools within a derived local area, and two separate logistic regressions would calculate the impact of moderating variables on the average likelihood that (a) the family expresses a preference for that school and (b) the pupil is admitted when a preference is stated.

This would allow us to predict, say, the number of Black pupils we would expect on average to apply to that school, given other factors such as the school's historic attainment and the availability of other 'Good' local schools.

The difference between this prediction and the actual observed number applying to that school should indicate the **unobserved factors which influence school preferences**. Some of these but not all will be related to inclusion, for example the school's approach to inclusive hair policies, or track

record for dealing with racial incidents. Other unobserved factors could be a preference for a certain headteacher, or the availability of a certain subject or activity.

Moderating variables may include:

- Family-level: pupil ethnicity, SEND, FSM, EAL, prior attainment
- School-level: nearest-school-flag, nearest-good-or-better-school-flag, distance to pupil's home LSOA, school Ofsted rating, school type, religious character; PAN or closest estimate; has SEND unit,
- Local-level: number of school-age pupils of ethnic minorities/fsm pupils in local area.

For predicting school applications, we will only include data as moderators that a family could reasonably access.

We suggest repeating these measures separately for children with an EHC plan; pupils of Black African, Black Caribbean, Asian and White Other backgrounds separately; free school meal eligibility; and looked after child (LAC) status.

Scores could be expressed as a percentage of actual to predicted numbers applying (or admitted). For example, we might predict that on average we'd expect 50 FSM eligible pupils to apply to a school (given the number of FSM pupils who live in the area, their ethnicity, their proximity to the school and performance of the school and other local schools). This school has run a successful outreach program and 75 apply. The FSM preference score is 75/50 = 1.5. Compare this with a similar school that only attracts 25 FSM eligible applicants, creating a score of 0.5. There would be a separate FSM admissions score based on how many FSM applicants are offered a place.

Scores would be calculated at school level and then averaged to find the group level metric.

Figure 2.3: Example output of average scores derived from logistic regression: dummy data, for illustration only

	Number of FSM pupils who applied compared with number predicted to apply	Number of Black pupils who applied compared with number predicted to apply	Number of FSM pupils offered a place compared with predicted number of places offered to FSM pupils	Number of Black pupils offered a place compared with predicted number of places offered to Black pupils
School in Established Trust A	0.3	1.3	2	1.7
School in Dioceses B	1.7	1	1.5	1.8
School in Local Authority C	1.3	1.7	1.6	0.6
Interpretation for School in Trust A	A third of FSM pupils who were likely to apply, did apply	The Number of Black pupils who applied was thirty per cent greater than would be expected on average, given characteristics of the school, the local area and local families	Twice as many FSM pupils were admitted as would be predicted for this school given its characteristics and characteristics of the local area and local families	The number of Black pupils offered a place when they had applied was 70 per cent greater than would be expected on average, given characteristics of the school, the local area and local families.

The benefit is that this approach would do more than odds ratios to account for underlying drivers of school place allocation, particularly accounting for differential preferences between families. We can also run various diagnostics to check assumptions. It also gives more insight into what influences school choice and admissions.

A drawback is that if all schools nationally are on average less likely to offer a place to a Black family than a White British family, then a score of 1 is not success. We would need to focus on schools that achieve scores above 1.

There is a different process for admission to special schools, which are not covered by the School Admissions Code. Our proposed metrics will therefore cover only mainstream maintained primary and secondary schools.

Figure 2.4: Summary of proposed metrics for school choice and admissions

Odds ratios	FSM pupil applies to school in group, compared with other local non-FSM pupils FSM pupil is offered a place at a school in the school group, compared with other local non-FSM pupils As above, for: ▪ Asian pupils, compared with White British ▪ Black African pupils, compared with White British ▪ Black Caribbean pupils, compared with White British ▪ White Other pupils, compared with White British ▪ Pupils with SEND without EHCP ▪ Pupils with SEND with EHCP ▪ Looked after children
Logistic regression	Number of FSM pupils who applied to a school in the group compared with number predicted to apply based on school and local characteristics Number of FSM pupils offered a place in a school in the group compared with number predicted based on school and local characteristics As above, for: ▪ Asian pupils, compared with White British ▪ Black African pupils, compared with White British ▪ Black Caribbean pupils, compared with White British ▪ White Other pupils, compared with White British ▪ Pupils with SEND without EHCP ▪ Pupils with SEND with EHCP ▪ Looked after children

Attendance and exclusions

The debate around exclusions is one example of the live debates that are ongoing in education which add to the challenge of identifying an appropriate measure. Permanent and fixed-period exclusions are a contentious subject, and there is no consensus on the 'right' level that should be observed. A major review of school exclusion was published in May 2019. The Timpson Review concluded that 'there is too much variation in exclusion practice' and that 'there is more we can do to ensure that every exclusion is lawful, reasonable and fair: and that permanent exclusion is always a last resort.'[20]

Exclusions (permanent and fixed) are a sanctioned tool for headteachers to use, but there is little transparency around how school moves are used in schools in England, including how alternative provision is arranged for those who are excluded.

Of additional concern is that some school moves occur beyond the framework of formal exclusion. In 2019, EPI developed a method for identifying 'unexplained pupil exits', and found that, nationally, as many as 1 in 10 pupils in the 2017 cohort experienced exits at some point during their time at secondary school that cannot be accounted for. This totals over 69,000 unexplained exits by over 61,000 pupils.[21] By their nature, it is unknown what drives each of these unexplained exits (as far as we can tell by the data they are not family-driven), and therefore it is impossible to know which are in the best interest of the pupil. Nevertheless, a significant proportion of all pupils experiencing an unexplained exit fail to return to the school system ever again: as many as 4 in 10 (24,000) pupils experiencing an unexplained exit in the 2017 cohort did not return at all.

In addition, there is strong evidence to suggest that exclusion and other school moves often do not work in the best interests of pupils. Exclusion and mobility between schools is disruptive to education, and pupils who are excluded or are in alternative provision achieve much lower educational outcomes than their peers. The Timpson Review highlights that just seven per cent of children who were permanently excluded and 18 per cent of children who received multiple fixed period exclusions went on to achieve good passes in English and maths GCSEs in 2015/16.[22] The review goes on to highlight that just 4.5 per cent of pupils educated in alternative provision achieved a good pass in English and maths GCSEs in 2016/17.[23]

There is substantial variation in how often fixed term and permanent exclusions are used. Findings from the Timpson Review indicate that, in 2016/17, over half (54 per cent) of the total number of permanent exclusions were concentrated in the top 25 per cent highest-excluding LAs. Meanwhile, only six per cent of all permanent exclusions occurred in the quarter of lowest-excluding LAs. Eighty-five per cent of all mainstream schools in England issued no permanent exclusions at all (this breaks down to 94 per cent of state-funded primary schools and 43 per cent of state-funded secondary schools). At the other end of the spectrum, 47 secondary schools issued more than ten permanent exclusions in the same year.[24]

[20] Edward Timpson, "Timpson Review of School Exclusion" (Department for Education, May 2019), 3.
[21] Hutchinson and Crenna-Jennings, "Unexplained Pupil Exits from Schools," October 2019.
[22] Timpson, "Timpson Review of School Exclusion," 7–8.
[23] Timpson, 8.
[24] Timpson, 9.

Pupils with certain characteristics are also more likely than others to be excluded from school, particularly boys, those who live in disadvantaged areas, and those with special educational needs. After controlling for a range of factors including gender, socio-economic status and special educational need, Black Caribbean young people are 1.7 times more likely to be permanently excluded than White British young people.[25] Similarly, around three quarters of unexplained exits in 2017 were experienced by vulnerable pupils, including about a third each of the populations of pupils who had also experienced a permanent exclusion, were in social care (looked after children) or had identified mental health needs.[26]

Given this evidence, school group practices relating to exclusions shed crucial light on approaches to inclusion. Nevertheless, our measures should attempt to recognise where the use of exclusion policies can be appropriate (for example for the safety of others) and that fixed term exclusions may in some cases be effective tools for managing behaviour. The continuing live debate on this topic means we are unlikely to identify metrics which satisfy all stakeholders, and we invite feedback via our consultation.

Absence, and particularly persistent absence, can be an indicator of issues at school or at home which may be going unaddressed. Persistent absence is when a pupil is absent for ten per cent or more of their possible sessions. Pupils might be persistently absent for a range of reasons and school attendance policies should include identifying and addressing these underlying issues. Not only does absence disrupt learning, but a prolonged or concentrated period of absence can make returning to school more difficult. Disadvantaged pupils and those with special educational needs are particularly likely to be persistently absent: in the latest annual attendance figures from Department of Education (2018/19), pupils claiming free school meals (FSM) had a persistent absence rate of 22.8 per cent, compared with 8.3 per cent of non-FSM pupils.

Persistent absence is even higher among pupils with a SEN statement or EHC plan, of whom 24.6 per cent were persistently absent in 2018/19, compared with 9.0 per cent of pupils with no identified SEN.[27] Persistent absence is also particularly high in maintained special schools, with rates consistently at just under 30.0 per cent since 2006/07, compared with state-maintained primary and secondary schools where rates have fallen 24.9 and 14.2 per cent in 2006/07 to 13.7 and 8.2 per cent in 2018/19. [28]

What we know from existing evidence

Absence and formal exclusion

The area encompassing admissions and exclusions is very broad, and a number of the metrics we propose here are based on well-established metrics available in public data, of which we propose to construct more specific subsets from pupil-level data. Specifically, these are rates of persistent absence; rates of repeated fixed term exclusions (more than one fixed term exclusion in an academic year); and rates of permanent exclusions for persistent disruptive behaviour. We recognise that these are just a select three from numerous possibilities, for example unauthorised absence, all fixed

[25] Timpson, 34.
[26] Hutchinson and Crenna-Jennings, "Unexplained Pupil Exits from Schools," October 2019.
[27] DfE, 'Pupil absence in schools in England', Academic Year 2018/19.
[28] DfE, 'Pupil absence in schools in England', Academic Year 2018/19.

term exclusions, and all permanent exclusions. Nevertheless, given that these are fairly established we will not go into detail on these. We do invite comment on whether we should include a different selection.

The rest of this section will focus mainly on the two less established metrics we propose. Namely these are unexplained exits and rates of in-year admissions.

Unexplained exits

In recent years there has been widespread media coverage voicing a growing concern over pupils being taken off school rolls without being formally excluded. This practice is known as 'off-rolling' when it is not in the best interest of the pupil. Crucially, given that schools do not record the reason why a pupil has been removed from a school roll (this is only a requirement in the case of a formal exclusion), it is difficult to quantify the extent of 'off-rolling' that occurs in the system.

The concern is compounded by the fact that incentives currently exist in the system which mean it can be advantageous to a school or school group to 'game the system' by removing pupils from their rolls so that those pupils are not then counted in the school GCSE results. As was noted in EPI's research into this topic, it is possible other motivations exit, such as managing financial pressures and the cost of meeting additional needs.[29]

Meanwhile, there are also a number of family-driven reasons why a pupil may be taken of a school roll, for example moving to a new home, to a special school or to a higher-performing school.

EPI's research developed a methodology to isolate 'unexplained exits' to capture this. By unexplained exits, we mean exits from a school to either another school, alternative provision or an unknown destination, where those exits do not appear to be driven by families or a formal exclusion. The methodology was published for consultation, and refined results were published at national, MAT and LA level.[30,31]

In the final methodology EPI analysed the secondary school records of:

- 616,830 pupils whose date of birth places them in the cohort taking their GCSEs in 2014; and
- 603,705 pupils whose date of birth places them in the cohort taking their GCSEs in 2017.

For each of the five years of secondary school, EPI counted any move between terms:

- from a school to a different school (measured by a change in school unique reference number, accounting for any changes due to a school becoming an academy or other governance changes);
- from a school to an unknown destination; and
- if the pupil was permanently excluded.

The method then grouped these exits as either (1) family-driven, if they appeared to be explained by a family-related reason as available in the data such as a house move or a move to a special school or (2) unexplained, if they could not be accounted for by any of the family-related reasons available

[29] Hutchinson and Crenna-Jennings, "Unexplained Pupil Exits from Schools," October 2019.
[30] Jo Hutchinson and Whitney Crenna-Jennings, "Unexplained Pupil Exits from Schools: A Growing Problem?" (Education Policy Institute, April 2019).
[31] Hutchinson and Crenna-Jennings, "Unexplained Pupil Exits from Schools," October 2019.

to us, or (3) as a permanent exclusion. Transitional moves such as those from middle to upper schools have been removed from the number of exits. [32]

The findings from this research indicate a very high rate of exits from schools: as many as 1 in 10 pupils (10.1 per cent) in the 2017 cohort experienced exits at some point during their time at secondary school that cannot be accounted for.

This is the sharpest quantification to date of the phenomenon which some refer to as 'off-rolling', though we do not claim that all moves captured by this method constitute off-rolling or that they are done to game the system. Some unexplained exits will likely have been in the interests of the pupil: for example, some may be supported managed moves which can in certain cases be beneficial to the pupil. With current data the uncertainty remains – and a key policy recommendation from the research was for central data reporting which captures managed moves and moves into home schooling.

Our report concluded:

> 'In considering the uncertainty around the appropriateness of individual unexplained exits, it is clear from evidence gathered in the consultation on methodology that some proportion of unexplained exits will be legitimate decisions in the interests of the child. It also seems likely from the patterns of exits around year 11 that some proportion represent deliberate gaming of the school accountability system. This leaves many cases - we believe this is likely to be the majority - where schools are simply following a system that is not set up to ensure the best outcomes for vulnerable children. Whilst we have found some groups of schools with unusually high rates of unexplained exits that raise serious concerns, the striking finding of this research is that there is a systemic problem of too much mobility under the assumption that moving a child is a "solution" to educational challenges.'[33]

In other words, schools and school groups are operating within a culture and system that has come to normalise and promote pupil mobility and behaviour management policies such as managed moves, and so to abstain from such practices would be to go against the grain of the system.

In-year admissions

The School Admissions Code (2021), describes in-year admissions as follows:

> "An application is an in-year application if it is for the admission of a child to a relevant age group, but it is submitted on or after the first day of the first term of the admission year, or if it is for the admission of a child to an age group other than a relevant age group." [34]

As with regular school admissions, in-year admissions are coordinated by different admissions authorities depending on the school type and depending on the specific arrangement decided upon in a given academic year. For example, for academies and free schools, the admissions authority is the academy trust, and parents can apply directly to the academy for in-year admissions. However, academy trusts may decide to opt-in to their in-year admissions being coordinated by the local

[32] Hutchinson and Crenna-Jennings, 12.
[33] Hutchinson and Crenna-Jennings, 10–11.
[34] "School Admissions Code," 27.

authority. Therefore, the authorities coordinating in-year admissions will vary from locality to locality and potentially from year to year.

The School Admissions Code, which contains statutory guidance, requires that (with some exceptions) all schools that have places must offer a place to every child who has applied for one 'unless admitting the child would prejudice the efficient provision of education or use of resources.'[35]

Under certain conditions, an admissions authority can refuse an application on the grounds of challenging behaviour, in which case the child would be referred to the Fair Access Protocol (paragraphs 3.10 and 3.12). The conditions state that refusal on these grounds is disallowed if the child has an EHC plan which names the school or if the child is (or is previously) looked after. Further, refusal on these grounds is only allowed if the schools already has 'a particularly high proportion of either children with challenging behaviour or previously permanently excluded pupils on roll compared to other local schools and it considers that admitting another child with challenging behaviour would prejudice the provision of efficient education or the efficient use of resources.'[36] Refusal on these grounds may be contested when challenging behaviour arises from disability.[37]

If the place is refused, the admissions authority must provide a reason for refusal and set out the parents' right to appeal.[38] If the decision is appealed, evidence that the school has reached its published admissions number (PAN) is not sufficient to make the case that admitting an additional child would cause prejudice to the efficient provision of education.[39]

Official statistics are not published on in-year admissions. There is currently little transparency around how the code is applied across different admissions authorities and how families of different backgrounds navigate the appeals process.

No detailed study has been made of in-year admissions appeals. However, an EPI study of the appeals and waiting list system for admissions to secondary schools in England found that poorer families and those from ethnic minority backgrounds are less likely to secure their top choice of school through this system, even after controlling for factors such as a family's location. It concluded that the appeals system may disadvantage some parents through its requirement for a written statement outlining parents' reasons for appeal.[40] It is likely that similar differential outcomes would be observed relating to in-year admissions appeals.

In addition, many of the concerns relating to the practice of 'off-rolling' may also be applied to in-year admissions: whilst it is prohibited by the School Admissions Code, some schools may be incentivised by the accountability system to avoid accepting students, particularly in years immediately preceding national assessments and examinations, to avoid a potential adverse effect on school results.

[35] "School Admissions Code," 28.
[36] "School Admissions Code," 32.
[37] HM Courts & Tribunals Service and Upper Tribunal (Administrative Appeals Chamber) 'C & C v The Governing Body of a School, The Secretary of State for Education (First Interested Party) and The National Autistic Society (Second Interested Party) (SEN): [2018] UKUT 269 (AAC) ; [2019] AACR 10', August 2018.
[38] "School Admissions Code," 29.
[39] DfE, 'Advice for admission authorities on school admission appeals', September 2021.
[40] Hunt, "Fair Access to Schools?"

Our proposed metrics

Persistent absence

We will use school-level absence data published annually by the Department for Education which include a measure of persistent absence. The National Statistics cover state-maintained schools including primary, secondary and special schools.[41]

Within the methodology of these National Statistics, a pupil is persistently absent if their overall absence (both authorised and unauthorised) equates to 10 per cent or more of their possible sessions. The persistent absence rate of schools is then calculated by dividing the number of enrolments classed as persistent absentees by the total number of enrolments. We will apply this same method to school groups: taking the number of persistent absentees across a group and dividing by the total number of enrolments in that group.

Absence data is published termly in addition to a full year absence release. The DfE's guidance to absence methodology advises that only the full year absence release gives a definitive view of pupil absence, as termly publications can be significantly affected by term length.[42] We will therefore use the school-level persistent absence rate published in the full year release for primary, secondary and special schools.

Repeated fixed period exclusion

A fixed period exclusion (now known as a suspension) is an exclusion for a set period of time. This type of exclusion can involve part of the school day, and a pupil may be excluded up to a maximum of 45 school days across one or more fixed periods in a single academic year. [43]

We propose to focus on the number of pupils in a group who experience a repeated fixed period exclusion, that is more than one fixed period exclusion in a single academic year.

School-level exclusion data published regularly by the Department for Education includes a measure of pupils with one or more fixed period exclusions, however it does not identify the number of pupils with more than one.

We will therefore use the School Census to create counts of fixed term exclusions which match the DfE methodology, and then produce counts of pupils with more than one fixed term exclusion in a single academic year. We will then produce a rate of repeated fixed term exclusion at group level, by totalling the number of pupil enrolments with repeated fixed term exclusions and dividing by the number of pupils (sole and dual main registered) on roll as at January Census day. We will produce these rates for primary, secondary and special schools.

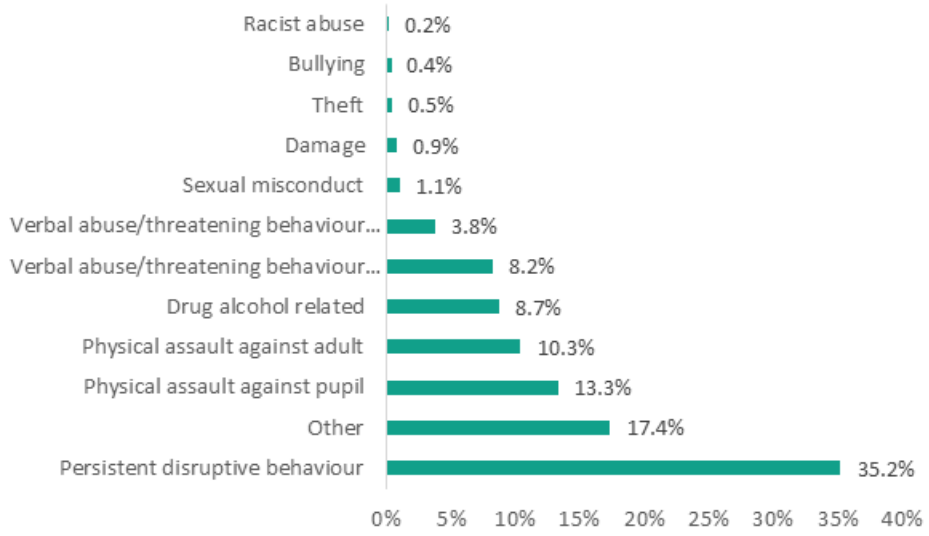
Permanent exclusion

When a school takes the decision to permanently exclude a pupil, they are required to report the main reason for exclusion. The most common reason is persistent disruptive behaviour (35.2 per cent of all permanent exclusions in England in 2018/19), and the relative size of categories has

[41] DfE, 'Statistics: pupil absence', last updated 21 October 2021.
[42] DfE, 'A guide to absence statistics', March 2019.
[43] DfE, 'A guide to exclusion statistics', September 2017.

remained stable in recent years.[44] Though schools are encouraged to use the 'other' category sparingly, this category is the second most commonly used (17.4 per cent of all permanent exclusions in England in 2018/19). In August 2020, the 'other' category was replaced with more fine-grained categories such as 'use or threat of use of an offensive weapon or prohibited item', 'abuse against sexual orientation and gender identity', 'abuse relating to disability', 'inappropriate use of social media or online technology' and 'wilful and repeated transgression of protective measures in place to protect public health'.[45]

Figure 3.1: Reasons for permanent exclusions, 2018/19[46]



For our measure of permanent exclusion, **we propose to calculate the rate of permanent exclusion for which the main reason cited is persistent disruptive behaviour.** This would be the number of permanent exclusions for this reason across the full academic year, divided by the total number of pupils on roll on the January Census day, at school group level. This can be done using pupil-level data available in the School Census on permanent exclusions and the main reason given for each exclusion.

The reason behind focusing on this specific reason for permanent exclusion is to recognise that permanent exclusion has a place in education and can be used to ensure that pupils and staff are in a safe and stable environment for learning. This is not to suggest that exclusions for reasons other than disruptive behaviour are always justifiable and that exclusions for disruptive behaviour are never justifiable: but rather to try to arrive at a measure that captures something akin to 'excessive' use of exclusions by looking at the most frequently used category. We must question how frequently exclusion is used as a method for addressing behaviour: the Timpson Review presented compelling evidence that exclusion often does not address poor behaviour in a meaningful way.[47]

[44] DfE, 'Permanent exclusions and suspensions in England', last updated 10 January 2022.
[45] IntegratED, 'Timpson Tracker', accessed 25 January 2022.
[46] DfE, 'Permanent exclusions and suspensions in England', last updated 10 January 2022.
[47] Timpson, "Timpson Review of School Exclusion," 53.

Unexplained exits

We propose to use the unexplained exits metric in accordance with the methodology set out in the final unexplained exits publication.[48] This metric tracks pupils from term to term, and identifies school exits that cannot be explained by exclusion or family-driven reasons.

The final unexplained exits publication presented aggregate results for multi-academy trust and local authorities, and our analysis would extend this to all group types covered by our study. We would use the average termly rate of unexplained exits across a group as the specific indicator. This is illustrated in Figure 3.2 using fake dummy data, the format of the table is adapted from our original publication.

Figure 3.2: Example output: fake data, for illustration only

School group	Number of terms included	Average number of pupils in the group	Total number of unexplained exits	Average termly rate
Established Trust A	9	700	40	**0.6%**
Diocese B	9	1750	0	**0.0%**
Local Authority C	9	2000	400	**2.2%**

Interpretation for Trust A	Trust A has a total of 40 unexplained exits over a period of nine terms, and on average has 700 pupils in the group. The average termly rate is the total number of unexplained exits (40) divided by number of terms (9) divided by the number of pupils in the group (700) which equals 0.6 per cent.

These results confirmed that specialist MATs (those with high proportions of special and alternative provision) must be treated differently when it comes to unexplained exits, because the interpretation of this metric is much more ambiguous in specialist schools.[49] We will therefore produce these figures for primary and secondary mainstream schools only.

In-year admissions

National data is not available on in-year admission applications and appeals. However, we can construct our own measure using the School Census to show school moves between terms and produce a rate of in-year admissions.

Specifically, we propose to take a count of any pupils who join a school's roll in any year group that is not a usual intake year for that school, **as a proportion of all in-year admissions in the local authority.**

We would create two distinct calculations: one for vulnerable groups that are officially covered by Fair Access Protocols and those that are not.

A benefit of this measure is that it attempts to capture to what extent a school engages with the local community and the needs of mobile pupils who are in need of a school place.

[48] Hutchinson and Crenna-Jennings, "Unexplained Pupil Exits from Schools," October 2019.
[49] Hutchinson and Crenna-Jennings, 30.

The group-level measure of this could either be:

- Total in-year admissions across the group, divided by total in-year admissions in local authorities served by group. A drawback of this is that local authorities may have substantially different rates of in-year admissions
- Mean of in-year admission rates as a proportion of local in-year admissions, averaged across the group

We invite thoughts and feedback on this new measure.

Figure 3.3: Summary of proposed metrics for attendance and exclusions

	Metric produced for special schools
Rate of persistent absence	X
Rate of repeated fixed term exclusion	X
Rate of permanent exclusion due to persistent disruptive behaviour	X
Average termly rate of unexplained exits	
In-year admissions as proportion of local in-year admissions, pupil groups covered by Fair Access Protocols	
In-year admissions as proportion of local in-year admissions, pupil groups not covered by Fair Access Protocols	

Note: All metrics will be converted to national percentiles separately for each phase. Metrics will also be published separately for each phase at school group level. Methods for contextualising metrics to account for underlying pupil characteristics are discussed in the section titled 'methodological considerations – all metrics'

Pupil achievement

All children and young people, regardless of social background, should be supported to achieve high quality education outcomes.

EPI's annual report on Education in England highlights the disadvantage gap and demonstrates how the long tail of low performance, which persists in England, is closely correlated with poverty, SEND, some aspects of ethnicity and other forms of vulnerability.

We typically talk about attainment gaps at system level, or else at geographic level in terms of local authority or parliamentary constituency. It is nevertheless the case that significant gaps exist within schools and school groups.

It is established that there is greater variation in levels of progress and attainment among pupils *within* the same school than there is in average attainment *between* different schools. That is to say, typically, some pupils in a cohort achieve very well, whilst others in the same cohort in the same school do not. As is observed nationally, these differences in attainment within schools (and school groups) are likely to be correlated with disadvantage and other characteristics.

An inclusive school group must implement strategies to minimise as much as possible that link between disadvantage and lower attainment, so that vulnerable pupils are supported to achieve their best and the attainment gap is narrowed.

It must be emphasised that the causes of the disadvantage gap are broad and complex and a substantial proportion of the gap is driven by forces that lie beyond the school gates. For example, around 40 per cent of the gap at the end of key stage 4 is already present for disadvantaged pupils at age 5, so the gap is certainly not entirely driven by schools and educational practices.[50] Nevertheless, we also know that the gap widens considerably between the start and end of compulsory schooling, standing at 18 months for disadvantaged pupils at the end of key stage 4. A variety of school-based practices can contribute to this in addition to poverty- and family-driven factors, for example the use of setting and streaming.[51] School-based practices can also contribute to the closing of the gap, the best sources for which are available through the Education Endowment Foundation.

Here we propose a school group-level disadvantage gap measure, which is intended to highlight those school groups which work successfully to narrow the gap within their own pupil intakes and to mitigate as much as possible the impact of poverty on achievement at school.

We propose to measure disadvantage gaps alongside a measure of actual attainment, discussed further below.

Finally, we also wish to include a metric which considers student destinations at the end of compulsory education. Students should be enabled to progress from compulsory education to positive and sustained destinations, whether this be higher education, further education,

[50] Jo Hutchinson et al., "Education in England: Annual Report 2018" (London: Education Policy Institute, July 25, 2018), 10.
[51] "Setting and Streaming," Setting and streaming, EEF Teaching and Learning Toolkit, accessed January 20, 2022, https://educationendowmentfoundation.org.uk/education-evidence/teaching-learning-toolkit/setting-and-streaming.

apprenticeships or other training, or employment. In the destinations statistics produced by DfE, a destination for a young person completing 16-18 study is 'sustained' if they are recorded as having sustained participating for a six-month period in the destination year (the year after they complete 16-18 study).[52] Students who are recorded as disadvantaged in year 11 are less likely to have a sustained destination after they complete 16-18 study: in 2019/20, 71.6 per cent of disadvantaged students had a sustained destination, compared with 83.7 per cent of not-disadvantaged students, and disadvantaged students are particularly less likely to sustain an education destination compared with non-disadvantaged peers. [53]

We considered including within these metrics an indicator of whether pupils are supported to access a broad and balanced curriculum. Concern has arisen around this in recent years both in primary and secondary schools. In primary schools the concern is related to the potential for curriculum-narrowing as a result of 'teaching to the test', with an emphasis on high performance in high stakes exams such as key stage 2 national assessments being to the detriment of other subjects. In secondary schools, the concern is related to how the current key stage 4 accountability system places value on certain subject areas over others. The introduction of Progress 8 and the English Baccalaureate as headline measures of KS4 performance encourages schools to prioritise GCSE subjects in humanities and modern foreign languages, as well as compulsory subjects English, maths and sciences.[54,55]

We consider that, on balance, this topic should be handled as an issue related to pupil outcomes and curriculum as opposed to inclusion. Whilst elements of inclusion certainly do touch on access to areas of the curriculum, overall, we see this as an issue which largely affects all pupils rather than specific vulnerable groups. In addition, introducing inclusion-based metrics in this area (for example, one which rewards schools which encourage pupils with low prior attainment to sit a GCSE in a modern foreign language) would imply a value judgement on certain subjects and pathways which evidence does not necessarily support. Therefore, we will develop measures which capture how far school groups offer a broad and balance curriculum when we come to produce our metrics on pupil outcomes.

What we know from existing evidence

We have a well-established method for measuring attainment gaps for disadvantage pupils and for other vulnerable groups. We measure the disadvantage gap by comparing the attainment of disadvantaged pupils and their peers. Using data on pupils' assessment results for each key stage we order pupils by their results and assign them a rank. We calculate the average rank of the disadvantaged and non-disadvantaged pupil groups and then subtract the latter from the former (this is the rank mean difference). Finally, we convert this into months of developmental progress, enabling us to reach a measure of how far behind poorer pupils are from their peers.

In past annual reports we have produced attainment gaps not only for disadvantaged pupils but also for pupils of different ethnic groups (in comparison with White British pupils); more vulnerable pupil

[52] DfE, '16-18 destination measures', Academic Year 2019/20.
[53] DfE, '16-18 destination measures', Academic Year 2019/20.
[54] Amanda Spielman, "Letter to Public Accounts Committee from Her Majesty's Chief Inspector of Schools," October 30, 2018.
[55] Rebecca Johnes, "Entries to Arts Subjects at Key Stage 4" (Education Policy Institute, September 2017).

groups such as looked after children and children in need; and pupils with special educational needs and disabilities.

Our most recent report (using 2018/19 data) found that the attainment gap between disadvantaged pupils and their peers has stopped closing for the first time in a decade. Disadvantaged pupils in England are 18.1 months of learning behind their peers by the time they finish their GCSEs – the same gap as five years ago. The gap at primary school increased for the first time since 2007 – which may signal that the gap is set to widen in the future. In addition, the report found that progress towards closing the gap is slowest for pupils who are persistently disadvantaged (those eligible for free school meals for over 80 per cent of their time at school) and that children in the care system or who receive support from children's services have larger gaps still than the persistently disadvantaged group.[56]

According to the same report, Gypsy/Roma pupils are almost three years (34 months) behind White British pupils at GCSE level. In contrast, Chinese pupils are two whole years (23.9 months) ahead of White British pupils in learning at this stage of their education. Some ethnic groups have experienced growing inequalities over recent years. Black Caribbean pupils were 6.5 months behind White British pupils in 2011 but this has now regressed to 10.9 months, meaning that the gap has widened for Black Caribbean pupils by well over four months in the last eight years. Gaps have also widened for pupils from other Black backgrounds and for pupils with English as an additional language who arrived late to the school system.[57]

Further, pupils with SEND who have an Education, Health and Care Plan (typically those with greater needs) are well over three years (41.1 months) behind their peers at the end of secondary school, while those with SEND without an EHCP are two full years (24.4 months) behind their peers.[58] Recent research has confirmed that, as was long suspected, there is a postcode lottery in access to SEND support: children of different characteristics, living in different parts of the country and attending different types of school have significantly varying chances of being identified with SEND.[59] This poses a significant challenge for accurately assessing the 'true' SEND attainment gap and highlights that there are localities, schools and pupil groups (particularly those who are most mobile) where pupils are particularly unlikely to access the extra support they need. Furthermore, in publishing a metric that focuses on SEND attainment, we must avoid creating perverse incentives where performance can be improved by 'over-identifying' SEND among higher attaining pupils.

Our proposed metrics

Closing attainment gaps

To track progress towards closing attainment gaps we will use our existing methodology to produce a disadvantage attainment gap metric at school group level for KS2 and KS4 separately.

[56] Jo Hutchinson et al., "Education in England: Annual Report 2020" (London: Education Policy Institute, August 2020).
[57] Hutchinson et al.
[58] Hutchinson et al.
[59] Jo Hutchinson, "Identifying Pupils with Special Educational Needs and Disabilities" (Education Policy Institute, March 2021).

There is a myriad of other groups we might also cover, for example those with special educational needs, different ethnic groups and more vulnerable pupils such as looked after children and children in need. An issue with these pupil groups is that we can expect sample sizes to be both extremely small and variable at group-level. We outline how we will deal with small numbers in the following section 'methodological considerations – all metrics.'

In terms of how we will produce gap measures at group level, we routinely create local authority (LA) averages of these gaps for disadvantaged pupils and this analysis would extend that to our additional school group types. For these group level metrics, we will follow our established method of comparing the outcomes of disadvantaged pupils in the group with the outcomes of non-disadvantaged pupils *nationally*. The reason for doing this is to provide a fixed reference point for all groups and to ensure that gap size is driven by higher or lower outcomes for disadvantaged pupils in the group, as opposed to higher or lower outcomes of non-disadvantaged pupils. The difference from the methodology employed in previous annual reports to create LA level gaps is that our school group metrics will focus on where pupils attend school as opposed to where pupils live.

Our existing methodology includes maintained special schools and so we will include this school type in our calculation of group level gaps.

A methodological issue with this metric is availability of data due to the impact of the Covid-19 pandemic. Due to the closure of schools, cancellation of national assessments in early years and KS2, and replacement of examination grades with a mixture of centre-assessed and Ofqual-allocated grades, the DfE committed that schools would not be held accountable to student results in the years 2019/20 and 2020/21. Education continues to be disrupted with Covid infection causing pupil and staff absence, and at time of publication it is expected that 2022 examination processes will be adapted to reflect the two years of disruption experienced by cohorts who are now due to sit their assessments. Depending on these ongoing data issues we may be initially restricted to using historic data from no later than the 2018/19 academic year.

Pupil attainment

We wish to consider disadvantage gaps alongside a measure of overall pupil attainment.

To measure this, we propose to focus on the following statistics which are publicly available from government data:

- Primary schools: Percentage of pupils achieving the expected standard in reading, writing and maths
- Secondary schools: Percentage of pupils achieving grade 4 in English and maths

We will produce these both for disadvantaged pupils and for all pupils.

These are benchmarks set by government and are key to accessing the next stages education. A pupil achieving below these standards would not necessarily lack the capability to access parts of their continuing education but rather these standards act as markers and can be administrative requirements for accessing certain opportunities. For example, this information can be used to inform curriculum options and setting at key stage 3 and certain subjects at post-16 and many employment opportunities require a minimum standard in literacy and numeracy.

These measures are already published by DfE at local authority level. We will use the National Pupil Database to create these same statistics at school group level. We do this using pupil-level data as opposed to published school-level data because the latter is suppressed upon publication where the number of pupils in a school cohort is below five.

We recognise that a drawback of these 'basic attainment' measures is that they introduce a minimum 'cut-off' standard and discount the achievements of pupils who do not meet this threshold. For example, it is estimated that about 40 per cent of each GCSE cohort does not achieve a grade 4 in English and maths and recent research demonstrates the great variation in the next steps that these students take beyond the age of 16.[60]

There exist alternatives to the attainment measure we have proposed here. Examples include a 'grade point average' both for KS2 assessments and GCSEs. At GCSE level, alternatives would be to focus on Attainment 8, or a 'Best 8' measure which broadens the variety of subjects that would be included. We invite feedback on this point.

Sustained destinations following 16-18 study

We will focus on sustained destinations for pupils who were recorded as disadvantaged in year 11, in the year after they complete 16-18 study. We will use pupil-level data to produce school group level statistics which match DfE's current methodology. We look at sustained destinations overall as opposed to focusing on progress to, say, education or apprenticeships as opportunities and quality of destinations vary between localities and it cannot be assumed that one type of destination is more positive or appropriate than another.

Figure 4.1: Summary of proposed metrics for pupil achievement

	Metric produced for special schools
Disadvantage attainment gap – KS2 and KS4	X
Percentage of pupils achieving the expected standard in reading, writing and maths – all pupils and disadvantaged pupils	X
Percentage of pupils achieving grade 4 in English and maths GCSE – all pupils and disadvantaged pupils	X
Sustained destinations for disadvantaged pupils completing 16-18 study	

Note: All metrics will be converted to national percentiles separately for each phase. Metrics will also be published separately for each phase at school group level. Methods for contextualising metrics to account for underlying pupil characteristics are discussed in the section titled 'methodological considerations – all metrics'

[60] Ruth Lupton, Stephanie Thomson, and Lorna Unwin, "Moving on from Initial GCSE 'Failure': Post-16 Transitions for 'Lower Attainers' and Why the English Education System Must Do Better," February 2021.

Methodological considerations – all metrics

Contending with small numbers

By its nature, quantitative analysis about pupil inclusion often involves dealing with small numbers, which can introduce substantial uncertainty in results.

This has potential to impact on our proposed metrics in the areas of attendance and exclusion. For example, the majority of primary and special schools have zero permanent exclusions per year and the majority of secondary schools have between zero and one permanent exclusions per year.[61] Equally our proposed metrics for pupil achievement are vulnerable to being influenced by small numbers because the pupil groups we focus on are typically in the minority in school cohorts.

A benefit of this project's focus on *school groups* is that our metrics look across pupil cohorts in multiple schools, thus increasing the number of pupils included in our analysis. Nevertheless, many school groups included in this study only include two schools and/or have small numbers of pupils.

Therefore, we will pool data from across three years to construct all our metrics.

This has a number of benefits. Results will be less sensitive to small pupil numbers or to characteristics specific to individual pupil cohorts. Results will reflect a more stable view of typical life in the school group, as opposed to a single cross-sectional snapshot which may represent an exceptional year. We will only include schools in the group which were part of the group for those three years.

Therefore, at minimum, all groups included in the analysis will be groups of two or more schools, and we will restrict our analysis to member schools which have been part of the group for at least three years.

After pooling data across schools and years, some untenably small numbers will remain. Suppression of small numbers is necessary to protect the identity of data subjects and to ensure our results are robust. We are exploring the best way to achieve this that maximises the usefulness of our outputs whilst still protecting individuals. We may also apply shrinkage to improve the robustness of results which are based on small numbers.

Within-group variation

Our overall aim in this program of work is to identify the individual school groups that are most effective in pupil inclusion. The metrics we have proposed are at group-level, which involves aggregation of outcomes relating to pupils who attend different schools.

Some school groups are homogeneous, for instance a federation of an infant and a junior school which are local to each other and attended by largely the same cohorts of pupils. Other school groups, however, are made up of very different schools. For example, national and system-leading multi-academy trusts tend to have a small number of converter academies (historically high

[61] EPI analysis of permanent exclusions timeseries data available from DfE, 'Permanent exclusions and suspensions in England', last updated 10 January 2022.

performing) and then a majority of sponsored academies (historically poorer performing, often with more challenging intakes) that are supported by the trust to improve.

In addition to the variety of school types and pupil intakes that can exist within a single group, this study also fully recognises that school groups operate in very different ways and have different levels of leadership and autonomy within them. This means that differing pupil outcomes are driven not only by different historical performance of schools and their pupil intakes but also by different school-level decision-making within groups.

Therefore, while our key metrics will be at group-level (which will indicate overall performance of the group and to what extent a group serves the needs of all the pupils in its local communities) these aggregate measures have the potential to mask significant within-group variation.

We will recognise this by reporting for each metric the lowest and highest school-level outcome in the group, in addition to the group-level metric, wherever pupil numbers allow.

Another consideration is school groups with a mix of phases. Groups may comprise a mixture of primary, secondary, special, further education and alternative provision schools. Within this some mainstream schools may also maintain SEND units and sixth forms. Our metrics focus on the first three of these phases. When we come to present results for individual school groups we will present results for the phases separately, as well as in aggregate.

Contextualisation

This section considers the need for contextualisation on two fronts:

- Accounting for differing pupil intakes between school groups
- Placing results in context of the national distribution

We intend for these metrics to be useful benchmarking tools, whereby school leaders and other stakeholders can compare the results of school groups with others to identify areas of high performance and areas for improvement.

To enable this, users of the metrics must be reasonably confident that school groups are being compared like-for-like and that the metrics are a faithful reflection of school and group practice, as opposed to being driven by the characteristics of an institution's pupils.

In addition, users of the metrics should be able to view a school group's results within the context of how other school groups perform nationally. There are a range of options for doing this and one of the key challenges is selecting an option which works well for our varied range of metrics.

Accounting for differing pupil intakes between school groups

Much of the variation in education outcomes is explained by pupil-level as opposed to school-level or indeed school-group-level characteristics (estimates vary, but about 10-20 per cent of variation is accounted for by school differences). In order to make our indicators useful and meaningful measures of school group effectiveness we must account satisfactorily for the differences between their pupil intakes.

Our proposed metrics for attendance and exclusion and for pupil achievement are most in need of contextualisation. For the remaining area of school choice and admissions our proposed metric,

which involves logistic regression, is designed to account for different pupil-, school- and neighbourhood-level characteristics that may influence outcomes. By contrast, our proposed metrics around attendance, exclusion, and pupil achievement are 'raw'. That is, they do not account for the level of disadvantage or other characteristics present in the school group.

A method for contextualising results uses linear regression to account for and 'net out' the impact of factors like school-level or local pupil disadvantage on our outcomes. We employed this method to create an 'adjusted' disadvantage gap at local authority level in our 2020 annual report 'Education in England'. In this analysis, disadvantage gaps were adjusted for persistent disadvantage (proportion of pupils living in a local authority who are disadvantaged and eligible for free school meals for at least 80 per cent of their time in school by the end of key stage 4). This arrives at a result for each area representing what the disadvantage attainment gap would be like *if that area had the national level of persistent disadvantage*.[62]

If this contextualisation method were pursued for our inclusion metrics, an important decision would be which factors we would use to adjust our metrics. To avoid unnecessary complexity, we would adjust all metrics for the same factors, including keeping factors the same between metrics for primary and secondary phases.

Based on the relative impact they have on predicting educational outcomes, data availability and their applicability to both primary and secondary schools, we would propose to contextualise our metrics using the following five factors:

- Percentage of pupils who are disadvantaged
- Percentage of pupils who speak English as an additional language
- Percentage of pupils with SEN support
- Percentage of pupils with an Education Health and Care Plan
- Percentage of pupils who live in London
- Schools in group with a SEND unit

Contextualisation would be applied at school-level, after all group-level aggregates had been produced.

There is no single right set of factors to contextualise with. The School Quality Index, which creates a basket of performance measures with a focus on inclusion at school level, also applies contextualisation and uses a broader list of factors.[63]

An overall drawback to statistical contextualisation is that it reduces the simplicity and transparency of our final metrics.

An alternative is to identify 'similar' or 'nearest neighbour' comparators, where a school group's raw non-contextualised metrics could be compared with several school groups identified as 'similar' along a range of selected factors. An established method to identify school-level 'nearest neighbour'

[62] Jo Hutchinson, Mary Reader, and Avinash Akhal, "Technical Appendix: Education in England: Annual Report 2020" (Education Policy Institute, August 2020).
[63] Dave Thomson and Natasha Plaister, "School Quality Index Methodology" (FFT Education Datalab, August 2021), 8.

comparators employed by various organisations including DfE and FFT Education Datalab is to use the Euclidean distance.

This approach is useful and well-established but involves a trade-off between identifying a satisfactory number of comparators and the number of factors to 'match' on. The result can be either many good matches on a small handful of factors, which means important differences on other unmatched factors go unaccounted for, or else a small number of good matches on a broader selection of factors. EPI demonstrated this trade-off with a blog on the DfE's financial metric tool, which employs Euclidean distance to identify comparators.[64]

On balance we would propose to contextualise our metrics using the method and list of five factors outline above. We invite feedback on this point in the consultation.

Placing results in context of the national distribution

We propose to convert all our metrics to national percentiles, split by phase, so that school leaders and other stakeholders can interpret results in terms of whether a school group is in the top or bottom 1-100 per cent of other school groups on that metric. An advantage of this is that it enables intuitive interpretation and factors in the full distribution of results, as opposed to referring only to the mean.

Another alternative option to national percentiles is to use a method called 'standardisation', which takes variables that are on different scales and converts them to a common scale in order to compare them. This typically uses the mean and the standard deviation for each variable to produce 'z-scores', which describe raw scores in terms of their distance from the mean, quantified in number of standard deviations. Standardisation therefore lets us know how typical a value is in terms of how much it deviates above or below the mean. A drawback of this option is that the output has less intuitive interpretation than being able to say that a school group is, say, in the top 25 per cent for a given metric.

A drawback of both options is that they are difficult to interpret in a real-world sense without accompanying information about the actual value of the mean or different percentile ranges. For example, if the average proportion of pupils with low prior attainment accessing a language GCSE is currently very low, then being located in the top 25 per cent of school groups may still represent a relatively low score on that metric.

[64] Bobbie Mills, "School Efficiency Part 2: The Strengths and Limitations of DfE's Financial Efficiency Metric," *Education Policy Institute* (blog), November 2021.

Presenting our results: Radar plots

The metrics proposed in this paper are wide-ranging and outcomes on these metrics are driven by a variety of factors.

We wish to recognise that, within these metrics, school groups will have areas of strength and areas for improvement. **We therefore propose to visualise our results for individual school groups using radar plots.**

Radar plots are a way of visualising performance on multiple metrics simultaneously. They highlight areas of high performance and areas of weakness. We can also use these plots to present within-group variation, by plotting the spread of results within a group on each metric. Specifically, for each metric we plot the lowest, average and highest outcome within the group.

Figure 6.1 illustrates this using real data for a system-level multi-academy trust, which we have kept anonymous. For illustration purposes only, the non-contextualised metrics we use are created using publicly available data from 2018/19 and we focus on basic attainment (percentage achieving the expected standard in reading, writing, and maths at KS2, and percentage achieving grade 4 or above in English and maths GCSE), rate of permanent exclusions and rate of unauthorised absence.

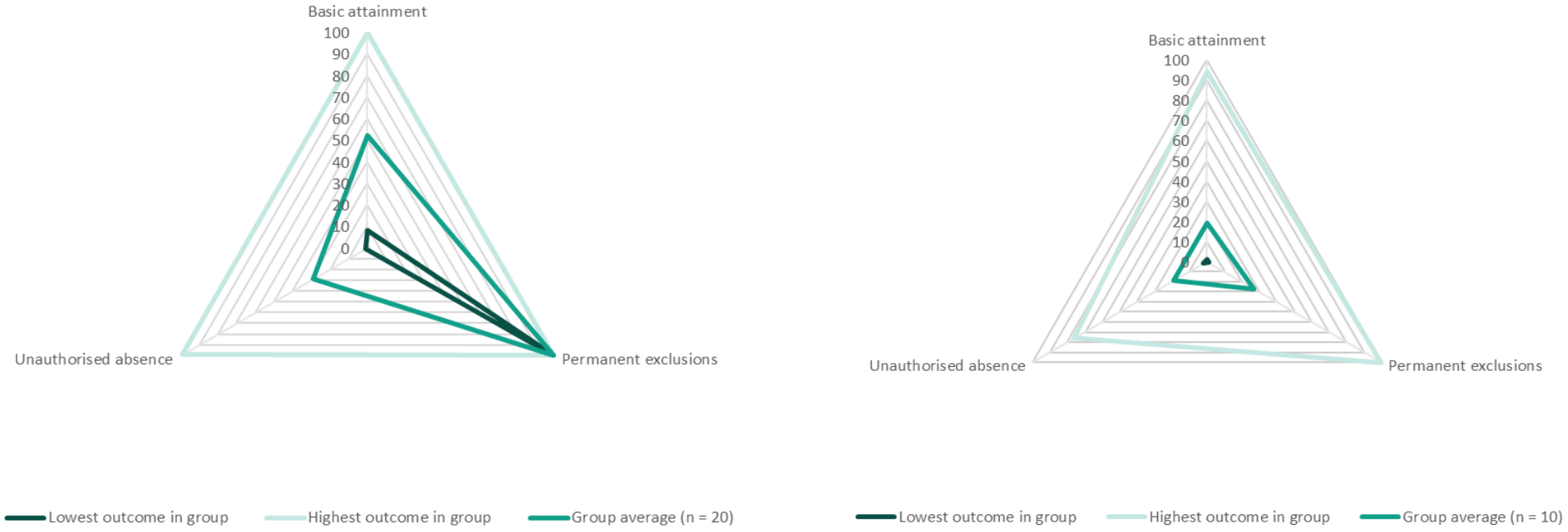
Note that metrics included in the radar plots in Figures 6.1 and 6.2 do not match those we propose for our final metrics. This is because they are for illustration only and use publicly available data, whereas our final metrics will mainly use restricted data from the School Census or National Pupil Database.

Axes are national percentiles, 1 being the lowest and least desirable outcome, 100 being the highest and most desirable. Each metric is scaled so that the highest national percentile is always the most desirable outcome. In simple terms, the further towards the outer-edge of the plot, the more positive the outcome.

For example:

- The highest national percentile for primary basic attainment indicates all (or nearly all) pupils achieving the expected standard in reading, writing and maths.
- The highest national nercentile for permanent exclusions represents zero permanent exclusions.

Figure 6.1: Selection of inclusion metrics in national percentiles: System level MAT, number of schools rounded to nearest five, for illustration only Primary schools left, secondary schools right.[65]



[65] EPI analysis of KS2 revised performance tables, KS4 revised performance tables, exclusions and attendance data. All data is from 2018/19, and available at Explore Education Statistics, DfE.

Figure 6.1 shows that none of the primary schools in this anonymous system level MAT had a permanent exclusion in 2018/19. For secondary schools in the MAT however, at least one of the schools is located in the bottom one per cent nationally for the number of permanent exclusions, indicating a significant number of permanent exclusions in this year. Meanwhile, at least one secondary school in the MAT had zero permanent exclusions. Overall, the group-level rate of permanent exclusions locates the MAT in the 30th percentile among groups nationally.

Primary schools and secondary schools in this MAT are more similar to each other in terms of the other two metrics. Some schools in the group have very low outcomes for basic attainment and unauthorised absence, whilst others are among the strongest nationally. Group-level averages suggest that primary schools are on average stronger than secondary schools on these metrics, when compared with other groups nationally.

For each group we will produce an individual radar plot for each phase (primary, secondary and special). We will then produce an overall radar plot which aggregates all phases by taking an average of the national percentile for each metric, weighted by the number of pupils in each phase (Figure 6.2).

Figure 6.2: Selection of inclusion metrics in national percentiles: System level MAT, number of schools rounded to nearest five, for illustration only
Primary and secondary schools, average of national percentiles weighted by pupil numbers in each phase

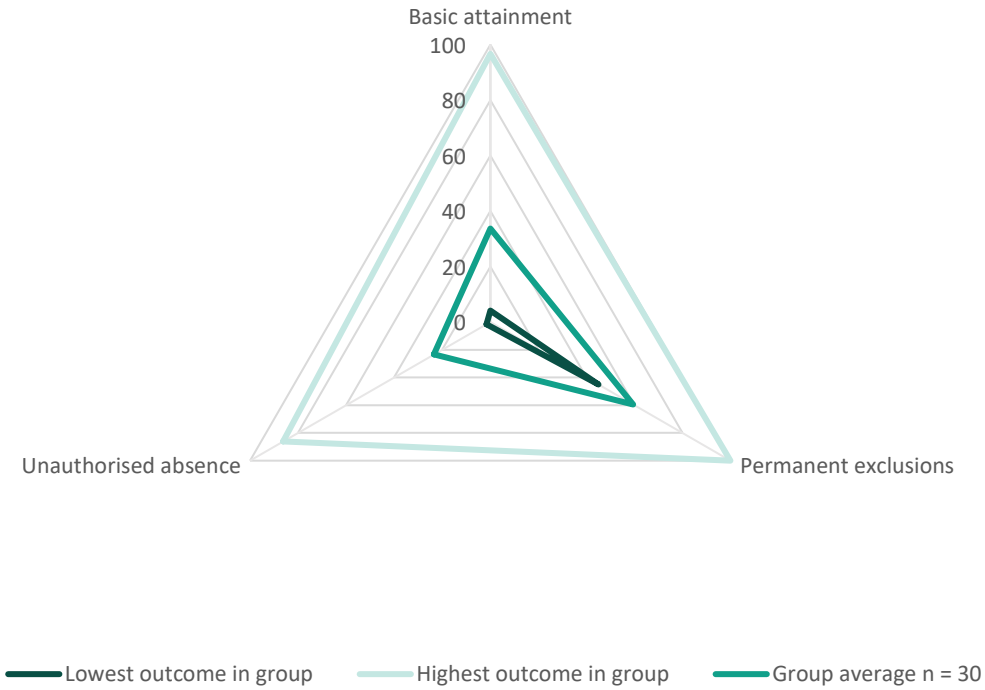
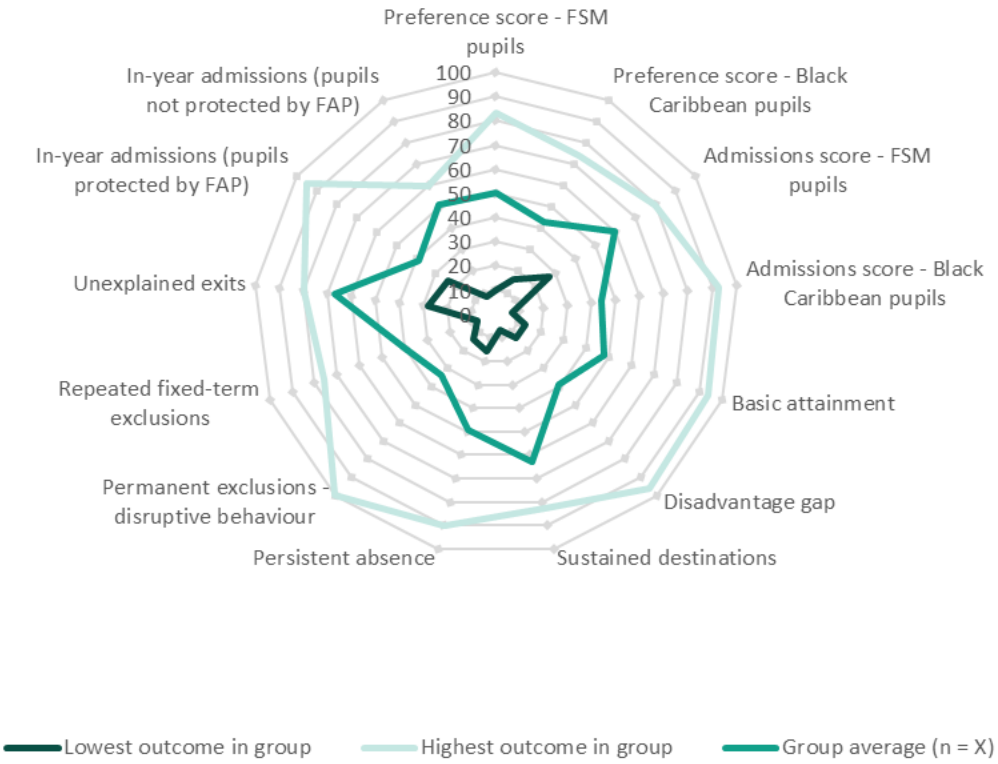


Figure 6.2 illustrates presents an overall view of the anonymous system level MAT's performance across the three metrics for both primary and secondary schools combined. We welcome feedback on whether this level of aggregation is useful to school leaders, or whether school phases should always be kept separate.

Finally, Figure 6.3 illustrates how our final results might look for a school group, once we have developed and produced all our proposed metrics. Note that while the preceding Figures in this

section use real publicly available data for an anonymised MAT, **the data visualised in Figure 6.3 is randomly generated and for illustration purposes only.**

Figure 6.3: Our proposed suite of inclusion metrics (some excluded for space), fake data for illustration only



A lot of information can be extracted from this plot. For example, the in-year admissions metrics suggest that this fictional school group does not have any schools that have particularly strong rates of in-year admissions for pupils not protected by Fair Access Protocols but does have at least one school that has a very high rate of in-year admissions for pupils who are protected by FAPs. Nevertheless, on average, the group's in-year admissions rate for protected pupils ranks in the 40th percentile nationally and suggests that the good practice being demonstrated in the high-ranking schools needs to be disseminated across the group. The strongest areas for the group, on average according to this fictional data, are moderately low rates of unexplained exits and moderately high rates of sustained destinations for disadvantaged pupils finishing compulsory education.

We recognise there is a limit to the insights these radar plots provide without additional accompanying data. For example, a MAT leader presented with Figure 6.3 would want to know *which* of their trust's schools are high- and low-performing on these metrics.

In addition, national percentiles are best interpreted in conjunction with the values that underly them. If School Group A is in the 75th percentile for persistent absence this does not reveal whether School Group A has particularly high or low persistent absence in practical terms, but does reveal that about 25 per cent of other school groups have lower persistent absence rates than School Group A. Useful accompanying data would therefore be the interquartile ranges for each metric.

Consultation: How to give feedback

We encourage and welcome your feedback in order to improve these measures of pupil inclusion in school groups. Please return your feedback to this inbox feedback@epi.org.uk. The closing data for emailing feedback is 14th March 2022.

When you contact us, please provide us with some details of which organisation you are representing with your views, for example a university faculty, a school or an academy trust.

Consultation questions

For each of the three areas we cover:

- Are there any changes or improvements we can make to our proposed metrics?
- Are there any we should not include?
- Are there others missing that we should add to our proposals?

Some specific questions are:

- School choice and admissions: we have suggested two main approaches, one using odds ratios and another using logistic regression. Which approach is preferable?
- Attendance and exclusions: We particularly invite feedback on our newly proposed metric for in-year admissions. We are unaware of previous attempts to quantify in-year admissions and would welcome feedback on what we have proposed.
- Pupil achievement: We propose a measure of 'basic attainment' for our measure of attainment. Should we consider a different indicator for overall pupil attainment?
- Methodological considerations: What is the most preferable approach to contextualisation? Considering the caveats outlined in the paper, should we use statistical methods to contextualise our metrics based on a range of factors about the school group and its pupil intake, or should we identify appropriate comparators for each school group?
- Radar plots: Is it useful to aggregate phases together in these plots in addition to presenting phases separately?

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