

The Features of Effective School Groups

Louis Hodge, Robbie Cruikshanks,
Jon Andrews and Oana Gavriloiu
April 2024



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Research Area:
School Performance,
Admissions
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About the authors

Louis Hodge is Associate Director for School System and Performance at EPI.

Robbie Cruikshanks is a Researcher in the School System and Performance team at EPI.

Oana Gavriloiu is a Researcher in the School System and Performance team at EPI.

Jon Andrews is Head of Analysis and Director for School System and Performance at EPI.

Acknowledgements

We are grateful to Natalie Perera for her thoughtful advice and feedback, and to Lily Wielar for her help analysing responses to the DEEP survey.

This publication includes analysis of the National Pupil Database (NPD) and the School Workforce Census (SWC). <https://www.gov.uk/guidance/data-protection-how-we-collect-and-share-research-data>.

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Executive summary

This report brings together the findings from a programme of work examining the features of effective school groups.

School groups are set to remain a key feature of the school system and are central to the government's school improvement strategy. Over half of all pupils at state-funded schools in England are now being educated in an academy or free school and the vast majority of such schools are in a multi-academy trust of two or more schools. But a significant proportion of pupils – including over half of pupils in primary and special schools – are in non-academy schools, including schools maintained by the local authorities. There is therefore an ongoing need to understand how school groups of all types are operating to ensure the best outcomes for all pupils.

In this programme of work we have developed a suite of metrics covering school group performance across four domains of pupil attainment and progress, pupil inclusion, workforce sustainability, and financial management. These have built on the Education Policy Institute's previous work on MAT and LA performance, teacher recruitment and retention, and unexplained exits, and have been subject to consultation and discussion with the sector.

We have supplemented these quantitative metrics through the multi-wave Decisions in Education in England Panel (DEEP) survey which gives us a better understanding of how groups are operating.

In February 2024 we published an analysis of data on pupil inclusion, outcomes and progress and at the same time launched the first iteration of our interactive web tool. This allowed users to compare the performance of individual school groups across these measures. In this report we include new analysis of our measures of workforce and financial efficiency, as well as introducing analysis from the DEEP survey. We have also now released an [updated version of our interactive web tool](#) to cover our full range of metrics.

This report shows there is no identifiable general optimal organisational structure for school groups. We cannot conclude that, based on performance alone, the MAT structure should be preferred to the local authority model, or vice versa.

Across all the metrics we construct there is typically more variation within school group types compared to between school group types. For example, the difference between two different MATs is often larger than the difference between the average MAT and the average local authority. However, we do highlight some key differences by group type and size in across our domains of performance.

Pupil inclusion, attainment and progress

In February we published a full analysis of our metrics related to pupil inclusion, attainment and progress. Combining those results with responses to the DEEP survey we found that:

- The highest performing groups on overall attainment receive a lower proportion of applications from disadvantaged pupils and have lower rates of absence and suspension.
- Primary school groups linked to dioceses (MAT and non-MAT) have intakes that are less representative of their local area. However, they have relatively low levels of persistent absence and relatively high overall attainment.

- Larger MATs (with 10 or more schools in a phase) have, on average, higher rates of persistent absence, suspension, and unexplained exits than smaller MATs and local authorities.
- However, these larger MATs admit greater rates of disadvantaged pupils and have higher attainment outcomes for low prior attaining and disadvantaged pupils.
- Internal exclusions are not captured in national data collections but findings from the DEEP survey indicate the use of internal exclusion is more prevalent in secondary schools – less than 3 per cent of sampled secondary schools reported not using internal exclusion at all, in comparison with almost a quarter of primary schools.

Workforce

In this new analysis, we present findings from our quantitative workforce metrics, which focus on the turnover rates of classroom teachers and teaching assistants. Together they make up around three quarters of all school staff. Our employment data is drawn from the School Workforce Census (SWC), and we use this data to track staff movement between schools and into and out of the English state school workforce to construct two metrics for each staff type (classroom teachers and teaching assistants): the **average annual turnover rate** in the three academic years 2016/17 to 2019/20 and the **3-year cumulative turnover rate** to 2019/20. We find that:

- Amongst primary schools, annual turnover of teachers and teaching assistants is similar across all types of school groups though there are wide differences within groups. In particular, the variation between different MATs and federations is much larger compared to dioceses and local authorities.
- In secondary schools, group level annual teaching assistant turnover (18.6%) is significantly higher than classroom teacher turnover (15.7%).
- At secondary, multi-academy trusts have higher turnover of classroom teachers than local authorities. There are significant differences in annual turnover (16.9% in the median MAT, 14.4% in the median LA) and cumulative turnover (37.4% in the median MAT, 32.7% in the median LA).
- Small secondary MATs (with fewer than five secondary schools) have, on average, lower rates of annual teacher turnover (15.9 per cent) compared to larger MATs (19.5 per cent).
- The extent to which MATs central teams are involved in workforce decisions depends on the level of seniority of the role. 60 per cent of the respondents to DEEP said that decisions around classroom teacher recruitment were devolved to individual schools, and around half of MATs set teacher pay centrally.

Financial management

Our new quantitative workforce metrics focus on a statistical measure of efficiency (this looks at how well schools balance spending decisions in order to maximise the progress of their pupils ¹), the extent to which school groups have in-year balances (i.e. they are not spending more than they have coming in), and the level of self-generated income (for example from renting out facilities). Some of the analysis is complicated by the fact that there are different data collections for academies and

¹ Our model includes teacher experience, leadership FTE, expenditure on education support staff, and expenditure on 'back office' functions as the inputs to our model.

local authority maintained schools. So, for example, on our measure of efficiency it is not possible to draw direct reliable comparisons between academy trusts and local authorities, but we can compare different academy trusts to each other.

We find that:

- At primary, multi-academy trusts are around twice as likely to have positive in-year balances compared to other group types. Relative balances are on average smaller at secondary, but the ratio is bigger – MATs are almost three times as likely to have positive in-year balances than other school groups.
- There is a higher degree of variation in the level of in-year balances amongst trusts compared to other group types. At primary, local authorities have in-year balances between -2.5% and +2% whilst trusts have balances ranging between -8% and 23% of expenditure.
- Almost 90 per cent of MATs in our survey used top-slicing (taking a fixed proportion of funding from all schools) rather than pooling funding across all schools. On average they top-sliced around 6 per cent of school budgets. Reserves from one school are also used to support deficits in other schools with the MAT.
- No MAT respondents to the DEEP survey gave the efficiency of their MAT the highest rating, i.e. all believed that they could be doing more to improve efficiency.
- Diocesan school groups typically self-generate the largest fraction of their income, over 6 per cent on average. Academy trusts have the lowest self-generated income which may reflect the communities they serve. However, there is larger variation amongst MATs than there is amongst local authorities.
- Comparing efficiency across different group types is limited by not being able to fully account for central expenditure in a consistent way. However, it is noticeable that at primary in particular, local authorities have much more similar levels of efficiency to one another compared to multi-academy trusts, where the within-group type variance is much higher.
- The median small MAT has similar levels of efficiency to the median larger MAT at primary but are on average smaller MATs are less efficient at secondary (0.801 vs. 0.762).

Relationships between metrics

- At both primary and secondary, our measure of efficiency has a positive association with overall attainment and an even stronger association with the attainment and progress of disadvantaged pupils.
- Higher levels of efficiency are also associated with higher rates of classroom teacher turnover. This highlights that teacher turnover isn't necessarily a bad outcome, if for example schools are adept at identifying and retaining only high-quality teachers, this could potentially help drive efficiencies.
- Groups with higher levels of average overall attainment are likely to receive a smaller proportion of applications from disadvantaged pupils than the proportion of disadvantaged pupils living in the local area. Although much of this is driven by the admission practices of dioceses.
- Particularly at secondary, groups with a higher fraction of self-generated income typically have other 'good' outcomes (high attainment, low turnover, low absence and suspensions) apart from disadvantaged preference scores. This may reflect the level of affluence of the communities which schools serve.

- At secondary, classroom teacher turnover has a stronger association with our other metrics than teaching assistant turnover. In particular, high teacher turnover is negatively correlated with overall attainment and post-16 destinations. However, it is not correlated with the progress of disadvantaged or low prior attaining pupils. School groups with high turnover have lower overall attainment yet still achieve similar progress for these pupil groups.
- At primary, we find no correlation between teacher turnover and headline KS2 attainment.

Policy recommendations

- **The Department for Education should now publish easily accessible metrics for school groups, in line with its approach of "trust quality descriptors".** This would allow users to see the relative strengths and weaknesses of school groups and allow a more informed understanding of their performance and how they reflect their local communities.
- **The accountability and inspection system should be reviewed, and consideration should be given to how it can better reflect the different pupil demographics and circumstances of individual schools.** Schools that admit representative proportions of disadvantaged pupils or those with additional needs should not be penalised under any potential new system.
- **The school admissions code should be reviewed with a focus on inclusion.** In particular, it should consider why certain types of school groups (such as dioceses) appear to be less likely to reflect their local areas in terms of the number of pupils from low-income backgrounds that they admit.
- **Consistent Financial Return's should move to collecting the income and expenditure of local authority education teams akin to the data reported by trusts on central teams through the Academies Accounting Return.** This would allow for better comparisons between how trust central teams and local authorities top-slice and re-distribute grant income.

Where next?

We believe that these metrics and the associated tool provide a strong foundation on which to build a more rounded understanding of how school groups in England are performing. This will help develop our understanding of what it is that works and has the potential to support a more effective school system that enables all pupils to succeed. Our online tools will allow individual school groups to compare themselves to other groups, learning from best practice.

We know that the pandemic has had a long-term impact on many of the metrics we explore in this report. Due to the halting of certain data collections, we have not been able to so far explore whether the picture has changed in the post-pandemic period. However, we hope to update these metrics later in this year.

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Introduction

The academies programme has arguably been one of the biggest reforms to the English education system of the last few decades. Introduced in 2002 under the then Labour government, academies were initially envisaged as raising educational standards in disadvantaged communities and areas of low performance. The passing of the Academies Act 2010 led to both a broadening scope of the programme – to include high performing schools converting voluntarily – and its rapid acceleration. Today over half of all pupils at state-funded schools in England are being educated in an academy or free school. But this of course also means a significant proportion of pupils – including over half of pupils in primary and special schools – are in non-academy schools.

School groups are set to remain a key feature of the school system and are central to the government's school improvement strategy. In the 2022 schools White Paper, the government laid out two key policy directions which aimed to increase academisation.² It stated that all schools in England should be part of a "strong trust" by 2030 and plans were also outlined to give local authorities the powers to establish new multi-academy trusts. Whilst both the target of achieving a fully trust-led system by the end of the decade and the policy of encouraging local authorities to set up their own trusts have subsequently been dropped, the direction of travel is still towards a more academised system.^{3,4} There is therefore an ongoing need to understand how school groups of all types are operating to ensure high outcomes for all pupils.

In 2016, the Education Policy Institute published its first analysis of the performance of multi-academy trusts and local authorities.⁵ Consistent with other studies it found no difference between the performance of these groups as a whole but found considerable differences within each group. The difference between the highest and lowest performing school groups was equivalent to around half a grade in each GCSE subject.

In 2019 we explored teacher progression and retention in both multi-academy trusts and local authorities.⁶ Amongst our findings were that while teacher retention was lower in large multi-academy trusts, teachers in such trusts tended to progress more quickly to middle and senior leadership.

In the same year, we published a study looking at unexplained pupil exits – moves out of schools that did not appear to be instigated by families, examining both those that had taken place between schools and those involving leaving the school system entirely.⁷ It found that of the 2017 GCSE cohort, around 1 in 10 pupils experienced at least one "unexplained exit", and there was again considerable variation between different multi-academy trusts and local authorities.

² HM Government. "[Opportunity for all: strong schools with great teachers for your child.](#)" CP 650 (2022).

³ Nick Gibb. [UIN 121149. Answer to written parliamentary question](#) (February 2023).

⁴ Schools Week. "[DfE ditches two key academy proposals.](#)" (February 2023).

⁵ Jon Andrews. "[School performance in multi-academy trusts and local authorities.](#)" *Education Policy Institute* (2016).

⁶ Vivien Niblett and Jon Andrews. "[People Power: Six Ways to Develop and Retain Educators in Multi-Academy Trusts.](#)" *Ambition Institute, Education Policy Institute and Cambridge Assessment* (2019).

⁷ Hutchinson and Crenna-Jennings. "[Unexplained pupil exits from schools: Further analysis and data by multi-academy trust and local authority.](#)" *Education Policy Institute* (2019).

What is clear from these studies is that there are many dimensions to the performance of a school group. In our latest programme of work – “The Features of Effective School Groups” – we have worked towards producing a more rounded definition of what a ‘good’ school group looks like. We have considered this under a set of broad principles by which any school group should be operating. All school groups should:

- **Have an intake which broadly reflects the characteristics of its local communities,** particularly in terms of disadvantage (eligibility for free school meals), ethnicity, and special educational needs.
- **Support all pupils to pursue a high-quality education within the school once they are admitted.** Good attendance should be supported, and suspensions and managed moves should only occur when it is in the best interest of the pupil and/or the safety of others. There should be a focus on disadvantaged pupils and pupils with other characteristics who typically have lower average attainment to help close attainment gaps.
- **Have sustainable workforce management that supports teacher retention.** Teachers and other staff should feel supported and happy in their roles, allowing them to have long and impactful careers.
- **Make good financial decisions and use resources efficiently.** Spending decisions should support pupils to reach their full potential.

Over the last three years we have published analysis of, and consulted on, a suite of metrics that capture performance in these areas. This quantitative work is supported by the development and analysis of the Decisions in Education in England (DEEP) survey, a three-wave survey which we have carried out over the past two years. Insights from the survey can be used to complement data analysis, providing details into the policies schools and school groups use to manage pupil inclusion, the education workforce, and school expenditure.

Earlier this year we published analysis of inclusion and attainment of school groups. At the same time, we launched an interactive web tool that allows users to interrogate our metrics for individual groups and compare the relative strengths and weaknesses of individual school groups. The tool also includes important contextual information – such as geographic spread, size and pupil demographics – that we know is associated with performance on some of these measures.

In this report we expand our analysis to include measures of the school workforce and financial management. This complements an update to our web tool to also include our additional workforce and finance related metrics. We also supplement the analysis in this report with key insights from our DEEP survey to further understand how school groups – in particular multi-academy trusts – are operating.

Methodology

Quantitative metrics

As part of this study we have constructed a range of metrics across: pupil inclusion; pupil attainment and progress; workforce sustainability; and financial management. Due to the effects of the pandemic, both in terms of some data collections not happening, and the inconsistent effects of the pandemic on the measures themselves, the analysis uses pre-pandemic data. We hope to update our metrics tool with more recent post-pandemic data later in the year.

We construct our metrics within phase. So, where possible for each school group we calculate two measures for each metric: one for the primary schools in the group and one for the secondary schools. In some cases, school groups only operate schools in one phase, or the measure is not constructable for a phase (e.g., attainment scores), and so we only construct one measure per metric. Additionally, for some measures the numbers are too small to reliably construct metrics across a large enough fraction of groups, e.g., the number of suspensions in primary settings is very small nationwide.

Table 1: List of metrics

		Primary	Secondary
Pupil inclusion	Preference score – are the applicants to a groups’ schools representative of the local pupil population (disadvantage, SEND)	✓	✓
	Admissions score – are pupils offered places at a groups’ schools representative of the applicant pool (disadvantage, SEND)	✓	✓
	Persistent absence	✓	✓
	Suspensions		✓
	Repeated suspensions		✓
	Unexplained exits		✓
Pupil attainment and progress	KS2 attainment	✓	
	KS2 attainment of disadvantaged pupils	✓	
	KS4 attainment		✓
	Progress of disadvantaged pupils, compared with disadvantaged pupils nationally		✓
	Progress of low (bottom 25%) prior attainers, compared with low attainers nationally		✓
	Sustained destinations post-16, adjusted for average post-16 destinations locally		✓
Workforce sustainability	Annual classroom teacher turnover	✓	✓
	3-year cumulative classroom teacher turnover	✓	✓
	Annual teaching assistant turnover	✓	✓
	3-year teaching assistant turnover	✓	✓
Financial management	Efficiency	✓	✓
	In-year balance	✓	✓
	Self-generated income	✓	✓

Contending with small numbers

By its nature, quantitative analysis of schools often involves dealing with small numbers, which can introduce substantial uncertainty in results. For example, most primary schools have very small numbers of repeated suspensions per year. Equally our proposed metrics for pupil achievement are at risk of 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 per phase, and/or have small numbers of pupils. Therefore, we pool data from across three school years (2016/17 – 2018/19) when constructing all our metrics. When pooling this data, all-through schools are treated as secondary schools.

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 additionally restrict our sample to only include schools in the group which were part of the group for at least the three years prior. This again ensures stability and that the group has had sufficient time to exert its possible influence over the school.

After pooling data across schools and years, some small numbers will still remain. Suppression of small numbers is necessary to protect the identity of data subjects and to ensure our results are robust. Suppression has been implemented in line with Office for National Statistics rules, suppressing counts that are five or fewer.

Placing results in context of the national distribution

In much of the analysis in this report we use the raw metrics, as calculated, to illustrate the full distribution.

We intend for these metrics, though, to be useful benchmarking tools, which school leaders and other stakeholders can use to easily compare the results of school groups with others to identify areas of high performance and areas for improvement. Therefore, in our accompanying data tool we convert all our metrics to national deciles from 1 to 10 with each metric scaled so that the higher figure represents the better outcome

To enable users of our data tool to make meaningful comparisons, it also contains functionality to compare up to three school groups at a time, across the full suite of metrics. This is accompanied by contextual information, for example, the fraction of pupils eligible for free school meals.

Comparing group types: Box plots

To understand how individual groups can be compared across a range of metrics, we must first understand how each metric is distributed across groups, and crucially within different group types. For any given metric, the distribution of scores can vary significantly by group type, as well as by phase of education.

To demonstrate these inter- and intra-type differences, we present a box plot for each metric. These figures contain a box plot for each group type showing the median, first and third quartiles, and the whiskers extend to 1.5 times the interquartile range.⁸ School groups beyond the end of the whiskers are deemed as 'outliers'. The points around these boxes depict the numeric distribution of group scores; the more points, the higher proportion of groups in each type achieved the corresponding score on the scale. From this we can see the variation among group types, as well as the underlying group counts behind the plots – if group types have small counts, we cannot be as confident that the metric tells us something about the effects of that group type, rather than the effects of the small number of groups themselves.

Comparing individual groups: Radar plots

The metrics we have constructed are wide-ranging and scores are driven by a variety of factors. It is important to recognise that, within these metrics, school groups will have areas of strength and areas for improvement.

In our data tool we therefore provide visualisations of the metrics for individual school groups using radar plots. Radar plots are a way of visualising performance on multiple metrics simultaneously.

Axes are national deciles from 1 to 10 with each metric scaled so that the higher figure represents the better outcome. For example, higher rates of teacher turnover will be closer to the centre of the plot, while higher financial efficiency will be closer to the edge of the plot. In simple terms, the further towards the outer edge of the plot, the better the outcome.

Qualitative insights – DEEP

In 2022, we launched a national survey, the Decisions in Education in England Panel (DEEP) survey, to gain a more detailed and nuanced picture of what decisions, actions, and policies are currently being implemented in schools.

There have been three waves of the DEEP survey. In the first wave we focused on understanding the workforce and financial challenges faced by schools and groups. In the second wave, we sought to obtain a more comprehensive understanding of how schools use admissions, teaching, and behaviour management policies and practices to improve pupil inclusion and outcomes. The third wave covered all areas of interest.

The survey was administered online, and the majority of respondents were leaders in multi-academy schools and central teams.⁹ In what follows we report insights from the DEEP survey alongside our quantitative metrics.

⁸ The interquartile range is the distance between the first and third quartiles.

⁹ See annex for further details on response rates by group type.

School workforce

Background

In the 2022/23 academic year almost one million FTE people were working in state-funded schools in England. Of these, nearly half (48%) were teachers. There has been around a 7% increase in the overall size of the school workforce in the last decade. This period has seen a relatively large increase in the number of teaching assistants (20%) compared to teachers (5%).¹⁰

A commonly used metric to understand the health of the school workforce is the turnover of staff year-on-year. Our 2022 methodological discussion paper laid the groundwork for the development of a series of turnover metrics to use in assessing the effectiveness of school groups.¹¹ Turnover continues to be high, and around 1 in 10 of all qualified teachers leave the profession each year, with over 90% of these exits not related to retirement. Rather exits are due to career changes or moves to non-state funded education sectors.¹²

Low staff turnover has been described as the “the ideal problem to have”¹³, but it may limit opportunities for progression and lead to higher wage bills at a school level. Turnover is also essential to resolve poor job matching, where an individual teacher is a poor fit either for a particular school, group, or the profession more generally.

Some staff turnover is therefore necessary and desirable, but excessively high turnover can be disruptive to learning and may imply staff are unhappy with the working conditions in their current role. Evidence has shown a one standard-deviation increase in annual teacher entry rate results in a 0.8 per cent of a standard deviation reduction in GCSE scores, with students in the middle of the ability distribution most negatively affected.¹⁴ Recruiting new staff also costs time and money and therefore has a direct impact on the resource available to high turnover schools. The average cost to replace a teacher has been estimated at £4,600, equivalent to the annual pupil premium funding for 3 or 4 pupils.¹⁵

While most concern over teacher recruitment and retention takes a system perspective (seeking to ensuring sufficient teacher supply to meet the overall needs of the education sector), movement within the sector has implications for schools and therefore pupils.

Looking at teacher movement across schools, rather than out of the profession, in 2018 the National Foundation for Education Research (NFER) found that between 2010 and 2016 the rate of teachers moving schools increased more rapidly than the rate of teachers leaving the school workforce. In

¹⁰ Department for Education. “[School workforce in England: Reporting year 2022.](#)” *National Statistics* (2023).

¹¹ Stevenson and Mills, “[Measuring workforce sustainability in school groups.](#)” *Education Policy Institute* (2022).

¹² Department for Education. “[School workforce in England: Reporting year 2022.](#)” *National Statistics* (2023).

¹³ Niblett and Andrews. “[People Power: Six Ways to Develop and Retain Educators in Multi-Academy Trusts.](#)” *Ambition Institute, Education Policy Institute and Cambridge Assessment* (2019).

¹⁴ Gibbons, Scrutinio and Telhaj. “Teacher turnover: Effects, mechanisms and organisational responses.” *Labour Economics* 73 (2021): 102079. [10.1016/j.labeco.2021.102079](#).

¹⁵ PwC. “[Feeling the Squeeze: Schools’ Response to Constraints in Teacher Recruitment.](#)” (2016).

2016, 8.5 per cent of primary teachers and 8.3 per cent of secondary teachers moved school in any given year, up from 5.3 and 4.2 per cent in 2010.¹⁶

Our metrics

Our quantitative workforce metrics focus on the turnover rates of classroom teachers and teaching assistants only. Together they make up around three quarters of all school staff. Our employment data is drawn from the School Workforce Census (SWC). This records role, salary, qualifications, and personal characteristics of all staff working in schools in England, as captured by the Department for Education in November each year.

We use the SWC to track staff movement between schools, and into and out of the English state school workforce to construct two metrics for each staff type (classroom teachers and teaching assistants):

- the **average annual turnover rate** in the three academic years 2016/17 to 2019/20

The number of staff ‘exiting’ a group between n and $n-1$ (e.g., between 2016/17 and 2017/18), as a percentage of the total number of staff in the group in $n-1$. To minimise the effect of random variation, we mean average this annual turnover rate over three years.

- the **3-year cumulative turnover rate** to 2019/20

We calculate a 3-year cumulative turnover rate. This is the proportion of staff present in a school group in 2019/20, who are not present in 2016/17. A limitation of this measure is that we check only the first and last year, not the intermediate years. Cases where a teacher is present in the first year and leaves for some intermediate years but returns in or before the 3rd year will not be flagged as an exit. However, this metric has the advantage of establishing whether over time it is the same staff joining and leaving (as in ‘School A’ in figure 1) or if turnover is occurring amongst all staff (as in ‘School B’).

Figure 1: Pictorial illustration of difference between annual and cumulative turnover

	School A Average annual turnover: 0.2 Cumulative turnover: 0.2	School B Average annual turnover: 0.2 Cumulative turnover: 0.6
2016/17 		
2017/18   	 	 
2018/19  	 	 
2019/20 	 	 

¹⁶ Worth et al. “[Teacher Workforce Dynamics in England: Nurturing, Supporting and Valuing Teachers.](#)” National Foundation for Educational Research (2018).

Our definition of ‘classroom teacher’ is derived from a variety of roles recorded in the SWC.¹⁷ Analysis at a more granular level would enable us to say more about differential turnover for staff at different stages of their career, but the number of staff employed in some role types is small and some roles have now been abolished. Teaching assistant, on the other hand, is a role already well-defined in the SWC. Where staff have multiple contracts in the same year, we retain only the contract with the latest end date or, in the case of a tie, the contract with the longest duration.

We do not differentiate between staff moving school and those leaving the state system. At a school level the effect of a staff member leaving is the same regardless of their destination. However, we recognise that, at a system-level, employment conditions that lead to a large number of staff exiting the state sector are more problematic than those which simply lead to a lot of movement within the sector.

We determine a staff member to have left a school if a year later they:

- no longer appear in the SWC and therefore are no longer recorded as working in a state funded school in England, or
- they appear in the SWC but are employed by a different school (unless the school is a direct successor).

For multi-academy trusts, we only count exits if an individual either leaves the SWC or moves to a new institution which is not part of the same group. For schools in other group affiliations (e.g., local authority or Diocese) any movement to a new school is counted as an exit.

There is some evidence that workforce dynamics are different in multi-academy trusts compared to other school groups. MATs have a slightly-above average rate of teachers leaving the profession, although it has been suggested this could be due to staff moving to MAT central office functions (something we cannot track in the SWC). For movement across schools, rather than out of the profession, teachers have been found to move school more in MATs and this is more pronounced for bigger academy chains.¹⁸

Discussion

Drivers of turnover

Staff turnover occurs as a result of the decisions of individual staff members, located within different schools and school groups. Most research into staff turnover in schools has looked specifically at teacher turnover and a number of individual and institutional factors have been shown to affect the likelihood of a teacher choosing to change school or profession.

In their review of English teacher workforce dynamics, the National Foundation for Educational Research (NFER) found that teacher-level factors were of most predictive value, explaining 95 per cent of the variation in the probability of a teacher leaving the profession and 55 per cent of the

¹⁷ We aggregate all of the following recorded roles; ‘Classroom teacher’, ‘Classroom teacher, upper pay range’, ‘Classroom teacher, main pay range’, ‘Leading Practitioner’, ‘Apprentice Teacher’, ‘Advisory Teacher’, ‘Advanced Skills Teacher’, and ‘Excellent Teacher’.

¹⁸ Worth et al. [“Teacher Workforce Dynamics in England: Nurturing, Supporting and Valuing Teachers.”](#) National Foundation for Educational Research (2018).

variation in the probability of changing school. Two factors were found to have particular importance:

- a teacher's age and years of experience, which were jointly the most important predictor of leaving the profession or moving school (the oldest and youngest teachers are most likely to leave the profession, while the probability of moving school is highest for young teachers and decreased with age), and
- subject taught, which had a small but statistically significant predictive effect, particularly on the likelihood of moving schools. Maths, science and modern foreign language (MFL) teachers had above-average rates of leaving the profession, whereas humanities teachers were the least likely to leave.

Other individual-level factors linked to turnover include working pattern (part-time vs full-time), role (classroom teacher vs senior leader) and ethnicity (ethnic minority teachers have a higher turnover rate).¹⁹

Another individual factor potentially affecting turnover is pay. Classroom teachers had a median average salary of £40,300 in the academic year 2022/23²⁰, above the median earnings for full-time employees as measured in April 2023 of £35,500.²¹ However, the current cost-of-living crisis has put a squeeze on teachers' finances and less than half of teachers can afford to pay an unexpected expense outright.²² If teachers can find employment with higher pay in other sectors, this may drive teachers away from the profession.

This problem is likely more acute amongst teaching assistants. They have much lower salaries than classroom teachers and over 70 per cent of school leaders are now reporting teaching assistants are leaving because they can earn more in another job.²³

In addition to individual factors, a number of school-level characteristics have also been linked to differential rates of teacher turnover. Turnover is typically higher in:

- secondary schools (compared to primary schools),
- schools located in London (even when compared to other large cities), and
- schools with higher proportions of disadvantaged pupils.

The final in this list is largely driven by personal characteristics – schools with high proportions of disadvantaged pupils, on average, employ younger teachers.²⁴ Other work has suggested that relationships between pupil demographics and retention are “largely spurious” and that pupil

¹⁹ Worth et al. “[Teacher Workforce Dynamics in England: Nurturing, Supporting and Valuing Teachers.](#)” *National Foundation for Educational Research* (2018).; Allen, Burgess, and Mayo. “The teacher labour market, teacher turnover and disadvantaged schools: new evidence for England.” *Education Economics* 26, no. 1 (2018): 4-23. [10.1080/09645292.2017.1366425](#).

²⁰ Department for Education. “[School workforce in England: Reporting year 2022.](#)” *National Statistics* (2023).

²¹ Office for National Statistics. “[Employee earnings in the UK: 2023.](#)” *National Statistics* (2023).

²² Lucas et al. “[Cost of living crisis: Impact on schools.](#)” *National Foundation for Educational Research* (2023).

²³ Lucas et al. “[Cost of living crisis: Impact on schools.](#)” *National Foundation for Educational Research* (2023).

²⁴ Allen, Burgess, and Mayo. “The teacher labour market, teacher turnover and disadvantaged schools: new evidence for England.” *Education Economics* 26, no. 1 (2018): 4-23. [10.1080/09645292.2017.1366425](#).

demographics may instead serve as a proxy for school working conditions.²⁵ A similar relationship may explain why schools with lower Ofsted grades experience higher turnover.²⁶ Data from the TALIS survey found that once working conditions had been controlled for, neither the disadvantage of a school's intake nor its Ofsted grade were found to have significant negative effects on teachers' desire to leave their school.²⁷

This finding is supported by qualitative work which found that workload and working conditions were key factors behind teachers leaving the profession.²⁸ The most important components of working conditions were found to be the quality of leadership and teacher cooperation. High workload itself was not predictive of a desire to leave the profession once other working-conditions characteristics were controlled for, but job satisfaction was linked to teachers' assessment of whether their workload is manageable.²⁹ Discrete choice experiments have found that teachers would be willing to trade-off higher pay/rewards to work in supportive environments with fewer challenges from pupil behaviour.³⁰

Differences in rates of turnover across school groups

Figure 2 shows how primary staff turnover varies between and within different school group types.

Primary staff turnover of teaching assistants is a shade lower than that of classroom teachers but not significantly³¹ – average annual turnover between 2016/17 and 2018/19 was 13.8% for TAs and 14.2% for teachers. The annual turnover rates of both teachers and TAs are, on average, fairly similar across group types. There is though greater variation in the average 3-year cumulative turnover for both teachers and TAs across group types. Importantly, there is clear variation within group type. In particular, the variation between different MATs and federations is much larger compared to dioceses and local authorities which have more consistent rates of turnover.

At primary, federations on average have the highest turnover rates (both average and cumulative) and the median trust has higher turnover rates than the median local authorities, although the differences are small.

²⁵ Sims and Allen. "Identifying schools with high usage and high loss of newly qualified teachers." *National Institute Economic Review* 243 (2018): R27-R36. [10.1177/00279501182430011](https://doi.org/10.1177/00279501182430011).

²⁶ Worth et al. "[Teacher Workforce Dynamics in England: Nurturing, Supporting and Valuing Teachers.](#)" *National Foundation for Educational Research* (2018).

²⁷ Sims. "[TALIS 2013: Working Conditions, Teacher Job Satisfaction and Retention.](#)" *Statistical Working Paper, Department for Education* (2017).

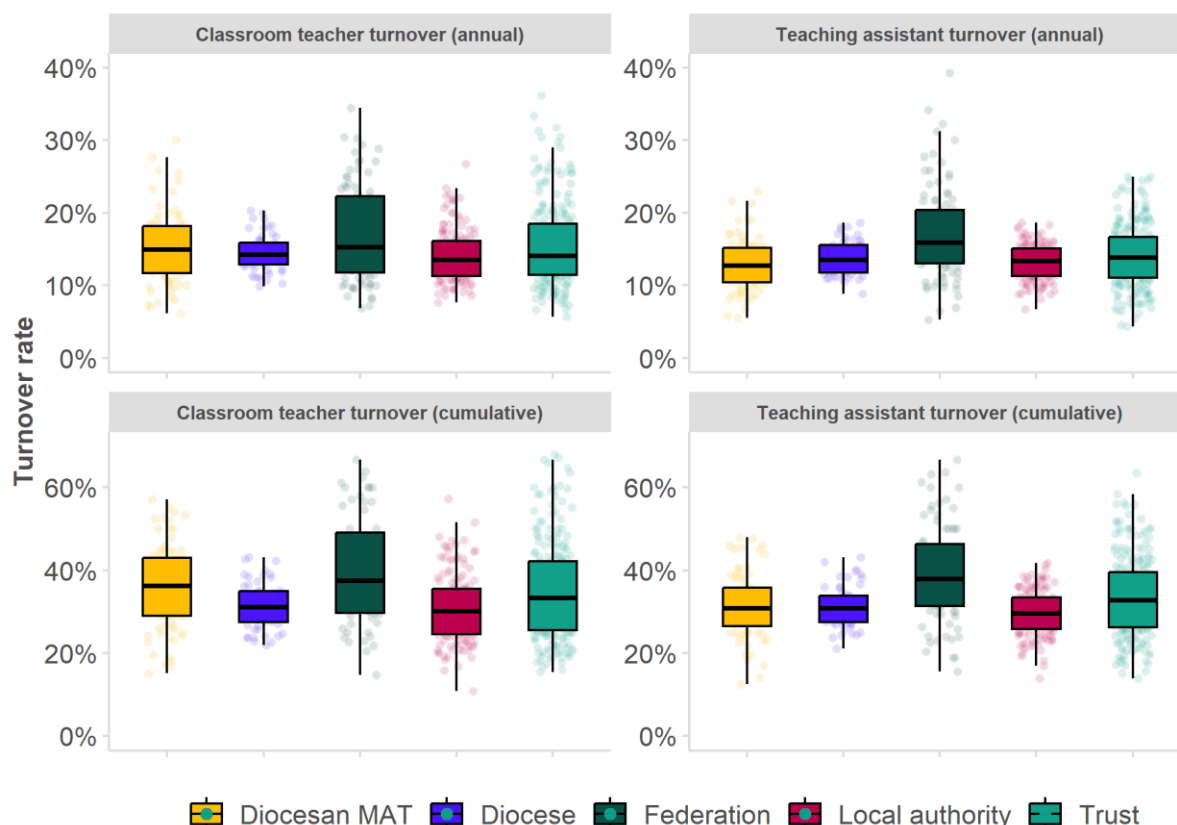
²⁸ CooperGibson Research. "[Factors Affecting Teacher Retention: Qualitative Investigation.](#)" *Research report, Department for Education* (2017).

²⁹ Sims. "[TALIS 2013: Working Conditions, Teacher Job Satisfaction and Retention.](#)" *Statistical Working Paper, Department for Education* (2017).

³⁰ Burge, Lu, and Phillips. "[Understanding Teacher Retention.](#)" *RAND Europe* (2021).

³¹ Medians are not significantly different at the 5% level using Mood's median test, p-value = 0.068

Figure 2: Staff turnover – primary phase



In secondary schools staff turnover is typically higher than primary. Additionally, teaching assistant turnover is on average significantly higher than that of classroom teachers – average annual turnover between 2016/17 and 2018/19 was 18.6% for TAs and 15.7% for teachers.³²

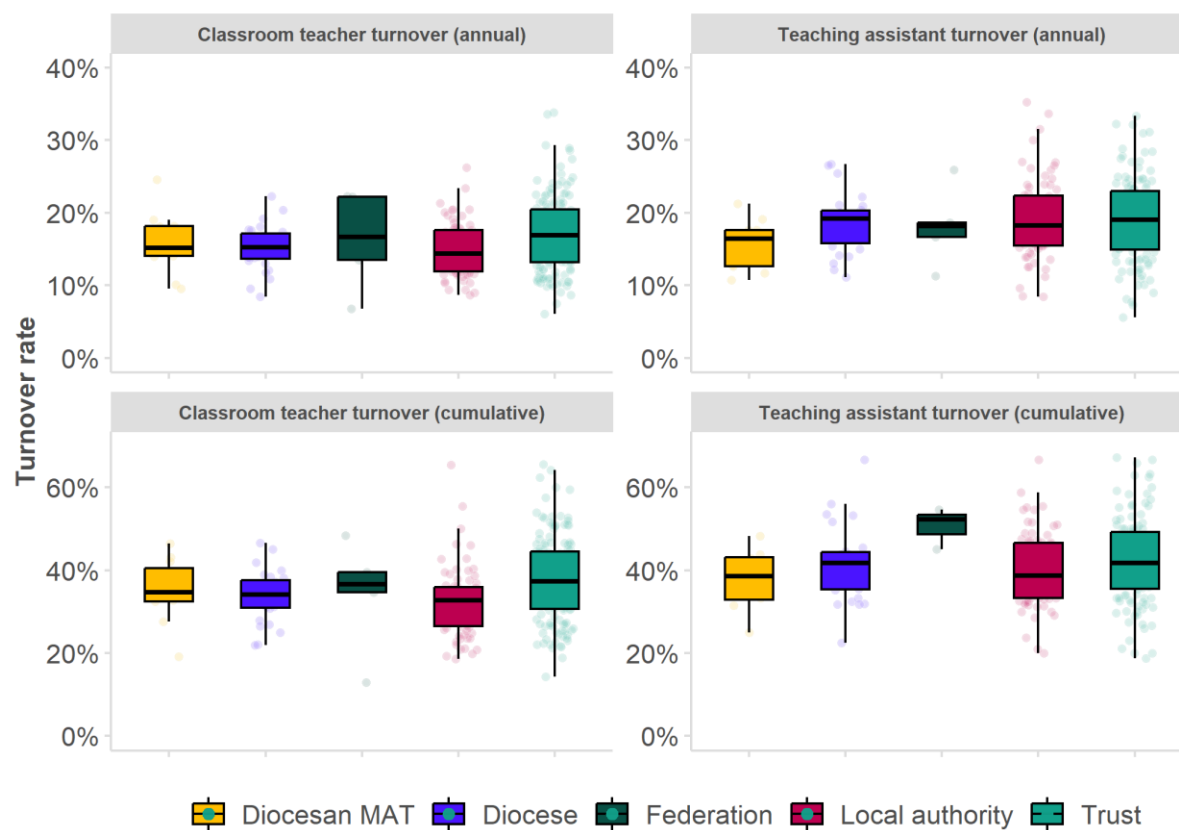
Figure 3 shows how secondary staff turnover varies between and within different school group types. The pattern of trusts having higher average turnover of classroom teachers than local authorities, is stronger at secondary school. There are significant differences in annual turnover (16.9% in the median MAT, 14.4% in the median LA)³³ and cumulative turnover (37.4% in the median MAT, 32.7% in the median LA)³⁴.

³² Medians are significantly different at the 5% level using Mood's median test, p-value = 4.3×10^{-6}

³³ Medians are significantly different at the 5% level using Mood's median test, p-value = 0.0072

³⁴ Medians are significantly different at the 5% level using Mood's median test, p-value = 4×10^{-5}

Figure 3: Staff turnover – secondary phase



Workforce management within multi-academy trusts

The extent to which key decisions on school workforce are taken within groups are centralised varies considerably with the seniority of staff decisions impact. Decisions on recruitment and salaries of headteachers are much more likely to be taken centrally than decisions regarding classroom teachers.

Using responses to the DEEP survey we estimate that in almost two-thirds of cases, recruitment decision regarding headteachers are retained entirely at the group level. In contrast, no recruitment decisions regarding classroom teachers are taken solely at the group level and, in over 60% of cases, decisions are entirely devolved to individual schools. Decisions on senior leader recruitment tend to be taken in conjunction between the school and group. Similarly, on pay, 88% of MATs report setting their headteachers pay centrally, whereas only around half of groups set the salaries of teachers and teaching assistants centrally.

Box 1: Responses to DEEP show where decisions on staff pay and deployment are being taken

	Salary	Recruitment		
	<i>Set centrally by group</i>	<i>Entirely devolved to school</i>	<i>Entirely retained at group-level</i>	<i>Distribution</i>
Headteachers	88%	2%	63%	
Senior leaders		9%	7%	
Teaching staff	50%	61%	0%	
Education support staff	52%	-	-	-

Source: DEEP Survey

Workforce challenges for schools

Maintaining a sustainable workforce is multi-faceted, and we should not solely be concerned with turnover. In our DEEP survey we asked school leaders to rate the relative strengths and challenges with regard to allowing them to achieve a high degree of workforce sustainability. Box 2 illustrates some of these key areas. School leaders typically view current teaching and CPD quality as relative strengths. Interestingly, staff turnover is not flagged as a major concern, with school leaders viewing workload and absence as more pressing challenges. However, recruitment is flagged as the biggest challenge, in terms of both the quality and size of the pool of potential teachers in the local area.

Box 2: Responses to DEEP show that the supply of staff is the biggest workforce challenge for school groups



Source: DEEP Survey

Financial management

Background

In England, the government spent almost £58 billion on revenue funding to schools in 2023-24.³⁵ This funding is deployed by leaders of schools, trusts, and other education authorities to deliver education to all young people nationally. The funding is allocated to schools using the national funding formula (NFF). This allocates funding to schools based on pupil characteristics, such as low-income, low prior attainment, and English as an additional language, and school characteristics, such as school sparsity and the costs of the school estate. The formula also attempts to account for geographic variations in the labour market using an area cost adjustment, and funding is protected from sharp changes in pupil numbers between years by a 'funding floor'.

Whilst funding allocations are notionally set using a national formula, local authorities do retain the ability to alter certain elements of the formula to redistribute some of the funding to meet local needs. Schools, local authorities, MATs and other groups also have the ability to raise their own funds to supplement that received from central government through national and local formulas.

When we discuss 'efficiency' in what follows, we are referring to *technical efficiency* - achieving the highest possible 'output' given a certain level of 'input'. We know that the resources schools and groups have access to are limited, regardless of the precise allocation mechanisms from central and local government. The optimal allocation of these limited resources, in order to deliver the best possible quality of education is unknown. Further, any optimal allocation likely differs between settings depending on the constraints each individual school or group faces and so there is no single route to quality, sustainable, resource-efficient education and indeed there are multiple.

Therefore, the challenge for researchers and policymakers, is to understand which schools and school groups are most efficient with their resources, given that they can be deployed in so many ways and across so many types of school grouping. Successfully identifying the most efficient schools and school groups is an opportunity to learn how they get the most out of often-limited resources.

Talking about efficiency can be a controversial subject in the context of recent years of real-terms cuts to pupil funding; increased pressure on teachers and leaders to deliver more as children's services are reduced in local government and elsewhere; pressure on school finances due to the Covid-19 pandemic; pledges of increased education spending potentially being misplaced as increases to per pupil spending will not target the schools serving the most disadvantaged pupils ; and finally the recent history of teacher shortages, particularly in certain subjects, compounded by issues in teacher retention.

Our metrics

Data sources

Data is available on actual school level on income and expenditure. These are reported in two sources, depending on school type: Consistent Financial Return (CFR) for maintained schools; and

³⁵ Department for Education. "[School funding: Everything you need to know.](#)" *The Education Hub* (2024).

Academies Accounts Return (AAR) for academy schools. It is therefore possible to draw comparisons between academy and maintained schools, and hence the system overall.

However, there are two caveats that come with this analysis. Firstly, academies report income and expenditure on an academic year rather than a financial basis. In this analysis we therefore equate the three academic years 2016/17–2018/19 and the three financial years 2016-17–2018-19.

Secondly, and more importantly, academies report income and expenditure on central services as well as by individual schools. We attribute these to all pupils in an academy on a per-pupil basis. Equivalent data on local authority central education services does not exist.

Efficiency

We discussed the development of a methodology to measure school group efficiency in a previous EPI working paper.³⁶ We proposed using data envelopment analysis (DEA). DEA uses linear programming to empirically quantify the relative efficiency of multiple similar decision-making units (DMUs). It can therefore handle multiple inputs and outputs. For each DMU x , the DEA finds the optimum set of weights to attach to each input and output, such that DMU x 's output/input ratio is as close as possible to one, with the constraint that applying those same weights to each DMU in the set must not produce an output/input ratio exceeding one. This makes it especially well-suited to analysing efficiency in public services such as education and health, where inputs and outputs are not strongly defined by prices.

Furthermore, DEA allows DMUs to favour different combinations of inputs and outputs depending on the 'mission' of their operation. Applying DEA to education recognises that, subject to various constraints, there are multiple potential approaches to providing pupils with high quality education.

Our metric is the efficiency score derived from a DEA model which uses four inputs and one output. The set of inputs in our model are:

- **Teacher experience:** the total combined years of experience among qualified teachers, weighted by the FTE of qualified teachers with more than five years' experience, and divided by pupil FTE.
- **Leadership FTE:** The FTE of leadership teachers divided by pupil FTE. Leadership teachers include executive headteachers, headteachers, deputy and assistant headteachers, advisory teachers and those with equivalent pay ranges.
- **Expenditure on education support staff:** the percentage of expenditure that is spent on education support staff. We prefer this over the teaching assistant variable because spending on education support staff captures a wider category.
- **Expenditure on 'back office' functions:** the percentage of expenditure that is spent on 'back office' functions. Back office functions include; administrative and clerical staff, administrative supplies, and bought in professional services such as legal and auditor costs.

³⁶ Mills. "[Understanding school group efficiency.](#)" *Education Policy Institute* (2021).

The output of interest in our model is a **school level contextualised ‘value added’ score**.³⁷

This is a necessarily reductive view of a school’s operations and therefore our measure of efficiency does not achieve an entirely balanced and holistic view of efficiency. However, it aims to capture the key decisions that leaders make about how to deploy their resources.

As set out above, we do not have data on central services by local authorities in the way that we do for academy trusts. This means that comparing efficiency across different group types is limited by not being able to fully account for central expenditure in a consistent way. On this measure it is therefore more meaningful to compare academy trusts with other academy trusts rather than with local authorities.

In-year balances

In-year balances compare the income and expenditure for a given year only, showing whether a given school is spending more or less money than they have coming in that year. We use the CFR and AAR returns to aggregate returns from individual schools to the group level and express the balances as a fraction of expenditure to make the figure comparable.

In-year balances can be a good indication of the financial health of a school or group. It is not sustainable for schools or groups to run in-year deficits year after year. Repeated deficits also limit the ability for schools and groups to build up reserves which may be needed to protect against unexpected financial shocks.

Our metric is the three-year average of the aggregated in-year balance across the group. We average over three years to smooth out any idiosyncratic shocks. As with our other metrics we present these figures split by phase, however, in this case in particular caution should be applied as many groups contain primary and secondary schools and it is possible that cross-subsidisation occurs within groups across phases. For example, the primary schools in a given group may have an in-year surplus whilst the secondary schools may have an in-year deficit, so in reality the group as a whole may have a net in-year balance of zero.

Self-generated income

Self-generated income can be a not insignificant slice of school budgets. Funds are usually generated from facilities and services (e.g., hiring sports fields), donations, and private funds. Between 2009-10 and 2019-20, spending per pupil fell by 9% in real terms.³⁸ It can be argued that self-generated income is a helpful way for schools and groups to prop up those bits of the budget where existing funding is not sufficient to meet needs. Self-generated income has the additional benefit of being unrestricted and so can be directed to wherever the need is greatest.

Whilst income self-generation can create opportunities for schools to provide higher quality education, relying on a large fraction of self-generated income can be risky for schools and groups. Funding from central government is to some extent guaranteed and protections exist to prevent

³⁷ This is estimated using a multi-level model controlling for school and pupil level prior attainment, gender, SEND, FSM status, IDACI, English as an additional language and ethnicity.

³⁸ Institute for Fiscal Studies. “[Education Spending: Schools.](#)”, IFS education spending microsite.

extreme changes in budgets year-on-year whereas self-generated income can fluctuate more, particularly if arising from private funds and sponsors.

Our metric is the three-year average of the aggregated self-generated income across the group, expressed as a fraction of total expenditure. We average over three years to smooth out any idiosyncratic shocks. As discussed, having self-generated income can provide schools and groups with much needed income. As above though, we caution against excessively high percentages of expenditure being funded through self-generated income streams.

Discussion

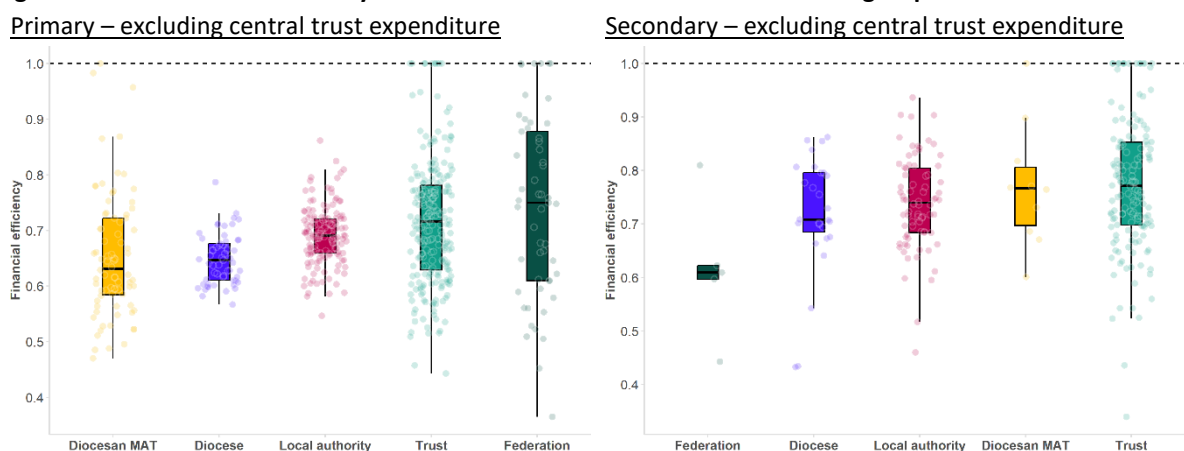
Efficiency of different school groups

As set out above, comparing efficiency across different types of school groups is complicated by differences in the data that is collected on them, specifically that we can include the spending of MATs on central services, but we cannot do similarly for any local authority “top-slicing” of funding.

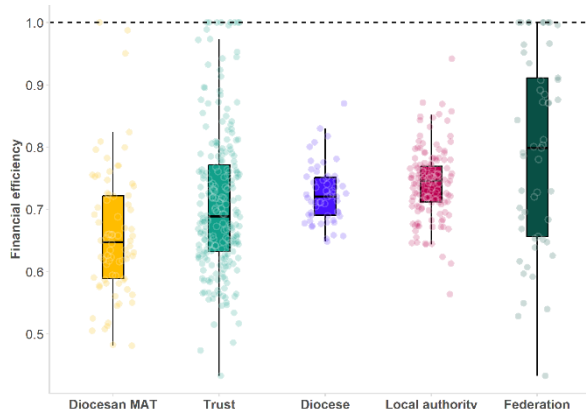
In figure 4 we show the distribution of efficiency scores across different school groups, first excluding central expenditure of academy trusts and then including it. An efficiency score of 1 indicates a school is ‘fully’ efficient. This means a school group with an efficiency score of 1 is using its inputs at least as efficiently as the most efficient group in the data, it does not mean that theoretically there is not a more efficient combination of inputs. If we exclude central expenditure, then the average trust appears to be between 3.6 per cent and 4.2 per cent more efficient than the average local authority. However, when we include central expenditure by trusts, primary trusts appear to be less efficient than local authority groups while secondary trusts have a similar level of efficiency. This does not *necessarily* mean that trusts are less efficient since we cannot account for central spend in local authorities.

At primary, noticeably the within group variance for local authorities is much smaller than the within group variance for multi-academy trusts. Whilst, at secondary, the within group variance in efficiency scores is very similar for both MATs and local authorities. We discuss differences in efficiency between smaller and larger MATs in more detail in a following section.

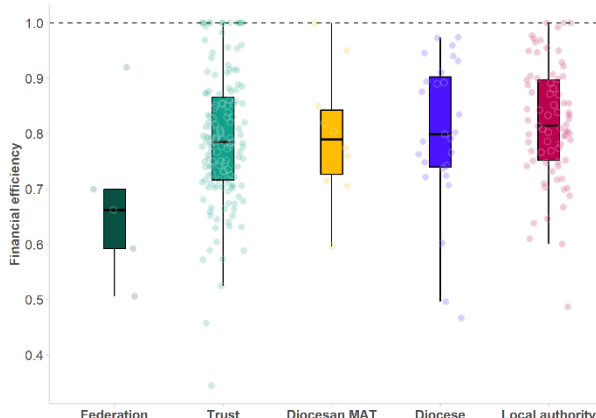
Figure 4: Distribution of efficiency scores within and between different school groups



Primary – including central trust expenditure

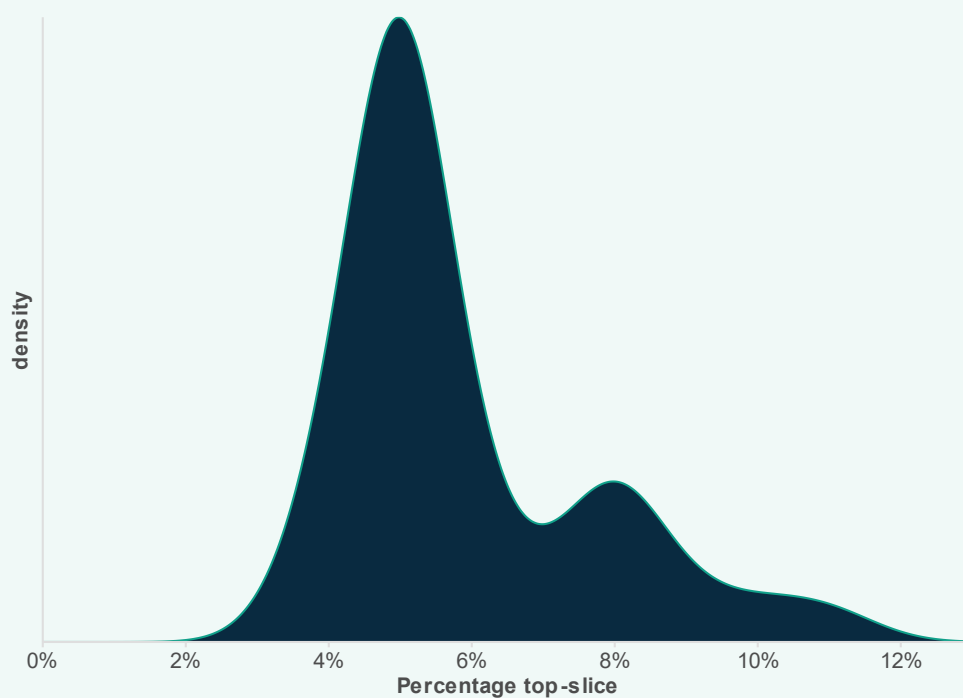


Secondary – including central trust expenditure



Whilst not necessarily a driver of the high degree of within group variation between different MATs, we can see from the DEEP survey that academy trusts take a range of approaches to managing funding. There are two common funding models used within multi-academy trusts to distribute the general annual grant (GAG) received from central government: **GAG pooling**, where funding from all schools in the trust is collected by the trust, and the trust then re-distributes the money to its schools based through its own formulas and perception of need; and **top slicing** - the GAG goes to individual schools, but the trust takes a fixed proportion of each schools' money to pay for centralised functions. Almost 90 per cent of MATs responding to our DEEP survey used top slicing. On average, they top sliced 5.9 per cent of schools' budgets and some MATs reported slicing over 10 per cent of budgets.

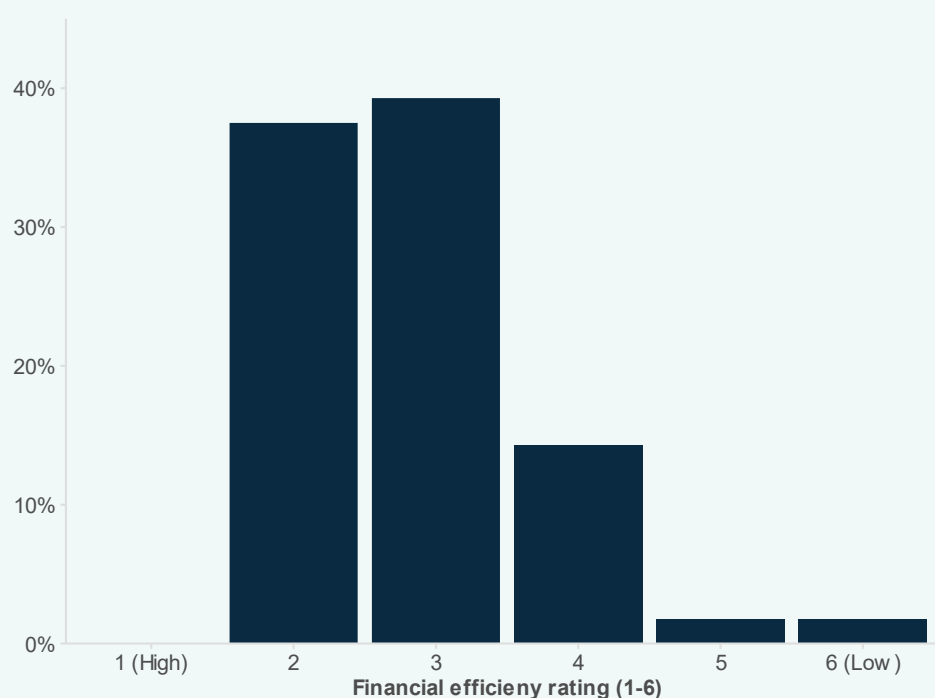
Box 3: Multi-academy trusts top slice almost 6 percent on average



Source: DEEP survey

In our DEEP survey we also asked school leaders to rate the financial efficiency of the MAT they belonged to. Most DEEP survey respondents (80%) rated the financial efficiency of their MAT at 2 or 3 on a scale of 1 to 6. No respondents though gave their MAT the highest rating (1). This suggests that whilst the vast majority of school leaders believe MAT efficiency is not poor, there is more MATs could be doing to improve efficiencies.

Box 4: No leaders in multi-academy trusts gave their trust the highest rating for financial efficiency



Source: DEEP survey

In-year balances in different school groups

At primary, multi-academy trusts are around *twice* as likely to have positive in-year balances (be spending less than they receive in income) compared to other school types. At secondary, whilst overall relative balances are smaller the ratio is bigger – MATs are almost *three* times as likely to have positive in-year balances than local authority and diocese linked schools.

Table 2: Percentage of groups with average positive in-year balances

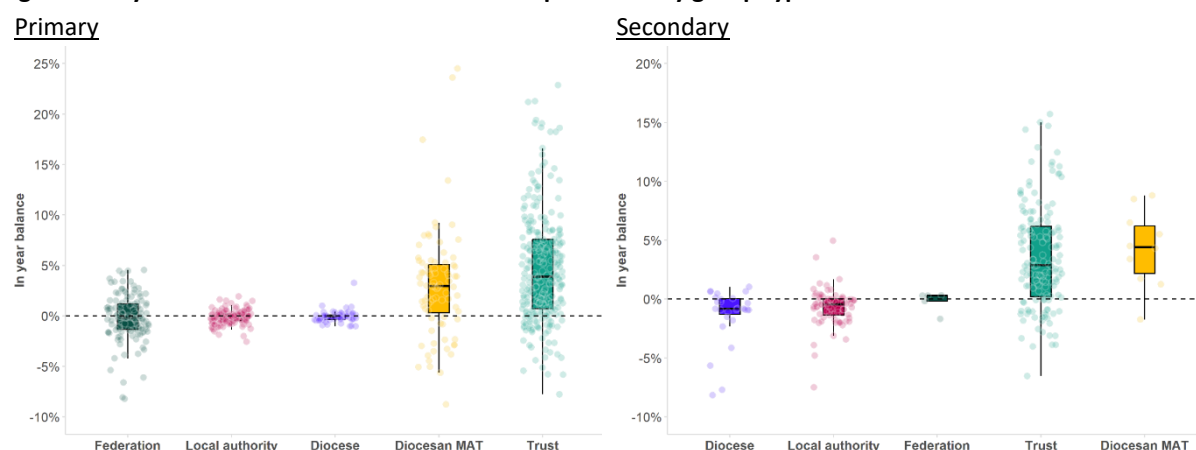
Group type	Primary	Secondary
Local authority	40%	26%
Diocese	44%	26%
Federation	44%	-
Diocesan MAT	74%	90%
Multi-academy trust	81%	76%

Figure 5 shows not only are MATs more likely to have positive in-year balances, but when they do, these balances tend to be on average larger as a fraction of expenditure. Primary LA maintained schools, federations and those linked to a diocese have in-year balances close to 0% on average, and typically just below zero at secondary. Whereas in-year balances are, on average, between 3–4.5%

of annual expenditure in trusts (including those linked to dioceses) and those trusts at the first quartile still have positive balances.

Additionally, there is a higher degree of variation in the level of in-year balances amongst trusts compared to other group types. Primary local authorities have in-year balances between -2.5% and +2% whilst primary trusts have balances ranging between -8% and 23%.

Figure 5: In-year balances as a fraction of total expenditure by group type



The DEEP survey reveals that in almost 50% of MATs reported that reserves from one school have been used to aid other schools in the group. Additionally, in around 50% of cases the reserves are held centrally by the multi-academy trust rather than by the schools' themselves, indicating a high level of control is exerted by the trust over the reserve's future use.

Reserves are used to manage in-year balances, drawing down reserves to fund in-year deficits and topping up reserves in the case of in-year surpluses. Both particularly high and low levels of reserves are concerning. The Education & Skills Funding Agency (ESFA) has established that reserves below 5% may indicate financial vulnerability, but it is also concerned that reserves of more than 20% of total income may indicate that important funds designed to meet pupils' needs are not being utilised to fulfil their purpose.³⁹

Box 5: Responses to DEEP show that MATs use reserves across schools to reduce deficits

		Schools' reserves been used to aid the deficit of a different school or schools		Total
		No	Yes	
Reserves held	Centrally	14.6%	35.4%	50%
	Locally (school-level)	31.3%	10.4%	41.7%
	Other	6.2%	2.1%	8.3%

³⁹ Education & Skills Funding Agency. "[Guidance: Academy trust reserves.](#)" ESFA Guidance.

Total	52.1%	47.9%
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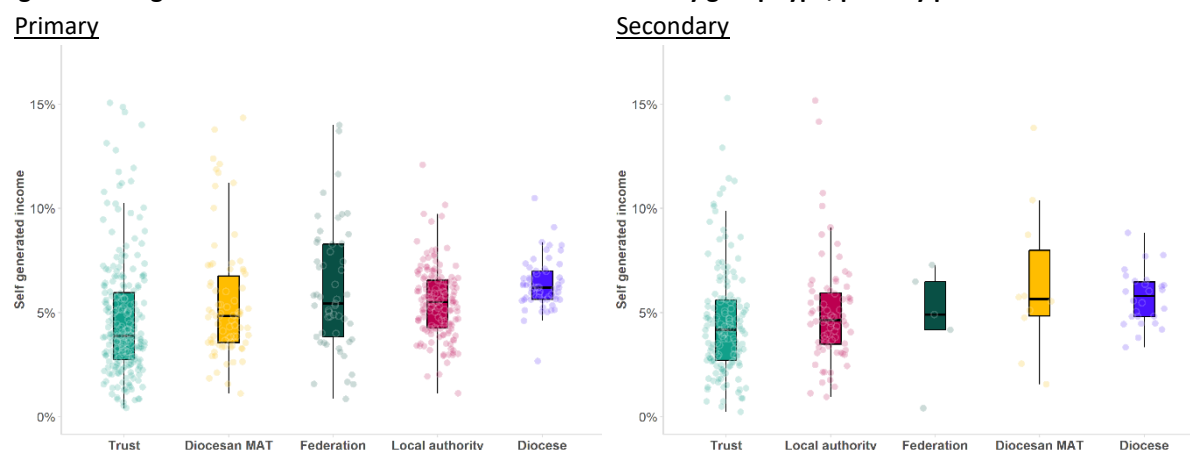
Source: DEEP Survey

Self-generated income

Self-generated income typically comes from facilities and services (e.g., hiring sports fields), donations, and private funds. Whilst income self-generation can create opportunities for schools to provide higher quality education, it is not without risk given that it can fluctuate more than core government funding, particularly if arising from private funds and sponsors. Our metric is the three-year average of the aggregated self-generated income across the group. We average over three years to smooth out any idiosyncratic shocks.

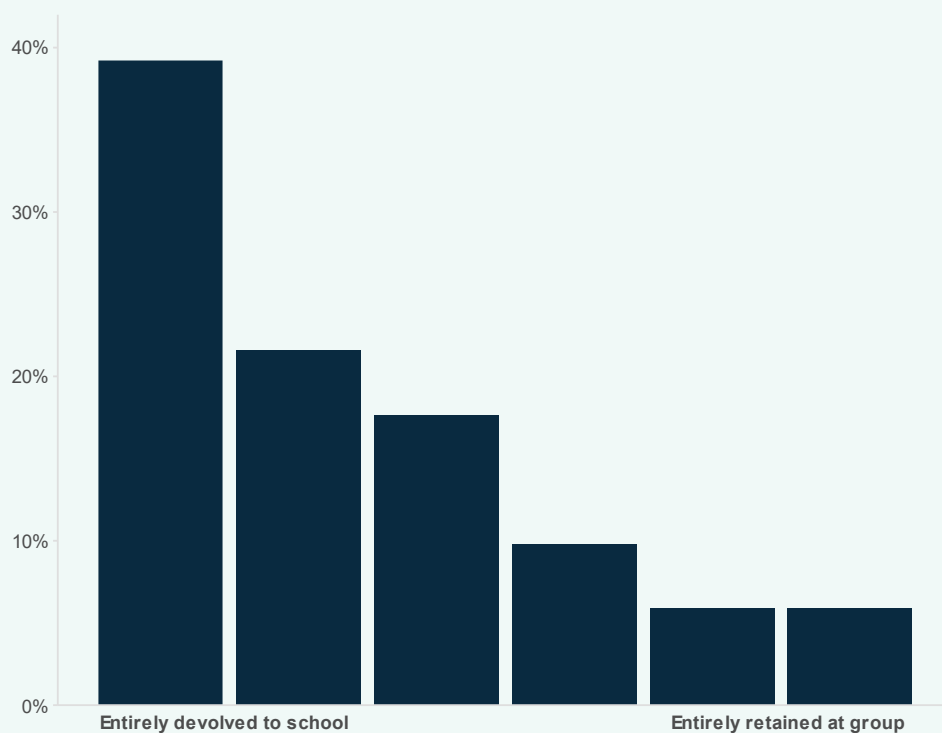
Figure 6 demonstrates that diocesan school groups typically self-generate the largest fraction of their budget, over 6% on average. Perhaps surprisingly, given their operating model, trusts have on average the lowest fraction of self-generated income. However, as demonstrated in the plots there is a larger variance amongst MATs compared to LA maintained schools, particularly at primary.

Figure 6: Self-generated income as a fraction of total income by group type, primary phase



Whilst self-generated income may be important for a school's ability to fund productive expenditure, it appears to be an area where less control is retained by the group and individual schools have much more autonomy. Almost 40 per cent of DEEP survey respondents reported that decision making on self-generated income was entirely devolved to schools compared to just 5 per cent where it is entirely retained by the group. This is likely because the ability to raise income is often determined by what facilities individual schools have. However, as shown above, we know some funding is redistributed by groups through shared revenue reserves. So even if additional revenues are raised at the school level it is not necessarily entirely retained by the individual school.

Box 6: Decisions around how an individual academy spends self-generated income are typically largely devolved to the academy



Source: DEEP survey

Pupil inclusion

Background

In earlier work we set out why we believe a school group that is inclusive would have an intake that is representative of the local area(s) and would provide quality education to all pupils once they are admitted. We therefore would typically expect an inclusive group to have low rates of absence, suspension, and off-rolling.⁴⁰

In England there is a longstanding issue of social segregation: the clustering of children from poorer backgrounds within certain schools.⁴¹ This is a matter for concern because the school a child attends has an impact on their future outcomes and around 10–20 per cent of the difference in pupils' academic outcomes can be explained by the school attended.⁴² The drivers behind this social segregation are very complex: they relate to parental choice, the mix of schools available in a local area, the local housing market, and school admissions policies.⁴³

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. It is mandatory that these admissions policies are published prior to families submitting preferences.

Permanent exclusions and suspensions are sanctioned tools for headteachers to use, but there is little transparency around how moves between schools are used in England, including how alternative provision is arranged for those who are excluded. There is evidence to suggest that exclusion often does not work in the best long-term interests of pupils.⁴⁴ Pupils who are suspended achieve much lower educational outcomes than their peers, on average. Only 18 per cent of children who received multiple suspensions went on to achieve good passes in English and maths GCSEs in 2015/16.⁴⁵

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

⁴⁰ Hodge and Cruikshanks. "[Measuring pupil inclusion and attainment at school-group level](#)." *Education Policy Institute* (2024).

⁴¹ Drayton, Greaves, and Rossi. "[School and neighbourhood segregation in Scotland and England](#)," *Institute for Fiscal Studies* (2023).

⁴² Burgess, Greaves, and Vignoles. "[School Places: A Fair Choice? School Choice, Inequality and options for Reform of School Admissions in England](#)", *Sutton Trust* (2020).

⁴³ Gorard and Fitz. "Investigating the Determinants of Segregation between Schools," *Research Papers in Education* 15, no. 2 (2000): 115–32. [10.1080/026715200402452](#).

⁴⁴ Madia et al. "Long-Term Labour Market and Economic Consequences of School Exclusions in England: Evidence from Two Counterfactual Approaches". *British Journal of Educational Psychology* 92, no. 3 (2022): 801–16. [10.1111/bjep.12487](#); Obsuth et al. "The Impact of School Exclusion in Childhood on Health and Well-Being Outcomes in Adulthood: Estimating Causal Effects Using Inverse Probability of Treatment Weighting". *British Journal of Educational Psychology*, (2023): 1–14. [10.1111/bjep.12656](#).

⁴⁵ Timpson. "[Timpson Review of School Exclusion](#)." *CP* 92 (2019).

secondary school that cannot be accounted for.⁴⁶ 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.

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.

We acknowledge that decisions should be taken in the best interest of the pupil and the safety of others, so the optimal level across these domains may not be zero.

Our metrics

Our metrics regarding school choice and admissions attempt to take into account both how pupils with different characteristics apply to schools and their likelihood of being accepted after applying. We link data on family's first preference school to pupil-level data from the National Pupil Database (NPD) and school-level data from Get Information About Schools (GIAS). We then construct two separate types of measures: '*preference scores*' and '*admissions scores*'. Both these scores are expressed as odds ratios.

Preference scores

This is calculated as the odds ratio (*OR*) of how likely a local pupil with a certain characteristic is to apply to a school in a given group compared to a local pupil who does not share that characteristic. Where the 'local area' around each school is defined as the Lower Layer Super Output Areas (LSOA) in the radius from a school in which 90 per cent of pupils attending the school live.⁴⁷ We calculate two scores – one for disadvantaged pupils and one for those with identified SEND.

An odds ratio of less than 1 indicates that a given group receives fewer applications from pupils with the characteristic of interest than would be expected given its locations; a score above 1 indicates the group receives more; and a score around 1 indicates the group's received applications are broadly in line with its localities.

Admissions scores

This is calculated as the odds ratio (*OR*) of how likely a pupil with a certain characteristic is to be admitted to a school in the group compared to a pupil who does not share that characteristic, given

⁴⁶ Hutchinson and Crenna-Jennings. "[Unexplained pupil exits from schools: Further analysis and data by multi-academy trust and local authority.](#)" *Education Policy Institute* (2019).

⁴⁷ LSOAs are a commonly available small area identifier used in the Census. They typically have an average population of 1500 people or 650 households.

that both pupils have already submitted a first preference to attend the school. We again calculate two scores – one for disadvantaged pupils and one for those with identified SEND.

Worked examples and formula for both measures can be found in our previous report.⁴⁸

Persistent absence

Our metric for persistent absence follows the Department for Education's definition. A pupil is defined as persistently absent in a given school year if they miss 10 per cent or more of their available school sessions. Our metric is constructed by averaging the annual rate of persistent absence across the schools in a group.

Suspensions

A suspension (previously known as a 'fixed term exclusion') 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.⁴⁹ We report two metrics at school group level; the rate of suspensions, and the rate of repeated suspensions (more than one suspension in a single academic year).

Unexplained exits

To measure unexplained pupil exits from school groups, we use consecutive school census' (which are collected three times a year, every term) to track pupils through their secondary school journey. First, we identify pupils who move schools, then we exclude pupils who we can identify as having likely moved schools for family-driven reasons, these can include: a move of home address, a move to a special school, a change in looked after or adoption status. The full methodology is outlined in our 2019 publication, 'Unexplained Pupil Exits from Schools'.⁵⁰

We report the termly rate of unexplained exits. We construct this rate for secondary schools only, and exclude primary schools due to a very low rate of instances.

⁴⁸ Hodge and Cruikshanks. "[Measuring pupil inclusion and attainment at school-group level.](#)" *Education Policy Institute* (2024).

⁴⁹ Department for Education. "[A guide to exclusion statistics.](#)" (2017).

⁵⁰ Hutchinson and Crenna-Jennings. "[Unexplained pupil exits from schools: Further analysis and data by multi-academy trust and local authority.](#)" *Education Policy Institute* (2019).

Discussion

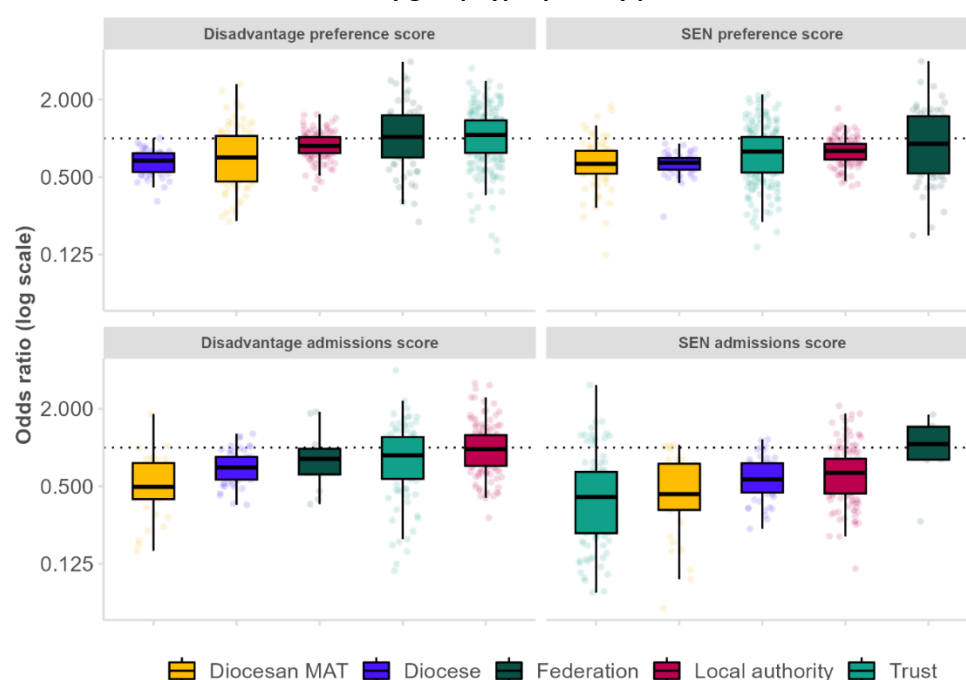
Representative intakes

Primary school groups linked to dioceses (MAT and non-MAT) have the lowest median average scores across most of our school admissions metrics. In the case of both preference scores, *all* diocese school groups have odds ratios below 1, this implies that all these groups receive fewer applications from pupils with the characteristic of interest than would be expected given their locations. Perhaps of greater importance is that diocese linked primary schools (both MAT and non-MAT) typically admit relatively fewer disadvantaged pupils even conditional on applying – this is true for a diocese linked school even at the 75th percentile.

As across many of our metrics the within group variation is typically larger than the between group variation. However, amongst dioceses and local authorities the within variation for the preference scores is noticeably smaller than for MATs and federations.

The odds ratios with respect to SEN pupils are on average below one for all group types. This is not surprising as many SEN pupils likely choose to apply to, and attend, specialist provision. It is though notable that the bottom-right panel of figure 7 indicate trusts, on average, tend to admit relative few pupils with SEN given they apply as a first preference, compared to LAs and dioceses. The median MAT has a ratio below 0.5, indicating pupils with SEN are half as likely to be admitted given application.

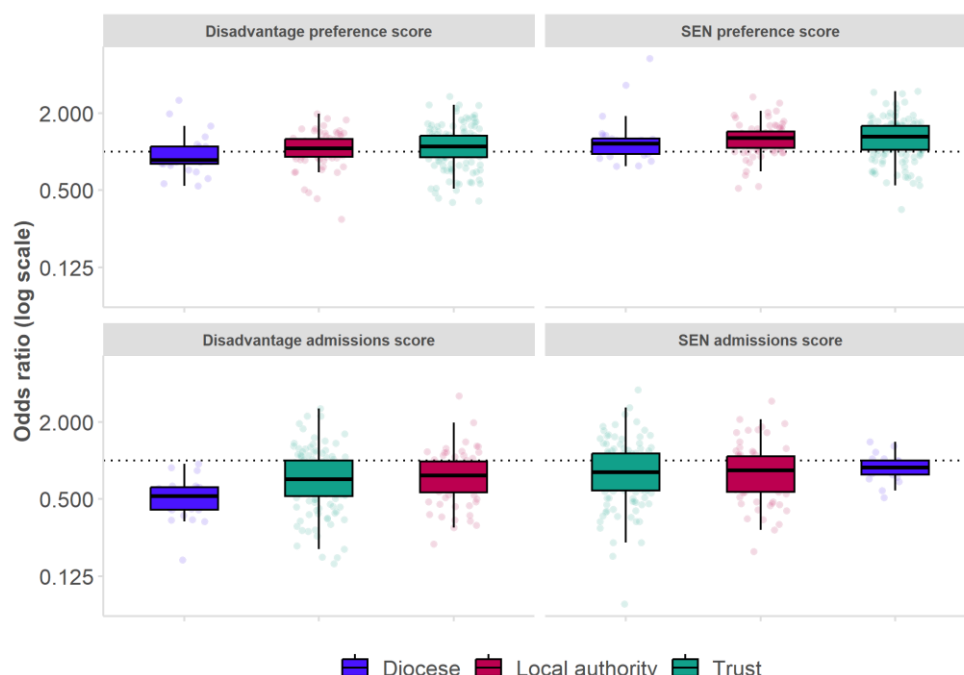
Figure 7: Preference and admissions scores by group type, primary phase



At secondary, multi-academy trusts look much more similar to local authorities both in terms of the median average ratio, but also the variance within group type. Some similar patterns exist across our preference and admissions metrics for secondary school groups. Diocese groups still have the lowest average odd ratios for disadvantaged pupils. For all groups, the chances of a disadvantaged pupil

being admitted are smaller than that of a non-disadvantaged pupil, given they both apply to the school.

Figure 8: Preference and admissions scores by group type, secondary phase



Schools in England are able to set their own oversubscription admissions criteria, provided they are consistent with the School Admissions Code.⁵¹ Whilst our quantitative metrics capture the relative rates at which pupils with different characteristics apply and are admitted to schools, they do not allow us to say anything about the admission criteria schools are using.

These criteria must fall within the parameters set out in the School Admissions Code.⁵² By law, if a school is named on an EHCP (education, health and care plan) the pupil must be admitted. The DEEP survey provides some further insight into the criteria schools are using.

For both primary and secondary schools, having a sibling at the school already and proximity are the most widely used admissions criteria in the event of oversubscription. Roughly a quarter of primary schools prioritise pupils with complex needs in some way, contrasting with secondary schools of which only 10% prioritise pupils with complex needs. Instead, at secondary priority tends to be further directed towards children of staff and pupils from feeder schools.

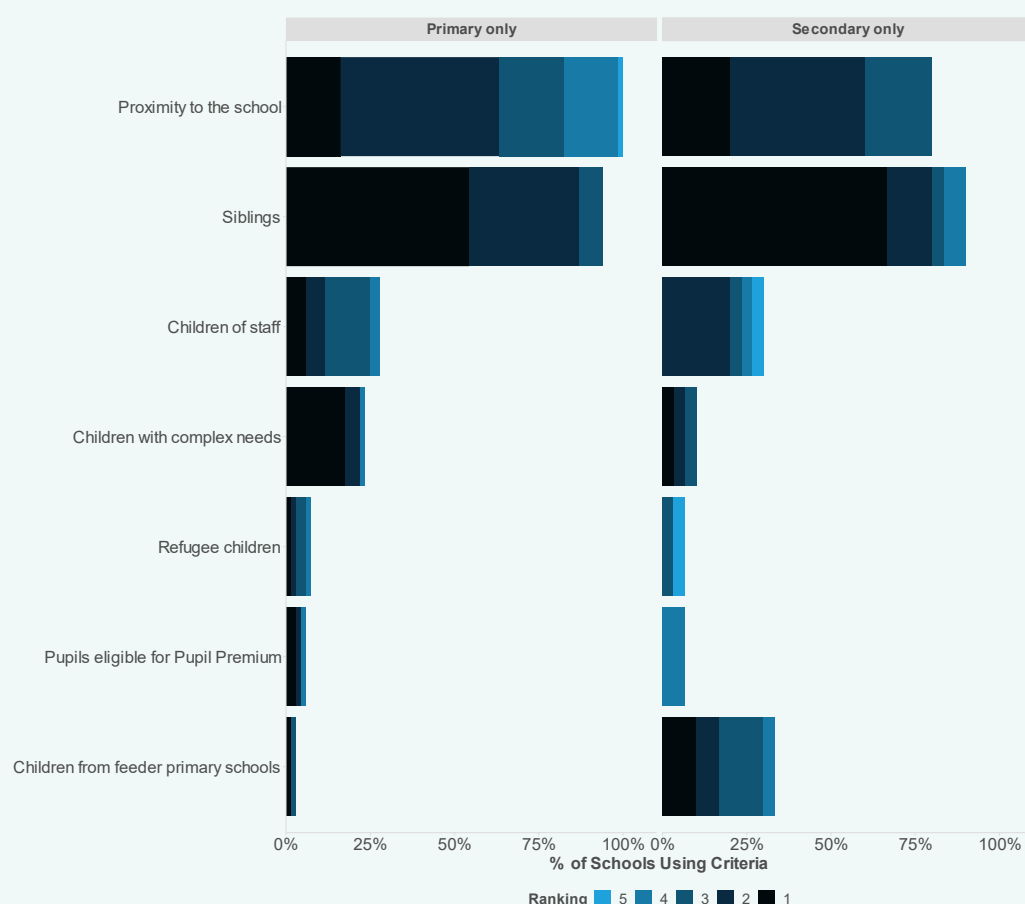
Prioritising based on family and distance from the school likely arises for practical reasons and possibly in efforts to appeal to the local community and parents rather than inclusion or equity. However, we know that residential segregation means distance is not neutral and families with more

⁵¹ Department for Education. [“Open academies, free schools, studio schools and UTCs.”](#) *Transparency data* (2023).

⁵² Department for Education. [“School Admissions Code.”](#) (2021).

purchasing power may be able to more readily exercise school choice as they can chose to live closer to desirable schools.⁵³

Box 7: Admission codes typically prioritise based on family and distance



Source: DEEP Survey

Demographic composition can affect a school groups rate of attendance and suspension

Disadvantaged pupils and those with special educational needs and/or disabilities are particularly likely to be persistently absent. In the latest annual attendance figures from the Department for Education (2022/23)⁵⁴, pupils who were eligible for Free School Meals (FSM) had a persistent absence rate of 36.5 per cent, compared with a rate of 15.6 per cent amongst their more advantaged peers. Similarly, rates of persistent absence are higher amongst pupils with SEN (36.0% for those with an EHC plan, 31.1% for those with SEN support), compared to pupils with no identified SEN (18.4%).

Therefore, it is important to consider the demographic composition of the pupils at a school when considering levels of absence and suspensions. Schools that have higher numbers of disadvantaged

⁵³ Roberts. "[March 2022 Schools White Paper \(England\)](#)." *Research Briefing, House of Commons Library* (2022).; West. "High Stakes Testing, Accountability, Incentives and Consequences in English Schools." *Policy & Politics* 38, no. 1 (2010): 23–39. [10.1332/030557309X445591](#).

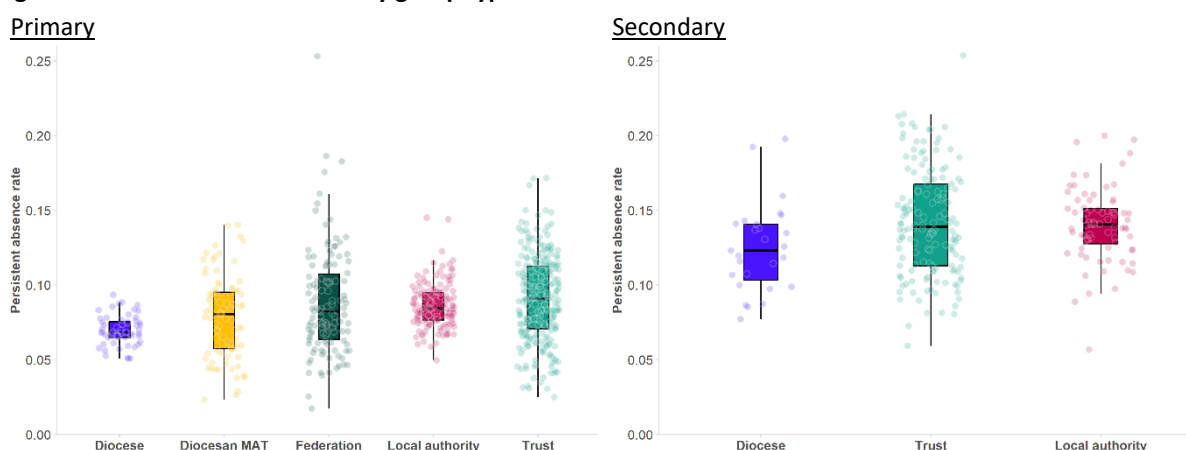
⁵⁴ Department for Education. "[Pupil absence in schools in England: Academic year 2022/23](#)." *National Statistics* (2024).

pupils will typically have higher levels of both absence and suspensions, though pupil demographics should not be used to justify particularly high levels.

Differences in rates of persistent absence across school groups

Across both primary and secondary phases, absence is on average lower in schools linked to dioceses and highest on average in multi-academy trusts. Variation within group type is though typically larger than the variation between group types, some trusts for example have amongst the very lowest rates of absence. At primary, it is though noticeable that diocese schools not only have low average rates of absence, but also considerably smaller within-group variance compared to all other group types.

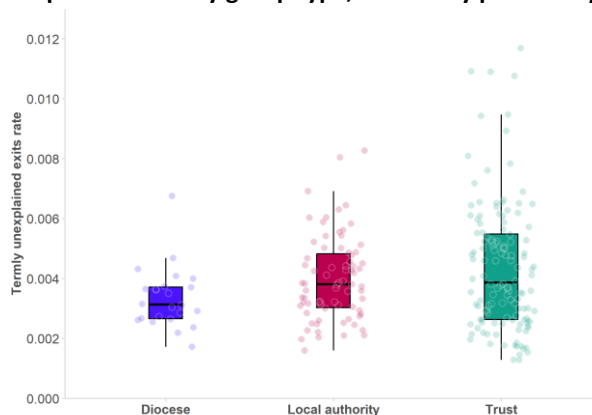
Figure 9: Persistent absence rate by group type



Unexplained exits

We calculate our unexplained exit measure for secondary groups only, as the numbers at primary are very small. Figure 10 shows multi-academy trusts have both the highest average rate of unexplained exits as well as the highest degree of variation. The median average exit rate across trusts is 0.004 implying for every 1,000 pupils, 4 exit each term without an explanation we can identify in the data. This does not necessarily mean that these pupils have been 'off-rolled' but we believe this is a good proxy measure.

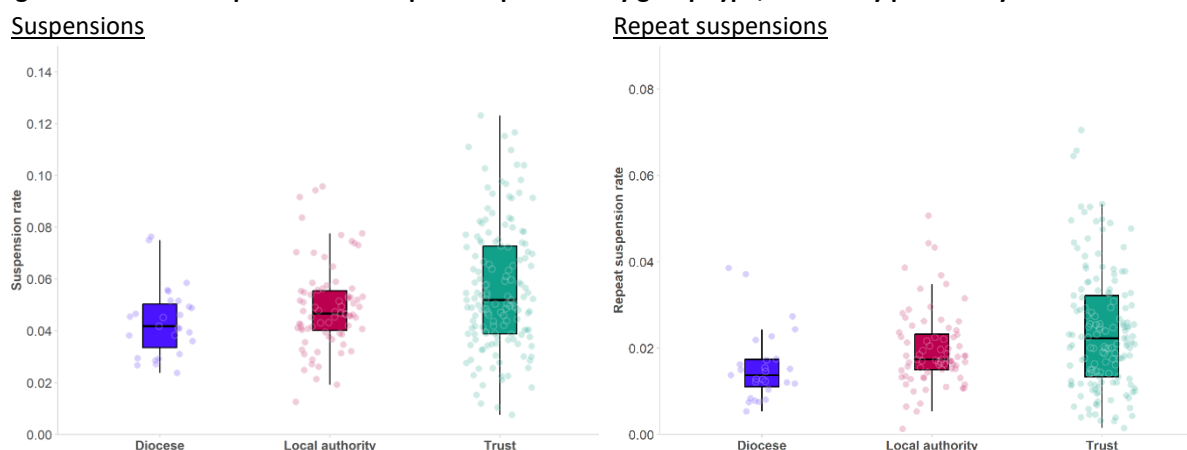
Figure 10: Termly rate of unexplained exits by group type, secondary phase only



Differences in rates of suspensions across school groups

Very few primary age pupils are given suspensions, so we only report group level suspension rates for secondary pupils. As with the majority of our metrics, the variation within group type is much larger than the variation between group types. There is a clear correlation though between the median and the within group variance. The median diocese has lower rates of both suspensions and repeat suspensions, and there is less variation between different dioceses than between different multi-academy trusts.

Figure 11: Rate of suspensions and repeat suspensions by group type, secondary phase only

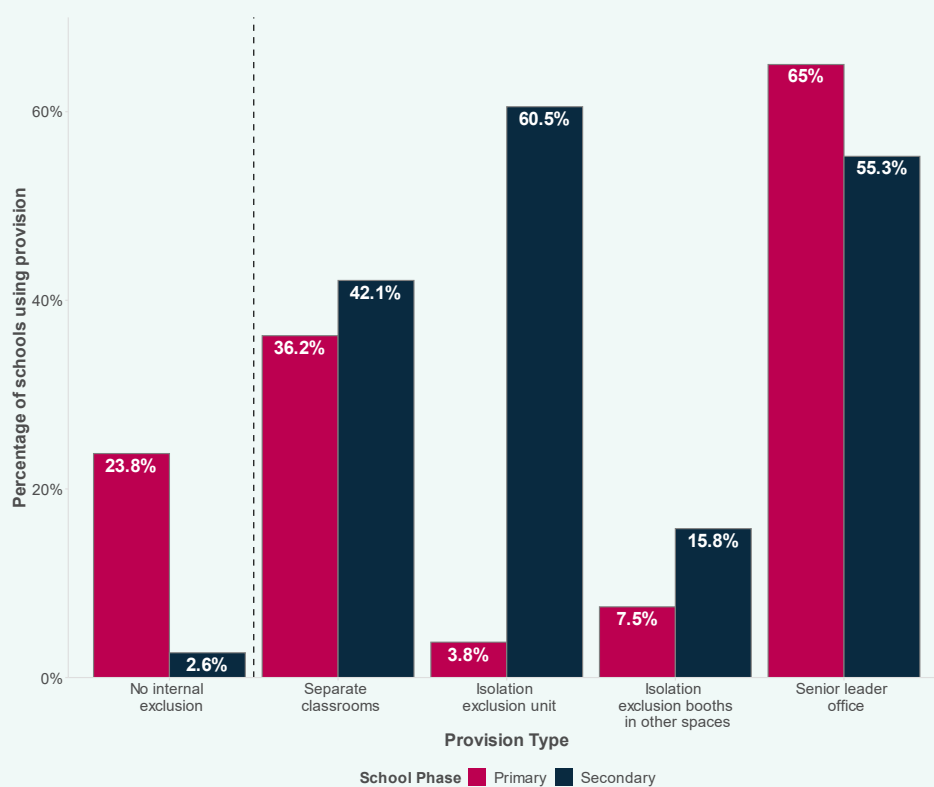


Unlike a suspension, where a pupil is sent home and responsibility is placed on parents/carers, an internal exclusion means a pupil remains in school but is removed from their normal classes. The typical rationale for using this policy is that exclusion does not function as a reward ('time off school'), as excluded students continue to receive education and supervision in a more managed environment.

There is no formal prescription regarding the use of internal exclusions and there are no national statistics confirming the number of schools using this practise, how long pupils are typically internally excluded for, or what pupils are doing whilst excluded from the classroom. Therefore, we cannot construct a quantitative metric as we have for suspensions, but nonetheless it is an important element of inclusion.

The findings from the DEEP survey indicate the use of internal exclusion is more prevalent in secondary schools – less than 3 per cent of sampled secondary schools reported not using internal exclusion at all, in comparison with almost a quarter of primary schools. Secondary schools are also most likely to send excluded pupils to designated 'isolation exclusion units', whereas in primary schools, the most common form of internal exclusion is the senior leader's office. 65% of primary schools reporting using senior leaders' offices as a form of internal exclusion. The diversity in internal exclusion provision may be promising as behaviour management is tailored to pupils' specific needs. However, it may also indicate a lack of clarity regarding best practice.

Box 8: Responses to DEEP indicate the widespread use of internal exclusion



Source: DEEP survey

Pupil attainment and progress

Pupil attainment measures are perhaps the most studied and reported across studies that attempt to measure the effectiveness of schools. Pupils sit key stage 2 (KS2) assessments at the end of primary school, aged 11, and GCSEs (and equivalents) at the end of secondary school, aged 16. These are externally marked assessments that provide a consistent measure of attainment across cohorts of pupils.

Whilst average attainment scores across schools and groups can be informative, 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.

In particular, we know there is a disadvantage gap. The attainment of disadvantaged pupils (those eligible for free school meals at some point in the last six years) is on average lower than that of their more advantaged peers. In 2022, the disadvantage gap was 10.3 months at the end of primary school, widening to 18.8 months by the end of secondary school.⁵⁵

We believe school groups should support all children and young people, regardless of social background, to achieve high quality education outcomes. That means the most inclusive school groups will address this disadvantage gap between pupils.

Our metrics

Data sources

Our metrics are constructed using publicly available data from the DfE's performance tables available from the 'Compare the performance of schools and colleges in England' service.⁵⁶ We construct a range of attainment and progress metrics and aggregate these to the school group level. We also consider post-16 destinations as a measure of how well a school group supports its pupils to progress following the completion of key stage 4.

Primary (key stage 2)

At the end of primary school pupils take a series of assessments, including in mathematics and reading. The Department for Education reports the results of these tests as 'scaled scores' to allow for accurate comparisons across years.

The lowest scaled score that can be awarded to pupils is 80, while the highest scaled score is 120. Pupils scoring at least 100 are said to have met the 'expected standard' on the test. Pupils need a minimum raw score (i.e., a certain number of marks) before they can be awarded the lowest scaled score – following DfE methodology, pupils who do not achieve this are considered to have not demonstrated sufficient understanding of the curriculum and are not included in our metrics.

We construct two metrics. The average scaled score across maths and reading for all pupils at each school, and the average scaled score across the same two assessments for disadvantaged pupils at

⁵⁵ Hunt et al. "[EPI Annual Report 2023](#)." *Education Policy Institute* (2023).

⁵⁶ Available at: <https://www.gov.uk/school-performance-tables>

each school. Disadvantaged pupils are defined as those that attract the pupil premium.⁵⁷ Both these metrics are then aggregated to the school group.

Secondary (key stage 4)

Attainment 8 is one of the DfE's headline measures of key stage 4 (KS4) attainment. At a pupil level, the measure is calculated using a pupil's GCSE scores across eight subjects. The eight subjects must include English, maths and at least three Ebacc⁵⁸ subjects. The GCSE scores are summed with a double weighting for English and maths.

We include this measure as one of our metrics because it is currently a headline accountability and so provides a useful comparison. The metric is constructed by averaging the Attainment 8 score of all pupils who attend the schools in each group.

Progress 8 is a value-added measure indicating how much a pupil has improved between the end of primary school and the end of secondary school. This is calculated by comparing a pupil's Attainment 8 score to the scores of pupils across England who achieved similar results at key stage 2.

Our metrics focus specifically on the value-added a school group has for disadvantaged (pupil premium) pupils and low prior attainers (bottom 25 percent). We apply this lens as we expect an inclusive school to be good at supporting these pupil groups and a high performing school group should be securing good rates of progress for all pupils, not just the pupils who are already higher attaining.

These metrics are constructed by averaging the Progress 8 score of all disadvantaged pupils (and low prior attaining pupils) who attend a school in the group and calculating the difference compared to the same group of pupils nationally. A metric of zero therefore means that pupils in a characteristic group progress at the same rate as their peers nationally.

Sustained destinations are important as a high-performing school group should support its pupils to progress into education and/or employment following the completion of key stage 4. For our metric, we calculate the percentage of pupils who were recorded as in a sustained destination in the year following the completion of their key stage 4 studies. We then adjust this for the local opportunities available to these pupils, by dividing by the percentage of pupils in a sustained destination across the whole local authority the school is located in. This ratio is then aggregated across the group, weighted by pupil numbers.

A score of one indicates the schools in the group had the same proportion of pupils progressing to sustained destinations as in the local authority as a whole. A score of less than one indicates a smaller proportion of pupils' progress to sustained destinations, while a score of more than one indicates a larger proportion.

Discussion

Criticism of headline attainment measures

⁵⁷ Therefore, disadvantaged pupils in this context have either been eligible for free school meals in the past six years, or have been under the care of their local authority for a day or more, or have been adopted from care.

⁵⁸ English Baccalaureate subjects: English language and literature, maths, the sciences, geography or history, and a language.

There are well established weaknesses to using both Attainment 8 and Progress 8 to measure attainment and both have been criticised as ineffective accountability measures.

Attainment 8 is not a contextualised measure; it does not account for schools facing very different intakes with regard to pupil characteristics or prior outcomes. Given we know pupil demographics are correlated with attainment, this can lead to schools being unfairly judged because of their intake. In addition, whilst it has ensured a focus on a wider range of subjects than previous measures, the focus on English, maths and Ebacc subjects means it has not incentivised the take-up of creative subjects, nor does it measure learning in these subjects.

Whilst Progress 8 reflects differences in prior attainment it still does not reflect that socioeconomic and demographic factors are correlated with attainment. Leckie and Goldstein (2019) reveal significant changes in the rank order of schools if adjustments are made to Progress 8 for pupil background.⁵⁹ However, in other studies, Progress 8 has been found to give a good measure of school effectiveness.⁶⁰

Our rationale though for including both these measures in our suite of metrics is not that we believe they are the best way of measuring attainment, but instead because they are currently reported in school performance tables, used by the DfE to hold schools to account.

Centralisation of decision making

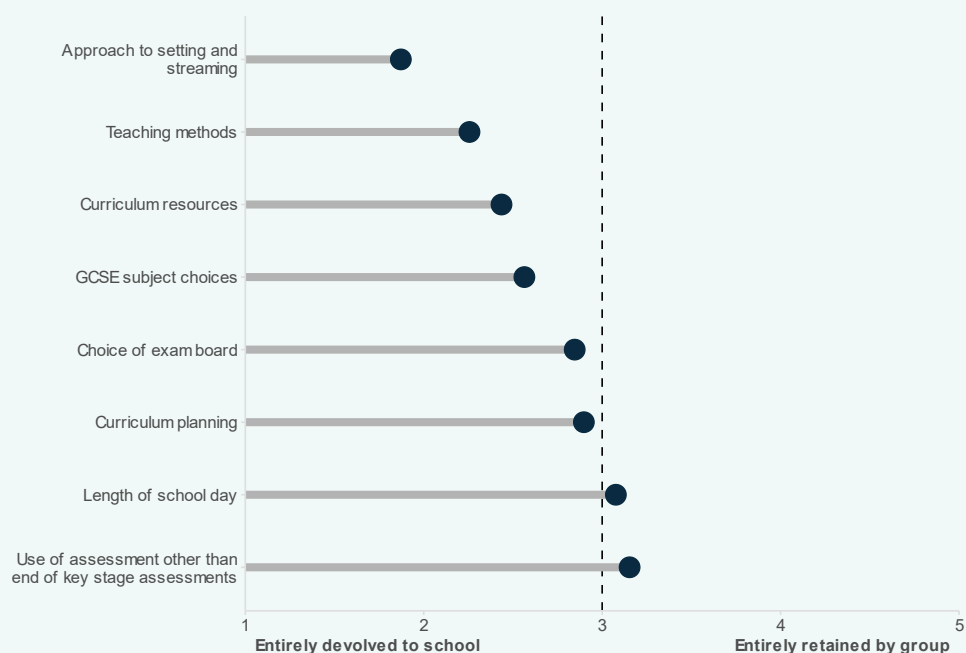
In our DEEP survey we asked whether decisions related to attainment were primarily devolved to individual schools or retained by MATs centrally. Findings indicate that many key decisions are taken primarily by schools themselves. For example, schools typically have a high degree of autonomy over teaching methods and resources. Responses suggest that only decisions on the length of the school day and the use of intermediate assessments are, on average, more likely to have more input from central teams than schools themselves.

Unsurprisingly, it appears that as the decision becomes closer to a pupils direct learning experience, decision making is further devolved to the school. MATs create the wider frameworks e.g., use of assessment, exam boards and curriculum planning. Whilst schools focus on resources, teaching, and classroom organisation. We return to classroom organisation and the use of ability grouping below.

⁵⁹ Leckie and Goldstein. "The importance of adjusting for pupil background in school value-added models: A study of Progress 8 and school accountability in England." *British Educational Research Journal* 45 (2019): 518-537. [10.1002/berj.3511](https://doi.org/10.1002/berj.3511).

⁶⁰ Britton, Clark, and Lee. "[Unveiling school effectiveness: Progress 8, parental choices and closing the achievement gap](#)." *Institute for Fiscal Studies* (2023).

Box 9: Decisions related to attainment in MATs are more often than not devolved to schools

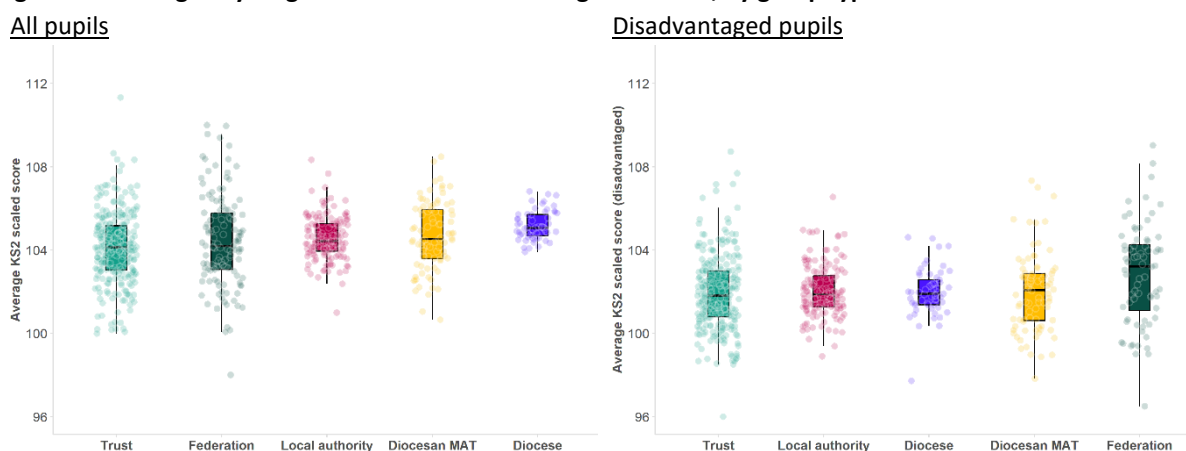


Source: DEEP Survey

Differences in attainment across primary school groups

Figure 12 illustrates the performance of school groups in maths and reading assessments at the end of key stage 2. Dioceses, on average, have the highest attainment when considering all pupils (left panel) but federations on average have the highest attainment for disadvantaged pupils (right panel). As with many of other metrics, the variance within group type is large than variance across group types. There is greater variance amongst MATs and federations compared to LAs and dioceses. Whilst the median average attainment across all group types is lower for disadvantaged pupils than all pupils, in some cases school groups disadvantaged pupils achieve performance above that of all pupils at other school groups.

Figure 12: Average key stage 2 scaled score in reading and maths, by group type

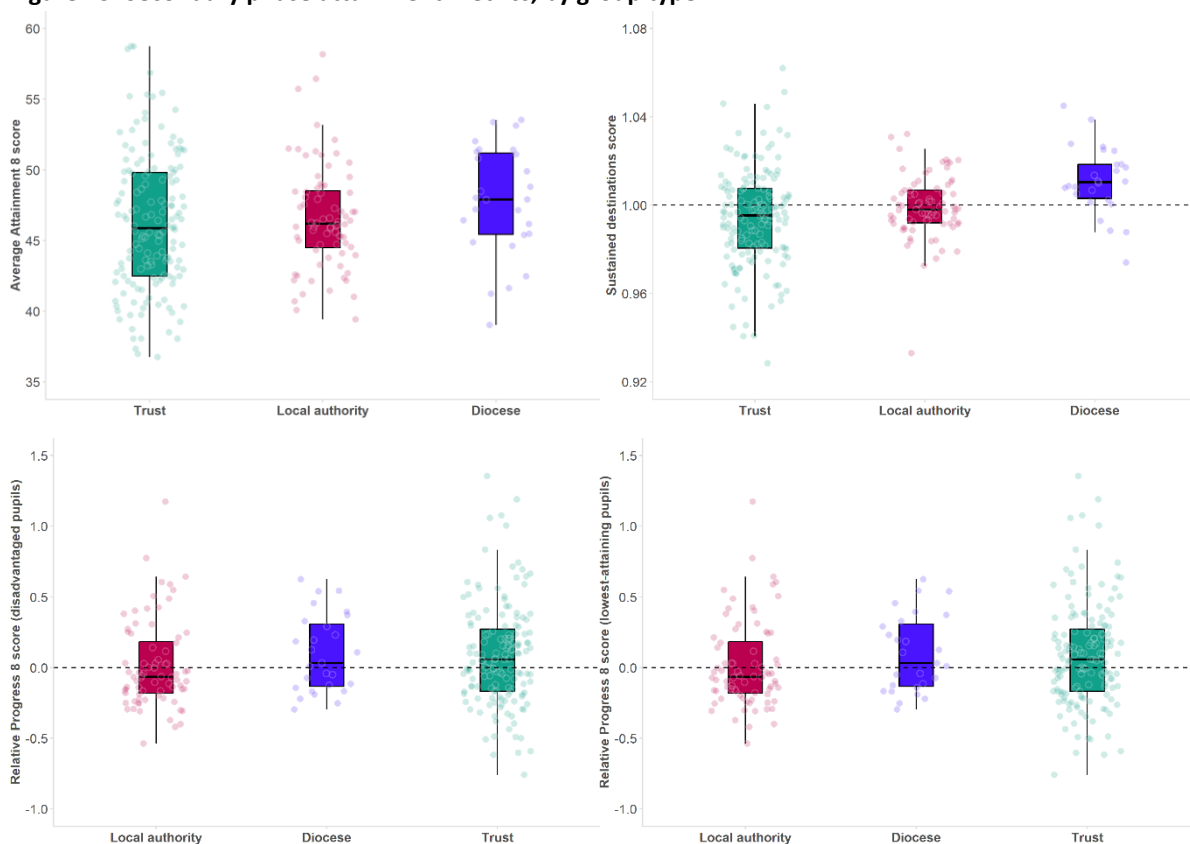


Differences in attainment across secondary school groups

On average, multi-academy trusts have lower Attainment 8 and sustained destination outcomes, compared to both local authorities and dioceses. However, as figure 13 shows there is the most variance across MATs for both these metrics, and the very top and bottom performers on these metrics are in fact trusts. Only diocese linked schools typically have sustained destinations above the local expected level, even a school group at the 25th percentile scores above one.

The bottom row of figure 13 shows the relative progress made by disadvantaged and low prior attaining pupils. For both groups of pupils, MATs have an average score greater than zero, indicating that they progress pupil in these groups relatively more than these pupil groups progress on average nationally. These same groups of pupils make on average less progress at local authority maintained schools, typically below zero, indicating less than their peers nationally.

Figure 13: Secondary phase attainment metrics, by group type



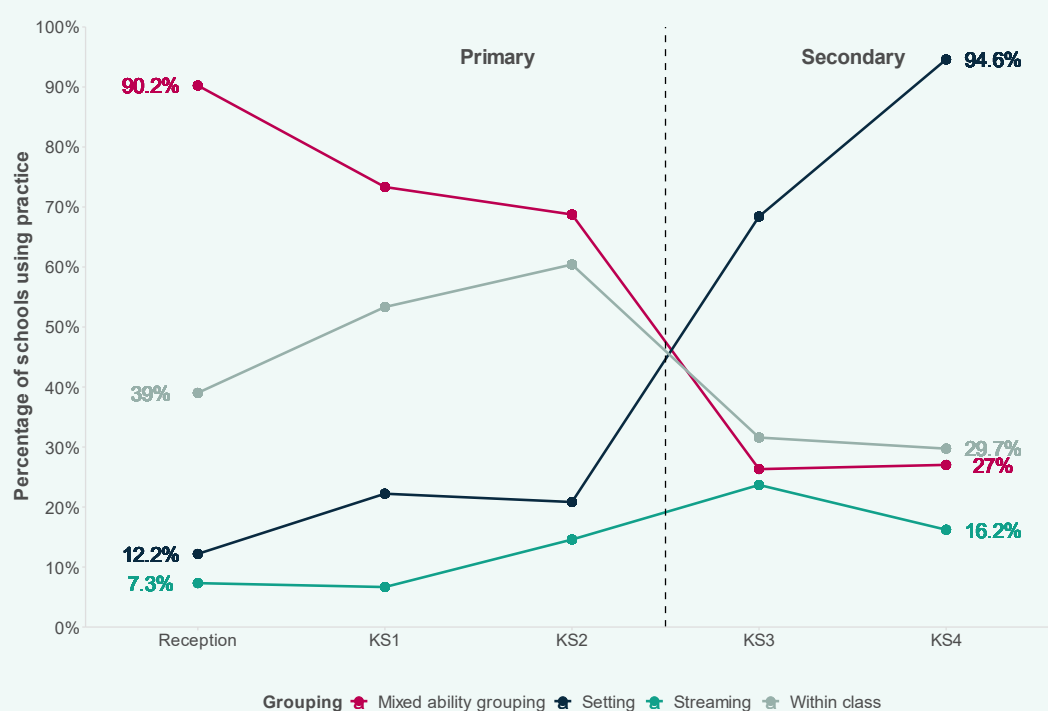
Ability grouping

One strategy frequently used by schools is grouping pupils by ability. The idea behind this strategy is teachers are able to provide instruction that is more closely tailored to pupils' ability, thereby improving their school performance. However, the evidence on the effects on pupil outcomes is mixed. An EEF meta-analysis found that setting or streaming pupils boosts the progress of high prior attainers by +1 month, but low attaining pupils actually make -3 months less progress under such a

regime.⁶¹ Other studies have found evidence that ability grouping also impacts negatively on children’s self-belief and wellbeing if placed in a lower group.⁶²

Findings from the DEEP survey indicate that pupils are typically further stratified as they progress through education but that within school phase there is variation in the extent grouping by prior attainment is used. Upon entering school in reception, pupils are most likely not to be grouped by their attainment with roughly 90% of sampled school leaders reporting they use mixed ability grouping. Throughout primary school the use of attainment grouping increases, particularly within-class grouping, although mixed ability grouping remains the most common practice. We observe a sharp change in practices in secondary schools – the use of mixed ability groups falls and the use of setting, increases. Almost all sampled schools use some form of setting and/or streaming at key stage 4.

Box 10: Pupils are typically further stratified as they progress through education



Source: DEEP Survey

⁶¹ Education Endowment Foundation. “[Setting and streaming](#).” *EEF Teaching and Learning Toolkit* (2021).

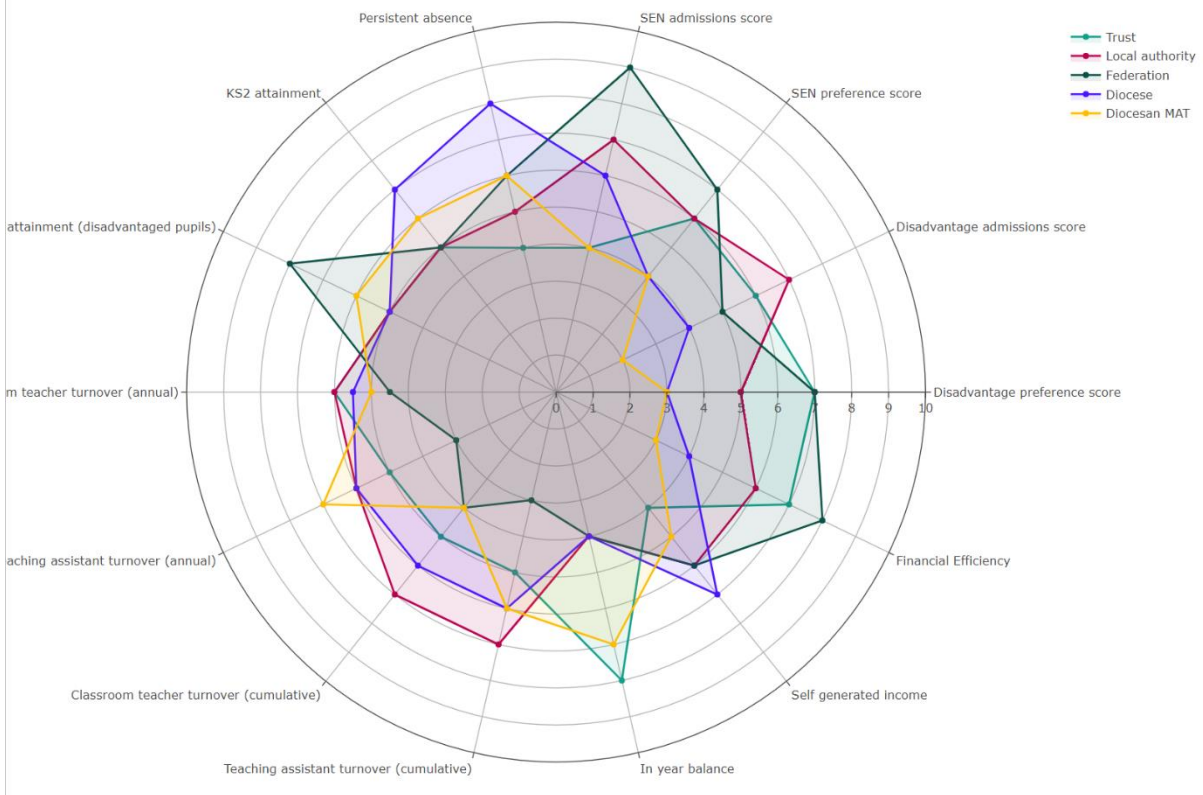
⁶² Papachristou et al. “Ability-grouping and problem behavior trajectories in childhood and adolescence: Results from a U.K. population-based sample” *Child Development* 93, no. 2 (2021): 341–358. [10.1111/cdev.13674](https://doi.org/10.1111/cdev.13674).

Differences by group type across all metrics

Above, and in our earlier report⁶³, we have shown that for each metric individually there is often more variation *within* group type than there is *between* group types. So, whilst the average MAT may look relatively similar to the average local authority, a given MAT often has quite different outcomes when compared to another MAT. In this section we explore how similar the median average metrics are across all the metrics simultaneously. Whilst interpreting these plots it is important to remember that the number of groups in each school group type bucket is different and the degree of variation is also different between group types and metrics.

Figure 14 shows the median decile across all the metrics for each primary school group type on a radar plot. A decile of seven on a metric for a given school group type means that the median school group of that type is in the seventh decile of the distribution of all school groups.

Figure 14: Median decile of metric by school group, primary phase



We find that school groups linked to dioceses (MAT and non-MAT) tend to have the lowest median scores on preferences and admissions. This implies they are not particularly inclusive in terms of their intake; many more families of disadvantaged pupils live in the area than list as a first preference and even if they do, they are less likely to be admitted. However, these school groups do have relatively low levels of persistent absence and the highest median overall attainment.

⁶³ Hodge and Cruikshanks. [“Measuring pupil inclusion and attainment at school-group level.”](#) Education Policy Institute (2024).

Additionally, they appear able to generate more of their own income on average than other groups and have relatively low rates of staff turnover.

Disadvantaged pupils appear to be better served by MATs, in terms of accepting representative intakes. Multi-academy trusts also have the highest average in-year balances of all groups, but typically generate relatively less of their own income.

Federations have the lowest median scores for our workforce metrics, therefore, on average, they have higher rates of staff turnover (both teacher and teaching assistants, annual and cumulative). Despite this, they are on average able to achieve greater efficiency than other primary school groups. Conversely, local authorities have, on average, relatively low rate of staff turnover but are less efficient than both federations and multi-academy trusts.

Figure 15: Median decile of metric by school group, secondary phase



For secondary school groups, we choose to only present MATs and local authorities in the equivalent chart (figure 15). This is because the numbers of other school group types are very small. Amongst secondary school groups, the average MAT and the average local authority look similar. There are though some key differences between the group type median decile.

The median local authority outperforms the median MAT on the two suspension related metrics as well as all our workforce related metrics. The median MAT however is in a higher decile for progressing the attainment of both disadvantaged and low prior attaining pupils. It also has higher in-year balances than the median local authority.

Comparing MATs by size

Another feature of the government's school improvement strategy is building the size of school groups to develop central capacity among schools. Aimed at increasing financial stability, maximising workforce impact, and driving school improvement, last year's White Paper set out an ambition for groups to be either serving a minimum of 7,500 pupils or running at least 10 schools.⁶⁴

In this section we examine the ways in which our metrics are affected by the number of schools within a group. We define 'small' groups as any group with fewer than five schools, 'medium' groups as groups with between five and nine (inclusive) schools, and 'large' groups as groups with 10 or more schools.

We present these results on radar plots. These plots allow for the comparison of groups or group types across our suite of metrics, demonstrating the relative strengths and weaknesses of different groups. The axes for each metric represent deciles – a score of 1 on a given metric indicates that group is in the bottom 10 per cent of all groups at that phase, while a score of 10 indicates the 'best' 10 per cent. The plots below show the median decile for each group size classification across each metric.

⁶⁴ HM Government. "[Opportunity for all: strong schools with great teachers for your child.](#)" CP 650 (2022).

Primary

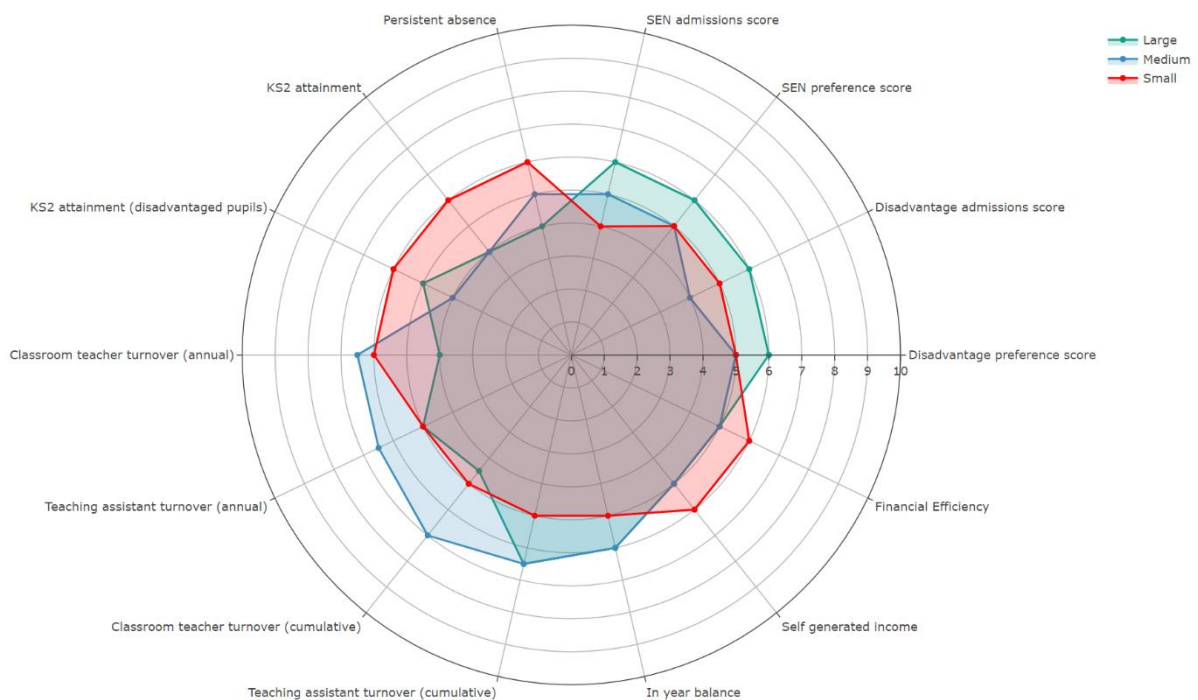
Figure 16 presents a radar plot showing the decile of the median metric for three different sizes of multi-academy trusts at primary.

Small MATs outperform other MAT sizes in key stage 2 attainment, both overall and for disadvantaged pupils. Small MATs also perform better on persistent absence. They are on average more efficient than larger trusts and have a greater fraction of self-generated income but have smaller in-year balances. They are also noticeably better on average than large MATs when it comes to annual classroom teacher turnover.

Medium-sized MATs only outperform both small and large MATs on our workforce metrics. They have the lowest rate of turnover across all four of our measures. They have the lowest average disadvantage admissions score.

Large MATs outperform smaller MATs (both small and medium-sized) on all four of our school choice and admissions metrics. However, they have higher rates of persistent absence and classroom teacher turnover than MATs of other sizes.

Figure 16: Deciles of median metric score by group size, MATs, primary



Secondary

Figure 17 presents a radar plot showing the decile of the median metric for three different sizes of multi-academy trusts at secondary.

Small MATs on average outperform other MAT sizes across our attendance and suspensions metrics and also on overall key stage 4 attainment, and post-16 destinations. However, they do less well at progressing the attainment of disadvantaged and low prior attaining pupils.

They have lower average workforce turnover on three out of four of our measures, and a higher fraction of self-generated income. Unlike small primary MATs, small secondary MATs have lower average efficiency and smaller in-year balances compared to MATs of larger sizes.

Compared to large MATs in particular, small MATs perform less well on our school choice and admissions metrics.

Medium-sized MATs do not outperform other MAT sizes in any single metric.

Large MATs have the highest preference and admission scores, for both disadvantaged and SEN pupils. Low prior attaining and disadvantaged pupils also make more progress compared to pupils in smaller groups.

However, on average large MATs have the lowest scores for persistent absence, fixed- and repeat suspensions, unexplained exits, and post-16 destinations. They also have the highest average rates of classroom teacher turnover and a particularly low fraction of self-generated income.

Figure 17: Deciles of median metric score by group size, MATs, secondary



Correlations between metrics

With an understanding of how our metrics vary by group type and phase, we can now turn to the ways in which our metrics interact.

Investigating the correlations between metrics allows us to uncover the relationships between the different aspects of effective groups set out in this paper. For example, a negative correlation between absence and attainment suggests that groups with lower rates of absence see average higher attainment outcomes. Correlations are useful for measuring how two metrics relate to one another, but as discussed in the introduction to this report, this work aims to demonstrate that there are no two metrics that can be used to provide a holistic view of how a school group functions; instead, it is the relative performance across our range of metrics that can provide greater insight into group performance.

While understanding these relationships can help inform recommendations for improving group performance, it is important to note that the correlations shown below **do not imply a causal relationship**; that is, we cannot say that lower absence *results in* better attainment outcomes, only that there exists a statistical association between the two metrics.

Presenting our results

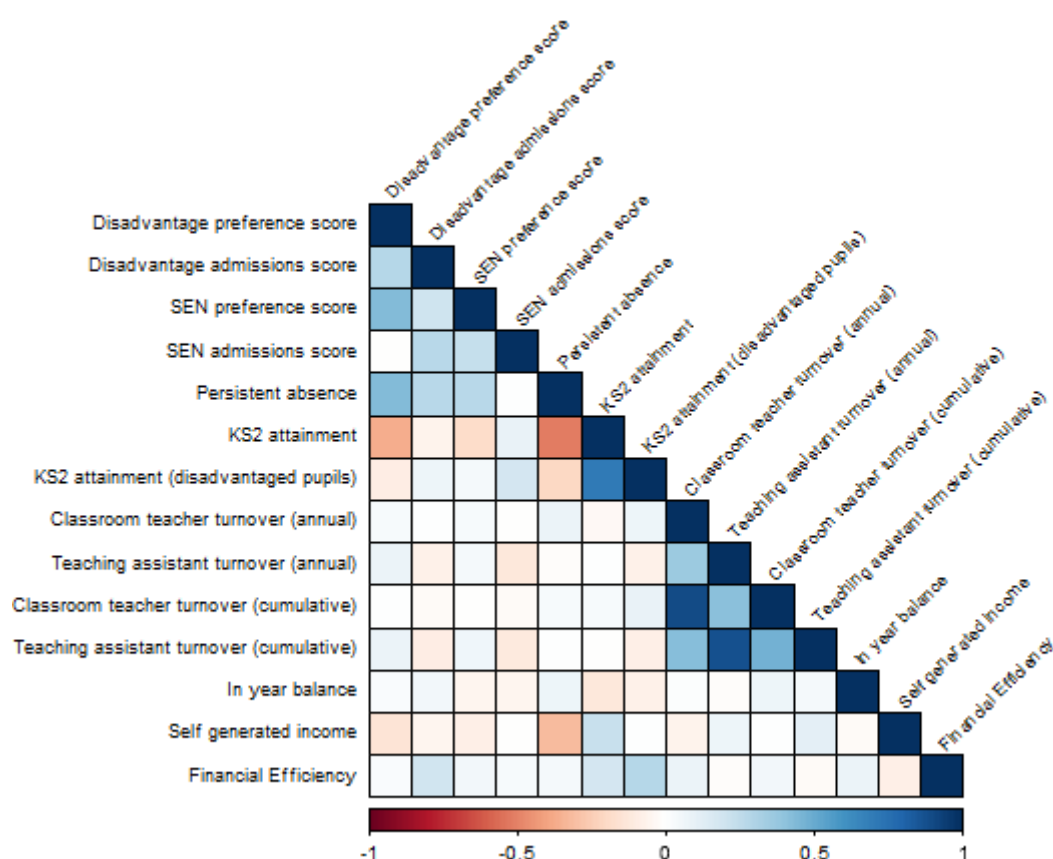
For both primary and secondary phase, we include a correlation matrix that shows the correlation coefficient between metrics available for that phase. These coefficients are between 1 and -1 (indicated by the blue and red colours respectively on the matrix), where -1 represents a perfect negative correlation (a rise in one metric indicates a fall in the other), 1 represents a perfect positive correlation (a rise in one metric indicates a rise in the other), and 0 indicates no correlation.

Primary phase

Figure 18 shows correlations between metrics available at primary phase. The matrix indicates:

- A moderate negative correlation between key stage 2 scaled scores and persistent absence – groups with higher key stage 2 attainment tend to have lower rates of persistent absence.
- A moderate negative correlation between key stage 2 scaled scores and disadvantage preference scores – groups with higher key stage 2 attainment are likely to receive a smaller proportion of applications from disadvantaged pupils than the proportion of disadvantaged pupils living in the local area.
- A moderate negative correlation between the fraction of self-generated income and persistent absence.
- Our measure of efficiency has a positive association with overall attainment and this is even stronger for the attainment of disadvantaged pupils.
- Weak correlations between staff turnover (teachers and teaching assistants, annual and cumulative) and all other non-workforce related metrics.

Figure 18: Correlation matrix, primary phase



Secondary phase

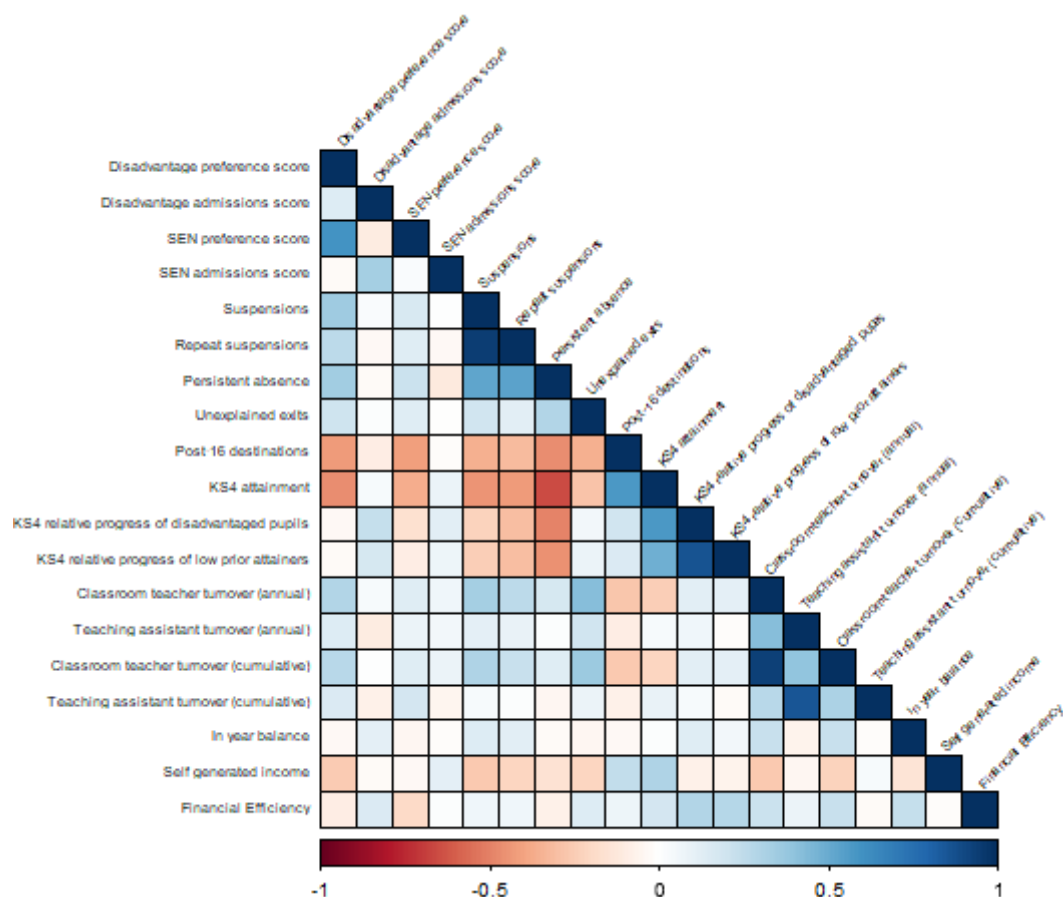
Figure 19 shows correlations between metrics available at secondary phase. The matrix indicates:

- A strong negative correlation between Attainment 8 scores and persistent absence – groups with higher KS4 attainment outcomes tend to have lower rates of persistent absence. Persistent absence is also moderately negatively correlated with both KS4 progress measures.
- A moderate negative correlation between Attainment 8 scores and disadvantage preference scores – groups with higher key stage 4 attainment are likely to receive a lower proportion of applications from disadvantaged pupils compared to the proportion of disadvantaged pupils living in the local area.
- A higher fraction of self-generated income is correlated with other ‘good’ outcomes (high attainment, low turnover, low absence and suspensions) apart from disadvantaged preference scores – indicating that parental contributions may be playing a potential role.
- In-year balances are very weakly correlated with all our other metrics, but have the strongest positive association with teacher turnover.
- A moderate positive correlation between classroom teacher turnover and the rate of absence, suspensions, and unexplained exits. The relationship with teaching assistant turnover is much weaker across all metrics.
- Classroom teacher turnover has a negative correlation with average overall attainment and post-16 destinations, but not with the progress of disadvantaged or low attainers – school

groups with high turnover have lower overall attainment but similar progress for these pupil groups.

- Higher levels of efficiency are associated with higher rates of classroom teacher turnover. Given teacher experience is an input to our efficiency model, this may imply that quickly identifying teacher quality and retaining only high-quality teachers helps drive efficiency.

Figure 19: Correlation matrix, secondary phase



Correlation between classroom teacher turnover and other metrics

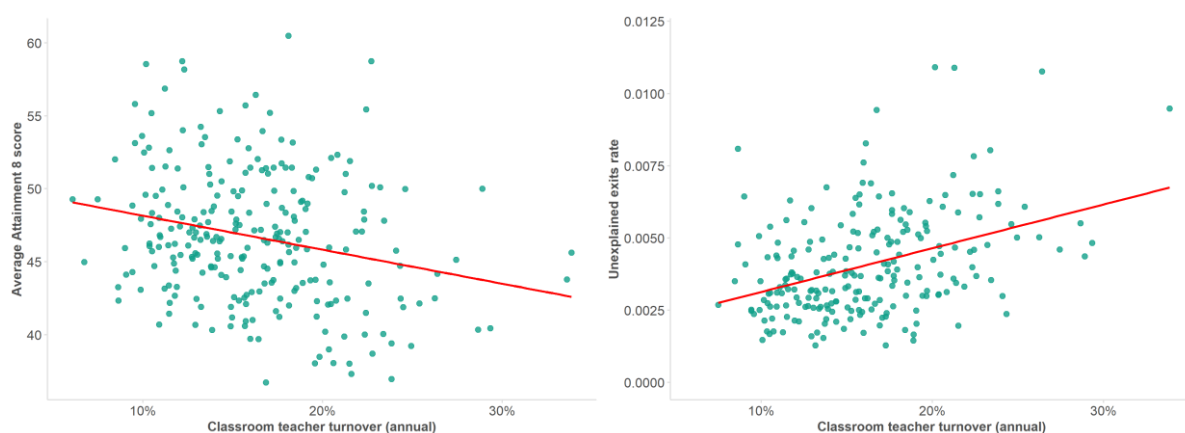
Not only is turnover an important indicator of a content workforce and a good environment, it may also contribute to other outcomes of interest such as attainment and inclusion.

Figure 20 shows the average annual classroom teacher turnover in secondary schools plotted against Attainment 8 scores (left panel) and the unexplained exit rate (right panel). They clearly demonstrate the moderate negative correlation with attainment and positive correlation with unexplained exits seen in the matrix. Again, while no causal link can be inferred from this analysis, these relationships illustrate the potential negative effects on pupils of attending a school with high levels of teacher turnover. Other studies have though explored in more detail, the potential causal mechanisms behind the relationship between teacher turnover and attainment.⁶⁵

Perhaps unsurprisingly, the correlations are much stronger for teachers than they are for teaching assistants, particularly at secondary schools. However, whilst teacher turnover has a negative association with attainment 8 and post-16 destinations, it is worth noting again that no such association exists with the progress of disadvantaged or low attainers.

This is also in contrast to primary schools where there is almost no correlation between staff turnover and any other of our non-workforce related metrics. In particular, we find no correlation between teacher turnover and KS2 attainment.

Figure 20: Correlation between teacher turnover and attainment (left) and unexplained exits (right), secondary phase



⁶⁵ Gibbons, Scrutininio, and Telhaj. "Teacher turnover: Effects, mechanisms and organisational responses." *Labour Economics* 73 (2021): 102079. [10.1016/j.labeco.2021.102079](https://doi.org/10.1016/j.labeco.2021.102079).

Conclusions

We have shown that across all our metrics there is no identifiable general optimal organisational structure for school groups. We cannot conclude that, based on performance alone, the MAT structure should be preferred to the local authority model, or vice versa.

Across all the metrics we have constructed there is typically more variation within school group types compared to between school group types. For example, the difference between two different MATs is often larger than the difference between the average MAT and the average local authority. However, we do find that across most metrics this within group variance is larger for multi-academy trusts than local authorities and dioceses.

Some of this variance may be explained by pupil characteristics and the unique situations of schools that undergo academisation. To date, many schools that have academised are schools that elected to academise (typically well-performing on traditional accountability measures) or forced to academise by government, due to perceived failings. This means multi-academy groups can, whilst having similar organisational structures, in fact look and feel very different.

We have, however, identified some key patterns across group types:

- **Disadvantaged pupils are underrepresented at primary schools linked to dioceses.**

All primary diocese groups (both MAT and non-MAT) have preference scores below 1, implying that all these groups receive fewer applications from disadvantaged and SEND pupils than would be expected given its locations. Perhaps of even greater importance is that dioceses typically admit relatively fewer disadvantaged pupils even conditional on applying – this is true for a diocese linked school group even at the 75th percentile.

- **Multi-academy trusts have higher rates of workforce turnover than local authorities, particularly at secondary.**

There are significant differences in annual turnover (16.9% in the median MAT, 14.4% in the median LA) and cumulative turnover (37.4% in the median MAT, 32.7% in the median LA). Comparing different MATs we show that small secondary MATs (with fewer than five secondary schools) have, on average, lower rates of annual teacher turnover (15.9 per cent) compared to larger MATs (19.5 per cent). This has implications for attainment at secondary school where there is a negative correlation between classroom teacher turnover and overall attainment.

- **Large secondary multi-academy trusts best support disadvantaged pupils, but have higher rates of suspension.**

Larger MATs (with 10 or more schools in a phase) have, on average, higher rates of persistent absence, suspension, and unexplained exits than smaller MATs and local authorities. However, these larger MATs admit greater rates of disadvantaged pupils and have higher attainment outcomes for low prior attaining and disadvantaged pupils.

- **Multi-academy trusts are much more likely to have positive in-year balances.**

At primary, multi-academy trusts are around *twice* as likely to have positive in-year balances compared to other group types. Relative balances are on average smaller at secondary, but the ratio is bigger – MATs are almost *three* times as likely to have positive in-year balances than other school groups. There is though a higher degree of variation in the level of in-year

balances amongst trusts compared to other group types. At primary, local authorities have in-year balances between -2.5% and +2% whilst trusts have balances ranging between -8% and 23% of expenditure.

It is clear that there is no single metric that defines a high performing school group, and a narrow focus risks creating perverse incentives. Our online web app can be a useful tool to better understand exactly how well individual trusts are performing across a broad range of measures.

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Annex

Table A1: DEEP survey response rates, waves 1–3

		Multi-academy trust	Other (SAT, Federation, Diocese, LA)	Total
Wave 1	Spring 2022	128	12	140
Wave 2	Autumn 2022/Spring 2023	151	5	156
Wave 3	Autumn 2023	31	1	32

Table A2: Summary statistics of inclusion and attainment metrics, by group type, primary

Metric	Diocesan MAT N = 87	Diocese N = 57	Federation N = 126	Local authority N = 148	Trust N = 270
KS2 attainment	104.52 (103.60, 105.94)	105.05 (104.69, 105.71)	104.18 (103.07, 105.78)	104.42 (103.95, 105.26)	104.13 (103.06, 105.17)
KS2 attainment (disadvantaged)	102.08 (100.61, 102.88)	101.91 (101.37, 102.58)	103.22 (101.09, 104.26)	101.87 (101.28, 102.77)	101.80 (100.79, 102.99)
Disadvantage preference score	0.709 (0.459, 1.026)	0.670 (0.548, 0.766)	1.085 (0.727, 1.521)	0.875 (0.769, 1.020)	1.029 (0.744, 1.366)
Disadvantage admissions score	0.495 (0.397, 0.758)	0.699 (0.564, 0.847)	0.817 (0.627, 0.981)	0.973 (0.721, 1.249)	0.873 (0.571, 1.227)
SEN preference score	0.63 (0.53, 0.80)	0.65 (0.57, 0.70)	0.91 (0.53, 1.49)	0.80 (0.68, 0.91)	0.79 (0.54, 1.03)
SEN admissions score	0.43 (0.33, 0.75)	0.56 (0.45, 0.76)	1.10 (0.81, 1.45)	0.64 (0.44, 0.82)	0.41 (0.22, 0.65)
Persistent absence	0.080 (0.057, 0.095)	0.068 (0.065, 0.075)	0.082 (0.064, 0.107)	0.084 (0.077, 0.095)	0.091 (0.071, 0.113)
Classroom teacher turnover (annual)	0.150 (0.117, 0.182)	0.142 (0.128, 0.159)	0.153 (0.115, 0.225)	0.135 (0.113, 0.161)	0.140 (0.115, 0.185)
Teaching assistant turnover (annual)	0.127 (0.104, 0.151)	0.135 (0.117, 0.155)	0.160 (0.131, 0.206)	0.133 (0.113, 0.151)	0.138 (0.110, 0.167)
Classroom teacher turnover (cumulative)	0.364 (0.290, 0.433)	0.310 (0.275, 0.350)	0.375 (0.294, 0.500)	0.300 (0.245, 0.355)	0.333 (0.255, 0.421)
Teaching assistant turnover (cumulative)	0.308 (0.264, 0.358)	0.308 (0.274, 0.339)	0.385 (0.314, 0.500)	0.295 (0.258, 0.335)	0.328 (0.262, 0.396)
In-year balance	0.029 (-0.002, 0.049)	-0.001 (-0.004, 0.001)	0.000 (-0.010, 0.011)	-0.001 (-0.005, 0.002)	0.039 (0.007, 0.075)
Self-generated income	0.044 (0.034, 0.063)	0.062 (0.056, 0.070)	0.054 (0.038, 0.083)	0.055 (0.043, 0.066)	0.038 (0.026, 0.057)
Financial Efficiency	0.62 (0.58, 0.71)	0.65 (0.61, 0.68)	0.75 (0.61, 0.88)	0.69 (0.66, 0.72)	0.72 (0.63, 0.78)

Notes: Figures are median (first quartile, second quartile)

Table A3: Summary statistics of inclusion and attainment metrics, by group type, secondary

Metric	Diocesan MAT N = 10	Diocese N = 27	Local authority N = 151	Trust N = 76
KS4 attainment	48.525 (46.597, 52.705)	47.892 (45.434, 51.193)	46.188 (44.487, 48.514)	45.871 (42.478, 49.808)
KS4 relative progress of disadvantaged pupils	0.168 (-0.026, 0.749)	0.031 (-0.135, 0.308)	-0.067 (-0.182, 0.183)	0.057 (-0.168, 0.272)
KS4 relative progress of low prior attainers	0.366 (0.127, 0.907)	0.234 (0.086, 0.430)	0.140 (0.004, 0.252)	0.206 (0.033, 0.427)
Post-16 destinations	1.018 (1.009, 1.024)	1.010 (1.002, 1.018)	0.998 (0.992, 1.007)	0.995 (0.980, 1.008)
Suspensions	0.038 (0.034, 0.048)	0.042 (0.034, 0.050)	0.047 (0.040, 0.055)	0.052 (0.039, 0.074)
Repeat suspensions	0.013 (0.011, 0.021)	0.014 (0.011, 0.017)	0.017 (0.015, 0.023)	0.022 (0.013, 0.032)
Unexplained exits	0.003 (0.002, 0.003)	0.003 (0.003, 0.004)	0.004 (0.003, 0.005)	0.004 (0.003, 0.006)
Persistent absence	0.136 (0.115, 0.142)	0.123 (0.103, 0.141)	0.141 (0.128, 0.151)	0.139 (0.113, 0.168)
Disadvantage preference score	0.847 (0.762, 0.874)	0.862 (0.802, 1.095)	1.066 (0.912, 1.256)	1.100 (0.909, 1.331)
Disadvantage admissions score	0.476 (0.378, 0.727)	0.524 (0.413, 0.619)	0.762 (0.565, 0.983)	0.712 (0.525, 0.997)
SEN preference score	1.332 (0.838, 1.564)	1.152 (0.958, 1.270)	1.282 (1.072, 1.443)	1.313 (1.032, 1.587)
SEN admissions score	0.673 (0.480, 1.107)	0.879 (0.777, 0.999)	0.839 (0.567, 1.083)	0.811 (0.583, 1.131)
Classroom teacher turnover (annual)	0.151 (0.140, 0.181)	0.152 (0.136, 0.171)	0.144 (0.119, 0.176)	0.169 (0.132, 0.205)
Teaching assistant turnover (annual)	0.164 (0.127, 0.176)	0.192 (0.158, 0.203)	0.182 (0.155, 0.224)	0.190 (0.150, 0.233)
Classroom teacher turnover (cumulative)	0.347 (0.325, 0.405)	0.341 (0.310, 0.376)	0.327 (0.265, 0.359)	0.374 (0.307, 0.445)
Teaching assistant turnover (cumulative)	0.386 (0.329, 0.431)	0.417 (0.354, 0.443)	0.387 (0.333, 0.466)	0.421 (0.356, 0.500)
In year balance	0.044 (0.022, 0.062)	-0.008 (-0.013, 0.000)	-0.004 (-0.014, 0.000)	0.029 (0.002, 0.062)

Metric	Diocesan MAT N = 10	Diocese N = 27	Local authority N = 151	Trust N = 76
Self-generated income	0.056 (0.048, 0.080)	0.060 (0.048, 0.065)	0.046 (0.035, 0.059)	0.042 (0.027, 0.056)
Financial Efficiency	0.766 (0.697, 0.806)	0.708 (0.685, 0.796)	0.740 (0.684, 0.804)	0.771 (0.697, 0.853)

Notes: Figures are median (first quartile, second quartile)