Identifying pupils with special educational needs and disabilities

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Foreword

The Special Education Needs and Disabilities (SEND) classification is often assumed to apply to a small proportion of children, and the amount of attention given to this policy area in the media and by policymakers seems relatively modest.

But at any one time around a quarter of children are identified as having these "Special Needs", and at some stage in their educational journey as many as four in ten children are considered to have such needs.

How our system identifies and supports children with SEND is, therefore, an important issue with extensive implications.

It has often been claimed that being identified as "SEND" is something of a "postcode lottery". Funding for SEND varies across England, and there has long been a concern that children's needs are not fairly and systematically assessed, but that identification and support depend upon factors such as local authority, school, and pupil characteristic.

The analysis in this report aims to shed light on this issue. Is there some form of "lottery" of provision and support, and if so is this dependent on local area, school, or pupil characteristic? The analysis does not claim to assess whether the overall proportion of children with SEND is "too high or too low", but it does attempt to assess the extent to which children with similar needs have these needs identified regardless of locality, school, school type and pupil characteristic.

The results are concerning, and do appear to support the notion of a "postcode lottery" of identification and support - a "lottery" which appears to be based much more on the school attended than the local area variation. The report makes recommendations that seek to address the issues that have been uncovered.

As ever, we welcome comments from researchers and others on the methodologies and conclusions contained in this paper, and we will carefully consider these as we take forward our work in this important area.

Rt. Hon. David Laws, Executive Chairman, Education Policy Institute

Executive Summary

Overview

The core aim of this project is to assess how **fairly and effectively** Special Educational Needs and Disabilities are identified in England. In this report we examine which groups of children are most likely to access SEND support, as well as where and in what circumstances fewer or more children than expected are identified with SEND. A key dimension we explore is whether socio-economically disadvantaged children have fair access to support.

As has long been suspected, there is a **postcode lottery** in access to SEND support, and we are able to quantify how likely children are to be identified with SEND by schools and local authorities. We researched identification at the **lower level** (school support, assessed and provided by schools) and at the **higher level** (plans conveying legal rights to support, assessed and partly funded by local authorities).

Methods

We explored the factors that mean children are more or less likely to be identified with SEND using longitudinal school and social care data to find out what predicts identification, and how the differences between those who are identified in years 1 to 4 and those who are not are located at the individual, school and local authority levels.

To do this we used mixed effects models fitted to a three-level structure of 'child, within school, within local authority' and controlled for a range of explanatory factors at each level. The final models for predicting SEND identification had 'excellent' classification properties indicating a high success rate in discriminating between children that were and were not identified with SEND. Findings in the executive summary and summary boxes are statistically significant to at least the 10 per cent level unless otherwise stated; most medium and large effects are significant at the 5 per cent level, and many at the 1 per cent level, meaning these are unlikely to have occurred due to chance.

The analysis in the report is not causal, but the rich set of control data mean that many plausible alternative explanations have been excluded. The word 'effects' in this report does not indicate causality, but is the term for differences that are associated with the odds of SEND identification in our models after accounting for other factors. We compare the effects from the models with the results that might be expected based on prior research and discuss the theoretical plausibility of the observed effects occurring in a rational needs-driven identification system, and in some cases conclude that there is evidence to suspect over- or under-identification of SEND.

The most important finding from this report is that which primary school a child attends makes more difference to their chances of being identified with SEND than anything about them as an individual, their experiences or what local authority they live in. **The lottery is mostly at school level**, with more than half of the differences in identification explained by the school attended. This is most unusual in education research and in **stark contrast to school attainment**, where between-school differences explain only a small minority of the differences in pupil test results. Which school a child goes to

matters an awful lot to whether they receive SEND support at both the lower and higher levels. The system of assessment is inconsistent and not well adapted to children's individual needs.

Secondly, there is a mismatch between what schools focus on in assessing SEND needs and what local authorities focus on at the higher level of assessment. Unsurprisingly, Early Years Foundation Stage Profile assessments at age five have large effects on the chances of an individual child being identified with SEND. But whereas **schools focus mostly on communication, language and literacy** skills, local authorities make decisions that are more aligned with **personal, social and emotional development**. This is not fully explained by different primary need types at the two support levels. Many important later life outcomes such as participation in post-16 education, adult employment and wages, involvement with crime and adult health status depend on personal, social and emotional development (Carneiro, Crawford, & Goodman, 2007), but it is not as strong a predictor of accessing SEND support in primary school as this would suggest.

Thirdly, academy schools are associated with depressed chances of being identified with SEND. This is not just the case for children attending academies; in **local authorities with the highest proportions of academised primary schools** the chances of being identified with SEND at the higher level are just one tenth of those in local authorities with the fewest academies. This is not explained by deprivation levels, ethnic mix or a range of other factors. Additionally, at the school level, **children who attend academies** have reduced chances of being identified with SEND, by one third at the lower level and by one half at the higher level. These are short-term effects over two years following conversion and we do not know if they will persist but given the range of controlled factors at individual and school level, they are **likely to indicate under-identification**.

Beyond these big system findings, we found smaller inequalities that do not make sense as a rational response to risk and need. For example, while all children living in disadvantaged neighbourhoods had substantially higher odds of being identified with SEND, this effect was **greatest for the least disadvantaged children** within those neighbourhoods. There was also a negative effect of attending school in a local authority with high levels of disadvantage; this made children **less likely to be identified with SEND than children of similar backgrounds** in more affluent areas. Even within a system that is heavily weighted towards disadvantage these patterns suggest some **capture of resources** by the better-off in deprived neighbourhoods and some **rationing of support** with higher thresholds in the most disadvantaged local authorities.

We also found evidence of obstacles to accessing SEND support for children with less stable lives. Children who **moved schools or neighbourhoods** during early primary school were less likely to be subsequently identified with SEND than otherwise similar children who stayed put. The same was true of **children who experienced frequent absences from school**, even though children already identified with SEND are known to have raised absence rates. Most counter-intuitively of all, **children who were the subject of child protection plans** for abuse or neglect had reduced chances of being identified with SEND, all else being equal. A clue to the nature of these problems is found among children who lived in the care of the local authority; many of these looked after children had child protections plans prior to entering care, and yet it was **not until after a full year in care** that the chances of being identified with SEND rose above those for other children. Educational and residential transitions either delay or reduce access to SEND support, even where the risk of experiencing SEND is obviously high. **The system is not adapted to the lives of children**; it requires them to remain in one place and stay visible over long periods of time to access support.

This requirement for uninterrupted visibility in order to access timely support for SEND is even more problematic in the current pandemic context where face-to-face schooling has been suspended during lockdowns and rates of school absence have been elevated. The consequences of this are likely to mean delayed SEND identification for children in the early primary year groups.

Summary of effects predicting identification with SEND

	Lower level SEND (School support)	**Higher level SEND (Local Authority assessed support)**
Large effects (odds raised by 10 times or more)	Communication, language & literacy EYFSP assessments Neighbourhood deprivation School's historical SEND rate; Ofsted grade outstanding or less than good	Personal, social & emotional development EYFSP assessments Neighbourhood deprivation Local authority with more academies (reduced odds)
Medium effects (odds raised by 3 times or more)	Personal, social & emotional development; problem solving, reasoning & numeracy EYFSP assessments Gypsy/Roma/Traveller; Free school meals history Academy school; moved neighbourhoods; frequently absent from school; child protection plan (all reduced odds) In care for more than 1 year	Communication, language & literacy; physical development EYFSP assessments; boys School's historical SEND rate; Ofsted grade outstanding or less than good Academy school; in care for more than 1 year; moved neighbourhoods; frequently absent from school (all reduced odds) Local authority higher Black and Minority Ethnic rate (ethnicities other than White British) (reduced odds)
Small effects (odds raised above 1)	Physical development EYFSP assessments; birth month; boys Black Caribbean; Black Other; Mixed White and Black Caribbean Asian or English as an additional language; moved schools (both reduced odds) Pupil teacher ratio / larger classes Local authority disadvantage or higher Black and minority ethnic (both reduced odds)	Problem solving, reasoning & numeracy EYFSP assessments; free school meals history; birth month Gypsy/Roma/Traveller; Black Caribbean; Mixed White and Black Caribbean; Mixed Other Asian or English as an additional language; moved schools; child protection plan (all reduced odds) Pupil teacher ratio / larger classes; local authority disadvantage (all reduced odds) More mainstream or resourced provision in the area
No effects (or negligible)	Local authority high needs budgets and specialist places	Local authority high needs budgets and specialist places

Recommendations

The dominance of school effects in explaining which children are most likely to be identified with SEND clearly points to school practices as a key locus for reducing the postcode lottery and improving the allocation of SEND support to the children who need it. Approaches consistent with greater **quality and consistency** in schools include:

- Provision of **specialist SEND training** for all current and prospective school leaders;
- Increased **access to educational psychologists** in schools when providing early support or making a case for support at the higher level;
- Greater use of **age-standardised assessments where appropriate instruments exist** to increase consistency in assessment;
- The development of a **framework of national expectations** defining the kinds of **adjustment and support** that any mainstream school should make available as a matter of course;
- The framework should be developed in consultation with **parent groups**, with **costing and feasibility planning** undertaken by school leaders' representative bodies;
- Curriculum and pedagogies designed to foster secure and equal **personal, social and emotional development** for all children.
- Work to develop and introduce these changes should be **timetabled appropriately** to allow for the current additional demands on the teaching profession resulting from the pandemic.

Our findings identify several groups of children who are either plausibly or most likely under-identified with SEND and therefore access SEND support less readily than other children. Responses consistent with greater **equality and accessibility** include:

- Development of services and assessments capable of **engaging with children at home**, both in response to the covid pandemic, and for children who miss school for other reasons;
- **Further research using qualitative methods** to unpick whether the ethnic disparities we report represent real deficits in support, and if so where and why they originate;
- Monitoring and **safeguards to ensure the visibility** of the most disadvantaged children and geographically mobile children within the assessment system.

SEND support suffers from a lack of **accountability** to those families less willing or able to access the tribunal system in a landscape where schools and local authorities have **many competing duties and objectives** for which they are being held to account as a matter of course.

Combined with our earlier recommendation for a framework of national expectations for SEND adjustments and supports in mainstream schools, the following could improve accountability for SEND support:

- School **inspections should gather evidence of compliance** with national expectations and recognise best practices that exceed the expectations;
- School accountability for attainment and academic progress should be **informed by the level of risk and challenge** embodied in the intakes of different schools, based on intelligent examination of the risk factors we have evidenced with our models.

Our research cannot inform what the 'true' prevalence of SEND is as it examines variation within the identification system as it was over a period of time, and we have **no external benchmark for judging the overall sufficiency** in the system. However, the unexplained inequalities described in our results suggest that there are **differential thresholds** being applied. Our results can be used to inform better use of **resources** in the following ways:

- **Rationalising high needs funding** across local authorities **according to the risk factors** we have identified - the risks of reducing funding can be avoided by providing additional funds to top up those areas that are under-funded relative to their risk profile;
- The **needs assessment** function of local authorities conflicts with their role as **budget holder** for SEND support. **Separating these two functions** would open up the opportunity for more outcome and quality-focused practices in local authorities;
- **Evaluating the possibility of class sizes of 20 or fewer** in reception in the most deprived neighbourhoods, alongside better training and clearer expectations for SEND support. An intervention on this scale should be evaluated, and with specific reference to the outcomes and long-term costs of support for children with SEND.

Findings in greater depth

Differences between schools accounted for the majority of variation in SEND identification, both for SEND at the lower level which is assessed by schools, and for SEND at the higher level which is assessed by local authorities. Strikingly, **differences between schools were more important than differences between individual children**: between-school differences accounted for 69 per cent of all variation at the lower level of SEND and 67 per cent at the higher level of SEND.

Differences due to **school age ranges** in infant and junior schools accounted for around 13 per cent of the variation, leaving over 50 per cent that was other between-school variation.

Differences between **local authorities** accounted for just two per cent of variation at the lower level of SEND and four per cent at the higher level; the remaining 29 per cent was explained by differences between children.

Summary box 1: Child factors

The **Early Years Foundation Stage Profile** is a set of teacher assessment scales used to determine what children know and can do at age five. Of these scales, higher scores on the **'communication, language and literacy'** scale had large negative associations with SEND identification at the lower level, and the **'personal, social and emotional development'** scale had large negative associations at the higher level.

- For the communication, language and literacy scale an estimated forty-seven per cent of children in the lowest decile were identified with SEND at the lower level during years 1 to 4, compared with fourteen per cent of children in the highest decile.
- At the higher level, this scale was by far the most important of the EYFSP scales, with 4.1 per cent of children in the lowest-scoring decile identified with SEND compared with just 0.2 per cent of the highest-scoring children.

The **'problem solving, reasoning and numeracy'** scale also had medium negative effects on SEND identification at the lower level, and small effects at the higher level of SEND.

- An estimated thirty-eight per cent of children in the bottom decile for numeracy were identified with SEND at the lower level, falling to twenty-two per cent of those in the top decile.

The **'physical development'** scale had a small negative association with SEND at the lower level, but medium-sized effects as important as those for the 'communication, language and literacy' scale, for identification at the higher level of SEND.

- At the higher level, 2.5 per cent of the children with the lowest scores were identified with SEND, compared with 1.3 percent of the highest-scoring children.

Relatively to lower-level SEND identifications and to the prevalence of the 'social, emotional and mental health' need type among children with higher-level SEND, the **'personal, social and emotional development'** scale scores have an outsized influence on overall identification at the higher level of SEND. This suggests this area of development as an important focus for school practice and for policy-makers thinking about prevention and early help.

Our results also indicate that lower personal, social and emotional development at age five was proportionally most likely to prefigure the onset of SEND support for the least disadvantaged children; this was one of several **relative access issues faced by disadvantaged children**.

Children's birth month is a well-documented predictor for a wide range of educational outcomes, including identification with SEND. We found that **summer-born children** were over-represented with SEND, and this relative age effect appears to be mediated through lower Early Years Foundation Stage Profile attainment for younger children, and to a lesser extent by the choice of schools attended by summer-born children in the case of higher-level SEND. These effects were small. Previous research concludes that any 'real' effects of birth month such as those deriving from pre-natal exposure to cold climates account for at most a negligible portion of the observed effects; the principle cause of month of birth effects is the difference in age, and therefore development, when children are assessed. In our research this suggests **misidentification of SEND** due to a failure to take normal development differences over the course of twelve months into account.

Boys were also overrepresented among children identified with SEND. This echoes earlier research. The gender effects were small at the lower level of SEND and medium at the higher-level. Higher rates of SEND identification appeared to be mediated through lower EYFSP attainment scores for boys. Older research suggests some degree of bias in SEND identifications is likely to contribute to this effect.

- Boys experienced twice the odds of being identified with SEND at the lower level compared with girls, and three times the odds at the higher level of SEND.

Gypsy/Roma and Traveller, Black Caribbean, and Mixed White and Black Caribbean children were over-represented among children identified with SEND at both levels. The size of these effects was small, except for medium-sized effects for Gypsy/Roma and Traveller children at the lower level of SEND.

- GRT children experienced 4 to 5 times the odds of being identified with SEND at the lower level compared with White British children.

There is a **history of misidentification** for **Black Caribbean children**. Our models indicate that this group remains over-identified after controlling for all individual child-level factors, and suggest that while a proportion of the over-representation is due to greater levels of poverty, most of the over-representation is associated with attending schools that identify more children with SEND or is mediated through lower attainment assessments at age five.

The same pattern was found for **Gypsy/Roma and Traveller children** at the lower level of SEND, but at the higher level, the Early Years Foundation Stage Profile attainment assessments were more important than the school attended. This leaves open the possibility that there could actually be some under-identification of this group at the higher level of SEND, depending on how accurate and unbiased the EYFSP assessments are.

In contrast, several Asian groups are under-represented in SEND identifications at both levels after controlling for all individual child-level factors, and this is further exacerbated by attending schools with lower-than average rates of identification. The under-representation of Asian groups, especially **Bangladeshi and Pakistani children**, is greatest for the most disadvantaged children.

Children with **English as an Additional Language** were also under-represented to a small degree among those identified with SEND, and our models estimated that 24 per cent of this group were identified at the lower level, compared with 27 per cent of children with English as their first language. At the higher level of SEND, this was 1.5 per cent of children with EAL compared with 1.9 per cent of other children.

We used longitudinal data about each child's **history of eligibility for free school meals** to create a factor for the persistence of disadvantage. Children were classified as the 'most disadvantaged' if they had been eligible for FSM for 80 per cent or more of their time in school, and 'least disadvantaged' if they had been eligible for less than 20 per cent, or not at all.

Our models indicated that the chances of being identified with SEND increased with the duration of disadvantage, although for SEND at the higher level the pattern of disadvantage effects was not fully linear. The effect sizes for disadvantage were medium at the lower level of SEND and small at the higher level of SEND.

- An estimated 25 per cent of the least disadvantaged children were identified with SEND at the lower level, rising to 35 per cent of the most disadvantaged children.

Summary box 2: School, neighbourhood and social care experiences

The effects of **neighbourhood deprivation** on identification were large at both levels of SEND. The IDACI score measures the concentration of disadvantaged families in the local area, and the average of this score for the neighbourhood(s) lived in prior to any identification was positively associated with SEND identification, and with much larger effects than individual disadvantage.

- Our models estimated that 20 per cent of children living in the least deprived areas were identified with SEND at the lower level, rising to 66 per cent – or almost two thirds – of those living in the most deprived neighbourhoods.
- At the higher level of SEND, identification rose from 1.3 per cent of children living in the least deprived areas to 10.4 per cent – or one in ten – of those living in the most deprived neighbourhoods.

We found some evidence to suggest **a possible degree of 'capture' of SEND support resources** by more affluent families living in deprived neighbourhoods. The neighbourhood effects were larger for the least disadvantaged children, with effect sizes that ranged from small to medium or medium to large within the same neighbourhood deprivation bracket. It is possible that **unobserved neighbourhood factors** such as pollution levels could play a role in these effects, but on balance it is more likely than not that there is some under-identification of the poorest children within more deprived neighbourhoods.

We found reduced chances of being identified with SEND for children who moved neighbourhood resulting in a **change of neighbourhood deprivation level** or those who **moved school**; these effects were medium sized for neighbourhood moves and small for school moves.

- An estimated 2.9 per cent of those who did not move to a neighbourhood with a different deprivation level were identified with SEND at the higher level, compared with 1.4 per cent of children who were mobile with respect to neighbourhood deprivation.
- At the higher level of SEND, 1.9 per cent of children who did not move school were identified, compared with 1.7 per cent of those who moved school once, 1.3 per cent of those who moved twice, and 1.2 per cent of those who moved schools three or more times.

These negative effects on SEND identification were relatively stronger for the most disadvantaged children. Since, if anything, mobility might sometimes interrupt learning and development, these effects seem to suggest **obstacles to assessment** and the continuity of identification processes.

Our results indicate that absence from school can also act as a barrier to the identification of SEND. In contrast with the patterns of increased absence observed for children who have already been identified with SEND, a history of raised **sickness or unauthorised absence** rates is *negatively* associated with subsequent SEND identification at both levels.

These effects were on the borderline between medium and large and were stronger for the most disadvantaged children. The pattern of effects suggests under-identification of children with high sickness or unauthorised absence rates due to **interruptions in assessment** or possibly **lower visibility.**

- At the higher level of SEND, 3.1 per cent of children with the least sickness absences were identified, falling to 1.1 per cent of the most absent children.
- For unauthorised absence, 3.0 per cent of the least absent children were identified, compared with just 1.0 per cent of children with the most absences.

Our results provide evidence for delayed SEND identifications experienced by children in contact with **children's social care services**. By definition these children are at elevated risk of health and development problems or educational failure, and the eventual effect sizes for increased identification are medium in size, yet we found that the chances of being identified with SEND were reduced until a child had been in the care of the local authority for more than a year. In fact, the chances of identification do not reach their peak until children have been **in care for four to six years**.

- An estimated 27 per cent of children who have never been in care were identified with SEND at the lower level. This compared with 30 per cent of those who had been in care for 13 to 24 months, 33 per cent of those who had been in care for 25 to 72 months, and 36 per cent of those who had been in care for more than 72 months.
- At the higher level of SEND, 1.8 per cent of children who were never in care were identified, compared with 3.1 per cent of children who had been in care for 13 to 24 months. This rose further to 3.5 per cent of those looked after for 25 to 48 months and peaked at 4.1 per cent of those looked after for 49 to 72 months.

The delays to identification for children in local authority care were longest for the most disadvantaged children. This could plausibly be associated with high children's social care caseloads in the most deprived local authorities, but we cannot answer this question from our analysis.

Children with **child protection plans** but not in care continued to have reduced chances of being identified with SEND, relative to their risk profile, no matter how many times they were the subject of a child protection plan. The size of these effects was medium at the lower level of SEND and small at the higher level of SEND.

- An estimated 27 per cent of children who have never had a child protection plan were identified with SEND at the lower level according to our models. This contrasted with just 19 per cent of children with one or more child protection plans.

Summary box 3: School factors

As we observed from the initial partitioning of variance in SEND identification, schools have differential propensity to identify children with SEND. Medium-sized effects of this are felt at the higher level of SEND in addition to large effects at the lower level of SEND. Our results also show that **schools' differential propensity to identify SEND persists over time**. Even after controlling for rich individual level factors, SEND practices at school level dominate those factors that vary between children.

- In schools with the lowest prior SEND rates, an estimated 14 per cent of children were identified with SEND at the lower level, and this rose as high at 70 per cent of children in schools with the highest prior levels of identified SEND.

There was a nuanced (non-linear) relationship between **Ofsted inspection judgements** and SEND identification. The effect sizes were large at the lower level of SEND and medium at the higher level.

- In schools rated as 'good', an estimated 23 per cent of children were identified at the lower level, compared with 26 per cent of children in 'outstanding' schools, 32 per cent of children in 'inadequate' schools, and 43 per cent of children in schools that 'required improvement'.

School governance had medium effects on SEND identification at both levels. Specifically, children attending **academies** had reduced chances of being identified with SEND, all else being equal. There is good evidence that this represents **under-identification** because potential confounding factors at the school and individual level were controlled for, and we found that identification becomes reduced one to two years after academisation took place. However, it was only possible to assess these effects **in the short-term** and we do not know how long they persist for.

- An estimated 28 per cent of children in local authority mainstream schools were identified at the lower level, compared with 17 per cent of children in mainstream academies.
- At the higher level of SEND, 2.0 per cent of children in local authority mainstream schools were identified, compared with just 1.0 per cent of children in mainstream academies.

Academy effects are clearly part of the postcode lottery for SEND support, and at the higher level of SEND identification there were large effects on children who did not even attend an academy, but who attended school in a **local authority where primary academies were more prevalent**.

- Children in LAs with the lowest rates of academisation had an estimated chance of being identified with SEND at the higher level of 3.2 per cent; this compared with just 0.3 per cent of children in LAs with the highest rates of primary school academisation.

The most disadvantaged children attending academies had the lowest chances of identification, but this was driven by a combination of other characteristics they shared, such as higher rates of BME ethnicity, in addition to the effects of academisation.

Class sizes in lower primary school in England are large relative to international norms. We are not able to measure class size directly but have included the **pupil-teacher ratio** at school level in our models. These indicated small effects in schools with the highest pupil-teacher ratios of increased SEND identification at the lower level, but reduced identification at the higher level.

This would be consistent with a hypothesis of increased workload in larger classes that would plausibly reduce the opportunities for both **early help and prevention** and for **engaging with local authority assessment**. These effects were not explained by school type or age range.

- In schools with the lowest ratios (more teachers) an estimated 24 per cent of children were identified at the lower level, compared with 29 per cent with the highest ratios.
- At the higher level of SEND, children in schools with the lowest pupil-teacher ratios (smallest classes) had higher chances of identification at the higher level of SEND, at 2.0 per cent. This compared with 1.7 per cent in the quartiles with the second highest and highest ratios.

We found some effects of the presence of school **SEND units** and these were associated with earlier or raised identification. However, selection effects of children with more severe needs being enrolled at those schools could easily account for this and we cannot rule that likelihood out.

Summary box 4: Local authority factors

There were some small positive effects of greater **mainstream and resourced provision** on SEND identification at the higher level, but these did not have any meaningful trickledown effect to identification at the lower level.

- In local authorities with the highest levels of SEND in mainstream schools, an estimated 2.2 per cent of children were identified with SEND at the higher level, compared with 1.4 per cent of those in LAs with the lowest prior levels of SEND in mainstream schools.

We found no evidence that greater use of **specialist placements** was associated with either rationing or over-use. This does not rule out the existence of rationing, but it clarifies that this is unlikely to be related to differences in local capacity, at least in terms of overall places per population head.

We were also able to rule out effects of local authority differences in **per-head high needs budgets**, or for the balance of high needs against general school funding. Again, this does not mean that budgets don't matter for outcomes, but that they don't explain the local variation in identification.

Note that our analysis does not measure what nature or quantity of support is offered to children identified with SEND at the lower or higher levels, so our findings should not be misread as minimising the importance of funding or appropriate provision.

In contrast to the individual and neighbourhood disadvantage and deprivation effects, there were small *negative* effects of **local authority disadvantage** on SEND identification, as measured by the proportion of primary pupils eligible for free school meals. This suggests a contrast bias, or rationing effect, whereby **higher thresholds** of need are applied in authorities where the risks associated with SEND are more common.

- At the higher level of SEND, in the least deprived third of local authorities, 2.2 per cent of children were identified with SEND, compared with 1.5 per cent of children in the most deprived third of LAs.

A further contrast bias is indicated by our model results for local authorities with the **highest proportions of Black and Minority Ethnic children**. The chances of SEND identification are raised in these areas, with small effects at the lower level of SEND and medium-sized effects at the higher level of SEND.

This is a contrast effect and not the effect of a 'riskier' population because most BME groups of children have reduced chances of being identified with SEND all else being equal; it is White British children who are primarily the subject of this increased identification.

- At the higher level of SEND, 1.4 per cent of children in local authorities with the lowest BME rates were identified, rising to 2.4 per cent of those in LAs with the highest proportions of primary BME children.

Introduction

Project Aims

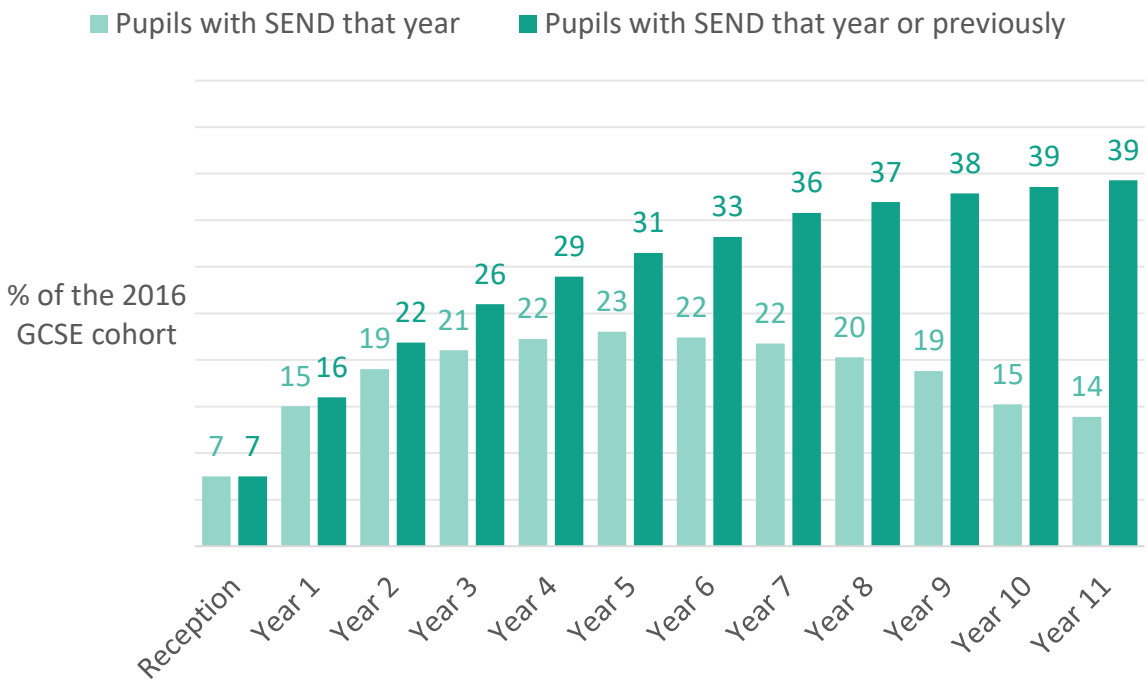
The core aim of this project is to assess how fairly and effectively Special Educational Needs and Disabilities are identified in England over recent years, and to begin to map out how joined-up the support from schools (SEND) and from Child and Adolescent Health Services (CAMHS) is for children with relevant needs. This report focuses on the identification of SEND in schools and will be followed by phase two of the project, which will join up these findings with the picture of which groups of children access support from CAMHS.

In this report we examine which groups of children are most likely to access SEND support, as well as where and in what circumstances fewer or more children than expected are identified with SEND. A key dimension we will explore is whether socio-economically disadvantaged children have fair access to support compared with more advantaged children. We will also consider whether the patterns of identification have begun to change since the 2014 SEND reforms.

The motivation for the project stems from widespread concerns that the reforms introduced by the government in 2014, which are described in the following section, have failed to address important problems in the system identified at least as far back as 2010. In particular, it is commonly claimed that access to support for children with SEND is a postcode lottery, and we aim to provide the first systematic and quantified picture of variations in access to SEND support as manifested in the system of assessment and identification.

Our preliminary analysis of the prevalence of SEND revealed that the proportion of children ever identified by schools during compulsory schooling was much higher than expected from the official statistics (Hutchinson, 2017). Because the official figures take a snapshot of the number of children with SEND at each age, they do not capture the dynamic nature of the system by which schools continue to periodically assess and review SEND status, resulting in some children ceasing to have SEND, while others are newly identified. We analysed longitudinal records and discovered that while a maximum of 23 percent of children in the 2016 GCSE cohort had SEND at any one time (the peak was in Year 5 when they were aged ten), a full 39 percent were recorded with SEND at some point between Reception (age five) and Year 11 (age sixteen). This makes SEND directly relevant to four in ten children, or twelve per class of thirty on average. This supports the broad relevance of our research.

Figure 1. Prevalence of SEND: school year snapshots versus cumulative numbers ever identified



The project is purely quantitative in nature and cannot answer all of the important questions that exist about practices and ethos for the inclusion of most children with SEND in mainstream schools, but it does aim to set out a quantified basis to help to frame those questions more precisely in future research. It also aims to highlight any inequalities in access to SEND support that do not appear to stem from plausible risk factors, but are features of the operation of school and local authority systems.

Policy Background

The background of this research has been one of policy reform, followed by continued concerns and uncertainty. In 2010, Ofsted published its review of the SEND system entitled 'A Statement is Not Enough' (Ofsted, 2010). The report was critical of support for children and families and identified particular weaknesses concerning the agency and involvement of parents and children in the decision processes surrounding SEND support, and also criticised the inconsistency of practice from place to place that has been dubbed a postcode lottery (Kent, 2015).

In 2011, the government launched a consultation on its green paper entitled 'Support and Aspiration' to address the problems highlighted by Ofsted (Department for Education, 2011), and in 2012 it published recommendations under a title of 'Progress and Next Steps' (Department for Education, 2012). This confirmed a focus on early identification and a better experience for parents with less 'fighting for' support, and better coordination between health, social care and education services.

Finally, in 2014 the Children and Families Act and the new SEND Code of Practice put in place requirements for a SEND 'Local Offer' to be published by each local authority to inform parents about what support they could expect, and for support to be extended to children and young people aged 0-25. Reform pilots took place in 31 'pathfinder' LAs and the reforms were rolled out nationally with transformation funding provided to LAs from September 2015 to April 2018, by which time all

Statements of support from the previous system should have been replaced by new Education, Health and Care Plans (EHCPs).

In practice non-trivial numbers of replacement EHCPs were rushed through around the time of the deadline, having yet to be completed by the January 2018 school census with just over two months to go (Department for Education, 2018). The replacement of statements with EHCPs was the main visible sign of the reforms taking place for children with SEND support needs at the higher level, while at the lower level of support provided by schools, the proportion of children recorded with SEND fell from a peak of 18.3 per cent in 2010 to 15.1 per cent by 2014, and then continued to fall to 11.6 per cent by 2017, which is the latest year analysed in this report. By 2019, this had risen again slightly to 11.9 per cent, suggesting the previous decreases may have levelled off (Department for Education, 2019).

In contrast, the prevalence of Statements / EHCPs remained steady at 2.8 per cent from 2010 to 2017 but has since increased to 3.1 per cent. This increase is often anecdotally attributed to continued dissatisfaction with early support for SEND in mainstream schools, but explanations of increased diagnosed rates of Autistic Spectrum Disorder (Department for Education, 2019) and increases in life expectancy for children with the most severe and complex disabilities and health needs have also been offered, and have more evidence to support them (Barnes, 2007).

Increases in raw numbers of children and young people with EHCPs have also been prompted by the extension of support up to age 25. At the same time, it is true that the numbers of families lodging appeals with SEND tribunals have increased and the proportion of appeals that are upheld had reached 89 per cent by 2017 and 92 per cent by 2019, suggesting continued and increasing dissatisfaction with local authority decision-making (Ministry of Justice, 2019).

In September 2019, a cluster of new announcements emerged from the Department for Education, signalling that with the arrival of Gavin Williamson as the new Secretary of State for Education, a response to the increasingly urgent concerns around the funding and capacity of the SEND system was taking shape.

The latest manifestations of the problems in the system were two court cases; in August 2018, the Upper Tribunal upheld an appeal against the exclusion from school of a boy whose disabilities led to aggressive behaviour, on grounds of discrimination (Adams, 2018); and in June of 2019 a High Court challenge was mounted by families claiming that the government's funding of SEND was inadequate and unlawful (Richardson, 2019).

While the funding challenge was ultimately not upheld, it garnered significant press attention and resulted in many stories of children missing out on the support they need reaching the public, and the government moved to announce an additional £700m for special needs and a review of high needs funding in advance of the Court's ruling (Department for Education, 2019).

Within the package of announcements, a new review of support for SEND was accompanied by a commitment to make additional new alternative provision the focus of the next free schools application round. The review would aim to "improve the services available to families who need support, equip staff in schools and colleges to respond effectively to their needs as well as ending the 'postcode lottery' they often face".

The ‘postcode lottery’ concern echoed Ofsted’s 2010 findings, but yet the 2014 reforms did not contain any elements that were obviously in response to this problem, and so it is difficult to see the current review as a follow-up or checkpoint on work already undertaken. The pairing of the review with planned increases in capacity for alternative provision, which were announced before the review got underway, also does not fit easily with a narrative of review-led policy.

While the outcomes of the review are not yet known and little information about its work has been released, the government’s commissioned 2017 assessment of the evidence concluded that it is research and action on the specific needs of pupils with different types of SEND that is needed to underpin better policy and practice (Carroll, et al., 2017). The focus on staff development and training is pertinent to the Upper Tribunal’s ruling in the discrimination case, and suggests that the current requirements for training for special educational needs coordinators (SENDCOs) are insufficient given that school leaders need a strong knowledge of SEND to ensure they can make lawful exclusion decisions.

Finally, there are some important links between SEND support practice in schools and wider policies, centred on funding and accountability pressures in mainstream schools, which have been implicated in increasing difficulties in providing adequate SEND support (Parish, Bryant, & Swords, 2018). These pressures are visible in rising numbers of permanent exclusions increasing the pressure on specialist places (Department for Education, 2019), and increases in home schooling or children missing education where specialist provision demand cannot be met (Office of the Children's Commissioner, 2019). In addition to the size of the national funding pot, a source of pressure is the inability of the current high needs allocation formulae to deliver funding that is reasonably consistent from one local authority to another and also flexible in the face of changing needs profiles (Perera, 2019).

Research Questions

The project aims were distilled into six research questions for this first phase of the analysis, drawing on some of the recurring and unresolved themes of the recent policy history described above. These questions were as follows:

- 1. What are the factors that best predict a child being identified with SEND?
- 2. How do these factors differ between different need types, and levels of SEND?
- 3. Do these factors differ by socio-economic background?
- 4. Can we identify areas of England, types of provision, or other clusters of children identified at a significantly higher or lower level than predicted?
- 5. Is ‘under-identification’ or ‘over-identification’ of SEN relative to predicted levels associated with socio-economic disadvantage, generally or for specific types of need?
- 6. Have levels and patterns of under- or over-identification changed over seven years, and are any potential effects of the 2014 reforms suggested?

In the limitations section, we discuss difficulties encountered in using the planned methodology (detailed below) to address different need types as envisaged in research question 2, and the trend over seven years as envisaged in research question 6.

The premise of the research questions is that there are a stable set of factors that are associated with SEND, and that are capable of defining an expected rate of identification for a given population of children, given that the factors are known for that population. This set of risk factors is of interest

in itself and is examined in research question 1. Knowing about these risk factors can help to frame future policy development, research questions, and for practitioners in schools and local authorities to assess how local patterns of actual identification compare with nationally derived expectations.

The findings in this report under research question 2 address which children are most likely to be identified with SEND through the lens of differences between the lower level of SEND, known as 'school action' and 'school action plus' prior to the reforms and as 'school support' since; and the higher level of SEND, known as 'statements of SEND' before the reforms and latterly as 'education, health and care plans'.

The lower level of SEND is assessed and supported mainly by schools, and the first £6,000 of costs must be met from the regular schools block funding, with local authorities able to top this up at their discretion. In practice, additional funding beyond this threshold are often reserved for children at the higher level of SEND, which is assessed by the local authority and funded from its high needs budget.

This can include funds for additional support in mainstream school, such as dedicated support from a teaching assistant or purchased therapies provided outside of the classroom. In the cases deemed by local authorities to require the most specialised care and education, children may be offered a place in a special school or other specialist setting that is assessed as a better fit for their needs.

In some cases, the choice between mainstream and specialist provision is determined by practical considerations such as needs for significant personal and health care or for education provided by teachers with specialist need-specific training and experience. In other cases, it has been argued that the large variation in practices between local areas demonstrates that the decision is influenced by the variable 'inclusion climate' in mainstream schools, such as differences in tolerance for atypical or challenging behaviour, or in the flexibility of the curriculum to meet different needs.

This project does not address the question of mainstream versus specialist provision and makes no assumption about the relative value or appropriateness of one provision type or the other because the administrative data do not include enough information about what support looks like in practice to even begin to draw conclusions about this. Instead the focus remains on the level of SEND which defines both the legal protection of support identified as necessary at the higher level, and the obligation of the local authority to provide additional funding to ensure the named support can be accessed.

Research questions 3 to 6 explore the variation of expected and actual SEND rates across different groupings of children. Questions 3 and 5 focus on children who are socio-economically disadvantaged, and whether the relationship with other risk factors differs for these children such that they experience different identification outcomes from other children.

Question 4 examines variation by local area and for different types of provision, most notably the academy status of schools attended. Other features of the school provision that are examined include the most recent Ofsted judgment, the characteristics of the school's intake, and the pupil-teacher ratio. Question 6 explores whether the 2014 reforms have influenced the patterns exposed by the other research questions.

Data and Research Methods

Datasets and constructed variables

In this report we analyse SEND identifications for a cohort of primary school aged children who started reception in the academic year 2010/11 and reached year 6 in 2016/17. Administrative data were sourced from the school census for each term during this period and augmented with annual data from the pupil referral unit census until this was superseded by the alternative provision census in 2013/14, and from the latter through to 2016/17.

In addition to the pupil-level school and provider censuses, we merged in data from the Early Years Foundation Stage Profile results for 2010/11, and the school absence and school exclusions modules of the school census for 20101/11 to 2016/17. Finally we merged in children's social care records from the children in need census and the children looked after census; full data were available for episodes of need from 2008/09, when the children in our cohort were three years old, and for episodes of care from 2005/06 which was the year they were born in.

Table 1 sets out the variables we included in our analysis and how these were derived from the datasets above, and also variables that were tested but dropped from the final models because they did not have coherent and significant patterns of odds effects or were not possible to fit as part of our models.

Table 1: Factors analysed alongside SEND identification

Factors retained in the models

Factor	Specification	Categorisation	Source dataset
EYFSP communication	Teacher assessment scale score for 'communication, language and literacy' at age five	Deciles	EYFSP results 2011
EYFSP PSR numeracy	Teacher assessment scale score for 'problem solving, reasoning and numeracy' at age five	Deciles	EYFSP results 2011
EYFSP personal social emotional	Teacher assessment scale score for 'personal, social and emotional development' at age five	Deciles	EYFSP results 2011
EYFSP physical dev	Teacher assessment scale score for 'physical development' at age five	Quintiles	EYFSP results 2011
EYFSP knowledge	Teacher assessment scale score for 'knowledge and understanding of the world' at age five	Sextiles	EYFSP results 2011
EYFSP creative dev	Teacher assessment scale score for 'creative development' at age five	Sextiles	EYFSP results 2011
Gender	Male in any census return = 1	Binary	School census; PRU census; AP census 2011-2017
Born	Sourced from most recent record	12 calendar months	School census; PRU census; AP census 2011-2017
Ethnicity	Sourced from most recent record	18 category ONS classification	School census; PRU census; AP census 2011-2017
Language	First language believed or known to be other than English in any census return = 1	Binary	School census; PRU census; AP census 2011-2017
FSM, % of time	Proportion of all relevant terms with valid free school meals data in which the pupil was eligible for free school meals	Five categories: 0-19%, 20-39%, 40-59%, 60-79%, 80-100%	School census; PRU census; AP census 2011-2017
Mean IDACI	Mean average IDACI score across relevant terms	Octiles	School census; PRU census; AP census 2011-2017
Maximum IDACI	Maximum value of IDACI scores across relevant terms	Deciles	School census; PRU census; AP census 2011-2017
Variability of IDACI	Standard deviation of IDACI scores across relevant terms	Terciles	School census; PRU census; AP census 2011-2017
School moves	Number of changes of school unique reference number after dicounting cases where the same school changed its URN due to governance or structure changes	Four categories: 0 oves, 1 move, 2 moves, >=3 moves	School census; PRU census; AP census 2011-2017
Sickness absence	Termly average proportion of possible sessions missed due to sickness, across relevant terms	Quartiles	School census; PRU census; AP census 2011-2017
Authorised absence	Termly average proportion of possible sessions missed due to authorised reasons, across relevant terms	Quartiles	School census; PRU census; AP census 2011-2017
Unauthorised absence	Termly average proportion of possible sessions missed due to unauthorised reasons, across relevant terms	Quartiles	School census; PRU census; AP census 2011-2017
Months looked after	Total months in care across all periods of care in relevant time period	Six categories: 0 months; 1-12 months; 13-24 months; 25-48 months; 49-72 months; >=73 months	Children Looked After Census 2006-2017
Child Protection Plans	One or more child protection plans commenced within relevant time period = 1	Binary	Children in Need Census 2009-2017

Factors retained in the models

Factor	Specification	Categorisation	Source dataset
Type of School	Type of school at term in which identification took place; or in most recent term where not identified	Seven categories: LA mainstream; Academy mainstream; Academy special; Academy AP; LA pupil referral unit; LA special, Non-maintained special	School census; PRU census; AP census 2011-2017
Latest inspection	Overall judgement from most recent Ofsted inspection at the time of identification; or in most recent term where not identified	Five categories: Outstanding; Good; Requires Improvement; Inadequate; not inspected yet	Ofsted Management Information Data 2005-2017
School FSM rate	Proportion of primary-aged pupils eligible for free school meals in January 2011, or in the earliest available term if the school and its predecessors had not opened	Terciles	School census; PRU census; AP census 2011-2017
School SEND rate	Proportion of primary-aged pupils with SEND at any level in January 2011, or in the earliest available term if the school and its predecessors had not opened	Septiles	School census; PRU census; AP census 2011-2017
School SEND unit	Status in 2017 based on LA funded places; earlier data not found	Binary: has a unit or has no unit	Dedicated Schools Grant Allocations 2016-17
Pupil Teacher Ratio	Ratio of pupils to teachers at school level	Quartiles	School Workforce Census 2011

Factors retained in the models

Factor	Specification	Categorisation	Source dataset
LA FSM rate	Proportion of primary-aged children in the local authority eligible for free school meals at the time of the identification, or in most recent term where not identified	Terciles	School census; PRU census; AP census 2011-2017
LA EHCP mainstream	Children under 16 with EHCPs placed in mainstream schools as a proportion of all children under 16, in 2017; earlier data not found	Terciles	Dedicated Schools Grant Allocations 2016-17
LA EHCP resourced	Children under 16 with EHCPs placed in resourced provision as a proportion of all children under 16, in 2017; earlier data not found	Terciles	Dedicated Schools Grant Allocations 2016-17
LA EHCP special	Children under 16 with EHCPs placed in special schools as a proportion of all children under 16, in 2017; earlier data not found	Terciles	Dedicated Schools Grant Allocations 2016-17
LA EHCP other	Children under 16 with EHCPs not in school provision as a proportion of all children under 16, in 2017; earlier data not found	Terciles	Dedicated Schools Grant Allocations 2016-17
LA BME rate	Proportion of primary-aged children in the local authority with ethnicity other than White British at the time of the identification, or in most recent term where not identified	Quartiles	School census; PRU census; AP census 2011-2017
LA primary academisation rate	Proportion of primary schools in the local authority which were academies by January 2017	Quartiles	School census; PRU census; AP census 2011-2017
Timing of academisation	Year of academisation relative to any identification with SEND	Three binary flags: academised in same year as identification = 1; academised in year prior to academisation = 1; academised >=2 years prior to academisation = 1	School census; PRU census; AP census 2011-2017
School age range	Flags to identify schools that did not have a reception year group as junior schools and those that did not have a year 6 as infant schools	Binary	Getting Information About Schools Dataset

Factors tested but dropped from the models

Factor	Specification	Categorisation	Source dataset
First language	Sourced from most recent record	Binary flags for each of 113 language codes	School census; PRU census; AP census 2011-2017
Permanent Exclusions	Number of permanent exclusions across relevant terms	Continuous and categorical specifications tested	School census; PRU census; AP census 2011-2017
Fixed Period Exclusions	Number of fixed period exclusions across relevant terms	Continuous and categorical specifications tested	School census; PRU census; AP census 2011-2017
Reasons for exclusion	One or more exclusions for specified reason across relevant terms	Binary flags for each of twelve reason codes	School census; PRU census; AP census 2011-2017
Exclusion absence	Termly average proportion of possible sessions missed due to exclusions, across relevant terms	Continuous and categorical specifications tested	School census; PRU census; AP census 2011-2017
Lateness absence	Termly average proportion of possible sessions missed due to lateness, across relevant terms	Continuous and categorical specifications tested	School census; PRU census; AP census 2011-2017
Medical Absence	Termly average proportion of possible sessions missed due to medical or dental appointments, across relevant terms	Continuous and categorical specifications tested	School census; PRU census; AP census 2011-2017
Traveller Absence	Termly average proportion of possible sessions missed due to traveller absence, across relevant terms	Continuous and categorical specifications tested	School census; PRU census; AP census 2011-2017
CLA abuse types	Type of abuse recorded within relevant time period	Binary flags for each of five abuse types	Children Looked After Census 2006-2017
Age when first Looked After	Age in months at commencement of earliest period of care	Continuous and categorical specifications tested	Children Looked After Census 2006-2017
CIN need types	Type of need recorded within relevant time period	Binary flags for each of nine need types	Children in Need Census 2009-2017
CIN disability types	Type of disability recorded within relevant time period	Binary flags for each of twelve disability types	Children in Need Census 2009-2017
Total time as CIN	Total duration in months across all episodes of need that commenced within relevant time period	Continuous and categorical specifications tested	Children in Need Census 2009-2017
Unaccompanied asylum-seeker	Ever recorded as child in need due to unaccompanied asylum seeker status	Binary	Children in Need Census 2009-2017
Selective secondary admissions	Number of selective school places as proportion of high-attaining children within travel distance, within the Lower Super Output Area	Continuous and categorical specifications tested	School census; PRU census; AP census 2011-2017
Teaching Assistants	Ratio of teaching assistants to teachers at school level	Continuous and categorical specifications tested	School Workforce Census 2011
School BME rate	Proportion of primary-aged pupils with ethnicity other than White British in January 2011, or in the earliest available term if the school and its predecessors had not opened	Continuous and categorical specifications tested	School census; PRU census; AP census 2011-2017
School EAL rate	Proportion of primary-aged pupils with English as an additional language in January 2011, or in the earliest available term if the school and its predecessors had not opened	Continuous and categorical specifications tested	School census; PRU census; AP census 2011-2017
High Needs Budget	Local authority high needs budget per pupil in the authority	Continuous and categorical specifications tested	Dedicated Schools Grant Allocations 2016-17
General schools budget	Local authority mainstream DSG funding per pupil in the authority	Continuous and categorical specifications tested	Dedicated Schools Grant Allocations 2016-17
High Needs funding proportional to mainstream funding	Local authority ratio of high needs budget per head to mainstream budget per head	Continuous and categorical specifications tested	Dedicated Schools Grant Allocations 2016-18

Analytic Strategy

Stata version 16 was used to implement all final version of the models reported here. A range of other software was used for data matching and structuring and to test and develop earlier versions of the modelling during the phase when we were solving persistent convergence challenges.

The melogit function was used to fit mixed effects models with three levels in child, school, and local authority hierarchies with random effects for school and local authority identity. In the final versions of the models all other factors were fitted as fixed effects.

The unit of analysis for the dependent variables describing identification with SEND was defined as an event rather than a status: the first incidence where a child was recorded with SEND at that level during their time in primary school. The main models focus on identifications in year 1 or later, when a richer range of factors measured prior to identification, including Early Years Foundation Stage Profile scale scores, can be included in the models.

Identifications were assigned a time based on the first term in which the school census recorded SEND status at that level, and these identification times were used to derive factor variables that took into account longitudinal records over the course of primary school up until the term prior to identification.

For example, if an identification took place in the spring term of year 2, the sickness absence variable was defined to give the average termly sickness absence rate across the six terms in reception and year 1 plus the autumn term of year 2. If a child was never identified with SEND their sickness absence was measured across all terms reception up until the end of the modelled period, which was year 4 for the pre-reform models and year 6 for the post-reform models.

Sets of models were fitted for two lettered outcomes, as follows:

a. Pre-reform identification during years 1-4 at the **lower level** (codes A or P)
b. Pre-reform identification during levels 1-4 at the **higher level** (code S)

Independent variables were entered to the models in seven numbered steps:

1. Child: gender, month of birth, ethnicity
2. Child: gender, month of birth, ethnicity **plus** free school meals
3. Child: gender, month of birth, ethnicity **plus** early years foundation stage profile
4. Child: gender, month of birth, ethnicity **plus** free school meals **and** EYFSP
5. All child factors
6. All child factors **plus** school-level factors
7. All child **and** school factors **plus** LA-level factors

Models 1b to 7b for the higher level of SEND were fitted ‘i’ with school and local authority random effects, and ‘ii’ without them, to reveal where child factor effects were influenced by location or school attended.

Unfortunately, model convergence issues prevented all seven steps from being achievable for SEND at the lower level, when in the presence of school and local authority random effects. This meant that the best achievable set of models for lower level SEND was 1a, 2a and 5a to 7a for the ‘i’ models

including school and local authority random effects. Models 1a to 7a were achievable for the 'ii' versions without these random effects.

Table 2: Summary of achieved model versions and steps

	a. Lower-level SEND		b. Higher-level SEND	
	i. MLM with school and LA random effects	ii. Multiple regression	i. MLM with school and LA random effects	ii. Multiple regression
1. Child: gender, month of birth, ethnicity	●	●	●	●
2. Child: gender, month of birth, ethnicity **plus** free school meals	●	●	●	●
3. Child: gender, month of birth, ethnicity **plus** early years foundation stage profile		●	●	●
4. Child: gender, month of birth, ethnicity **plus** free school meals **and** early years foundation stage profile		●	●	●
5. All child factors	●	●	●	●
6. All child factors **plus** school-level factors	●	●	●	●
7. All child and school factors **plus** LA-level factors	●	●	●	●

Additional to the main suite of models, two subsidiary full models (step 7 version 'i') were fitted for each of 'a' (lower-level SEND) and 'b' (higher-level SEND), as follows:

- With reception year identifications as the outcome, to test for distortions in the main models due to timing of identification effects
- With year 3 identifications as the outcome and timing of academisation as a predictive factor, to test for selection effects in academy schools

In determining what factors should be retained in the models reported and how these should be defined and reset as categorical factor variables, four things were considered:

- The effect on model convergence and empty cells;

- The coherence and significance of the pattern of odds effects for factors under consideration. As there were considerable convergence challenges and a large number of potential factors of interest, more parsimonious specifications were preferred;
- The classification success properties of the model were assessed using the roctab command to estimate the area under the curve; and
- The likelihood ratio test was used to evaluate the effect on model fit of adding variables where that were factors potentially capturing the same variation.

Descriptive statistics

Tables 3 and 4 present descriptive statistics for all the factors included in our final models, frequencies for the 'identified' and 'not identified' groups, and a comparison of the full data set with the cases with complete data that were included in our models.

The 'ineligible' column includes statistics for cases that were manually excluded from our analysis because they could not have received their first identification at the level of SEND specified during years 1 to 4 as they had already been identified at that level or higher by the end of the reception year.

Table 3

Descriptive statistics for 'A' models of SEND identification at the lower level

	All cases								Complete case sample					
	Total		Not identified AP		Identified AP		Ineligible		Total		Not identified AP		Identified AP	
	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean
EYFSP communication														
lowest decile	597,432	9.6%	410,349	2.2%	96,968	20.9%	90,115	31.2%	463,286	5.3%	373,222	2.0%	90,064	19.3%
2nd decile	597,432	11.0%	410,349	5.9%	96,968	24.7%	90,115	19.4%	463,286	9.6%	373,222	5.9%	90,064	24.7%
3rd decile	597,432	8.3%	410,349	6.4%	96,968	14.3%	90,115	10.5%	463,286	8.1%	373,222	6.5%	90,064	14.6%
4th decile	597,432	12.5%	410,349	12.1%	96,968	14.6%	90,115	11.9%	463,286	12.9%	373,222	12.4%	90,064	15.0%
5th decile	597,432	6.7%	410,349	7.2%	96,968	5.9%	90,115	5.3%	463,286	7.1%	373,222	7.3%	90,064	6.1%
6th decile	597,432	14.1%	410,349	16.5%	96,968	9.1%	90,115	8.8%	463,286	15.3%	373,222	16.7%	90,064	9.5%
7th decile	597,432	6.7%	410,349	8.3%	96,968	3.1%	90,115	3.4%	463,286	7.4%	373,222	8.4%	90,064	3.2%
8th decile	597,432	13.3%	410,349	17.2%	96,968	4.2%	90,115	5.2%	463,286	14.7%	373,222	17.2%	90,064	4.4%
9th decile	597,432	6.6%	410,349	8.9%	96,968	1.4%	90,115	1.8%	463,286	7.4%	373,222	8.9%	90,064	1.5%
highest decile	597,432	11.1%	410,349	15.2%	96,968	1.7%	90,115	2.6%	463,286	12.2%	373,222	14.7%	90,064	1.8%
EYFSP PSR numeracy														
lowest decile	597,362	9.2%	410,343	2.2%	96,964	20.3%	90,055	29.1%	463,286	5.3%	373,222	2.0%	90,064	18.9%
2nd decile	597,362	9.4%	410,343	5.3%	96,964	20.0%	90,055	16.4%	463,286	8.2%	373,222	5.3%	90,064	20.0%
3rd decile	597,362	14.4%	410,343	12.4%	96,964	20.8%	90,055	16.6%	463,286	14.3%	373,222	12.6%	90,064	21.1%
5th decile	597,362	10.8%	410,343	11.0%	96,964	11.3%	90,055	9.4%	463,286	11.3%	373,222	11.2%	90,064	11.6%
6th decile	597,362	15.6%	410,343	17.7%	96,964	11.7%	90,055	10.6%	463,286	16.8%	373,222	17.9%	90,064	12.1%
7th decile	597,362	9.0%	410,343	10.7%	96,964	5.3%	90,055	5.2%	463,286	9.8%	373,222	10.8%	90,064	5.5%
8th decile	597,362	7.9%	410,343	9.8%	96,964	3.7%	90,055	3.9%	463,286	8.7%	373,222	9.9%	90,064	3.8%
9th decile	597,362	10.9%	410,343	13.9%	96,964	4.0%	90,055	4.6%	463,286	11.9%	373,222	13.8%	90,064	4.1%
highest decile	597,362	12.7%	410,343	16.9%	96,964	2.9%	90,055	4.2%	463,286	13.8%	373,222	16.4%	90,064	3.0%
EYFSP personal social emotional														
lowest decile	597,475	8.9%	410,357	2.6%	96,970	16.0%	90,148	29.9%	463,286	4.8%	373,222	2.4%	90,064	14.9%
2nd decile	597,475	14.8%	410,357	10.0%	96,970	26.8%	90,148	23.4%	463,286	13.4%	373,222	10.1%	90,064	26.7%
3rd decile	597,475	8.5%	410,357	7.5%	96,970	11.7%	90,148	9.4%	463,286	8.4%	373,222	7.6%	90,064	11.9%
4th decile	597,475	8.8%	410,357	8.6%	96,970	10.4%	90,148	8.2%	463,286	9.1%	373,222	8.8%	90,064	10.6%
5th decile	597,475	9.9%	410,357	10.5%	96,970	9.6%	90,148	7.5%	463,286	10.4%	373,222	10.6%	90,064	9.8%
6th decile	597,475	9.9%	410,357	11.1%	96,970	7.9%	90,148	6.2%	463,286	10.6%	373,222	11.2%	90,064	8.1%
7th decile	597,475	11.1%	410,357	13.2%	96,970	7.1%	90,148	5.9%	463,286	12.2%	373,222	13.3%	90,064	7.4%
8th decile	597,475	14.9%	410,357	18.7%	96,970	6.8%	90,148	5.8%	463,286	16.4%	373,222	18.7%	90,064	7.0%
9th decile	597,475	4.9%	410,357	6.3%	96,970	1.7%	90,148	1.6%	463,286	5.4%	373,222	6.2%	90,064	1.7%
highest decile	597,475	8.5%	410,357	11.4%	96,970	2.0%	90,148	2.1%	463,286	9.2%	373,222	10.9%	90,064	2.1%
EYFSP physical dev														
lowest quintile	597,424	8.7%	410,352	2.8%	96,967	15.7%	90,105	28.0%	463,286	5.0%	373,222	2.7%	90,064	14.8%
2nd quintile	597,424	13.1%	410,352	9.6%	96,967	21.6%	90,105	19.8%	463,286	12.0%	373,222	9.7%	90,064	21.3%
3rd quintile	597,424	31.3%	410,352	30.5%	96,967	36.2%	90,105	29.8%	463,286	32.0%	373,222	30.9%	90,064	36.6%
4th quintile	597,424	40.6%	410,352	48.8%	96,967	24.3%	90,105	20.6%	463,286	44.2%	373,222	48.8%	90,064	25.0%
highest quintile	597,424	6.4%	410,352	8.3%	96,967	2.2%	90,105	1.9%	463,286	6.8%	373,222	7.9%	90,064	2.2%
EYFSP knowledge														
lowest sextile	597,408	7.8%	410,341	2.7%	96,966	13.8%	90,101	24.7%	463,286	4.5%	373,222	2.5%	90,064	12.7%
2nd sextile	597,408	8.3%	410,341	5.3%	96,966	15.3%	90,101	14.7%	463,286	7.3%	373,222	5.4%	90,064	15.2%
3rd sextile	597,408	19.6%	410,341	17.7%	96,966	25.5%	90,101	21.7%	463,286	19.5%	373,222	18.0%	90,064	25.8%
4th sextile	597,408	29.9%	410,341	32.5%	96,966	26.3%	90,101	22.2%	463,286	31.7%	373,222	32.9%	90,064	26.8%
5th sextile	597,408	31.2%	410,341	37.6%	96,966	18.1%	90,101	15.8%	463,286	33.7%	373,222	37.3%	90,064	18.7%
highest sextile	597,408	3.2%	410,341	4.1%	96,966	1.0%	90,101	1.0%	463,286	3.3%	373,222	3.9%	90,064	1.0%
EYFSP creative dev														
lowest sextile	597,339	5.9%	410,335	1.9%	96,954	9.6%	90,050	19.8%	463,286	3.1%	373,222	1.8%	90,064	8.7%
2nd sextile	597,339	11.1%	410,335	7.0%	96,954	19.6%	90,050	20.1%	463,286	9.5%	373,222	7.1%	90,064	19.4%
3rd sextile	597,339	27.0%	410,335	25.1%	96,954	33.4%	90,050	28.9%	463,286	27.1%	373,222	25.5%	90,064	33.6%
4th sextile	597,339	30.8%	410,335	34.3%	96,954	25.2%	90,050	20.8%	463,286	32.9%	373,222	34.6%	90,064	25.8%
5th sextile	597,339	22.0%	410,335	27.4%	96,954	11.2%	90,050	9.4%	463,286	24.0%	373,222	27.0%	90,064	11.5%
highest sextile	597,339	3.2%	410,335	4.3%	96,954	1.0%	90,050	0.9%	463,286	3.4%	373,222	4.0%	90,064	1.0%

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	All cases								Complete case sample					
	Total		Not identified AP		Identified AP		Ineligible		Total		Not identified AP		Identified AP	
	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean
Gender														
female	646,320	48.4%	447,168	53.9%	103,826	38.1%	95,326	34.0%	463,286	51.2%	373,222	54.4%	90,064	38.0%
male	646,320	51.6%	447,168	46.1%	103,826	61.9%	95,326	66.0%	463,286	48.8%	373,222	45.6%	90,064	62.0%
Born														
september	646,259	8.6%	447,107	9.4%	103,826	6.1%	95,326	7.4%	463,286	8.9%	373,222	9.4%	90,064	6.4%
october	646,259	8.5%	447,107	9.2%	103,826	6.4%	95,326	7.5%	463,286	8.7%	373,222	9.2%	90,064	6.6%
november	646,259	8.0%	447,107	8.5%	103,826	6.4%	95,326	7.3%	463,286	8.1%	373,222	8.5%	90,064	6.7%
december	646,259	8.2%	447,107	8.5%	103,826	7.0%	95,326	7.7%	463,286	8.3%	373,222	8.6%	90,064	7.3%
january	646,259	8.2%	447,107	8.4%	103,826	7.4%	95,326	7.9%	463,286	8.3%	373,222	8.4%	90,064	7.7%
february	646,259	7.6%	447,107	7.7%	103,826	7.3%	95,326	7.4%	463,286	7.7%	373,222	7.7%	90,064	7.5%
march	646,259	8.4%	447,107	8.4%	103,826	8.2%	95,326	8.5%	463,286	8.4%	373,222	8.5%	90,064	8.2%
april	646,259	8.0%	447,107	7.9%	103,826	8.5%	95,326	8.1%	463,286	8.0%	373,222	7.9%	90,064	8.4%
may	646,259	8.6%	447,107	8.2%	103,826	9.6%	95,326	9.0%	463,286	8.4%	373,222	8.2%	90,064	9.4%
june	646,259	8.6%	447,107	8.0%	103,826	10.3%	95,326	9.2%	463,286	8.4%	373,222	8.0%	90,064	10.0%
july	646,259	8.7%	447,107	7.9%	103,826	10.9%	95,326	9.8%	463,286	8.4%	373,222	7.9%	90,064	10.5%
august	646,259	8.9%	447,107	7.9%	103,826	11.9%	95,326	10.2%	463,286	8.5%	373,222	7.8%	90,064	11.4%
Ethnicity														
white british	653,698	67.9%	454,546	67.5%	103,826	69.8%	95,326	67.8%	463,286	72.7%	373,222	72.4%	90,064	73.6%
chinese	653,698	0.4%	454,546	0.5%	103,826	0.3%	95,326	0.3%	463,286	0.4%	373,222	0.4%	90,064	0.2%
black other	653,698	0.8%	454,546	0.7%	103,826	0.9%	95,326	1.0%	463,286	0.7%	373,222	0.7%	90,064	0.8%
black caribbean	653,698	1.2%	454,546	1.0%	103,826	1.6%	95,326	1.6%	463,286	1.2%	373,222	1.1%	90,064	1.5%
black african	653,698	3.9%	454,546	3.8%	103,826	3.7%	95,326	4.7%	463,286	3.5%	373,222	3.5%	90,064	3.3%
pakistani	653,698	4.3%	454,546	4.1%	103,826	4.3%	95,326	5.4%	463,286	4.2%	373,222	4.2%	90,064	4.2%
asian other	653,698	1.9%	454,546	2.1%	103,826	1.3%	95,326	1.5%	463,286	1.6%	373,222	1.7%	90,064	1.1%
indian	653,698	3.0%	454,546	3.5%	103,826	1.7%	95,326	2.2%	463,286	2.8%	373,222	3.1%	90,064	1.6%
bangladeshi	653,698	1.7%	454,546	1.7%	103,826	1.5%	95,326	1.9%	463,286	1.7%	373,222	1.7%	90,064	1.4%
roma	653,698	0.5%	454,546	0.3%	103,826	0.8%	95,326	0.6%	463,286	0.2%	373,222	0.1%	90,064	0.6%
white other	653,698	6.4%	454,546	6.7%	103,826	6.0%	95,326	4.9%	463,286	4.0%	373,222	4.0%	90,064	4.3%
irish traveller	653,698	0.1%	454,546	0.0%	103,826	0.3%	95,326	0.2%	463,286	0.1%	373,222	0.0%	90,064	0.2%
irish	653,698	0.3%	454,546	0.3%	103,826	0.3%	95,326	0.3%	463,286	0.2%	373,222	0.2%	90,064	0.2%
other	653,698	2.1%	454,546	2.1%	103,826	1.9%	95,326	1.9%	463,286	1.4%	373,222	1.4%	90,064	1.5%
white & caribbean	653,698	1.4%	454,546	1.3%	103,826	1.8%	95,326	1.8%	463,286	1.5%	373,222	1.4%	90,064	1.8%
white & african	653,698	0.7%	454,546	0.7%	103,826	0.8%	95,326	0.8%	463,286	0.7%	373,222	0.7%	90,064	0.7%
white & asian	653,698	1.3%	454,546	1.4%	103,826	1.1%	95,326	1.1%	463,286	1.3%	373,222	1.4%	90,064	1.0%
mixed other	653,698	2.1%	454,546	2.1%	103,826	2.0%	95,326	2.1%	463,286	2.0%	373,222	2.0%	90,064	1.9%
Language														
Never EAL	646,320	77.1%	447,168	76.4%	103,826	79.3%	95,326	77.7%	463,286	81.7%	373,222	81.4%	90,064	82.8%
Ever recorded EAL	646,320	22.9%	447,168	23.6%	103,826	20.7%	95,326	22.3%	463,286	18.3%	373,222	18.6%	90,064	17.2%
FSM, % of time														
less than 20%	653,698	75.5%	454,546	81.0%	103,826	66.9%	95,326	59.0%	463,286	76.9%	373,222	79.5%	90,064	66.1%
20% -	653,698	4.9%	454,546	4.8%	103,826	3.6%	95,326	7.1%	463,286	5.0%	373,222	5.3%	90,064	3.8%
40% -	653,698	4.5%	454,546	4.1%	103,826	3.6%	95,326	7.2%	463,286	4.3%	373,222	4.5%	90,064	3.6%
60% -	653,698	4.3%	454,546	3.4%	103,826	5.8%	95,326	6.9%	463,286	4.1%	373,222	3.7%	90,064	6.1%
80% - 100%	653,698	10.7%	454,546	6.7%	103,826	20.1%	95,326	19.8%	463,286	9.7%	373,222	7.1%	90,064	20.4%
Mean IDACI														
least deprived octile	640,697	28.2%	445,024	31.7%	100,677	22.4%	94,996	17.6%	463,286	30.3%	373,222	32.0%	90,064	23.1%
2nd octile	640,697	23.7%	445,024	24.6%	100,677	22.0%	94,996	21.2%	463,286	24.4%	373,222	24.9%	90,064	22.3%
3rd octile	640,697	16.8%	445,024	16.4%	100,677	16.7%	94,996	19.2%	463,286	16.3%	373,222	16.2%	90,064	16.7%
4th octile	640,697	14.0%	445,024	12.9%	100,677	14.5%	94,996	18.3%	463,286	12.9%	373,222	12.6%	90,064	14.1%
5th octile	640,697	10.1%	445,024	8.9%	100,677	12.3%	94,996	13.9%	463,286	9.4%	373,222	8.8%	90,064	12.0%
6th octile	640,697	5.1%	445,024	4.1%	100,677	7.6%	94,996	7.3%	463,286	4.8%	373,222	4.1%	90,064	7.4%
7th octile	640,697	1.6%	445,024	1.1%	100,677	3.3%	94,996	2.1%	463,286	1.5%	373,222	1.1%	90,064	3.2%
most deprived octile	640,697	0.4%	445,024	0.3%	100,677	1.2%	94,996	0.4%	463,286	0.4%	373,222	0.2%	90,064	1.2%
Maximum IDACI														
least deprived decile	640,697	20.2%	445,024	22.5%	100,677	18.8%	94,996	11.4%	463,286	21.4%	373,222	22.0%	90,064	19.2%
2nd decile	640,697	22.5%	445,024	23.9%	100,677	21.3%	94,996	17.3%	463,286	23.8%	373,222	24.4%	90,064	21.6%
3rd decile	640,697	16.0%	445,024	16.1%	100,677	16.1%	94,996	15.7%	463,286	16.1%	373,222	16.1%	90,064	16.1%
4th decile	640,697	13.7%	445,024	13.1%	100,677	14.2%	94,996	16.1%	463,286	13.0%	373,222	12.8%	90,064	13.9%
5th decile	640,697	11.9%	445,024	10.9%	100,677	12.8%	94,996	15.9%	463,286	11.1%	373,222	10.8%	90,064	12.5%
6th decile	640,697	8.7%	445,024	7.7%	100,677	9.4%	94,996	13.0%	463,286	8.1%	373,222	7.8%	90,064	9.2%
7th decile	640,697	4.7%	445,024	4.0%	100,677	5.1%	94,996	7.4%	463,286	4.4%	373,222	4.2%	90,064	5.2%
8th decile	640,697	1.5%	445,024	1.3%	100,677	1.7%	94,996	2.4%	463,286	1.5%	373,222	1.4%	90,064	1.7%
9th decile	640,697	0.4%	445,024	0.3%	100,677	0.4%	94,996	0.6%	463,286	0.4%	373,222	0.3%	90,064	0.4%
most deprived decile	640,697	0.2%	445,024	0.2%	100,677	0.3%	94,996	0.3%	463,286	0.2%	373,222	0.2%	90,064	0.3%
Variability of IDACI														
lowest std deviation	629,144	33.3%	439,776	33.1%	94,746	45.7%	94,622	22.2%	463,286	33.5%	373,222	30.7%	90,064	45.0%
2nd tercile	629,144	33.3%	439,776	33.8%	94,746	32.2%	94,622	32.5%	463,286	35.0%	373,222	35.5%	90,064	33.0%
highest std deviation	629,144	33.3%	439,776	33.2%	94,746	22.1%	94,622	45.3%	463,286	31.5%	373,222	33.8%	90,064	22.0%

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	All cases								Complete case sample					
	Total		Not identified AP		Identified AP		Ineligible		Total		Not identified AP		Identified AP	
	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean
School moves														
no moves	653,698	81.9%	454,546	82.7%	103,826	87.7%	95,326	72.0%	463,286	83.1%	373,222	82.1%	90,064	87.4%
1 move	653,698	14.4%	454,546	13.9%	103,826	10.7%	95,326	20.8%	463,286	13.7%	373,222	14.3%	90,064	11.0%
2 moves	653,698	2.8%	454,546	2.6%	103,826	1.3%	95,326	5.3%	463,286	2.5%	373,222	2.8%	90,064	1.4%
3 moves	653,698	0.8%	454,546	0.7%	103,826	0.2%	95,326	1.9%	463,286	0.7%	373,222	0.8%	90,064	0.2%
Sickness absence														
least absent	653,698	26.5%	454,546	22.7%	103,826	52.5%	95,326	16.0%	463,286	23.7%	373,222	17.1%	90,064	50.9%
2nd quartile	653,698	25.0%	454,546	27.1%	103,826	18.1%	95,326	22.4%	463,286	26.7%	373,222	28.5%	90,064	18.9%
3rd quartile	653,698	28.6%	454,546	30.6%	103,826	17.2%	95,326	31.6%	463,286	30.2%	373,222	33.2%	90,064	17.8%
most absent	653,698	19.9%	454,546	19.5%	103,826	12.2%	95,326	30.0%	463,286	19.4%	373,222	21.1%	90,064	12.3%
Authorised absence														
least absent	653,698	28.7%	454,546	25.5%	103,826	53.3%	95,326	16.9%	463,286	26.5%	373,222	20.4%	90,064	51.8%
2nd quartile	653,698	22.4%	454,546	24.4%	103,826	16.2%	95,326	20.0%	463,286	24.0%	373,222	25.8%	90,064	16.8%
3rd quartile	653,698	25.3%	454,546	26.9%	103,826	16.1%	95,326	27.4%	463,286	26.6%	373,222	29.0%	90,064	16.7%
most absent	653,698	23.6%	454,546	23.2%	103,826	14.5%	95,326	35.7%	463,286	22.8%	373,222	24.8%	90,064	14.7%
Unauthorised absence														
least absent	653,698	43.0%	454,546	39.7%	103,826	69.5%	95,326	30.3%	463,286	43.2%	373,222	36.9%	90,064	69.3%
2nd quartile	653,698	19.4%	454,546	20.7%	103,826	12.1%	95,326	21.0%	463,286	19.9%	373,222	21.7%	90,064	12.3%
3rd quartile	653,698	14.0%	454,546	14.8%	103,826	7.9%	95,326	16.6%	463,286	13.9%	373,222	15.4%	90,064	8.0%
most absent	653,698	23.6%	454,546	24.8%	103,826	10.5%	95,326	32.1%	463,286	22.9%	373,222	26.0%	90,064	10.3%
Months looked after														
never LAC	653,698	99.0%	454,546	99.5%	103,826	99.0%	95,326	96.6%	463,286	99.4%	373,222	99.5%	90,064	99.0%
1 - 12 m	653,698	0.3%	454,546	0.2%	103,826	0.2%	95,326	0.8%	463,286	0.2%	373,222	0.2%	90,064	0.2%
13 - 24 m	653,698	0.2%	454,546	0.1%	103,826	0.2%	95,326	0.5%	463,286	0.1%	373,222	0.1%	90,064	0.2%
25 - 48 m	653,698	0.4%	454,546	0.2%	103,826	0.4%	95,326	1.4%	463,286	0.2%	373,222	0.2%	90,064	0.4%
50+ m	653,698	0.2%	454,546	0.1%	103,826	0.1%	95,326	0.7%	463,286	0.1%	373,222	0.1%	90,064	0.2%
Child Protection Plans														
no CPP	653,698	99.6%	454,546	99.8%	103,826	99.9%	95,326	98.7%	463,286	99.8%	373,222	99.8%	90,064	99.9%
1 or more CPP	653,698	0.4%	454,546	0.2%	103,826	0.1%	95,326	1.3%	463,286	0.2%	373,222	0.2%	90,064	0.1%
Type of School														
LA mainstream	630,812	85.8%	432,398	82.8%	103,826	93.7%	94,588	91.0%	463,286	84.8%	373,222	82.6%	90,064	93.9%
academy mainstream	630,812	13.5%	432,398	17.2%	103,826	6.2%	94,588	4.9%	463,286	15.2%	373,222	17.4%	90,064	6.1%
academy special	630,812	0.1%	432,398	0.0%	103,826	0.0%	94,588	0.5%	463,286	0.0%	373,222	0.0%	90,064	0.0%
academy AP	630,812	0.0%	432,398	0.0%	103,826	0.0%	94,588	0.0%	463,286	0.0%	373,222	0.0%	90,064	0.0%
LA PRU	630,812	0.0%	432,398	0.0%	103,826	0.0%	94,588	0.0%	463,286	0.0%	373,222	0.0%	90,064	0.0%
LA special	630,812	0.5%	432,398	0.0%	103,826	0.0%	94,588	3.6%	463,286	0.0%	373,222	0.0%	90,064	0.0%
NM special	630,812	0.0%	432,398	0.0%	103,826	0.0%	94,588	0.1%	463,286	0.0%	373,222	0.0%	90,064	0.0%
Latest inspection														
good	653,698	61.5%	454,546	62.6%	103,826	53.2%	95,326	64.8%	463,286	66.3%	373,222	69.4%	90,064	53.6%
outstanding	653,698	16.7%	454,546	16.6%	103,826	17.7%	95,326	16.1%	463,286	18.4%	373,222	18.5%	90,064	17.9%
requires improvement	653,698	11.6%	454,546	8.6%	103,826	25.3%	95,326	10.8%	463,286	12.2%	373,222	9.2%	90,064	24.9%
inadequate	653,698	3.0%	454,546	2.7%	103,826	3.5%	95,326	3.7%	463,286	3.0%	373,222	2.9%	90,064	3.4%
no grade yet	653,698	7.3%	454,546	9.4%	103,826	0.2%	95,326	4.6%	463,286	0.1%	373,222	0.0%	90,064	0.1%
School FSM rate														
lowest	653,698	33.3%	454,546	36.7%	103,826	28.6%	95,326	22.4%	463,286	38.6%	373,222	40.5%	90,064	30.7%
2nd tercile	653,698	33.3%	454,546	35.0%	103,826	31.2%	95,326	27.8%	463,286	27.4%	373,222	27.3%	90,064	27.8%
highest	653,698	33.3%	454,546	28.3%	103,826	40.2%	95,326	49.8%	463,286	34.0%	373,222	32.2%	90,064	41.5%
School SEND rate														
lowest	646,848	26.9%	454,486	32.8%	103,771	7.6%	88,591	19.2%	463,286	22.6%	373,222	26.2%	90,064	7.8%
2nd septile	646,848	40.4%	454,486	42.6%	103,771	31.0%	88,591	39.9%	463,286	44.1%	373,222	47.2%	90,064	31.5%
3rd septile	646,848	22.3%	454,486	18.9%	103,771	32.4%	88,591	27.5%	463,286	22.8%	373,222	20.5%	90,064	32.4%
4th septile	646,848	7.1%	454,486	4.4%	103,771	16.9%	88,591	9.3%	463,286	7.0%	373,222	4.7%	90,064	16.5%
5th septile	646,848	2.2%	454,486	1.0%	103,771	7.4%	88,591	2.7%	463,286	2.3%	373,222	1.1%	90,064	7.2%
6th septile	646,848	0.8%	454,486	0.2%	103,771	3.1%	88,591	0.8%	463,286	0.8%	373,222	0.2%	90,064	3.1%
highest	646,848	0.4%	454,486	0.1%	103,771	1.6%	88,591	0.5%	463,286	0.4%	373,222	0.1%	90,064	1.6%
School SEND unit														
no unit	653,526	94.2%	454,450	94.7%	103,776	93.5%	95,300	92.4%	463,286	94.1%	373,222	94.3%	90,064	93.5%
has unit	653,526	5.8%	454,450	5.3%	103,776	6.5%	95,300	7.6%	463,286	5.9%	373,222	5.7%	90,064	6.5%
Pupil Teacher Ratio														
lowest	642,952	25.5%	444,723	23.2%	103,325	27.0%	94,904	35.0%	463,286	23.0%	373,222	22.3%	90,064	26.3%
2nd quartile	642,952	25.3%	444,723	25.4%	103,325	25.6%	94,904	24.5%	463,286	25.2%	373,222	25.1%	90,064	25.4%
3rd quartile	642,952	25.1%	444,723	26.0%	103,325	24.5%	94,904	21.7%	463,286	26.1%	373,222	26.4%	90,064	25.0%
highest	642,952	24.0%	444,723	25.4%	103,325	22.9%	94,904	18.8%	463,286	25.7%	373,222	26.3%	90,064	23.3%

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	All cases								Complete case sample					
	Total		Not identified AP		Identified AP		Ineligible		Total		Not identified AP		Identified AP	
	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean
LA FSM rate														
lowest	653,698	34.4%	454,546	37.0%	103,826	28.8%	95,326	28.3%	463,286	30.4%	373,222	30.7%	90,064	29.3%
2nd tercile	653,698	32.6%	454,546	31.9%	103,826	34.8%	95,326	33.3%	463,286	35.3%	373,222	35.4%	90,064	34.9%
highest	653,698	33.0%	454,546	31.1%	103,826	36.4%	95,326	38.3%	463,286	34.2%	373,222	33.9%	90,064	35.8%
LA EHCP mainstream														
lowest	601,354	33.6%	407,960	33.7%	103,275	33.6%	90,119	33.1%	463,286	34.0%	373,222	33.9%	90,064	34.5%
2nd tercile	601,354	33.3%	407,960	33.4%	103,275	32.1%	90,119	34.2%	463,286	32.8%	373,222	32.9%	90,064	32.4%
highest	601,354	33.1%	407,960	32.9%	103,275	34.2%	90,119	32.7%	463,286	33.1%	373,222	33.2%	90,064	33.0%
LA EHCP resourced														
lowest	601,354	33.5%	407,960	33.9%	103,275	34.3%	90,119	31.1%	463,286	34.2%	373,222	34.2%	90,064	34.3%
2nd tercile	601,354	33.4%	407,960	33.1%	103,275	34.3%	90,119	34.0%	463,286	32.9%	373,222	32.6%	90,064	33.8%
highest	601,354	33.1%	407,960	33.1%	103,275	31.4%	90,119	34.9%	463,286	32.9%	373,222	33.2%	90,064	31.9%
LA EHCP special														
lowest	601,354	35.2%	407,960	35.7%	103,275	35.5%	90,119	32.2%	463,286	35.6%	373,222	35.9%	90,064	34.4%
2nd tercile	601,354	32.5%	407,960	32.2%	103,275	32.5%	90,119	33.4%	463,286	32.4%	373,222	32.2%	90,064	32.9%
highest	601,354	32.4%	407,960	32.0%	103,275	32.0%	90,119	34.4%	463,286	32.1%	373,222	31.9%	90,064	32.7%
LA EHCP other														
lowest	601,354	33.5%	407,960	33.7%	103,275	33.3%	90,119	32.8%	463,286	33.8%	373,222	33.9%	90,064	33.7%
2nd tercile	601,354	33.9%	407,960	34.0%	103,275	34.1%	90,119	33.1%	463,286	34.3%	373,222	34.2%	90,064	34.7%
highest	601,354	32.6%	407,960	32.3%	103,275	32.6%	90,119	34.1%	463,286	31.9%	373,222	32.0%	90,064	31.6%
LA BME rate														
lowest	653,698	25.5%	454,546	25.0%	103,826	28.2%	95,326	25.0%	463,286	28.4%	373,222	28.3%	90,064	28.7%
2nd quartile	653,698	24.7%	454,546	24.5%	103,826	25.9%	95,326	24.5%	463,286	27.6%	373,222	27.8%	90,064	26.7%
3rd quartile	653,698	26.4%	454,546	28.4%	103,826	20.3%	95,326	23.5%	463,286	20.8%	373,222	20.9%	90,064	20.5%
highest	653,698	23.4%	454,546	22.1%	103,826	25.6%	95,326	27.0%	463,286	23.2%	373,222	22.9%	90,064	24.1%

'A' model table ends.

Table 4

Descriptive statistics for 'B' models of SEND identification at the higher level

	All cases								Complete case sample					
	Total		Not idenitified S		Identified S		Ineligible		Total		Not idenitified S		Identified S	
	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean
EYFSP communication														
lowest decile	597,432	9.6%	577,605	7.7%	7,921	66.7%	11,906	63.7%	543,084	8.3%	536,619	7.6%	6,465	65.8%
2nd decile	597,432	11.0%	577,605	10.9%	7,921	13.8%	11,906	14.4%	543,084	11.1%	536,619	11.0%	6,465	14.4%
3rd decile	597,432	8.3%	577,605	8.4%	7,921	5.2%	11,906	5.7%	543,084	8.5%	536,619	8.5%	6,465	5.4%
4th decile	597,432	12.5%	577,605	12.7%	7,921	5.0%	11,906	5.1%	543,084	12.8%	536,619	12.9%	6,465	4.9%
5th decile	597,432	6.7%	577,605	6.9%	7,921	1.9%	11,906	2.3%	543,084	6.9%	536,619	6.9%	6,465	2.0%
6th decile	597,432	14.1%	577,605	14.5%	7,921	2.9%	11,906	3.6%	543,084	14.5%	536,619	14.6%	6,465	3.0%
7th decile	597,432	6.7%	577,605	6.9%	7,921	1.3%	11,906	1.3%	543,084	6.9%	536,619	6.9%	6,465	1.3%
8th decile	597,432	13.3%	577,605	13.6%	7,921	1.6%	11,906	2.0%	543,084	13.5%	536,619	13.6%	6,465	1.7%
9th decile	597,432	6.6%	577,605	6.8%	7,921	0.6%	11,906	0.7%	543,084	6.7%	536,619	6.8%	6,465	0.6%
highest decile	597,432	11.1%	577,605	11.5%	7,921	1.0%	11,906	1.2%	543,084	10.9%	536,619	11.0%	6,465	1.1%
EYFSP PSR numeracy														
lowest decile	597,362	9.2%	577,591	7.4%	7,904	61.5%	11,867	61.0%	543,084	8.0%	536,619	7.4%	6,465	60.7%
2nd decile	597,362	9.4%	577,591	9.3%	7,904	13.0%	11,867	12.3%	543,084	9.4%	536,619	9.4%	6,465	13.3%
3rd decile	597,362	14.4%	577,591	14.6%	7,904	8.6%	11,867	9.0%	543,084	14.7%	536,619	14.8%	6,465	8.8%
5th decile	597,362	10.8%	577,591	11.0%	7,904	4.4%	11,867	4.5%	543,084	11.1%	536,619	11.1%	6,465	4.3%
6th decile	597,362	15.6%	577,591	16.0%	7,904	4.6%	11,867	5.1%	543,084	16.0%	536,619	16.1%	6,465	4.8%
7th decile	597,362	9.0%	577,591	9.2%	7,904	2.1%	11,867	2.5%	543,084	9.2%	536,619	9.3%	6,465	2.0%
8th decile	597,362	7.9%	577,591	8.2%	7,904	1.8%	11,867	1.8%	543,084	8.1%	536,619	8.2%	6,465	1.9%
9th decile	597,362	10.9%	577,591	11.2%	7,904	2.0%	11,867	2.0%	543,084	11.0%	536,619	11.1%	6,465	2.0%
highest decile	597,362	12.7%	577,591	13.1%	7,904	2.0%	11,867	1.9%	543,084	12.5%	536,619	12.6%	6,465	2.0%
EYFSP personal social emotional														
lowest decile	597,475	8.9%	577,617	6.9%	7,934	68.4%	11,924	63.3%	543,084	7.6%	536,619	6.9%	6,465	66.8%
2nd decile	597,475	14.8%	577,617	14.7%	7,934	18.0%	11,924	17.3%	543,084	14.9%	536,619	14.9%	6,465	19.0%
3rd decile	597,475	8.5%	577,617	8.6%	7,934	4.2%	11,924	5.3%	543,084	8.7%	536,619	8.7%	6,465	4.4%
4th decile	597,475	8.8%	577,617	9.0%	7,934	2.9%	11,924	3.9%	543,084	9.1%	536,619	9.1%	6,465	3.0%
5th decile	597,475	9.9%	577,617	10.1%	7,934	2.0%	11,924	2.9%	543,084	10.1%	536,619	10.2%	6,465	2.2%
6th decile	597,475	9.9%	577,617	10.1%	7,934	1.6%	11,924	2.4%	543,084	10.1%	536,619	10.2%	6,465	1.6%
7th decile	597,475	11.1%	577,617	11.5%	7,934	1.2%	11,924	2.1%	543,084	11.4%	536,619	11.5%	6,465	1.3%
8th decile	597,475	14.9%	577,617	15.3%	7,934	1.1%	11,924	1.7%	543,084	15.1%	536,619	15.3%	6,465	1.1%
9th decile	597,475	4.9%	577,617	5.0%	7,934	0.3%	11,924	0.6%	543,084	4.9%	536,619	4.9%	6,465	0.3%
highest decile	597,475	8.5%	577,617	8.7%	7,934	0.2%	11,924	0.6%	543,084	8.3%	536,619	8.4%	6,465	0.2%
EYFSP physical dev														
lowest quintile	597,424	8.7%	577,611	6.9%	7,923	60.7%	11,890	59.6%	543,084	7.5%	536,619	6.9%	6,465	59.8%
2nd quintile	597,424	13.1%	577,611	13.0%	7,923	16.2%	11,890	15.8%	543,084	13.2%	536,619	13.1%	6,465	17.0%
3rd quintile	597,424	31.3%	577,611	31.8%	7,923	15.3%	11,890	16.0%	543,084	32.0%	536,619	32.2%	6,465	15.4%
4th quintile	597,424	40.6%	577,611	41.7%	7,923	7.3%	11,890	7.8%	543,084	41.2%	536,619	41.6%	6,465	7.3%
highest quintile	597,424	6.4%	577,611	6.6%	7,923	0.5%	11,890	0.8%	543,084	6.1%	536,619	6.2%	6,465	0.5%
EYFSP knowledge														
lowest sextile	597,408	7.8%	577,595	6.2%	7,917	53.1%	11,896	56.8%	543,084	6.7%	536,619	6.1%	6,465	51.3%
2nd sextile	597,408	8.3%	577,595	8.2%	7,917	14.6%	11,896	11.7%	543,084	8.4%	536,619	8.3%	6,465	15.5%
3rd sextile	597,408	19.6%	577,595	19.8%	7,917	13.7%	11,896	12.7%	543,084	20.0%	536,619	20.1%	6,465	14.2%
4th sextile	597,408	29.9%	577,595	30.6%	7,917	11.6%	11,896	11.3%	543,084	30.6%	536,619	30.8%	6,465	12.0%
5th sextile	597,408	31.2%	577,595	32.0%	7,917	6.6%	11,896	6.9%	543,084	31.4%	536,619	31.7%	6,465	6.7%
highest sextile	597,408	3.2%	577,595	3.2%	7,917	0.4%	11,896	0.5%	543,084	3.0%	536,619	3.0%	6,465	0.4%
EYFSP creative dev														
lowest sextile	597,339	5.9%	577,572	4.4%	7,904	46.8%	11,863	50.9%	543,084	4.8%	536,619	4.3%	6,465	44.8%
2nd sextile	597,339	11.1%	577,572	10.8%	7,904	22.3%	11,863	18.2%	543,084	11.0%	536,619	10.9%	6,465	23.6%
3rd sextile	597,339	27.0%	577,572	27.3%	7,904	18.2%	11,863	17.0%	543,084	27.6%	536,619	27.7%	6,465	18.7%
4th sextile	597,339	30.8%	577,572	31.5%	7,904	9.0%	11,863	9.7%	543,084	31.4%	536,619	31.7%	6,465	9.2%
5th sextile	597,339	22.0%	577,572	22.7%	7,904	3.4%	11,863	3.7%	543,084	22.1%	536,619	22.3%	6,465	3.4%
highest sextile	597,339	3.2%	577,572	3.3%	7,904	0.3%	11,863	0.3%	543,084	3.1%	536,619	3.1%	6,465	0.3%

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	All cases								Complete case sample					
	Total		Not identified S		Identified S		Ineligible		Total		Not identified S		Identified S	
	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean
Gender														
female	646,320	48.4%	624,802	49.2%	8,829	23.7%	12,689	28.0%	543,084	49.0%	536,619	49.3%	6,465	23.9%
male	646,320	51.6%	624,802	50.8%	8,829	76.3%	12,689	72.0%	543,084	51.0%	536,619	50.7%	6,465	76.1%
Born														
september	646,259	8.6%	624,741	8.6%	8,829	7.3%	12,689	8.4%	543,084	8.6%	536,619	8.6%	6,465	7.3%
october	646,259	8.5%	624,741	8.5%	8,829	6.8%	12,689	8.7%	543,084	8.5%	536,619	8.5%	6,465	7.0%
november	646,259	8.0%	624,741	8.0%	8,829	7.3%	12,689	8.2%	543,084	7.9%	536,619	8.0%	6,465	7.7%
december	646,259	8.2%	624,741	8.2%	8,829	7.2%	12,689	8.4%	543,084	8.2%	536,619	8.2%	6,465	7.6%
january	646,259	8.2%	624,741	8.2%	8,829	7.2%	12,689	8.3%	543,084	8.2%	536,619	8.2%	6,465	7.6%
february	646,259	7.6%	624,741	7.6%	8,829	7.3%	12,689	7.7%	543,084	7.6%	536,619	7.6%	6,465	7.8%
march	646,259	8.4%	624,741	8.4%	8,829	8.3%	12,689	8.4%	543,084	8.4%	536,619	8.4%	6,465	8.6%
april	646,259	8.0%	624,741	8.0%	8,829	8.7%	12,689	8.0%	543,084	8.0%	536,619	8.0%	6,465	8.7%
may	646,259	8.6%	624,741	8.5%	8,829	8.8%	12,689	8.6%	543,084	8.6%	536,619	8.6%	6,465	8.5%
june	646,259	8.6%	624,741	8.5%	8,829	9.4%	12,689	8.7%	543,084	8.5%	536,619	8.5%	6,465	9.1%
july	646,259	8.7%	624,741	8.7%	8,829	10.4%	12,689	8.3%	543,084	8.7%	536,619	8.6%	6,465	10.0%
august	646,259	8.9%	624,741	8.9%	8,829	11.2%	12,689	8.2%	543,084	8.8%	536,619	8.8%	6,465	10.1%
Ethnicity														
white british	653,698	67.9%	632,180	67.8%	8,829	70.5%	12,689	71.1%	543,084	72.3%	536,619	72.3%	6,465	73.6%
chinese	653,698	0.4%	632,180	0.4%	8,829	0.4%	12,689	0.3%	543,084	0.3%	536,619	0.3%	6,465	0.3%
black other	653,698	0.8%	632,180	0.8%	8,829	1.0%	12,689	1.0%	543,084	0.7%	536,619	0.7%	6,465	0.9%
black caribbean	653,698	1.2%	632,180	1.2%	8,829	1.8%	12,689	1.6%	543,084	1.2%	536,619	1.2%	6,465	1.8%
black african	653,698	3.9%	632,180	3.9%	8,829	4.2%	12,689	4.6%	543,084	3.6%	536,619	3.6%	6,465	3.7%
pakistani	653,698	4.3%	632,180	4.3%	8,829	3.8%	12,689	4.4%	543,084	4.4%	536,619	4.4%	6,465	3.5%
asian other	653,698	1.9%	632,180	1.9%	8,829	1.6%	12,689	1.5%	543,084	1.6%	536,619	1.6%	6,465	1.4%
indian	653,698	3.0%	632,180	3.0%	8,829	1.5%	12,689	1.9%	543,084	2.7%	536,619	2.7%	6,465	1.5%
bangladeshi	653,698	1.7%	632,180	1.7%	8,829	1.4%	12,689	1.8%	543,084	1.7%	536,619	1.7%	6,465	1.3%
roma	653,698	0.5%	632,180	0.5%	8,829	0.5%	12,689	0.3%	543,084	0.2%	536,619	0.2%	6,465	0.4%
white other	653,698	6.4%	632,180	6.4%	8,829	4.5%	12,689	3.8%	543,084	4.0%	536,619	4.0%	6,465	3.4%
irish traveller	653,698	0.1%	632,180	0.1%	8,829	0.1%	12,689	0.1%	543,084	0.1%	536,619	0.1%	6,465	0.2%
irish	653,698	0.3%	632,180	0.3%	8,829	0.3%	12,689	0.2%	543,084	0.2%	536,619	0.2%	6,465	0.3%
other	653,698	2.1%	632,180	2.1%	8,829	1.9%	12,689	1.4%	543,084	1.4%	536,619	1.4%	6,465	1.6%
white & caribbean	653,698	1.4%	632,180	1.4%	8,829	2.2%	12,689	1.8%	543,084	1.6%	536,619	1.6%	6,465	2.1%
white & african	653,698	0.7%	632,180	0.7%	8,829	0.9%	12,689	0.7%	543,084	0.7%	536,619	0.7%	6,465	0.8%
white & asian	653,698	1.3%	632,180	1.3%	8,829	1.0%	12,689	1.2%	543,084	1.3%	536,619	1.3%	6,465	0.9%
mixed other	653,698	2.1%	632,180	2.1%	8,829	2.5%	12,689	2.0%	543,084	2.0%	536,619	2.0%	6,465	2.4%
Language														
Never EAL	646,320	77.1%	624,802	76.9%	8,829	81.7%	12,689	82.0%	543,084	81.4%	536,619	81.3%	6,465	83.8%
Ever recorded EAL	646,320	22.9%	624,802	23.1%	8,829	18.3%	12,689	18.0%	543,084	18.6%	536,619	18.7%	6,465	16.2%
FSM, % of time														
less than 20%	653,698	74.8%	632,180	75.4%	8,829	61.2%	12,689	56.6%	543,084	73.7%	536,619	73.8%	6,465	59.9%
20% -	653,698	5.6%	632,180	5.6%	8,829	4.3%	12,689	6.5%	543,084	5.9%	536,619	5.9%	6,465	4.5%
40% -	653,698	5.1%	632,180	5.0%	8,829	4.3%	12,689	6.4%	543,084	5.4%	536,619	5.4%	6,465	4.4%
60% -	653,698	4.4%	632,180	4.3%	8,829	6.2%	12,689	6.6%	543,084	4.6%	536,619	4.6%	6,465	6.4%
80% - 100%	653,698	10.2%	632,180	9.7%	8,829	24.0%	12,689	23.9%	543,084	10.4%	536,619	10.2%	6,465	24.7%
Mean IDACI														
least deprived octile	643,454	27.9%	622,564	28.2%	8,215	20.0%	12,675	21.2%	543,084	28.1%	536,619	28.2%	6,465	21.1%
2nd octile	643,454	23.9%	622,564	24.0%	8,215	20.8%	12,675	23.3%	543,084	24.3%	536,619	24.4%	6,465	21.6%
3rd octile	643,454	17.1%	622,564	17.1%	8,215	17.9%	12,675	18.8%	543,084	17.0%	536,619	17.0%	6,465	17.8%
4th octile	643,454	14.3%	622,564	14.2%	8,215	16.0%	12,675	16.7%	543,084	14.0%	536,619	14.0%	6,465	15.3%
5th octile	643,454	10.2%	622,564	10.1%	8,215	12.9%	12,675	12.1%	543,084	10.0%	536,619	10.0%	6,465	12.4%
6th octile	643,454	4.9%	622,564	4.8%	8,215	8.0%	12,675	5.9%	543,084	4.9%	536,619	4.9%	6,465	7.7%
7th octile	643,454	1.4%	622,564	1.3%	8,215	3.1%	12,675	1.7%	543,084	1.3%	536,619	1.3%	6,465	2.8%
most deprived octile	643,454	0.3%	622,564	0.3%	8,215	1.3%	12,675	0.3%	543,084	0.3%	536,619	0.3%	6,465	1.1%
Maximum IDACI														
least deprived decile	643,454	19.4%	622,564	19.6%	8,215	16.0%	12,675	13.6%	543,084	19.0%	536,619	19.0%	6,465	16.8%
2nd decile	643,454	22.3%	622,564	22.4%	8,215	19.2%	12,675	19.7%	543,084	22.8%	536,619	22.8%	6,465	20.2%
3rd decile	643,454	16.0%	622,564	16.0%	8,215	16.1%	12,675	16.1%	543,084	16.1%	536,619	16.1%	6,465	16.4%
4th decile	643,454	13.8%	622,564	13.8%	8,215	15.5%	12,675	15.7%	543,084	13.7%	536,619	13.6%	6,465	15.0%
5th decile	643,454	12.2%	622,564	12.1%	8,215	14.0%	12,675	14.5%	543,084	12.1%	536,619	12.1%	6,465	13.3%
6th decile	643,454	9.1%	622,564	9.0%	8,215	10.8%	12,675	11.0%	543,084	9.1%	536,619	9.1%	6,465	10.5%
7th decile	643,454	4.9%	622,564	4.8%	8,215	5.7%	12,675	6.6%	543,084	5.0%	536,619	5.0%	6,465	5.5%
8th decile	643,454	1.6%	622,564	1.6%	8,215	1.9%	12,675	2.0%	543,084	1.6%	536,619	1.6%	6,465	1.5%
9th decile	643,454	0.4%	622,564	0.4%	8,215	0.7%	12,675	0.4%	543,084	0.4%	536,619	0.4%	6,465	0.6%
most deprived decile	643,454	0.2%	622,564	0.2%	8,215	0.2%	12,675	0.2%	543,084	0.2%	536,619	0.2%	6,465	0.2%
Variability of IDACI														
lowest std deviation	637,702	33.3%	617,131	33.3%	7,931	47.7%	12,640	26.8%	543,084	31.6%	536,619	31.4%	6,465	48.6%
2nd tercile	637,702	33.3%	617,131	33.4%	7,931	29.3%	12,640	33.3%	543,084	34.8%	536,619	34.9%	6,465	30.0%
highest std deviation	637,702	33.3%	617,131	33.3%	7,931	23.0%	12,640	39.9%	543,084	33.5%	536,619	33.7%	6,465	21.4%

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	All cases								Complete case sample					
	Total		Not identified S		Identified S		Ineligible		Total		Not identified S		Identified S	
	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean
School moves														
no moves	653,698	79.6%	632,180	79.8%	8,829	82.1%	12,689	66.6%	543,084	79.4%	536,619	79.4%	6,465	82.2%
1 move	653,698	15.8%	632,180	15.6%	8,829	15.1%	12,689	25.3%	543,084	16.0%	536,619	16.0%	6,465	15.3%
2 moves	653,698	3.5%	632,180	3.4%	8,829	2.2%	12,689	6.0%	543,084	3.5%	536,619	3.6%	6,465	1.9%
3 moves	653,698	1.1%	632,180	1.1%	8,829	0.7%	12,689	2.2%	543,084	1.1%	536,619	1.1%	6,465	0.6%
Sickness absence														
least absent	653,698	33.0%	632,180	32.8%	8,829	51.2%	12,689	29.0%	543,084	29.0%	536,619	28.8%	6,465	45.8%
2nd quartile	653,698	26.1%	632,180	26.4%	8,829	16.8%	12,689	20.3%	543,084	27.7%	536,619	27.8%	6,465	19.1%
3rd quartile	653,698	18.0%	632,180	18.1%	8,829	11.2%	12,689	16.9%	543,084	19.2%	536,619	19.3%	6,465	12.8%
most absent	653,698	22.9%	632,180	22.7%	8,829	20.8%	12,689	33.8%	543,084	24.1%	536,619	24.1%	6,465	22.2%
Authorised absence														
least absent	653,698	25.4%	632,180	25.3%	8,829	38.1%	12,689	19.6%	543,084	21.6%	536,619	21.4%	6,465	33.0%
2nd quartile	653,698	31.2%	632,180	31.6%	8,829	19.4%	12,689	20.7%	543,084	33.1%	536,619	33.2%	6,465	22.9%
3rd quartile	653,698	18.4%	632,180	18.5%	8,829	12.8%	12,689	17.3%	543,084	19.6%	536,619	19.7%	6,465	14.3%
most absent	653,698	25.0%	632,180	24.6%	8,829	29.7%	12,689	42.4%	543,084	25.8%	536,619	25.7%	6,465	29.7%
Unauthorised absence														
least absent	653,698	36.3%	632,180	35.9%	8,829	60.1%	12,689	39.8%	543,084	34.0%	536,619	33.7%	6,465	57.0%
2nd quartile	653,698	20.8%	632,180	20.9%	8,829	14.8%	12,689	20.1%	543,084	21.6%	536,619	21.6%	6,465	16.8%
3rd quartile	653,698	20.2%	632,180	20.4%	8,829	12.5%	12,689	18.3%	543,084	21.0%	536,619	21.0%	6,465	13.5%
most absent	653,698	22.7%	632,180	22.9%	8,829	12.5%	12,689	21.8%	543,084	23.5%	536,619	23.6%	6,465	12.6%
Months looked after														
never LAC	653,698	98.8%	632,180	99.0%	8,829	95.2%	12,689	93.2%	543,084	98.9%	536,619	99.0%	6,465	95.2%
1 - 12 m	653,698	0.3%	632,180	0.3%	8,829	0.7%	12,689	1.4%	543,084	0.3%	536,619	0.3%	6,465	0.6%
13 - 24 m	653,698	0.2%	632,180	0.2%	8,829	0.8%	12,689	0.8%	543,084	0.2%	536,619	0.2%	6,465	0.7%
25 - 48 m	653,698	0.3%	632,180	0.2%	8,829	1.4%	12,689	1.6%	543,084	0.2%	536,619	0.2%	6,465	1.4%
49 - 72 m	653,698	0.2%	632,180	0.1%	8,829	1.0%	12,689	1.1%	543,084	0.2%	536,619	0.2%	6,465	1.1%
73+ m	653,698	0.2%	632,180	0.1%	8,829	0.9%	12,689	1.8%	543,084	0.2%	536,619	0.2%	6,465	0.9%
Child Protection Plans														
no CPP	653,698	99.5%	632,180	99.5%	8,829	99.2%	12,689	98.0%	543,084	99.5%	536,619	99.5%	6,465	99.2%
1 or more CPP	653,698	0.5%	632,180	0.5%	8,829	0.8%	12,689	2.0%	543,084	0.5%	536,619	0.5%	6,465	0.8%
Type of School														
LA mainstream	630,787	82.0%	609,402	82.3%	8,796	76.7%	12,589	70.7%	543,084	82.2%	536,619	82.1%	6,465	90.9%
academy mainstream	630,787	17.3%	609,402	17.7%	8,796	7.5%	12,589	7.1%	543,084	17.8%	536,619	17.9%	6,465	9.0%
academy special	630,787	0.0%	609,402	0.0%	8,796	1.0%	12,589	0.1%	543,084	0.0%	536,619	0.0%	6,465	0.0%
academy AP	630,787	0.0%	609,402	0.0%	8,796	0.1%	12,589	0.1%	543,084	0.0%	536,619	0.0%	6,465	0.0%
LA PRU	630,787	0.0%	609,402	0.0%	8,796	0.7%	12,589	0.7%	543,084	0.0%	536,619	0.0%	6,465	0.1%
LA special	630,787	0.6%	609,402	0.0%	8,796	13.7%	12,589	21.1%	543,084	0.0%	536,619	0.0%	6,465	0.0%
NM special	630,787	0.0%	609,402	0.0%	8,796	0.4%	12,589	0.2%	543,084	0.0%	536,619	0.0%	6,465	0.0%
Latest inspection														
good	653,698	63.6%	632,180	63.8%	8,829	55.6%	12,689	58.6%	543,084	69.5%	536,619	69.6%	6,465	58.1%
outstanding	653,698	16.2%	632,180	16.0%	8,829	20.1%	12,689	24.4%	543,084	17.5%	536,619	17.5%	6,465	15.4%
requires improvement	653,698	9.3%	632,180	9.2%	8,829	20.7%	12,689	7.5%	543,084	9.9%	536,619	9.8%	6,465	22.5%
inadequate	653,698	3.0%	632,180	3.0%	8,829	3.5%	12,689	3.2%	543,084	3.1%	536,619	3.1%	6,465	4.0%
no grade yet	653,698	7.9%	632,180	8.1%	8,829	0.1%	12,689	6.2%	543,084	0.0%	536,619	0.0%	6,465	0.0%
School FSM rate														
lowest	641,838	33.3%	620,357	33.7%	8,815	22.0%	12,666	22.8%	543,084	34.2%	536,619	34.3%	6,465	24.1%
2nd tercile	641,838	33.3%	620,357	33.4%	8,815	31.7%	12,666	30.0%	543,084	33.9%	536,619	33.9%	6,465	33.8%
highest	641,838	33.3%	620,357	32.9%	8,815	46.3%	12,666	47.2%	543,084	31.9%	536,619	31.7%	6,465	42.1%
School SEND rate														
lowest	647,317	29.0%	631,919	29.3%	7,353	12.1%	8,045	20.3%	543,084	23.2%	536,619	23.4%	6,465	11.5%
2nd septile	647,317	42.2%	631,919	42.3%	7,353	37.1%	8,045	38.0%	543,084	46.0%	536,619	46.1%	6,465	37.2%
3rd septile	647,317	21.2%	631,919	21.0%	7,353	30.3%	8,045	26.9%	543,084	22.6%	536,619	22.5%	6,465	30.9%
4th septile	647,317	5.7%	631,919	5.5%	7,353	13.6%	8,045	9.5%	543,084	6.0%	536,619	5.9%	6,465	13.5%
5th septile	647,317	1.4%	631,919	1.4%	7,353	4.6%	8,045	3.2%	543,084	1.5%	536,619	1.5%	6,465	4.6%
6th septile	647,317	0.4%	631,919	0.4%	7,353	1.7%	8,045	1.3%	543,084	0.4%	536,619	0.4%	6,465	1.6%
highest	647,317	0.2%	631,919	0.2%	7,353	0.7%	8,045	0.8%	543,084	0.2%	536,619	0.2%	6,465	0.6%
School SEND unit														
no unit	653,526	94.2%	632,010	94.3%	8,828	90.3%	12,688	90.7%	543,084	93.9%	536,619	93.9%	6,465	88.6%
has unit	653,526	5.8%	632,010	5.7%	8,828	9.7%	12,688	9.3%	543,084	6.1%	536,619	6.1%	6,465	11.4%
Pupil Teacher Ratio														
lowest	642,952	25.5%	621,528	24.6%	8,794	43.7%	12,630	56.5%	543,084	24.0%	536,619	23.9%	6,465	32.4%
2nd quartile	642,952	25.4%	621,528	25.6%	8,794	21.4%	12,630	16.3%	543,084	25.5%	536,619	25.5%	6,465	25.8%
3rd quartile	642,952	25.1%	621,528	25.4%	8,794	18.6%	12,630	14.7%	543,084	25.7%	536,619	25.7%	6,465	22.5%
highest	642,952	24.0%	621,528	24.3%	8,794	16.3%	12,630	12.6%	543,084	24.8%	536,619	24.9%	6,465	19.4%

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	All cases								Complete case sample					
	Total		Not identified S		Identified S		Ineligible		Total		Not identified S		Identified S	
	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean	Obs	Mean
LA FSM rate														
lowest	653,698	35.7%	632,180	35.8%	8,829	30.0%	12,689	33.8%	543,084	30.8%	536,619	30.8%	6,465	31.2%
2nd tercile	653,698	31.3%	632,180	31.3%	8,829	34.3%	12,689	32.3%	543,084	34.1%	536,619	34.1%	6,465	34.6%
highest	653,698	33.0%	632,180	32.9%	8,829	35.6%	12,689	33.8%	543,084	35.1%	536,619	35.1%	6,465	34.2%
LA EHCP mainstream														
lowest	602,184	33.4%	581,411	33.5%	8,829	27.2%	11,944	30.0%	543,084	33.7%	536,619	33.8%	6,465	25.3%
2nd tercile	602,184	33.4%	581,411	33.4%	8,829	35.5%	11,944	34.6%	543,084	33.0%	536,619	33.0%	6,465	35.9%
highest	602,184	33.2%	581,411	33.1%	8,829	37.3%	11,944	35.4%	543,084	33.3%	536,619	33.2%	6,465	38.8%
LA EHCP resourced														
lowest	602,184	33.7%	581,411	33.8%	8,829	30.6%	11,944	31.1%	543,084	34.0%	536,619	34.0%	6,465	30.3%
2nd tercile	602,184	33.0%	581,411	33.0%	8,829	35.4%	11,944	33.3%	543,084	32.7%	536,619	32.6%	6,465	35.8%
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LA EHCP special														
lowest	602,184	34.9%	581,411	35.0%	8,829	33.8%	11,944	31.1%	543,084	35.0%	536,619	35.0%	6,465	35.1%
2nd tercile	602,184	31.8%	581,411	31.8%	8,829	32.9%	11,944	32.5%	543,084	31.8%	536,619	31.8%	6,465	33.3%
highest	602,184	33.3%	581,411	33.3%	8,829	33.3%	11,944	36.4%	543,084	33.2%	536,619	33.2%	6,465	31.6%
LA EHCP other														
lowest	602,184	33.7%	581,411	33.8%	8,829	30.4%	11,944	32.4%	543,084	33.8%	536,619	33.9%	6,465	30.4%
2nd tercile	602,184	34.0%	581,411	34.0%	8,829	34.1%	11,944	34.5%	543,084	34.2%	536,619	34.2%	6,465	34.7%
highest	602,184	32.3%	581,411	32.2%	8,829	35.5%	11,944	33.1%	543,084	32.0%	536,619	32.0%	6,465	34.9%
LA BME rate														
lowest	653,698	25.7%	632,180	25.7%	8,829	25.6%	12,689	24.9%	543,084	28.7%	536,619	28.8%	6,465	25.2%
2nd quartile	653,698	24.9%	632,180	24.9%	8,829	28.0%	12,689	26.3%	543,084	27.6%	536,619	27.6%	6,465	29.3%
3rd quartile	653,698	26.4%	632,180	26.5%	8,829	19.6%	12,689	25.5%	543,084	20.1%	536,619	20.1%	6,465	19.8%
highest	653,698	23.0%	632,180	23.0%	8,829	26.8%	12,689	23.3%	543,084	23.6%	536,619	23.6%	6,465	25.7%
LA primary academisation rate														
lowest	644,579	25.1%	623,110	23.9%	8,821	82.3%	12,648	41.7%	541,876	26.5%	535,412	25.7%	6,464	89.3%
2nd quartile	644,579	25.1%	623,110	25.5%	8,821	8.9%	12,648	20.5%	541,876	24.8%	535,412	25.0%	6,464	6.5%
3rd quartile	644,579	24.8%	623,110	25.2%	8,821	5.0%	12,648	18.6%	541,876	24.3%	535,412	24.6%	6,464	2.8%
highest	644,579	25.0%	623,110	25.4%	8,821	3.7%	12,648	19.1%	541,876	24.4%	535,412	24.7%	6,464	1.5%

'B' model table ends.

Limitations

Scope of the modelling

The original plan for this research encompassed some questions that have not been possible to address due to challenges in modelling the outcomes of interest. The research questions called for multi-level modelling in order to reflect the hierarchy in which decisions about children's SEND are made, and the resulting clustering of SEND identification, which was more extreme than expected.

Children in each cohort are nested within almost 20 thousand schools within 152 local authorities after infant, junior, all-through, special and alternative provision schools and closures and openings are taken into account.

A rich matrix of data was created to supply independent variables for the analysis, many with timings specified to precede SEND identifications. This complex data structure combined with many small clusters which explained a high proportion of variance, and with many of the SEND outcomes of interest having low prevalence in the population, to make achieving model convergence extremely challenging.

The process of building models that would converge required many painstaking iterations adjusting the specification of the models and factors to remove empty cells. While we were eventually able to converge models for different levels of SEND, it was not feasible to construct comparable separate models for different types of SEND need as envisaged in research questions 2 and 5.

Indeed, the preliminary analysis suggested that SEND types were not well distinguished from one another in the data, and that the smaller case numbers of children identified with individual need types could not support the level of analysis required. The resource-intensive nature of the analysis meant it was also not feasible to test the models over a time series of successive cohorts to assess change over time in the factors that predict identification with SEND.

A scoping limitation that was determined from the outset of the research was that the process of SEND identification prior to compulsory schooling has not been analysed in this project. This means that children with the most severe or 'obvious' development needs and disabilities, detected by health professionals or in nursery provision, are not included in the findings.

Processes for identifying and supporting those children are of equal importance, but the same richness of data is not available prior to compulsory school age. It is probably the case that although the timing of early identification may differ from place to place, it is less likely that children with severe needs would be involved in either under-identification (in terms of having their needs missed altogether) or over-identification (for example, being identified with SEND where there are no specific needs), which are the main focus of this research.

This report focuses on SEND identification in primary school, where most new identifications take place. The second strand of this research project will pick up identification in secondary school and status changes at transition to secondary, as it focuses on the intersection between SEND, mental health difficulties and access to support in schools and from CAMHS. Behaviour and mental health difficulties become more prevalent during secondary school, so the second phase of the project will focus more on this phase.

A final scoping limitation is that this project cannot assess whether SEND prevalence at the national level has been 'too high' or 'too low'. While these are important questions of interest to policy-makers and there has been a belief on the part of government that lower-level SEND was over-identified prior to the 2014 reforms, there is no objective basis for us to determine a 'right' or 'true' level of prevalence. What we are able to do is examine variations between groups of children and from school to school and place to place to determine where identification is relatively high or low, identifying the relevant risk factors and taking these into account, and that is our focus.

Missing Data

There were 20,781 schools with primary pupils within the dataset, of which 19,601 were included in the sample with complete data for models of SEND identification at the lower level and 16,318 were included in the models of identification at the higher level.

Comparison of the full dataset and the complete case samples reveals that missing data disproportionately affected the most deprived neighbourhoods, local authorities with the highest primary academisation rates or higher BME rates, and the following ethnic groups: Chinese, Black Other, Black African, Asian Other, Indian and Irish. In addition, very high rates of missingness were observed for Gypsy/Roma, White Other, Irish Traveller, and Other ethnicities.

In the case of lower-level SEND, children who were already identified with SEND by the end of reception year at this or the higher level were a larger group excluded from the analysis. This meant that boys, summer-born children, local authorities with the lowest free school meal rates, and children with English as an additional language were also under-represented in the analysis at this level. We present equivalent models to the main models with reception year identifications as the outcome variable in order to help to elucidate where earlier identification plays a part in the patterns of odds effects in our main models.

Omitted variables

Many factors of interest exist for which we do not have good data, especially concerning schools and how they staff and administer their functions under the SEND Code of Practice. We do not know about the training, qualifications and experience of key staff such as SENCOs, and cannot distinguish between schools that allocate more or less staff and leadership time to these functions or have a different ethos or approach to labelling and identification.

We also cannot distinguish what specialist resources such as educational psychologist time or local top-up funding are available to different schools. The closest we are able to come to this is to examine whether differences in high needs funding levels or the availability of different provision types are associated with variation in identification levels.

In particular some schools with very high levels of additional need choose to address more common and less severe needs through whole school policies and practices and do not identify and record SEND at the lower level in the same way as others because they believe they can successfully support those pupils without invoking the Code of Practice processes.

This is a different phenomenon - but not easy to distinguish on the basis of administrative data - from schools that don't recognise SEND needs as an important source of educational disadvantage, and don't prioritise individual support for children with those needs, either because they are less

prevalent in the local area, because of preferences against mainstream integration of children with particular SEND needs, or because of budgetary and/or accountability pressures.

We are able to examine the role of pupil-teacher ratios, the history of SEND identification by each school, and the presence or absence of SEND units, along with the role of local authority or academy governance, which may touch on some of these issues but are not direct proxies for everything it would be useful to know about different schools.

Aside from school factors, there is reason to suspect that pollution levels at the small area level are likely to play a role in explaining variations in SEND (Heissel, Persico, & Simon, 2019). This factor that we do not have data for is likely to be correlated with area deprivation, but research on cognitive and non-cognitive development from the US suggests it has effects on child development independent of deprivation.

The factors we are able to examine may, however, provide useful clues for where to direct future qualitative research aimed at unpicking school-level variation further. It is our hope that this project will encourage wider research interest in the subject of special educational needs and disabilities encompassing other methodologies and research questions.

Results for SEND Identification at Lower Level of Support

Variation at individual, school, and local authority levels

A key finding for this study emerges from the 'empty' model which simply fits the cases of SEND identification (and non-identification) within a hierarchy and reports how much of the variation occurs at each level, the levels being the individual child, the school attended, and the local authority. If SEND identification were completely consistent from place to place, then the differences (which children are identified, and which are not) should all be a matter of differences between individual children.

However, the school decides which children will be recorded as having SEND at the lower level, modelled here; and the local authority assesses which children will be identified for the higher level of support, modelled later in this report. We would therefore expect some proportion of the variation in identification to be explained at the school level, and perhaps some at the local authority level because of trickle-down effects of their policies for assessing the higher level of support. These are components of the 'postcode lottery' as they mean that the same child can be treated differently depending on where they live and which school they attend.

The intra-class correlation for the empty model tells us to what extent differences in identification are explained at the school and local authority levels. The results from this are very striking. At the lower level of support, differences between schools account for 69 per cent of the total variation, leaving just 29 per cent explained by differences between individual children, and 2 per cent explained by differences between local authorities. Which school a pupil attends dominates their chances of being identified with SEND to a greater extent than any combination of factors specific to that child.

Pre-reform identifications under codes A and P

The 'a' models

Five models were specified to examine the relationship between **new identifications of SEND at a lower level of support** (School Action or School Action Plus) during school years 1 to 4, and factors that predict this. The first five models build a picture of what predicts identification beginning with an empty model to assess the proportion of variation that is explained at the individual, school and local authority levels; then adding **child factors** in models 1a to 5a, **school factors** in model 6a, and **local authority factors** in model 7a.

Models 1a, 2a and 5a to 7a were fitted 'i' with **school and local authority random effects**, and 'ii' without them, to reveal where child factor effects were influenced by location or school attended. Unfortunately, model convergence issues prevented all seven steps from being achievable for SEND at the lower level, when in the presence of school and local authority random effects. This meant that models 3a and 4a are only available for the 'ii' versions without school and LA random effects.

Subsidiary models

Model 7a-i was fitted for a dependent variable (outcome) of identifications in year 3, substituting variables capturing the **timing of school academisation** (where applicable) relative to the timing of the identifications (in year 3) for the school type variable, in order to unpick any changes in the propensity to identify pupils with SEND as a result of academisation. As academy conversions were in their early stages for primary schools over the period followed in our cohort (2011 to 2015) and therefore the number of cases was small until later school years, but the number of SEND identifications decreases as children get older, year 3 was chosen to maximise the sample of identifications in schools that had converted to academy status prior to this.

The success of the models in classifying pupils into the 'identified' or 'not identified' groups for SEND is measured by the ROC area under the curve. The area under the ROC curve is a number between 0 and 1 which corresponds with the probability that the model will correctly classify a randomly selected pair of cases (pupils) of which one is positive and one is negative. In this case, positive means identified with SEND and negative means not identified with SEND.

Due to the high degree of correlation between pupils within the same school, even the empty model (with no information about the pupils, nor about schools or LAs other than how pupils are grouped within these) is able to discriminate between pupils identified with SEND and those who were not, with a 'good' area under the curve value of 0.86.

Adding child factors results in slightly better classification (0.88). After school and care factors are added, the ability of the models to classify correctly is 'excellent', at 0.97. No further improvement in classification is found from adding LA factors.

The main models are good at predicting which pupils are subsequently identified with lower level SEND because knowing the school attended provides a strong signal and the addition of pupil and

school level information corrects most cases that were not predicted correctly from the school and local authority alone.

Finally, 7a-i was fitted for a dependent variable (outcome) of identifications in year 3 to explain later identifications with the purpose of examining the role of the academisation of a minority of primary schools during the period included in the main models. The area under the ROC curve for this model was 0.99. or 'excellent' at classifying pupils correctly according to whether they were newly identified with SEND at the specified time.

What are the predictors of new identifications of SEND at the lower level in years 1 to 4?

We have seen that the school attended is incredibly important to the likelihood of being identified with SEND under pre-form codes A or P and will now examine the further factors associated with this. The odds effects and significance for the factors included in each model are reported in the appendix and predictive margins for each factor in model 7a are illustrated in figures 2 to 6. The latter are estimated probabilities for SEND identification, averaged across all cases, to assist with interpretation of the scale of the effects, given how the different factors vary with one another. Odds effects are reported on a logarithmic scale where values below 1 are negative associations with the dependent variable (SEND identification) and values above 1 are positive associations.

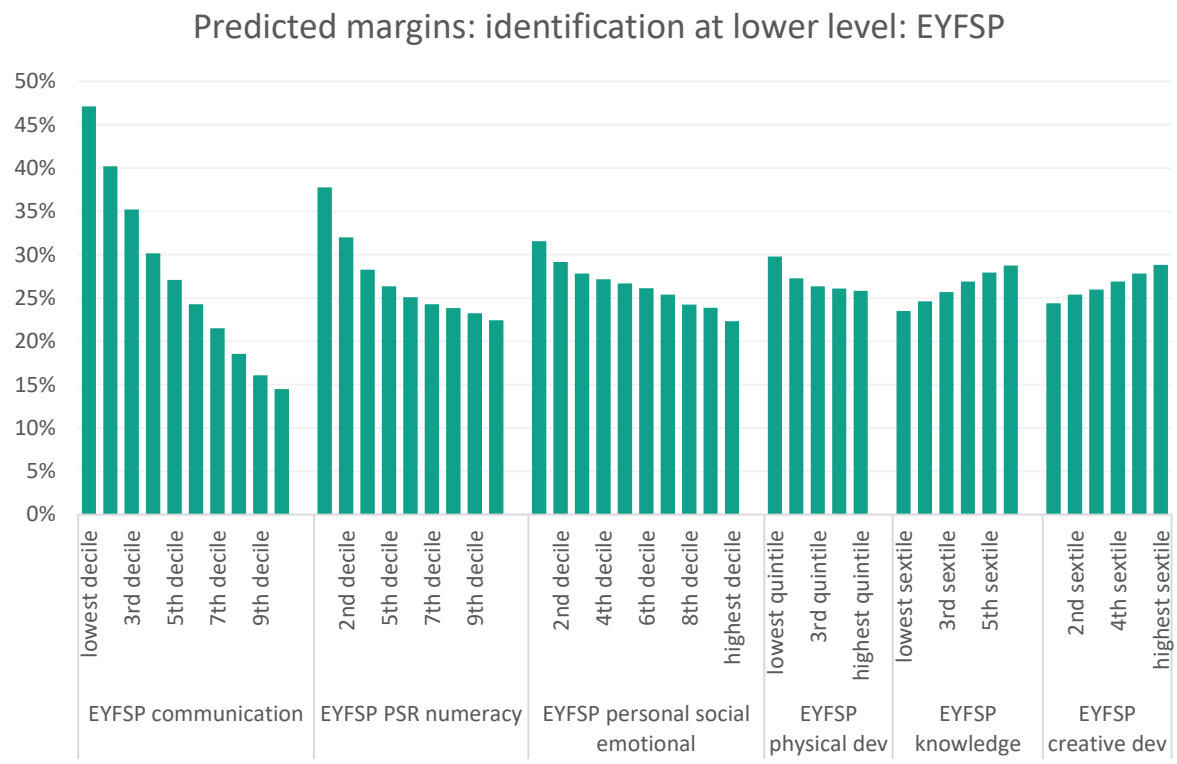
Prior attainment in the Early Years Foundation Stage Profile

The strongest relationship between the EYFSP scales and SEND identification at the lower level is for the **communication, language and literacy** scale. According to the model estimates, forty-seven per cent of children in the lowest decile for communication scale scores were identified with SEND during years 1 to 4, compared with fourteen per cent of children in the highest decile.

The **problem-solving, reasoning and numeracy** scale and the **personal, social and emotional development** scale also had clear negative relationships with the probability of being identified with SEND, but these were smaller than for the communication scale. Thirty-eight per cent of children in the bottom decile for numeracy and thirty-two per cent of those in the bottom decile for personal development were subsequently identified with SEND, falling to twenty-two per cent of those in the top deciles on both scales.

The **physical development** scale had the smallest negative relationship with SEND identification, with thirty per cent of the lowest-scoring quintile and twenty-six per cent of the highest-scoring quintile being subsequently identified with SEND. The **knowledge and understanding of the world** and **creative development** scales of the EYFSP both have small positive relationships with SEND identification. It is not clear why scoring higher on these scales is associated with a greater chance of being identified with SEND, but a consistent pattern is known for the association between the EYFSP scales and later attainment, whereby higher scores on these scales are associated with lower later attainment, unlike the other EYFSP scales which are positively associated with attainment at key stage 1 (Department for Education, 2010).

Figure 2.



All odds effects for the EYFSP scales were significant at the 1 per cent level. The size of the negative effects increased (odds effects below 1 moved towards zero) as school factors were added in model 6a.

Child characteristics

The odds effects on SEND identification for basic child characteristics were smaller than the effects for the early years foundation stage profile scales irrespective of which other factors were controlled in the models.

The **gender** effect on SEND identification is similar in size to the month of birth effect, with both boys and August-born children experiencing around twice the odds of being identified at the lower level compared with girls and September-born children respectively. Children recorded with **English as an additional language** were less likely to be identified with SEND than their peers, at twenty-four per cent versus twenty-seven per cent of children without EAL. It is not obvious why children with EAL should be less likely to have SEND, but possible explanations include selective immigration based on health status or some other unobserved factor, or the possibility that in some cases special educational needs might be subordinated to language learning needs resulting in under-identification of SEND when a child has both needs. It has not been possible to establish the true explanation for this difference within the scope of our models.

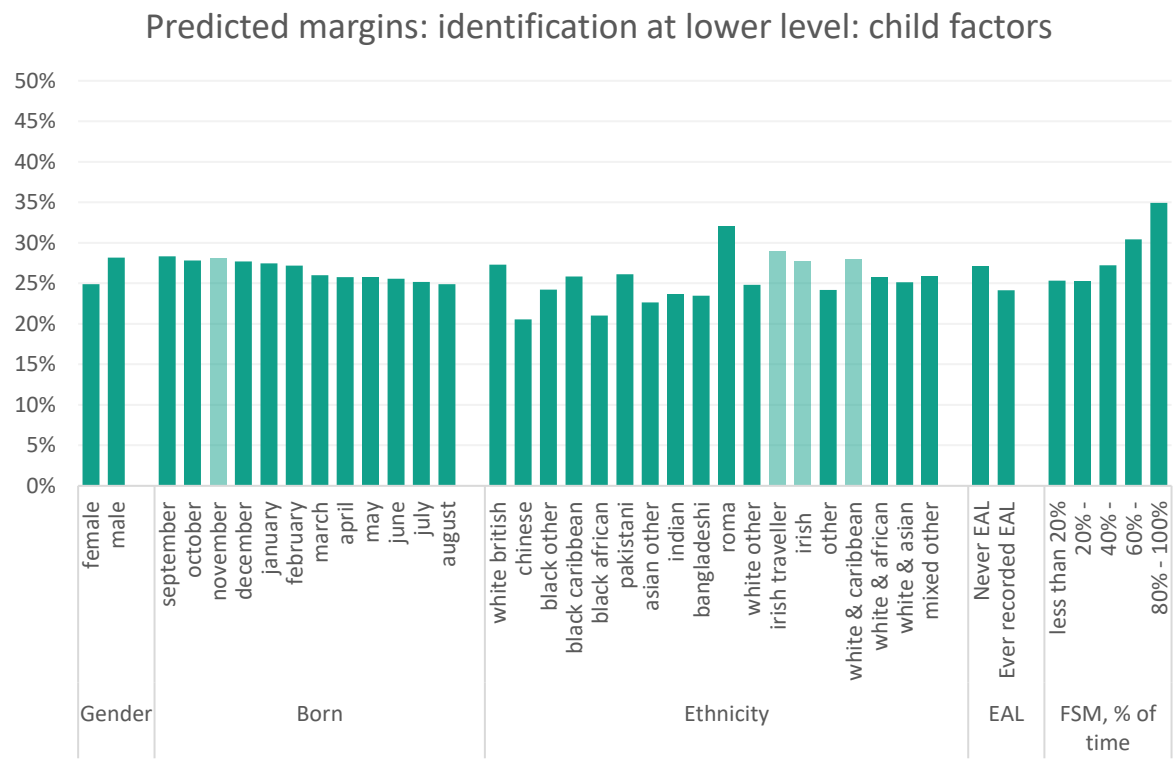
Some larger effects were found for ethnicity and free school meals eligibility history. Gypsy/Roma and Traveller, Black Caribbean, Mixed White and Black Caribbean and Black Other children were over-represented among children identified with SEND at the lower level. The size of these effects was small, except for Gypsy/Roma and Traveller children who experienced odds of identification that were 4 to 5 times higher than those for White British children and remained twice as high after

controlling for all other child factors. There is a **history of misidentification** for **Black Caribbean children**. Our models indicate that this group remains over-identified (odds raised by 13 per cent) after controlling for all individual child-level factors, and suggest that while a proportion of the over-representation is due to greater levels of poverty, most of the over-representation is associated with attending schools that identify more children with SEND or is mediated through lower attainment assessments at age five.

Indian, Bangladeshi, Asian Other and Mixed White and Asian children are under-represented in SEND identifications after controlling for all individual child-level factors, and this is further exacerbated by attending schools with lower-than average rates of identification. The under-representation of Asian groups, especially **Bangladeshi and Pakistani children**, is greatest for the most disadvantaged children.

The model predicts twenty-five per cent of children who were **eligible for free school meals** for less than twenty per cent of their time in school (including those never eligible) were subsequently identified with SEND, rising to thirty-five per cent of those who were eligible for eighty per cent or more of their time in school. The effects were significant at the 1 per cent level apart from the twenty to thirty-nine per cent FSM eligibility group, whose odds were not different from the less than twenty per cent eligibility group.

Figure 3.



Neighbourhood deprivation

The **Income Deprivation Affecting Children Index** measures the proportion of families with children experiencing deprivation within a local area. The area used in this analysis is the lower super output area (LSOA) of residence for each child, i.e. their immediate residential neighbourhood, taken as the **mean average** for all areas the child had lived in prior to and SEND identification. This small area

deprivation measure had the largest odds effect of any child level factor, resulting in large differences in the predictive margins for children living in more or less deprived areas.

Children living in the least deprived areas were estimated to have a twenty per cent chance of being identified with SEND at the lower level, rising to sixty-six per cent – or almost two thirds - of those living in the most deprived neighbourhoods. The effect of neighbourhood deprivation was even larger than this until the school factors were added in model 6a, but reduced noticeably when these factors were controlled.

In addition to the average IDACI for areas lived in before any identification took place, the highest neighbourhood deprivation level experienced before any identification was also entered into the model and was also significant at the 1 per cent level. This **maximum deprivation level experienced** was negatively associated with SEND identification after controlling for the mean IDACI level.

Also negatively associated with SEND was the **variability of the IDACI deprivation** levels for areas children had lived in before any identification over the course of years 1 to 4. The predictive margins suggest that thirty-two per cent of children who experienced the least variable neighbourhood deprivation were identified with SEND compared with twenty-two per cent of those with the most variable neighbourhood deprivation experiences.

Taken together with the maximum IDACI factor, this suggests that moving home, in particular from a less deprived area to a more deprived area, reduces the chances of being identified with SEND, all other observed factors being equal.

It is worth noting a possible omitted variable that could plausibly be confounded with neighbourhood deprivation given the very large effects observed for the neighbourhood factor relative to the individual disadvantage factor. Evidence from the US has found strong effects of pollution levels at school sites on both cognitive development (changes in test scores) and behavioural incidents in school (Heissel, Persico, & Simon, 2019).

Pollution is likely to be strongly correlated with neighbourhood deprivation, and some very neat methodology was required to separate out the effects of pollution and deprivation using within-child changes in outcomes and instrumenting wind direction relative to the pollution source and the school (Heissel, Persico, & Simon, 2019). While we cannot reach any conclusion on this as it is outside of our models, it is at least plausible that exposure to pollution could be an omitted variable accounting for some portion of the school and area level variation in SEND identification.

School experiences

In addition to moving between more and less deprived residential areas, **moving school more than once** was also associated with reduced odds of being subsequently identified with SEND at the lower level. This effect was somewhat smaller, and twenty-seven per cent of children who did not move schools were identified with SEND - the same proportion as those who moved school once - compared with twenty-five per cent of those who moved twice and twenty-three per cent of those who moved school three or more times. In many parts of the country, there is a planned transition from infant to junior school, which likely explains why a single school move was not associated with any effect on identification, whereas more than one move did reduce the odds of identification.

Rates of **absence from school** were also negatively associated with the odds of SEND identification, and this was particularly the case for sickness absence and unauthorised absence. The predictive margins for children in the lowest quartile for authorised absences prior to any identification give a twenty-nine per cent chance of SEND being identified, falling to twenty-six per cent for those in the highest quartile.

For sickness absence, the lowest quartile had a margin of thirty-three per cent, compared with twenty-four per cent for the most absent quartile. For unauthorised absences, the negative association was stronger, with thirty-three per cent for the least absent quartile, falling to twenty per cent for the most absent quartile.

All of the school absence factors and the terms for two or more school moves were significant at the 1 per cent level. Taken together, these negative associations suggest that greater contact time in the same school increases the opportunity to understand children's needs and identify SEND, and that time spent settling into new schools or missing lessons decreases the information available to support the process of identifying SEND and implementing support.

Care experiences

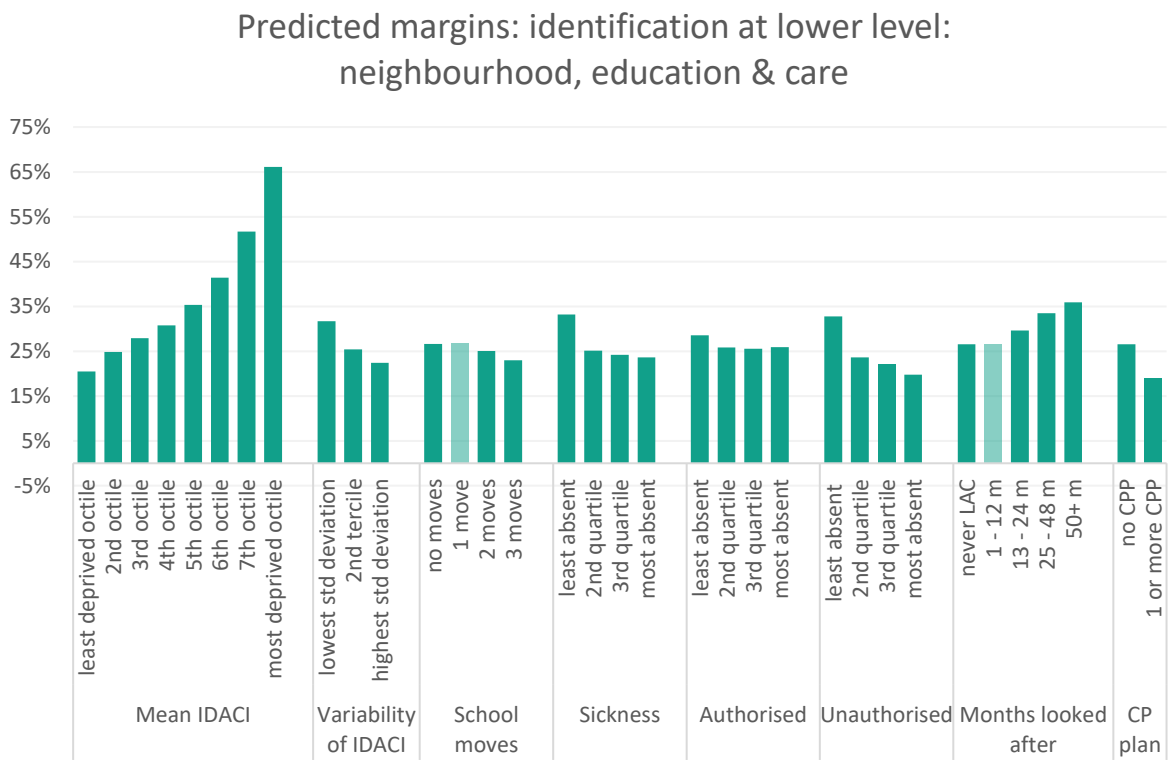
Children looked after by local authority social care for more than a year have raised odds of being identified with SEND, and the odds increase with further time in care. The models indicate a margin of twenty-seven per cent of children who have never been in care being identified with SEND at the lower level. This compares with thirty per cent of those who had been in care for thirteen to twenty-four months, thirty-three per cent of those who had been in care for twenty-five to seventy-two months, and thirty-six per cent of those who had been in care for more than seventy-two months.

These effects are not surprising as children in contact with social care have by definition experienced abuse, neglect or other circumstances expected to present obstacles to healthy child development, and those taken into care are the subset for whom the risks have been greatest.

Children who have been the subject of one or more **child protection plans** represent those deemed by social workers to be at greatest risk but who have not yet been taken into care. This group of children, unlike those already in care for a year or more, had reduced odds of being identified with SEND, which seems deeply counter-intuitive from the point of view of the risk that they do actually have special educational needs or disabilities.

Twenty-seven per cent of children who have never had a child protection plan were identified with SEND at the lower level according to the model margins. This contrasted with just nineteen per cent of children with one or more child protection plans.

Figure 4.



School factors

The largest school level effects on SEND identification were for the **proportion of children in the school who had been identified with SEND** (at any level) immediately before the cohort of interest entered year 1, representing the school's history of identifying SEND. Unsurprisingly, schools that identify lots of children with SEND tend to continue to do so with subsequent cohorts, and those that identify few children with SEND also tend to continue to do so. In schools with the lowest prior SEND rates, fourteen per cent of children in our cohort were identified with SEND at the lower level, and this rose as high at seventy per cent of children in schools with the highest prior levels of identified SEND. Even after controlling for rich individual level factors, SEND practices at school level dominate other more individual factors.

After controlling for this school-level propensity to identify SEND, some other school factors were still associated with the odds of being identified, and the strongest of these were the school's prior Ofsted grade, and academy status.

In ascending order of the odds of SEND identification, in schools rated as 'good' by **Ofsted** at their latest inspection before any identification, a margin of twenty-three per cent of children were identified, compared with twenty-six per cent of children in 'outstanding' schools, thirty-two per cent of children in 'inadequate' schools, and forty-three per cent of children in schools that 'required improvement'.

It's difficult to interpret these findings with confidence as the relationship between school intakes and inspection outcomes is very likely endogenous. Previous research has found that schools with the least disadvantaged and least low-attaining intakes were more likely to be judged 'outstanding',

and that there was a systematic association between intakes and inspection outcomes (Hutchinson, 2016).

While similar hypotheses of inspection bias could apply here, it is interesting that within the two pairs of higher and lower inspection grades (outstanding/good and requires improvement/inadequate) the order of effects on SEND identification is reversed, with the stronger grade within each pair having the higher odds of SEND, but the higher pair of grades having lower odds of SEND than the lower pair of grades.

It is likely that there is some bi-directional causality at play in these relationships, with school quality affecting SEND identification practices as well as intakes affecting inspection outcomes.

The other school factor with a large effect on the odds of SEND identification was **academy status** at the time of any identification. Primary academisation was in its early stages during the period covered by this cohort's years 1 to 4. Therefore, it is only possible to assess the short-term effects on SEND identification.

However, there are clear indications of a negative association between academy status and identification; the margin for identification with SEND at the lower level was twenty-eight per cent for children in local authority mainstream schools, compared with seventeen per cent for children in mainstream academies.

The timing of the analysis cohort at the beginning of primary academisations, raises the question that some selection effects related to the sorts of schools that were most likely to convert could be at play. The most obvious school characteristics related to this are controlled in model 6a; these are Ofsted inspection grades, school disadvantage (FSM) levels, and the propensity of the school to identify SEND prior to the cohort of interest.

In addition to the school level controls, the subsidiary version of model 7a investigates the timing of academisation relative to SEND identifications by restricting the analysis to identifications in year 3, so that the time since academisation of each school that has been converted can be identified. Children in academies has slightly depressed odds (OR= 0.962) of being identified with SEND in the year of academisation but this was not statistically significant. In the **year following conversion**, the odds of identification were reduced further (OR= 0.778) and this was significant at the 1 per cent level.

Pupil-teacher ratios are positively associated with SEND identification at the lower level. In schools with the lowest ratios (fewer children per teacher) the margin of children identified with SEND was twenty-four per cent, and this rose to twenty-nine per cent for those in schools with the highest ratios. This means that in larger class sizes children are more likely to be identified with SEND, and suggests a trade-off between teaching quality, with which class size is associated in early primary school, and the number of children identified with SEND. It suggests that some forms of lower level SEND can be managed without an identification if teachers have enough time to work with individual pupils.

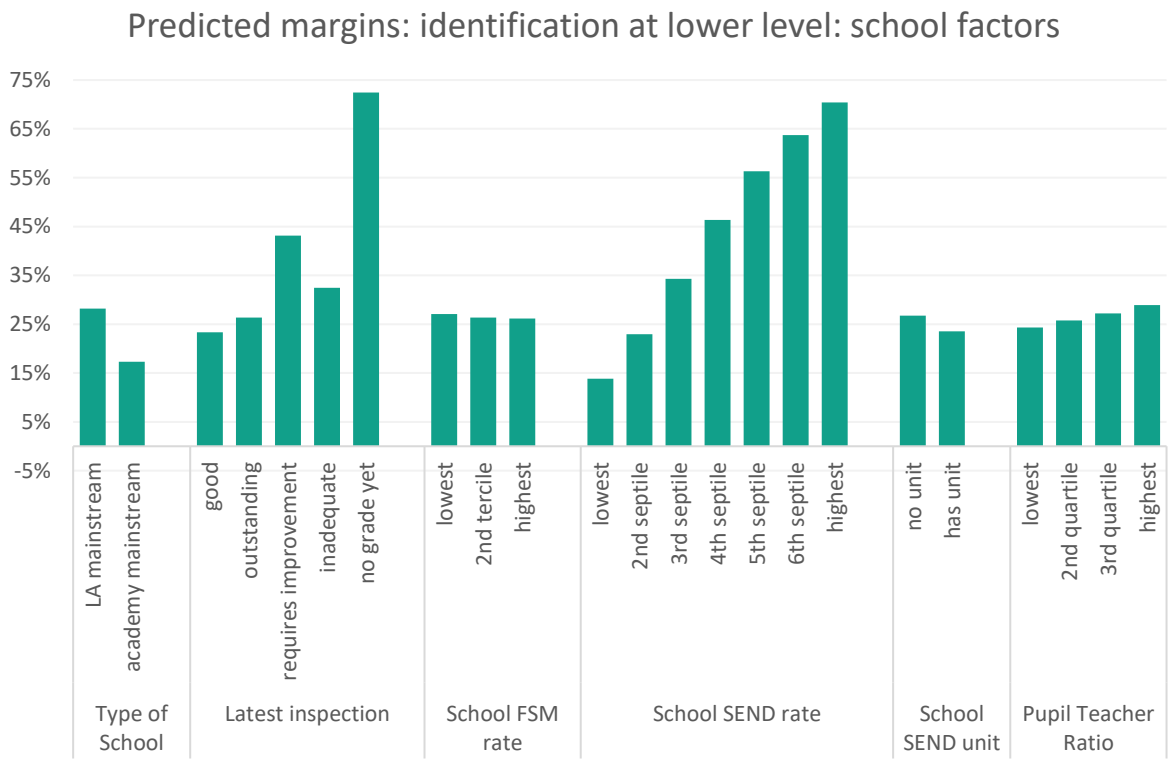
The presence of a **SEND unit** at the school tended to reduce the odds of identification with SEND at the lower level, all else being equal. The predictive margins for children in schools without a unit were twenty-seven per cent, while those for children in schools that did have a SEND unit were reduced to twenty-four per cent. This seems surprising given that these schools are likely to have

staff with more specialist SEND experience and could conceivably become hot spots for children whose parents believe their child has additional needs.

Additional analysis indicates raised odds of identification with SEND at the lower level during reception year, so it is likely that schools with units tend to identify SEND earlier. This pattern could also appear as a result of more children having already been identified with SEND at the higher level and having a statement by the end of reception year, which would result in their exclusion from the lower level SEND models.

Finally, the **prevalence of children eligible for free school meals at the school** also has a small but significant negative effect on the odds of being identified with SEND after controlling for individual and neighbourhood deprivation, which have much larger positive effects. The pupils in schools with FSM rates in the lowest third had a predictive margin of twenty-seven per cent identified with SEND at the lower level, compared with twenty-six per cent for those attending schools in the middle and highest thirds by FSM rate.

Figure 5.



All the school factors were statistically significant at the 1 per cent level except the academisation timing terms, of which only one was statistically significant as noted above.

LA factors

As expected from the small percentage of variance explained at local authority level, the LA level contextual factors had modest effects on the odds of being identified with SEND at the lower level. This is largely expected because the decision making at the lower level of SEND is entrusted to schools, although these may have been influenced to some extent by LA policies around top-up funding and assessment for statements at the higher level of SEND.

The largest LA factor effects were for the FSM and rate of black and minority ethnic pupils across primary schools in the authority. These effects were larger than those for the local authority rates of statements or EHCPs at the higher level of SEND support, whether measured for children in mainstream schools, resourced provision, special schools or other provision.

This suggests that there was not a strong trickle-down effect from the proportion of children with LA-funded SEND support to identification at the lower level (which does not necessarily attract any additional funding from the LA). Nor was there a strong effect of any particular type of provision for children with SEND at the higher level on lower level identifications. Related factors which were also tested but did not have any consistent or significant effects after controlling for the other factors in the model were the LA levels of **high needs funding** per head, levels of **mainstream schools block funding** per head, and the ratio of high needs funding to mainstream schools block funding.

The predictive margins for the **local authority primary FSM rate** indicate that in the least deprived third of LAs, twenty-nine per cent of children were identified with SEND at the lower level, which fell to twenty-four per cent of children in the most deprived third of LAs. As with the school deprivation effects, this was the reverse of the effect of deprivation at the individual and neighbourhood levels.

Deprived children living in deprived neighbourhoods are more likely to be identified with SEND, but all else being equal, children in deprived schools and deprived LAs were less likely to be identified with SEND, presumably because the thresholds are higher where there is greater prevalence of need in the population, so a child with milder needs may be identified where their needs are relatively more unusual, but the same child may not be identified where their needs are commonplace.

The **local authority primary BME rate** (proportion of children with any ethnicity other than White British) was positively associated with the odds of being identified with SEND at the lower level. Twenty-five per cent of children in local authorities with the lowest BME rates were identified with SEND according to the model margins, compared with twenty-nine per cent of children in LAs with the highest BME rates.

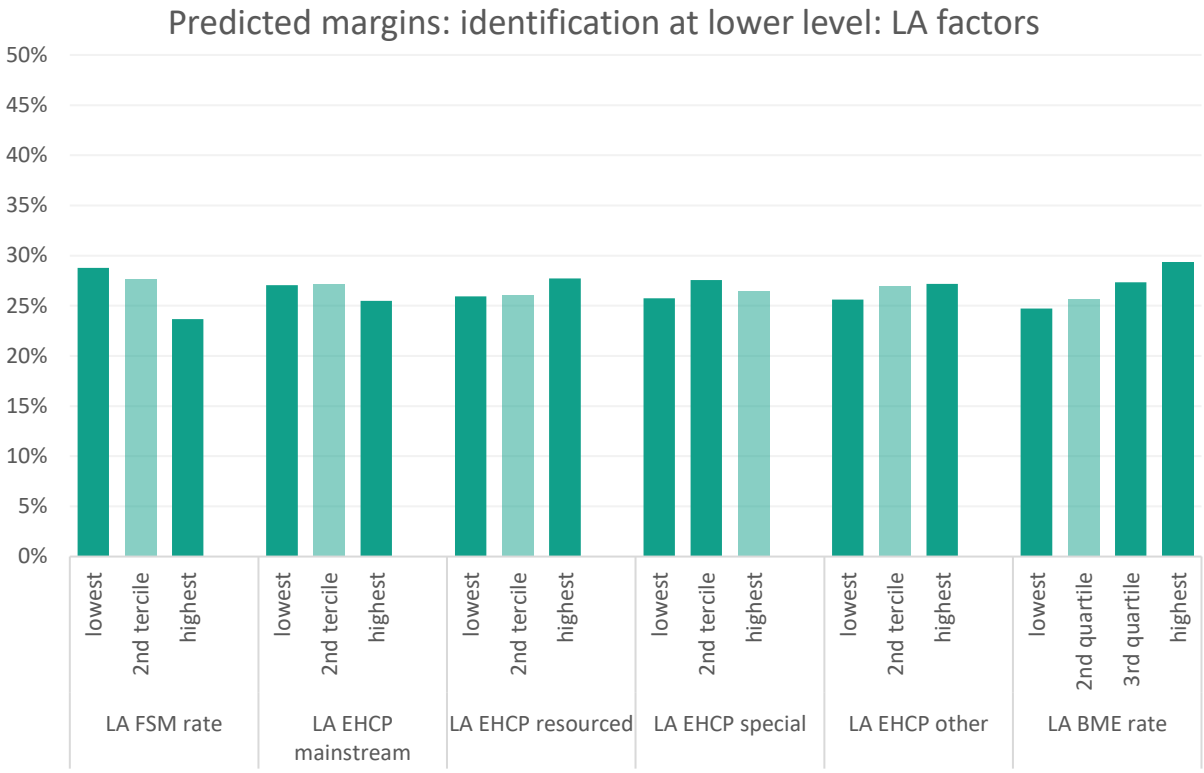
Small but significant differences in the odds of being identified with SEND at the lower level were found between the top and bottom third of areas based on LA rates of all children who had a **statement/EHCP and were placed in mainstream schools**. There was a negative association between the lowest LA rates, with a margin of twenty-seven per cent identified, and the highest LA rates, with a margin of twenty-six per cent identified with SEND. Plentiful mainstream provision for SEND at the higher level was therefore associated with lower odds of identification at the lower level.

By contrast, in LAs where there were higher proportions of all children with **SEND at the higher level placed in resourced provision**, twenty-eight per cent of children were identified at the lower level, compared with twenty-six per cent of children in LAs with fewer children identified at the higher level placed in resourced provision.

There was no consistent relationship between the **LA places in special schools** as a proportion of all children and the odds of being identified with SEND at the lower level. There could be an effect which is masked by the placement of children from out-of-LA in special schools, but this was not evident in any effect of the size of the high needs budget per head, and could not be a large effect given the limited variance explained at the LA level in total.

There was, however, a small positive effect of the proportion of all children in the LA who were **identified at the higher level and placed in other non-school provision**. In LAs with the lowest rates of placement in other provision, the model margins indicate that twenty-six per cent of children were identified with SEND at the lower level, compared with twenty-seven per cent of those in LAs with the highest rates of other provision.

Figure 6.



Results for SEND Identification at Higher Level of Support

Variation at individual, school and local authority levels

The intra-class correlation for the empty model tells us to what extent differences in identification are explained at the school and local authority levels.

At the higher level of support, differences between local authorities account for a larger percentage of total variation, at 4 per cent, compared with 2 per cent for identification at the lower level. This is still dwarfed by the sixty-seven per cent explained by differences between schools, even though the local authority is the decision-making authority for statements and latterly EHCPs. The proportion of variation explained within schools at the individual child level for higher level SEND identifications was the same as for lower level identifications, at just twenty-nine per cent.

It is surprising that the role of the school is only fractionally less dominant for higher level SEND identifications than for lower level identifications. Logically, this must reflect the school's contributions in exhausting early support options and presenting evidence of need for support at the higher level to the satisfaction of the LA's assessment staff; or LA perceptions of need might vary at the school level, although that would not be consistent with the SEND Code of Practice either prior to or after the 2014 reforms: "Local authorities must carry out their functions with a view to identifying all the children and young people in their area who have or may have SEN or have or may have a disability (Section 22 of the Children and Families Act 2014)" (Department for Education, 2015).

Pre-reform identifications under code S

The 'b' models

Five models were specified to examine the relationship between **new identifications of SEND at a higher level of support** (Statement of SEN) during school years 1 to 4, and factors that predict this. The first five models build a picture of what predicts identification beginning with an empty model to assess the proportion of variation that is explained at the individual, school and local authority levels; then adding **child factors** in models 1a to 5a, **school factors** in model 6a, and **local authority factors** in model 7a.

Models 1a to 7a were fitted 'i' with **school and local authority random effects**, and 'ii' without them, to reveal where child factor effects were influenced by location or school attended.

Subsidiary model

Model 7a-i was fitted for a dependent variable (outcome) of identifications in year 3, substituting variables capturing the **timing of school academisation** (where applicable) relative to the timing of the identifications (in year 3) for the school type variable, in order to unpick any changes in the propensity to identify pupils with SEND as a result of academisation. Year 3 was chosen to maximise the sample of identifications in schools that had converted to academy status.

The outcome of being identified with SEND at the higher (statemented) level during years 1 to 4 is considerably rarer than being identified at the lower level, with an overall margin of twenty-seven per cent of child identified at the lower level and 1.8 per cent identified at the higher level of need. This makes the modelling objective of classifying children correctly into 'identified' and 'not identified' groups initially much more challenging and the empty model containing only the information about how pupils are grouped into schools and LAs is worse than flipping a coin, with an area under the curve value of 0.37.

However, the classification properties of the model were even stronger than for the lower-level identification model once child factors were added (area under the ROC curve = 0.98) and increased slightly further after school and care factors were added (area under the ROC curve = 0.99). The area value remained at 0.99 after LA factors were added.

The subsidiary model 7b explains later identifications at the higher level with the purpose of examining the role of the academisation of a minority of primary schools during the period included in the main models. The area under the ROC curve for this model was 0.99.

All of the higher level SEND identification models apart from the empty model had 'excellent' discrimination, with a very high probability that the model will correctly classify a randomly selected pair of pupils of which one is positive (identified with SEND) and one is negative (not identified).

What are the predictors of new identifications of SEND at the higher level in years 1 to 4?

As at the lower level of SEND, we have observed that the school attended is incredibly important to the likelihood of being identified with SEND under pre-form code S, and the local authority has increased in importance but still only explains a small fraction of the total variation. In examining the further factors associated with this, the odds effects and significance for the factors included in each model are reported in table 6 and predictive margins for each factor in model 7b are illustrated in figures 7 to 11.

The predictive margins are estimated probabilities for SEND identification, averaged across all cases, to assist with interpretation of the scale of the effects, given how the different factors vary alongside one another. Odds effects are reported on a logarithmic scale where values below 1 are negative associations with the dependent variable (SEND identification at the higher level) and values above 1 are positive associations.

Prior attainment in the Early Years Foundation Stage Profile

As in the case of lower level SEND identification, the scale scores from the EYFSP included the strongest odds effects on identification at the higher level of all the child level factors, however the relative importance of the individual scales was quite different from that for lower level identifications.

Recall that the scales with the strongest effects on identification at the lower level were the communication, language and literacy scale followed by the problem solving, reasoning and numeracy scale. However these scales had weaker associations with identification at the higher level, with only the lowest scoring deciles showing a large effect on the odds of identification, and in the case of the numeracy scale, the pattern of odds was positively associated with identification apart from the first (lowest-scoring) decile.

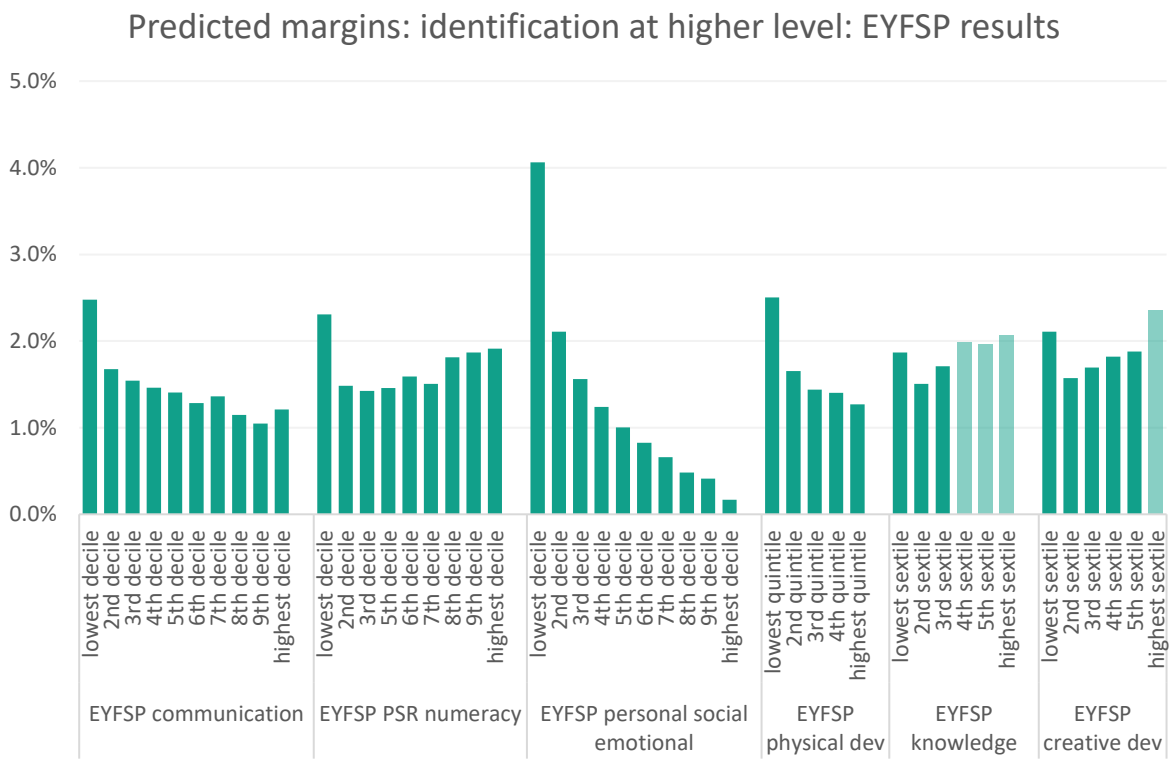
By far the most important scale for identification at the higher level was **personal, social and emotional development**. The model predicted margins of 4.1 per cent of children in the lowest-scoring decile identified at the higher level compared with just 0.2 per cent of children in the highest-scoring decile of the scale.

The **physical development** scale was as important as the **communication, language and literacy** scale in predicting identification of SEND at the higher level. For both of these scales, 2.5 per cent of the children with the lowest scores were identified, compared with 1.2 per cent of the highest-scoring decile for the CLL scale and 1.3 percent of the highest-scoring quintile for physical development.

For the **problem solving, reasoning and numeracy scale**, the lowest-scoring decile had a predictive margin of 2.3 per cent of children identified with SEND at the higher level, but this fell to 1.5 per cent for the second-lowest decile, then rose again gradually to 1.9 per cent for the highest-scoring decile.

The **knowledge and understanding** of the world scale and the **creative development** scale also had unclear / non-linear patterns of odds effects on identification at the higher level. Each showed a peak for the highest-scoring group of children, although neither of these were statistically significant, and had slightly raised odds of identification for the lowest-scoring groups, at 1.9 per cent for the knowledge scale and 2.1 per cent for the creative development scale.

Figure 7.



Child characteristics

There were some differences in the relative importance of the child factors at the higher level of SEND, compared with the lower level. At the higher level, gender and free school meals eligibility history were the most important child factors, with odds of identification around three times higher

both for boys than girls and for persistently disadvantaged children compared with those who had never been eligible for free school meals. After all other child factors had been controlled, identification remained twice as high for persistently disadvantaged children and 63 per cent higher for boys than girls. The month of birth effect was smaller at the higher level of SEND, with August-born children experiencing odds of identification that were 35 per cent higher than September-born children.

After all school and local authority factors were included, the effects of **free school meal eligibility history** on SEND identification at the higher level are not linear, unlike for lower level identifications. The model margins estimate that 1.7 per cent of children who were eligible for FSM for less than twenty per cent of their time in school were subsequently identified with SEND at the higher level. This was 1.5 per cent for children who were eligible for FSM between twenty and thirty-nine per cent of the time prior to any identification, and also for those who were eligible between forty and fifty-nine per cent of the time.

The chance of being identified at the higher level then rose to 2.0 per cent for those eligible for FSM for between sixty and seventy-nine per cent of the time, and 2.4 per cent for the most persistently deprived group who were eligible for FSM for eighty per cent or more of their time in school prior to any identification. This concave pattern meant that the least and most persistently disadvantaged children were more likely to be identified with SEND at the higher level than those with some but not the most persistent disadvantage.

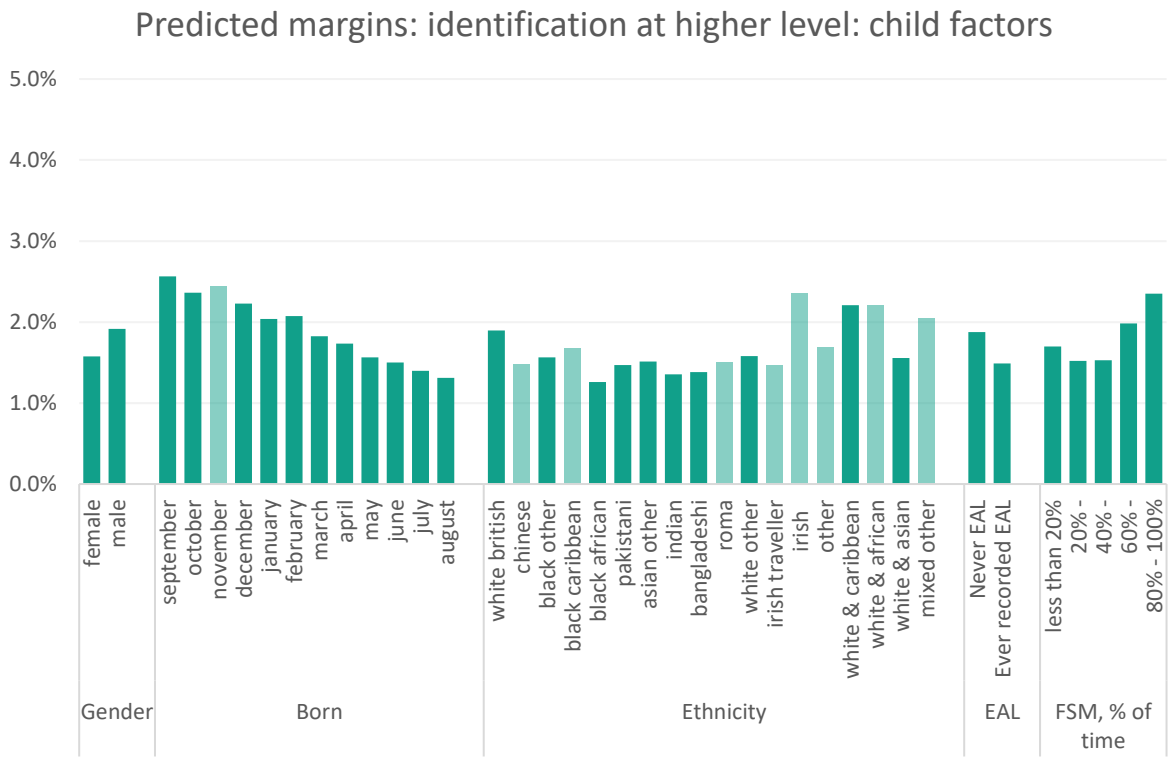
Children with **English as an additional language** were less likely to be identified with SEND at the higher level. The margin for children who had never been recorded with EAL was 1.9 per cent identified at the higher level, compared with 1.5 per cent of those who had been recorded with EAL at some point before identification.

Gypsy/Roma and Traveller, Black Caribbean, Mixed White and Black Caribbean and Mixed Other children were over-represented among children identified with SEND at the higher level. These effects were smaller than at the lower level of SEND, with Gypsy/Roma and Traveller children experiencing around twice the odds of identification of White British children, and the odds for Black Caribbean children raised by 41 per cent. There is a **history of misidentification** for **Black Caribbean children**. Our models indicate that this group remains similarly over-identified after controlling for all individual child-level factors, and suggest that most of the over-representation is associated with attending schools that identify more children with SEND or is mediated through lower attainment assessments at age five.

For **Gypsy/Roma and Traveller children** at the higher level, the Early Years Foundation Stage Profile attainment assessments were more important than the school attended. This leaves open the possibility that there could actually be some under-identification of this group at the higher level of SEND, depending on how accurate and unbiased the EYFSP assessments are.

Asian children (Indian, Pakistani, Bangladeshi, Asian Other and Mixed White and Asian) are under-represented in SEND identifications at both levels after controlling for all individual child-level factors, and this is further exacerbated by attending schools with lower-than average rates of identification. The under-representation of Asian groups, especially **Bangladeshi and Pakistani children**, is greatest for the most disadvantaged children.

Figure 8.



Neighbourhood deprivation

Children living in the least deprived areas based on the **mean average of the IDACI scores** for neighbourhoods they had lived in were estimated to have a 1.3 per cent probability of being identified with SEND at the higher level, rising to 10.4 per cent – or one in ten – of those living in the most deprived neighbourhoods. As with identification at the lower level, the effect of neighbourhood deprivation was considerably larger in model 1b, then reduced substantially when school factors were added to model 6b and reduced somewhat further when LA factors were added in model 7b.

In addition to the average IDACI for areas lived in before any identification took place, the highest neighbourhood deprivation level experienced before any identification at the higher level was also entered into the model and was also significant at the 5 per cent level. The **maximum deprivation level experienced** was negatively associated with SEND identification after controlling for the mean IDACI level.

Also negatively associated with SEND at the higher level was the **variability of the IDACI deprivation** levels for areas children had lived in before any identification over the course of years 1 to 4. The predictive margins suggest that 2.9 per cent of children who experienced the least variable neighbourhood deprivation were identified with SEND compared with 1.2 per cent of those with the most variable neighbourhood deprivation experiences.

As was the case for identification at the lower level, moving home, in particular from a less deprived area to a more deprived area, appears to reduce the chances of being identified with SEND at the higher level, all other observed factors being equal.

School experiences

The odds effects for factors describing experiences in school were larger for identification at the higher level than they were for identification at the lower level. School moves and absence rates prior to any identification took on a stronger pattern of association with identification at this level.

The predictive margin for children who had not **moved school** was 1.9 per cent identified at the higher level, compared with 1.7 per cent of those who moved school once, 1.3 per cent of those who moved twice, and 1.2 per cent of those who moved schools three or more times. In contrast to identifications at the lower level, the difference between children who had not moved school and those who had moved once was statistically significant, which suggests a possible effect for transitions of children in infant and junior school systems.

Larger effects were found for rates of absence from school prior to any identification. In the case of **sickness absence**, children in the lowest quartile were estimated to have a 3.1 per cent chance of being identified at the higher level, falling to 1.1 per cent for those in the most absent quartile.

The pattern of odds effects was reversed when compared with identification at the lower level for rates of **authorised absence** having controlled for the sickness absence component. Authorised absence was positively associated with identification at the higher level, with a predictive margin of 1.5 per cent for the least absent quartile, rising to 2.7 per cent for the most absent quartile.

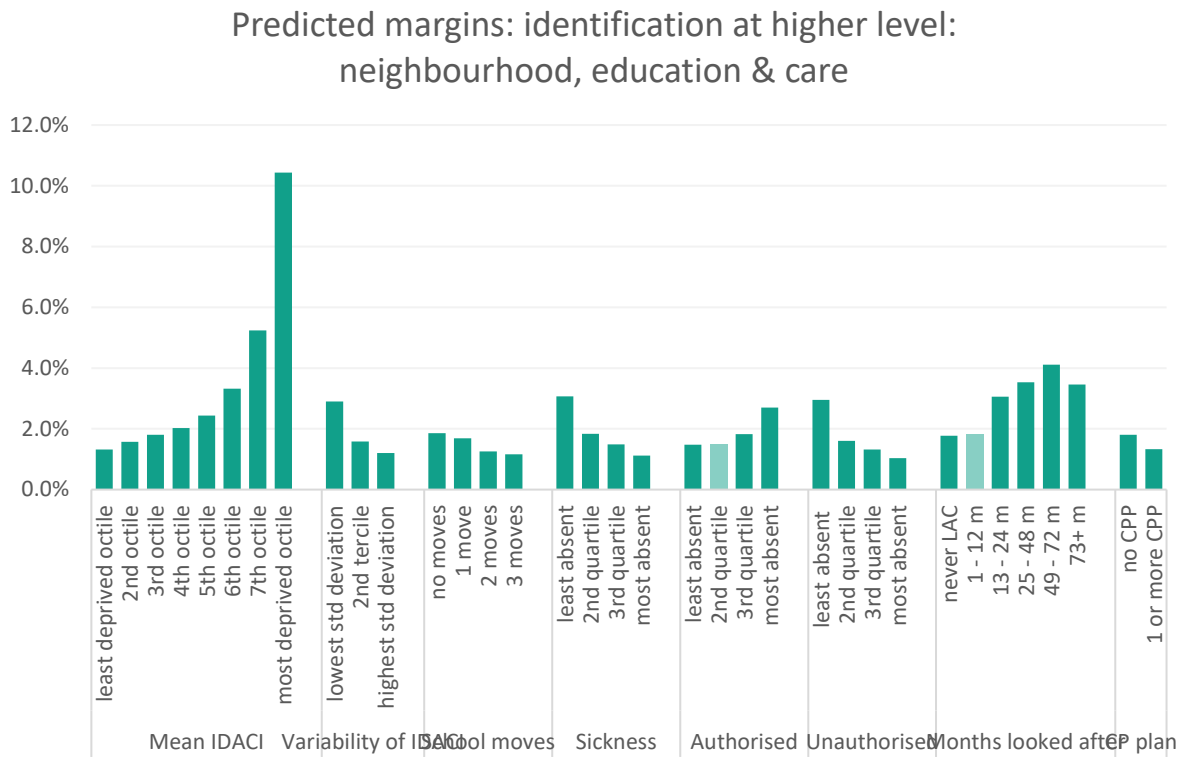
Unlike authorised absence, rates of **unauthorised absence** remained negatively associated with identification at the higher level of SEND. The model margin for the least absent quartile was 3.0 per cent, falling to 1.0 per cent for the most absent quartile.

Care experiences

The effect sizes on identification at the higher level for **children looked after** by local authority social care for more than 12 months were larger than was the case for identifications at the lower level. The models indicate a predictive margin of 1.8 per cent for children who were never in care, compared with 3.1 per cent of children who had been in care for 13 to 24 months. This rose further to 3.5 per cent of those who had been in care for 25 to 48 months, and peaked at 4.1 per cent of those who had been in care for 49 to 72 months. The margin for those who had been in care for more than 72 months was slightly lower at 3.5 per cent.

As with identifications at the lower level, there was a counter-intuitive depressed odds effect on identification at the higher level of SEND for children who had been the subject of one or more **child protection plans**. In contrast with the additional risks to healthy development faced by this group, just 1.3 per cent were identified with SEND at the higher level according to the model margins; this compared with 1.8 per cent of children with no history of child protection plans.

Figure 9.



School factors

As with identifications at the lower level, there were positive odds effects for the **proportion of children in the school who had been identified with SEND** (at any level) immediately before the cohort of interest entered year 1, representing the school's history of identifying SEND. However, these were much smaller for identifications at the higher level if SEND. Children in schools with the lowest prior rates of SEND had a margin of 1.2 per cent chance of being identified at the higher level, rising to 3.3 per cent of those in schools with the highest prior rates of SEND.

The effects of the school's most recent **Ofsted grade** prior to any identification were also smaller for higher level identifications, but the reduction relative to identifications at the lower level was less pronounced that for school SEND rates, resulting in effects that were only somewhat smaller for inspection outcomes than prior SEND rates.

The same complex pattern of odds effects for the different inspection outcome grades was found for identification at the higher level as at the lower level. That is, within the two pairs of higher and lower inspection grades (outstanding/good and requires improvement/inadequate) the stronger grade within each pair had the *higher* odds of SEND, but the higher pair of grades had *lower* odds of SEND than the lower pair of grades.

In ascending order of the odds of SEND identification at the higher level, in schools rated as 'good' by **Ofsted** at their latest inspection before any identification, a margin of 1.5 per cent of children were identified, compared with 1.8 per cent of children in 'outstanding' schools, 2.4 per cent of children in 'inadequate' schools, and 3.5 per cent of children in schools that 'required improvement'.

As noted above, this pattern of odds effects neither fully compatible with Ofsted grading that mainly reflects the SEND risk of the intake, nor with grading that mainly reflects the quality of SEND assessment and support. It is most likely that there is some mixed causality at play, with school quality affecting SEND identification practices as well as intakes affecting inspection outcomes.

As with other school factors, **school type** and academy status had moderate effects on the chances of being identified with SEND at the higher level, compared with larger effects for identification at the lower level. The margin for identification with SEND at the higher level was 2.0 per cent for children in **local authority mainstream schools**, compared with 1.0 per cent for children in **mainstream academies**.

Children were also identified with SEND at the higher level for the first time within special and alternative provision settings. It doesn't make sense to think of a margin for identification in special schools because all children in special schools have a statement either before or soon after they enter special school. However, not all children in alternative provision have statements or EHCPs and therefore we can interpret a margin for children in **academy alternative provision schools**, at 5.8 per cent, and in **local authority pupil referral units** at 21.5 per cent.

Again, we consider the possibility that the timing of the analysis cohort at the beginning of primary academisations means there could be selection effects related to the sorts of schools that were most likely to convert to academy status. The most obvious school characteristics related to this are controlled in model 6b; these are Ofsted inspection grades, school disadvantage (FSM) levels, and the propensity of the school to identify SEND prior to the cohort of interest.

In addition to the school level controls, the subsidiary version of model 7b investigates the timing of academisation relative to SEND identifications by restricting the analysis to identifications in year 3, so that the time since academisation of each school that has been converted can be identified. The odds of being identified at the higher level of SEND for children in academies in the year in which they converted or the year after they converted were not statistically significantly different from those of children in schools that did not convert. However, children in mainstream academies **two years after conversion** had lower odds of being identified (OR= 0.541) than children in LA mainstream schools, and this effect was statistically significant at the 5 per cent level.

This effect on identification at the higher level of SEND after two years of academy status may well follow through from the depressed odds of being identified at the lower level of SEND one year after conversion. However, it is not possible to tell what the long-term effects of academisation on SEND support are due to the timing of the cohort early within the academisation of primary schools.

The pattern of odds effects for **pupil-teacher ratios** on identification at the higher level is not positive as it was for identifications at the lower level. Pupils in schools with the lowest pupil-teacher ratios (or smallest classes) had the highest margins for identification at the higher level of SEND, at 2.0 per cent. This compared with 1.8 per cent in the quartile with the second lowest ratios, and 1.7 per cent in the quartiles with the second highest and highest ratios (or larger classes).

It is possible that teachers with larger classes have less time to undertake the necessary individualised early support and documentation to satisfy the local authority that a statement or EHCP is required. It is also possible that some element of selection of pupils into schools has crept

into the analysis even though the school type (non-mainstream schools) and presence or otherwise of a SEND unit has been controlled for.

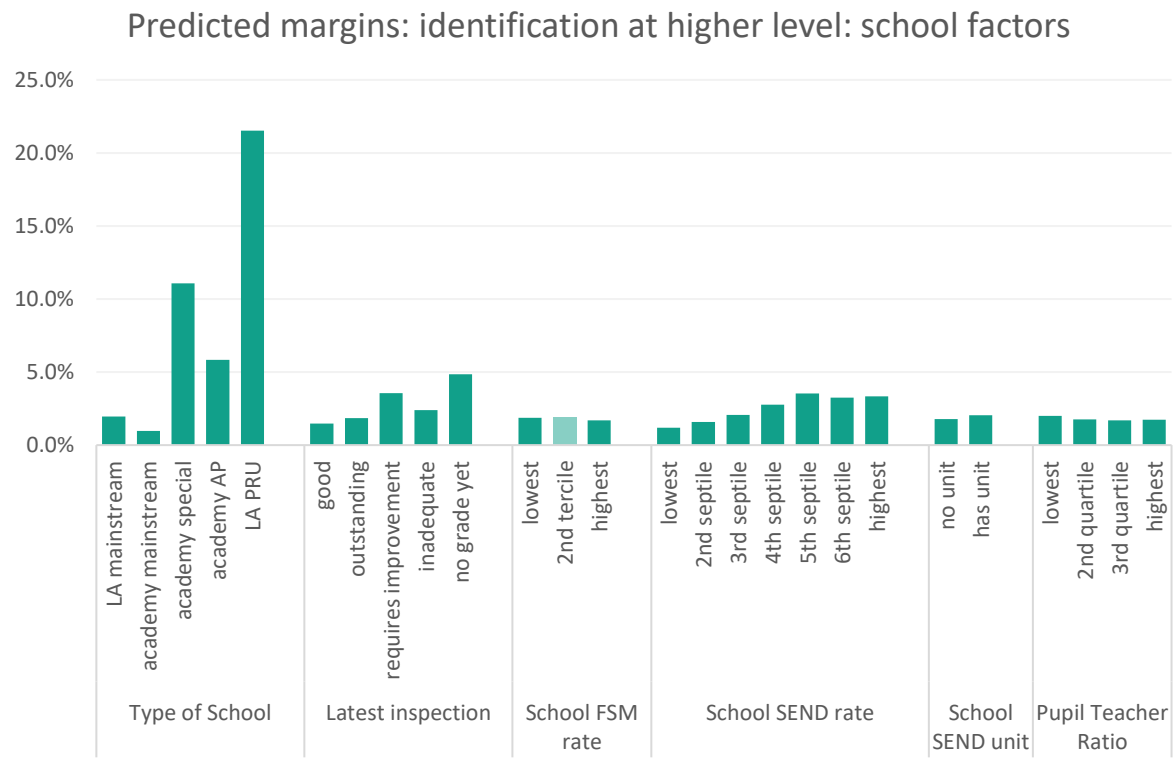
The presence of a **SEND unit** at the school had the opposite effect on identification at the higher level of SEND compared with identification at the lower level; in the case of identification at the higher level, the odds were raised rather than lowered in the presence of a unit. The predictive margins for children in schools without a unit were 1.8 per cent per cent, while those for children in schools that did have a SEND unit were increased to 2.1 per cent.

This is consistent with SEND units providing greater expertise in SEND practice and/or with schools that have units becoming hot spots for children whose parents believe their child has additional needs in the school choice process. The odds of identification at the higher level were also raised to a greater degree in reception year and to a similar degree in year 3 in schools with SEND units.

The **prevalence of children eligible for free school meals at the school** also has a small negative effect on the odds of being identified with SEND at the higher level, after controlling for individual and neighbourhood deprivation, which have much larger positive effects. However, the difference in identification was only significant for pupils in schools with the highest FSM rates versus those with the lowest when split into terciles (thirds).

The pupils in schools with FSM rates in the lowest third had a predictive margin of 1.9 per cent identified at the higher level, compared with 1.7 per cent for those attending schools in the highest third by FSM rate.

Figure 10.



All the school factors were statistically significant to at least the 5 per cent level except where noted.

LA factors

The LA level contextual factors had larger effects on the odds of being identified with SEND at the higher level than at the lower level, although these were still mostly moderate in size. Increased importance of factors at LA level is to be expected given that assessment and decision making for higher level SEND are functions of the local authority.

The largest LA level effects were for the proportion of primary schools in the LA that had academised by the end of the period of analysis. Only a small handful of primary schools had academized by the beginning of the period of analysis so it was not possible to analyse **academisation at local authority level** pre-dating the period of analysis.

Children in LAs with the lowest rates of academisation had an estimated chance of being identified with SEND at the higher level of 3.2 per cent; this compared with just 0.3 per cent of children in LAs with the highest rates of primary school conversion to academy status. The effects for reception year identifications were not linear, but there was evidence of higher early identification in the LAs with the highest rates of primary academisation, in contrast to the year 1 to 4 identifications.

These effects were after controls for the academy status of the school attended and represent effects on LA SEND functions of structural change at the school level. The LA academisation factor was not included in the 'a' models for identification of SEND at the lower level because it did not have any consistent or statistically significant effects on that outcome.

The next strongest LA level effects on SEND identification at the higher level were for the rate of black and minority ethnic pupils across primary schools in the authority and for the LA rate of higher-level SEND in mainstream schools.

The predictive margins for the model indicate that 1.4 per cent of children in LAs with the lowest **BME rates** were identified at the higher level of SEND, rising to 2.4 per cent of those in LAs with the highest proportions of primary BME children.

There was a moderate positive effect on the odds of being identified with SEND at the higher level for children in LAs with the highest **levels of statemented SEND within mainstream schools** immediately prior to the analysis period. The predicted margin for those children was 2.2 per cent, compared with 1.4 per cent for those in LAs with the lowest prior levels of statemented SEND in mainstream schools. This finding is unsurprising, but indicates that prior LA practices have a stronger influence at the same organisational level than they do as trickle-down influences on schools.

A weaker and less consistent effect was found for the LA's rate of children who were identified with **SEND at the higher level and placed in resourced provision**. The margin for children in LAs with the highest proportion of such provision was 2.0 per cent, compared with 1.6 per cent of those with the lowest prior rate of statemented SEND in resourced provision. There was no significant difference between children in the lowest and middle terciles (thirds).

There were no statistically significant effects on identification at the higher level for LAs with more or fewer **places in special schools** or for those with different rates of children **identified at the higher level and placed in other non-school provision**. There could be some effects of use of special schools masked by the placement of children out-of-LA, but this was not evident in any effect of the

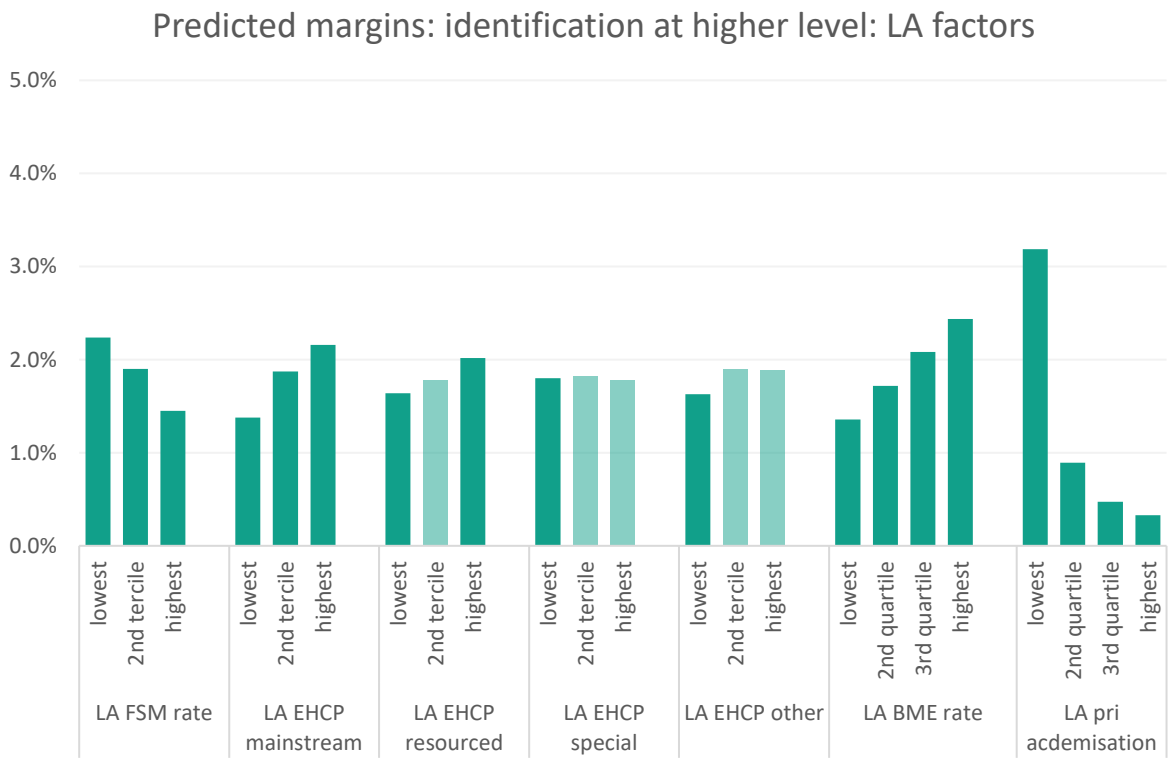
size of the high needs budget per head, and is not likely to be large given the limited variance explained at the LA level in total.

Related factors which were also tested but did not have any consistent or significant effects after controlling for the other factors in the model were the LA levels of **high needs funding** per head, levels of **mainstream schools block funding** per head, and the ratio of high needs funding to mainstream schools block funding.

The predictive margins for the **local authority primary FSM rate** indicate that in the least deprived third of LAs, 2.2 per cent of children were identified with SEND at the higher level, which fell to 1.5 per cent of children in the most deprived third of LAs. As with the school deprivation effects, this was the reverse of the effect of deprivation at the individual and neighbourhood levels.

As at the lower level, deprived children living in deprived neighbourhoods are more likely to be identified with SEND at the higher level, but all else being equal, children in deprived schools and deprived LAs were less likely to be identified.

Figure 11.



Under- and Over-Identification and previous research findings

In this section we review and compare the odds effects from models 7a and 7b with a focus on factors that predict SEND in ways that are unlikely to represent real differences in underlying need, and also those that may reflect unintended or perverse policy effects at the school or LA levels. Our findings are discussed alongside those from previous research where available to inform possible explanations for the effects and to highlight changes over time.

Thirdly, we present additional findings for separate versions of these models fitted for each category of the free school meals history variable (capturing the persistence of disadvantage over time) and some interactions added to models 7a and 7b fitted to the full complete cases population. These additional models and model terms explore the identification experiences of disadvantaged children and how these differ from other children, beyond the simple fact of facing a higher risk of SEND.

While it was useful to focus on the model margins in the previous section in order to understand the probabilities of being identified with SEND for various groups of children, in order to compare the proportional effect of the model factors on SEND at the lower and higher levels, and given the much greater prevalence for SEND at the lower level, it is helpful to refocus on the odds effects when considering the plausibility of the factors as determinants of underling need, as distinct from what is observed in the identification patterns, which may or may not represent effective identification.

The odds effects from models 7a and 7b are presented in bar chart format in figures 12 to 16 for the full version of the main models, for ease of comparison between the lower and higher levels of SEND. The chart scale is logarithmic in order to correctly present the scale of the odds effects, which means that a value of one representing the reference group is used to centre the effects, and values less than one (bars pointing left) represent a smaller chance of being identified with SEND than the reference group, while values greater than one (bars pointing right) indicate a bigger chance of being identified than the reference group.

The following paragraphs discuss selected factors where the observed pattern of identifications may have diverged from the true picture of underlying needs for SEND support.

Child Factors that behave counter-intuitively: month of birth

It has long been recognised in the research literature that **summer-born children**, or more accurately children who are the youngest within their school year - which happen to be those born in the summer in England, have increased chances of being identified with SEND compared with the older children in the same school cohort.

The consensus from previous research is that differences in cognitive ability and related special needs are overwhelmingly explained by the age difference itself, and that assessments such as the EYFSP and teacher's assessments of SEND need have simply failed to take into account the normal development differences between children for the twelve months over which a school year group varies in age (Crawford, Dearden, & Greaves, 2013).

Only minimal effects have been found relating other sources such as differences in the length of schooling experienced, and theories of differences in underlying need based on exposure to colder

climates during the early stages of pre-natal development have been largely discredited, at least as far as the most prevalent types of SEND needs are concerned (Department for Education, 2010).

Season of birth differences between children when assessed at the same age (rather than the same point in time), suggest there is some greater remaining variation in socio-emotional assessments than in cognitive assessments (Crawford, Dearden, & Greaves, 2013), but as these are somewhat subjective assessments by adults, it is just as plausible that these are biased by failing to consider the normal developmental differences of children who are older or younger within their year as the SEND identifications themselves.

All told, it is generally accepted that differences in overall SEND identification rates by month of birth are largely an aberration resulting from failure to correctly adjust for normal rates of development in the SEND assessment processes. Indeed, there is emerging evidence that misperceptions of child ability based on relative age may in fact perpetuate unequal and harmful attainment and socio-emotional outcomes through the medium of practices such as ability grouping in primary school (Campbell, 2014).

The differential representation of younger children reduces for older cohorts of children (Department for Education, 2010), so this is partially self-correcting over the course of primary and secondary school. However, while it is generally conceived of as 'over-identification of summer-born children', the pattern could equally be consistent with an interpretation of 'under-identification of autumn-born children', or possibly their delayed identification. In either case it represents an inefficient allocation of support based on need.

Child Factors that behave counter-intuitively: gender

A review of gender and education in 2007 reports that in 2006, boys were around 2.7 times as likely as girls to be identified with SEND at the higher level, and 1.6 times as likely at the lower level (Department for Education and Skills, 2006). These raw gender differences had not abated by 2017, with our analysis finding boys faced three times the odds of identification at the higher level and twice the odds at the lower level.

Controlled analysis using data from 2005 found that gender explained more of the variation in SEND status than free school meal eligibility, area deprivation, ethnicity or year group (Strand & Lindsay, 2009). Our analysis suggests that the size of the effects for persistent disadvantage are similar to the gender effect at the lower level and a little larger than the gender effect at the higher level of SEND.

Our models indicate that some but not all of the over-representation of boys is mediated by lower assessment scores in the Early Years Foundation Stage Profile. As these assessments are made by the same teachers who are involved in assessing SEND needs, this is unsurprising and it is unclear whether or to what extent the SEND differences reflect real differences in underlying need as opposed to bias in the assessments.

Some older studies also suggest that there is likely to be an element of over-identification of boys and/or under-identification of girls, based on differences in the severity of need observed between boys and girls identified with the same type of need (Dockerell, Peacey, & Lunt, 2002).

Child Factors that behave counter-intuitively: Ethnicity and English as an Additional Language

Ethnicity effects on SEND identification are a complex subject with multiple competing interpretations. Several possible explanations can be offered for the patterns of over- and under-representation found in our analysis:

- Bias in the assessment process indicating over- and under-identification
- Rational parental response to historical discriminatory bias in identification
- Selective migration resulting in different family health and cognitive endowments
- Differential parenting behaviours and home learning environments
- Differential experiences of deprivation between ethnic groups

Bias and parental response to historical bias or the current threat of bias could plausibly form a part of the explanation for the disparities experienced by ethnic groups that have taken the brunt of racial discrimination. Historically and prior to the mainstreaming of most children with SEND following the Warnock Review in 1978, **Black Caribbean children** were over-identified with SEND and segregated from other children in schools for the 'educationally subnormal', to the clear detriment of their educational and broader life outcomes (Coard, 1971).

Indeed, Strand & Lindsay's analysis of 2005 data indicated the continued over-representation of Black Caribbean children among those with SEND at the 'school action plus' or 'statemented' levels at that time (Strand & Lindsay, 2009). The richer control variables in our analysis reveal some of the possible mechanisms behind this pattern and suggest that while a proportion of the over-representation is due to greater levels of poverty, most is associated with attending schools that identify more children with SEND, or is mediated through lower attainment assessments at age five.

Possible competing explanations for the under-representation of **Asian** ethnic groups within the SEND identifications include these groups of children having greater cognitive and physical health endowments than White British children with similar socio-economic backgrounds due to selective immigration.

Trends in raw school attainment by ethnicity have shown gaps reduced and in many cases reversed into advantages over the last ten to fifteen years, and progress in attainment once schooling has begun and after controlling for deprivation has been positive for these ethnic groups for many years as evidenced in contextualised value-added models of academic progress.

There is also evidence that positive attitudes to education and parenting that prioritises regular sleep, family mealtimes and encouragement of homework are associated with better learning outcomes for children in certain minority ethnic groups than their White British counterparts (Department for Education, 2010) (Strand S. , 2008). However, the evidence on this tends to focus on the later primary and secondary school years, and there are larger ethnic attainment deficits for some groups at age five, shortly before we measure SEND identification, than at the later ages where attitudes and parenting have been linked with progress and attainment.

Furthermore, parenting explanations are less convincing for SEND prevalence than they are for academic attainment or progress because many forms of SEND are not 'solvable' through parenting interventions alone. While it may be the case that some forms of developmental delay are associated with parental neglect or adversity faced by families, it is not the case that a child with severe autistic spectrum disorder or hearing impairment, to take just two examples, could ever

achieve to their full potential at school without some specialist support, whatever their parents or carers did for them at home. It is, however, still possible that SEND needs are not lower among these groups, but stigma attached to SEND may reduce parental acceptance of SEND diagnoses or labels.

Gypsy/Roma and **Irish Traveller** children are over-represented at both levels of SEND but under-represented at the higher level of SEND after controlling for all factors. The Early Years Foundation Stage Profile attainment assessments were more important in explaining this than the school attended. This leaves open the possibility that there could actually be some under-identification of this group at the higher level of SEND, depending on how accurate and unbiased the EYFSP assessments are.

These groups often experience discrimination and bullying, and also face practical barriers to navigating the systems of support in schools due to their greater-than-average school mobility rates (Dockerell, Peacey, & Lunt, 2002). Mobility is controlled in our models but is associated with under-representation at both levels of SEND, exacerbating any under-identification of GRT children at the higher level of SEND. It seems unlikely that these groups could have genuinely lower prevalence of SEND at the higher level and yet higher prevalence at the lower level of SEND, therefore these patterns suggest that there is some misidentification taking place.

We don't have a strong basis for hypothesizing whether it is the lower (school) or higher (local authority) level of the SEND identification that is least accurate, but it would seem quite plausible that the often prolonged process of securing a statement or EHCP from the local authority could be an even bigger barrier to accessing support for families that are mobile and may need to deal with more than one local authority.

Local authorities could plausibly be reluctant to allocate rationed resources to children who they may view as 'belonging' to another area, creating potential disputes over financial responsibility even where there is a clear need for support. This sort of problem would be consistent with some older research which found that mobile GRT families are more likely to miss out on health services including hearing and vision checks (Wilkin, Derrington, & Foster, 2009).

Our results suggest some particular barriers in accessing SEND support at the higher level for Gypsy/Roma and Irish Traveller children. The pattern of representation that is inconsistent between the lower and higher levels of SEND, plus effects specific to children who have moved schools frequently and with previous research on barriers to accessing services, combines to paint a picture of services that are not well-adapted to children whose families are geographically mobile.

Children who have ever been recorded as having **English as an Additional Language** have lower odds of being identified with SEND at both levels. As this group includes many Black and Asian children, as well as migrant families from other ethnic minority groups, the same complex set of potential explanations presents itself, and it is not possible to determine whether this under-representation signals under-identification or a legitimately lower prevalence of SEND.

If there is under-identification, further possible explanations are available. It is possible that English language acquisition needs, which are not themselves SEND, might sometimes obscure other additional SEND needs related to language and communication. For children with limited English proficiency, it might not be possible to assess SEND needs fully until children's English language proficiency increases - or has failed to increase - with appropriate English language support.

This could in theory lead to delayed or missed SEND identifications in the early years of primary schooling. Historically, cases have been reported of the reverse of this situation, whereby children whose first language was Caribbean Creole were mis-identified with SEND after teachers mistook the use of another language containing elements of English for speech and language difficulties (Coard, 1971).

As in the case of Black and Asian ethnicity, we are not able to conclude whether there is under-identification of SEND from our data analysis. There was no evidence of greater identification in year 3, which might indicate a pattern of later identification for children with EAL, but the question of whether this group has lower underlying prevalence of SEND remains open.

Child factors that behave counter-intuitively: school absence rates

We now enter territory where our analysis is more novel, and we are not aware of any previous research on associations between absences from school and subsequent identification with SEND. However, it is known that once children are identified with SEND they then experience higher average levels of absence from school: in 2018/19, the percentage of school sessions missed due to absence by children without SEND was 4.3 per cent, compared with 6.5 per cent for children with SEND at the lower level and 8.7 for those with SEND at the higher level (Department for Education, 2020).

It seems implausible that children with SEND should have lower rates of absence before they are identified but higher rates once they have been assessed and support has been put in place. In fact given that some children with SEND have physical disabilities or other health problems related to their SEND or require therapeutic appointments, it seems rather suspicious that children with higher rates of **sickness absence**, **authorised absence**, or **unauthorised absence** are under-represented among children subsequently identified with SEND at the lower level, and that sickness and unauthorised absence are negatively associated with SEND at the higher level.

The only part of the absence picture in our models that tallies with what we know about absences among children already identified with SEND is that children with higher (non-sickness) authorised absence rates have raised odds of identification at the higher level. At a stretch one could envisage this effect combined with no odds effects in either direction for the other absence factors tested, but the pattern of effects observed is highly suggestive of under-identification of SEND for children who for one reason or another are present in school less regularly.

This could be because SEND assessment processes are difficult to complete without regular and prolonged access to the child concerned, or it could be because children with higher rates of absence are assumed to be underperforming at school due to the lessons they have missed rather than due to unidentified and unmet additional needs. It could even be the case that these children are sometimes out of sight and out of mind as their odds of identification remain reduced for year 3 identifications.

It is to be noted that the odds effects for the reception identifications can't be interpreted meaningfully for the school absence factors because the absences pertain to a period after the identifications.

Child factors that behave counter-intuitively: children subject to child protection plan(s)

Another finding from our main models that is counterintuitive is the reduced odds of identification with SEND at both levels for children who have been the subject of one or more **child protection plans**. By definition, children who are made the subject of a CP plan have suffered serious harm or are at risk of suffering serious harm and action is required to protect them and promote their welfare, health and development. It is not conceivable that this group of children really has a lower prevalence of SEND than children who have never been the subject of a plan.

Comparing these surprising findings with the effects for children who have been taken into care and are looked after by the local authority, a picture begins to form of delayed identification of SEND that doesn't begin to peak until at least six years after the child has been taken into care in the case of lower level SEND, and 4-6 years after in the case of higher level SEND. Some of the children with Child Protection Plans will go on to be taken into care and then face a higher chance of being identified with SEND, but most will not and may remain under-identified permanently.

We tested versions of the CP plan factor in our models based on the number of child protections plans that had been instigated prior to any identification, but the number of plans did not make a difference to the odds of identification. No matter how many times the local authority intervened with a formal plan, this did not result in better chances of SEND needs being identified and supported. Only when the local authority took on legal responsibility for parenting did the situation gradually correct itself. This suggests that early intervention by children's social care is not effective at ensuring that the educational consequences of abuse and neglect are addressed.

Policy, practice and resources: school type

Our models indicate that children attending mainstream academy schools at the time of any identification are less likely to be identified with SEND at both the lower and higher levels. At first sight this could be due to the selective nature of academy conversions in their early stages and our analysis does indeed cover the early phase of primary school academisation. However, these effects remained highly significant after controlling for pupil characteristics in detail and also in the presence of a range other school factors including the school's history of SEND identification, deprivation and ethnicity of the pupil intake and the latest Ofsted grade. Reception year identifications were also similarly depressed, so this isn't a case of earlier identification.

We examined these effects further by restricting the analysis to identifications in year 3, by which time greater numbers of primary academies existed, and replacing the school type terms with a variable that identified the number of years since academization for those schools for which this applied. This revealed that schools that became academies subsequently became lower identifiers of SEND compared with local authority mainstream schools. In the case of SEND at the lower level this happened one year after academisation / opening and in the case of SEND at the higher level it happened two years after.

We tested an interaction term to see whether the academy effect was similar or different across academies with different Ofsted grades. The results of this indicated that identification was similarly suppressed for all Ofsted grades apart from 'inadequate'. Inadequate academies had similar identifications to inadequate LA maintained schools, but this was the only departure from the negative main effect.

It is not possible to tell if these reductions in SEND identification are followed through as long-term effects of academisation due to the timing of the cohort analysed. In the case of SEND at the lower level identification rates were *not* lower in the second year following academisation, but it should be noted that this analysis can only capture one year's cohort of academy conversions for each timing of academisation category. The schools that appear in the effects for one year after academisation are different schools from those that appear in the effects for two years after academisation, because the year of identification had to be held constant so we could identify a counter-factual group that were not academies at that time (but some of which became so later).

For SEND at the higher level (but not at the lower level where it had no effect), the proportion of primary schools in the local authority that had converted to academy status by the end of the period analysed was also negatively associated with identification, over and above the effect of whether the actual school attended was an academy or not. These effects were by far the largest of the local authority factors we tested, suggesting a substantial knock-on effect on access to funded support for remaining schools when local authorities lose control of other schools.

Taking into account all these findings, our research strongly suggests that academy status results in lower chances of identification with SEND all other factors being equal, at least in the short term. In addition to their role in explaining school to school variation, school governance changes are very likely an important part of the story of how SEND identification varies so much from area to area, even for children who do not attend academies.

Policy, practice and resources: SEND units and pupil-teacher ratios

Children in schools with a **SEND unit** attached were more likely to be identified with SEND in reception year at both the lower and higher levels. They remained more likely to be identified with SEND at the higher level during years 1-4, which suggests that the early identifications may not stem purely from greater awareness and experience with children with SEND. A plausible alternative explanation is that children already suspected of having SEND but not yet identified might disproportionately enroll at those schools, either on the basis of parental preference or because of advice received during nursery provision.

At the lower level, while children in schools with a SEND unit were more likely to be identified than children in other schools in reception, they were also less likely to be identified during years 1-4. Given the higher rates of identification at the higher level it seems unlikely that children were really less likely to have SEND in those schools, but possible that they were simply identified sooner and did not appear in our main models. For these reasons it seems at least as likely as not that the patterns of effects represent earlier timing of identification combined with selection of children.

Our classification of schools according to **pupil-teacher ratio** also presented an interesting pattern of odds effects. Children in schools with higher pupil-teacher ratios were more likely to be identified with SEND at the lower level, but less likely to be identified at the higher level.

It seems that larger classes lead to a perception of more children with SEND needs; it may be that having less time to spend with each pupil results in learning inequalities that are identified as SEND although they could have been managed through high quality teaching if class sizes were smaller. Identification at the lower level of SEND is slightly depressed in reception in schools with high ratios, which suggests that identifications may take longer to be recognized in larger classes.

The average class size in England for key stage 1 (years 1-2) was 27.2 in 2012 and 27.3 in 2013 (Department for Education, 2013). This corresponds with ages 5-6 and 7-8 in our models and is considerably higher than OECD norms with most developed countries having class sizes of 20 or fewer children in the early primary years (Bonetti & Brown, 2018). Furthermore, the research literature consistently finds group size to be among the 'iron triangle' of factors supporting quality educational provision for young children, alongside pupil-staff ratios which are closely associated with group size in formal schooling, and the quality of teacher education and training (Bonetti & Brown, 2018).

While our pattern of odds effects for pupil-teacher ratio may represent some over-identification at the lower level relative to an ideal scenario, it is not really the identification that is at issue here, but rather the school resource context. Similarly, it would be ideal if poorer children were not exposed to greater risks to their development and did not have a higher rate of SEND as a result of this, but it would not solve the problem to stop identifying those children for SEND support unless they were also removed from poverty, or the risks associated with poverty were eliminated through some other intervention. We lean towards interpreting this as a sign of contextually-driven SEND rather than over-identification of SEND.

Turning to identification at the higher level of SEND, this is depressed for children in all but the quarter of schools with the lowest pupil-teacher ratios. This negative association between PTR and higher-level identification, alongside the positive association at the lower level, indicates that not only does the structural quality effect *not* feed through to local authority assessments for higher-level SEND, but that larger class sizes are associated with under-representation. This makes sense from the perspective of the extra work involved in supporting and providing evidence for a local authority assessment.

Our models control for non-mainstream school types and the presence of SEND units in mainstream schools. A robustness check confirmed that the PTR effects remained of similar size and significance after adding a control variable identifying infant schools. This was to test whether smaller class sizes at younger ages might account for the effects we found, but this was not the case. Indeed, the class sizes in key stage 2 (years 3-6, or ages 8-9 until 10-11) were similar to those in Key stage 1 and remained between 27 and 28 over the period analysed.

The dummy variable introduced to identify infant schools had a large positive relationship with identification, but it did not change the pattern of effects other than some modest reductions in the size of effects for children living in the most deprived areas, or attending schools with the highest prior levels of SEND identification. The results of this robustness check reinforce the plausibility of the pupil-teacher ratio effects as examples of misidentification linked to differential school resources.

Policy, practice and resources: local authority SEND provision

Perhaps surprisingly, the local authority SEND provision effects are the smallest among the local authority factors. We tested alternative specifications of these factors based on the size of the high needs budgets per head and the relative size of high needs versus mainstream funding, but the effects for these alternate factors were negligible, often insignificant and did not form a coherent pattern. The proportions of all children in the area who had SEND at the higher level and attended

one of four types of provision were the best we could do with the publicly available data to capture LA policy and resources at a reasonably high level.

Greater use of **mainstream provision** or **resourced provision** in the local area were associated with a modest increase in the odds of being identified with SEND at either level, with larger effects for the higher level of SEND. It is tempting to conclude that the lower costs of these forms of provision compared with specialist places may mean that more children can have their needs recognized and supported where mainstream provision is more prevalent.

However, there was *not* a corresponding negative relationship between the use of more expensive **special school places** or **alternative provision**. The odds effects for these specialist forms of provision were small, incoherent and sometimes insignificant. Therefore, there was no evidence for a local preference for specialist places resulting in lower identification rates. That is not to say that there is no rationing of special places, but it does not appear to vary between local authorities according to the availability of particular types of provision.

Figure 12.

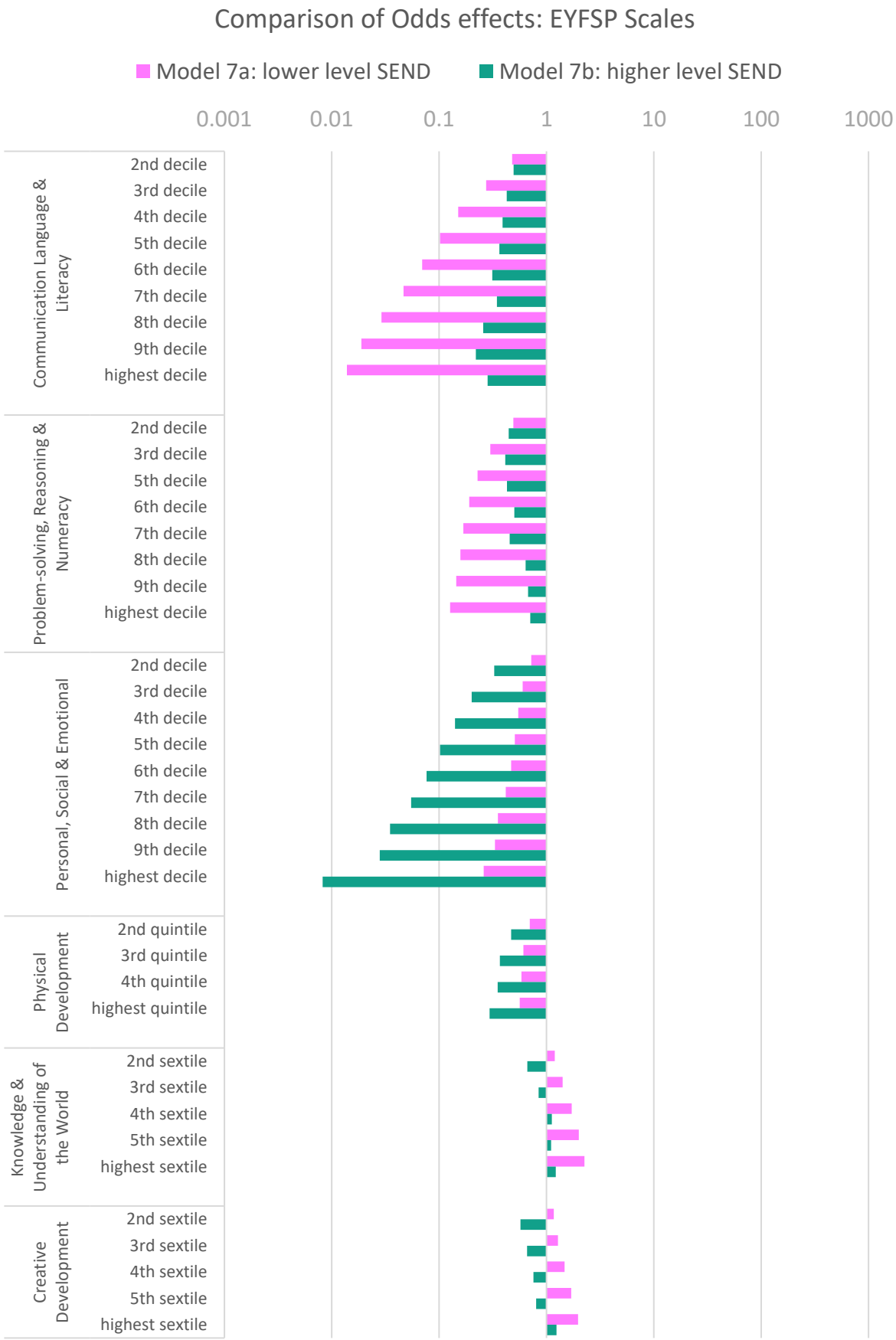

Comparison of Odds effects: EYFSP Scales
Model 7a: lower level SEND
Model 7b: higher level SEND
0.001
0.01
0.1
1
10
100
1000
Communication Language & Literacy
2nd decile
3rd decile
4th decile
5th decile
6th decile
7th decile
8th decile
9th decile
highest decile
Problem-solving, Reasoning & Numeracy
2nd decile
3rd decile
5th decile
6th decile
7th decile
8th decile
9th decile
highest decile
Personal, Social & Emotional
2nd decile
3rd decile
4th decile
5th decile
6th decile
7th decile
8th decile
9th decile
highest decile
Physical Development
2nd quintile
3rd quintile
4th quintile
highest quintile
Knowledge & Understanding of the World
2nd sextile
3rd sextile
4th sextile
5th sextile
highest sextile
Creative Development
2nd sextile
3rd sextile
4th sextile
5th sextile
highest sextile

Figure 13.

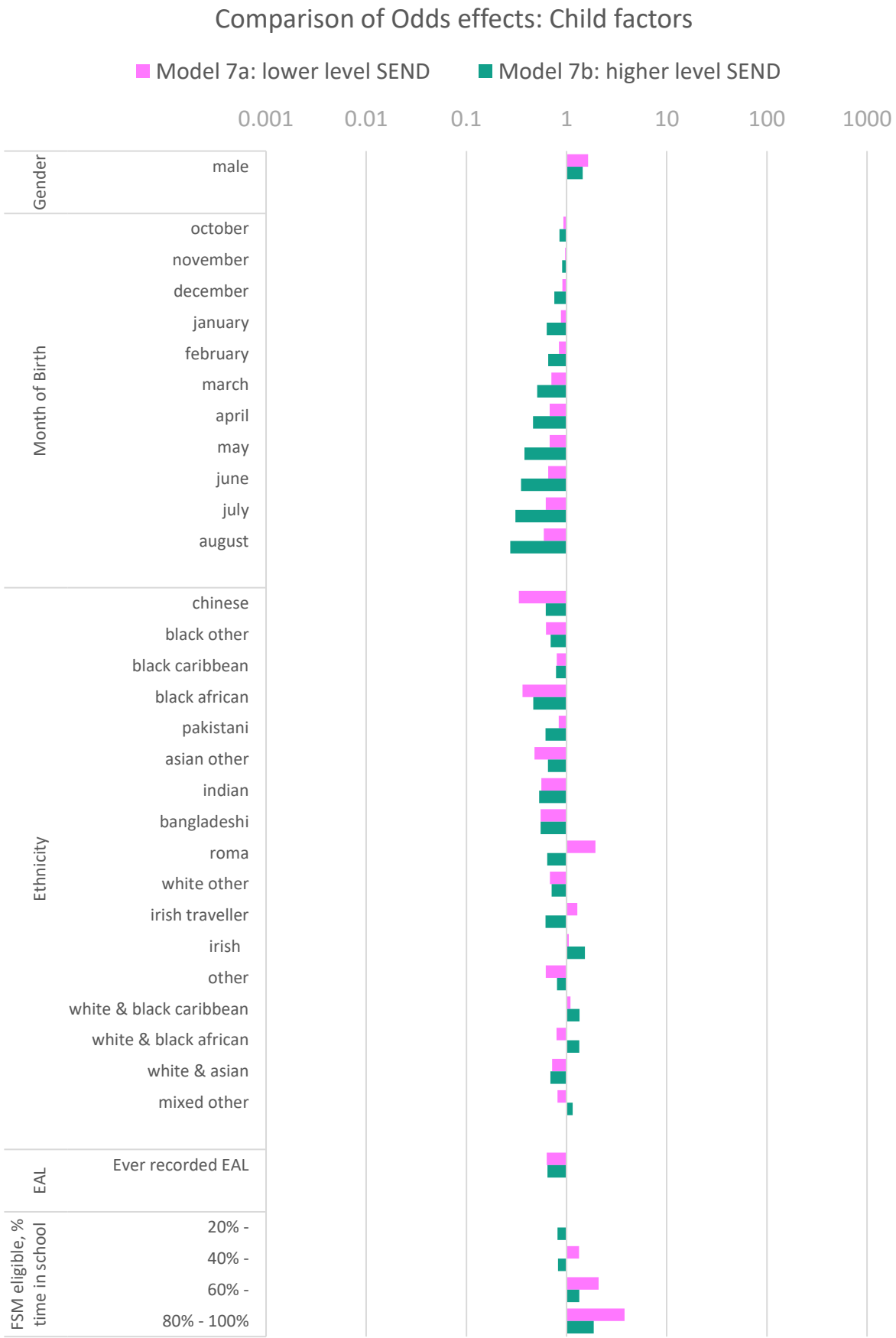

Comparison of Odds effects: Child factors
Model 7a: lower level SEND
Model 7b: higher level SEND
0.001
0.01
0.1
1
10
100
1000
Gender
male
Month of Birth
october
november
december
january
february
march
april
may
june
july
august
Ethnicity
chinese
black other
black caribbean
black african
pakistani
asian other
indian
bangladeshi
roma
white other
irish traveller
irish
other
white & black caribbean
white & black african
white & asian
mixed other
EAL
Ever recorded EAL
FSM eligible, % time in school
20% -
40% -
60% -
80% - 100%

Figure 14.

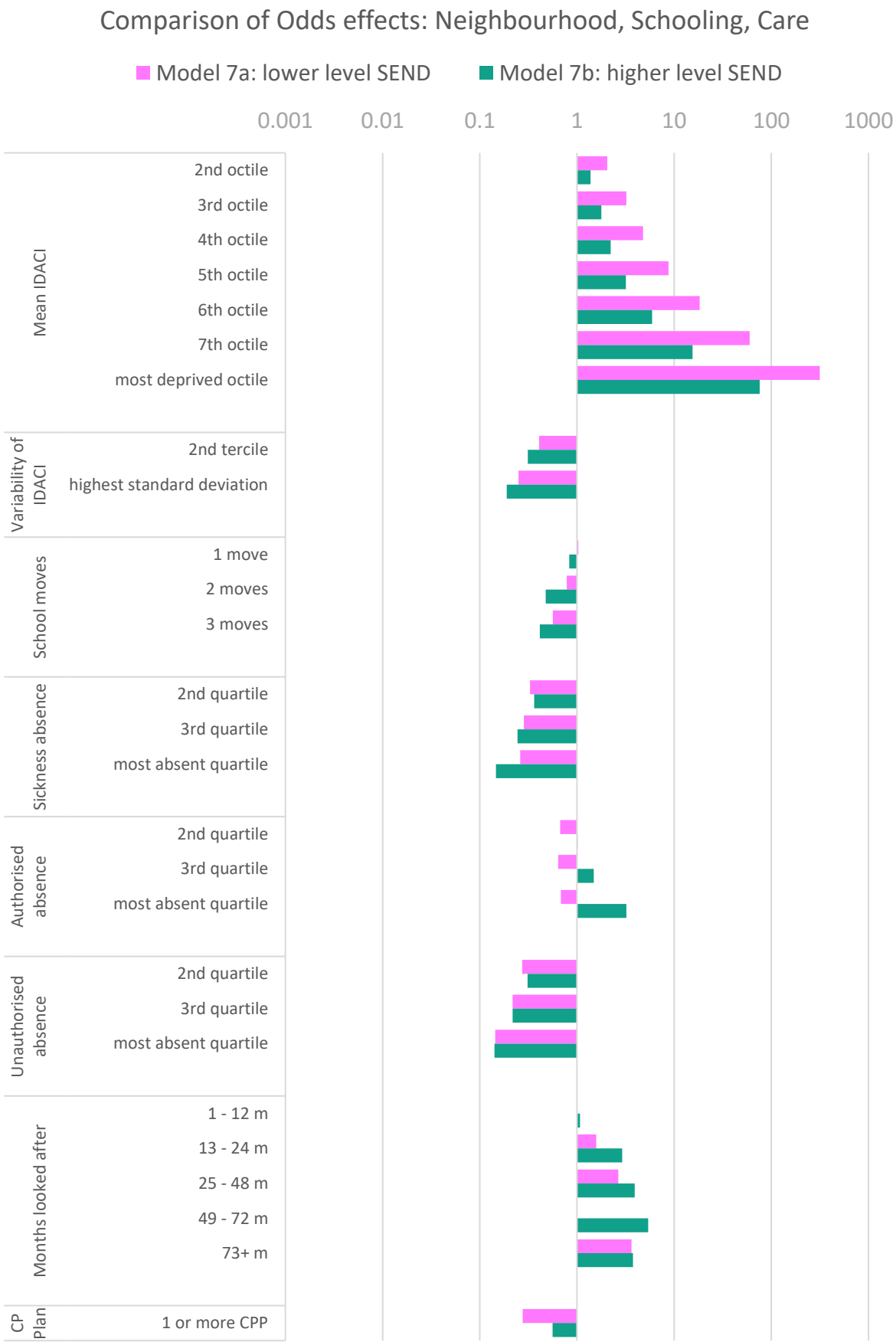

Comparison of Odds effects: Neighbourhood, Schooling, Care
Model 7a: lower level SEND
Model 7b: higher level SEND
0.001
0.01
0.1
1
10
100
1000
Mean IDACI
2nd octile
3rd octile
4th octile
5th octile
6th octile
7th octile
most deprived octile
Variability of IDACI
2nd tercile
highest standard deviation
School moves
1 move
2 moves
3 moves
Sickness absence
2nd quartile
3rd quartile
most absent quartile
Authorised absence
2nd quartile
3rd quartile
most absent quartile
Unauthorised absence
2nd quartile
3rd quartile
most absent quartile
Months looked after
1 - 12 m
13 - 24 m
25 - 48 m
49 - 72 m
73+ m
CP Plan
1 or more CPP

Figure 15.

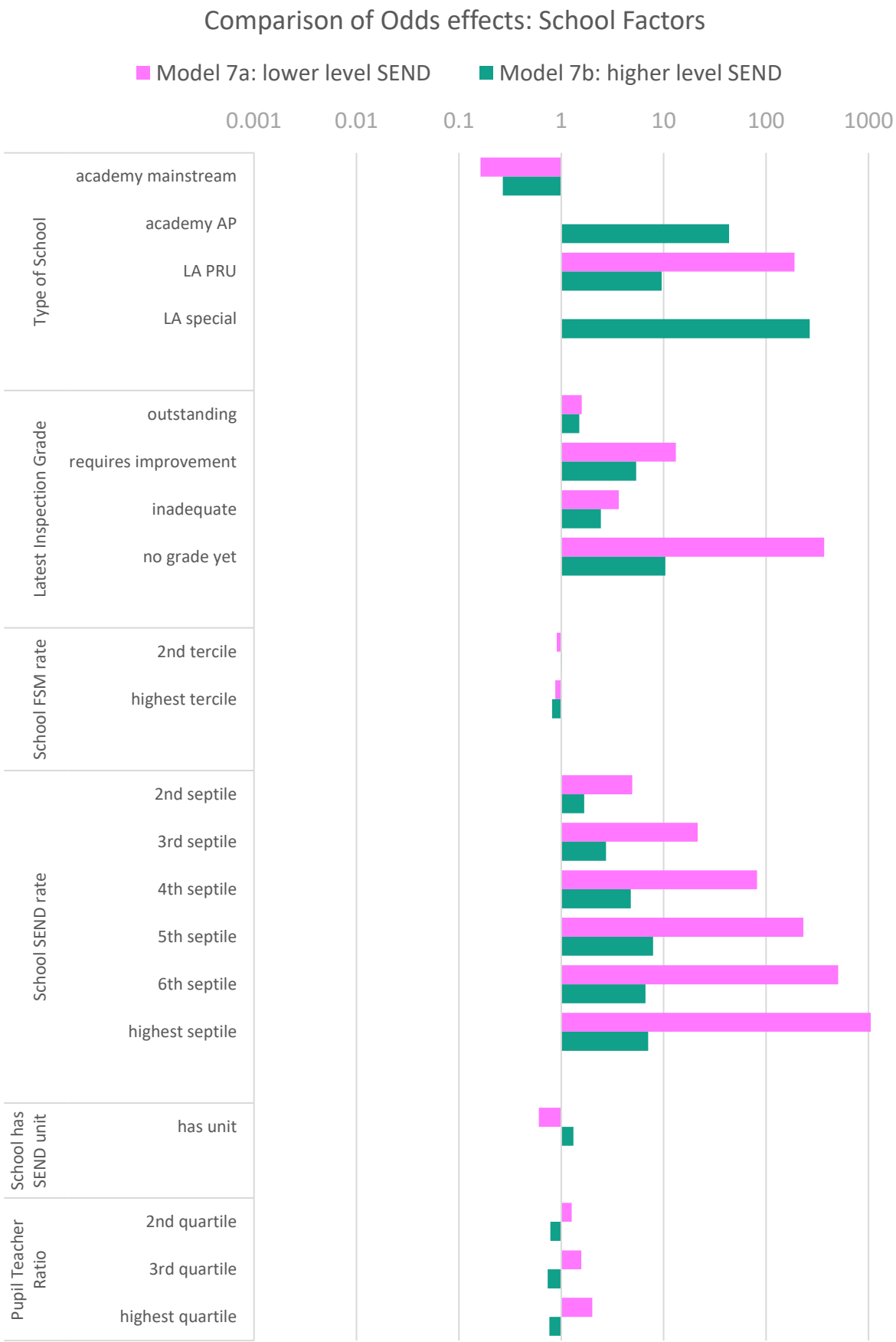
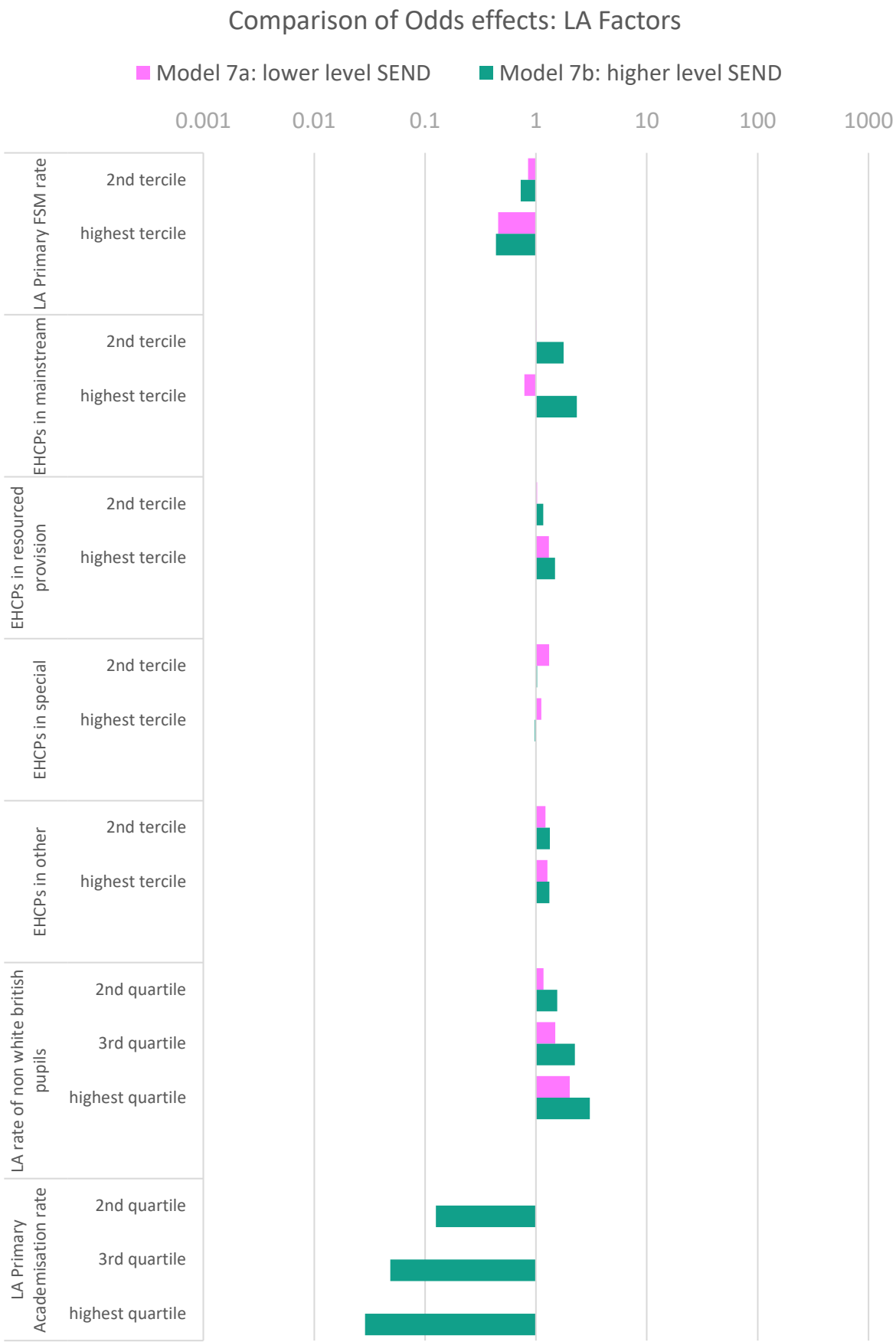

Comparison of Odds effects: School Factors
Model 7a: lower level SEND
Model 7b: higher level SEND
0.001
0.01
0.1
1
10
100
1000
Type of School
academy mainstream
academy AP
LA PRU
LA special
Latest Inspection Grade
outstanding
requires improvement
inadequate
no grade yet
School FSM rate
2nd tercile
highest tercile
School SEND rate
2nd septile
3rd septile
4th septile
5th septile
6th septile
highest septile
School has SEND unit
has unit
Pupil Teacher Ratio
2nd quartile
3rd quartile
highest quartile

Figure 16.


Comparison of Odds effects: LA Factors
Model 7a: lower level SEND
Model 7b: higher level SEND
0.001
0.01
0.1
1
10
100
1000
LA Primary FSM rate
2nd tercile
highest tercile
EHCPs in mainstream
2nd tercile
highest tercile
EHCPs in resourced provision
2nd tercile
highest tercile
EHCPs in special
2nd tercile
highest tercile
EHCPs in other
2nd tercile
highest tercile
LA rate of non white british pupils
2nd quartile
3rd quartile
highest quartile
LA Primary Academisation rate
2nd quartile
3rd quartile
highest quartile

Differences in factor effects for more and less disadvantaged children

We now progress to discuss some further cases of potential misidentification associated with disadvantage. These effects are derived from separate versions of the main models fitted for each category of the free school meals history variable (capturing the persistence of disadvantage over time) and some interaction terms added to models 7a and 7b fitted to the full complete cases population. Full model tables are included in the appendix, but in this section we discuss selected factors with interesting results for the consideration of under- or over-identification.

FSM groups odds for the EYFSP personal, social and emotional development scale

We have focused in on the personal, social and emotional development (PSED) scale out of all the EYFSP scales to examine its effects on identification through the lens of disadvantage because this scale shows interesting differences between the lower and higher levels of SEND. At the lower level the scale is the third most important for predicting SEND identification, after communication language and literacy, followed by problem solving, reasoning and numeracy.

However, at the higher level of SEND, PSED becomes by far the most important EYFSP scale for predicting whether children will be identified. The stark difference between the two levels of SEND suggests that this form of development may be being overlooked by schools, given that 4.1 per cent of children with the lowest PSED scores are estimated to be identified at the higher level compared with an overall rate of 1.8 per cent.

It might be argued that the greater importance of PSED at the higher level simply reflects a different profile of types of need for children with more versus less severe SEND. Need profiles do differ. Proportionally, Austistic Spectrum Disorder accounts for almost five times as much SEND at the higher level as it does at the lower level. But this does not straightforwardly explain the increased importance of PSED in predicting higher level SEND. Social, emotional and mental health needs (the category most comparable with the PSED scale) is the third largest type of need at the higher level (after speech, language and communication needs) and accounts for a smaller proportion of all higher level SEND than of all lower level SEND.**Error! Bookmark not defined.** Although SEMH is the t hird most prevalent, there are eight other need types that are proportionately more likely to result in higher level SEND.

Confounding these statistics is the fact that many children with SEND at the higher level whose primary need is not SEMH will nevertheless have SEMH needs either resulting from their primary need or for unrelated reasons. The recording of primary and secondary need types is too inconsistent to quantify this with any confidence, but SEMH comorbidity is likely to contribute to the importance of the PSED scale at age five, and why it is better at predicting SEND at the higher level than the CLL scale even though speech, language and communication needs are more prevalent than SEMH.

The disproportionate importance of the PSED scale relative to both the other EYFSP scales and to recorded primary need types at the higher level raises important questions about what could be done in schools to support personal, social and emotional development preventatively, both for children with SEND at the lower level and those have not yet been identified with SEND. Our analysis isn't causal but improving support for PSED in primary school seems a promising area in which to

develop and test new policies with the aim of improving prevention, support and outcomes for children with SEND.

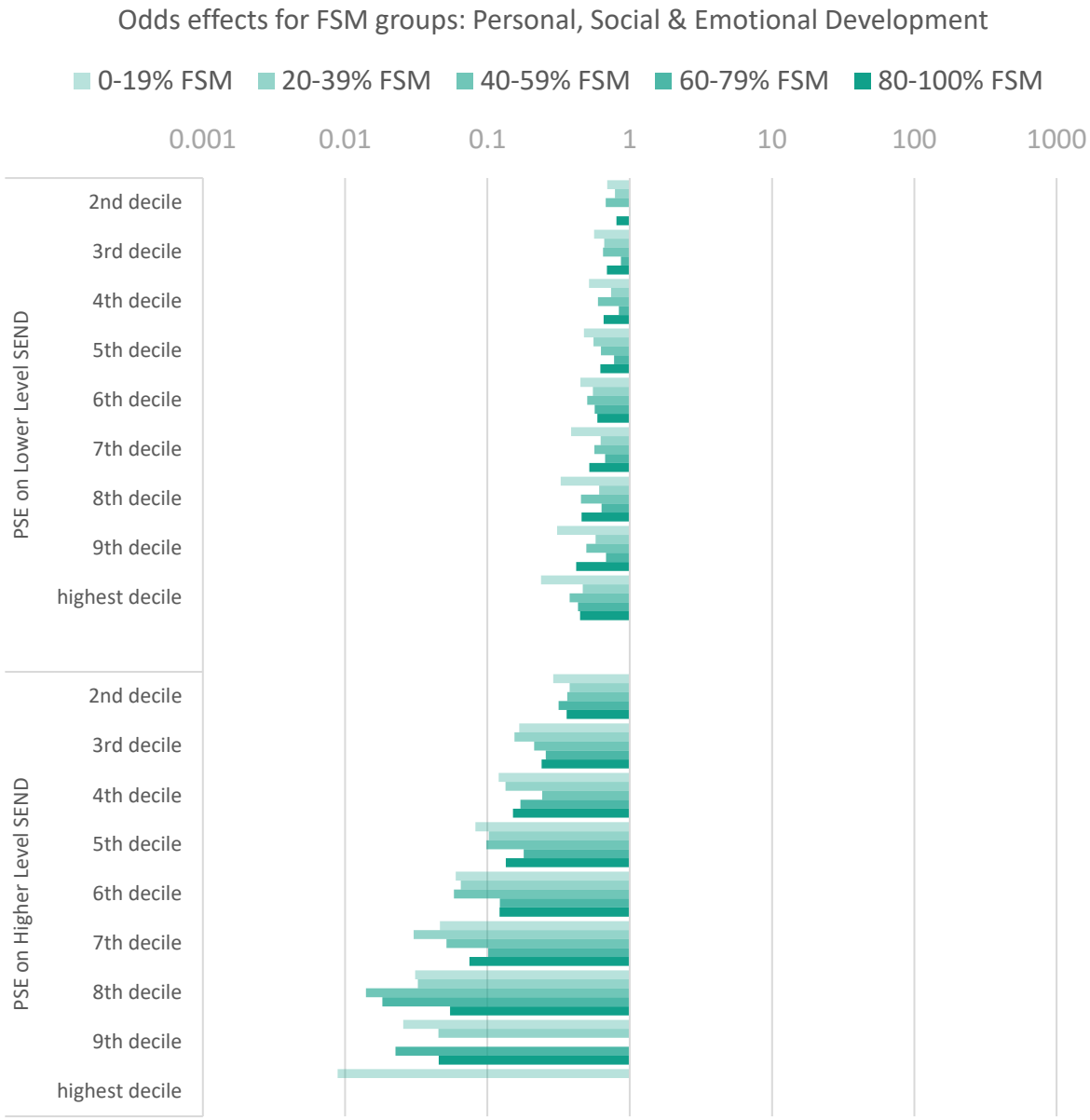
Considering the pattern of odds effects of the PSED scale for each band of FSM duration, we can see that while the direction of the effects is the same for different FSM groups, the pattern of effects is not.

Personal, social and emotional development scale scores make more difference to the expectation of SEND identification for children who are the least deprived in terms of FSM history. The gradient on the effects is steeper for the least disadvantaged. This suggests that while they make a difference to identification for all groups, difficulties with PSE development are more likely to be recognised through SEND support for children who are the least disadvantaged, and the most disadvantaged are less likely to receive that response.

We cannot provide evidence for why disadvantaged children are less likely to receive a response to low PSE development in the form of SEND support than their better-off peers. A popular hypothesis is that more affluent parents have more knowledge of the system and confidence to challenge professionals, and are better placed to advocate for their children's needs.

It's also possible that schools may decide to provide support for disadvantaged children under programmes badged as a response to disadvantage rather than through the SEND Code of Practice. However, this would not explain the pattern persisting for SEND at the higher level, and in any case results in interventions that do not have legally enforceable rights to tailored intervention, according less power to influence and enforce educational support to the parents of more disadvantaged children.

Figure 17.



The second group of effects selected for discussion are those for ethnic groups with the most coherent patterns of odds effects in the main models. These are the Asian groups: Pakistani, Indian, Bangladeshi and Other Asian. We also explore the effects across the different FSM groups for some ethnic groups with more unusual patterns of effects; these are the White groups: Gypsy/Roma, Irish Traveller, and Irish. The general pattern discussed in relation to the main models was one of lower identification for Asian groups, of higher identification for Irish pupils, and of higher identification at the lower level but lower identification at the higher level for GRT groups, relative to White British pupils in each case.

Beginning with the under-represented Asian groups, at the lower level of SEND, there is a clear pattern whereby the most disadvantaged FSM groups have the most reduced odds of identification and the least disadvantaged children's chances of identification are less affected by ethnicity, especially in the Pakistani and Bangladeshi groups. At the higher level of identification, the reverse is

true for the Pakistani and Bangladeshi groups, and the less disadvantaged groups have the most reduced odds of identification. The pattern is less consistent for Indian and Other Asian children, but there is some suggestion that the most disadvantaged within these groups remain the most under-represented at the higher level.

Objectively, we would expect the poorest children within each ethnic group to have the highest odds of SEND, so the patterns we observe here suggest something going wrong at the lower level for all the Asian groups and at the higher level for the Indian and Other Asian groups. While this is a clearer case of misclassification than the overall ethnicity effects discussed above, it is difficult to pinpoint whether the reasons for this pattern of effects are found within schools and local authority SEND teams, or within communities and parental perceptions of SEND. In either case it seems likely that some poorer Asian children are missing out on support for SEND.

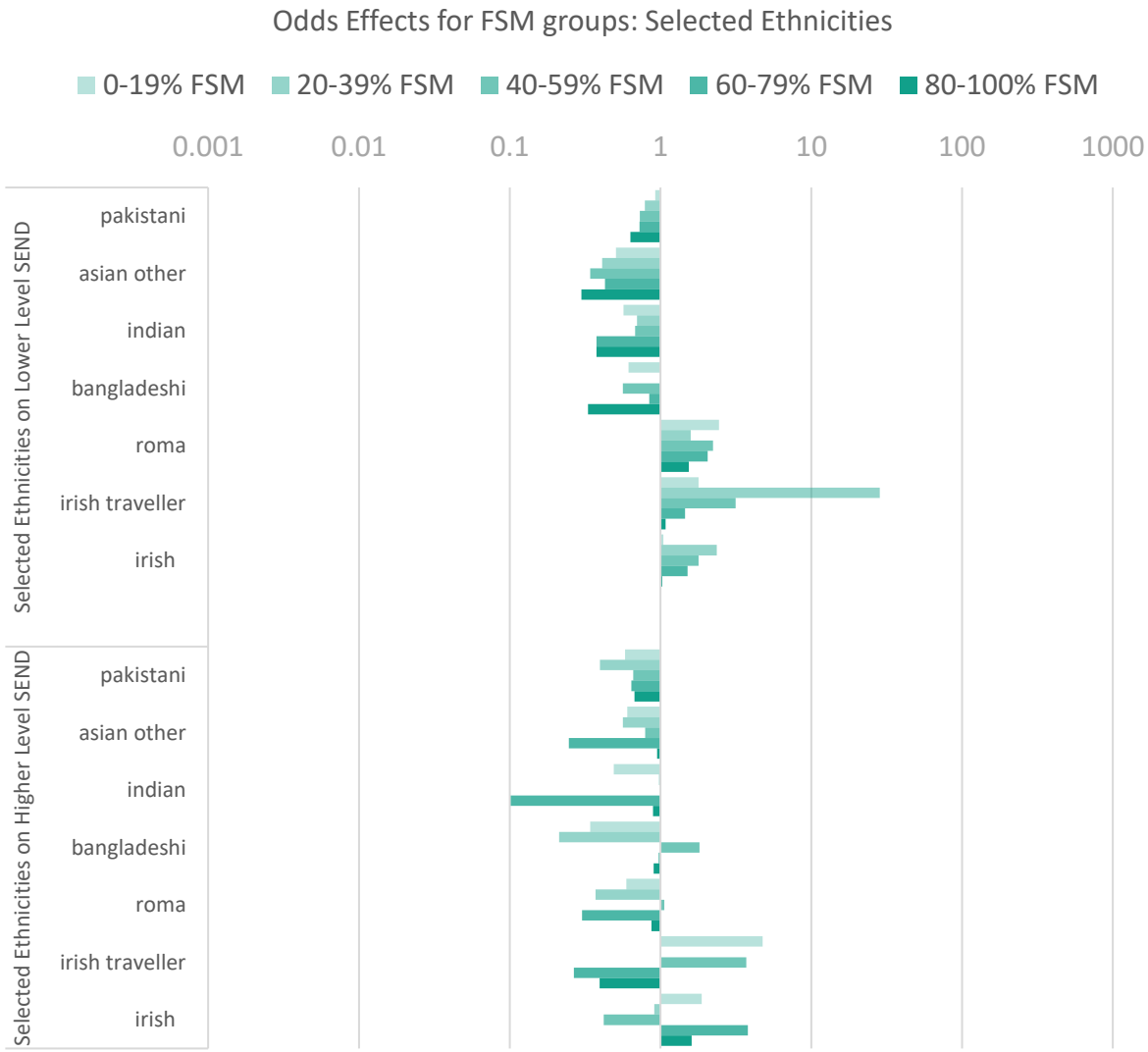
The case of the Irish ethnic group is also interesting. Irish children are over-represented among children identified with SEND at the lower level for all FSM groups except the poorest, this over-representation is strongest for the least disadvantaged children, contrary to what we would expect in terms of the risk associated with poverty.

However at the higher level of SEND, where parents often take a more active role in providing evidence and making a case for support, somehow this problem seems to have been partially corrected, with the most disadvantaged Irish children having raised odds of identification, and some evidence that some of the less disadvantaged groups have reduced odds of identification. This pattern is difficult to explain in terms of parental advocacy for accessing support from less disadvantaged families, and perhaps suggests that some of the over-representation at the lower level may be based in biased assessments by schools.

Turning to the Gypsy/Roma and Traveller ethnic groups, again the pattern of effects is such that the least socio-economically disadvantaged children received more of the increase in support at the lower level of SEND. At the higher level of SEND, the poorest children accounted for the lower chances of identification for the Irish Traveller group, while the least disadvantaged children had raised odds of identification. The pattern was less clear for Gypsy/Roma children with all FSM groups under-represented.

Overall, the pattern of effects suggests that under-identification of SEND at the higher level for GRT children may be concentrated among poorer families. The barriers to accessing services for these groups may be exacerbated by deprivation, as well as geographical mobility and a lack of ownership for their education needs by a single local authority. However, due to small group sizes, the GRT effects are not statistically significant, and we cannot rule out the possibility that this pattern of effects occurs due to chance.

Figure 18.



Next we examine the effects of neighbourhood deprivation on SEND identification among the different FSM duration groups. The patterns are imperfect due to the small sample sizes, but there is a clear tendency for the effects of greater neighbourhood deprivation on increased odds of identification to be larger for those children with the least disadvantaged individual FSM histories than for the most disadvantaged children in those areas.

The gradient on the effects is steeper for the least disadvantaged for identifications at both the lower and higher levels of SEND. The size of the largest neighbourhood deprivation effects was similar for both levels, but larger effects were more concentrated into the highest neighbourhood deprivation brackets in the case of higher level SEND identifications, and this was especially the case for the most disadvantaged children according to individual FSM history.

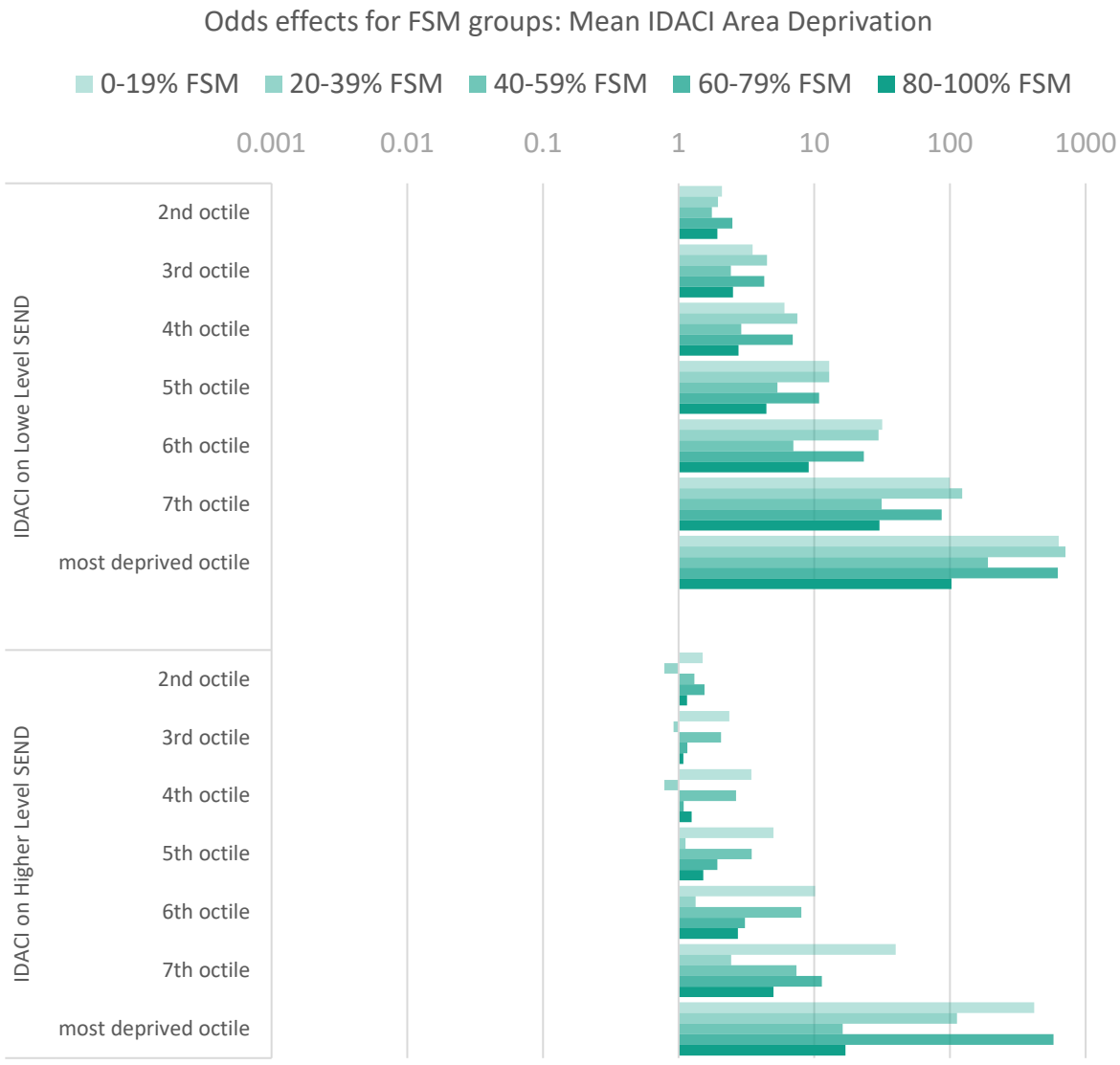
From these patterns we can discern that while children always have increased chances of being identified with SEND if they live on a more deprived area, the raised odds of identification are most pronounced for children who are not themselves the most disadvantaged. In the main models, the neighbourhood deprivations effects are considerably stronger than the individual disadvantage effects.

What can we conclude from this? The difference in the effect size of living in the most deprived neighbourhoods between the most and least individually disadvantaged children is substantial even after accounting for the higher base odds of SEND identification among the most individually disadvantaged.

This suggests that either neighbourhoods have a very large effect on child development due to some risk that it is not easy for wealthier families to avoid or mitigate – and this would need to be substantial – or there is some degree of resource and support 'capture' by more affluent families.

It is possible that something like pollution could be playing a role in the neighbourhood deprivation effects, but the differential effects according to individual disadvantage are suspiciously large and it is difficult to see why the least disadvantaged children should suffer greater effects from this kind of risk than their neighbours. On balance it is probably more likely than not that there is some misidentification here, and that the most disadvantaged children may be under-identified within the most deprived neighbourhoods.

Figure 19.



There is a further set of neighbourhood deprivation effects which also reduce the odds of being identified with SEND at either level for the most disadvantaged children according to individual FSM histories; these are for cases where children have moved residences, and the neighbourhoods they have lived in have had very different deprivation levels.

Moving to a more deprived neighbourhood reduces the odds of identification for all durations of individual disadvantage, but this reduction is larger for the most individually disadvantaged children, placing them once again in a position of under-identification. The gradients are steeper for identification at the higher level of SEND. School moves are separately controlled in the models (and also are associated with reduced odds of identification), but LA moves are not controlled and these might account for delays or difficulties in securing identification at the higher level of SEND in some cases.

A similar pattern of odds effects is observed for sickness absence rates across the FSM groups. Greater sickness absence is associated with reduced odds of identification with SEND, especially at the higher level and especially for the most disadvantaged children. Obstacles to continuity of education and assessment seem to be a stronger impediment to SEND identification for the most disadvantaged children. This is suggestive of under-identification linked to issues of access and process.

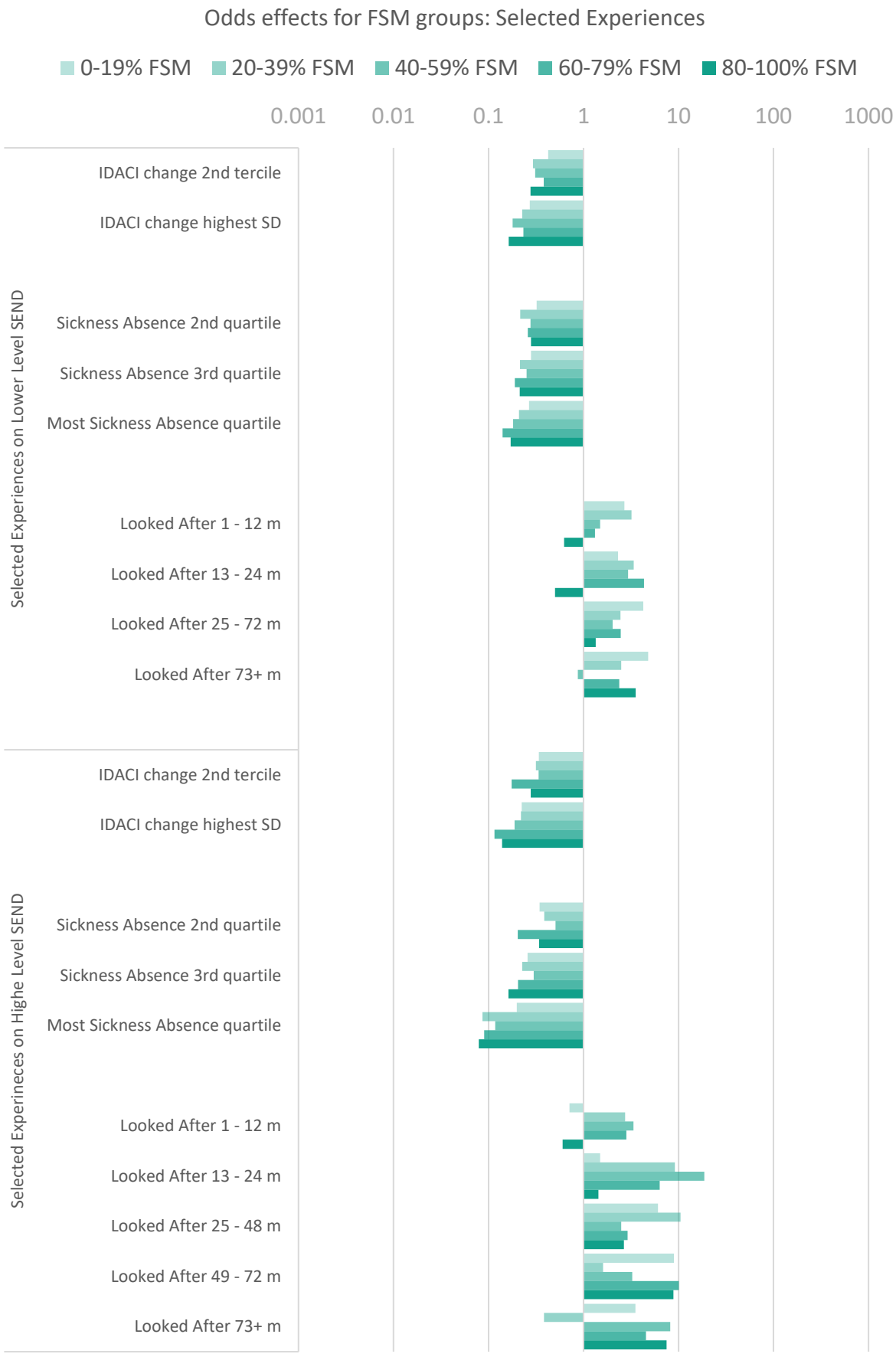
A third instance of experiences within public services that are associated with problems in accessing support for SEND through the identification process is the case of children who are taken into local authority care. We know from the main models that being in receipt of social services intervention prior to being taken into care actually suppresses the odds of identification in spite of those children being at greater risk of SEND by definition.

We also saw that once children are taken into care and have remained in local authority care for some months, the chances of being identified with SEND become raised as one would expect for a group with a raised risk profile. Examining the effects of time in care on SEND identification for the different FSM groups reveals that the most disadvantaged children initially have reduced odds of identification even after the local authority assuming the role of parent.

A longer period in care is required for the odds to increase to their maximum size for the most disadvantaged children. For example, at the lower level the odds of SEND identification reach their maximum after more than 72 months in care for the most disadvantaged children, but are close to their maximum after more than 24 months for the least disadvantaged children.

For SEND at the higher level, the odds peak after more than 48 months in care for the most disadvantaged children, and near their peak after more than 24 months for the least disadvantaged children. In both cases, while being taken into care ought act as a leveler and all children in care must receive an individual education plan, the most disadvantaged children wait longer for local authority parenting to result in the identification of SEND in comparison to less disadvantaged children. It is possible that this could be the result of pressures on social care departments in the most deprived areas such as staffing shortages and high caseloads, but we have not tested this.

Figure 20.


Odds effects for FSM groups: Selected Experiences
0-19% FSM
20-39% FSM
40-59% FSM
60-79% FSM
80-100% FSM
0.001
0.01
0.1
1
10
100
1000
Selected Experiences on Lower Level SEND
IDACI change 2nd tercile
IDACI change highest SD
Sickness Absence 2nd quartile
Sickness Absence 3rd quartile
Most Sickness Absence quartile
Looked After 1 - 12 m
Looked After 13 - 24 m
Looked After 25 - 72 m
Looked After 73+ m
Selected Experineces on Highe Level SEND
IDACI change 2nd tercile
IDACI change highest SD
Sickness Absence 2nd quartile
Sickness Absence 3rd quartile
Most Sickness Absence quartile
Looked After 1 - 12 m
Looked After 13 - 24 m
Looked After 25 - 48 m
Looked After 49 - 72 m
Looked After 73+ m

We observed from the main models that attending an academy school, in particular one to two years after it acquired academy status resulted in reduced odds of being identified with SEND at either level. Furthermore, attending school in a local authority in which many other schools had academised reduced the chances of SEND identification at the higher level by a greater margin.

Examining the school type effect for the school attended across the FSM groups reveals a non-linear pattern, with both the least disadvantaged children and the most disadvantaged children experiencing a stronger reductions in their odds of identification, while those who had some history of eligibility for free school meals, but not continuously, had the smallest reduction in identification associated with attending an academy.

In the case of identification at the higher level, the reduced odds of least disadvantaged group diverged from a trend through the other four FSM groups in which greater disadvantage was associated with a stronger suppression of the odds of identification for children attending an academy.

As the question of academy effects on SEND identification is an important one from a policy perspective, we tested the relationships between disadvantage, attending an academy school and SEND identification further by introducing an interaction term to the main models 7a and 7b to assess whether the academy effects were differential for different durations of FSM. Some of the interaction terms were statistically significant, and the results are presented as predictive margins in figures 22 and 23.

For identification at the lower level the margins for the interaction confirm the pattern found in the separate FSM group models. There were larger differences between the probability of identification for children in academy versus local authority schools for those children who were either the most or least disadvantaged, and the smallest academy effects were for those children with a moderate history of FSM eligibility.

At the higher level of SEND the margins for the interaction suggest a pattern of academy effects suppressing the effects of disadvantage. In fact, there was little increase in the chances of SEND working from the least deprived group to the most deprived group for those children attending academy schools. By contrast the chances of children in local authority schools being identified rose steadily with increasing disadvantage from the 20-39% DSM group through to the 80-100% FSM group.

There is an apparent inconsistency here between the separate FSM group models and the margins for the interaction term. While the odds effects from the FSM group models give us the ‘clean’ effects of academy status controlling for all other factors in the model, the margins from the interaction report the average of the model predictions for each group of children - including effects from other factors in the model.

Where this leads us is that disadvantaged children appear to suffer the greatest academy-related reduction in their chances of being identified at the higher level, and they did indeed have substantially below-average chances, but this was driven by the tendency of the most persistently disadvantaged children to have additional characteristics or experiences that also reduced SEND identification. Examples include belonging to minority ethnic groups under-represented with SEND, or experiencing greater sickness or unauthorised absence.

Figure 21.

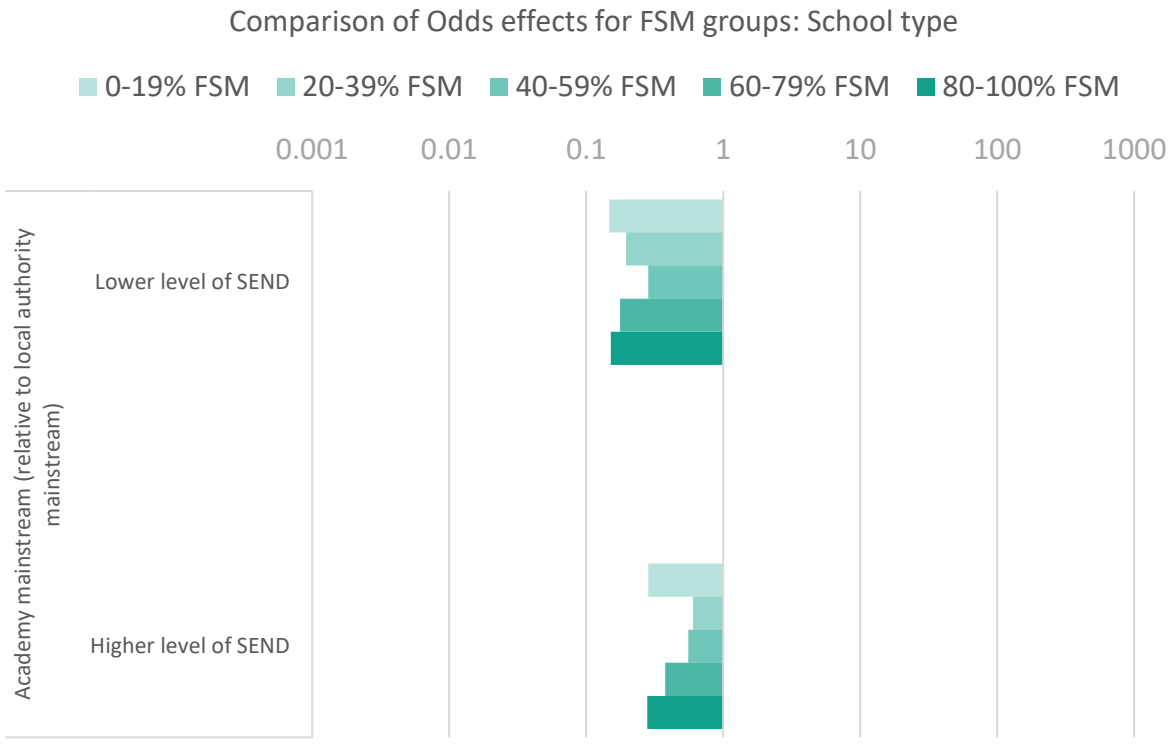


Figure 22.

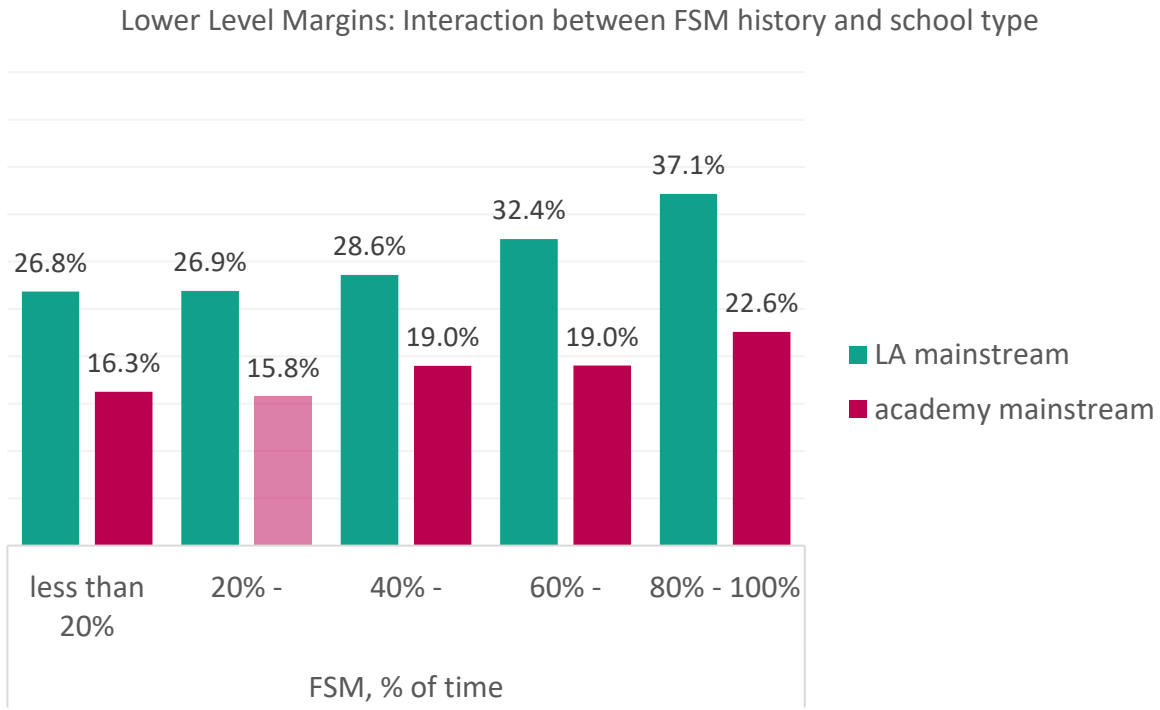
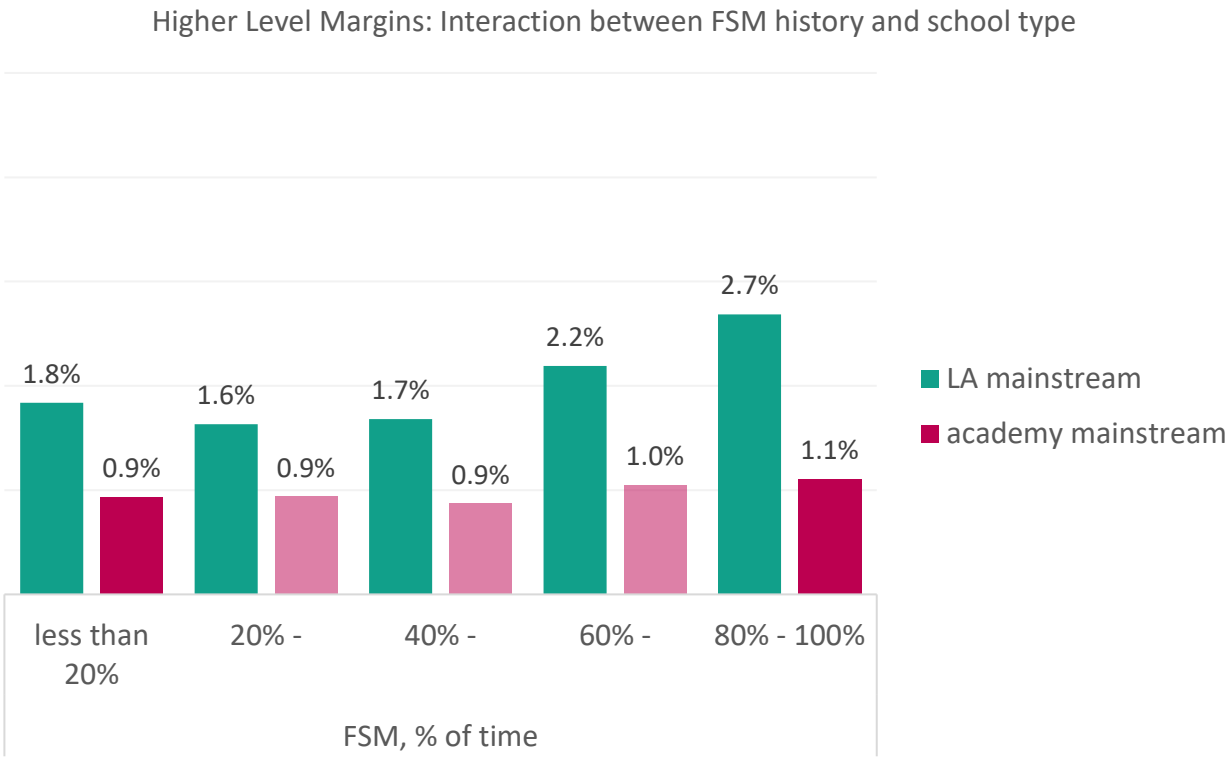


Figure 23.


Higher Level Margins: Interaction between FSM history and school type
1.8%
0.9%
1.6%
0.9%
1.7%
0.9%
2.2%
1.0%
2.7%
1.1%
LA mainstream
academy mainstream
less than 20%
20% -
40% -
60% -
80% - 100%
FSM, % of time

Discussion and conclusions

Conclusions and recommendations

Beneath the striking headline finding that which school a child attends makes more difference to their chances of being identified with SEND than the characteristics and experiences of the individual child, this research has uncovered a complex set of risk factors for SEND identification at individual, school and local authority levels.

While some of the risk factors behave exactly as one might expect, the patterns of effects for those that don't raise many questions. These span the quality and consistency of SEND assessment, equality between different groups of children and accessibility for minority groups, the absence of effective accountability for SEND support and failures to fully understand the need levels in different school populations, and the resourcing of SEND support in schools and local authorities. The following paragraphs outline the implications of our findings for policy, practice and further research in each of these spheres.

Quality and consistency

The dominance of school effects in explaining which children are most likely to be identified with SEND clearly points to school practices as a key locus for reducing the postcode lottery and improving the allocation of SEND support to the children who need it.

An obvious lever for improving assessment is **specialist training** for school staff and given the existing requirement for SENDCO training has not resulted in consistent practice, we suggest that raising the quality of assessment requires better professional knowledge on the part of school leaders.

Targeting the in-career training of **teachers progressing to or already in leadership positions** is likely to maximise the reach of any specialist training as it would take upwards of a decade for any change to initial teacher training to filter through to most of the teacher workforce.

Better **access to educational psychologists** for schools when providing early support and when making a case for SEND support at the higher level would reduce the reliance on teachers to be able to disentangle more complex sets of SEND needs and understand the root causes of difficulties that have built up over time. Greater use of **age-standardised assessments where appropriate instruments exist** would also help to bring better consistency to assessment.

Previous research on unexplained school mobility including unofficial exclusions suggests that **schools have very different conceptions of about what needs can be met in mainstream settings** (Hutchinson & Crenna-Jennings, 2019). There is no clear national understanding of what support needs mainstream schools should be able to accommodate, and in what circumstances specialist placements are needed. In extreme cases, children with additional needs have been off-rolled at scale, suggesting that best endeavours to include and support them have not been exhausted.

In order to raise the quality and consistency of SEND assessment, a clear **framework of national expectations** is needed to define what kinds of **adjustment and support** any mainstream school should make available as a matter of course. This framework should be developed in consultation with **parent groups**, and with **costing and feasibility planning** by school leader representative

bodies. Any school that does not meet these expectations, regardless of its governance status, should require an exemption at the local level with alternative arrangements agreed by the local authority, and plans to adopt the expectations within an agreed timeframe.

A final component of quality preventative practice in schools would focus on the fostering of stronger and more equal **personal, social and emotional development for all children**. Especially in the early primary years, but also during adolescence, this is a critical dimension of child development and our results show that PSE development at age five is heavily associated with higher level SEND. In some cases, this is because the initial SEND needs are social and emotional but in other cases these difficulties develop later as a result of other needs or experiences in school. A greater whole school focus on personal, social and emotional development could assist in both **prevention and early identification** of difficulties.

Equality and accessibility

Our findings identify several groups of children who are possibly or most likely under-identified with SEND and therefore do not access SEND support as readily as other children.

In the case of ethnic disparities, it requires **further research using qualitative methods** to unpick the biases and deficits in support. Given the disproportionate **exclusion of Black children and of children with identified SEND** from school, and the many educational disadvantages faced by Gypsy/Roma and Traveller children, this should be a priority for future research.

Children who experience **school mobility** or **miss substantial amounts of school** due to absence are also at risk of slipping under the radar for SEND assessment. This is particularly relevant in the current moment when **covid lockdown** has kept children out of school for substantial and varying periods of time, and even those whose SEND needs have already been identified in Education Health and Care Plans temporarily **lost the legal enforceability** of their agreed SEND support. For several reasons, therefore, the time is right to consider how children's SEND needs can be assessed effectively if they are out of school for a period. Local authorities need services that can **engage with children at home** effectively to ensure that the right to education is not compromised.

We found some evidence of resource 'capture' by the least disadvantaged families living in areas of high deprivation, and lesser identification of the poorest children in various groups and circumstances. It is challenging to recognise under-identification of the poorest against a backdrop where disadvantaged children do have generally raised chances of being identified with SEND, but one way that schools and local authorities can **guard against this is by monitoring** the assessments and outcomes of children with the most persistent histories of free school meal eligibility, and considering the **circumstances that may make them less visible** in school.

Accountability

SEND support suffers from a lack of accountability to those families not willing or able to access the tribunal system in a landscape where schools and local authorities have **many competing duties and objectives** for which they are being held to account as a matter of course. Because the Code of Practice is composed of **principles and procedures** in order that it generalises to any type of need, it lacks concrete exemplification of what support is not sufficiently complex and specialised that it should require local authority intervention to make it available.

Our earlier recommendation that a framework of national expectations should be developed would enable a much **clearer benchmark** for schools and for Ofsted to assess what basic compliance looks like. Over time this could be extended with further adjustments and supports considered to be **best practice** but not part of **minimum expected standards** in mainstream schools. The concept of **entitlements** should not remain restricted to children identified with higher-level needs or there will always be pressures that distort identification and obfuscate accountability.

A second way in which school accountability could benefit from making use of the findings of this study is that the matrix of risk factors, setting aside those that have been linked to misidentification, should be used to **understand the level of educational challenge** embodied in the **intakes of different schools**. This is essential context for understanding school outcomes such as attainment and academic progress. While outcomes for children with SEND ought to improve in the longer term with better policy, at the current time the predictors of SEND describe a cocktail of educational disadvantage.

Resources

Our research cannot inform what the 'true' prevalence of SEND is as it examines variation within the identification system as it was over a period of time, and we have **no external benchmark for judging the overall sufficiency** in the system. This is an important question, but not as amenable to administrative data analysis as the questions of relative access that we have modelled. However, the unexplained inequalities described in the pattern of effects suggest that there are **differential thresholds** being applied.

Within any given budget quantum, it would be possible to **rationalise high needs funding** across local authorities **according to the risk factors** we have identified that behave rationally in line with need. There is always a risk of harm if the distribution of funding is changed within a fixed budget, but this can be avoided by providing additional funding to top up those areas that are under-funded relative to their risk profile.

More fundamentally, the **needs assessment** function of local authorities conflicts with their role as **budget holder** and provider of last resort for SEND support. The incentives attached to these two functions are hopelessly in conflict with one another, resulting in similar problems to those seen in the provision of children's social care. For as long as budgets are constrained by economic circumstances and political decisions, there are likely to be problems with the roles and duties as they are currently configured. **Separating these two functions** would open up the opportunity for more outcome and quality-focused practices in local authorities.

An additional approach for deploying new resources with the aim of early intervention and prevention of avoidable difficulties would be to **evaluate the use of smaller class sizes** in reception alongside better training and clearer expectations for support provided to children with lower-level SEND. It would be important to **evaluate the theory** of lower pupil-teacher ratios resulting in fewer children identified with lower-level SEND and better identification of children with greater needs, as well as testing for improved outcomes after identification.

Full Model Results

'A' models: Odds Effects on initial lower-level 'action' or 'action plus' identification received in years 1-4

	Model 1a: Gender, birth month & ethnicity		Model 2a: 1a factors + Free School Meals		Model 3a: 1a factors + EYFSP attainment		Model 4a: 1a factors + FSM + EYFSP		Model 5a: All child factors		Model 6a: All child & school factors		Model 7a: All child, school & LA factors	
School & LA random effects	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**
Gender														
ref=female														
male	2.150 ***	1.976 ***	2.210 ***	2.050 ***	n/a	1.570 ***	n/a	1.614 ***	1.574 ***	1.529 ***	1.640 ***	1.632 ***	1.640 ***	1.629 ***
Ethnicity														
ref=white british														
chinese	0.446 ***	0.564 ***	0.504 ***	0.599 ***	n/a	0.373 ***	n/a	0.396 ***	0.317 ***	0.413 ***	0.334 ***	0.454 ***	0.334 ***	0.434 ***
black other	0.845 ***	1.178 ***	0.791 ***	0.957	n/a	0.946	n/a	0.877 **	0.646 ***	0.806 ***	0.624 ***	0.936	0.622 ***	0.816 ***
black caribbean	1.011	1.436 ***	0.977	1.179 ***	n/a	1.233 ***	n/a	1.154 ***	0.821 ***	1.135 ***	0.803 ***	1.287 ***	0.800 ***	1.060
black african	0.596 ***	0.938 ***	0.572 ***	0.765 ***	n/a	0.705 ***	n/a	0.666 ***	0.360 ***	0.507 ***	0.364 ***	0.571 ***	0.363 ***	0.490 ***
pakistani	0.648 ***	0.987	0.729 ***	0.939 ***	n/a	0.579 ***	n/a	0.585 ***	0.828 ***	0.982	0.838 ***	1.073 *	0.835 ***	0.973
asian other	0.455 ***	0.629 ***	0.500 ***	0.639 ***	n/a	0.449 ***	n/a	0.464 ***	0.503 ***	0.659 ***	0.481 ***	0.744 ***	0.479 ***	0.634 ***
indian	0.383 ***	0.501 ***	0.451 ***	0.549 ***	n/a	0.446 ***	n/a	0.471 ***	0.562 ***	0.674 ***	0.563 ***	0.796 ***	0.560 ***	0.701 ***
bangladeshi	0.432 ***	0.781 ***	0.484 ***	0.690 ***	n/a	0.456 ***	n/a	0.449 ***	0.569 ***	0.772 ***	0.551 ***	0.867 ***	0.551 ***	0.796 ***
roma	4.822 ***	4.372 ***	4.035 ***	3.434 ***	n/a	1.190 **	n/a	1.097	2.193 ***	2.422 ***	1.951 ***	2.283 ***	1.947 ***	2.116 ***
white other	0.819 ***	1.052 ***	0.919 ***	1.106 ***	n/a	0.535 ***	n/a	0.568 ***	0.709 ***	0.937 **	0.685 ***	0.943 *	0.683 ***	0.856 ***
irish traveller	4.594 ***	5.505 ***	2.696 ***	3.003 ***	n/a	1.740 ***	n/a	1.290 *	1.762 **	2.574 ***	1.285	2.122 ***	1.279	1.840 ***
irish	0.903	0.943	0.864	0.920	n/a	1.134	n/a	1.101	1.122	1.278 **	1.057	1.384 ***	1.055	1.200 *
other	0.735 ***	1.065 **	0.734 ***	0.907 ***	n/a	0.623 ***	n/a	0.596 ***	0.622 ***	0.807 ***	0.621 ***	0.882 **	0.619 ***	0.767 ***
white & black caribbean	1.097 **	1.287 ***	0.965	1.022	n/a	1.171 ***	n/a	1.053	1.052	1.180 ***	1.100 *	1.292 ***	1.096	1.141 ***
white & black african	0.851 ***	1.053	0.788 ***	0.899 **	n/a	0.953	n/a	0.894 **	0.814 ***	0.964	0.797 ***	1.032	0.795 ***	0.941
white & asian	0.648 ***	0.738 ***	0.631 ***	0.696 ***	n/a	0.729 ***	n/a	0.703 ***	0.720 ***	0.838 ***	0.720 ***	0.879 **	0.718 ***	0.812 ***
mixed other	0.775 ***	0.952 *	0.750 ***	0.863 ***	n/a	0.891 ***	n/a	0.857 ***	0.844 ***	1.027	0.813 ***	1.097 **	0.811 ***	0.985
Month of Birth														
ref=september														
october	1.072 ***	1.053 **	1.073 ***	1.055 ***	n/a	0.976	n/a	0.981	0.932 **	0.965	0.929 **	0.963	0.929 **	0.961
november	1.205 ***	1.171 ***	1.202 ***	1.169 ***	n/a	1.012	n/a	1.015	0.963	0.999	0.968	0.996	0.968	0.993
december	1.280 ***	1.255 ***	1.286 ***	1.258 ***	n/a	0.984	n/a	0.992	0.922 **	0.975	0.910 ***	0.968	0.910 ***	0.966
january	1.377 ***	1.347 ***	1.381 ***	1.355 ***	n/a	0.959 *	n/a	0.974	0.886 ***	0.952 *	0.881 ***	0.960	0.881 ***	0.957
february	1.484 ***	1.447 ***	1.500 ***	1.465 ***	n/a	0.957 *	n/a	0.977	0.850 ***	0.941 **	0.841 ***	0.941 **	0.841 ***	0.934 **
march	1.489 ***	1.439 ***	1.518 ***	1.465 ***	n/a	0.846 ***	n/a	0.867 ***	0.720 ***	0.818 ***	0.705 ***	0.815 ***	0.705 ***	0.809 ***
april	1.641 ***	1.589 ***	1.662 ***	1.616 ***	n/a	0.860 ***	n/a	0.884 ***	0.691 ***	0.823 ***	0.678 ***	0.823 ***	0.678 ***	0.815 ***
may	1.813 ***	1.701 ***	1.855 ***	1.749 ***	n/a	0.844 ***	n/a	0.874 ***	0.691 ***	0.807 ***	0.678 ***	0.819 ***	0.678 ***	0.812 ***
june	2.015 ***	1.882 ***	2.061 ***	1.943 ***	n/a	0.850 ***	n/a	0.885 ***	0.678 ***	0.816 ***	0.657 ***	0.823 ***	0.657 ***	0.811 ***
july	2.118 ***	2.011 ***	2.173 ***	2.069 ***	n/a	0.819 ***	n/a	0.853 ***	0.630 ***	0.783 ***	0.619 ***	0.790 ***	0.619 ***	0.779 ***
august	2.393 ***	2.199 ***	2.463 ***	2.285 ***	n/a	0.812 ***	n/a	0.853 ***	0.619 ***	0.775 ***	0.594 ***	0.776 ***	0.594 ***	0.763 ***
Free School Meals, % of time in school before ID														
ref=less than 20%														
20% -			0.833 ***	0.894 ***	n/a		n/a	0.625 ***	0.991	1.000	0.996	0.971	0.997	0.973
40% -			0.981	1.026	n/a		n/a	0.712 ***	1.376 ***	1.333 ***	1.330 ***	1.319 ***	1.330 ***	1.323 ***
60% -			1.896 ***	2.132 ***	n/a		n/a	1.313 ***	2.089 ***	2.122 ***	2.087 ***	2.092 ***	2.088 ***	2.080 ***
80% - 100%			3.533 ***	3.672 ***	n/a		n/a	2.190 ***	3.881 ***	3.643 ***	3.789 ***	3.484 ***	3.790 ***	3.478 ***

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'A' models: Odds Effects on initial lower-level 'action' or 'action plus' identification received in years 1-4

	Model 1a: Gender, birth month & ethnicity		Model 2a: 1a factors + Free School Meals		Model 3a: 1a factors + EYFSP attainment		Model 4a: 1a factors + FSM + EYFSP		Model 5a: All child factors		Model 6a: All child & school factors		Model 7a: All child, school & LA factors	
School & LA random effects	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**
EYFSP scores														
Communication Language & Literacy														
ref=lowest decile														
2nd decile					n/a	0.571 ***	n/a	0.574 ***	0.509 ***	0.570 ***	0.479 ***	0.548 ***	0.479 ***	0.549 ***
3rd decile					n/a	0.369 ***	n/a	0.374 ***	0.307 ***	0.383 ***	0.275 ***	0.350 ***	0.275 ***	0.349 ***
4th decile					n/a	0.226 ***	n/a	0.229 ***	0.170 ***	0.231 ***	0.151 ***	0.204 ***	0.151 ***	0.204 ***
5th decile					n/a	0.166 ***	n/a	0.171 ***	0.113 ***	0.165 ***	0.102 ***	0.143 ***	0.102 ***	0.143 ***
6th decile					n/a	0.118 ***	n/a	0.122 ***	0.077 ***	0.114 ***	0.070 ***	0.098 ***	0.070 ***	0.098 ***
7th decile					n/a	0.083 ***	n/a	0.086 ***	0.051 ***	0.080 ***	0.046 ***	0.068 ***	0.046 ***	0.069 ***
8th decile					n/a	0.056 ***	n/a	0.058 ***	0.031 ***	0.050 ***	0.029 ***	0.043 ***	0.029 ***	0.043 ***
9th decile					n/a	0.037 ***	n/a	0.039 ***	0.020 ***	0.032 ***	0.019 ***	0.028 ***	0.019 ***	0.028 ***
highest decile					n/a	0.028 ***	n/a	0.030 ***	0.014 ***	0.024 ***	0.014 ***	0.021 ***	0.014 ***	0.021 ***
Problem-solving, Reasoning & Numeracy														
2nd decile					n/a	0.588 ***	n/a	0.591 ***	0.514 ***	0.590 ***	0.491 ***	0.556 ***	0.491 ***	0.552 ***
3rd decile					n/a	0.390 ***	n/a	0.397 ***	0.321 ***	0.399 ***	0.300 ***	0.370 ***	0.300 ***	0.365 ***
5th decile					n/a	0.323 ***	n/a	0.329 ***	0.248 ***	0.328 ***	0.228 ***	0.304 ***	0.228 ***	0.299 ***
6th decile					n/a	0.282 ***	n/a	0.289 ***	0.205 ***	0.284 ***	0.190 ***	0.261 ***	0.190 ***	0.257 ***
7th decile					n/a	0.268 ***	n/a	0.274 ***	0.184 ***	0.263 ***	0.169 ***	0.238 ***	0.168 ***	0.233 ***
8th decile					n/a	0.252 ***	n/a	0.258 ***	0.175 ***	0.250 ***	0.158 ***	0.230 ***	0.158 ***	0.224 ***
9th decile					n/a	0.242 ***	n/a	0.247 ***	0.159 ***	0.236 ***	0.144 ***	0.214 ***	0.144 ***	0.209 ***
highest decile					n/a	0.222 ***	n/a	0.228 ***	0.138 ***	0.213 ***	0.127 ***	0.197 ***	0.127 ***	0.193 ***
Personal, Social & Emotional														
2nd decile					n/a	0.804 ***	n/a	0.802 ***	0.754 ***	0.841 ***	0.721 ***	0.845 ***	0.721 ***	0.837 ***
3rd decile					n/a	0.725 ***	n/a	0.725 ***	0.629 ***	0.757 ***	0.600 ***	0.754 ***	0.600 ***	0.743 ***
4th decile					n/a	0.696 ***	n/a	0.697 ***	0.573 ***	0.735 ***	0.545 ***	0.737 ***	0.545 ***	0.725 ***
5th decile					n/a	0.663 ***	n/a	0.666 ***	0.535 ***	0.701 ***	0.507 ***	0.703 ***	0.507 ***	0.688 ***
6th decile					n/a	0.641 ***	n/a	0.645 ***	0.488 ***	0.686 ***	0.468 ***	0.688 ***	0.468 ***	0.674 ***
7th decile					n/a	0.621 ***	n/a	0.627 ***	0.445 ***	0.661 ***	0.418 ***	0.664 ***	0.418 ***	0.649 ***
8th decile					n/a	0.560 ***	n/a	0.566 ***	0.376 ***	0.594 ***	0.353 ***	0.598 ***	0.353 ***	0.581 ***
9th decile					n/a	0.562 ***	n/a	0.569 ***	0.355 ***	0.603 ***	0.332 ***	0.598 ***	0.332 ***	0.572 ***
highest decile					n/a	0.485 ***	n/a	0.490 ***	0.278 ***	0.511 ***	0.260 ***	0.514 ***	0.260 ***	0.486 ***
Physical Development														
2nd quintile					n/a	0.755 ***	n/a	0.753 ***	0.730 ***	0.803 ***	0.700 ***	0.774 ***	0.700 ***	0.773 ***
3rd quintile					n/a	0.723 ***	n/a	0.718 ***	0.643 ***	0.782 ***	0.611 ***	0.745 ***	0.611 ***	0.744 ***
4th quintile					n/a	0.726 ***	n/a	0.723 ***	0.624 ***	0.793 ***	0.585 ***	0.757 ***	0.585 ***	0.751 ***
highest quintile					n/a	0.739 ***	n/a	0.737 ***	0.606 ***	0.806 ***	0.563 ***	0.782 ***	0.563 ***	0.766 ***
Knowledge & Understanding of the World														
2nd sextile					n/a	1.222 ***	n/a	1.219 ***	1.155 ***	1.134 ***	1.197 ***	1.160 ***	1.197 ***	1.157 ***
3rd sextile					n/a	1.332 ***	n/a	1.341 ***	1.343 ***	1.260 ***	1.416 ***	1.307 ***	1.416 ***	1.301 ***
4th sextile					n/a	1.582 ***	n/a	1.602 ***	1.611 ***	1.477 ***	1.715 ***	1.565 ***	1.715 ***	1.553 ***
5th sextile					n/a	1.920 ***	n/a	1.949 ***	1.895 ***	1.790 ***	2.004 ***	1.893 ***	2.004 ***	1.868 ***
highest sextile					n/a	2.347 ***	n/a	2.390 ***	2.180 ***	2.144 ***	2.254 ***	2.241 ***	2.254 ***	2.209 ***
Creative Development														
2nd sextile					n/a	1.187 ***	n/a	1.182 ***	1.144 ***	1.129 ***	1.171 ***	1.144 ***	1.170 ***	1.145 ***
3rd sextile					n/a	1.299 ***	n/a	1.297 ***	1.229 ***	1.224 ***	1.280 ***	1.279 ***	1.280 ***	1.273 ***
4th sextile					n/a	1.473 ***	n/a	1.486 ***	1.413 ***	1.406 ***	1.475 ***	1.503 ***	1.475 ***	1.486 ***
5th sextile					n/a	1.708 ***	n/a	1.737 ***	1.625 ***	1.651 ***	1.696 ***	1.756 ***	1.696 ***	1.735 ***
highest sextile					n/a	1.951 ***	n/a	1.997 ***	1.876 ***	1.902 ***	1.970 ***	2.074 ***	1.969 ***	2.039 ***

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'A' models: Odds Effects on initial lower-level 'action' or 'action plus' identification received in years 1-4

	Model 1a: Gender, birth month & ethnicity		Model 2a: 1a factors + Free School Meals		Model 3a: 1a factors + EYFSP attainment		Model 4a: 1a factors + FSM + EYFSP		Model 5a: All child factors		Model 6a: All child & school factors		Model 7a: All child, school & LA factors	
School & LA random effects	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**
English as an Additional Language														
ref=never EAL														
Ever recorded EAL									0.661 ***	0.863 ***	0.635 ***	0.845 ***	0.635 ***	0.800 ***
Mean IDACI before ID														
ref=least deprived octile														
2nd octile									2.025 ***	2.065 ***	2.044 ***	1.957 ***	2.045 ***	1.943 ***
3rd octile									3.254 ***	3.486 ***	3.231 ***	3.193 ***	3.232 ***	3.143 ***
4th octile									4.918 ***	5.272 ***	4.781 ***	4.601 ***	4.788 ***	4.561 ***
5th octile									9.215 ***	9.418 ***	8.714 ***	7.969 ***	8.733 ***	7.909 ***
6th octile									21.082 ***	20.075 ***	18.284 ***	15.375 ***	18.338 ***	15.322 ***
7th octile									70.479 ***	56.438 ***	59.760 ***	41.910 ***	60.011 ***	42.412 ***
most deprived octile									339.150 ***	241.382 ***	313.105 ***	176.345 ***	314.836 ***	179.102 ***
Maximum IDACI before ID														
ref=least deprived decile														
2nd decile									0.712 ***	0.741 ***	0.655 ***	0.661 ***	0.656 ***	0.659 ***
3rd decile									0.611 ***	0.584 ***	0.541 ***	0.498 ***	0.541 ***	0.499 ***
4th decile									0.481 ***	0.439 ***	0.423 ***	0.366 ***	0.423 ***	0.370 ***
5th decile									0.348 ***	0.312 ***	0.307 ***	0.258 ***	0.307 ***	0.263 ***
6th decile									0.219 ***	0.198 ***	0.195 ***	0.156 ***	0.196 ***	0.160 ***
7th decile									0.131 ***	0.114 ***	0.120 ***	0.094 ***	0.120 ***	0.098 ***
8th decile									0.061 ***	0.052 ***	0.059 ***	0.044 ***	0.059 ***	0.046 ***
9th decile									0.032 ***	0.027 ***	0.032 ***	0.025 ***	0.032 ***	0.027 ***
most deprived decile									0.018 ***	0.016 ***	0.017 ***	0.016 ***	0.017 ***	0.017 ***
Variability of IDACI before ID														
ref=lowest standard deviation														
2nd tercile									0.400 ***	0.485 ***	0.409 ***	0.488 ***	0.408 ***	0.485 ***
highest standard deviation									0.237 ***	0.328 ***	0.251 ***	0.348 ***	0.250 ***	0.341 ***
School moves before ID														
ref=no moves														
1 move									1.031	1.062 ***	1.034	1.023	1.034	1.032 *
2 moves									0.784 ***	0.872 ***	0.787 ***	0.846 ***	0.787 ***	0.856 ***
3 moves									0.511 ***	0.576 ***	0.561 ***	0.538 ***	0.563 ***	0.552 ***
Sickness absence rate before ID														
ref=least absent quartile														
2nd quartile									0.336 ***	0.343 ***	0.329 ***	0.347 ***	0.329 ***	0.344 ***
3rd quartile									0.285 ***	0.308 ***	0.285 ***	0.314 ***	0.285 ***	0.308 ***
most absent quartile									0.258 ***	0.288 ***	0.261 ***	0.303 ***	0.260 ***	0.293 ***
Authorised absence rate before ID														
ref=least absent quartile														
2nd quartile									0.674 ***	0.638 ***	0.670 ***	0.645 ***	0.670 ***	0.652 ***
3rd quartile									0.657 ***	0.604 ***	0.643 ***	0.606 ***	0.643 ***	0.617 ***
most absent quartile									0.701 ***	0.633 ***	0.682 ***	0.618 ***	0.682 ***	0.640 ***
Unauthorised absence rate before ID														
ref=least absent quartile														
2nd quartile									0.280 ***	0.321 ***	0.273 ***	0.318 ***	0.273 ***	0.315 ***
3rd quartile									0.223 ***	0.268 ***	0.218 ***	0.267 ***	0.218 ***	0.264 ***
most absent quartile									0.146 ***	0.180 ***	0.144 ***	0.179 ***	0.144 ***	0.179 ***

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'A' models: Odds Effects on initial lower-level 'action' or 'action plus' identification received in years 1-4

	Model 1a: Gender, birth month & ethnicity		Model 2a: 1a factors + Free School Meals		Model 3a: 1a factors + EYFSP attainment		Model 4a: 1a factors + FSM + EYFSP		Model 5a: All child factors		Model 6a: All child & school factors		Model 7a: All child, school & LA factors	
School & LA random effects	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**
Months looked after														
ref=never LAC														
1 - 12 m									0.993	1.094	1.004	1.145	1.005	1.169
13 - 24 m									1.710 ***	1.699 ***	1.574 **	1.708 ***	1.575 **	1.713 ***
25 - 72 m									2.662 ***	2.440 ***	2.656 ***	2.634 ***	2.655 ***	2.657 ***
73+ m									2.925 ***	1.949 ***	3.633 ***	2.165 ***	3.638 ***	2.265 ***
Child Protection Plans														
ref=no CPP before ID														
1 or more CPP									0.226 ***	0.219 ***	0.276 ***	0.249 ***	0.276 ***	0.245 ***
Type of School at ID														
ref=LA mainstream														
academy mainstream											0.162 ***	0.336 ***	0.163 ***	0.329 ***
Latest Inspection Grade at ID														
ref=good														
outstanding											1.587 ***	1.603 ***	1.587 ***	1.589 ***
requires improvement											13.189 ***	2.951 ***	13.192 ***	2.952 ***
inadequate											3.645 ***	1.442 ***	3.640 ***	1.430 ***
no grade yet											368.940 ***	7.963 ***	369.399 ***	8.081 ***
School FSM rate at ID														
ref=lowest tercile														
2nd tercile											0.899 ***	0.857 ***	0.902 ***	0.872 ***
highest tercile											0.871 ***	0.695 ***	0.876 ***	0.730 ***
School SEND rate at ID														
ref=lowest septile														
2nd septile											4.931 ***	2.428 ***	4.931 ***	2.405 ***
3rd septile											21.530 ***	6.335 ***	21.544 ***	6.329 ***
4th septile											81.516 ***	15.764 ***	81.610 ***	15.980 ***
5th septile											230.545 ***	32.681 ***	230.958 ***	33.639 ***
6th septile											504.345 ***	74.332 ***	505.169 ***	76.742 ***
highest septile											1063.741 ***	131.214 ***	1065.870 ***	139.617 ***
School has SEND unit														
ref=no unit														
has unit											0.607 ***	0.752 ***	0.604 ***	0.711 ***
Pupil Teacher Ratio														
ref=lowest quartile														
2nd quartile											1.272 ***	1.128 ***	1.266 ***	1.126 ***
3rd quartile											1.583 ***	1.196 ***	1.570 ***	1.209 ***
highest quartile											2.019 ***	1.213 ***	2.008 ***	1.262 ***

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'A' models: Odds Effects on initial lower-level 'action' or 'action plus' identification received in years 1-4

	Model 1a: Gender, birth month & ethnicity		Model 2a: 1a factors + Free School Meals		Model 3a: 1a factors + EYFSP attainment		Model 4a: 1a factors + FSM + EYFSP		Model 5a: All child factors		Model 6a: All child & school factors		Model 7a: All child, school & LA factors	
School & LA random effects	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**
LA Primary FSM rate														
ref=lowest tercile														
2nd tercile													0.850	0.998
highest tercile													0.456 ***	0.747 ***
LA rate of mainstream EHCPs														
ref=lowest tercile														
2nd tercile													1.011	0.987
highest tercile													0.786 *	0.956 ***
LA rate of resourced EHCPs														
ref=lowest tercile														
2nd tercile													1.028	0.971 **
highest tercile													1.310 **	1.125 ***
LA rate of special EHCPs														
ref=lowest tercile														
2nd tercile													1.319 **	1.176 ***
highest tercile													1.116	1.037 ***
LA rate of other EHCPs														
ref=lowest tercile														
2nd tercile													1.221	1.103 ***
highest tercile													1.269 *	1.095 ***
LA rate of non white british pupils														
ref=lowest quartile														
2nd quartile													1.168	0.991
3rd quartile													1.496 ***	1.206 ***
highest quartile													2.015 ***	1.552 ***

…'A' models table ends.

'B' models: Odds Effects on initial higher-level 'statement' or 'education, health and care plan' identification received in years 1-4

	Model 1b: Gender, birth month & ethnicity		Model 2b: 1a factors + Free School Meals		Model 3b: 1a factors + EYFSP attainment		Model 4b: 1a factors + FSM + EYFSP		Model 5b: All child factors		Model 6b: All child & school factors		Model 7b: All child, school & LA factors	
School & LA random effects	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**
Gender														
ref=female														
male	3.136 ***	3.102 ***	3.167 ***	3.124 ***	1.656 ***	1.629 ***	1.651 ***	1.624 ***	1.629 ***	1.598 ***	1.639 ***	1.604 ***	1.447 ***	1.454 ***
Ethnicity														
ref=white british														
chinese	0.821	0.890	0.937	0.979	0.477 ***	0.694	0.481 **	0.681	0.698	0.914	0.673	0.954	0.621	0.849
black other	0.881	1.181	0.846	1.009	0.543 ***	0.767 *	0.559 ***	0.802	0.722 *	1.081	0.695 *	1.064	0.695 *	0.773
black caribbean	0.981	1.413 ***	0.926	1.192 *	0.774 *	1.111	0.794 *	1.157	0.841	1.429 ***	0.794	1.397 ***	0.786	0.895
black african	0.749 ***	1.014	0.733 ***	0.875 **	0.378 ***	0.661 ***	0.396 ***	0.699 ***	0.482 ***	0.853 *	0.478 ***	0.853 *	0.466 ***	0.610 ***
pakistani	0.622 ***	0.782 ***	0.697 ***	0.757 ***	0.273 ***	0.353 ***	0.268 ***	0.345 ***	0.617 ***	0.763 ***	0.615 ***	0.805 **	0.618 ***	0.712 ***
asian other	0.626 ***	0.843	0.697 ***	0.878	0.315 ***	0.576 ***	0.309 ***	0.557 ***	0.577 ***	0.976	0.586 ***	1.054	0.654 **	0.852
indian	0.425 ***	0.536 ***	0.509 ***	0.602 ***	0.287 ***	0.487 ***	0.273 ***	0.459 ***	0.466 ***	0.761 **	0.499 ***	0.822	0.532 ***	0.684 ***
bangladeshi	0.443 ***	0.742 ***	0.494 ***	0.677 ***	0.212 ***	0.385 ***	0.213 ***	0.387 ***	0.546 ***	0.866	0.540 ***	0.890	0.551 ***	0.672 ***
roma	1.634 **	1.810 ***	1.279	1.319	0.231 ***	0.338 ***	0.234 ***	0.353 ***	0.473 ***	0.776	0.428 ***	0.751	0.640	0.916
white other	0.633 ***	0.836 **	0.718 ***	0.891 *	0.242 ***	0.408 ***	0.239 ***	0.397 ***	0.591 ***	0.897	0.591 ***	0.916	0.710 ***	0.858
irish traveller	1.917 *	2.311 ***	1.082	1.254	0.310 ***	0.473 **	0.292 ***	0.458 **	0.475 *	0.763	0.495	0.822	0.616	0.677
irish	1.186	1.320	1.143	1.297	1.297	1.619 **	1.325	1.655 **	1.328	1.765 **	1.402	1.921 **	1.526	1.466
other	0.738 **	1.049	0.747 **	0.915	0.339 ***	0.558 ***	0.345 ***	0.571 ***	0.725 **	1.078	0.737 *	1.089	0.806	0.871
white & black caribbean	1.122	1.351 ***	0.974	1.094	1.082	1.193 *	1.096	1.230 **	1.265 *	1.524 ***	1.304 **	1.624 ***	1.346 **	1.313 **
white & black african	0.954	1.192	0.893	1.037	0.910	1.143	0.937	1.182	1.348	1.579 ***	1.362	1.681 ***	1.341	1.369 *
white & asian	0.617 ***	0.677 ***	0.609 ***	0.649 ***	0.523 ***	0.676 ***	0.517 ***	0.677 ***	0.643 **	0.857	0.647 **	0.895	0.689 *	0.803
mixed other	0.935	1.181 **	0.917	1.097	0.827 *	1.063	0.840	1.086	1.118	1.465 ***	1.117	1.503 ***	1.154	1.247 **
Month of Birth														
ref=september														
october	0.958	0.966	0.947	0.960	0.844 **	0.881 *	0.844 **	0.882 *	0.829 **	0.874 *	0.834 *	0.881	0.848 *	0.868 *
november	1.112	1.130 *	1.093	1.117 *	0.897	0.929	0.894	0.923	0.885	0.921	0.897	0.930	0.906	0.921
december	1.064	1.092	1.043	1.077	0.735 ***	0.791 ***	0.726 ***	0.784 ***	0.731 ***	0.786 ***	0.731 ***	0.796 ***	0.755 ***	0.820 **
january	1.087	1.089	1.071	1.081	0.617 ***	0.691 ***	0.617 ***	0.690 ***	0.591 ***	0.661 ***	0.598 ***	0.669 ***	0.633 ***	0.681 ***
february	1.193 **	1.197 ***	1.185 **	1.191 ***	0.645 ***	0.695 ***	0.644 ***	0.693 ***	0.621 ***	0.681 ***	0.621 ***	0.692 ***	0.654 ***	0.704 ***
march	1.219 ***	1.200 ***	1.212 ***	1.195 ***	0.520 ***	0.597 ***	0.517 ***	0.592 ***	0.485 ***	0.567 ***	0.487 ***	0.572 ***	0.511 ***	0.568 ***
april	1.231 ***	1.263 ***	1.216 ***	1.253 ***	0.472 ***	0.563 ***	0.468 ***	0.559 ***	0.438 ***	0.524 ***	0.422 ***	0.519 ***	0.464 ***	0.529 ***
may	1.124 *	1.161 **	1.121	1.157 **	0.369 ***	0.455 ***	0.370 ***	0.453 ***	0.348 ***	0.433 ***	0.341 ***	0.440 ***	0.381 ***	0.452 ***
june	1.233 ***	1.247 ***	1.224 ***	1.245 ***	0.340 ***	0.430 ***	0.339 ***	0.428 ***	0.316 ***	0.402 ***	0.318 ***	0.411 ***	0.352 ***	0.419 ***
july	1.350 ***	1.355 ***	1.348 ***	1.349 ***	0.322 ***	0.409 ***	0.319 ***	0.403 ***	0.287 ***	0.369 ***	0.283 ***	0.376 ***	0.308 ***	0.383 ***
august	1.351 ***	1.343 ***	1.345 ***	1.341 ***	0.271 ***	0.354 ***	0.269 ***	0.349 ***	0.240 ***	0.317 ***	0.240 ***	0.322 ***	0.274 ***	0.343 ***
Free School Meals, % of time in school before ID														
ref=less than 20%														
20% -			0.944	0.942			0.495 ***	0.508 ***	0.827 **	0.837 **	0.809 **	0.838 **	0.813 **	0.833 **
40% -			1.021	1.025			0.478 ***	0.492 ***	0.877	0.880 *	0.886	0.873 *	0.822 **	0.840 **
60% -			1.685 ***	1.722 ***			0.757 ***	0.734 ***	1.434 ***	1.356 ***	1.424 ***	1.354 ***	1.342 ***	1.285 ***
80% - 100%			2.979 ***	2.994 ***			1.072	0.993	2.057 ***	1.900 ***	2.014 ***	1.868 ***	1.866 ***	1.736 ***

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'B' models: Odds Effects on initial higher-level 'statement' or 'education, health and care plan' identification received in years 1-4

	Model 1b: Gender, birth month & ethnicity		Model 2b: 1a factors + Free School Meals		Model 3b: 1a factors + EYFSP attainment		Model 4b: 1a factors + FSM + EYFSP		Model 5b: All child factors		Model 6b: All child & school factors		Model 7b: All child, school & LA factors	
School & LA random effects	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**
EYFSP scores														
Communication Language & Literacy														
ref=lowest decile														
2nd decile					0.465 ***	0.500 ***	0.461 ***	0.496 ***	0.430 ***	0.471 ***	0.424 ***	0.474 ***	0.494 ***	0.538 ***
3rd decile					0.368 ***	0.402 ***	0.363 ***	0.395 ***	0.323 ***	0.359 ***	0.322 ***	0.369 ***	0.427 ***	0.461 ***
4th decile					0.297 ***	0.315 ***	0.293 ***	0.310 ***	0.249 ***	0.269 ***	0.249 ***	0.277 ***	0.389 ***	0.389 ***
5th decile					0.264 ***	0.281 ***	0.259 ***	0.275 ***	0.215 ***	0.239 ***	0.211 ***	0.247 ***	0.364 ***	0.384 ***
6th decile					0.219 ***	0.228 ***	0.215 ***	0.222 ***	0.172 ***	0.183 ***	0.173 ***	0.189 ***	0.312 ***	0.302 ***
7th decile					0.243 ***	0.248 ***	0.238 ***	0.241 ***	0.183 ***	0.196 ***	0.179 ***	0.202 ***	0.345 ***	0.344 ***
8th decile					0.171 ***	0.175 ***	0.167 ***	0.170 ***	0.123 ***	0.134 ***	0.123 ***	0.139 ***	0.258 ***	0.246 ***
9th decile					0.135 ***	0.135 ***	0.132 ***	0.130 ***	0.096 ***	0.101 ***	0.097 ***	0.105 ***	0.220 ***	0.204 ***
highest decile					0.183 ***	0.188 ***	0.178 ***	0.180 ***	0.122 ***	0.132 ***	0.124 ***	0.138 ***	0.282 ***	0.266 ***
Problem-solving, Reasoning & Numeracy														
2nd decile					0.439 ***	0.503 ***	0.436 ***	0.498 ***	0.409 ***	0.470 ***	0.404 ***	0.468 ***	0.444 ***	0.497 ***
3rd decile					0.415 ***	0.476 ***	0.412 ***	0.469 ***	0.359 ***	0.414 ***	0.355 ***	0.408 ***	0.413 ***	0.462 ***
5th decile					0.442 ***	0.517 ***	0.437 ***	0.510 ***	0.380 ***	0.452 ***	0.369 ***	0.447 ***	0.429 ***	0.487 ***
6th decile					0.496 ***	0.601 ***	0.489 ***	0.589 ***	0.423 ***	0.504 ***	0.420 ***	0.498 ***	0.503 ***	0.571 ***
7th decile					0.491 ***	0.601 ***	0.483 ***	0.586 ***	0.391 ***	0.488 ***	0.382 ***	0.476 ***	0.455 ***	0.526 ***
8th decile					0.638 ***	0.811 *	0.633 ***	0.795 **	0.546 ***	0.677 ***	0.538 ***	0.673 ***	0.639 ***	0.768 **
9th decile					0.691 ***	0.862	0.678 ***	0.843	0.573 ***	0.689 ***	0.558 ***	0.666 ***	0.674 ***	0.739 **
highest decile					0.800	1.100	0.783	1.071	0.650 ***	0.856	0.640 ***	0.837	0.705 **	0.880
Personal, Social & Emotional														
2nd decile					0.277 ***	0.350 ***	0.277 ***	0.349 ***	0.275 ***	0.356 ***	0.276 ***	0.364 ***	0.326 ***	0.401 ***
3rd decile					0.155 ***	0.202 ***	0.155 ***	0.202 ***	0.148 ***	0.203 ***	0.148 ***	0.206 ***	0.202 ***	0.248 ***
4th decile					0.103 ***	0.142 ***	0.103 ***	0.142 ***	0.098 ***	0.143 ***	0.098 ***	0.147 ***	0.141 ***	0.184 ***
5th decile					0.071 ***	0.098 ***	0.070 ***	0.098 ***	0.064 ***	0.099 ***	0.065 ***	0.103 ***	0.102 ***	0.137 ***
6th decile					0.051 ***	0.073 ***	0.050 ***	0.073 ***	0.047 ***	0.074 ***	0.047 ***	0.077 ***	0.076 ***	0.103 ***
7th decile					0.036 ***	0.054 ***	0.036 ***	0.054 ***	0.032 ***	0.055 ***	0.032 ***	0.057 ***	0.055 ***	0.079 ***
8th decile					0.021 ***	0.033 ***	0.020 ***	0.032 ***	0.018 ***	0.033 ***	0.018 ***	0.034 ***	0.035 ***	0.050 ***
9th decile					0.016 ***	0.028 ***	0.016 ***	0.027 ***	0.014 ***	0.027 ***	0.014 ***	0.029 ***	0.028 ***	0.044 ***
highest decile					0.004 ***	0.008 ***	0.004 ***	0.008 ***	0.004 ***	0.008 ***	0.004 ***	0.008 ***	0.008 ***	0.013 ***
Physical Development														
2nd quintile					0.398 ***	0.470 ***	0.402 ***	0.474 ***	0.424 ***	0.502 ***	0.424 ***	0.503 ***	0.469 ***	0.545 ***
3rd quintile					0.288 ***	0.375 ***	0.292 ***	0.378 ***	0.312 ***	0.406 ***	0.300 ***	0.401 ***	0.368 ***	0.451 ***
4th quintile					0.251 ***	0.335 ***	0.254 ***	0.337 ***	0.272 ***	0.362 ***	0.262 ***	0.360 ***	0.351 ***	0.422 ***
highest quintile					0.195 ***	0.274 ***	0.198 ***	0.277 ***	0.217 ***	0.302 ***	0.214 ***	0.312 ***	0.295 ***	0.372 ***
Knowledge & Understanding of the World														
2nd sextile					0.720 ***	0.777 ***	0.721 ***	0.777 ***	0.692 ***	0.757 ***	0.684 ***	0.747 ***	0.663 ***	0.730 ***
3rd sextile					0.889 *	0.948	0.890 *	0.946	0.897 *	0.960	0.894 *	0.955	0.843 ***	0.920
4th sextile					1.248 ***	1.325 ***	1.238 ***	1.307 ***	1.225 ***	1.315 ***	1.225 **	1.312 ***	1.124 ***	1.220 ***
5th sextile					1.368 ***	1.499 ***	1.353 ***	1.473 ***	1.295 ***	1.428 ***	1.294 **	1.418 ***	1.104 ***	1.254 ***
highest sextile					1.657 *	1.893 ***	1.624 *	1.853 **	1.522	1.764 **	1.468	1.703 **	1.219 ***	1.388
Creative Development														
2nd sextile					0.601 ***	0.689 ***	0.604 ***	0.691 ***	0.587 ***	0.678 ***	0.586 ***	0.684 ***	0.574 ***	0.661 ***
3rd sextile					0.693 ***	0.785 ***	0.695 ***	0.786 ***	0.669 ***	0.767 ***	0.679 ***	0.782 ***	0.660 ***	0.740 ***
4th sextile					0.747 ***	0.875 **	0.752 ***	0.879 **	0.748 ***	0.860 **	0.768 ***	0.889 *	0.756 ***	0.834 ***
5th sextile					0.813 *	0.983	0.819 *	0.986	0.830 *	0.973	0.837	0.992	0.802 *	0.855
highest sextile					1.110	1.300	1.119	1.301	1.193	1.264	1.246	1.305	1.238	1.147

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'B' models: Odds Effects on initial higher-level 'statement' or 'education, health and care plan' identification received in years 1-4

	Model 1b: Gender, birth month & ethnicity		Model 2b: 1a factors + Free School Meals		Model 3b: 1a factors + EYFSP attainment		Model 4b: 1a factors + FSM + EYFSP		Model 5b: All child factors		Model 6b: All child & school factors		Model 7b: All child, school & LA factors	
School & LA random effects	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**
English as an Additional Language														
ref=never EAL														
Ever recorded EAL									0.568 ***	0.736 ***	0.563 ***	0.740 ***	0.646 ***	0.715 ***
Mean IDACI before ID														
ref=least deprived octile														
2nd octile									1.465 ***	1.426 ***	1.402 ***	1.351 ***	1.383 ***	1.373 ***
3rd octile									1.992 ***	1.924 ***	1.831 ***	1.775 ***	1.780 ***	1.724 ***
4th octile									2.522 ***	2.444 ***	2.263 ***	2.255 ***	2.217 ***	2.143 ***
5th octile									3.939 ***	3.587 ***	3.358 ***	3.260 ***	3.191 ***	3.004 ***
6th octile									7.797 ***	7.121 ***	6.495 ***	6.240 ***	5.939 ***	5.471 ***
7th octile									20.193 ***	14.324 ***	17.180 ***	12.190 ***	15.481 ***	11.062 ***
most deprived octile									112.572 ***	71.969 ***	84.431 ***	54.090 ***	75.998 ***	48.628 ***
Maximum IDACI before ID														
ref=least deprived decile														
2nd decile									0.866	0.829 **	0.812 **	0.791 ***	0.807 **	0.805 ***
3rd decile									0.827	0.746 ***	0.763 **	0.705 ***	0.747 **	0.732 ***
4th decile									0.745 **	0.611 ***	0.690 **	0.580 ***	0.666 ***	0.609 ***
5th decile									0.573 ***	0.460 ***	0.529 ***	0.433 ***	0.504 ***	0.480 ***
6th decile									0.467 ***	0.349 ***	0.445 ***	0.332 ***	0.442 ***	0.377 ***
7th decile									0.266 ***	0.211 ***	0.254 ***	0.206 ***	0.253 ***	0.233 ***
8th decile									0.134 ***	0.118 ***	0.122 ***	0.115 ***	0.122 ***	0.134 ***
9th decile									0.080 ***	0.070 ***	0.079 ***	0.074 ***	0.078 ***	0.094 ***
most deprived decile									0.060 ***	0.044 ***	0.068 ***	0.056 ***	0.066 ***	0.068 ***
Variability of IDACI before ID														
ref=lowest standard deviation														
2nd tercile									0.330 ***	0.415 ***	0.324 ***	0.416 ***	0.312 ***	0.394 ***
highest standard deviation									0.190 ***	0.279 ***	0.192 ***	0.286 ***	0.189 ***	0.258 ***
School moves before ID														
ref=no moves														
1 move									0.813 ***	0.921 **	0.786 ***	0.901 **	0.832 ***	0.934
2 moves									0.416 ***	0.511 ***	0.407 ***	0.508 ***	0.476 ***	0.573 ***
3 moves									0.414 ***	0.481 ***	0.367 ***	0.451 ***	0.414 ***	0.521 ***
Sickness absence rate before ID														
ref=least absent quartile														
2nd quartile									0.364 ***	0.426 ***	0.363 ***	0.426 ***	0.363 ***	0.422 ***
3rd quartile									0.238 ***	0.308 ***	0.242 ***	0.313 ***	0.245 ***	0.305 ***
most absent quartile									0.147 ***	0.217 ***	0.149 ***	0.220 ***	0.147 ***	0.204 ***
Authorised absence rate before ID														
ref=least absent quartile														
2nd quartile									1.034 ***	0.930	1.041	0.942	1.013	0.980
3rd quartile									1.609 ***	1.294 ***	1.572 ***	1.277 ***	1.491 ***	1.326 ***
most absent quartile									3.358 ***	2.327 ***	3.308 ***	2.296 ***	3.217 ***	2.515 ***
Unauthorised absence rate before ID														
ref=least absent quartile														
2nd quartile									0.316 ***	0.375 ***	0.312 ***	0.378 ***	0.310 ***	0.370 ***
3rd quartile									0.214 ***	0.271 ***	0.212 ***	0.276 ***	0.218 ***	0.274 ***
most absent quartile									0.134 ***	0.182 ***	0.131 ***	0.182 ***	0.142 ***	0.189 ***

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'B' models: Odds Effects on initial higher-level 'statement' or 'education, health and care plan' identification received in years 1-4

	Model 1b: Gender, birth month & ethnicity		Model 2b: 1a factors + Free School Meals		Model 3b: 1a factors + EYFSP attainment		Model 4b: 1a factors + FSM + EYFSP		Model 5b: All child factors		Model 6b: All child & school factors		Model 7b: All child, school & LA factors	
School & LA random effects	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**
Months looked after														
ref=never LAC														
1 - 12 m									1.155	1.182	1.188	1.226	1.074	1.173
13 - 24 m									3.434 ***	3.122 ***	3.199 ***	2.863 ***	2.928 ***	2.949 ***
25 - 72 m									4.751 ***	3.986 ***	4.818 ***	4.138 ***	3.917 ***	3.624 ***
73+ m									6.306 ***	4.456 ***	6.639 ***	4.708 ***	5.390 ***	4.379 ***
Child Protection Plans														
ref=no CPP before ID														
1 or more CPP									0.653 **	0.616 ***	0.625 **	0.614 ***	0.562 ***	0.553 ***
Type of School at ID														
ref=LA mainstream														
academy mainstream											0.255 ***	0.431 ***	0.268 ***	0.469 ***
Latest Inspection Grade at ID														
ref=good														
outstanding											1.591 ***	1.396 ***	1.498 ***	1.304 ***
requires improvement											6.157 ***	2.511 ***	5.375 ***	2.517 ***
inadequate											2.645 ***	1.561 ***	2.439 ***	1.595 ***
no grade yet											9.765 **	2.756	10.383 **	4.707 **
School FSM rate at ID														
ref=lowest tercile														
2nd tercile											1.065	0.975	1.012	0.986
highest tercile											0.913	0.829 ***	0.815 ***	0.827 ***
School SEND rate at ID														
ref=lowest septile														
2nd septile											1.793 ***	1.425 ***	1.675 ***	1.381 ***
3rd septile											3.074 ***	1.938 ***	2.735 ***	1.872 ***
4th septile											5.768 ***	2.684 ***	4.783 ***	2.638 ***
5th septile											9.363 ***	3.587 ***	7.893 ***	3.593 ***
6th septile											7.565 ***	3.453 ***	6.640 ***	3.530 ***
highest septile											8.216 ***	3.122 ***	7.044 ***	3.290 ***
School has SEND unit														
ref=no unit														
has unit											1.394 ***	1.534 ***	1.315 ***	1.384 ***
Pupil Teacher Ratio														
ref=lowest quartile														
2nd quartile											0.774 ***	0.909 **	0.782 ***	0.899 ***
3rd quartile											0.718 ***	0.843 ***	0.736 ***	0.853 ***
highest quartile											0.762 ***	0.808 ***	0.764 ***	0.819 ***

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'B' models: Odds Effects on initial higher-level 'statement' or 'education, health and care plan' identification received in years 1-4

	Model 1b: Gender, birth month & ethnicity		Model 2b: 1a factors + Free School Meals		Model 3b: 1a factors + EYFSP attainment		Model 4b: 1a factors + FSM + EYFSP		Model 5b: All child factors		Model 6b: All child & school factors		Model 7b: All child, school & LA factors	
School & LA random effects	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**	**i. Yes**	**ii. No**
LA Primary FSM rate														
ref=lowest tercile														
2nd tercile													0.728	0.713 ***
highest tercile													0.436 ***	0.571 ***
LA rate of mainstream EHCPs														
ref=lowest tercile														
2nd tercile													1.778 ***	1.576 ***
highest tercile													2.339 ***	1.899 ***
LA rate of resourced EHCPs														
ref=lowest tercile														
2nd tercile													1.166	1.162 ***
highest tercile													1.488 **	1.386 ***
LA rate of special EHCPs														
ref=lowest tercile														
2nd tercile													1.026	1.069 *
highest tercile													0.976	0.830 ***
LA rate of other EHCPs														
ref=lowest tercile														
2nd tercile													1.334	1.241 ***
highest tercile													1.324	1.199 ***
LA rate of non white british pupils														
ref=lowest quartile														
2nd quartile													1.557 **	1.255 ***
3rd quartile													2.249 ***	1.550 ***
highest quartile													3.064 ***	2.234 ***
LA primary academisataion rate														
ref=lowest quartile														
2nd quartile													0.125 ***	0.20 ***
3rd quartile													0.049 ***	0.10 ***
highest quartile													0.029 ***	0.07 ***

…'B' models table ends.

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