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English as an Additional Language, Proficiency in English and rate of progression: Pupil, school and LA variation

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About The Bell Foundation

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The Foundation works in four key areas:

- **The EAL Programme aims to improve the educational outcomes of children with English as an Additional Language in the UK to benefit the individual child and society as a whole. The Foundation works in partnership with a range of organisations across the education system to provide training and resources in order to build capacity, develop and evaluate models of good practice, and provide thought leadership.**
- **The ESOL Programme is a new pilot programme to improve outcomes for adults and young people aged 16 to 25, and migrant workers, including refugees and asylum seekers, who use English as a second or additional language. The programme will include investment in projects and partnerships which improve outcomes for ESOL learners.**
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About Unbound Philanthropy

Unbound Philanthropy is an independent private grant-making foundation that works to ensure that migrants and refugees are treated with respect and engage with their new communities. We support pragmatic, innovative and responsive approaches to immigration and immigrant integration in the United States and United Kingdom.

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1. Executive Summary

Key findings from the four reports

This report is the fourth in a series investigating the relationships between English as an Additional Language (EAL), Proficiency in English (PIE) and educational achievement at school. This research has been funded by The Bell Foundation and Unbound Philanthropy. In this section we briefly summarise the previous reports, before reporting the key findings of the current report.

Strand, Malmberg and Hall (2015)

The report used the National Pupil Database (NPD) in England to analyse trends in the number and distribution of pupils with EAL, and the relationship between EAL and educational achievement at age 5, 7, 11 and 16 years of age using the 2013 national data for all pupils. The key results were:

- The EAL population in English schools more than doubled from 7.6% in 1997 to 16.2% in 2013, totalling just over one million pupils. In 2020 the figure is even higher, now 1.62 million EAL pupils, constituting just under one-in-five (19.5%) of all pupils aged 5-16. While one-quarter of schools had <1% of pupils recorded as EAL, in around 1 in 11 schools EAL pupils constituted >50% of the pupil roll, so need was very concentrated in some schools.
- On average, EAL pupils catch up with their First Language English (FLE) peers in terms of educational achievement by age 16. At age 5, only 44% of EAL pupils had achieved a good level of development, compared with 54% of other pupils. By age 16, this gap has narrowed significantly with 58.3% of EAL pupils achieving five A*-C GCSEs including English and maths, compared with 60.9% of other pupils, and there was no EAL gap at all in the average GCSE Best 8 points score.
- There was huge variation in the educational results achieved by pupils classified as EAL. As well as risk factors generic to both EAL and FLE pupils, such as Special Educational Needs, family and neighbourhood socio-economic deprivation, gender, and season of birth, there were other risk factors for low achievement that were particularly strong among EAL pupils: certain first languages within the Black-African and White-Other ethnic groups, absence of a prior attainment score from the beginning of the key stage, and pupil mobility between schools. All these are proxies for international arrival from overseas.
- Crucially, the report concludes that the definition of EAL used in the NPD is limited because *it gives no indication of a student's Proficiency in the English language*¹. Thus, the EAL group includes both (i) new migrants arriving in England who may speak no English at all, and who may have varying levels of literacy in their previous country of origin, and (ii) second or third generation ethnic minority students who may be exposed to a language other than English as part of their cultural heritage, but use English as their everyday language and are fully fluent in it. The report concludes that Proficiency in the English language is the major factor influencing the educational achievement and the degree of support an EAL student will require, and it is low Proficiency in English that is proxied by the risk factors identified in the bullet point above.

1. "A first language other than English should be recorded where a child was exposed to the language during early development and continues to be exposed to this language in the home or in the community. If a child was exposed to more than one language (which may include English) during early development the language other than English should be recorded, irrespective of the child's proficiency in English". (DCSF, 2006, p10).

The major recommendation of the report was that the England Department for Education (DfE) should introduce a measure of pupils' Proficiency in English (PIE) so that schools can assess this within a common framework to identify and address pupils' needs. After consultation the DfE did introduce such a measure, adopting the measure used in schools in Wales since 2009², with the first nationwide collection of Proficiency in English for all EAL pupils in England in January 2017³.

Strand and Hessel (2018)

While the above data was collected by the DfE, it was not included in the NPD and was therefore not available for research. Neither was any analysis of the data undertaken by the DfE other than production of a single table (DfE, 2017)⁴. Therefore, we worked with colleagues in local authorities (LA) and schools to collect data from a large and nationally representative sample of pupils. The research collected anonymised pupil level data from the January 2017 school census data for more than 140,000 pupils attending 1,569 schools in six local authorities across England. It also collected and matched these data to the pupils' national assessment results at age 5, 7, 11 and 16. The main results were:

- EAL pupils varied widely in terms of their degree of Proficiency in English. In the context of mainstream schooling in England this was not a trivial observation. Teaching is almost entirely delivered through the medium of English language, be it texts, video or audio materials, or in classroom discussions. A group of pupils who can access this information only to a limited degree is also less likely to perform to their full potential.
- What mattered most for EAL pupils' degree of English proficiency was not their ethnicity, gender or FSM eligibility, but their age. At the end of Reception, almost three-quarters (71%) of EAL pupils are acquiring Proficiency in English (rated as New to English, Early Acquisition or Developing Competence). At the end of KS1, still almost half (49%) of EAL pupils are acquiring proficiency. At the end of KS2 this drops to under a quarter (23%) and by the end of KS4 to just one in six (15%). Put another way, by KS4 the vast majority of EAL pupils (85%) are Competent or Fluent in English, compared with 29% of EAL pupils at Reception. Thus, language support is particularly important in the early years of primary education in order to allow pupils to access the curriculum from the earliest stage.
- In later years, support may be needed for fewer pupils, but is still warranted, particularly for pupils who are new to the country. If the aspiration of the school system is to provide full access to the (English language) curriculum for all pupils, language support will still be needed for one in six EAL pupils at KS4, where 15% were judged less than 'Competent' in regard to their proficiency.
- Across all ages 5-16 and all subjects, EAL pupils with different levels of Proficiency in English varied greatly in their achievement. Indeed, PIE is central to understanding achievement and levels of need among pupils with EAL. Proficiency in English could explain 22% of the variation in EAL pupils' achievement, compared with the typical 3-4% that could be statistically explained using gender, free school meal status and ethnicity.

2. The five-level scale of Proficiency in English (PIE): A = "New to English", B = "Early Acquisition", C = "Developing Competence", D = "Competent", E = "Fluent". See Appendix A for detailed descriptors of each category.

3. The PIE measure was used in the January 2017 and 2018 school censuses, but collection of PIE was discontinued by the DfE after that point.

4. The DfE did not in fact publish any analysis of the data until March 2020 (DfE, 2020), over three years after collection.

- While EAL pupils at the New to English or the Early Acquisition stage scored below the national average, those who were Developing Competence were very close to the national average and those who were Competent or Fluent scored significantly higher than monolingual English speakers. Thus, being bilingual is not a barrier to learning; what can be a barrier to achievement is low proficiency in the language of instruction at school. Pupils need to be supported so that they can acquire the proficiency that they need to succeed.

Shortly before the report was published, the DfE announced that recording of PIE would no longer be required after January 2018. The report recommended that the DfE should reinstate the collection of PIE in the school census, and include the data on PIE in the NPD so it was available for research purposes. Furthermore, although the DfE no longer required schools to assess a child's Proficiency in English, the report strongly urged schools to continue to do so in order to identify needs and target support. This position was strongly supported by the National Association for Language Development in the Curriculum (NALDIC), the national subject association for EAL⁵, and by other organisations such as The Bell Foundation, Educational Endowment Foundation (EEF) and Education Policy Institute (EPI).

Strand and Lindorff (2020)

This report focused on two central questions for teachers, curriculum developers, administrators, and government officials alike: how long does it take for pupils New to English to acquire Proficiency in English, and for how long do pupils need special language support? This study reported on 5,453 EAL pupils who entered Reception class at age 4/5 in Wales between 2009 and 2011, tracking them over their subsequent six years in primary school. Every January the Proficiency in English (PIE) of the pupils was recorded on a five-point scale, ranging from A (New to English) through B (Early Acquisition), C (Developing Competence) to D (Competent) and E (Fluent). We asked how long does it take for a majority (i.e. at least 50%) of pupils to make any specific transition from one level to another?

- Among pupils who entered Reception at level A (New to English), over half (59%) had transitioned to level B (Early Acquisition) by Y2, taking on average 2.4 years (SD=1.4); and over half (51%) had transitioned to level C (Developing Competence) by Y4, taking on average 3.7 years (SD=1.6). However, only one-third (31%) had transitioned to level D/E (Competent/Fluent) by the end of Y6, taking an average 4.6 years.
- Overall, by the end of Y6, nearly all (96%) transitioned to B (Early Acquisition), and over three-quarters (78%) transitioned to C (Developing Competence) but only around one-third (31%) transitioned to D/E (Competent/Fluent). This indicates that the majority of pupils starting Reception class New to English will take **more than 6 years** to be rated as Competent/Fluent. This is broadly comparable to recent and methodologically-strong research from the US which estimate 4-8 years are needed to acquire academic English proficiency.
- We also followed for at least six further years a further 1,839 pupils recorded as New to English who joined their school in Y1 to Y5 rather than with a whole cohort in Reception. The estimates for these pupils were substantially the same as those reported above for pupils starting in Reception. While EAL pupils who enter school in later year groups may

5. <https://naldic.org.uk/about-naldic/activism/position-statements/dfe-proficiency-data/>

be more likely to have lower levels of PIE on entry than their age group peers, and to have lower levels of attainment in end of key stage tests (e.g. DfE, 2019), on average they should be expected to make the same rate of progress in learning English as pupils joining in Reception, given sufficient support.

- These results have significant implications for national pupil funding formulae. For example, in England the national formula currently provides targeted funding to EAL pupils for a three-year period after they join school. This might be appropriate for pupils who join school as New to English for gaining proficiency in social contexts, but it is less than half the minimum time suggested by the current data for gaining academic proficiency.
- The report also addressed a number of further findings including issues around the consistency of interpretation of the Competent/Fluent distinction, demographic factors associated with progress and the relationship between PIE and achievement in English and mathematics at age 7, 11, 14 and 16.

The current report – Key findings

The current report can be considered an extension to the previous report. Strand and Lindorff (2020) presented cross-sectional and longitudinal descriptive analyses of pupils' PIE and time taken to progress through levels of PIE. They also took an initial, descriptive look at how both PIE, and the time taken to progress through levels of PIE, related to achievement. The current report uses the same Welsh dataset and builds on those descriptive accounts to analyse PIE and time to progression, as well as their associations with achievement, in more depth using statistical modelling.

The key findings of the current report are:

- **Schools and LAs vary substantially in their assessment of PIE and in the average time pupils take to progress between PIE levels.** The judgment of PIE, and the time to progress across levels, is strongly influenced by the individual making the assessment, compared with other teacher-assessed outcomes (such as KS1 and KS2 educational achievement). The implications for policy are that criteria and definitions for proficiency must be clear and agreed nationally, high quality training in how to assess proficiency must be available, and robust moderation procedures should exist, in order to support the consistent and reliable use of a teacher-assessed PIE scale at a national level. Where such criteria and procedures are stronger, as in teacher-assessed achievement at KS1 and KS2, variation between LAs and schools is substantially lower. In particular, consistent interpretation across LAs, and clear leadership and direction for their schools, are necessary to secure a reliable assessment of pupils' PIE.
- **Proficiency in English is strongly related to levels of educational achievement at KS1 and KS2.** EAL pupils acquiring proficiency (levels A-C) on average score significantly below their English/Welsh peers, while EAL pupils Competent or Fluent (D/E) on average score significantly higher than English/Welsh speakers, in both English and mathematics and at both age 7 and age 11. This serves to reaffirm the conclusions from our earlier research that EAL is too blunt a tool to understand pupils' language learning needs, and that an assessment of a pupil's Proficiency in English (where it is the language of school instruction) is absolutely essential (e.g. Strand & Demie, 2005; Strand & Hessel, 2018).

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- **Pupils of White Other ethnic heritage on average take significantly longer to progress through levels of proficiency, and have the lowest educational achievement at KS1 and KS2, of all ethnic minority groups.** When clustering is taken in account, White Other is the only ethnic minority group that on average takes significantly longer to progress through levels of proficiency. They are also the ethnic group with the lowest educational achievement at KS1 and KS2 in our analyses. These results have important implications for targeting support, given that White Other is the largest ethnic minority group in Wales, constituting 3% of the pupil population and over one-quarter of all ethnic minority pupils (Welsh Government, 2020).
 - **We used multilevel models to control both pupil level and school level factors. After controlling for pupils' background, the proportion of pupils in a school acquiring Proficiency in English (PIE levels A-C), and therefore needing language support, had no association with levels of achievement for other pupils in the school. This was also true when we looked at the effect just on pupils whose first language was English/Welsh.** However, we note that much of our data was collected during the period up to April 2015 when the number of pupils acquiring Proficiency in English was included in formula funding for schools in Wales, and the funding was ringfenced. Since this is no longer the case, historical associations with educational achievement may change, and will need to be closely monitored in the coming years.
 - **There is a significant negative association with educational achievement in attending a school with a high proportion of pupils entitled to a FSM, over and above the effects of individual deprivation.** While this does not relate specifically to EAL pupils, it was a strong effect and so is highlighted here. It has implication for policies, such as the pupil premium, which allocate funding purely on a fixed per pupil basis, regardless of the relative proportion of such pupils attending the school. Our results suggest that to adequately take account of the effect of high concentrations of deprived pupils on achievement, there should also be a "school premium" awarded to schools with the highest proportions of pupils entitled to FSM.
 - **Secondary schools tend to recode some EAL pupils, particularly those who are fully fluent in English, as monolingual English/Welsh, suggesting some conflation of the term "EAL" with "needing language support".** We know from the previous report (Strand & Lindorff, 2020, p21) that the proportion of pupils recorded as EAL declines between Y6 (6.9%) and Y7 (6.2%). In England, this drop is even more pronounced (DfE, 2020)⁶. Our results show the likelihood of being recoded as monolingual English/Welsh in Y7 is particularly pronounced for Fluent pupils (24%) compared with just 4% of pupils at levels A/B. Technically, EAL status is defined by exposure to a language other than (or in addition to) English in the early years of life, and so should not change over time. The results suggest that a conflation of "EAL" with "needing language support" is not uncommon. This is further reason for the importance of having a record of Proficiency in English in addition to an EAL flag, as it emphasises that the two are independent dimensions.

6. DfE (2020) do not report the percentage of the cohort recorded as EAL in each year, but Strand et. al. (2015) report a drop from 17.5% recorded as EAL in Y6 to 14.5% recorded as EAL in Y7.

Further detail on the current report

Research questions

An overarching theme in this report is to investigate how robust PIE is as a measure of individual pupil's English language proficiency, and how much it might be influenced by school or LA variation in assessment practice.

Within that aim, we identify several more specific sub-questions:

- 1) How much variation is there between schools and between LAs in the time it takes pupils to progress between levels of PIE?
 - How does this variation compare with the typical variation between schools and between LAs in pupils' KS1 and KS2 attainment? Is it greater, or lesser?
 - How much variation is there between schools and between LAs in whether or not pupils progress to Competent or above by the end of primary school?
- 2) To what extent are pupil characteristics (gender, ethnicity, entitlement to a FSM and special educational needs) associated with the time it takes pupils to progress between levels of PIE?
- 3) How are KS1 and KS2 attainment related to pupils' EAL status and levels of PIE?
 - Does the composition of the school peer group, specifically the proportion of pupils still acquiring Proficiency in English (Developing Competence or below), have any additional association with outcomes, over and above pupil level variables?
 - Do native English speakers have lower educational achievement or make slower progress in schools with a high proportion of pupils Developing Competence in English? Some authors have hypothesised that this might occur if teachers' attention is necessarily focused on those pupils with language learning needs (Green, 2010; Cho, 2012)?
- 4) What happens to pupils' levels of PIE in the transition from primary to secondary school? What might this tell us about consistency in the recording of PIE?

Datasets

As noted above, the same data were used for the analyses in this report as for the interim report (Strand & Lindorff, 2020), drawn from the Welsh Pupil Level Annual School Census (PLASC) supplied by the Welsh Government. These data include information on individual pupils' PIE levels as recorded every January since 2009, as well as information on their gender, ethnic group, entitlement to a free school meal (FSM), and identified special educational needs (SEN), and their educational achievement at ages 7, 11, 14 and 16. The original dataset contained all records for pupils in Wales between the 2009 and 2017 January school censuses, inclusive, although our analyses exclude special schools who are not required to record pupils' levels of PIE. We focused in this report on the primary school years (Reception through to Y6), but also looked at the transition from primary to secondary school.

Dataset for time to progression analysis

From pupils' annual PIE we derived variables representing "time to progression" from each level of PIE to the next or higher levels (i.e. number of years from one level of PIE to another or higher, calculated only within primary school as this was the phase on which our analysis focused). We also analysed whether or not pupils reached a certain PIE threshold (e.g. Competent or above) by the end of primary school. This time to progression variable took on values from 1 to 7, which represented "1 year" through "more than 6 years". We used the same strategy as in the interim report to select the cohorts of pupils who started in Reception in 2009, 2010, or 2011 and follow them through to Y6 in 2015, 2016 or 2017 respectively. We filtered for pupils who had valid information for every year from Reception to Y6 and were attending English-medium schools only. For multilevel models, we additionally filtered out schools with fewer than three pupils in the relevant group (e.g. those starting Reception with PIE level A).

Dataset for educational achievement analysis

For the analysis of relationships with KS1 and KS2 achievement, we included pupils who were in Y2 and Y6 and filtered for only English-medium schools⁷. We computed school proportions of pupils with lower levels of PIE (from A to C) and school proportions of pupils entitled to FSM. In our analyses, these are operationalised in terms of school quintiles, from highest to lowest proportion. To ensure that school compositional variables (proportion acquiring proficiency (PIE levels A-C) and proportion entitled to a FSM) were computed reliably, we included three years' worth of data (2014-16) rather than focusing on just one year, and excluded schools with fewer than 30 pupils on roll across these years. For KS2 analyses, we also excluded any records with missing attainment at KS1. This gave us totals of over 73,000 pupil records for the KS1 analyses and approximately 62,000 for the KS2 analyses.

Dataset for primary-secondary transition analysis

We matched the records of students who were in Y6 in January 2009 to the same pupils' Y7 records in January 2010, and did the same for 2010-2011 right through to 2016-2017. We then filtered for pupils with full information on PIE in both year groups, and for those in English-medium schools. This gave us an analytic sample of 188,010 pupil records, roughly evenly split across the eight years 2009-10 through to 2016-17.

Results

School and LA variation in time to PIE progression

There was variation between LAs in the time pupils took to progress through levels of PIE (7%-15% depending on the specific transition), though it was only statistically significant for the time to transition from level A to B. Nevertheless, a small number of LAs were significant outliers in terms of transition times at multiple transitions. There was also highly significant variation between LAs (13%) in the proportion of pupils at PIE levels A-C on joining Reception class who made the transition to Competent by the end of Y6. The extent of variation between LAs is considerably higher than is observed for pupil achievement, as measured by teacher assessment of English and mathematics at the end of KS1 and KS2, where differences between LAs accounted for <1% of the variance.

7. This is because Proficiency in English would not be the major concern in school where Welsh was the language of instruction, since Welsh would be the language in which EAL pupils would need to gain proficiency in order to access the curriculum. However, the proportion of EAL pupils in Welsh-medium schools is very small, 2.5% in primary and 0.3% in secondary.

The results suggest there are significant differences between LAs in the approach to assessment of PIE. Cardiff and Newport, for example, contain 60% of all the EAL pupils in Wales, and are geographically adjacent, yet they appear to have very different approaches to assessing PIE. For example, in Newport only 7% of EAL pupils in Reception classes are rated as Fluent, compared with 37% in Cardiff. Such variations are too large to be random, and it is likely they reflect policy differences in approaches to recording PIE in different LAs (as described further in Section 3).

The issue is also reflected in substantial and highly statistically significant variation between schools, ranging from 23-65% depending on the specific PIE transition. There was also considerable school variation (21%) in the proportion of pupils who ever progress to Competent or above by the end of Y6. This was again considerably greater than the variation between schools in pupil achievement based on KS1 and KS2 teacher assessment levels (6-8%).

It appears that variation in time to progression is strongly influenced by the individual making the assessment of PIE. The implication for policy is that agreed criteria and definitions for proficiency, clarity in how it should be assessed, high quality training in the assessment process, and the existence of robust moderation procedures, are key to consistency in the reliable use of a teacher assessed PIE scale. Where such criteria and procedures exist, as in end of KS1 and KS2 teacher assessment of achievement, variation between LAs and schools is substantially lower. We conclude that consistent interpretation across LAs, and clear leadership and direction for their schools, are necessary to secure a consistent and reliable assessment of pupils' PIE.

Association between time to PIE progression and pupil characteristics

Results from basic linear regression models, focusing on progression from Level A in Reception to higher levels of PIE by the end of primary school, indicated that most pupil characteristics were not strongly predictive of time to progression. Pakistani pupils did have longer progression times than the Any Other ethnic group reference category (which included White British), but this was at least in part due to the high concentration of Pakistani pupils in LAs (Newport and Cardiff) where progression times were longer in general. Boys, pupils entitled to FSM, and pupils identified as having SEN tended to take significantly longer to progress through levels of PIE, by anything between 3-6 months depending on the particular transition.

After accounting for the clustering of pupils in schools using multilevel regression modelling, only the White Other ethnic group was associated with longer progression times compared to Any Other ethnicity, by approximately 3-7 months depending on the particular transition. Boys had longer progression times than girls, by 2-5 months depending on the particular transition. The associations between SEN and time to progression remained similar, but the effect of entitlement to FSM was no longer statistically significant. These results reflect the fact that some ethnic minority groups and pupils entitled to FSM tend to be clustered within schools and LAs with somewhat longer progression times for all pupils.

Relationships between pupil PIE, and school proportions of pupils with low levels of PIE, and educational achievement

Individual pupils' PIE was significantly associated with KS1 and KS2 English and mathematics achievement. EAL pupils acquiring proficiency (levels A-C) on average had significantly lower achievement than pupils whose first language was English/Welsh, while EAL pupils who were Competent/Fluent (levels D-E) on average had significantly higher achievement than those

with first language English/Welsh. This re-affirms the conclusions from our earlier work (Strand & Demie, 2005; Strand & Hessel, 2018) and that of the DfE (2020).

Other pupil characteristics explained substantial proportions of the variation in KS1 and KS2 achievement in both English and mathematics. Pupils from Indian and Asian Other/Mixed White & Asian ethnicity on average had higher achievement, while pupils from White Other groups had lower achievement, than the Any Other reference group (which included White British). Being a boy, entitled to a FSM, and having identified SEN were associated with lower achievement at both KS1 and KS2.

Our previous research (Strand et al., 2015) found no evidence that the proportion of pupils with EAL in a school had any association, positive or negative, with pupil achievement, either overall or specifically on native English speakers, after controlling for pupil level characteristics. However, a measure of Proficiency in English was not available in that study. It could be argued, therefore, that it was not able to test the specific proposition that a high proportion of pupils *not proficient in English* might have a negative association with achievement for other pupils in the school. In this study we were able to evaluate this question using the proportion of pupils in the school acquiring Proficiency in English (PIE levels A-C) and it was not associated with any of the educational achievement outcomes, for other pupils in the school, either at KS1 or at KS2, after control for pupil level characteristics. We also tested for any interaction between individual pupil PIE and school proportion of pupils with PIE A-C, and there was no substantive effect. There is, therefore, no evidence that being in a school with a high proportion of pupils acquiring Proficiency in English had any negative association with achievement for other pupils in the school, either in terms of overall pupil achievement or specifically for pupils with first language English/Welsh.

In contrast, the proportion of pupils in a school eligible for FSM was associated with all achievement outcomes. Including this in models explained 6%-11% additional variation in achievement at the school level, which was highly significant. Being in schools in the highest three quintiles of school proportion entitled to FSM was associated with lower achievement, even after controlling for individual FSM entitlement. The effect size was 0.20 levels, or around 5 National Curriculum months⁸, compared with being in a low deprivation school. This has been known for some time (e.g. see Strand, 1997; 1999) but the implications for pupil-led deprivation funding, such as the pupil premium, have not been followed through. Policies that allocate funding solely on a fixed per pupil basis, regardless of the number of such pupils attending a school, may not adequately take account of the effect of concentrated deprivation in a school.

PIE in the transition from primary to secondary school

Descriptive analysis of pupils' levels of PIE in the transition from primary to secondary school (Y6 to Y7) showed that reassessment by the secondary school was occurring. Indeed 70% of secondary schools reclassified at least 5% of the EAL pupils in their intakes. Most pupils remained at the same level of PIE, with a smaller proportion shifting to one level of PIE higher in Y7 than they had in Y6. One notable finding was that pupils assessed as Fluent in Y6 were much more likely than others not to be assessed as having EAL in Y7, with 24% of Fluent EAL pupils reclassified as first language English/Welsh compared with 4% of pupils at Levels A or B. This may have been an intentional decision on the part of the secondary school if these pupils were no longer seen as having language support needs, and may account for the overall reduction between Y6 and Y7 in the percentage of pupils recorded as EAL (from 6.9% to 6.2%).

8. Teacher Assessment in Wales is recorded in National Curriculum (NC) levels. These are awarded with the expectation that the typical level at age 7 is level 2, at age 9 level 3, at age 11 level 4 and at age 14 level 5/6. Therefore, a NC level represents two years (24 months) of progress.

2. Methods

Research questions (RQ)

Building on the results from earlier reports (Strand et al., 2015; Strand & Hessel, 2018; Strand & Lindorff, 2020), this report aims to answer the following questions:

- 1) How much variation is there between schools and between LAs in the time it takes pupils to progress between levels of PIE?
 - a. How does this variation compare with the typical variation between schools and between LAs in pupils' KS1 and KS2 attainment? Is it greater, or lesser?
 - b. How much variation is there between schools and between LAs in whether or not pupils progress from New to English to Competent or above?
- 2) To what extent do pupil background characteristics predict the time it takes pupils to progress between levels of PIE?
- 3) How are KS1 and KS2 attainment related to pupils' EAL status and levels of PIE?
 - a. Does the composition of the school peer group – specifically the proportion of pupils with EAL, or the proportion of pupils still acquiring Proficiency in English (Developing Competence or below) – have any additional association with outcomes?
 - b. Is there any interaction between pupils' levels of PIE and school proportions of pupils with lower levels of PIE?
- 4) What happens to pupils' levels of PIE in the transition from primary to secondary school?

All of the above tie into underlying questions about how reliable PIE is as a measure of individual proficiency versus a measure of school or LA variations in practice.

Data and filtering

As in the interim report for the same project, we used the Pupil Level Annual School Census (PLASC) data from Wales from 2009-2017 inclusive.

Information on each pupil included:

- Pupil identifier (anonymised)
- School identifier
- Local Authority (LA) for the 22 LAs in Wales
- LA Consortium (for the four LA consortia in Wales)
- Year of January School Census (2009-2017)
- Ethnic group (19 categories, subsequently recoded to eight, see p19)
- Eligibility for a Free School Meal (FSM)
- Year group (Nursery 1 through to Year 11)
- Stage of Special Educational Needs (SEN): None, School Action (SA), School Action Plus (SAP) or Statemented
- First language

- English as an Additional Language (EAL): A flag recorded where the first language was other than English or Welsh
- Proficiency in English: Recorded for EAL pupils at five levels: A = New to English, B = Early Acquisition; C = Developing Competence; D = Competent; E = Fluent (see Appendix A for full details)

There was generally no missing information in our analytic samples on pupil demographic characteristics (ethnic group, gender, FSM, SEN). Where possible, any “unknown” ethnicity (e.g. in Reception) was imputed from the following year (i.e. Y1).

Information on each school included:

- School language medium (English, Welsh, Other)
- Proportion of pupils with EAL
- Proportion of pupils acquiring competence in English (levels A to C)
- Proportion of pupils entitled to FSM
- School size (based on the number of pupils enrolled)

We aggregated these school measures over three years (2014, 2015 and 2016) to ensure more reliable calculations of proportions of students (e.g. with PIE at or below level C).

We also derived variables including “time to progression” (i.e. number of years from one level of PIE to another or higher, calculated only within primary school as this was the phase on which our analysis focused) and whether or not pupils reached a certain PIE threshold (e.g. Competent or above) by the end of primary school. We used the same strategy as in the interim report to match cohorts of pupils who started in Reception in 2009, 2010, or 2011 and tracked them up to Y6 in 2015, 2016 or 2017 respectively.

For the analytic sample for our main analyses, we filtered for pupils who had valid information for each year from Reception to Y6 to allow us to accurately track their progression from one level of PIE to another. We also filtered for pupils in English-medium schools, as levels of PIE in the PLASC data might actually be used for Proficiency in Welsh in Welsh-medium settings. Table 1 provides the numbers of pupils in our analytic sample starting from each level of PIE in Reception.

Table 1: Pupil and school counts in regression analyses of the longitudinal cohort (pupils starting in Reception 2009-2011)

PIE level in Reception	Single level regressions		Multilevel regressions	
	N pupils	N schools	N pupils	N schools
A	2,074	384	1,771	151
B	935	280	690	89
C	483	190	300	47
D	293	132	157	23

Note: These counts include only non-duplicate pupil records with full information on Proficiency in English from Reception (in 2009, 2010, or 2011) through Y6, inclusive, who were in English medium schools as of Y6. For the Multilevel models, also includes only pupils in schools with at least three pupils in the relevant group (e.g. those who started with A in Reception).

For multilevel analyses of the same cohort data, we additionally filtered for schools with at least three pupils in the target group for a particular analysis. So, for example, when modelling time to progression from A (New to English) in Reception, we filtered for pupils in schools with at least three pupils at PIE Level A in Reception. We used the last school record, that is the school on record when a pupil was in Y6, to define school membership.

For multilevel analyses of the relationships between PIE and KS1 and KS2 attainment, we took a cross-sectional approach, focusing on KS1 and KS2 results from 2014, 2015 and 2016. These years were chosen because 2016 was the most recent year of interest available to us in the dataset, given some of our concerns about the completeness of 2017 data. We also included 2014 and 2015 to increase the analytic school sample size for schools that had very small numbers of pupils within a single year. We filtered for non-duplicate records and only those pupils in English-medium schools, but here we included both EAL and non-EAL pupils to enable comparisons. We included pupils with full information including the relevant Key Stage teacher assessment (English or maths) result in 2014, 2015 or 2016, schools with 30 or more pupils on roll across the years 2014, 2015 and 2016 (to ensure reliable estimates of school-level variables involving proportions of pupils), and full information on relevant demographic background variables (including ethnic group, FSM, gender and SEN, there was no missing information on any of these pupil variables after the other filters had been applied). Finally, for KS2 models, we included only records with a valid prior attainment (KS1) teacher assessment result in English and/or maths. Table 2 provides the numbers of pupils and schools in the analytic sample by Key Stage and subject area.

Table 2: Pupil and school counts in multilevel analyses of KS1 and KS2 attainment (2014-2016)

Key Stage	Outcome of interest	N pupils	N schools
1	English	73,209	775
	Maths	73,210	775
	Combined (English + maths)	73,181	774
2	English	69,337	761
	English (with prior attainment)	61,634	761
	Maths	69,336	761
	Maths (with prior attainment)	62,431	761
	Combined (English + maths)	69,339	761
	Combined (English + maths; with prior attainment)	62,434	761

Note: These counts include only non-duplicate records of pupils in English-medium schools with at least 30 pupils on roll across 2014, 2015 and 2016, with full information on Proficiency in English, pupil demographic information, prior attainment (where relevant), and relevant Key Stage teacher assessment outcome in 2014, 2015 and 2016.

For the analysis of the transition from primary to secondary school, we matched the records of students who were in Y6 in 2009 through 2016 to the same pupils' Y7 records in 2010 through 2017. We then filtered for pupils with full information on PIE in both year groups, and for those in English-medium schools. Typically, there were around 23,000 pupils in each tracked Y6-Y7 group, and over the eight tracked Y6-Y7 groups, 188,010 pupils were included.

Approach to analysis

In order to investigate the variation between schools and LAs in the time taken to progress through levels of PIE, we used multilevel regression. Empty models (with no independent variables) allowed us to calculate Variance Partition Coefficients (VPCs), which represent the proportion of total variation in an outcome at a particular level (e.g. between schools or between LAs). We treated the time to progression (in primary school) variable as continuous, although this was something of an approximation by necessity. The time to progression variable was calculated in years (1 through 6 or more than 6, with more than 6 years coded 7). As a robustness check, we also estimated analogous ordinal models, and although these did not always meet proportional odds assumptions the substantive conclusions were broadly similar.

We also explored variation between schools and LAs in terms of whether or not pupils ever progressed to Competent or above within primary school if they started in Reception with lower levels of PIE (A-C, New to English, Early Acquisition, or Developing Competence). For this analysis, we used binary logistic multilevel models.

For ordinal and binary logistic multilevel models, we computed VPCs using the latent approach proposed by Goldstein, Browne & Rasbash (2002). In such models, pupil variance is always rescaled so that this can be represented by $\pi^2/3$ in VPC calculations for models using a logit link. Variance cannot be compared directly across these models because of this rescaling, but VPCs give some indication of the proportion of variation at higher levels (e.g. school).

To understand how pupil demographic characteristics (gender, ethnic group, entitlement to a FSM and SEN identification) were associated with time to progression, we first ran basic multiple linear regression models with time to progression as the outcome and pupil demographic characteristics as predictors. Multilevel models were also extended to include these same variables as predictors. We further explored the effects of being in the largest LAs including urban centres (Swansea, Newport and Cardiff, compared with all other LAs as the reference group) by including indicators for these LAs as predictors in multilevel models. This was based on findings from the interim report (Strand & Lindorff, 2020) that raised questions about whether practice might differ between these and other, smaller LAs. Variables were entered hierarchically in blocks (demographic characteristics and then LA fixed effects). For all of these analyses, we focused on time to progression for pupils who started as New to English (i.e. level A) in Reception, because sample sizes for the transitions between other levels of PIE were too low to provide reliable estimates.

Because some ethnic groups had very small numbers of pupils, this variable caused some analytic problems with small counts and empty cells. As a result, we recoded the original 19 categories into eight as follows:

- White Other groups (Irish Traveller, Gypsy/Roma Traveller, White Other)
- Black (African, Caribbean, Other and mixed White and Black heritage)
- Indian
- Pakistani
- Bangladeshi
- Asian Mixed Heritage or Other Asian groups
- Chinese
- Any Other (used as the reference group, includes White British)

To investigate variation in KS1 and KS2 teacher assessment results (in English, mathematics, and total English plus mathematics) and the relationship between these results and PIE, we again used multilevel regression. We treated teacher assessment outcomes as continuous, which is something of an approximation as these might also be considered to be ordinal (but with a sufficient number of scale points to allow us to treat these as roughly continuous). Pupils' characteristics, and for KS2 models also prior attainment at KS1, were controlled.

We extended these models to investigate the effects of school variables including the proportion of pupils with PIE below Competent (A-C) and the proportion of pupils with FSM. We further explored whether there was any interaction between the proportion of pupils in a school acquiring English (PIE A-C) and individual pupil PIE, to determine if any compositional effects were consistent for both pupils with EAL and those with First Language English/Welsh. Variables were entered hierarchically in blocks (pupil PIE, demographic characteristics, school variables, and interactions).

All of the above analyses up to this point focused specifically on pupils in primary school. In order to understand more about PIE in the transition from primary to secondary school, we took a descriptive approach, looking at cross-tabulations of pupils' levels of PIE in Y6 and Y7. We did this over the largest possible time span, for each year in the available data (i.e. for pupils moving from Y6 to Y7 in 2009-2010 through to those moving between Y6 and Y7 in 2016-2017).



3. Time to progression and school and LA variation

Average time to progress across levels

Table 3 shows the variance components and variance partition coefficients (proportion of total variation in a given time-to-progression outcome) at the pupil, school and LA (where relevant) levels in multilevel models. From these results, it is apparent that in general the variation at the LA level is relatively low, though it is statistically significant for the progression from New to English to Early Acquisition.

Variance at the school level, on the other hand, was consistently statistically significant for all progression times, regardless of the level of PIE at which pupils started in Reception. Focusing on the results from 2-level models (students within schools) because of the non-significant LA variation, we found that anywhere from 23% (for progression from A to C) to 43% (for progression from C to E) of the total variation in time to progression lay between schools.

Table 3: School and LA variation in time to PIE progression in primary school (based on cohort starting Reception in 2009-2011)

Progression from → to?	Model (levels)	Pupil var.	School var.	LA var.	Pupil VPC	School VPC	LA VPC
A → B+	2	1.66 ***	0.62 ***	--	0.727	0.273	--
	3	1.67 ***	0.33 ***	0.36 *	0.706	0.140	0.154
A → C+	2	2.80 ***	0.86 ***	--	0.766	0.234	--
	3	2.80 ***	0.69 ***	0.28	0.742	0.182	0.075
A → D+	2	1.20 ***	0.65 ***	--	0.650	0.350	--
	3	1.20 ***	0.47 ***	0.35	0.595	0.234	0.171
A → E	2	0.47 ***	0.16 ***	--	0.746	0.254	--
	3	0.48 ***	0.14 ***	0.04	0.724	0.209	0.067
B → C+	2	2.84 ***	0.99 ***	--	0.742	0.258	--
	3	2.84 ***	0.62 ***	0.65	0.691	0.151	0.158
B → D+	2	2.17 ***	0.93 ***	--	0.699	0.301	--
	3	2.17 ***	0.66 ***	0.41	0.668	0.204	0.127
B → E	2	0.82 ***	0.41 ***	--	0.669	0.331	--
	3	0.82 ***	0.39 ***	0.02	0.666	0.320	0.014
C → D+	2	2.89 ***	2.20 ***	--	0.567	0.433	--
	3	2.89 ***	1.79 **	0.87	0.521	0.322	0.157
C → E	2	1.83 ***	1.00 ***	--	0.646	0.354	--
	3	1.83 ***	1.00 ***	0.00 †	0.646	0.354	0.00 †
D → E	2	1.08 ***	2.03 **	--	0.348	0.652	--
	3	Model could not be estimated --consequence of small sample size					

Note: The above estimates are from models treating the outcome (time to progression) as continuous. VPC=Variance Partition Coefficient, interpreted as the proportion of total variation in time to progression that lies between schools or LAs. Var.=Variance. * indicates variance components significant at the level of $p<0.05$, ** at the level of $p<0.01$, *** at the level of $p<0.001$. †= Parameter was redundant; could not be calculated.

For progression from Competent to Fluent, even more of the total variation lay between schools (65%), though the result needs to be interpreted with caution because it is based on quite a small sample size (157 pupils in only 23 schools).

There are four formal education consortia in Wales covering: North Wales; South West and Mid Wales; Central South Wales; and South East Wales. The mapping of the 22 LAs into consortia can be seen in Welsh Government (2020). The consortia are not a strong level in terms of the organisation of EAL services (Anon, 2019, personal communication). Also, consortia average strongly reflect particular LAs. For example, of the five LAs in the Central South, Cardiff alone accounts for 78% of the EAL pupils, and of the five LAs in the South East, Newport accounts for 78% of the EAL pupils (Welsh Government, 2020). Nevertheless, for completeness we report below variation in time to PIE progression between consortia.

Table 4 shows there is considerable variation between consortia in terms of the time to progress through PIE levels, particularly for progression from one level to the next or higher (e.g. A to B, or B to C). The differences in means appear smaller for larger steps (e.g. A to D+) but this is largely a ceiling effect because nearly two-thirds of pupils did not make the transition to Competent or above by the end of primary school, and are therefore all allocated a time of 7 years⁹. We see in the next section, looking instead at the percentage of Reception pupils who make the transition to Competent by the end of primary school, that there is significant variation between consortia.

Table 4: Time to PIE progression by consortium (descriptive; based on the aggregated cohort starting Reception in 2009, 2010 and 2011)

Progression from → to?	Consortium											
	North			SW & Mid-Wales			Central South			South East		
	N	M	SD	N	M	SD	N	M	SD	N	M	SD
A → B+	234	2.11	1.36	366	1.81	1.22	950	2.45	1.46	524	3.46	1.76
A → C+	234	4.21	1.66	366	3.91	1.84	950	4.55	2.03	524	4.68	1.80
A → D+	234	6.22	1.26	366	5.98	1.53	950	6.27	1.40	524	6.47	1.29
A → E	234	6.91	0.42	366	6.67	0.93	950	6.76	0.90	524	6.83	0.75
B → C+	85	2.72	1.48	219	3.15	1.79	534	3.33	1.98	97	4.73	2.16
B → D+	85	5.38	1.65	219	5.46	1.85	534	5.56	1.85	97	5.97	1.72
B → E	85	6.74	0.82	219	6.29	1.40	534	6.51	1.26	97	6.56	1.36
C → D+	18	4.22	2.41	87	3.76	2.23	344	4.99	2.14	34	5.21	2.27
C → E	18	5.44	2.09	87	5.28	2.04	344	6.29	1.61	34	6.56	1.26
D → E	5	6.00	1.73	58	4.47	2.40	138	5.62	2.16	92	6.75	1.07

Note: N=Count, M=mean, SD=standard deviation.

9. We calculated time to progression *within primary school*, which meant that there was a ceiling of “more than 6 years” to progress, coded as 7. For larger gaps between levels of PIE, mean progression time is increasingly weighted by a larger number of 7s for pupils who did not progress to the higher level in question within primary school.

Whether pupils acquiring proficiency in Reception class are ever rated as Competent/Fluent by the end of primary school

There was also substantial variation between schools and LAs in terms of whether pupils at lower levels of PIE in Reception (any of New to English, Early Acquisition or Developing Competence) ever progressed to Competent/Fluent by the end of primary school. When clustering of students in schools and in LAs was accounted for, 21.3% of this variation lay between schools and 12.6% between LAs (Table 5). This suggests that some schools and LAs may be less likely to assess pupils as being Competent or Fluent, although we cannot say conclusively from the data whether this is an issue of approach to assessment or to other contextual factors.

Table 5: School and LA variation in whether or not pupils progressed to Competent or above in Primary school (based on cohort starting Reception in 2009-2011 with PIE levels A-C)

Progression	Model (levels)	School var.	LA var.	School VPC	LA VPC
A/B/C → D/E	2	1.51 ***	--	0.314	--
	3	1.06 ***	0.63 *	0.213	0.126

Note: The above estimates are from models with a binary outcome (progressed to Competent or above by Y6). VPC=Variance Partition Coefficient, interpreted as the proportion of total variation in time to progression that lies between schools or LAs. Var.=Variance. * indicates variance components significant at the level of $p<0.05$, ** at the level of $p<0.01$, *** at the level of $p<0.001$. Analytic sample includes only pupils who started in Reception in 2009, 2010 or 2011 with PIE=A to C, and who had valid records of PIE in Y6.

There was some variation between consortia in the proportion of pupils progressing to Competent/Fluent by the end of primary school (Table 6), based on those pupils who began in Reception at PIE levels A-C. One consortium had less than one-quarter (22%) of its pupils identified as progressing to Competent/Fluent by Y6, while in the other three consortia this proportion ranged from 39%-50% of pupils.

Table 6: Whether or not pupils progressed to Competent or above by Y6 (if starting Reception at levels A-C) by consortium

		N	Proportion progressing to D/E by Y6
Consortium	North	304	0.46
	SW & Mid-Wales	616	0.50
	Central South	1,825	0.39
	South East	620	0.22
Total		3,365	0.38

Note: N=Count, M=mean. Only pupils with valid records of PIE (A, B or C) in R (in 2009/2010/2011) and valid records of PIE in Y6 are included. An additional 185 pupils who had PIE=A, B or C in R were recorded as English/Welsh speakers in Y6.

Comparison to school/LA variation in educational achievement

The above figures relate to progression across levels, but there is also a high proportion in variation between schools/LAs in the assessment of PIE levels themselves. Table 7 presents the variation at pupil, school and LA level from multilevel models of PIE assessments at KS1 and KS2 in 2016. We see that at KS1 about 15% of the variance in PIE level lies between schools, and at KS2 18% lies between schools.

Table 7: School and LA variation in PIE levels in Y2 (KS1) and Y6 (KS2)

Key Stage	Model (levels)	Pupil var.	School var.	LA var.	Pupil VPC	School VPC	LA VPC
1	2	0.53 ***	0.09 ***	--	0.853	0.147	--
	3	0.53 ***	0.06 ***	0.02 **	0.869	0.092	0.039
2	2	0.71 ***	0.15 ***	--	0.822	0.178	--
	3	0.71 ***	0.10 ***	0.03 **	0.838	0.121	0.041

Note: Outcome is PIE status in Y2 (KS1) or Y6 (KS2). Models are based on the same analytic samples for KS1 and KS2 as multilevel models with KS1 and KS2 teacher assessment levels as outcomes.

We can compare these results for the teacher-assessed PIE to the variation at the school and LA levels in other teacher-assessed educational outcomes, for example educational achievement at KS1 and KS2, to provide an indication of the practical meanings of these percentages. Based on the results in Section 5 of this report (see Table 11), there is considerably more variation at the school level in time to progression than there is in teacher-assessed pupil achievement. Approximately 23-65% of the variation in time to progression is between schools (depending upon the specific levels of PIE) compared with just 6-8% of the variance being between schools for KS1 and KS2 educational achievement. Equally, variation between LAs in time to progression, at 6-15%, compares with just 1% between LAs in terms of pupil achievement.

Conclusion

The results suggest there are significant differences between LAs in the approach to assessment of PIE. For example, Table 8 shows that Cardiff and Newport have the highest concentrations of EAL pupils of all LAs in Wales; between them they contain 60% of all the EAL pupils in Wales in our cohort. They are also geographically adjacent, sharing a border. Yet despite these similarities they appear to have very different approaches to assessing PIE. For example, in Newport only 7% of EAL pupils in Reception classes are rated as Fluent, compared to 16% in Swansea, 28% in all other LAs and 37% in Cardiff. These variations are too large to be random, and it is likely they reflect policy differences in approaches to recording PIE in different LAs.

Table 8: Ratings of Proficiency in English during Reception year for the cohorts starting Reception in 2009-2011

Reception cohort 2009-2011 (n=90,476)							
LA	EAL	%EAL	A	B	C	D	E
Cardiff	2,589	26.0	31.6	16.7	10.5	4.1	37.1
Newport	677	14.9	70.8	10.0	2.1	10.0	7.1
Swansea	510	7.3	44.5	25.9	8.6	5.3	15.7
Other LAs	1,677	2.4	35.0	20.3	9.6	7.2	27.9
Total	5,453	6.0	38.7	17.8	9.0	5.9	28.5

We know that different approaches to recording PIE do exist. For example, the PIE guidance in Wales, also adopted in England 2017-2019 (See Appendix A), suggests a comparative approach, where an EAL pupil is recorded as Fluent when they “can operate across the curriculum to a level of competence equivalent to that of a pupil who uses English as his/her first language” (Education Directorate, 2016). However, the Northern Association of Support Services for Equality and Achievement (NASSEA) has a different recording system. Their guidance on the equivalence of their nine-step recording system to the A-E proficiency levels states that EAL pupils cannot be recorded any higher than level C (Developing Competence) in Reception, and cannot be recorded as Fluent until at least KS3/4. In other words, their system precludes an EAL pupil being recorded as Fluent until at least age 11/12. The stated justification is: “*This is intended to remind teachers that EAL learners may continue to need support*” (NASSEA, 2016). However, this approach locks in low expectations for pupils with an EAL heritage in primary school, who are denied the possibility of being as proficient in English as their monolingual English peers¹⁰.

Whatever the origin, it is apparent that schools in Newport are more “conservative” in allocating EAL pupils to the higher levels of PIE. This may be why Newport is also an outlier in having significantly longer time to progression to higher PIE levels than other LAs, as will be discussed in more detail in Section 4.

We conclude that ratings of PIE, and of time to progression, vary relatively strongly between different individuals making the assessment. The implication is that criteria and definitions of levels need to be agreed by relevant professionals and experts, training and support must be provided so that these are clearly communicated to practitioners, and robust moderation procedures need to be in place, in order to have consistent and reliable use of a teacher assessed PIE scale.

10. In making their choices, schools should note that the All Wales Minority Ethnic Achievement Local Authorities (MEALA) Group recommend The Bell Foundation's assessment tool which is free to use for schools (see notes to slide 7 in their training pack here).

4. Time to progression and pupil characteristics

Basic regression models

Our descriptive analyses in the interim report asked whether there were any systematic associations between pupil background factors (gender, ethnicity, entitlement to FSM and identified SEN) and time to transition across PIE levels, based on the cohort starting at Level A in Reception. These analyses seemed to indicate the Pakistani pupils took longer to progress to higher levels of PIE than other ethnic groups (see Strand & Lindorff, 2020, p52-56). However, the analyses were descriptive for each of the four variables in isolation, so we were unable to say whether this might have reflected higher levels of entitlement to FSM or higher levels of SEN among Pakistani pupils compared with other ethnic groups. Table 9 presents the results of a multiple regression model exploring whether there are any systematic associations between pupil background factors (gender, ethnicity, entitlement to FSM, identified SEN) and time to transition across PIE levels, while controlling for all factors simultaneously.

Table 9: Time to progression from New to English in Reception (in 2009, 2010 and 2011): Basic linear regression results

Outcome: Time to progression	A → B+			A → C+			A → D+			A → E+		
	b	SE	β	b	SE	β	b	SE	β	b	SE	β
Intercept	2.40	0.09	***	3.98	0.11	***	6.04	0.08	***	6.76	0.05	***
Ethnic group												
White Other	-0.09	0.10	-0.02	0.19	0.13	0.04	0.05	0.09	0.01	-0.02	0.06	-0.01
Black (including Mixed)	-0.12	0.13	-0.02	-0.03	0.16	0.00	-0.11	0.12	-0.02	-0.23	0.07	-0.08 **
Indian	-0.26	0.17	-0.04	-0.32	0.20	-0.04	-0.19	0.15	-0.03	-0.05	0.09	-0.01
Pakistani	0.60	0.12	0.14 ***	0.51	0.14	0.10 ***	0.38	0.10	0.10 ***	0.10	0.06	0.04
Bangladeshi	-0.12	0.11	-0.03	0.14	0.13	0.03	0.29	0.10	0.08 **	0.06	0.06	0.03
Asian Mixed/Other	-0.49	0.18	-0.06 **	-0.36	0.22	-0.04	-0.03	0.16	0.00	-0.01	0.10	0.00
Chinese	-0.36	0.23	-0.03	-0.52	0.28	-0.04	-0.11	0.21	-0.01	0.03	0.12	0.00
FSM (Eligible)	0.18	0.10	0.04	0.35	0.12	0.07 **	0.24	0.08	0.07 **	0.12	0.05	0.06 *
Gender (Boy)	0.09	0.07	0.03	0.42	0.08	0.11 ***	0.09	0.06	0.03	0.00	0.04	0.00
SEN (Identified)	0.51	0.09	0.12 ***	0.43	0.11	0.08 ***	0.24	0.08	0.06 **	0.04	0.05	0.02
Variance explained (R ²)	0.05			0.04			0.03			0.01		

Note: Time to progression is treated as continuous. R² reflects variance explained. Unstandardised coefficients (b), their standard errors (SE b), and standardised coefficients (units=years) are reported. * p<0.05 ** p<0.01 *** p<0.001.

The results indicate that there were very few systematic associations between pupil demographics and time to progression. The model R² values, representing the proportion of variance explained by all pupil characteristics in conjunction, are very low (never higher than 5%), indicating only a very weak overall relationship. Most of the individual variables were either not at all associated, or inconsistently associated, with time to progression.

Pakistani pupils, however, did appear to take significantly longer to progress to stage B, C and D/E, even after controlling for gender, FSM and SEN. Expressed in months, rather than decimal years, the coefficients indicate Pakistani pupils took approximately 7, 6 and 5 months longer to progress to Early Acquisition, Developing Competence and Competent, respectively, than their peers in the Any Other reference group. However, the reason for this is likely to be due to Pakistani pupils being highly concentrated in Newport and Cardiff, LAs that have longer average transition times in general, particularly in Newport (see Appendix B). We return to this point in the multilevel model section below. Some other ethnic groups had significant associations with time to progression, but only to a particular level of PIE. None of the associations were significant for time to progression across multiple levels of PIE, so little weight should be placed on them.

In terms of the other pupil characteristics, pupils identified with SEN took significantly longer than their peers without SEN to progress from New to English to stages B, C and D (approximately 6, 5 and 3 months longer, respectively). This was not as clear from the relevant descriptive results (Strand & Lindorff, 2020, p55), underscoring the importance of investigating demographic variables together via statistical modelling as we have done in this report. A pupil's entitlement to FSM was not significantly associated with time to progression to level B, but was significantly associated with progression to levels C, D and E, with pupils entitled to FSM taking longer than their peers without FSM (approximately 4, 3 and 1 month longer, respectively). Being a boy was significantly associated only with progression to level C, with boys taking approximately 5 months longer than girls on average.

Multilevel regression models

We accounted for the clustering of pupils in schools and LAs using multilevel (ML) regression. The results are presented in Table 10. In the ML models, Pakistani pupils no longer differ from the Any Other ethnic group in their time to progression; in fact, the only ethnic group with a significant association to progression times was White Other, who took approximately 2, 7 and 4 months longer to progress from A to C, D and E respectively, compared with the reference Any Other ethnic group. This supports our hypothesis that Pakistani pupils are grouped within LAs where pupils generally take longer to progress, and indeed explicitly adding fixed coefficients for the three large LAs (model 2) showed much longer progression times in these LAs, particularly in Newport¹¹.

Regarding the other pupil characteristics, the association between SEN identification and progression time remained similar to the results from basic linear regression models, as did the result that being a boy was significantly associated with longer times to progression than girls. The coefficient for FSM was in the same direction as previously, though no longer statistically significant, suggesting again that some of the slow progress by pupils on FSM resulted from these pupils being clustered within the large LAs with generally slower progression rates.

11. We can be confident that any variation between Table 9 and Table 10 is a result of clustering, not merely a consequence of different filtering, as we re-ran the same basic linear regression models also filtering out pupils in schools that had fewer than three pupils in the relevant group (e.g. New to English in Reception) to enable direct comparisons between filtered and unfiltered samples. Results of the basic linear regression after this filtering can be found in Appendix C, and do not differ substantially from Table 9.

Conclusion

The key takeaway is that where differences are apparent between pupil coefficients in basic regression and multilevel regression results, they may be accounted for by differences in practice (e.g. in the assessment of PIE) in different LAs and schools. Further research studying practice in schools and LAs directly would be needed to more thoroughly understand whether this is the case, and if so, how and why practice might vary.

There were also significant associations between being in large LAs, particularly Newport and Cardiff, and longer progression times from New to English to higher levels of PIE (the association was also significant for Swansea, but only for progression to Competent or above). Being in these LAs explained at least one-third of the variation in time to progression between schools, particularly for progression from level A to B. For example, the variation between schools was reduced from 0.63 to 0.43 (see Table 10), just by adding the three large LA coefficients. Again, differences in practice between LAs is an important part of the picture.

Although time to progression outcomes were treated as continuous for the main analyses reported here, we also estimated models that treated time to progression as ordinal. Results of these analyses can be found in Appendices D (for basic ordinal regression results) and E (for multilevel ordinal regression results). While these results should be interpreted with caution as a key assumption (proportional odds) was not met, it is worth noting that substantive conclusions would not differ dramatically from those based on linear regression and multilevel linear regression models.

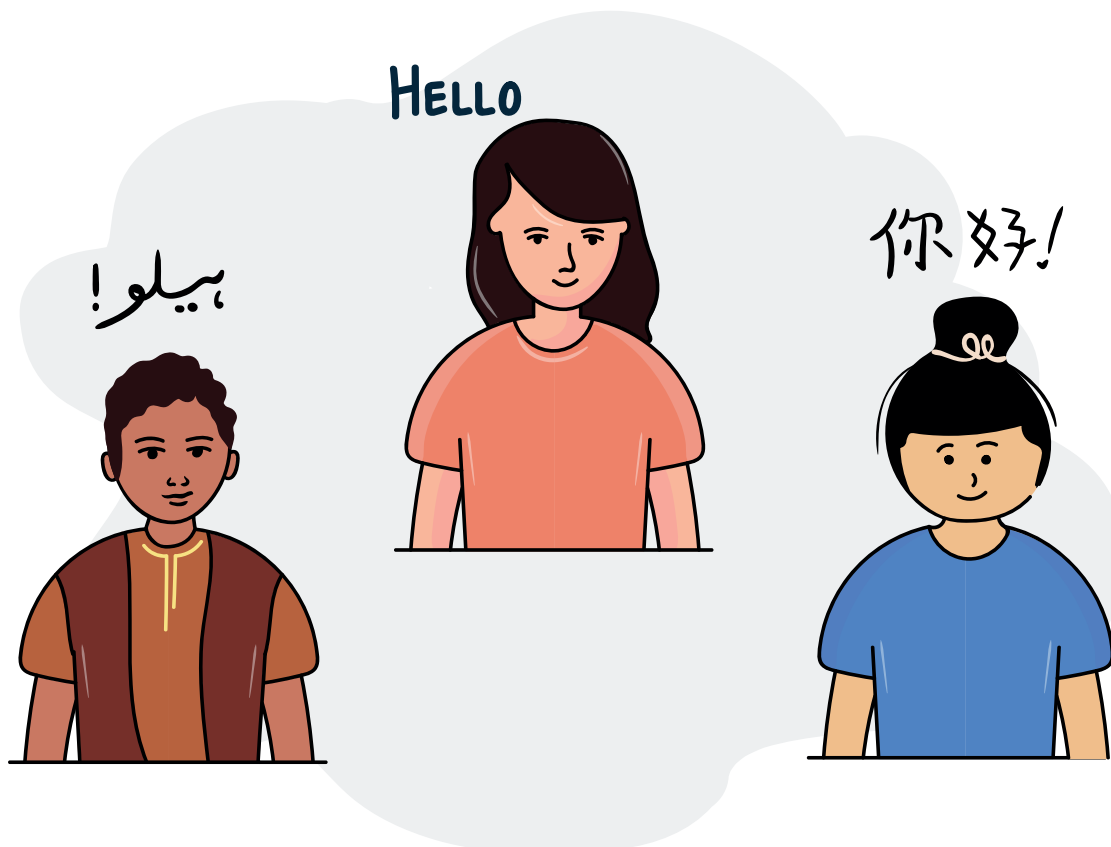


Table 10: Time to progression from New to English in Reception: Multilevel regression results

Outcome: Time to progression	A → B+			A → C+			A → D+		
	M0	M1	M2	M0	M1	M2	M0	M1	M2
Intercept	2.34 ***	2.12 ***	1.81 ***	4.25 ***	3.80 ***	3.28 ***	6.12 ***	5.91 ***	5.55 ***
Ethnic group									
White Other		0.18	0.24 *		0.54 ***	0.60 ***		0.32 **	0.34 ***
Black (including Mixed)		-0.08	-0.08		-0.17	-0.20		-0.09	-0.11
Indian		-0.04	-0.02		-0.25	-0.23		0.01	0.02
Pakistani		0.06	0.02		0.01	-0.03		0.11	0.09
Bangladeshi		-0.14	-0.14		-0.02	-0.03		0.11	0.10
Asian Mixed/Other		-0.27	-0.25		-0.20	-0.15		-0.03	0.00
Chinese		-0.11	-0.06		-0.11	-0.08		0.45 *	0.45 *
FSM (Eligible)		0.06	0.07		0.20	0.19		0.07	0.06
Gender (Boy)		0.19 **	0.19 **		0.41 ***	0.41 ***		0.08	0.08
SEN (Identified)		0.61 ***	0.61 ***		0.57 ***	0.58 ***		0.19 *	0.19 *
LA									
Swansea			-0.17			0.48			0.66 **
Newport			1.27 ***			1.05 ***			0.58 **
Cardiff			0.34 *			0.77 ***			0.49 **
Variance									
Pupil	1.66 ***	1.61 ***	1.61 ***	2.80 ***	2.68 ***	2.68 ***	1.20 ***	1.19 ***	1.19 ***
School	0.62 ***	0.63 ***	0.43 ***	0.86 ***	0.91 ***	0.77 ***	0.65 ***	0.66 ***	0.59 ***
(Residual) VPC									
Pupil	0.73	0.72	0.79	0.77	0.75	0.78	0.65	0.64	0.67
School	0.27	0.28	0.21	0.23	0.25	0.22	0.35	0.36	0.33
% Variance explained									
Pupil	--	0.03	0.03	--	0.04	0.04	--	0.01	0.01
School	--	-0.01	0.32	--	-0.06	0.10	--	-0.02	0.08
Model fit									
-2RLL	6,137.4	6,097.4	6,061.1	7,041.3	6,983.9	6,968.6	5,601.9	5,603.6	5,594.9
Δ-2RLL	--	40.0	36.2	--	57.4	15.3	--	-1.7	8.7

Note: Time to progression is treated as linear. M0=empty model with no predictors. M1=model with all pupil demographic characteristics. M2=M1 plus fixed effects for Local Authority (Swansea, Newport, Cardiff, with other LAs as reference). -2 Restricted Log Likelihood (-2RLL) is used to assess model fit for consistency across analyses and avoidance of inflated Type-I error rates. VPC = Variance Partition Coefficient (proportion of total variance in the outcome at a particular level, pupil or school); Residual VPC = proportion of remaining unexplained variance at a given level. * p<0.05 ** p<0.01 *** p<0.001.

5. Proficiency in English and educational achievement

Variance components analysis

We conducted an analysis of the variance at the pupil, school and LA levels in multilevel models for educational achievement outcomes, primarily to compare with the variance in PIE and in time to progression, as described in Section 3. Table 11 presents the results. There was surprisingly little variation in achievement outcomes between schools and LAs based on teacher assessment (TA) levels (which was the only measure available to us in this dataset). In all cases, no more than around 6-8% of variation was between schools, and <1% was between LAs. This was true for English, mathematics, and total (English plus mathematics) outcomes, as well as across both KS1 and KS2.

As the amount of variation between LAs was particularly small, in subsequent analyses we use two-level (students within schools) rather than three-level (students within schools within LAs) models.

Table 11: School and LA variation in English, mathematics and combined English & mathematics TA level

Key Stage	Subject	Model (levels)	Pupil var.	School var.	LA var.	Pupil VPC	School VPC	LA VPC
1	English	2	0.55 ***	0.04 ***	--	0.935	0.065	--
		3	0.55 ***	0.03 ***	0.00 *	0.934	0.058	0.008
	Maths	2	0.52 ***	0.03 ***	--	0.937	0.063	--
		3	0.52 ***	0.03 ***	0.00 *	0.936	0.058	0.006
	Combined (English+maths)	2	1.88 ***	0.14 ***	--	0.930	0.070	--
		3	1.88 ***	0.13 ***	0.01 *	0.928	0.064	0.007
2	English	2	0.49 ***	0.04 ***	--	0.922	0.078	--
		3	0.49 ***	0.04 ***	0.01 *	0.920	0.070	0.010
	Maths	2	0.48 ***	0.04 ***	--	0.927	0.073	--
		3	0.48 ***	0.03 ***	0.00 *	0.925	0.066	0.008
	Combined (English+maths)	2	1.74 ***	0.16 ***	--	0.917	0.083	--
		3	1.74 ***	0.14 ***	0.02 *	0.915	0.074	0.010

Note: The above estimates are from models treating the outcomes (teacher assessment levels) as continuous. VPC=Variance Partition Coefficient, interpreted as the proportion of total variation in time to progression that lies between schools or LAs. Var.=Variance. * indicates variance components significant at the level of $p<0.05$, ** at the level of $p<0.01$, *** at the level of $p<0.001$.

School composition effects

Some media coverage has suggested the possibility that high concentrations of EAL learners needing extra help in primary schools might have negative consequences for English first language speakers in those schools (Green, 2010). There is very little research on the associations between the concentration of EAL students in a school and student achievement in those schools, although a US study by Cho (2012) using a nationally representative dataset reports that the presence of EAL students in a class had a negative impact on the reading (but

not mathematics) progress between kindergarten and first grade of students in those classes whose first language was English, net of a wide range of control variables. Both Geay et al. (2012) and our earlier study (Strand et al., 2015) found that the percentage of EAL students in the school had minimal association with student attainment or progress for other pupils in the school, when controls for student background were included. However, a measure of Proficiency in English was not available in that study, so it could be argued that it was not able to test whether a high proportion of pupils not proficient in English might have a negative association. In the models below we test whether the proportion of pupils in the school acquiring Proficiency in English (PIE levels A-C) is associated with any of the measures of educational achievement for other pupils in the school.

Key Stage 1 English

Table 12 displays the results of multilevel regression models for KS1 English Teacher Assessed (TA) levels. Pupils' PIE (categorised as either A-C, D-E or English/Welsh speaker) had a significant association with achievement, with pupils at PIE levels A-C on average scoring 0.11 *lower* in English TA than English/Welsh speakers, while pupils at PIE levels D/E on average scored 0.24 *higher* than their English/Welsh speaking peers.

Pupil demographic characteristics explained significant proportions of the variation in KS1 English at the pupil (22%) and school (39%) levels. Being entitled to FSM, being a boy, and being identified with SEN were all significantly associated with lower achievement in English in KS1, as was being in the White Other ethnic group. Indian pupils had significantly higher achievement in English (on average 0.13 levels higher than their peers in the Any Other ethnic group), as did Black (including Mixed), Bangladeshi and Asian Mixed/Other pupils (though these latter three groups had smaller advantages of 0.05, 0.06 and 0.07 levels respectively).

School variables, including the proportion of pupils acquiring proficiency (PIE levels A-C) and the proportion of pupils entitled to FSM, explained a little additional variation in KS1 English achievement at the school level, a further 6% over and above that explained by pupil characteristics. School proportion of pupils PIE A-C was not significantly associated with KS1 English achievement, but school proportion FSM was. Being in schools in the highest three quintiles of school proportion entitled to FSM was associated with lower English levels in KS1, even after controlling for individual FSM entitlement. This suggests that being in a higher-deprivation school is linked to lower achievement outcomes, over and above the effects of individual deprivation.

Including an interaction between individual pupil PIE and school proportion of pupils acquiring proficiency (A-C) did not improve model fit, and the interactions between school proportion PIE A-C quintiles and individual PIE categories were all statistically insignificant except one (specifically, the interaction between being in a school with an average proportion of pupils with low levels of PIE and being Competent/Fluent). The overall interaction is graphed in Figure 1, but readers are reminded that only one element of that interaction is statistically significant as noted above.

We conclude that there is no evidence that being in a school with a high proportion of pupils acquiring Proficiency in English (PIE levels A-C) had any negative association with achievement for other pupils in the school, either overall or specifically for pupils with first language English/Welsh.

Figure 1: Interaction between school proportion PIE A-C and pupil PIE for KS1 English TA

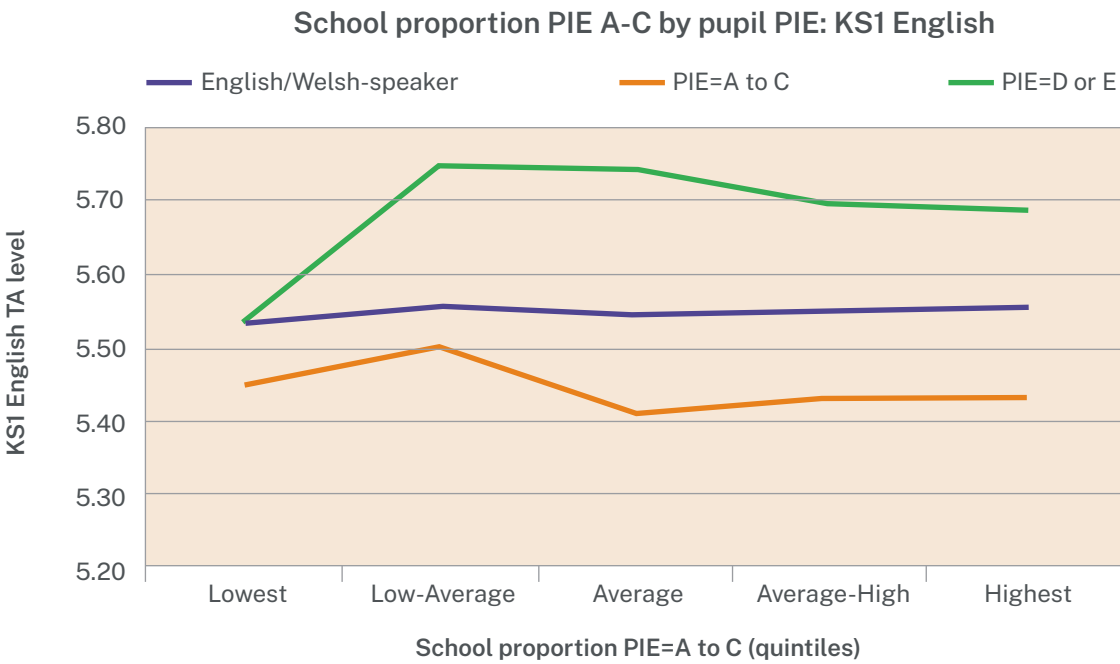


Table 12: KS1 English and PIE: Multilevel regression results

Outcome: Key Stage 1 English		M0	M1	M2	M3	M4
Intercept		5.19 ***	5.19 ***	5.48 ***	5.54 ***	5.54 ***
PIE	A to C		-0.11 ***	-0.12 ***	-0.12 ***	-0.09
	D or E		0.24 ***	0.15 ***	0.15 ***	0.00
FSM	Eligible			-0.18 ***	-0.17 ***	-0.17 ***
Gender	Boy			-0.11 ***	-0.11 ***	-0.11 ***
SEN	Identified			-0.76 ***	-0.76 ***	-0.76 ***
Ethnic group	White Other			-0.13 ***	-0.13 ***	-0.13 ***
	Black (including Mixed)			0.05 **	0.05 **	0.05 **
	Indian			0.13 ***	0.13 ***	0.13 ***
	Pakistani			0.03	0.03	0.03
	Bangladeshi			0.06 *	0.06 *	0.06 *
	Asian Mixed/Other			0.07 **	0.07 **	0.07 **
	Chinese			0.07	0.07	0.07
School	Highest				0.02	0.02
Proportion PIE	High-Average				0.01	0.01
A-C (Quintiles)	Average				0.01	0.01
	Low-Average				0.02	0.02
School	Highest				-0.12 ***	-0.12 ***
Proportion	High-Average				-0.12 ***	-0.12 ***
FSM (Quintiles)	Average				-0.07 ***	-0.07 ***
	Low-Average				-0.03	-0.03
School	Highest * Pupil A-C					-0.03
Proportion PIE	High-Average * Pupil A-C					-0.03
A-C (Quintiles)	Average * Pupil A-C					-0.05
* Pupil A-C	Low-Average * Pupil A-C					0.03
School	Highest * Pupil D-E					0.14
Proportion PIE	High-Average * Pupil D-E					0.15
A-C (Quintiles)	Average * Pupil D-E					0.20 *
* Pupil D-E	Low-Average * Pupil D-E					0.19
Variance	Pupil	0.55 ***	0.55 ***	0.43 ***	0.43 ***	0.43 ***
	School	0.04 ***	0.04 ***	0.02 ***	0.02 ***	0.02 ***
(Residual) VPC	Pupil	0.94	0.94	0.95	0.95	0.95
	School	0.06	0.06	0.05	0.05	0.05
% Variance explained	Pupil	--	0.00	0.22	0.22	0.22
	School	--	0.02	0.41	0.47	0.47
Model fit	-2RLL	165,533.0	165,333.8	147,227.8	147,212.7	147,236.6
	△ -2RLL	--	199.2	18,106.0	15.1	-23.9

Note: Unstandardised coefficients are reported (units=teacher assessment levels). M0=empty model with no predictors. M1=model with only PIE (A-C, D-E or English/Welsh speaker). M2=model with all pupil demographic characteristics. M3=model with all pupil demographic characteristics plus school proportions PIE A-C and FSM (quintiles). M4=M3 plus an interaction between school proportion PIE A-C and pupil PIE (A-C, D-E or English/Welsh speaker). -2 Restricted Log Likelihood (-2RLL) is used to assess model fit for consistency across analyses and avoidance of inflated Type-I error rates. VPC = Variance Partition Coefficient (proportion of total variance in the outcome at a particular level, pupil or school); Residual VPC = proportion of remaining unexplained variance at a given level. * p<0.05 ** p<0.01 *** p<0.001.

Key Stage 1 mathematics

The results for KS1 mathematics (Table 13) were very similar to those discussed above for KS1 English. There were significant associations between individual pupil PIE and mathematics Teacher Assessment (TA) levels. Pupils at PIE A-C had, on average, 0.04 lower KS1 maths TA than English/Welsh speakers, while pupils at PIE D/E had, on average, 0.22 *higher* KS1 maths TA levels than their English/Welsh-speaking peers.

As was the case for English, pupil characteristics explained significant proportions of the variation in KS1 mathematics TA at the pupil (18%) and school (39%) levels. Being entitled to FSM and being identified with SEN were significantly associated with lower achievement in mathematics in KS1, but being a boy had a very small (though statistically significant) positive effect.

Being in the White Other ethnic group had a significant negative association with KS1 mathematics. Indian pupils had significantly higher achievement in maths (on average 0.11 higher than their peers in the Any Other ethnic group), as did Asian Mixed/Other (0.07 higher), and Chinese (0.17 higher) pupils.

School variables, including the proportion of pupils with acquiring Proficiency in English (PIE levels A-C) and the proportion of pupils entitled to FSM, explained little further variation in KS1 mathematics achievement, over and above that explained by pupil demographics. School proportion of pupils PIE A-C was not significantly associated with KS1 mathematics achievement, but school proportion FSM was. Being in schools in the highest three quintiles of school proportion entitled to FSM was associated with lower Maths TA levels in KS1, even after controlling for individual FSM entitlement. This suggests, as it did for English TA levels, that being in a higher-deprivation school is linked to lower achievement outcomes, over and above the effects of individual deprivation.

Including an interaction between individual PIE category and school proportion of pupils with low levels of PIE again did not improve model fit, and the interactions between school proportion PIE A-C quintiles and individual pupil PIE level were all statistically insignificant except one (specifically, the interaction between being in a school with a high-to-average proportion of pupils with low levels of PIE and being Competent or Fluent). This interaction is graphed in Figure 2, but readers are reminded that only one element of that interaction is statistically significant, as noted above.

Figure 2: Interaction between school proportion PIE A-C and pupil PIE for KS1 mathematics TA

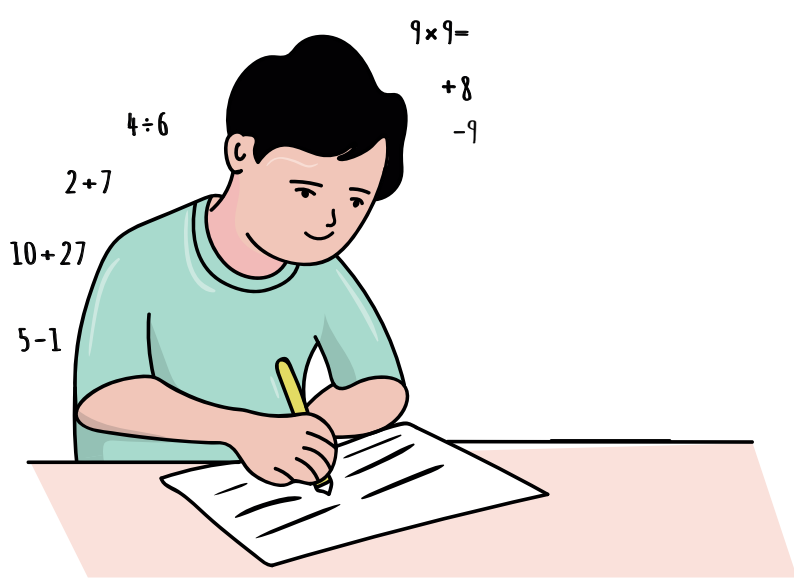
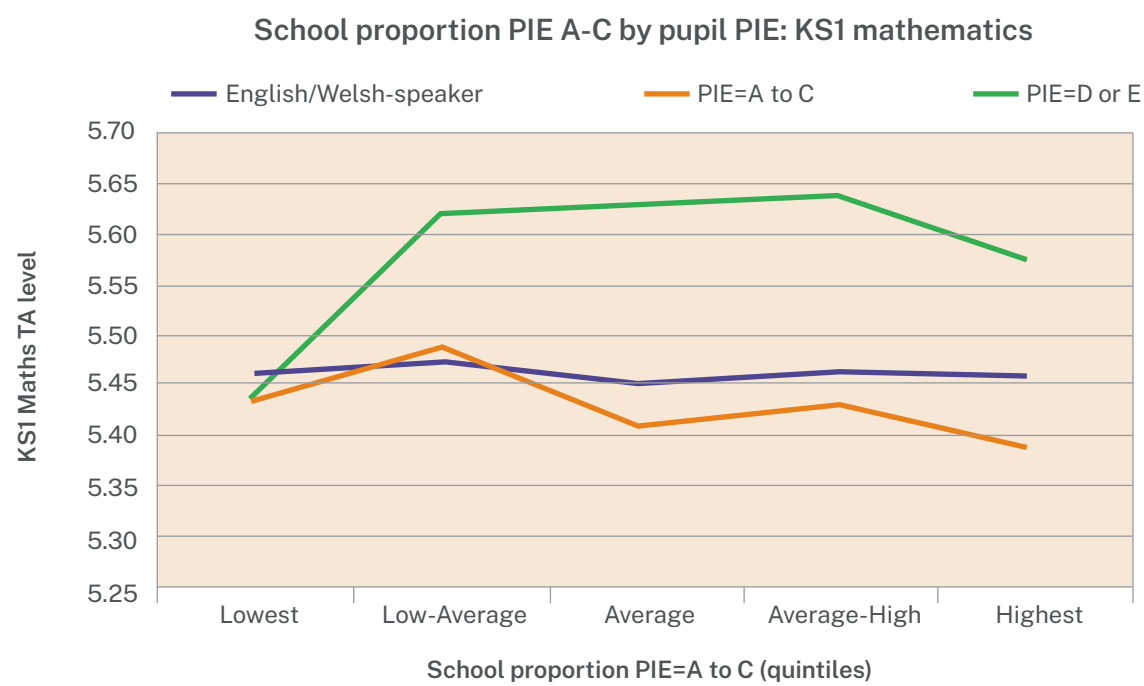


Table 13: KS1 mathematics and PIE: Multilevel regression results

Outcome: Key Stage 1 maths		M0	M1	M2	M3	M4
Intercept		5.19 ***	5.19 ***	5.40 ***	5.46 ***	5.46 ***
PIE	A to C		-0.04 ***	-0.06 ***	-0.06 ***	-0.03
	D or E		0.22 ***	0.13 ***	0.13 ***	-0.02
FSM	Eligible			-0.17 ***	-0.17 ***	-0.17 ***
Gender	Boy			0.02 ***	0.02 ***	0.02 ***
SEN	Identified			-0.70 ***	-0.70 ***	-0.70 ***
Ethnic group	White Other			-0.08 ***	-0.08 ***	-0.08 ***
	Black (including Mixed)			0.00	0.00	0.00
	Indian			0.11 ***	0.11 ***	0.11 ***
	Pakistani			-0.03	-0.03	-0.02
	Bangladeshi			0.02	0.02	0.03
	Asian Mixed/Other			0.07 **	0.07 **	0.07 **
	Chinese			0.17 ***	0.17 ***	0.17 ***
School	Highest				-0.01	0.00
Proportion PIE	High-Average				0.01	0.00
A-C (Quintiles)	Average				0.00	-0.01
	Low-Average				0.01	0.01
School	Highest				-0.11 ***	-0.11 ***
Proportion	High-Average				-0.11 ***	-0.11 ***
FSM (Quintiles)	Average				-0.07 ***	-0.07 ***
	Low-Average				-0.02	-0.02
School	Highest * Pupil A-C					-0.05
Proportion PIE	High-Average * Pupil A-C					-0.01
A-C (Quintiles)	Average * Pupil A-C					-0.02
* Pupil A-C	Low-Average * Pupil A-C					0.04
School	Highest * Pupil D-E					0.14
Proportion PIE	High-Average * Pupil D-E					0.19 *
A-C (Quintiles)	Average * Pupil D-E					0.19
* Pupil D-E	Low-Average * Pupil D-E					0.17
Variance	Pupil	0.52 ***	0.52 ***	0.43 ***	0.43 ***	0.43 ***
	School	0.03 ***	0.03 ***	0.02 ***	0.02 ***	0.02 ***
(Residual) VPC	Pupil	0.94	0.94	0.95	0.96	0.96
	School	0.06	0.06	0.05	0.04	0.04
% Variance	Pupil	--	0.00	0.18	0.18	0.18
	School	--	0.01	0.40	0.45	0.45
Model fit	-2RLL	161,652.2	161,551.7	146,754.8	146,742.4	146,763.4
	△ -2RLL	--	100.5	14796.9	12.4	-21.0

Note: Unstandardised coefficients are reported (units=teacher assessment levels). M0=empty model with no predictors. M1=model with only PIE (A-C, D-E or English/Welsh speaker). M2=model with all pupil demographic characteristics. M3=model with all pupil demographic characteristics plus school proportions PIE A-C and FSM (quintiles). M4=M3 plus an interaction between school proportion PIE A-C and pupil PIE (A-C, D-E or English/Welsh speaker). -2 Restricted Log Likelihood (-2RLL) is used to assess model fit for consistency across analyses and avoidance of inflated Type-I error rates. VPC = Variance Partition Coefficient (proportion of total variance in the outcome at a particular level, pupil or school); Residual VPC = proportion of remaining unexplained variance at a given level. * p<0.05 ** p<0.01 *** p<0.001.

Key Stage 2 English

The results for KS2 English (Table 14) were very similar to those discussed above for KS1 English. Pupils with PIE A-C had, on average, 0.20 *lower* KS2 English TA levels than English/Welsh speakers, while pupils at PIE levels D/E had, on average, 0.30 *higher* KS2 English TA levels than their English/Welsh-speaking peers.

Again, pupil characteristics explained significant proportions of the variation in KS2 English at the pupil (29%) and school (52%) levels. Being entitled to FSM, being a boy, and being identified with SEN were all associated with lower achievement in English. Being in the White Other ethnic group had a significant negative association with KS2 English level, while being in the Indian group was associated with significantly higher achievement.

Prior attainment (KS1 English TA level) explained only a small additional amount of the variation between pupils (3%) and schools (1%), but had a significant positive association with KS2 English achievement. The effect size was fairly small, meaning in practical terms that an increase of one level in KS1 English predicted an increase of just 0.08 levels in KS2 English.

School variables, including the proportion of pupils with PIE A-C and the proportion of pupils entitled to FSM, explained an additional 11% of the school variation in KS2 English, over and above that explained by pupil characteristics. School proportion of pupils PIE A-C was only significantly associated with KS2 English achievement for the highest quintile (with a very small positive effect amounting to 0.04 levels higher, on average, than pupils in the lowest quintile), but school proportion FSM was consistently negatively associated. This suggests, as it did for KS1, that being in a higher-deprivation school is linked to lower achievement, over and above the effects of individual deprivation.

Including the interaction between pupil's PIE and the school proportion at PIE level A-C again did not improve model fit, and the interactions terms were all statistically insignificant except one (specifically, pupils acquiring English (A-C) tended to do particularly poorly in the schools with low-to-average proportion of pupils acquiring English). This interaction is shown in Figure 3, but again readers are reminded that only one element of the interaction is statistically significant as noted above.

Figure 3: Interaction between school proportion PIE A-C and pupil PIE for KS2 English TA

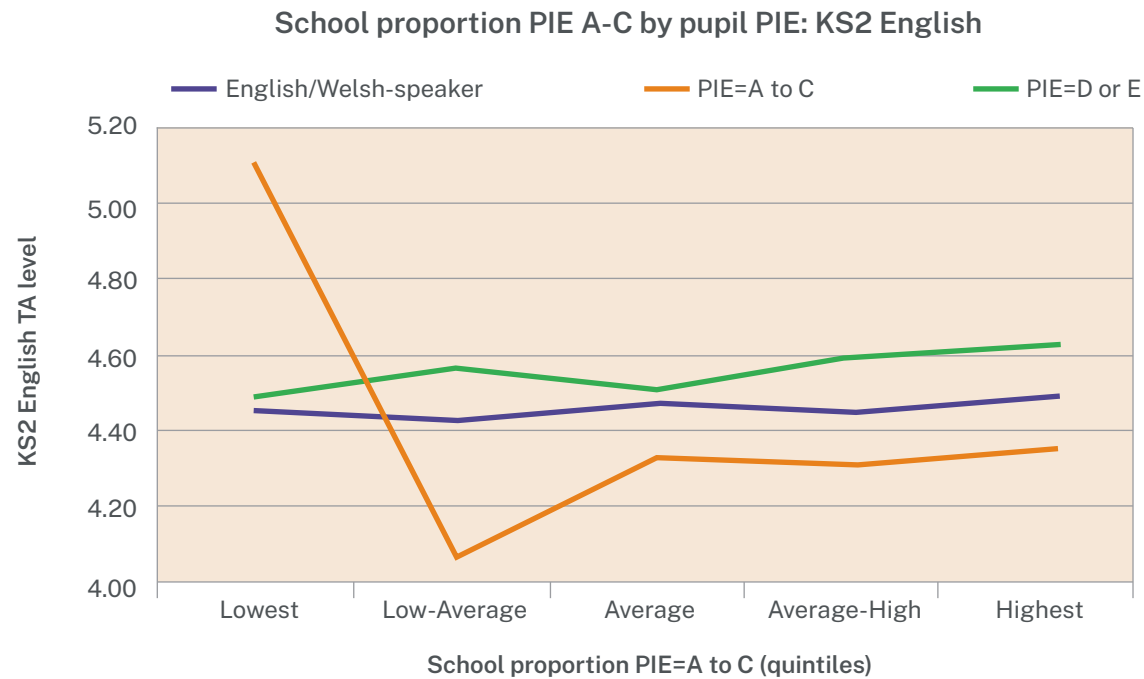


Table 14: Key Stage 2 English and PIE: Multilevel regression results

Outcome: Key Stage 2 English		M0	M1	M2	M3	M4	M5
Intercept		4.31 ***	4.31 ***	4.63 ***	4.34 ***	4.45 ***	4.45 ***
PIE	A to C		-0.20 ***	-0.17 ***	-0.15 ***	-0.15 ***	0.65
	D or E		0.30 ***	0.14 ***	0.13 ***	0.13 ***	0.03
FSM	Eligible			-0.22 ***	-0.20 ***	-0.19 ***	-0.19 ***
Gender	Boy			-0.10 ***	-0.09 ***	-0.09 ***	-0.09 ***
SEN	Identified			-0.82 ***	-0.76 ***	-0.76 ***	-0.76 ***
Ethnic group	White Other			-0.08 ***	-0.07 ***	-0.07 ***	-0.07 ***
	Black (including Mixed)			0.02	0.01	0.01	0.01
	Indian			0.11 ***	0.10 **	0.09 ***	0.09 **
	Pakistani			-0.04	-0.04	-0.04	-0.05
	Bangladeshi			-0.04	-0.04	-0.04	-0.04
	Asian Mixed/Other			0.05	0.05	0.05	0.05
	Chinese			0.02	0.02	0.02	0.02
Prior attainment	KS1 English				0.08 ***	0.08 ***	0.08 ***
School	Highest					0.04 *	0.03
Proportion PIE	High-Average					0.00	0.00
A-C (Quintiles)	Average					0.01	0.02
	Low-Average					-0.02	-0.02
School	Highest					-0.19 ***	-0.19 ***
Proportion	High-Average					-0.18 ***	-0.18 ***
FSM (Quintiles)	Average					-0.14 ***	-0.14 ***
	Low-Average					-0.08 ***	-0.08 ***
School	Highest * Pupil A-C						-0.78
Proportion PIE	High-Average * Pupil A-C						-0.78
A-C (Quintiles)	Average * Pupil A-C						-0.78
* Pupil A-C	Low-Average * Pupil A-C						-1.01 *
School	Highest * Pupil D-E						0.14
Proportion PIE	High-Average * Pupil D-E						0.12
A-C (Quintiles)	Average * Pupil D-E						0.03
* Pupil D-E	Low-Average * Pupil D-E						0.08
Variance	Pupil	0.49 ***	0.48 ***	0.34 ***	0.33 ***	0.33 ***	0.33 ***
	School	0.04 ***	0.04 ***	0.02 ***	0.02 ***	0.01 ***	0.01 ***
(Residual) VPC	Pupil	0.92	0.92	0.95	0.94	0.96	0.96
	School	0.08	0.08	0.05	0.06	0.04	0.04
% Variance explained	Pupil	--	0.01	0.30	0.33	0.33	0.33
	School	--	0.00	0.52	0.53	0.64	0.64
Model fit	-2RLL	132,224.0	131,764.3	110,082.5	107,206.0	107,092.3	107,101.6
	△ -2RLL	--	459.8	21681.8	2876.5	113.7	-9.3

Note: Unstandardised coefficients are reported (units=teacher assessment levels). M0=empty model with no predictors. M1=model with only PIE (A-C, D-E or English/Welsh speaker). M2=model with all pupil demographic characteristics. M3=M2 plus prior attainment in English in KS1. M4=M3 plus school proportions PIE A-C and FSM (quintiles). M5=M4 plus an interaction between school proportion PIE A-C and pupil PIE (A-C, D-E or English/Welsh speaker). -2 Restricted Log Likelihood (-2RLL) is used to assess model fit for consistency across analyses and avoidance of inflated Type-I error rates. VPC = Variance Partition Coefficient (proportion of total variance in the outcome at a particular level, pupil or school); Residual VPC = proportion of remaining unexplained variance at a given level. * p<0.05 ** p<0.01 *** p<0.001.

Key Stage 2 mathematics

Results for KS2 mathematics (Table 15) were again very similar to those discussed above. Pupils with PIE A-C had, on average, 0.11 *lower* KS2 maths levels than English/Welsh speakers, while pupils at PIE D/E had, on average, 0.33 levels *higher* KS2 maths than their English/Welsh-speaking peers.

Again, pupil characteristics explained significant proportions of the variation in KS2 mathematics at the pupil (25%) and school (48%) levels. Being entitled to FSM and being identified with SEN were significantly associated with lower achievement in KS2, while being a boy had a small but significant positive effect (amounting to, on average, 0.06 levels higher than girls). Indian pupils had significantly higher achievement (on average 0.17 levels higher than their peers in the Any Other ethnic group), as to a lesser extent did pupils in the Asian Mixed/Other group, while Pakistani pupils on average scored 0.07 levels lower than their peers in the Any Other ethnic group.

Prior attainment (KS1 maths level) explained only a small additional amount of the variation between pupils (4%) and none between schools, but had a significant positive association with KS2 mathematics achievement. The effect size was fairly small, meaning in practical terms that an increase of one level in KS1 maths level predicted an increase of only 0.09 in KS2 maths level.

School variables, including the proportion of pupils with PIE A-C and the proportion of pupils entitled to FSM, explained an additional 11% of the variation in KS2 Maths achievement at the school level, over and above that explained by pupil characteristics and prior attainment. School proportion of pupils PIE A-C was not significantly associated with KS2 maths achievement, but school proportion FSM was consistently negatively associated, even after controlling for individual FSM entitlement. Again, being in a higher-deprivation school is linked to lower achievement outcomes, over and above the effects of individual deprivation.

Including an interaction between individual PIE category and school proportion of pupils with low levels of PIE again did not improve model fit, and the interactions between school proportion with low PIE quintiles and individual PIE categories were not statistically significant.

In addition to the models for which results are discussed above, we also estimated alternative models for combined English and Maths achievement (computed as the sum of Maths and English TA levels) for KS1 and KS2 (Appendix F), as well as models using EAL and school proportion EAL instead of PIE A-C (Appendix G). On the whole, results from these models were not dramatically different, providing support for the robustness of our main analyses in this section.

Table 15: KS2 Mathematics achievement and PIE: Multiple regression results

Outcome: Key Stage 2 maths		M0	M1	M2	M3	M4	M5
Intercept		4.31 ***	4.31 ***	4.53 ***	4.24 ***	4.34 ***	4.34 ***
PIE	A to C		-0.11 ***	-0.10 ***	-0.08 ***	-0.07 ***	0.57
	D or E		0.33 ***	0.17 ***	0.16 ***	0.16 ***	0.14
FSM	Eligible			-0.19 ***	-0.18 ***	-0.17 ***	-0.17 ***
Gender	Boy			0.06 ***	0.06 ***	0.06 ***	0.06 ***
SEN	Identified			-0.80 ***	-0.74 ***	-0.74 ***	-0.74 ***
Ethnic group	White Other			-0.01	-0.01	-0.01	-0.01
	Black (including Mixed)			-0.03	-0.04 *	-0.04 *	-0.04 *
	Indian			0.17 ***	0.16 ***	0.15 ***	0.15 ***
	Pakistani			-0.07 *	-0.07 *	-0.07 *	-0.08 **
	Bangladeshi			-0.04	-0.05	-0.04	-0.05
	Asian Mixed/Other			0.06 *	0.05	0.05	0.05
	Chinese			0.11	0.10	0.10	0.11
Prior attainment	KS1 maths				0.09 ***	0.09 ***	0.09 ***
School	Highest					0.02	0.02
Proportion PIE	High-Average					-0.01	-0.01
A-C (Quintiles)	Average					0.01	0.01
	Low-Average					-0.02	-0.01
School	Highest					-0.17 ***	-0.17 ***
Proportion	High-Average					-0.16 ***	-0.16 ***
FSM (Quintiles)	Average					-0.13 ***	-0.13 ***
	Low-Average					-0.06 ***	-0.06 ***
School	Highest * Pupil A-C						-0.63
Proportion PIE	High-Average * Pupil A-C						-0.67
A-C (Quintiles)	Average * Pupil A-C						-0.64
* Pupil A-C	Low-Average * Pupil A-C						-0.82
School	Highest * Pupil D-E						0.05
Proportion PIE	High-Average * Pupil D-E						0.04
A-C (Quintiles)	Average * Pupil D-E						-0.05
* Pupil D-E	Low-Average * Pupil D-E						-0.05
Variance	Pupil	0.48 ***	0.48 ***	0.35 ***	0.34 ***	0.34 ***	0.34 ***
	School	0.04 ***	0.04 ***	0.02 ***	0.02 ***	0.02 ***	0.02 ***
(Residual) VPC	Pupil	0.93	0.93	0.95	0.94	0.96	0.96
	School	0.07	0.07	0.05	0.06	0.04	0.04
% Variance explained	Pupil	--	0.01	0.26	0.30	0.30	0.30
	School	--	0.00	0.48	0.48	0.59	0.59
Model fit	-2RLL	133,095.0	132,676.1	113,717.8	110,560.8	110,477.8	110,490.5
	△ -2RLL	--	418.0	18,958.3	3,157.0	83.0	-12.7

Note: Unstandardised coefficients are reported (units=teacher assessment levels). M0=empty model with no predictors. M1=model with only PIE (A-C, D-E or English/Welsh speaker). M2=model with all pupil demographic characteristics. M3=M2 plus prior attainment in Maths in KS1. M4=M3 plus school proportions PIE A-C and FSM (quintiles). M5=M4 plus an interaction between school proportion PIE A-C and pupil PIE (A-C, D-E or English/Welsh speaker). -2 Restricted Log Likelihood (-2RLL) is used to assess model fit for consistency across analyses and avoidance of inflated Type-I error rates. VPC = Variance Partition Coefficient (proportion of total variance in the outcome at a particular level, pupil or school); Residual VPC = proportion of remaining unexplained variance at a given level. * p<0.05 ** p<0.01 *** p<0.001.

6. Primary to secondary transition and PIE

The transition from primary to secondary school is a time at which we might particularly expect schools to reassess students' levels of Proficiency in English.

Table 16 shows the percent of pupils at each level of PIE in January Y6, including those who were recorded as monolingual English, by their level of PIE in January Y7. The data is aggregated over all eight cohorts making the Y6-Y7 transition, from 2009-10 through to 2016-17. The data is for English-medium schools only.

Table 16: Y6 to Y7 transitions in PIE, all students 2009-10 to 2016-17

Year 6 record	Year 7 record						Total N
	Eng/Wel.	A	B	C	D	E	
Eng/Wel.	99.7	0.0	0.0	0.0	0.1	0.2	174,116
A	4.2	45.9	31.1	14.7	2.6	1.6	933
B	3.8	0.8	54.8	34.6	4.7	1.2	2,433
C	6.2	0.1	2.2	70.6	17.2	3.8	4,704
D	10.2	0.0	0.7	8.4	69.5	11.1	2,403
E	24.1	0.1	0.7	2.4	3.3	69.3	3,421
Total	93.1	0.2	1.0	2.5	1.5	1.7	--
Total N	175,069	468	1,799	4,667	2,824	3,183	188,010

Note. Eng/Wel= First language recorded as English or Welsh. Data aggregated over all eight cohorts transiting from Y6 to Y7 i.e. Y6(2009)-Y7(2010) through to Y6(2016)-Y7(2017). Data from English-Medium secondary schools only.

The key findings are:

- A significant proportion of EAL pupils are reclassified in Y7, suggesting that pupils are indeed being reassessed when they arrive in secondary schools. Further analysis showed that over 70% of secondary schools changed the PIE level of 5% or more of their EAL pupils. This reassures us that an annual review is occurring.
- Most pupils remain at the same level of PIE from Y6 to Y7, as shown by the shaded cells along the diagonal of the table. For example, 70.6% of pupils recorded at Level C in Y6 were again recorded at Level C in Y7. Of those who changed level the most common shift, particularly for those at the lower levels of A or B in Y6, was to one level of PIE higher in Y7. The fact that pupils' most recent assessment of PIE from primary school was often close to the secondary school's assessment offers some reassurance as to the overall reliability of the assessment, though there was somewhat greater change between Y6-Y7 than in transitions between earlier years (e.g. Y5-Y6).
- We know from the first report (Strand & Lindorff, 2020, p21) that the proportion of pupils recorded as EAL declines between Y6 (6.9%) and Y7 (6.2%). In England, this drop is even more pronounced (DfE, 2020)¹². However, it is not clear from the DfE analysis what might drive this, since they report the percentage of EAL pupils recorded as Fluent remains roughly the same; 40% in Y6 and 46% in Y7 (DfE, 2020, p8).

12. DfE (2020) do not report the percentage of the cohort recorded as EAL in each year, but Strand et. al. (2015) report a drop from 17.5% recorded as EAL in Y6 to 14.5% recorded as EAL in Y7.

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- What our analysis shows – and is not addressed in the DfE report – is the change from being recorded as EAL in Y6 to being recorded as monolingual English/Welsh in Y7. Our results show this is particularly pronounced among Fluent pupils. For example, 24% of the EAL pupils recorded as Fluent in Y6 were recorded as monolingual English in Y7, compared with 10% of those who were Competent, 6% of those Developing Competence, and just 4% of those at levels A and B. These proportions have been highlighted in green in Table 16.
 - Thus, fully fluent EAL pupils, with no need for language support and well able to access the English language curriculum, are more likely not to be recorded as EAL by their secondary schools. While technically EAL status is defined by exposure to a language other than (or in addition to) English in the early years of life, and so should not change over time, the results suggest a possible conflation of “EAL” with “needing language support”, which is a common misconception.
 - This further emphasises the importance of having a record of Proficiency in English in addition to an EAL flag, as the two are independent dimensions.
 - Appendix H breaks down the overall data in Table 16 separately for each of the eight cohorts. This reveals the proportion of EAL pupils who were recorded as Competent/Fluent in Y6 and then coded as English/Welsh in Y7 was particularly high in 2010 (58%) and 2014 (67%). We noted in the first report (Strand & Lindorff, 2020, p19) the particularly large reductions in the proportion of EAL pupils recorded as Fluent in these two years. We speculate that these might be reactions to changes in policy or funding criteria, but cannot locate specific evidence to support this.



7. Summary and conclusions

In this report, we have extended the findings from our interim report (Strand & Lindorff, 2020), using statistical modelling to analyse Welsh pupil data in order to understand the reliability of PIE as a measure of pupils' English language proficiency and to what extent PIE reflected differences in practice across schools and LAs. In particular, we explored how pupil trajectories through levels of PIE varied across schools and LAs, how pupil characteristics related to pupils' progression through levels of PIE, how pupil PIE and school proportion of pupils with low levels of PIE were associated with achievement, and how levels of PIE were assessed in the transition from primary to secondary school.

School and LA variation in time to progression

Differences between LAs

There was significant variation between LAs in the time pupils took to progress through levels of PIE, with the ML models indicating 7-15% of the variation was at the LA level, depending upon the specific transition. Equally, there was highly significant variation between LAs in the proportion of EAL pupils who ever transitioned to Competent by the end of Y6, with the ML models indicating 13% of the variation was between LAs.

We can compare these figures of 13-15% with the amount of variation between LAs for other teacher-recorded assessments, such as the teacher assessment of pupils' English and mathematics achievement at the end of KS1 and KS2. For these outcomes, ML models indicate that <1% of the variation was between LAs. These results indicate there is much more variation between LAs in judgements of PIE than for other teacher professional assessments. In other words, the particular LA a pupil is in has far more influence on their likely level of PIE than it does on their likely level of educational achievement.

The results indicate there are significant differences between LAs in the approach to assessment of PIE. For example, Cardiff and Newport contain 60% of all the EAL pupils in Wales, yet they appear to have very different approaches to assessing PIE. For example, in Newport only 7% of EAL pupils in Reception classes are rated as Fluent, compared with 37% in Cardiff. These variations are too large to be random and it is likely that they reflect policy differences in approaches to recording PIE in different LAs (as described in Section 3).

Differences between schools

The issue is also reflected in substantial and highly statistically significant variation between schools, ranging from 23-65% depending on the specific PIE transition. There was also considerable school variation (21%) in the proportion of pupils ever progressing to Competent or above. This was considerably greater than the variation between schools in pupil achievement based on KS1 and KS2 teacher assessment levels (6-8%).

It appears that variation in time to progression is strongly influenced by the individual making the assessment of PIE. The implication for policy is that agreed criteria and definitions for proficiency, high quality training in how to assess proficiency, and the existence of robust moderation procedures, are key to reliable use of a teacher-assessed PIE scale. Where such criteria, training and moderation procedures exist, as they do for KS1 and KS2 teacher assessment of educational achievement, variation between LAs and schools is substantially lower. We conclude that consistent interpretation across LAs, and clear leadership and direction for their schools, are necessary to secure a consistent and reliable assessment of pupils' PIE.

Pupil characteristics and time to progression

Results from basic linear regression models, focusing on progression from Level A in Reception to higher levels of PIE by the end of primary school, indicated that most pupil characteristics were not strongly predictive of time to progression. Pakistani pupils did have longer progression times than the Any Other ethnic group reference category (which included White British). This was likely to be due, at least in part, to the high concentration of Pakistani pupils in particular LAs (Newport and Cardiff) where progression times were longer in general. Boys, pupils entitled to FSM, and pupils identified as having SEN tended to take significantly longer to progress through levels of PIE than their peers without SEN, by anything between 3-6 months depending on the particular variable.

After accounting for the clustering of pupils in schools using multilevel regression modelling, only the White Other ethnic group was associated with longer progression times compared with Any Other ethnicity by approximately 3-7 months depending on the particular transition. Being a boy was associated with longer progression times compared with girls, by 2-5 months depending on the particular transition. The associations between SEN and time to progression remained similar to those found in basic regression models, but the effect of entitlement to FSM was no longer significant. These reflect the fact that particular ethnic groups and disadvantaged pupils tend to be clustered within schools and LAs with somewhat longer progression times in general.

Individual pupil PIE, school composition and educational achievement

Individual pupils' PIE was significantly associated with KS1 and KS2 English and mathematics achievement. EAL pupils acquiring proficiency (levels A-C) on average had significantly lower achievement than pupils whose first language was English/Welsh, while EAL pupils who were Competent/Fluent (levels D-E) on average had significantly higher achievement than those with first language English/Welsh.

Other pupil characteristics explained substantial proportions of the variation in KS1 and KS2 achievement in both English and mathematics. Pupils from Indian or Other Asian ethnicity on average had higher achievement, while pupils from White Other ethnicity had lower achievement, than the Any Other reference group (which included White British). Being a boy, entitled to a FSM, and having identified SEN were associated with lower achievement at KS1 and KS2, and poorer progress during KS2.

Our previous research (Strand et al., 2015) found no evidence that the proportion of pupils with EAL in a school had any association with pupils' educational achievement, either overall or specifically on native English speakers. However, a measure of Proficiency in English was not available in that study, so it was not possible to test whether a high proportion of pupils acquiring Proficiency in English might have any association with achievement for other pupils in the school. We tested here the proportion of pupils in the school acquiring Proficiency in English (PIE levels A-C) and it was not associated with any of the educational achievement, either at KS1 or at KS2, of other pupils in the school. We also tested for any interaction between individual pupil PIE and school proportion of pupils PIE A-C, and there was no substantive effect. Therefore, there is no evidence that being in a school with a high proportion of pupils acquiring Proficiency in English had any negative association with achievement for other pupils in the school, either in terms of overall pupil achievement or specifically for pupils with first language English/Welsh.

The proportion of pupils in a school eligible for FSM was associated with all achievement outcomes. Including it in models explained 6-11% of additional variation in achievement at the school level, which was highly significant. Being in schools in the highest three quintiles of school proportion entitled to FSM was associated with lower achievement, even after controlling for individual FSM entitlement. The effect size was 0.20 levels, or around 5 NC months¹³, compared with being in a low deprivation school. This has been known for some time (e.g. see Strand, 1997; 1999) but the implications for pupil-led deprivation funding, such as the pupil premium, have not been followed through. Policies that allocate funding solely on a fixed per pupil basis, regardless of the proportion of such pupils attending a school, may not adequately support schools with very high levels of deprivation.

PIE in the transition from primary to secondary school

We know from the previous report (Strand & Lindorff, 2020, p21) that the proportion of pupils recorded as EAL declines between Y6 (6.9%) and Y7 (6.2%). In England, this drop is even more pronounced (DfE, 2020), with Strand et al. (2015) reporting a drop from 17.5% in Y6 to 14.5% in Y7. Our results show the likelihood of being recoded as monolingual English/Welsh in Y7 is particularly pronounced for Fluent pupils (24%) compared to just 4% of pupils at levels A/B. Technically, EAL status is defined by exposure to a language other than (or in addition to) English in the early years of life, and so should not change over time. The results suggest that a conflation of “EAL” with “needing language support” is not uncommon. This further emphasises the importance of having a record of Proficiency in English in addition to an EAL flag, as the two are independent dimensions.

Conclusions

- **There is substantial variation between schools and LAs in the assessment of PIE and in the average time pupils take to progress between PIE levels.** The judgment of PIE, and the time to progress across levels, is strongly influenced by the individual making the assessment, compared with other teacher assessed outcomes (like KS1 and KS2 educational achievement). The implications for policy are that criteria and definitions for proficiency must be clear and agreed nationally, high quality training in how to assess proficiency must be available, and robust moderation procedures should exist, in order to support the consistent and reliable use of a teacher-assessed PIE scale at a national level. Where such criteria and procedures are stronger, as in teacher-assessed achievement at KS1 and KS2, variation between LAs and schools is substantially lower. In particular, consistent interpretation across LAs, and clear leadership and direction for their schools, are necessary to secure a reliable assessment of pupils’ PIE.
- **Proficiency in English is strongly related to levels of educational achievement at KS1 and KS2.** EAL pupils acquiring proficiency (levels A-C) on average score significantly below their English/Welsh peers, while EAL pupils who are Competent or Fluent (D/E) on average score significantly higher than English/Welsh speakers, in both English and mathematics and at both age 7 and age 11. This serves to reaffirm the conclusions from our earlier research that EAL is too blunt a tool to understand pupils’ language learning needs, and that an assessment of a pupil’s Proficiency in English (where it is the language of school instruction) is absolutely essential (e.g. Strand & Demie, 2005; Strand & Hessel, 2018).

13. Teacher Assessment in Wales is recorded in National Curriculum (NC) levels. These are awarded with the expectation that the typical level at age 7 is level 2, at age 9 level 3, at age 11 level 4 and at age 14 level 5/6. Therefore, a NC level represents two years (24 months) of progress.

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- **Pupils of White Other ethnic heritage on average take significantly longer to progress through levels of proficiency and they have the lowest educational achievement at KS1 and KS2 of all ethnic minority groups.** When clustering is taken in account, White Other is the only ethnic minority group that on average takes significantly longer to progress through levels of proficiency. They are also the ethnic group with the lowest educational achievement at KS1 and KS2 in our analyses. White Other is the largest ethnic minority group in Wales, constituting 3% of the pupil population and over one-quarter of all ethnic minority pupils (Welsh Government, 2020), so these results have important implication for targeting support.
 - **The proportion of pupils in a school acquiring Proficiency in English (PIE levels A-C) is not associated with pupil achievement for other pupils in the school, once all individual pupil level variables are included.** Further, having many pupils with English language support needs in a school did not impact the achievement of pupils whose first language was English/Welsh. However, we note that much of our data was collected during the period up to April 2015 when the number of pupils acquiring Proficiency in English was included in formula funding for schools in Wales, and the funding was ring-fenced. Since this is no longer the case, historical associations with educational achievement may change, and will need to be closely monitored in the coming years.
 - **There is a significant negative association with educational achievement in attending a school with a high proportion of pupils entitled to a FSM, over and above the effects of individual deprivation.** While this does not relate specifically to EAL pupils, it was a strong effect and so is highlighted here. It has implication for policies such as the pupil premium, which allocate funding purely on a fixed per pupil basis, regardless of the relative proportion of such pupils attending the school. Our results suggest that to adequately take account of the effect of high concentrations of deprived pupils on achievement, there should also be a “school premium”, awarded to schools with the highest proportions of pupils entitled to FSM.
 - **Secondary schools tend to recode some EAL pupils, particularly those who are fully fluent in English, as monolingual English/Welsh, suggesting some conflation of the term “EAL” with “needing language support”.** We know from the previous report (Strand & Lindorff, 2020, p21) that the proportion of pupils recorded as EAL declines between Y6 (6.9%) and Y7 (6.2%). In England, this drop is even more pronounced (DfE, 2020) with Strand et al. (2015) reporting a drop from 17.5% EAL in Y6 to 14.5% in Y7. Our results show the likelihood of being recoded as monolingual English/Welsh in Y7 is particularly pronounced for Fluent pupils (24%) compared to just 4% of pupils at levels A/B. Technically, EAL status is defined by exposure to a language other than (or in addition to) English in the early years of life, and so should not change over time. The results suggest that a conflation of “EAL” with “needing language support” is not uncommon. This further emphasises the importance of having a record of Proficiency in English in addition to an EAL flag, as the two are independent dimensions.

Limitations

Throughout this report, we treat time to progression through levels of PIE in primary school as a linear outcome. However, this is something of an approximation, as “7” represents “more than 6 years”. To check the robustness of the conclusions that we draw from analyses using this outcome, we ran alternative ordinal models, the results of which are included in the appendices and which did not substantively differ from those reported above.

The same data issues noted in our interim report (Strand & Lindorff, 2020) apply, as we used the same dataset for the analyses in this report. Our results are therefore dependent on the quality of the data. However, investigating patterns in the data in different ways (descriptively, using inferential statistics, using alternative outcomes and models) helps to mitigate issues arising from data quality.

We can only make claims about the analytic sample we used in this report. By necessity, because of complications with the definition and use of PIE levels in context (e.g. for Welsh as well as English language proficiency), we filtered the data to include only English-medium schools. This means that conclusions should not be generalised beyond the population of pupils in English-medium schools. Our use of Welsh data also means that results must be generalised to other contexts with some caution, though, as we note in our previous report (Strand & Lindorff, 2020), there are sufficient similarities between England and Wales to make our results of relevance in both settings.

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Appendix

Appendix A. Levels of Proficiency in English

The below descriptors are taken from the 2017 Wales PLASC guidance (Education Wales, 2016).

A = New to English

May use first language for learning and other purposes. May remain completely silent in the classroom. May be copying/repeating some words or phrases. May understand some everyday expressions in English but may have minimal or no literacy in English. Needs a considerable amount of EAL support.

B = Early Acquisition

May follow day to day social communication in English and participate in learning activities with support. Beginning to use spoken English for social purposes. May understand simple instructions and can follow narrative/accounts with visual support. May have developed some skills in reading and writing. May have become familiar with some subject specific vocabulary. Still needs a significant amount of EAL support to access the curriculum.

C = Developing Competence

May participate in learning activities with increasing independence. Able to express self orally in English, but structural inaccuracies are still apparent. Literacy will require ongoing support, particularly for understanding text and writing. May be able to follow abstract concepts and more complex written English. Requires ongoing EAL support to access the curriculum fully.

D = Competent

Oral English will be developing well, enabling successful engagement in activities across the curriculum. Can read and understand a wide variety of texts. Written English may lack complexity and contain occasional evidence of errors in structure. Needs some support to access subtle nuances of meaning, to refine English usage, and to develop abstract vocabulary. Needs some/occasional EAL support to access complex curriculum material and tasks.

E = Fluent

Can operate across the curriculum to a level of competence equivalent to that of a pupil who uses English as his/her first language. Operates without EAL support across the curriculum.

0 = Not applicable

Appendix B. Descriptive information on time to progression for Pakistani pupils

Table 17 shows that average progression times, even for non-Pakistani pupils, are substantially higher in Cardiff, and particularly in Newport, than in other LAs.

Table 17: Distribution of Pakistani pupils by LA and PIE progression times

LA	Overall Time to progress (mean)				Pakistani Pupils Time to progress (mean)				Non-Pakistani Pupils Time to progress (mean)					
	N	A → B+	A → C+	A → D+	N	% of LA pupils	A → B+	A → C+	A → D+	N	% of LA pupils	A → B+	A → C+	A → D+
Swansea	227	1.86	4.32	6.48	5	2.2	1.60	3.60	7.00	222	97.8	1.87	4.33	6.46
Newport	477	3.49	4.69	6.53	157	32.9	3.87	4.83	6.62	320	67.1	3.30	4.62	6.48
Cardiff	817	2.45	4.70	6.39	147	18.0	2.52	4.97	6.54	670	82.0	2.43	4.64	6.35
Other LA	553	2.18	3.87	5.77	13	2.4	2.62	4.31	5.77	540	97.6	2.17	3.86	5.77
Total	2,074	2.55	4.43	6.27	322	15.5	3.17	4.85	6.56	1,752	84.5	2.44	4.36	6.21

Tables 18 & 19 show that within Cardiff, Pakistani pupils do not have significantly greater transition times at any stage compared to the Any Other reference group (predominantly White British pupils). However, within Newport there is still a small negative association for Pakistani pupils in transition times from A to B. This indicates that, whatever the average patterns at the national level, it is important for LAs to consider their own data to identify patterns or issues locally.

Table 18: Time to progression, linear regression results, Newport LA only

Outcome: Time to progression (Newport only)		A → B+			A → C+			A → D+		
		b	SE	β	b	SE	β	b	SE	β
Intercept		3.09	0.20	***	4.37	0.20	***	6.31	0.14	***
Ethnic group	White Other	0.17	0.30	0.03	0.89	0.30	0.16 **	-0.10	0.21	-0.02
	Black (including Mixed)	0.52	0.43	0.06	0.02	0.43	0.00	0.17	0.30	0.03
	Indian	-0.31	0.39	-0.04	-0.33	0.40	-0.04	-0.42	0.28	-0.08
	Pakistani	0.63	0.22	0.17 **	0.28	0.22	0.08	0.18	0.16	0.07
	Bangladeshi	0.19	0.24	0.05	0.03	0.24	0.01	0.34	0.17	0.12 *
	Asian Mixed/Other	-0.64	0.48	-0.07	-0.85	0.48	-0.08	-0.31	0.34	-0.04
	Chinese	-0.01	0.87	0.00	-1.35	0.88	-0.07	-0.93	0.62	-0.07
FSM	Eligible	0.22	0.21	0.05	0.07	0.21	0.02	0.15	0.15	0.05
Gender	Boy	0.22	0.16	0.06	0.30	0.16	0.09	0.15	0.11	0.06
SEN	Identified	-0.08	0.22	-0.02	0.11	0.22	0.02	0.13	0.16	0.04
Variance explained	R ²	0.04			0.06			0.04		

Note: Time to progression is treated as continuous. R² reflects variance explained. Unstandardised coefficients (b), their standard errors (SE b), and standardised coefficients (units=years) are reported. * p<0.05 ** p<0.01 *** p<0.001. N=477 pupils.

Table 19: Time to progression, linear regression results, Cardiff LA only

Outcome: Time to progression (Cardiff only)		A → B+			A → C+			A → D+		
		b	SE	β	b	SE	β	b	SE	β
Intercept		2.36	0.12	***	4.33	0.18	***	6.32	0.12	***
Ethnic group	White Other	0.09	0.17	0.02	0.42	0.25	0.07	0.22	0.16	0.06
	Black (including Mixed)	-0.25	0.15	-0.07	-0.44	0.22	-0.09 *	-0.18	0.15	-0.06
	Indian	-0.23	0.26	-0.03	-1.08	0.37	-0.11 **	-0.19	0.24	-0.03
	Pakistani	-0.10	0.16	-0.03	0.23	0.22	0.04	0.21	0.15	0.06
	Bangladeshi	-0.44	0.15	-0.12 **	-0.06	0.22	-0.01	0.15	0.15	0.05
	Asian Mixed/Other	-0.16	0.33	-0.02	0.28	0.48	0.02	-0.05	0.32	-0.01
	Chinese	-0.52	0.37	-0.05	-0.35	0.53	-0.02	0.29	0.35	0.03
FSM	Eligible	0.02	0.12	0.01	0.28	0.17	0.06	0.04	0.12	0.01
Gender	Boy	0.17	0.10	0.06	0.45	0.14	0.11 **	-0.05	0.09	-0.02
SEN	Identified	0.99	0.13	0.25 ***	0.65	0.19	0.12 ***	0.15	0.13	0.04
Variance explained	R ²	0.08			0.01			0.00		

Note: Time to progression is treated as continuous. R² reflects variance explained. Unstandardised coefficients (b), their standard errors (SE b), and standardised coefficients (units=years) are reported. * p<0.05 ** p<0.01 *** p<0.001. N=817 pupils.

Appendix C. Basic linear regression results for comparison with multilevel regression results for time to progression outcomes

Table 20: Time to progression from New to English in Reception (in 2009, 2010 and 2011): Basic linear regression results with additional filter for comparison with multilevel results

Outcome: Time to progression		A → B+			A → C+			A → D+			A → E+		
		b	SE	β	b	SE	β	b	SE	β	b	SE	β
Intercept		2.39	0.09	***	4.09	0.11	***	6.17	0.08	***	6.87	0.05	***
Ethnic group	White Other	-0.02	0.12	-0.01	0.26	0.14	0.06	0.08	0.10	0.02	-0.07	0.06	-0.03
	Black (including Mixed)	-0.04	0.14	-0.01	-0.02	0.17	0.00	-0.10	0.12	-0.02	-0.25	0.07	-0.10 ***
	Indian	-0.24	0.18	-0.04	-0.51	0.21	-0.06 *						
	Pakistani	0.62	0.12	0.15 ***	0.44	0.14	0.09 **	0.30	0.10	0.09 **	0.02	0.06	0.01
	Bangladeshi	-0.11	0.11	-0.03	0.09	0.14	0.02	0.23	0.10	0.07 *	-0.01	0.06	-0.01
	Asian Mixed/Other	-0.59	0.20	-0.08 **	-0.43	0.24	-0.05	-0.15	0.16	-0.02	-0.10	0.10	-0.03
	Chinese	-0.42	0.28	-0.04	-0.38	0.34	-0.03	0.15	0.23	0.02	-0.01	0.14	0.00
FSM	Eligible	0.10	0.10	0.03	0.24	0.12	0.05 *	0.18	0.08	0.06 *	0.10	0.05	0.05 *
Gender	Boy	0.09	0.07	0.03	0.39	0.09	0.10 ***	0.06	0.06	0.02	-0.03	0.04	-0.02
SEN	Identified	0.55	0.10	0.13 ***	0.47	0.12	0.09 ***	0.18	0.09	0.05 *	0.01	0.05	0.01
Variance explained	R ²	0.06			0.04			0.02			0.01		

Note: Time to progression is treated as continuous. Filtered for only pupils in schools with at least 3 who had PIE=A in Reception, for comparison with multilevel results. R² reflects variance explained. Unstandardised coefficients (b), their standard errors (SE b), and standardised coefficients (units=years) are reported. * p<0.05 ** p<0.01 *** p<0.001.

Appendix D. Basic ordinal regression results for time to progression outcomes

Table 21: Time to progression from New to English in Reception (in 2009, 2010 and 2011): Basic ordinal regression results

Outcome: Time to progression		A → B+	A → C	A → D+	A → D+
Threshold	1 year	-0.61 ***	-2.22 ***	-3.74 ***	-5.05 ***
	2 years	0.56 ***	-1.02 ***	-2.76 ***	-4.27 ***
	3 years	1.37 ***	-0.23 *	-2.19 ***	-3.60 ***
	4 years	2.20 ***	0.45 ***	-1.66 ***	-3.17 ***
	5 years	2.84 ***	1.11 ***	-1.06 ***	-2.71 ***
	6 years	3.55 ***	1.76 ***	-0.37 **	-2.07 ***
Ethnic group	White Other	0.91	1.20	1.05	0.84
	Black (including Mixed)	0.88	1.01	0.96	0.62
	Indian	0.76	0.73	0.81	0.66
	Pakistani	2.13 ***	1.56 ***	2.00 ***	2.40 **
	Bangladeshi	0.94	1.15	1.70 ***	1.31
	Asian Mixed/Other	0.53 **	0.72	1.02	0.92
	Chinese	0.71	0.63	0.75	0.61
FSM	Eligible	1.21	1.35 **	1.39 *	1.69 *
Gender	Boy	1.09	1.46 ***	1.25 *	1.14
SEN	Identified	1.59 ***	1.57 ***	1.84 ***	1.61
Nagelkerke's Pseudo-R ²		0.05	0.04	0.04	0.03

Note: Time to progression is treated as ordinal. Pseudo-R² reflects an analogue of variance explained. Proportional odds assumption not met -- results are therefore to be interpreted with caution. Parameters displayed are cumulative logits for threshold categories, Odds Ratios for all predictor variables. * p<0.05 ** p<0.01 *** p<0.001.

Table 22: Time to progression from Level A in Reception (in 2009, 2010 and 2011): Basic ordinal regression results with additional filter for comparison with multilevel results

Outcome: Time to progression		A → B+	A → C	A → D+	A → D+
Threshold	1 year	-0.65 ***	-2.45 ***	-4.13 ***	-5.29 ***
	2 years	0.54 ***	-1.15 ***	-2.97 ***	-4.59 ***
	3 years	1.37 ***	-0.33 **	-2.43 ***	-3.95 ***
	4 years	2.28 ***	0.35 **	-1.90 ***	-3.64 ***
	5 years	2.98 ***	1.03 ***	-1.27 ***	-3.21 ***
	6 years	3.83 ***	1.72 ***	-0.55 ***	-2.48 ***
Ethnic group	White Other	1.00	1.29	1.06	0.69
	Black (incl. Mixed)	0.96	1.03	0.99	0.52 *
	Indian	0.74	0.60 *	0.71	0.52
	Pakistani	2.19 ***	1.48 **	1.79 **	1.87
	Bangladeshi	0.94	1.10	1.56 **	0.99
	Asian Mixed/Other	0.47 **	0.66	0.78	0.61
	Chinese	0.67	0.70	1.01	0.57
FSM	Eligible	1.10	1.23	1.26	1.78 *
Gender	Boy	1.10	1.44 ***	1.25 *	1.08
SEN	Identified	1.74 ***	1.64 ***	1.77 ***	1.37
Nagelkerke's Pseudo-R ²		0.06	0.04	0.03	0.03

Note: Time to progression is treated as ordinal. Filtered for only pupils in schools with at least 3 who had PIE=A in Reception, for comparison with multilevel results. Pseudo-R² reflects an analogue of variance explained. Proportional odds assumption not met--results are therefore to be interpreted with caution. Parameters displayed are cumulative logits for threshold categories, Odds Ratios for all predictor variables. * p<0.05 ** p<0.01 *** p<0.001.

Appendix E. Ordinal multilevel regression results for time to progression outcomes

Table 23: Time to progression: Ordinal multilevel regression results

Outcome: Time to progression	A → B+			A → C+			A → D+		
	M0	M1	M2	M0	M1	M2	M0	M1	M2
Threshold									
1 year	-0.72 ***	-0.45 *	-0.07	-2.88 ***	-2.48 ***	-1.95 ***	-4.76 ***	-4.36 ***	-3.60 ***
2 years	0.72 ***	1.02 ***	1.40 ***	-1.47 ***	-1.04 ***	-0.52	-3.54 ***	-3.13 ***	-2.37 ***
3 years	1.79 ***	2.12 ***	2.50 ***	-0.55 ***	-0.10	0.43 *	-2.94 ***	-2.54 ***	-1.78 ***
4 years	2.96 ***	3.30 ***	3.68 ***	0.24	0.73 ***	1.25 ***	-2.31 ***	-1.90 ***	-1.15 ***
5 years	3.80 ***	4.17 ***	4.55 ***	1.02 ***	1.53 ***	2.06 ***	-1.54 ***	-1.12 ***	-0.36
6 years	4.72 ***	5.10 ***	5.48 ***	1.77 ***	2.31 ***	2.84 ***	-0.64 ***	-0.20	0.56 *
Ethnic group									
White Other		1.36	1.47 *		1.77 ***	1.90 ***		1.70 *	1.86 **
Black (including Mixed)		0.87	0.87		0.84	0.81		1.02	0.96
Indian		0.94	0.95		0.74	0.75		1.02	1.04
Pakistani		1.14	1.08		0.96	0.92		1.21	1.12
Bangladeshi		0.85	0.85		0.97	0.96		1.24	1.19
Asian Mixed/Other		0.64	0.65		0.80	0.84		0.95	1.01
Chinese		0.97	1.02		0.96	0.98		1.86	1.85
FSM		1.05	1.06		1.21	1.19		1.02	0.99
Eligible		1.29 **	1.29 **		1.57 ***	1.56 ***		1.27 *	1.27 *
Gender									
Boy		2.13 ***	2.13 ***		1.89 ***	1.90 ***		1.91 **	1.97 **
SEN									
Identified									
LA									
Swansea			0.69			1.63			2.76 **
Newport			5.36 ***			3.12 ***			4.67 ***
Cardiff			1.55			2.19 **			2.89 ***
Variance									
School	1.27 ***	1.37 ***	0.97 ***	1.03 ***	1.15 ***	0.98 ***	1.65 ***	1.76 ***	1.45 ***
(Residual) VPC	0.28	0.29	0.23	0.24	0.26	0.23	0.33	0.35	0.31
Model fit	39,284.8	39,594.0	39,485.7	30,464.1	31,310.5	31,386.6	42,839.0	43,361.6	43,718.7
-2LL									
△-2LL	-	-309.2	108.3	-	-846.4	-76.1	-	-522.7	-357.1

Note: Time to progression is treated as ordinal. Proportional odds assumption not met--results are therefore to be interpreted with caution. Parameters displayed are cumulative logits for threshold categories. Odds Ratios for all predictor variables. M0=empty model. M1=all pupil demographic characteristics. M2=M1 plus fixed effects for Local Authority (Swansea, Newport, Cardiff, with other LAs as reference). -2LL = -2 Log Likelihood. VPC = Variance Partition Coefficient (latent calculation); Residual VPC = proportion of remaining unexplained variance. Note that variances cannot be directly compared because of rescaling. * p<0.05 ** p<0.01 *** p<0.001.

Appendix F. Combined (English plus maths) teacher assessment: Multilevel regression results

In addition to models run with only English or mathematics teacher assessment levels as outcomes (Tables 12-15 in Section 5 of this report), we also ran models with the achievement outcome defined as English teacher assessment level plus mathematics teacher assessment level. This was done for both Key Stage 1 and Key Stage 2. Results are given in Tables 24 and 25, below.

Table 24: Key Stage 1 English + Maths teacher assessment & PIE: Multilevel regression results

Outcome: Key Stage 1 Combined (English + Maths)		M0	M1	M2	M3	M4
Intercept		10.38 ***	10.39 ***	10.89 ***	11.00 ***	11.00 ***
PIE	A to C		-0.15 ***	-0.18 ***	-0.18 ***	-0.11
	D or E		0.46 ***	0.28 ***	0.28 ***	-0.02
FSM	Eligible			-0.35 ***	-0.34 ***	-0.34 ***
Gender	Boy			-0.09 ***	-0.09 ***	-0.09 ***
SEN	Identified			-1.46 ***	-1.46 ***	-1.46 ***
Ethnic group	White Other			-0.22 ***	-0.22 ***	-0.22 ***
	Black (including Mixed)			0.05	0.06	0.06
	Indian			0.24 ***	0.24 ***	0.24 ***
	Pakistani			0.00	0.00	0.00
	Bangladeshi			0.08	0.08	0.09
	Asian Mixed/Other			0.14 **	0.14 **	0.14 **
	Chinese			0.24 **	0.24 **	0.24 *
School	Highest				0.01	0.01
Proportion PIE	High-Average				0.02	0.02
A-C (Quintiles)	Average				0.01	0.01
	Low-Average				0.04	0.04
School	Highest				-0.22 ***	-0.22 ***
Proportion	High-Average				-0.23 ***	-0.23 ***
FSM (Quintiles)	Average				-0.15 ***	-0.15 ***
	Low-Average				-0.05	-0.05
School	Highest * Pupil A-C					-0.08
Proportion PIE	High-Average * Pupil A-C					-0.04
A-C (Quintiles)	Average * Pupil A-C					-0.05
* Pupil A-C	Low-Average * Pupil A-C					0.06
School	Highest * Pupil D-E					0.28
Proportion PIE	High-Average * Pupil D-E					0.33
A-C (Quintiles)	Average * Pupil D-E					0.40 *
* Pupil D-E	Low-Average * Pupil D-E					0.36
Variance	Pupil	1.88 ***	1.88 ***	1.46 ***	1.46 ***	1.46 ***
	School	0.14 ***	0.14 ***	0.08 ***	0.08 ***	0.08 ***
(Residual) VPC	Pupil	0.93	0.93	0.95	0.95	0.95
	School	0.07	0.07	0.05	0.05	0.05
% Variance explained	Pupil	--	0.00	0.23	0.23	0.23
	School	--	0.01	0.41	0.46	0.47
Model fit	-2RLL	255,501.7	255,336.2	236,580.5	236,555.2	236,568.2
	△-2RLL	--	165.4	18755.7	25.3	-13.0

Note: M0=empty model with no predictors. M1=model with only PIE (A-C, D-E or English/Welsh speaker). M2=model with all pupil demographic characteristics. M3=model with all pupil demographic characteristics plus school proportions PIE A-C and FSM (quintiles). M4=M3 plus an interaction between school proportion PIE A-C and pupil PIE (A-C, D-E or English/Welsh speaker). -2 Restricted Log Likelihood (-2RLL) is used to assess model fit for consistency across analyses and avoidance of inflated Type-I error rates. VPC = Variance Partition Coefficient (proportion of total variance in the outcome at a particular level, pupil or school); Residual VPC = proportion of remaining unexplained variance at a given level. * p<0.05 ** p<0.01 *** p<0.001.

Table 25: Key Stage 2 English + Maths teacher assessment & PIE: Multilevel regression results

Outcome: Key Stage 2 Combined (English + Maths)		M0	M1	M2	M3	M4	M5
Intercept		8.61 ***	8.61 ***	9.16 ***	8.58 ***	8.79 ***	8.79 ***
PIE	A to C		-0.31 ***	-0.26 ***	-0.23 ***	-0.22 ***	1.21
	D or E		0.63 ***	0.31 ***	0.29 ***	0.30 ***	0.17
FSM	Eligible			-0.41 ***	-0.38 ***	-0.36 ***	-0.36 ***
Gender	Boy			-0.04 ***	-0.03 ***	-0.03 ***	-0.03 ***
SEN	Identified			-1.62 ***	-1.50 ***	-1.49 ***	-1.49 ***
Ethnic group	White Other			-0.08 *	-0.08 *	-0.09 *	-0.09 *
	Black (including Mixed)			-0.01	-0.03	-0.03	-0.03
	Indian			0.29 ***	0.25 ***	0.24 ***	0.24 ***
	Pakistani			-0.10	-0.12 *	-0.12 *	-0.13 *
	Bangladeshi			-0.08	-0.09	-0.08	-0.09
	Asian Mixed/Other			0.11 *	0.10 *	0.09	0.10 *
	Chinese			0.14	0.13	0.13	0.14
Prior attainment	KS1 English + Maths				0.09 ***	0.09 ***	0.09 ***
School	Highest					0.06	0.05
Proportion PIE	High-Average					-0.01	-0.01
A-C (Quintiles)	Average					0.02	0.03
	Low-Average					-0.04	-0.04
School	Highest					-0.36 ***	-0.36 ***
Proportion FSM	High-Average					-0.34 ***	-0.34 ***
(Quintiles)	Average					-0.27 ***	-0.27 ***
	Low-Average					-0.14 ***	-0.14 ***
School	Highest * Pupil A-C						-1.42
Proportion PIE	High-Average * Pupil A-C						-1.45
A-C (Quintiles)	Average * Pupil A-C						-1.42
* Pupil A-C	Low-Average * Pupil A-C						-1.83 *
School	Highest * Pupil D-E						0.19
Proportion PIE	High-Average * Pupil D-E						0.15
A-C (Quintiles)	Average * Pupil D-E						-0.03
* Pupil D-E	Low-Average * Pupil D-E						0.03
Variance	Pupil	1.74 ***	1.72 ***	1.19 ***	1.13 ***	1.13 ***	1.13 ***
	School	0.16 ***	0.16 ***	0.08 ***	0.08 ***	0.06 ***	0.06 ***
(Residual) VPC	Pupil	0.92	0.92	0.94	0.94	0.95	0.95
	School	0.08	0.08	0.06	0.06	0.05	0.05
% Variance	Pupil	--	0.01	0.31	0.35	0.35	0.35
explained	School	--	0.00	0.51	0.52	0.63	0.63
Model fit	-2RLL	213,213.2	212,724.5	189,586.1	186,082.0	185,964.1	185,963.3
	△ -2RLL	--	488.7	23138.4	3504.1	118.0	0.7

Note: M0=empty model with no predictors. M1=model with only PIE (A-C, D-E or English/Welsh speaker). M2=model with all pupil demographic characteristics. M3=M2 plus combined prior attainment (teacher assessments in English plus Maths) in KS1. M4=M3 plus school proportions PIE A-C and FSM (quintiles). M5=M4 plus an interaction between school proportion PIE A-C and pupil PIE (A-C, D-E or English/Welsh speaker). -2 Restricted Log Likelihood (-2RLL) is used to assess model fit for consistency across analyses and avoidance of inflated Type-I error rates. VPC = Variance Partition Coefficient (proportion of total variance in the outcome at a particular level, pupil or school); Residual VPC = proportion of remaining unexplained variance at a given level. * p<0.05 ** p<0.01 *** p<0.001.

Appendix G. Multilevel regression models for achievement outcomes (teacher assessment) using EAL rather than PIE

In addition to models run with PIE categories (A-C, D/E or English/Welsh speaker) as the focal variable, we also ran equivalent models with EAL status (EAL or English/Welsh speaker) as the focal variable instead. This was done for both KS1 and KS2. Results are given in Tables 26-31, below.

Table 26: Key Stage 1 English teacher assessment & EAL: Multilevel regression results

Outcome: Key Stage 1 English		M0	M1	M2	M3	M4
Intercept		5.19 ***	5.19 ***	5.48 ***	5.55 ***	5.55 ***
EAL	Yes		-0.04 ***	-0.06 ***	-0.06 ***	-0.13
FSM	Eligible			-0.18 ***	-0.17 ***	-0.17 ***
Gender	Boy			-0.11 ***	-0.11 ***	-0.11 ***
SEN	Identified			-0.76 ***	-0.76 ***	-0.76 ***
Ethnic group	White Other			-0.16 ***	-0.16 ***	-0.16 ***
	Black (including Mixed)			0.06 ***	0.06 ***	0.06 ***
	Indian			0.12 ***	0.12 ***	0.13 ***
	Pakistani			0.00	0.00	0.00
	Bangladeshi			0.03	0.03	0.04
	Asian Mixed/Other			0.07 **	0.07 **	0.07 **
	Chinese			0.05	0.05	0.04
School	Highest				0.00	0.00
Proportion EAL (Quintiles)	High-Average				0.00	0.01
	Average				0.01	0.01
	Low-Average				-0.01	-0.02
School	Highest				-0.12 ***	-0.12 ***
Proportion FSM (Quintiles)	High-Average				-0.13 ***	-0.13 ***
	Average				-0.07 ***	-0.07 ***
	Low-Average				-0.03	-0.03
School	Highest					0.06
Proportion EAL (Quintiles)	High-Average					0.07
	Average					0.16
* Pupil EAL	Low-Average					0.11
Variance	Pupil	0.55 ***	0.55 ***	0.43 ***	0.43 ***	0.43 ***
	School	0.04 ***	0.04 ***	0.02 ***	0.02 ***	0.02 ***
(Residual) VPC	Pupil	0.94	0.94	0.95	0.95	0.95
	School	0.06	0.06	0.05	0.05	0.05
% Variance explained	Pupil	--	0.00	0.22	0.22	0.22
	School	--	0.01	0.41	0.46	0.46
Model fit	-2RLL	165,533.0	165,525.1	147,365.2	147,348.6	147,355.4
	△-2RLL	--	7.8	18159.9	16.6	-6.8

Note: M0=empty model with no predictors. M1=model with only pupil EAL indicator. M2=model with all pupil demographic characteristics. M3=model with all pupil demographic characteristics plus school proportions EAL and FSM (quintiles). M4=M3 plus an interaction between school proportion EAL and pupil EAL. -2 Restricted Log Likelihood (-2RLL) is used to assess model fit for consistency across analyses and avoidance of inflated Type-I error rates. VPC = Variance Partition Coefficient (proportion of total variance in the outcome at a particular level, pupil or school); Residual VPC = proportion of remaining unexplained variance at a given level. * p<0.05 ** p<0.01 *** p<0.001.

Table 27: Key Stage 1 Maths teacher assessment & EAL: Multilevel regression results

Outcome: Key Stage 1 maths		M0	M1	M2	M3	M4
Intercept		5.19 ***	5.19 ***	5.40 ***	5.48 ***	5.48 ***
EAL	Yes		0.01	-0.02	-0.01	0.06
FSM	Eligible			-0.17 ***	-0.16 ***	-0.16 ***
Gender	Boy			0.02 ***	0.02 ***	0.02 ***
SEN	Identified			-0.71 ***	-0.70 ***	-0.70 ***
Ethnic group	White Other			-0.10 ***	-0.10 ***	-0.11 ***
	Black (including Mixed)			0.01	0.01	0.01
	Indian			0.11 ***	0.11 ***	0.11 ***
	Pakistani			-0.05	-0.05	-0.04
	Bangladeshi			0.00	0.00	0.01
	Asian Mixed/Other			0.07 **	0.07 **	0.07 **
	Chinese			0.15 **	0.15 **	0.15 **
School	Highest				-0.02	-0.01
Proportion EAL (Quintiles)	High-Average				-0.01	-0.02
	Average				-0.01	-0.01
	Low-Average				-0.03	-0.03
School	Highest				-0.11 ***	-0.11 ***
Proportion FSM (Quintiles)	High-Average				-0.12 ***	-0.11 ***
	Average				-0.07 ***	-0.07 ***
	Low-Average				-0.02	-0.02
School	Highest					-0.10
Proportion EAL (Quintiles)	High-Average					-0.04
	Average					0.02
	* Pupil EAL					-0.05
Variance	Pupil	0.52 ***	0.52 ***	0.43 ***	0.43 ***	0.43 ***
	School	0.03 ***	0.04 ***	0.02 ***	0.02 ***	0.02 ***
(Residual) VPC	Pupil	0.94	0.94	0.95	0.96	0.96
	School	0.06	0.06	0.05	0.04	0.04
% Variance explained	Pupil	--	0.00	0.18	0.18	0.18
	School	--	0.00	0.39	0.45	0.45
Model fit	-2RLL	161,652.2	161,658.9	146,825.9	146,810.4	146,808.9
	△-2RLL	--	-6.7	14833.0	15.5	1.5

Note: M0=empty model with no predictors. M1=model with only pupil EAL indicator. M2=model with all pupil demographic characteristics. M3=model with all pupil demographic characteristics plus school proportions EAL and FSM (quintiles). M4=M3 plus an interaction between school proportion EAL and pupil EAL. -2 Restricted Log Likelihood (-2RLL) is used to assess model fit for consistency across analyses and avoidance of inflated Type-I error rates. VPC = Variance Partition Coefficient (proportion of total variance in the outcome at a particular level, pupil or school); Residual VPC = proportion of remaining unexplained variance at a given level. * p<0.05 ** p<0.01 *** p<0.001.

Table 28: Key Stage 2 English teacher assessment & EAL: Multilevel regression results

Outcome: Key Stage 2 English		M0	M1	M2	M3	M4	M5
Intercept		4.31 ***	4.30 ***	4.63 ***	4.34 ***	4.45 ***	4.45 ***
EAL	Yes		0.05 ***	0.00	0.00	0.00	0.09
FSM	Eligible			-0.22 ***	-0.20 ***	-0.19 ***	-0.19 ***
Gender	Boy			-0.10 ***	-0.09 ***	-0.09 ***	-0.09 ***
SEN	Identified			-0.83 ***	-0.77 ***	-0.76 ***	-0.76 ***
Ethnic group	White Other			-0.09 ***	-0.09 ***	-0.09 ***	-0.09 ***
	Black (including Mixed)			0.02	0.01	0.01	0.01
	Indian			0.12 ***	0.10 **	0.10 **	0.10 **
	Pakistani			-0.07 *	-0.08 **	-0.08 **	-0.07 *
	Bangladeshi			-0.07 *	-0.08 **	-0.07 *	-0.07 *
	Asian Mixed/Other			0.07 *	0.06 *	0.06 *	0.06 *
	Chinese			0.00	0.00	0.00	-0.01
Prior attainment	KS1 English				0.08 ***	0.08 ***	0.08 ***
School	Highest					0.03	0.03
Proportion EAL (Quintiles)	High-Average					0.01	0.01
	Average					0.01	0.01
	Low-Average					-0.02	-0.02
School	Highest					-0.19 ***	-0.19 ***
Proportion FSM (Quintiles)	High-Average					-0.18 ***	-0.18 ***
	Average					-0.13 ***	-0.13 ***
	Low-Average					-0.08 ***	-0.08 ***
School	Highest						-0.10
Proportion EAL (Quintiles)	High-Average						-0.05
	Average						-0.05
	Low-Average						-0.15
Variance	Pupil	0.49 ***	0.49 ***	0.34 ***	0.33 ***	0.33 ***	0.33 ***
	School	0.04 ***	0.04 ***	0.02 ***	0.02 ***	0.01 ***	0.01 ***
(Residual) VPC	Pupil	0.92	0.92	0.95	0.94	0.96	0.96
	School	0.08	0.08	0.05	0.06	0.04	0.04
% Variance explained	Pupil	--	0.00	0.30	0.33	0.33	0.33
	School	--	0.00	0.53	0.53	0.64	0.64
Model fit	-2RLL	132,224.0	132,218.1	110,316.2	107,410.2	107,296.8	107,306.9
	△-2RLL	--	6.0	21901.9	2906.0	113.4	-10.1

Note: M0=empty model with no predictors. M1=model with only PIE (A-C, D-E or English/Welsh speaker). M2=model with all pupil demographic characteristics. M3=M2 plus prior attainment in English in KS1. M4=M3 plus school proportions EAL and FSM (quintiles). M5=M4 plus an interaction between school proportion EAL and pupil EAL. -2 Restricted Log Likelihood (-2RLL) is used to assess model fit for consistency across analyses and avoidance of inflated Type-I error rates. VPC = Variance Partition Coefficient (proportion of total variance in the outcome at a particular level, pupil or school); Residual VPC = proportion of remaining unexplained variance at a given level. * p<0.05 ** p<0.01 *** p<0.001.

Table 29: Key Stage 2 Maths teacher assessment & EAL: Multilevel regression results

Outcome: Key Stage 2 maths		M0	M1	M2	M3	M4	M5
Intercept		4.31 ***	4.31 ***	4.53 ***	4.24 ***	4.34 ***	4.34 ***
EAL	Yes		0.11 ***	0.04 **	0.05 ***	0.05 ***	0.22
FSM	Eligible			-0.19 ***	-0.18 ***	-0.17 ***	-0.17 ***
Gender	Boy			0.06 ***	0.06 ***	0.06 ***	0.06 ***
SEN	Identified			-0.80 ***	-0.74 ***	-0.74 ***	-0.74 ***
Ethnic group	White Other			-0.03	-0.03	-0.03	-0.03
	Black (including Mixed)			-0.03	-0.04 *	-0.04 *	-0.04 *
	Indian			0.18 ***	0.16 ***	0.16 ***	0.16 ***
	Pakistani			-0.10 **	-0.10 ***	-0.10 ***	-0.10 ***
	Bangladeshi			-0.07 *	-0.08 **	-0.07 *	-0.07 *
	Asian Mixed/Other			0.07 **	0.06 *	0.06 *	0.06 *
	Chinese			0.10	0.09	0.09	0.08
Prior attainment	KS1 Maths				0.09 ***	0.09 ***	0.09 ***
School	Highest					0.02	0.02
Proportion EAL (Quintiles)	High-Average					0.00	0.00
	Average					0.01	0.01
	Low-Average					-0.02	-0.02
School	Highest					-0.17 ***	-0.17 ***
Proportion FSM (Quintiles)	High-Average					-0.17 ***	-0.17 ***
	Average					-0.13 ***	-0.13 ***
	Low-Average					-0.07 ***	-0.07 ***
School	Highest						-0.17
Proportion EAL (Quintiles)	High-Average						-0.17
	Average						-0.10
	Low-Average						-0.27
Variance	Pupil	0.48 ***	0.48 ***	0.36 ***	0.34 ***	0.34 ***	0.34 ***
	School	0.04 ***	0.04 ***	0.02 ***	0.02 ***	0.02 ***	0.02 ***
(Residual) VPC	Pupil	0.93	0.93	0.95	0.95	0.96	0.96
	School	0.07	0.07	0.05	0.05	0.04	0.04
% Variance explained	Pupil	--	0.00	0.26	0.30	0.30	0.30
	School	--	-0.01	0.49	0.49	0.59	0.59
Model fit	-2RLL	133,095.0	133,030.8	113,882.7	110,702.6	110,617.3	110,624.9
	△-2RLL	--	64.2	19148.1	3180.1	85.3	-7.6

Note: M0=empty model with no predictors. M1=model with only PIE (A-C, D-E or English/Welsh speaker). M2=model with all pupil demographic characteristics. M3=M2 plus prior attainment in Maths in KS1. M4=M3 plus school proportions EAL and FSM (quintiles). M5=M4 plus an interaction between school proportion EAL and pupil EAL. -2 Restricted Log Likelihood (-2RLL) is used to assess model fit for consistency across analyses and avoidance of inflated Type-I error rates. VPC = Variance Partition Coefficient (proportion of total variance in the outcome at a particular level, pupil or school); Residual VPC = proportion of remaining unexplained variance at a given level. * p<0.05 ** p<0.01 *** p<0.001.

Table 30: Key Stage 1 combined (English + mathematics) teacher assessment & EAL: Multilevel regression results

Outcome: Key Stage 1 Combined (English + maths)		M0	M1	M2	M3	M4
Intercept		10.38 ***	10.39 ***	10.89 ***	11.00 ***	11.00 ***
PIE	A to C		-0.15 ***	-0.18 ***	-0.18 ***	-0.11
	D or E		0.46 ***	0.28 ***	0.28 ***	-0.02
FSM	Eligible			-0.35 ***	-0.34 ***	-0.34 ***
Gender	Boy			-0.09 ***	-0.09 ***	-0.09 ***
SEN	Identified			-1.46 ***	-1.46 ***	-1.46 ***
Ethnic group	White Other			-0.22 ***	-0.22 ***	-0.22 ***
	Black (including Mixed)			0.05	0.06	0.06
	Indian			0.24 ***	0.24 ***	0.24 ***
	Pakistani			0.00	0.00	0.00
	Bangladeshi			0.08	0.08	0.09
	Asian Mixed/Other			0.14 **	0.14 **	0.14 **
	Chinese			0.24 **	0.24 **	0.24 *
School	Highest				0.01	0.01
Proportion PIE	High-Average				0.02	0.02
A-C (Quintiles)	Average				0.01	0.01
	Low-Average				0.04	0.04
School	Highest				-0.22 ***	-0.22 ***
Proportion FSM	High-Average				-0.23 ***	-0.23 ***
(Quintiles)	Average				-0.15 ***	-0.15 ***
	Low-Average				-0.05	-0.05
School	Highest * Pupil A-C					-0.08
Proportion PIE	High-Average * Pupil A-C					-0.04
A-C (Quintiles)	Average * Pupil A-C					-0.05
* Pupil A-C	Low-Average * Pupil A-C					0.06
School	Highest * Pupil D-E					0.28
Proportion PIE	High-Average * Pupil D-E					0.33
A-C (Quintiles)	Average * Pupil D-E					0.40 *
Pupil D-E	Low-Average * Pupil D-E					0.36
Variance	Pupil	1.88 ***	1.88 ***	1.46 ***	1.46 ***	1.46 ***
	School	0.14 ***	0.14 ***	0.08 ***	0.08 ***	0.08 ***
(Residual) VPC	Pupil	0.93	0.93	0.95	0.95	0.95
	School	0.07	0.07	0.05	0.05	0.05
% Variance explained	Pupil	--	0.00	0.23	0.23	0.23
	School	--	0.01	0.41	0.46	0.47
Model fit	-2RLL	255,501.7	255,336.2	236,580.5	236,555.2	236,568.2
	△-2RLL	--	165.4	18755.7	25.3	-13.0

Note: M0=empty model with no predictors. M1=model with only PIE (A-C, D-E or English/Welsh speaker). M2=model with all pupil demographic characteristics. M3=model with all pupil demographic characteristics plus school proportions PIE A-C and FSM (quintiles). M4=M3 plus an interaction between school proportion PIE A-C and pupil PIE (A-C, D-E or English/Welsh speaker). -2 Restricted Log Likelihood (-2RLL) is used to assess model fit for consistency across analyses and avoidance of inflated Type-I error rates. VPC = Variance Partition Coefficient (proportion of total variance in the outcome at a particular level, pupil or school); Residual VPC = proportion of remaining unexplained variance at a given level. * p<0.05 ** p<0.01 *** p<0.001.

**Table 31: Key Stage 2 combined (English + mathematics) teacher assessment & EAL:
Multilevel regression results**

Outcome: Key Stage 2 Combined (English +maths)		M0	M1	M2	M3	M4	M5
Intercept		8.61 ***	8.60 ***	9.16 ***	8.58 ***	8.79 ***	8.79 ***
EAL	Yes		0.16 ***	0.04	0.05	0.05 *	0.31
FSM	Eligible			-0.41 ***	-0.38 ***	-0.36 ***	-0.36 ***
Gender	Boy			-0.04 ***	-0.03 ***	-0.03 ***	-0.03 ***
SEN	Identified			-1.63 ***	-1.51 ***	-1.50 ***	-1.50 ***
Ethnic group	White Other			-0.12 **	-0.11 **	-0.12 **	-0.12 **
	Black (including Mixed)			-0.01	-0.04	-0.03	-0.03
	Indian			0.31 ***	0.27 ***	0.26 ***	0.27 ***
	Pakistani			-0.17 **	-0.18 ***	-0.18 ***	-0.17 **
	Bangladeshi			-0.15 **	-0.16 **	-0.15 **	-0.14 **
	Asian Mixed/Other			0.14 **	0.12 *	0.12 *	0.12 *
	Chinese			0.10	0.10	0.09	0.08
Prior attainment	KS1 English + maths				0.09 ***	0.09 ***	0.09 ***
School	Highest					0.04	0.05
Proportion EAL (Quintiles)	High-Average					0.01	0.01
	Average					0.02	0.02
	Low-Average					-0.04	-0.04
School	Highest					-0.35 ***	-0.35 ***
Proportion FSM (Quintiles)	High-Average					-0.35 ***	-0.35 ***
	Average					-0.27 ***	-0.27 ***
	Low-Average					-0.14 ***	-0.14 ***
School	Highest						-0.28
Proportion EAL (Quintiles)	High-Average						-0.22
	Average						-0.15
	* Pupil EAL						-0.42
Variance	Pupil	1.74 ***	1.74 ***	1.20 ***	1.13 ***	1.13 ***	1.13 ***
	School	0.16 ***	0.16 ***	0.08 ***	0.07 ***	0.06 ***	0.06 ***
(Residual) VPC	Pupil	0.92	0.92	0.94	0.94	0.95	0.95
	School	0.08	0.08	0.06	0.06	0.05	0.05
% Variance explained	Pupil	--	0.00	0.31	0.35	0.35	0.35
	School	--	0.00	0.52	0.52	0.63	0.63
Model fit	-2RLL	213,213.2	213,175.9	189,819.8	186,286.7	186,167.5	186,171.3
	△-2RLL	--	37.3	23356.2	3533.0	119.2	-3.8

Note: M0=empty model with no predictors. M1=model with only PIE (A-C, D-E or English/Welsh speaker). M2=model with all pupil demographic characteristics. M3=M2 plus combined prior attainment (teacher assessments in English plus Maths) in KS1. M4=M3 plus school proportions EAL and FSM (quintiles). M5=M4 plus an interaction between school proportion EAL and pupil EAL. -2 Restricted Log Likelihood (-2RLL) is used to assess model fit for consistency across analyses and avoidance of inflated Type-I error rates. VPC = Variance Partition Coefficient (proportion of total variance in the outcome at a particular level, pupil or school); Residual VPC = proportion of remaining unexplained variance at a given level. * p<0.05 ** p<0.01 *** p<0.001.

Appendix H. Y6-Y7 transition matrices for the eight individual cohorts (2009-10 to 2016-17)

	Y7 in... 2010	2011							2012						
		Eng.	A	B	C	D	E	Total N	Eng.	A	B	C	D	E	Total N
Y6 Eng/Wel.		99.5	0.0	0.0	0.1	0.1	0.3	23,261	99.6	0.0	0.0	0.1	0.1	0.2	21,918
A		5.6	36.7	43.3	12.2	1.1	1.1	90	6.1	37.4	35.4	19.2	0.0	2.0	99
B		6.0	2.5	46.3	38.8	5.0	1.5	201	2.1	1.0	43.8	46.2	4.8	2.1	292
C		8.8	0.2	4.4	60.6	20.3	5.7	523	4.3	0.0	2.3	75.9	12.8	4.7	556
D		21.6	0.0	0.4	10.0	54.8	13.3	241	4.5	0.0	1.7	17.3	66.1	10.4	289
E		36.6	0.2	0.8	2.5	3.9	56.1	610	9.1	0.0	0.6	4.0	2.6	83.6	470
Total		94.2	0.2	0.7	1.9	1.2	1.9	--	92.8	0.2	0.8	2.8	1.3	2.2	--
Total N		23,481	42	166	462	305	470	24,926	21,920	40	188	660	307	509	23,624
2013															
Y6 Eng/Wel.		99.7	0.0	0.0	0.0	0.0	0.2	21,243	99.7	0.0	0.0	0.0	0.0	0.2	21,173
A		5.4	46.4	28.6	13.4	2.7	3.6	112	3.3	50.0	23.0	19.7	2.6	1.3	152
B		5.5	0.3	58.6	30.8	3.8	1.0	292	5.5	0.3	55.0	31.6	5.9	1.6	307
C		7.3	0.2	2.9	69.6	14.9	5.1	549	5.8	0.2	1.7	73.3	16.8	2.3	655
D		14.9	0.0	0.0	6.8	67.9	10.4	249	5.7	0.3	0.6	7.8	75.4	10.2	334
E		24.6	0.0	0.4	1.4	2.0	71.5	488	21.1	0.0	0.0	3.7	1.9	73.3	322
Total		93.3	0.2	1.0	2.3	1.2	2.0	--	92.7	0.3	1.0	2.8	1.7	1.5	--
Total N		21,401	55	224	521	279	453	22,933	21,262	79	220	652	393	337	22,943
2014															
Y6 Eng/Wel.		99.8	0.0	0.0	0.0	0.0	0.1	20,671	99.7	0.0	0.0	0.0	0.0	0.2	21,173
A		3.0	54.8	25.9	11.1	4.4	0.7	135	3.3	50.0	23.0	19.7	2.6	1.3	152
B		3.8	1.4	54.7	33.6	5.2	1.4	289	5.5	0.3	55.0	31.6	5.9	1.6	307
C		7.0	0.0	2.0	64.4	22.2	4.3	598	5.8	0.2	1.7	73.3	16.8	2.3	655
D		11.1	0.0	0.7	5.4	69.9	12.9	279	5.7	0.3	0.6	7.8	75.4	10.2	334
E		55.8	0.0	0.0	2.6	5.2	36.4	423	21.1	0.0	0.0	3.7	1.9	73.3	322
Total		93.6	0.4	0.9	2.3	1.7	1.1	--	92.7	0.3	1.0	2.8	1.7	1.5	--
Total N		20,961	81	208	526	376	243	22,395	21,262	79	220	652	393	337	22,943
2015															
Y6 Eng/Wel.		99.8	0.0	0.0	0.0	0.1	0.1	21,681	99.7	0.0	0.0	0.0	0.1	0.2	174,116
A		5.1	35.7	40.8	14.3	2.0	2.0	98	4.2	45.9	31.1	14.7	2.6	1.6	933
B		2.8	0.3	58.3	32.3	6.1	0.3	362	3.8	0.8	54.8	34.6	4.7	1.2	2,433
C		5.0	0.0	1.2	70.2	20.4	3.3	764	6.2	0.1	2.2	70.6	17.2	3.8	4,704
D		8.1	0.0	0.2	3.3	76.9	11.4	455	10.2	0.0	0.7	8.4	69.5	11.1	2,403
E		15.3	0.0	0.0	0.7	5.0	79.1	301	24.1	0.1	0.7	2.4	3.3	69.3	3,421
Total		92.0	0.2	1.1	2.9	2.4	1.4	--	93.1	0.2	1.0	2.5	1.5	1.7	--
Total N		21,774	37	262	692	559	337	23,661	175,069	468	1,799	4,667	2,824	3,183	188,010
2016															
Y6 Eng/Wel.		99.7	0.0	0.0	0.1	0.0	0.2	21,409	99.7	0.0	0.0	0.0	0.1	0.2	174,116
A		2.7	54.0	28.7	11.3	2.7	0.7	150	4.2	45.9	31.1	14.7	2.6	1.6	933
B		2.7	0.5	60.7	33.0	2.5	0.7	443	3.8	0.8	54.8	34.6	4.7	1.2	2,433
C		3.3	0.0	1.5	78.1	15.5	1.5	658	6.2	0.1	2.2	70.6	17.2	3.8	4,704
D		6.1	0.0	1.4	9.2	74.1	9.2	294	10.2	0.0	0.7	8.4	69.5	11.1	2,403
E		16.2	0.4	2.5	1.8	3.5	75.7	284	24.1	0.1	0.7	2.4	3.3	69.3	3,421
Total		92.3	0.4	1.5	3.1	1.5	1.2	--	93.1	0.2	1.0	2.5	1.5	1.7	--
Total N		21,453	85	340	720	350	290	23,238	175,069	468	1,799	4,667	2,824	3,183	188,010
2017															
Y6 Eng/Wel.		99.8	0.0	0.0	0.0	0.1	0.1	21,681	99.7	0.0	0.0	0.0	0.1	0.2	174,116
A		5.1	35.7	40.8	14.3	2.0	2.0	98	4.2	45.9	31.1	14.7	2.6	1.6	933
B		2.8	0.3	58.3	32.3	6.1	0.3	362	3.8	0.8	54.8	34.6	4.7	1.2	2,433
C		5.0	0.0	1.2	70.2	20.4	3.3	764	6.2	0.1	2.2	70.6	17.2	3.8	4,704
D		8.1	0.0	0.2	3.3	76.9	11.4	455	10.2	0.0	0.7	8.4	69.5	11.1	2,403
E		15.3	0.0	0.0	0.7	5.0	79.1	301	24.1	0.1	0.7	2.4	3.3	69.3	3,421
Total		92.0	0.2	1.1	2.9	2.4	1.4	--	93.1	0.2	1.0	2.5	1.5	1.7	--
Total N		21,774	37	262	692	559	337	23,661	175,069	468	1,799	4,667	2,824	3,183	188,010
Overall															
Y6 Eng/Wel.		99.7	0.0	0.0	0.0	0.1	0.1	21,681	99.7	0.0	0.0	0.0	0.1	0.2	174,116
A		5.1	35.7	40.8	14.3	2.0	2.0	98	4.2	45.9	31.1	14.7	2.6	1.6	933
B		2.8	0.3	58.3	32.3	6.1	0.3	362	3.8	0.8	54.8	34.6	4.7	1.2	2,433
C		5.0	0.0	1.2	70.2	20.4	3.3	764	6.2	0.1	2.2	70.6	17.2	3.8	4,704
D		8.1	0.0	0.2	3.3	76.9	11.4	455	10.2	0.0	0.7	8.4	69.5	11.1	2,403
E		15.3	0.0	0.0	0.7	5.0	79.1	301	24.1	0.1	0.7	2.4	3.3	69.3	3,421
Total		92.0	0.2	1.1	2.9	2.4	1.4	--	93.1	0.2	1.0	2.5	1.5	1.7	--
Total N		21,774	37	262	692	559	337	23,661	175,069	468	1,799	4,667	2,824	3,183	188,010



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