Department for Education

Persistent absence for unauthorised other reasons:

Who is at risk?

May 2023

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1. Executive Summary

1.1 What is in this report?

This report is an in-depth study into the factors associated with persistent absence for unauthorised other reasons (PAUO) in pupils of secondary school age.

It begins with a descriptive assessment of absence trends over time. Prior to the COVID-19 pandemic, overall absence was in long-term decline (from 6.5% in 2006/07 to 4.7% in 2018/19), driven by decreasing rates of authorised absence. This trend was reflected in declining rates of persistent absence, which fell from 19.3% in 2006/07 to 10.7% in 2013/14 and then remained relatively stable until the pandemic began in the 2019/20 academic year. In contrast, unauthorised absence was on a slight upward trajectory prior to the pandemic, rising from 1.1% in 2015/16 to 1.4% in 2018/19. This was largely driven by PAUO which increased from 1.7% in 2015/16 to 2.2% in 2018/19. To effectively tackle the complex barriers to attendance, schools and local authorities need to be able to identify those at risk of being PAUO and target the interventions as early as possible.

This report therefore describes the characteristics of PAUO pupils and examines individual risk factors linked to being PAUO. Analysis using logistic regression with a rich set of control variables is used to determine which risk factors may be associated with this absence when confounding factors affecting pupils are accounted for. This may help with identifying individuals for early intervention.

To do this, a longitudinal dataset of pupils' school census records was assembled to follow the young people expected to complete key stage 4 in 2018/19 across their time in secondary school. The 2018/19 GCSE cohort was chosen as the subject for this analysis because it was the latest cohort with a schooling career not affected by the COVID-19 pandemic, which impacted absence levels and data collection for all types of absence.[1] We do not yet have a full cohort of pupils whose absence data is unaffected by COVID-19. This report therefore focuses on understanding pre-pandemic trends and issues.

1.2 Why this report focuses on PAUO

Despite improved overall absence and persistent absence prior to the pandemic, unauthorised absence was increasing. Unauthorised absence has typically represented about a quarter of absence overall and is a driver of high overall absence. Unlike absence for authorised reasons such as illness, unauthorised absence is in many cases preventable and disproportionately affects pupils who are vulnerable or disadvantaged.

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[1] COVID-19 policies at the national, local authority and school level include school closures, mandatory and voluntary testing policies, isolation and "bubble" policies and face mask policies. These varied across the country and affect the comparability of absence data at this time.

Both overall absence and unauthorised absence rates are disproportionately driven up by pupils who miss 10% or more of their school sessions for 'unauthorised absence not covered by any other code/description'[2] and are categorised as having persistent absence for unauthorised other reasons (PAUO).[3] In 2018/19, the last full academic year prior to the pandemic, there were 169,000 PAUO pupils. Despite being only 2.4% of the school population, they accounted for 13.3% (8.1 million days) of all absences in the year.

Therefore, this report focuses on PAUO because:

- PAUO disproportionately accounts for increases in overall absence,
- PAUO is a concerning category of absence that was already increasing in prevalence before the onset of the pandemic, and
- The nature of PAUO means that is preventable in a way that other types of absence (such as absence due to illness or other authorised reasons) are not, meaning that this analysis can provide actionable insights that can be used to effectively tackle the complex barriers to attendance for PAUO pupils.

1.3 What do the results show?

- Prior to the pandemic, the long-term trend in overall absence and persistent absence was a **sustained decline**.
- Unauthorised absence and PAUO were **already rising** prior to the pandemic.
- Just over **50,000** (8.6%) of a cohort of pupils expected to complete key stage 4 in 2019 missed 10% or more of their possible sessions for unauthorised other reasons (PAUO) in at least one year of their secondary education.
- Some characteristics which are over-represented in the PAUO cohort may not be predictive of PAUO **after statistically controlling for other risk factors**:
  - **Gender:** Girls are more likely to be PAUO than boys after controlling for other factors despite boys being over-represented in the unadjusted figures.
  - **Location:** Regional variation reduces considerably once controls are factored in; pupils in the North East and North West are less likely than pupils in London to be PAUO after controlling for other factors.
  - **Ethnicity:**
    - Black Caribbean, mixed white and black African, and other mixed pupils all become less likely than white British pupils to be PAUO after controlling for other factors.
    - White British pupils are more likely to be PAUO than all ethnicities except Gypsy/Roma, white Irish and Travellers of Irish Heritage pupils.

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[2] Complete the school census - Find a school census code - Guidance - GOV.UK (www.gov.uk)
[3] Unauthorised absence may be categorised as unauthorised holiday, late, no reason provided, or other.

- o **Special educational needs:** SEN pupils with an EHCP are less likely to be PAUO compared to pupils with no SEN for the majority of SEN categories tested within this analysis.
- The following factors may have a **strong association with being PAUO** after controls:
    - o Being in year groups 9-11
    - o Being eligible for free school meals in the previous year
    - o Being a child in need or on a child protection plan in the previous year
    - o Being of Gypsy/Roma or Irish traveller ethnicity
    - o Being suspended in the previous year
    - o Attending Alternative Provision (AP) in the previous year (regardless of whether this is for a majority or minority of sessions)
- While the most common pathway to being PAUO is in Year 11 only, **more than half of pupils who become PAUO for the first time before Year 11 remain PAUO** in the next academic year.
- For almost all characteristics and life events tested in this analysis, the chances of a pupil becoming PAUO reduce when other factors are controlled for (see Appendix for full variable list). This suggests that the **pupils who are most likely to be on a path to PAUO may have more than one risk factor**.
- The **following factors were found to be the most important for accurately predicting whether a pupil in the cohort dataset was PAUO in the following year** (in descending order of importance): the number of suspensions,[4] social care activity,[5] attendance in AP[6] and FSM eligibility[7]. These four factors accounted for just under 85% of the model improvement compared to no factors at all.

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[4] Possible values: 0, 1, 2, 3, 4, 5+.

[5] Possible values include flags for: looked after child, child on a child protection plan, child in need, or previously child in need

[6] Possible values include flags for: attending AP for a minority of possible school sessions, attending AP for the majority of possible schools sessions.

[7] Possible values include a flag indicating whether a pupil is eligible for free school meals.
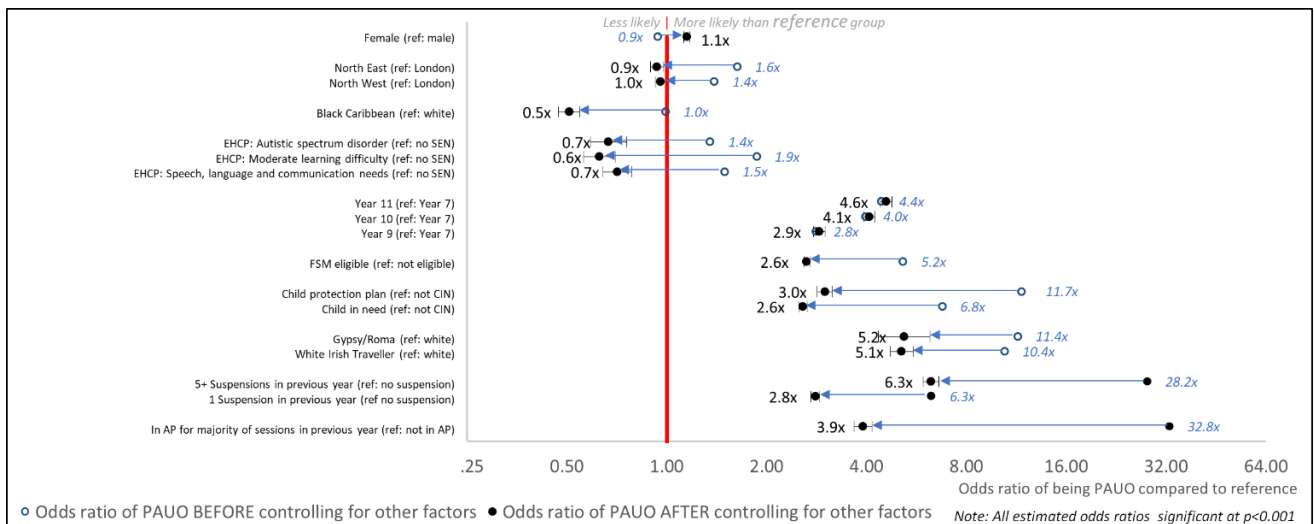
Figure 1: Odds ratios for being PAUO for selected pupil characteristics and predicted odds ratios (with 95% confidence intervals) after controlling for other factors.

1.4 What conclusions should we draw?

- **Analysis of risk factors and common pathways to PAUO can help flag moments of opportunity for early intervention.** Local expertise, research and data could be used similarly to inform a local approach to reducing PAUO.

- **Characteristics flagged by a simple look at raw data may not necessarily be the same as those flagged once overlapping factors have been controlled for.** Interventions may be more usefully targeted at those with multiple risk factors including those associated with PAUO after controls.

- **This analysis examines individual risk factors that may be predictive of a pupil being PAUO. These factors are not necessarily causal,** so while they can be used to identify opportunities for intervention, addressing these factors in and of themselves will not necessarily lead to reductions in absence.

2. Introduction

2.1 Reasons for Absence

For each morning or afternoon session during a term, pupils in England may be recorded by schools as being present, absent for an authorised reason or absent for an unauthorised reason. Reasons for authorised and unauthorised absence are detailed in Table 1. In 2018/19, 6.5 million pupils were absent for at least one session which totalled 61 million days lost.[8]

Authorised absence reasons	Unauthorised absence reasons
Illness Medical/dental appointments Religious observance Study leave Traveller absence Agreed holiday Excluded Other	Unauthorised holiday Unauthorised late **Unauthorised other**

Table 1: Reasons for absence from school.

2.2 Trends in absence

Prior to the Covid-19 pandemic, overall absence had steadily decreased from 6.5% in 2006/07 to 4.7% in 2018/19.[9] This was driven by authorised absence, which fell from 5.5% in 2006/07 to 3.3% in 2018/19. With the onset of the pandemic, overall absence and authorised absence increased to 7.6% and 5.5% in 2021/22 respectively, driven by high prevalence of illness (Figure 2).

Contrary to trends seen in overall and authorised absence, unauthorised absence has been on a slight upward trajectory prior to the pandemic – from 1.1% in 2015/16 to 1.4% in 2018/19, with a further increase to 2.1% in 2021/22.

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[8] For comparative current year statistics see Pupil absence in schools in England, Academic year 2021/22 – Explore education statistics – GOV.UK (explore-education-statistics.service.gov.uk)

[9] Before the 2012/13 academic year absence information was collected for the first five half terms only. Since 2012/13, absence data has been collected for all six half terms, excluding the second half of the summer term for pupils aged 15 due to high level of study leave and other authorised absences. For further information on the methodology see Pupil absence statistics: methodology.
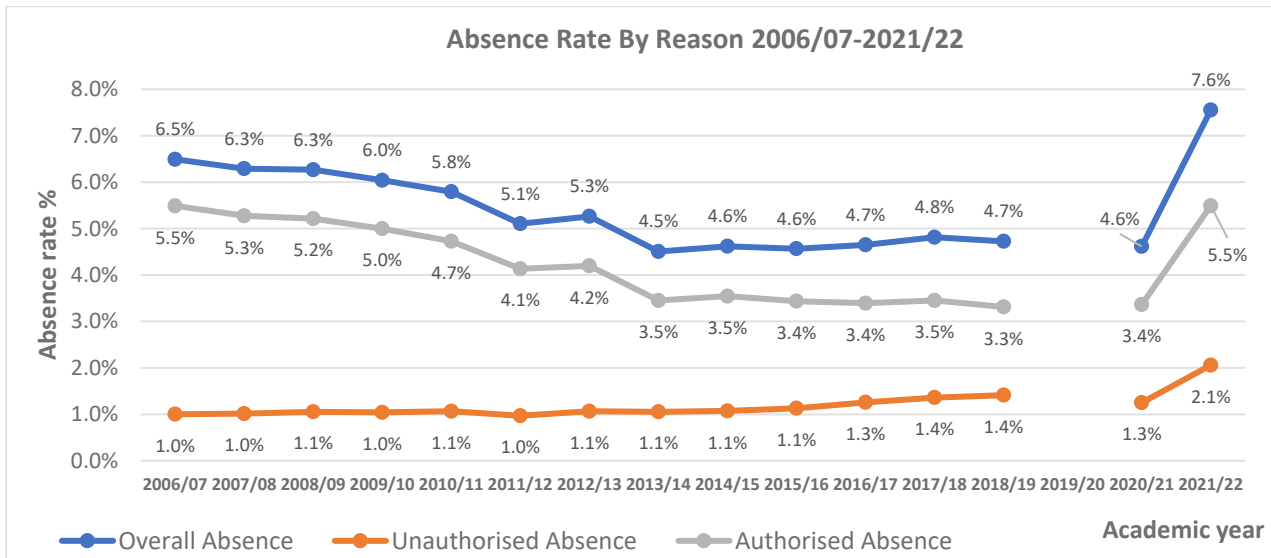
Figure 2: Absence rate by reason 2006/07-2021/22. Overall and authorised absence declined between 2006/07 and 2018/19, then increased post pandemic. Unauthorised absence has increased since 2015/16.

Although unauthorised absence accounts for a small proportion of absence overall, high unauthorised absence rates are impactful, accounting for around 17.8 million days of missed school in 2018/19. Unauthorised absence is driven by absence that is neither authorised nor explained by lateness or an unauthorised holiday ('unauthorised other absence'), suggesting that this type of absence is both problematic and preventable (Figure 3).[10]
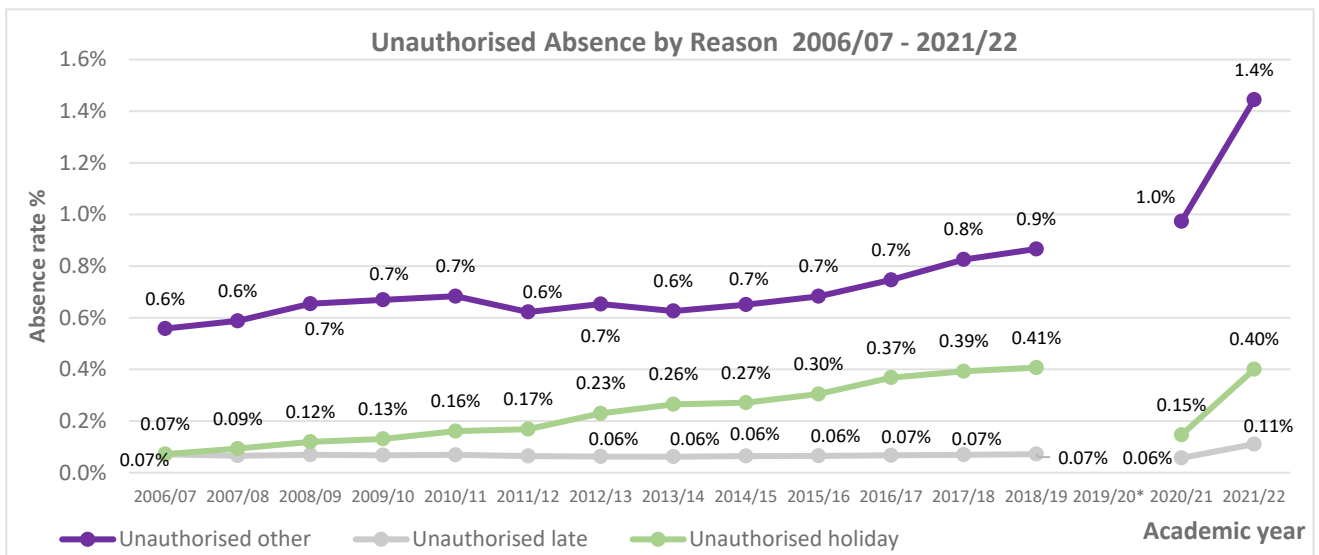
Figure 3: Unauthorised absence rate by reason 2006/07-2021/22. Unauthorised other absence has increased to a higher level compared with unauthorised late and unauthorised holiday between 2006/07 – 2021/22.

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[10] Holiday absence fines were introduced for unauthorised holidays in 2013. In Spring 2014 authorised absence due to agreed extended family holiday was discontinued. These may have contributed to a small increase in unauthorised absence rates.

2.3 Persistent Absence

Evidence shows that absence rates are driven by pupils who miss 10% or more of their possible sessions in the school year (a minimum of approximately 19 days). These pupils are defined as 'persistently absent'.[11] Many pupils are persistently absent due to long-term illness or due to a combination of absence reasons. However, some pupils miss 10% or more of their possible sessions due to absence for unauthorised other reasons alone. These pupils are known as 'persistently absent for unauthorised other reasons' (PAUO).

Prior to the COVID-19 pandemic, the proportion of pupils who were persistently absent fell (from 19.3% in 2006/07 to 10.7% in 2013/14) and then remained relatively stable (between 10.5% and 11.2% between 2013/14 and 2018/19).[12] Since the pandemic we have seen an increase in persistent absence (to 22.5% in 2021/22), much of which has been driven by high levels of illness absence.

Figure 4 shows that, unlike overall persistent absence, PAUO was on an increasing trajectory prior to the pandemic – 1.4% of pupils were PAUO in 2006/07, rising to 2.2% in 2018/19. This trend has continued post-pandemic, with 3.8% of pupils being PAUO in 2021/22.
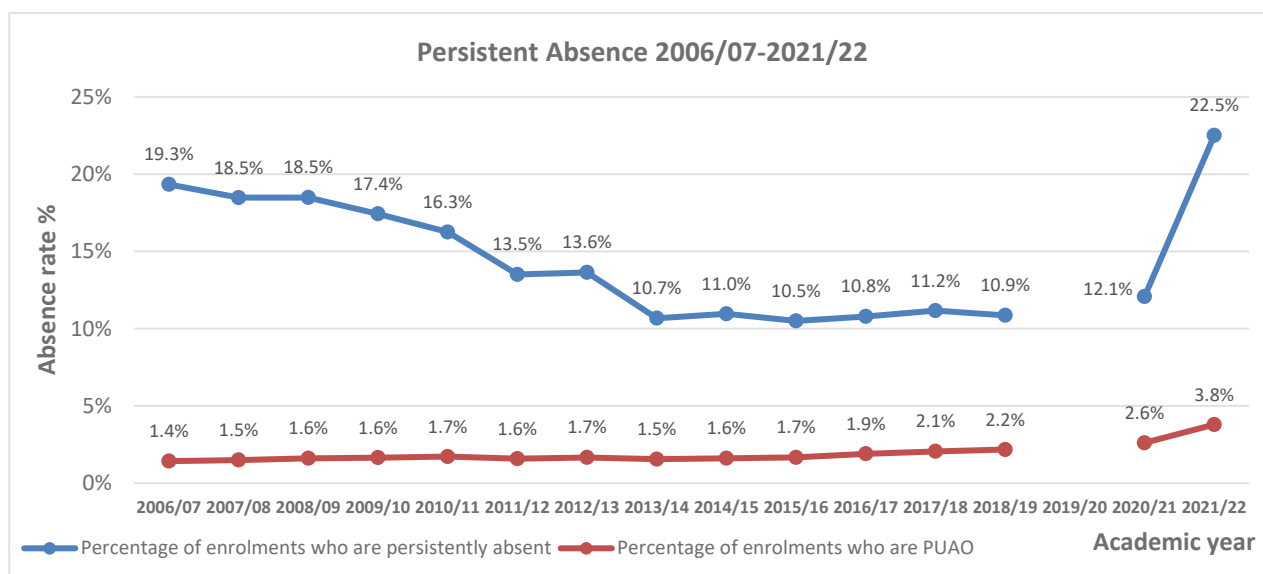
Figure 4: Persistent absence rate by reason 2006/07-2021/22. Persistent absence was on a decreasing trajectory between 2006/07 and 2013/14 when it stabilised between 10.7% and 11.2% until the pandemic, whereas PAUO has been on an increasing trajectory since 2013/14 and increased since the pandemic.

Source: School Census (2021/22)

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[11] Persistent absence measures have changed since it was implemented in 2005/06. Time series information has been recalculated following any methodological changes to allow for comparison over time. For further information on the methodology see Pupil absence statistics: methodology.

[12] The decline in persistent absence between 2006/07 to 2013/14 is largely driven by the decline in authorised persistent absence. Unauthorised persistent absence remained steady during this period.

Whilst the group of pupils who are PAUO is relatively small, they account for a significant proportion of absence overall. Figure 5 shows that in 2018/19, these pupils made up 2.4% of all pupils, but accounted for 13.3% all absences across the year. Around two thirds of their absence was for unauthorised other reasons, suggesting that this is a cohort of pupils for whom the majority of their absence is both preventable and concerning. Further details of 2018/19 absence and trends over time are given in the Appendix.
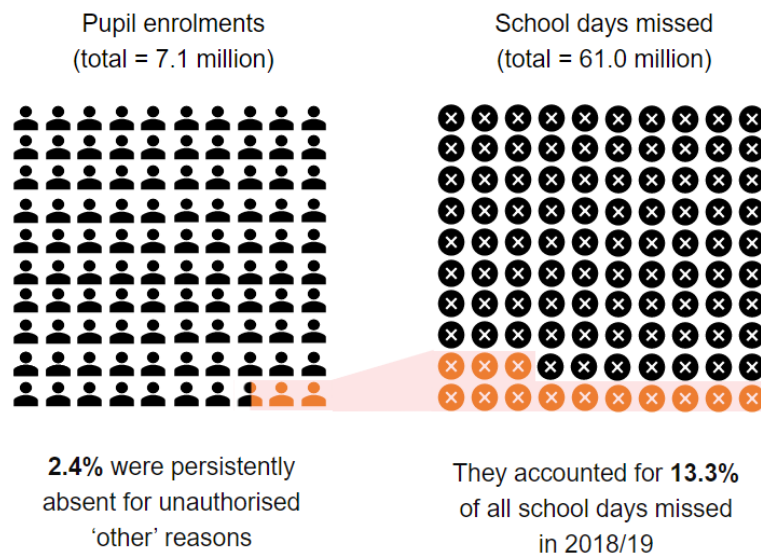
Figure 5: Proportion of PAUO pupils and school days missed 2018/19. In 2018/19 2.4% of all pupils were persistently absent for unauthorised other reasons, but accounted for 13.3% of all absences across the year.

Source: School census (2018/19)

The rest of this paper seeks to understand characteristics of PAUO pupils and to isolate the factors most strongly associated with their PAUO, to add to the evidence base that can be used to inform attendance interventions targeting this problematic absence.

3. Descriptive statistics for the 2018/19 GCSE cohort associated with persistent absence for unauthorised other reasons

3.1 Methodology

The statistics in this section refer to a cohort of pupils expected to complete key stage 4 in the 2018/19 academic year, the last full cohort to complete secondary school before the COVID-19 pandemic.[13] The analysis explores associations between pupil characteristics, PAUO status and patterns in attendance. The below findings do not imply causality and do not control for other factors.

The dataset is derived from the school census covering pupils registered in state-funded primary and secondary schools, special schools (including non-maintained special schools) and state place-funded alternative provision (AP). Pupils in independent education or elective home education are not included. Annual records are produced by aggregated termly census data, including for pupils who moved schools. A pupil is said to have 'ever' had a certain characteristic if it was recorded in one of the matched censuses during their secondary education.[14]

Characteristics in the analysis include:

- gender,
- pupils ever being eligible for free-school meals (FSM),
- ever being identified as having special educational needs (SEN),[15]
- ever being a child-in-need (CIN),[16]
- ever having been in state-place funded alternative provision[17],

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[13] The COVID-19 pandemic impacted absence levels and data collection for all types of absence. COVID-19 policies (such as school closures, mandatory and voluntary testing policies, isolation and "bubble" policies and face mask policies) varied at the national, local authority and school level and affect comparability of absence data at this time. We do not yet have a full cohort of pupils whose absence data is unaffected by COVID-19. This publication seeks to understand the PAUO cohort based on pre-pandemic trends and issues.

[14] It is likely that these figures are an underestimate of the true number of pupils ever having those characteristics due to some pupils having incomplete census records or unidentified characteristics.

[15] A child or young person has special educational needs (SEN) if they have a learning difficulty or disability which calls for special educational provision to be made for them; either with no additional funding from the local authority ('SEN Support') or with additional provision following a formal assessment resulting in an Education, Health and Care plan ('EHC plan'). This analysis only covers children who have formally identified SEN and some other children will have unidentified needs and therefore relevant support will not have been put in place.

[16] Children who are designated under several different social care classifications: children on a child in need plan; children on a child protection plan; and children who are looked after by a local authority.

[17] Alternative provision (AP) is full or part-time education (often at a pupil referral unit, AP academy or AP free school) arranged by schools for pupils to improve their behaviour off-site or during a suspension or by local authorities for pupils who, because of permanent exclusion, illness or other reasons, would not otherwise receive suitable education.

- ever having been suspended,[18] or
- ever having been permanently excluded.[19]

A full list of the variables used in the analysis and further information about how the dataset is produced is given in the Appendix.

3.2 Results

3.2.1 Number of PAUO pupils

Around 585,000 pupils were expected to complete key stage 4 in 2018/19.[20] Just over 50,000 (8.6%) of the total cohort missed 10% or more of their possible sessions for unauthorised other reasons in at least one year of their secondary education.

See Appendix for further information, including breakdowns by characteristic and pupils with 'insufficient data' to be classified as PAUO.

3.2.2 Prevalence of characteristics within the PAUO cohort

Some characteristics are over-represented in the PAUO cohort (Figure 6). These include:

- Pupils eligible for FSM,
- Boys,
- Pupils who were ever a child in need (including looked after children and children with a child protection plan),
- Pupils who ever had a special educational need (SEN),
- Pupils who were ever suspended or permanently excluded,
- Pupils who ever attended AP (for a majority or minority of sessions).

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[18] A suspension is where a pupil has been temporarily removed from a school. A pupil can only be removed for up to 45 school days in one school year, even if they have changed school during the year. Prior to 2019/20, suspensions were referred to as fixed term exclusions.

[19] A permanent exclusion is when a pupil is no longer allowed to attend a school on disciplinary grounds. The pupil is subsequently removed from the school's roll and the local authority must arrange full-time education for them from the sixth school day.

[20] The pupils are identified as 'expected to finish Year 11 in 2018/19' as pupils are included in the dataset if they did not appear in the school census for 2018/19 after being present in a previous year – this will include pupils who moved to independent schools, elective home education or moved abroad.

Characteristics Of Pupils: PAUO pupils compared to All Pupils
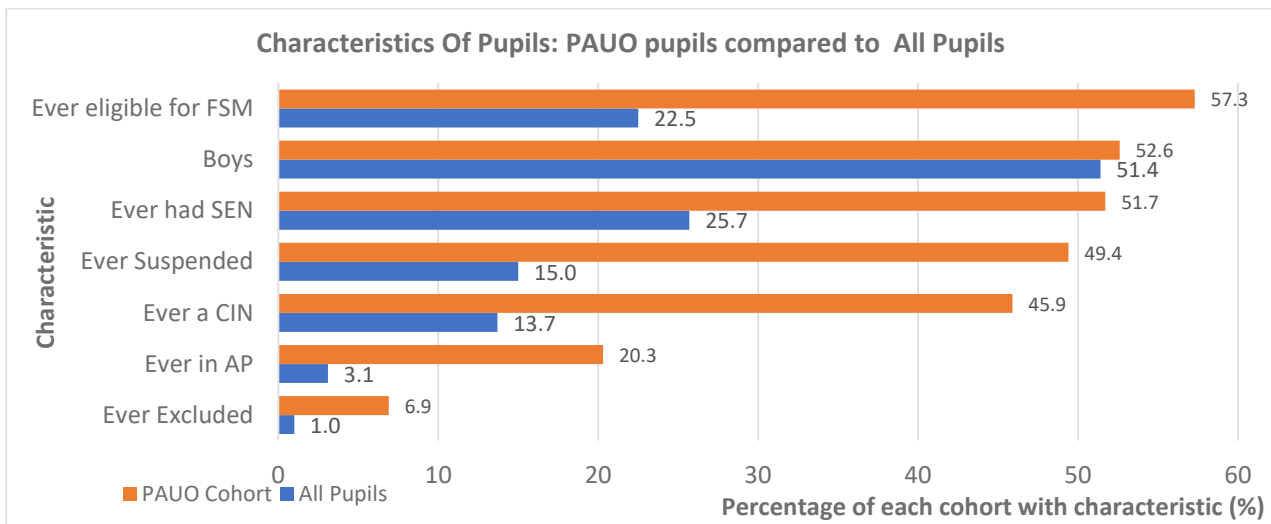
Figure 6: Characteristics of PAUO pupils compared with all pupils 2018/19. Characteristic breakdown of pupils within the PAUO pupil cohort compared to all pupils.

3.2.3 Patterns of persistent absence for unauthorised other reasons throughout secondary education

Among the PAUO cohort, the most common pattern observed was pupils being PAUO in Year 11 only (21.0% of the cohort); followed by years 10 and 11 only (12.1%); then in Year 10 only (8.8%). By Year 11, 58.5% of pupils who were PAUO had also been PAUO in a previous year.

Almost half (48.6%) of PAUO pupils first became PAUO in Year 10 (25.8%) or Year 11 (22.8%).

Around 40% of pupils were only PAUO in one year of their secondary education, whilst 2.0% were PAUO every year between year 7 and year 11 (Figure 7).
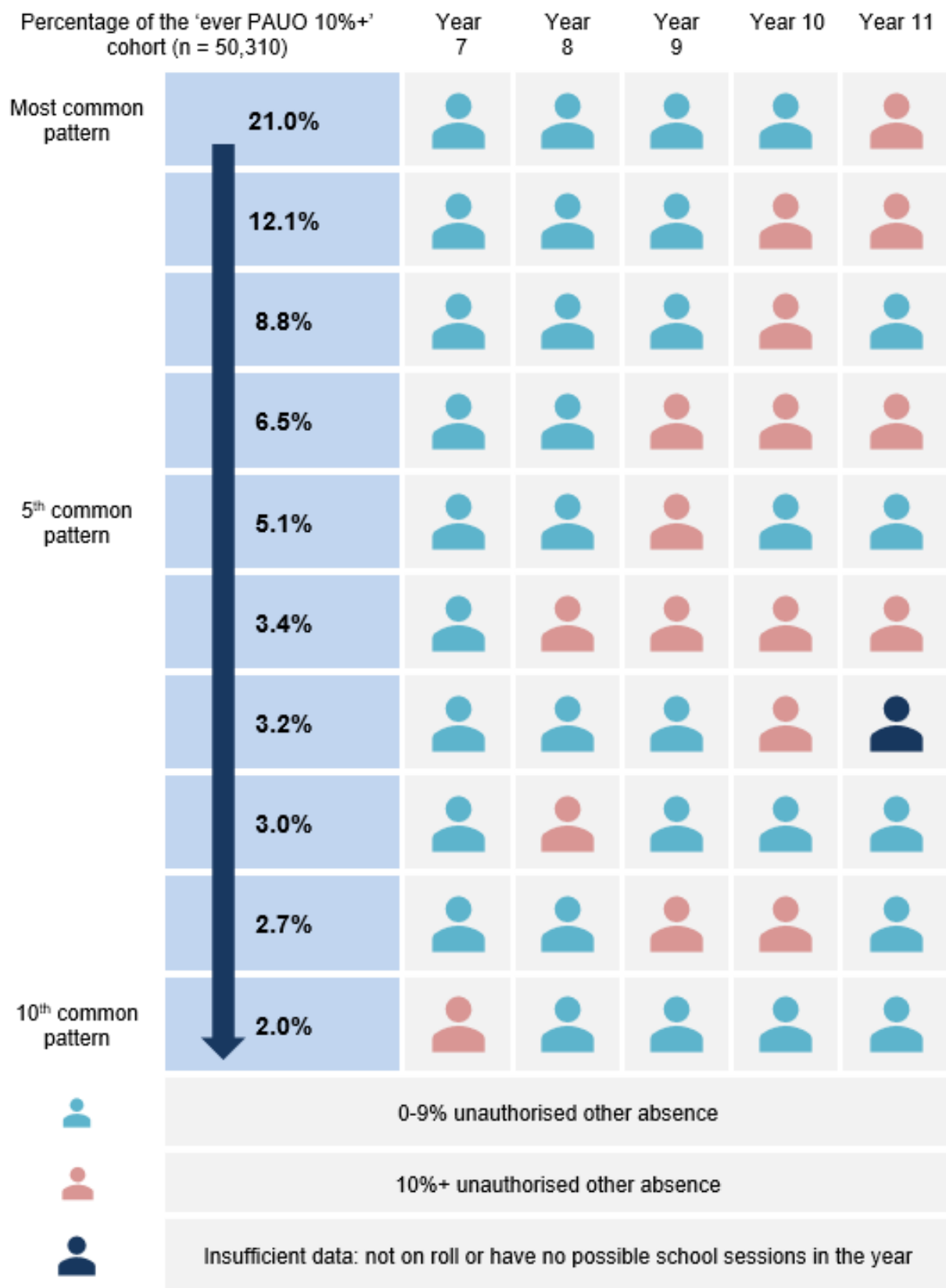
Figure 7: Patterns of PAUO pupils throughout secondary education. The ten most common patterns of PAUO absence in the PAUO pupil cohort, split by unauthorised other absence band (0-9%, 10%+, insufficient data).

4. Factors associated with persistent absence for unauthorised other reasons

The statistics presented above are descriptive of the pupils who are PAUO and compares them to the full cohort of pupils. We now seek to identify individual associations between factors affecting pupils and being PAUO.

We present the results of a binary logistic regression model containing individual factors that are related to the pupils and additional information about the schools they attended to estimate the strength of the relationship between each of these factors and the likelihood of being PAUO when all the other factors are controlled for. This analysis is intended to prompt practitioners and local decision makers to help them find the most useful opportunities for early intervention.

4.1 Methodology

The pupil cohort and data used to fit the model are the same as in the previous section of this report. To control for simultaneity bias[21] the model uses the data recorded in each academic year to estimate the odds of pupils being persistently absent for unauthorised other reasons in the next academic year. The only variables that have been taken from the next academic year are those which relate to absence and time indicators such as academic year and year group. Records were not included for Year 11 pupils in the summer term due to high level of absence during exam periods. Pupils were included if they had one or more possible sessions recorded during a year.[22] Records with more than 418 possible[23] sessions in the following year; records missing associated characteristics; and records where the year group recorded in the following year was not between years 7 and 11 were also removed. Details of the filters applied are given in Table 3 in the Appendix.

The regression was 'trained' using a random sample containing 70% of the pupil cohort, with the remaining 30% of pupil records retained for assessing model performance (i.e., validation).

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[21] Simultaneity bias occurs when an explanatory factor is determined at the same time as the dependent variable. For example, a child may begin receiving support from social care services during or immediately after a period of persistent absence for unauthorised other reasons.

[22] The effect of very low number of possible sessions on the calculation of PAUO was investigated. No significant difference was found between the cohort characteristics and regression results when using 1 or more possible session or 100 or more possible sessions.

[23] Most pupils have around 380 possible sessions each year, which means their 10% threshold for persistent absence for unauthorised other reasons is around 38 sessions (19 days). 418 sessions was set as an upper threshold to allow a 10% tolerance on top of the 380 mode average of sessions possible.

4.2 Results

Odds ratios explained

Odds ratios measure how likely one group is to be PAUO compared to another (reference) group. They are used to approximate how many more times pupils in one group are likely to be PAUO than those in another group. For example, if group A has an odds ratio of being PAUO of 2, this means members of group A have approximately twice the likelihood of being PAUO compared to members of the reference group. Similarly, if group B has an odds ratio of 0.5, this means members of group B are approximately only half as likely to be PAUO compared to members of the reference group.

If an odds ratio is:

- **Greater than 1:** Members of the group are more likely to be PAUO than the reference group,
- **Less than 1:** Members of the group are less likely to be PAUO than the reference group,
- **Equal to 1:** Members of the group are equally as likely to be PAUO as the reference group.

Figure 8 shows in blue the unadjusted odds ratio for each factor demonstrating how many more times pupils with certain characteristics are likely to be persistently absent for unauthorised other reasons compared to the relevant reference group. The corresponding regression odds ratio is shown in black demonstrating how the odds ratio relative to the reference group changes when confounding factors are accounted for.

The following factors had high unadjusted odds of PAUO which reduced when other risk factors were controlled for, suggesting that they may not be predictive of PAUO in themselves:

- o **Gender:** Girls are more likely to be PAUO than boys after controlling for other factors despite boys being over-represented in the unadjusted figures.
- o **Location:** Regional variation reduces considerably once controls are factored in – pupils in the North East and North West are less likely than pupils in London to be PAUO after controlling for other factors.
- o **Ethnicity:**
  - Black Caribbean, mixed white and black African, and other mixed pupils all become less likely than white British pupils to be PAUO after controlling for other factors.
  - White British pupils are more likely to be PAUO than all ethnicities except Gypsy/Roma, white Irish, and Travellers of Irish Heritage pupils.

- **Special educational needs:** SEN pupils with an EHCP are less likely to be PAUO compared to pupils with no SEN, for the majority of SEN categories tested within this analysis.

Even after controls, the following factors have a **strong association with being PAUO** in the cohort studied:

- Being in Year groups 9-11 (the odds of being PAUO increase with each academic year),
- Being eligible for free school meals,
- Being a child in need or on a child protection plan,
- Being of Gypsy/Roma or Irish traveller ethnicity,
- Being suspended,
- Attending alternative provision (AP) in the previous year (regardless of whether this is for a majority or minority of sessions)

As with all these results, the odds ratios after controlling for other factors may reflect data availability. For example it is possible that the variables used within this analysis are more likely to account for characteristics or life events that affect boys, which would reduce the associated odds ratio for boys when controlling for other factors.

For almost all characteristics and life events tested in this analysis, the chances of a pupil becoming PAUO reduce when other factors are controlled for. This suggests that the pupils who are most likely to be on a path to PAUO may have more than one risk factor.

The following factors were found to be the most important for accurately predicting whether a pupil in the cohort dataset was PAUO in the following year (in descending order of importance), accounting for just under 85% of the model improvement compared to no factors at all (see Appendix for more information on strength of the model):

- Number of suspensions[24],
- Social care activity[25],
- Attendance in AP for at least one possible session[26], and
- Free school meal eligibility[27].

Using combinations of risk factors and the risk factors with stronger associations may help schools who are seeking to provide early support to pupils who may face absence problems to prioritise their support more effectively. It is important to caveat that this is only a model – the estimated likelihoods are only national averages. Local contexts may

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[24] Possible values: 0, 1, 2, 3, 4, 5+.

[25] Possible values include flags for: looked after child, child on a child protection plan, child in need, or previously child in need.

[26] Possible values include flags for: attending AP for a minority of possible school sessions, attending AP for the majority of possible schools sessions.

[27] Possible values include a flag indicating whether a pupil is eligible for free school meals.

vary and utilising local intelligence and relationships are vital to making efficient resource allocation decisions. Nevertheless, the complementary use of local research and data where possible may maximise the efficiency of interventions, in particular by considering pupils identified by these four factors for additional support.

See Appendix for a full variable list (the factors controlled for within this analysis) and breakdown of the regression results.

Characteristic	AFTER	BEFORE
Female (ref: male)	0.9x	1.1x
Year 8 (ref: year 7)	1.7x	1.8x
Year 9 (ref: year 7)	2.9x	2.8x
Year 10 (ref: year 7)	4.1x	4.0x
Year 11(ref: year 7)	4.6x	4.4x
FSM Eligible (ref: not FSM eligible)	2.6x	5.2x
Child looked after (ref: not CIN)	1.3x	4.1x
Child protection plan (ref: not CIN)	3.0x	11.7x
Child in need (CIN) (other) (ref: not CIN)	2.6x	6.8x
Previously child in need (ref: not CIN)	1.9x	5.8x

SEN Support:

Characteristic	AFTER	BEFORE
Autistic spectrum disorder (ref: no SEN)	1.2x	2.0x
Moderate learning difficulty (ref: no SEN)	1.4x	3.2x
Profound and multiple or severe learning difficulty (ref: no SEN)	1.1x	2.9x
Sensory impairment or physical disability (ref: no SEN)	1.1x	1.7x
Social, emotional and mental health (ref: no SEN)	1.6x	7.9x
Specific learning difficulty (ref: no SEN)	1.2x	2.1x
Speech, language and communication needs (ref: no SEN)	1.1x	1.9x
Other/unclassified (ref: no SEN)	1.5x	3.0x

EHCP:

Characteristic	AFTER	BEFORE
Autistic spectrum disorder (ref: no SEN)	0.7x	1.5x
Moderate learning difficulty (ref: no SEN)	0.6x	1.9x
Profound and multiple or severe learning difficulty (ref: no SEN)	0.3x	0.6x
Sensory impairment or physical disability (ref: no SEN)	0.5x	1.0x
Social, emotional and mental health (ref: no SEN)	1.5x	9.7x
Specific learning difficulty (ref: no SEN)	1.2x	2.5x
Speech, language and communication needs (ref: no SEN)	0.7x	1.4x
Other/unclassified (ref: no SEN)	1.1x	2.6x

Ethnic group	AFTER	BEFORE
Asian other (ref:white British)	0.4x	0.3x
Asian Bangladeshi (ref:white British)	0.3x	0.4x
Chinese (ref:white British)	0.2x	0.1x
Asian Indian (ref:white British)	0.4x	0.2x
Asian Pakistani (ref:white British)	0.4x	0.4x
Black Other (ref:white British)	0.4x	0.7x
Black African (ref:white British)	0.2x	0.3x
Black Caribbean (ref:white British)	0.5x	1.0x
Mixed other (ref:white British)	0.9x	1.0x
Mixed white and Asian (ref:white British)	0.9x	0.9x
Mixed white and black African (ref:white British)	0.8x	1.1x
Mixed white and black Caribbean (ref:white British)	1.1x	1.9x
White other (ref:white British)	1.0x	1.1x
Gypsy/Roma (ref:white British)	5.1x	10.4x
White Irish (ref:white British)	1.3x	1.4x
White Irish traveller (ref:white British)	5.2x	11.4x
Any other ethnic group (ref:white British)	0.5x	0.5x
Unclassified ethnic group (ref:white British)	1.4x	1.7x

Language	AFTER	BEFORE
Language other than English (ref: English)	0.8x	0.6x
Language unclassified (ref: English)	1.0x	1.2x

Characteristic	AFTER	BEFORE
Moved house in the previous year (ref: did not)	1.3x	2.1x
Moved school in previous year (ref: did not)	1.3x	3.6x
In AP for minority of sessions in previous year (ref: not)	2.3x	15.2x
In AP for majority of sessions in previous year (ref: not)	3.9x	32.8x
Permanently excluded in previous year (ref: not)	1.0x	21.6x
1 suspension in previous year (ref: none)	2.8x	6.3x
2 suspensions in previous year (ref: none)	4.1x	12.3x
3 suspensions in previous year (ref: none)	4.7x	16.6x
4 suspensions in previous year (ref: none)	5.5x	20.7x
5+ suspensions in previous year (ref: none)	6.3x	28.2x
Did not reach KS2 Level 4 in maths and reading (ref: did reach level)	1.5x	2.7x
Missing KS2 results (ref: did reach level)	1.5x	2.0x

Region	AFTER	BEFORE
East Midlands (ref: London)	0.8x	1.0x
East of England (ref: London)	0.9x	1.0x
North East (ref: London)	0.9x	1.6x
North West (ref: London)	1.0x	1.4x
South East (ref: London)	1.1x	1.2x
South West (ref: London)	0.8x	1.0x
West Midlands (ref: London)	0.9x	1.2x
Yorkshire and the Humber (ref: London)	1.1x	1.6x

School type	AFTER	BEFORE
Faith school (ref: not faith)	0.8x	0.7x
Single sex school (ref: mixed)	0.8x	0.5x
Selective school (ref: non-selective)	0.2x	0.1x
Special school (ref: not special school)	0.9x	2.2x
Rural school (ref: urban)	0.8x	0.6x
Outstanding Ofsted(ref: good)	0.8x	0.5x
Requires improvement Ofsted(ref: good)	1.2x	1.4x
Inadequate Ofsted (ref: good)	1.2x	1.9x
No rating Ofsted (ref: good)	0.8x	1.2x

Term of birth	AFTER	BEFORE
Term of birth: Spring (ref: Autumn)	0.9x	1.0x
Term of birth: Summer (ref: Autumn)	0.8x	0.9x

Axis: 0.06 | 0.13 | 0.25 | 0.50 | 1.00 | 2.00 | 4.00 | 8.00 | 16.00 | 32.00 | 64.00

less likely than reference group | more likely than reference group

○ Odds ratio of PAUO BEFORE controlling for other factors   ● Odds ratio of PAUO AFTER Controlling for other factors
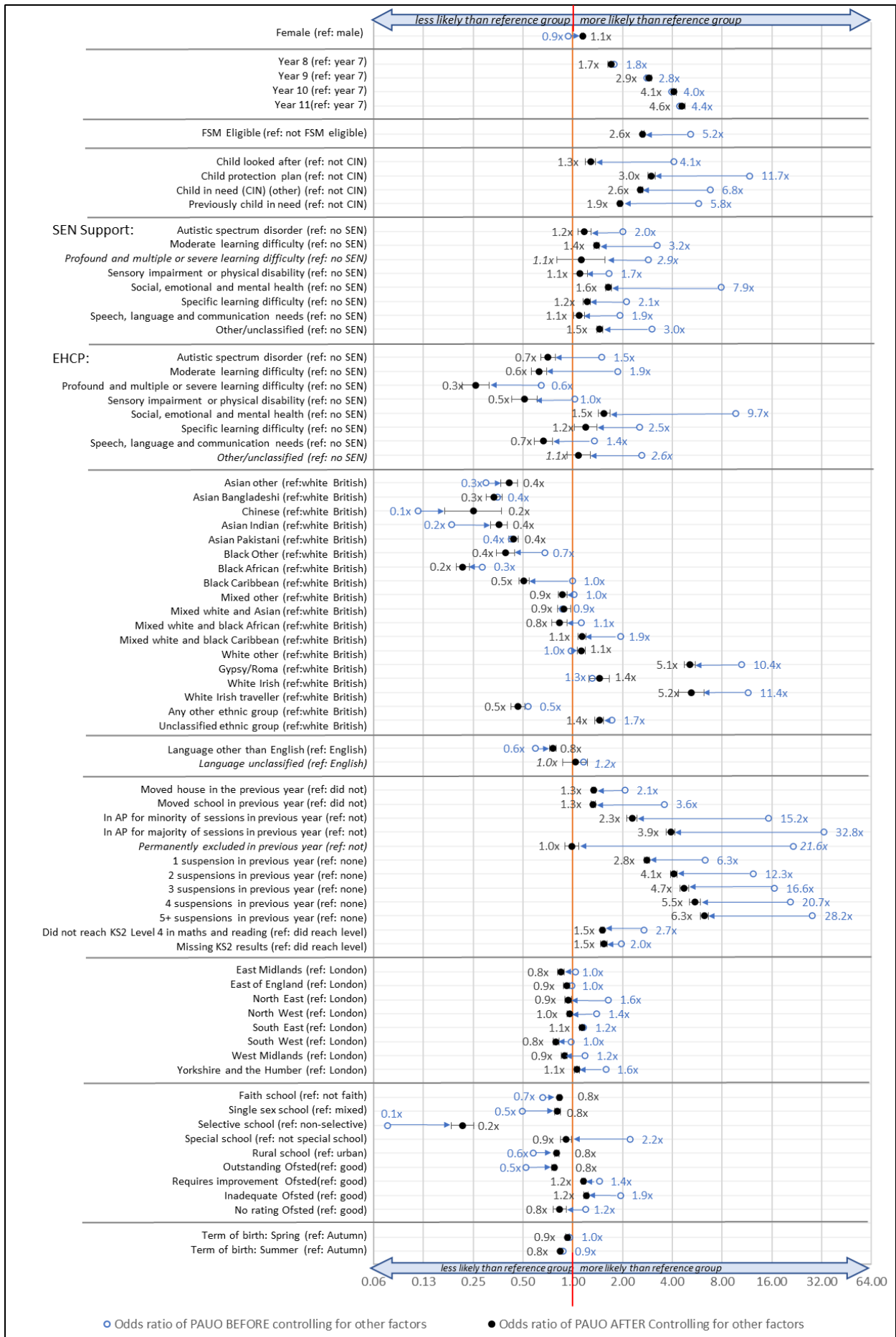
Figure 8: Odds ratios (blue) for being PAUO for selected pupil characteristics and predicted odds ratios (black, with 95% confidence intervals) after controlling for other factors.

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Appendix

A.1 Further details of 2018/19 absence

In 2018/19, 801,000 pupils were persistently absent for all absence reasons, while 5.7 million pupils were absent for at least one session but were not persistently absent (Figure 9). Many of these pupils may be persistently absent due to long-term illness or due to a combination of absence reasons. However, 169,000 of these pupils missed more than 10% of their school sessions due to absence for unauthorised other reasons alone. These pupils are known as 'persistently absent for unauthorised other reasons' (PAUO).
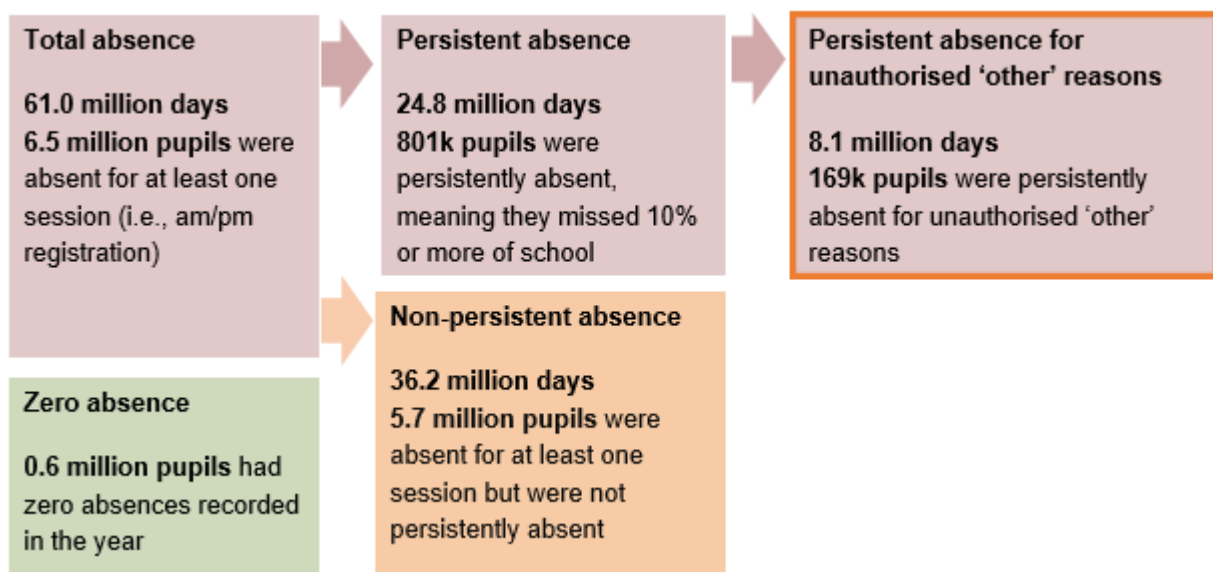

Total absence

61.0 million days
6.5 million pupils were absent for at least one session (i.e., am/pm registration)

Persistent absence

24.8 million days
801k pupils were persistently absent, meaning they missed 10% or more of school

Persistent absence for unauthorised 'other' reasons

8.1 million days
169k pupils were persistently absent for unauthorised 'other' reasons

Non-persistent absence

36.2 million days
5.7 million pupils were absent for at least one session but were not persistently absent

Zero absence

0.6 million pupils had zero absences recorded in the year

Figure 9: Number of days missed and number of pupils absent by absence type 2018/19.

Source: School Census (2018/19)

Nearly three quarters (72.3%) of pupils who were PAUO in 2018/19 were secondary-aged (11 to 15 at the start of the academic year). The overall absence rate for PAUO pupils was 35.5%; the rate was 38.1% for secondary-aged pupils and 27.6% for primary-aged pupils. For pupils who were not PAUO, the overall absence rate was 4.3%; the rate was 4.8% for secondary-aged pupils and 3.9% for primary-aged pupils (Figure 10).
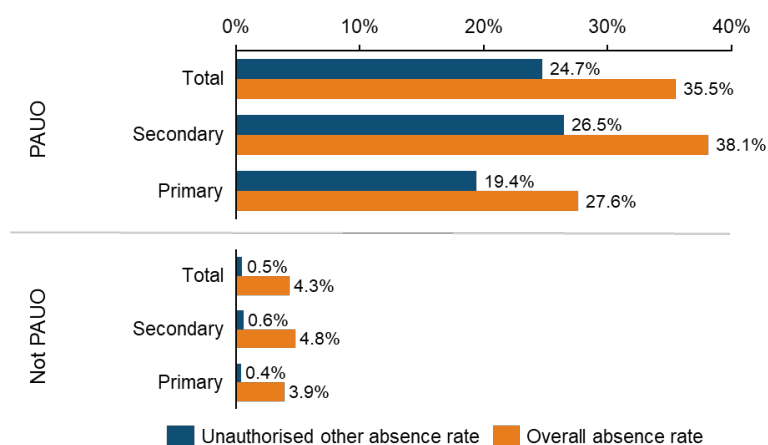
Figure 10: Absence rate for PAUO and not PAUO pupils by phase 2018/19. Overall absence rate and unauthorised other absence rate in 2018/19 for all pupils and for primary-aged and secondary-aged pupils.

<div align="right">Source: School census (2018/19)</div>

A.2 PAUO in the 2018/19 GCSE Cohort

A.2.1 Formation of the dataset

A longitudinal dataset of pupil census records was produced using the termly school census, supplemented by information from other sources, such as the Get Information About Schools service; the children in need and looked after children censuses; key stage 2 performance data; and historic Ofsted management information.

The cohort consisted of pupils who were expected to complete key stage 4 in the 2018/19 academic year; the last to complete secondary education before the COVID-19 pandemic and therefore have the most recent complete and consistent absence data.

Records have been aggregated for pupils with multiple school enrolments by summing the number of possible sessions and absences recorded across all schools they were enrolled at within the year. All possible sessions and absences relating to the second half of the summer term have been removed for Year 11 students to account for high levels of authorised study leave.

A pupil is said to have 'ever' had a certain characteristic if it was recorded in one of the matched censuses during their secondary education.[28] Pupils with no school census record in the year or fewer than 1 possible sessions of attendance recorded in the year were not classified as either being PAUO or non-PAUO due to 'insufficient data'. Pupils were identified using the termly school census, including those in Year 11 in 2018/19 and pupils who left the English state school system before Year 11 but were expected to

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[28] It is likely that these figures are an underestimate of the true number of pupils ever having those characteristics due to some pupils having incomplete census records or unidentified characteristics

reach that stage in 2018/19. The dataset includes the pupils' school records from Year 6 (2013/14) to Year 11 (2018/19).

To produce the longitudinal dataset, 12 individual tables were produced, which were then joined together to produce a master table of termly records which were aggregated into an annual dataset for the analysis. Table 2 shows the variables and their source.

Pupils were calculated to have moved school if the unique reference number (URN) of the school associated with a pupil's census record changes between consecutive terms. Where the URN changes due to a planned change in governance, such as academisation or merging with another school, this is not counted as a school move. For the purposes of this analysis, standard school moves between primary and secondary phases are also not counted. Pupils were identified as having been in state place-funded AP if they have at least one possible session recorded in these schools in the term. Pupils are identified as having been in a special school if they have at least one possible session recorded in these schools in the term (or year prior to 2016/17). Prior to the 2016/17 academic year absences data was collected annually from special schools rather than termly so annual absences rates have been taken as the same values for all three terms.

The Children in Need (CIN) and Children Looked After (CLA) data collections are annual, covering the financial year from 1 April – 31 March. Three groups have been identified: looked after children (LAC); child protection plan (CPP); and child in need (other). All three groups are collectively known as children in need (CIN).The following hierarchy which identifies the pupils' highest level of social care activity in the financial year was used for the analysis:

- In financial year, LAC
- In financial year, CPP but not LAC
- In financial year, CIN (other than LAC and CPP)
- Prior CIN but no CIN activity in the current financial year (i.e. pupils who were not LAC, CPP or other CIN during the current financial year but were previously in one of these groups).

To identify pupils who have been CIN in each term, we assume that a pupil who was CIN for some time during 1 April - 31 March was CIN in each term that covers that period, e.g. someone who was CIN at some point during 1 April 2013 – 31 March 2014 is assumed to be CIN during summer term 2012/13, and autumn and spring terms of 2013/14.

Where pupils have a termly census record with missing data fields, this information has been imputed using the spring census from the same year, if it is available. If the information is also unavailable in the spring census, then it has been taken from the previous or following year's spring census, where possible. This does not apply to fields that are more likely to change over time, such as SEN provision and FSM eligibility, which have not been imputed. Data items which are only recorded in the spring census,

such as ethnicity, primary SEN type and the distance to the pupil's current school are used to impute the missing values in the autumn and summer terms where it is appropriate to do so. For example, primary SEN type is only imputed where the pupil is still recorded as having some form of SEN provision in the current term and the distance to the pupil's current school is only imputed where both records relate to the same school.

Variables	Source
Pupil matching reference number (PMR) Academic year Term Year group Gender Minority ethnic group Language SEN provision FSM indicator IDACI measure Absence records: number of possible sessions, number of sessions missed overall and number of sessions missed for unauthorised other reasons [29,30] Pupil suspensions and permanent exclusions: start/end date, number of suspensions (lunch time suspensions excluded)	School census
KS2 results for English, reading and maths[31]	KS2 attainment data
Type of school Phase of education Faith school indicator Single sex school indicator Selective school indicator Urban/rural indicator URN of predecessor/successor schools	Get Information About Schools extracted 3 September 2021
LAC indicator CPP but not LAC indicator CIN (other than LAC and CPP) indicator Prior CIN but no CIN activity in current financial year indicator	Children in Need census and Children Looked After data collection.
URN of school URN at time of inspection Overall effectiveness rating for the school[32]	Ofsted management information

Table 2: Variables in the model and their source.

[29] To account for high levels of study leave and other authorised absences for pupils in Year 11 in the second half of the summer term, all possible sessions and absences relating to this period for Year 11 students have been removed. This matches the methodology used for other published statistics on absence.

[30] Prior to the 2016/17 academic year absences data was collected annually from special schools rather than termly.

[31] Where there are duplicate records, the one with the highest summed English, reading and maths levels has been selected.[31] Results are not recorded for both tests for 41,500 pupils, which represents 7.1% of the cohort overall.

[32] Only full section 5 inspections have been considered in this analysis. The possible ratings are Outstanding, Good, Requires Improvement and Inadequate.

Additional filters have been applied to remove certain records that could obscure the results of the regressions. Table 3 gives a summary of these filters and the number of records that are removed as a result of them.

Filter Applied	Reason	Number (%) of all records removed (consecutively)
Records in the 2018/19 academic year are removed.	The dataset does not include absences data beyond 2018/19, which means pupil characteristics from that year cannot be used in the regressions to estimate the odds of PAUO in the following year.	585,389 (16.7% of the original 3,512,334 records))
Records without termly characteristics data are removed.	If pupil was not on a school roll on census day for any of the three termly census collections in an academic year, they will not have any characteristics data available in year.	130,072 (3.7%)
Records with year group recorded in the following academic year not Year 7 - 11 removed.	The regressions are intended to estimate the odds of being PAUO for pupils in secondary year groups.	33,912 (1.0%)
Records with zero possible session or more than 418 possible sessions of attendance (209 days) recorded in the following academic year removed.	This filter removes records where pupils were reportedly on roll but do not have any possible sessions of attendance recorded in the following academic year. Some pupils have more possible sessions recorded than is strictly possible, in some cases more than an entire calendar years' worth. This is probably due to incorrect data entries for pupils with multiple school enrolments across the year. In England, local-authority-maintained schools must open for at least 380 sessions (190 days) during a school year[33]. Therefore, an upper bound has been implemented on the number of possible sessions in the regression dataset, which is set to 418 sessions (380 + 10% tolerance).	16,487 (0.5%)
Records with <1 possible session recorded in the current academic year.	This filter removes records where pupils were reportedly on roll but do not have any possible sessions of attendance recorded in the academic year.	919 (0.0%)
Records with missing information are removed.	The regressions require all records to have complete data. Where appropriate, missing data has been imputed or grouped into a new category such as 'not recorded', otherwise these records are removed.	17,185 (0.6%)

Table 3: Details of filters applied to the dataset tor the regression analysis.

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[33] The School Day and Year - House of Commons Library (parliament.uk)

A.2.2 Characteristics of the pupil cohort

Table 4 shows the number of pupils in the cohort who ever had a characteristic recorded. Some pupils had 'insufficient data' to be able to be classified as PAUO due to missing records or no possible sessions being recorded in some years of their records.

Characteristic (ever recorded in years 7 - 11)	Number of pupils with characteristic	Number of pupils with characteristic who have 'insufficient data' in any of years 7 - 11
All pupils	585,389	57,969
PAUO 10%+	50,310	10,566
Free school meals	131,660	14,956
Special educational needs	432235	16,275
Children in need	80,138	12,351
State place-funded AP	18,400	4,533
Permanently excluded	6,117	1,563
Suspended	87,800	11,674

Table 4: Characteristics of the pupil cohort.

A.2.3 Prevalence of characteristics within the PAUO cohort

Boys are overrepresented in the PAUO group, making up 52.6% of the pupils who are PAUO but only 51.4% of the pupils overall (Figure 11).
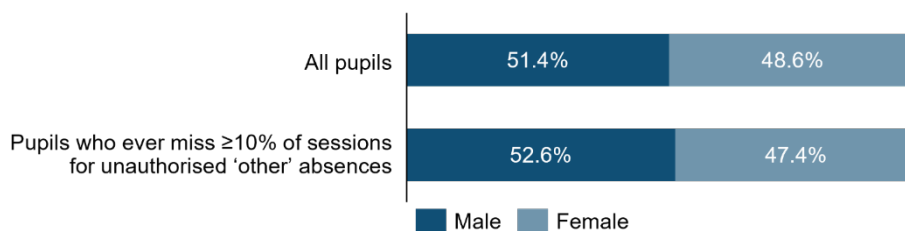

Figure 11: PAUO pupils by gender compared with all pupils. Split of male and female pupils for all pupils and pupils who are PAUO.

While the pupils who are PAUO are a small proportion of all the pupils in the cohort (8.6%), the percentage of pupils within that group with certain characteristics is comparatively large.

Pupils in vulnerable groups such as ever being eligible for FSM, ever being a CIN or ever having been identified with SEN each account for more than 45% of the cohort (Figure 12).
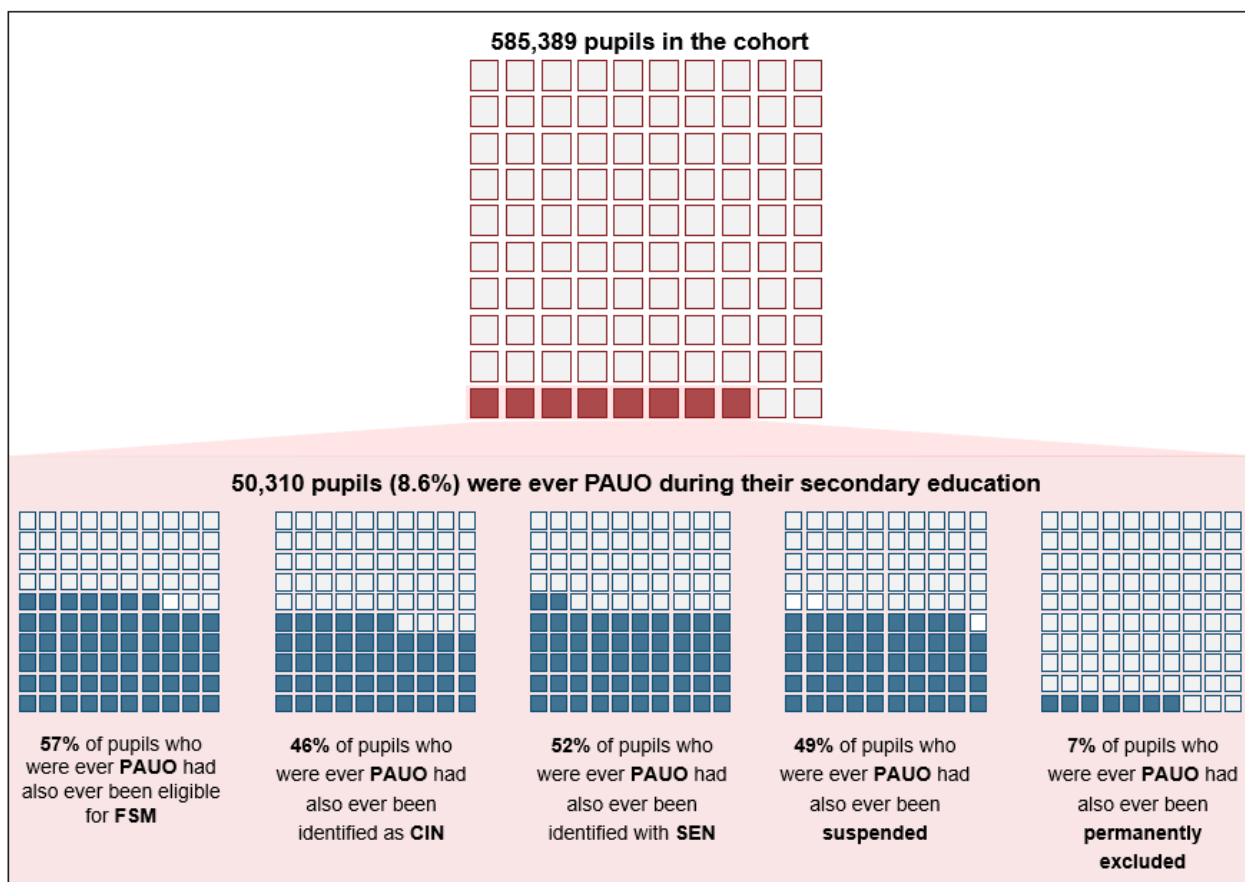

585,389 pupils in the cohort

50,310 pupils (8.6%) were ever PAUO during their secondary education

57% of pupils who were ever **PAUO** had also ever been eligible for **FSM**

46% of pupils who were ever **PAUO** had also ever been identified as **CIN**

52% of pupils who were ever **PAUO** had also ever been identified with **SEN**

49% of pupils who were ever **PAUO** had also ever been **suspended**

7% of pupils who were ever **PAUO** had also ever been **permanently excluded**

Figure 12: Proportion of pupils who were ever PAUO during their secondary education by vulnerable characteristics.

A.2.4 PAUO rate in different characteristic groups

Figure 13 shows the proportion of pupils with each characteristic who were PAUO compared to the rate of 8.6% of pupils across the entire pupil cohort. The rate of pupils who were PAUO was higher for all characteristics identified compared to the all pupil rate.
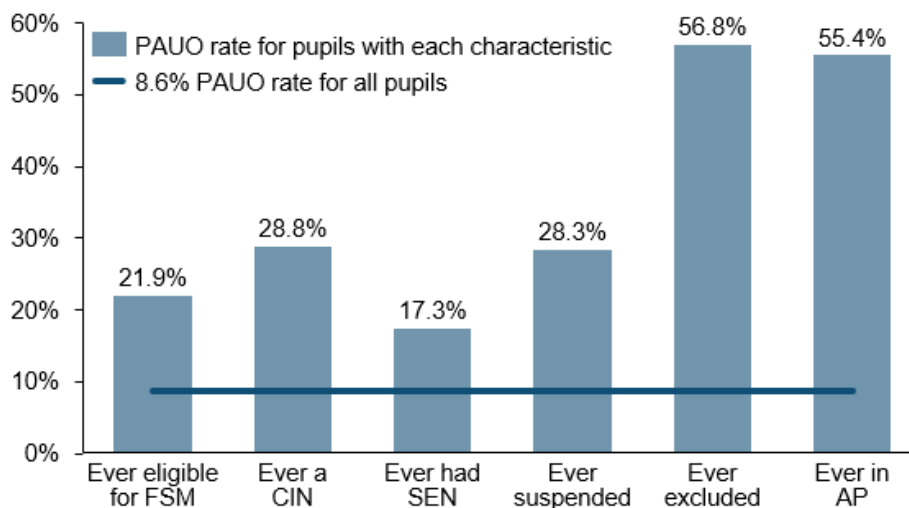

Figure 13: PAUO rate of pupils by disadvantage.

A.2.5 The overlaps between FSM, SEN and CIN

The charts above show the association between individual factors and being PAUO, however these factors are not mutually exclusive, and many pupils have more than one indicator of vulnerability or disadvantage.

Of the entire pupil cohort, 42.3% were ever identified with one of SEN, CIN or FSM between years 7 and 11; 15.5% were identified with at least two of these characteristics over that period; and 4.1% were identified with all three of these characteristics. Of the PAUO cohort, these increased to 82.8% ever identified with one of these characteristics (SEN, CIN or FSM) over that period; 53.0% identified with at least two of these characteristics over that period; and 20.6% identified with all three of these characteristics over that period (Figure 14).
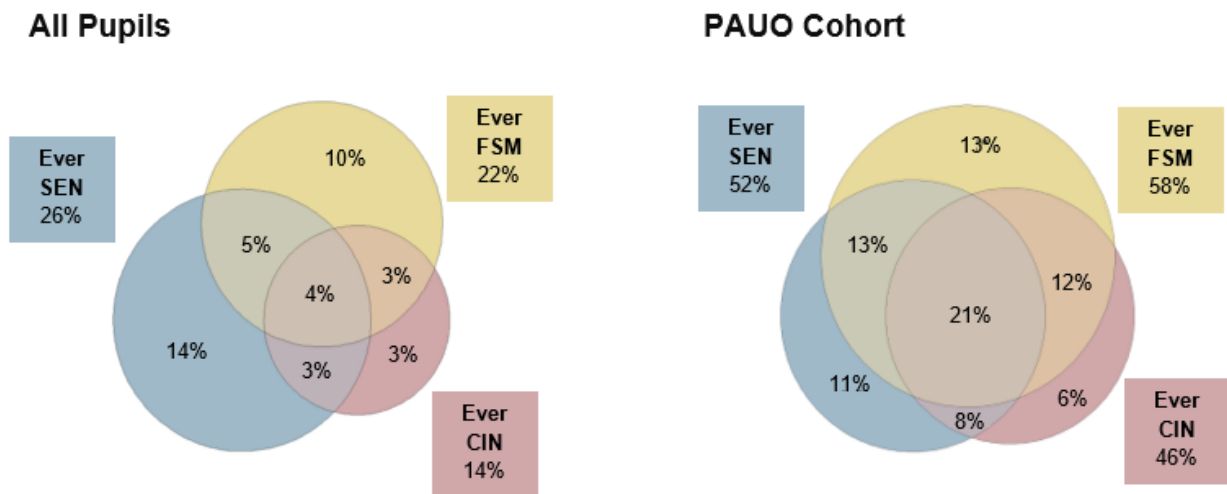
All Pupils

Ever SEN 26%

Ever FSM 22%

10%

5%

4%

3%

14%

3%

3%

Ever CIN 14%

PAUO Cohort

Ever SEN 52%

Ever FSM 58%

13%

13%

12%

21%

11%

6%

8%

Ever CIN 46%

Figure 14: Proportion of PAUO pupils and all pupils by disadvantage. Venn diagram showing the proportion of the entire pupil cohort and PAUO cohort that were ever combinations of SEN, CIN or FSM between years 7-11.

A.2.6 Characteristics of pupils who are severely absent for unauthorised other reasons

A smaller cohort of pupils meet much higher thresholds of absence for unauthorised other reasons with 7,531 (1.3% of the cohort) missing more than 50% of their possible sessions, known as severe absence. The proportion of PAUO pupils that are male increases further at this higher threshold of absence; while 51.4% of the entire pupil cohort were male, 58.2% of pupils who miss 50% (or more) of sessions in any year were male (Figure 15) compared to 52.6% of the pupils who missed 10% (or more) of sessions for unauthorised other absence (see Figure 13 for comparison).
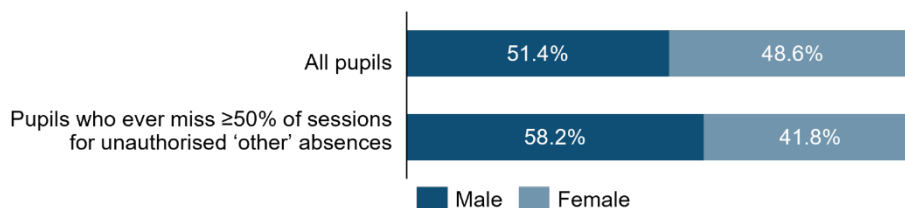

	Male	Female
All pupils	51.4%	48.6%
Pupils who ever miss ≥50% of sessions for unauthorised 'other' absences	58.2%	41.8%

Figure 15: Severely absent unauthorised other pupils by gender compared with all pupils.

Figure 16 shows that 90.7% of the pupils that were ever PAUO for 50% or more of possible sessions were identified as either SEN, CIN or FSM at some point; 67.4% were identified with at least two of these characteristics at some point and 31.3% were identified with all three of these characteristics at some point, compared with 20.6% of the pupils who missed 10% of school sessions and 4.1% of the total pupil cohort (see Figure 14 for comparison).
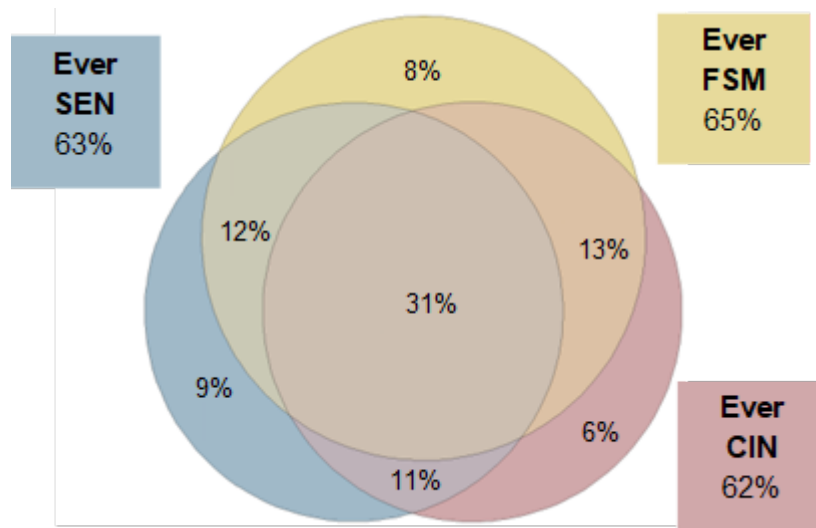
Figure 16: Proportion of severely absent unauthorised other pupils by disadvantage. Venn diagram showing the overlaps in prevalence of vulnerable characteristics of pupils who were ever PAUO for more than 50% of sessions between years 7-11.

A.2.7 Pupil flows between PAUO absence bands by year group

Figure 17 shows the proportion of pupils who were PAUO (missing more than 10% of possible sessions) in orange and pupils who were not PAUO (missing 0-9% of possible sessions) in green. Pupils with missing records or no possible sessions recorded are shown in grey. The diagram demonstrates the change in proportions and the movement of pupils between bands.[34] There is an increased proportion of PAUO pupils in each increasing academic year; there is a two-way flow of pupils between the PAUO and non-PAUO groups each year, but the number of pupils who become PAUO (moving from green to orange) is greater than the number of pupils who cease being PAUO (moving from orange to green) each year. There is also an increasing number of pupils in each year who move from being PAUO to having insufficient data (moving from orange to purple) or no possible sessions suggesting they have moved out of the state-system; to independent school, LA funded alternative provision, home education or are missing from education.

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[34] These Sankey diagrams do not show an individual's pathway, but the change in proportions within the cohort of each level of unauthorised absence for other reasons in each year.
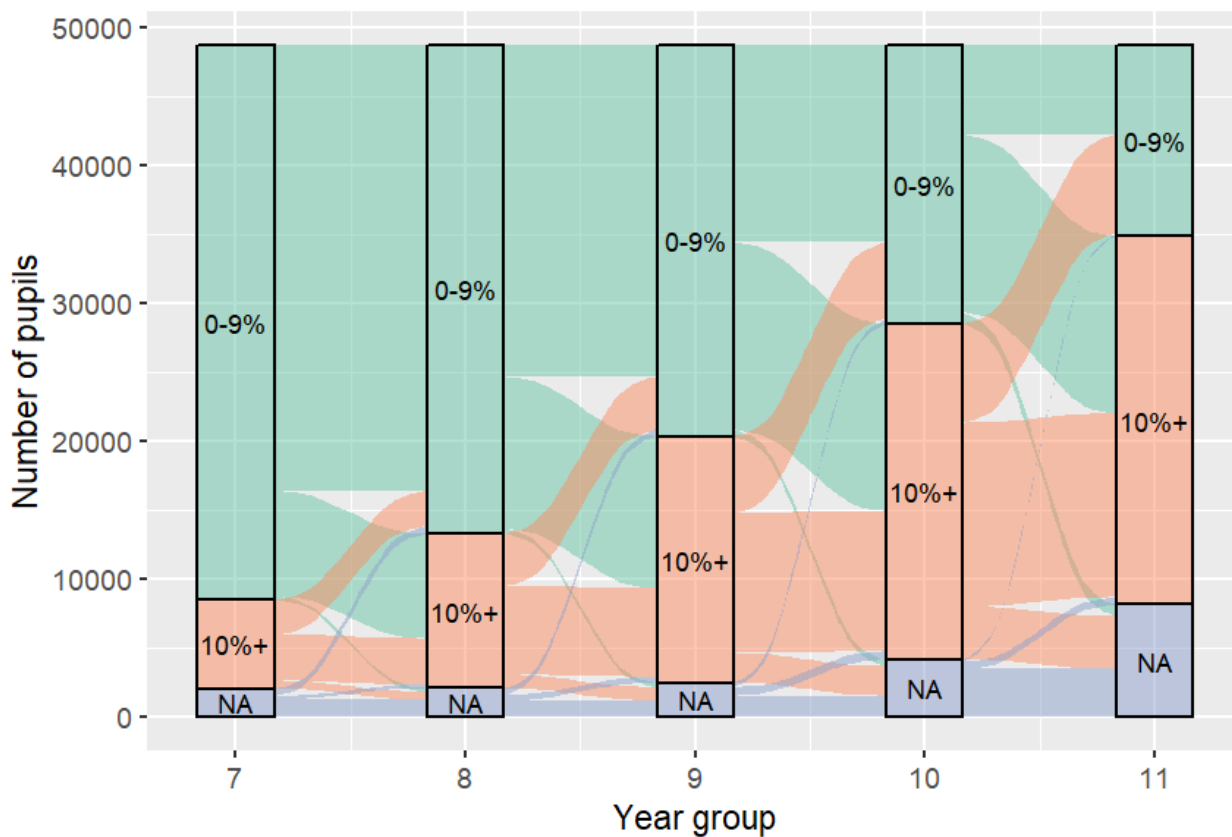
33

Figure 17: Pupil flows between PAUO absence bands by year group. Coverage: pupils who ever missed 10% or more of school for unauthorised other reasons in any of years 7 to 11; absence bands: 0-9%: Not PAUO (green), 10%+: PAUO (orange), missing records (purple).

A.3 Results of the regression analysis

A.3.1 Guidelines for interpreting the regression analysis

Odds ratios explained

Odds ratios measure how likely one group is to be PAUO compared to another (reference) group. They are used to approximate how many more times pupils in one group are likely to be PAUO than those in another group. For example, if group A has an odds ratio of being PAUO of 2, this means members of group A have approximately twice the likelihood of being PAUO compared to members of the reference group. Similarly, if group B has an odds ratio of 0.5, this means members of group B are approximately only half as likely to be PAUO compared to members of the reference group.

If an odds ratio is:

- **Greater than 1:** Members of the group are more likely to be PAUO than the reference group,
- **Less than 1:** Members of the group are less likely to be PAUO than the reference group,
- **Equal to 1:** Members of the group are equally as likely to be PAUO as the reference group.

The regression model shows association, not causation, so does not show which characteristics or 'factors' cause pupils to be absent. There are factors that are not included in these models that would likely impact on a pupil's likelihood of being absent, such as their attitude towards school or unidentified special educational needs.

During the analysis, each factor is compared to a reference group and unadjusted odds ratios are calculated by dividing the odds of being PAUO for pupils with the factor by the odds of being PAUO for pupils in the reference group.[35] It is not possible to draw conclusions on the ranking of importance of factors for PAUO by comparing odds ratios for one factor with another as each is only tested against its own reference group. Similarly, conclusions cannot be drawn on importance of school level factors such as Ofsted rating compared to pupil level factors such as a pupil's special education need status.

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[35] For example, if 9% of FSM pupils are PAUO then the remaining 91% of the FSM pupils were not PAUO, so the odds of being PAUO for FSM pupils would be 9% ÷ 91% = 0.09. If the odds of being PAUO in non-FSM pupils, a reference group, were 0.02, then the odds ratio for FSM pupils compared to non-FSM pupils would be 5.2 (because 0.09 ÷ 0.02 = 5.2). This shows that FSM pupils are more likely to be PAUO than non-FSM pupils.

The factors, reference groups and regression outputs are shown in Table 5 in the Appendix.

A.3.2 Gender and year group

Before adjustment, girls have lower odds of being PAUO (0.94x as likely) compared to boys (Figure 18). However, once other factors are controlled for, girls are at increased risk of being PAUO and are 1.15x as likely to be PAUO as boys. Older pupils are more likely to be PAUO with the odds for Year 11 pupils around 4.59x those for Year 7 pupils (4.08x for Year 10).
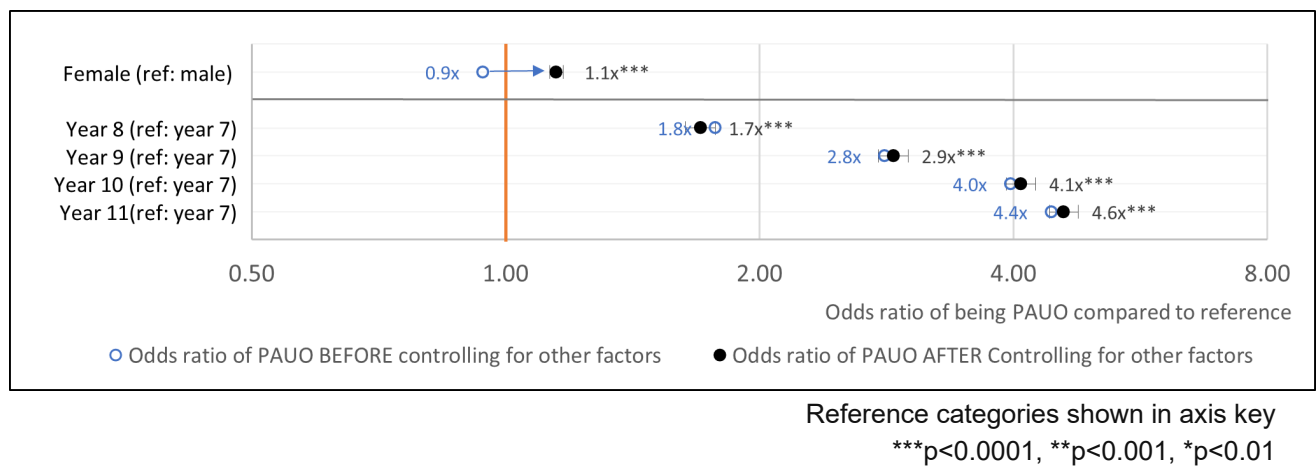

Reference categories shown in axis key
***p<0.0001, **p<0.001, *p<0.01

Figure 18: Predicted odds ratios for PAUO by gender and year group.

A.3.3 Free school meals and IDACI score

The odds of being PAUO for pupils known to be eligible for free school meals in the previous year are around 2.64x those for pupils who were not known to be eligible (Figure 19). Similarly, an increase in 1 standard deviation in income deprivation affecting children index (IDACI) score results in a 1.38x increase in the odds of being PAUO.
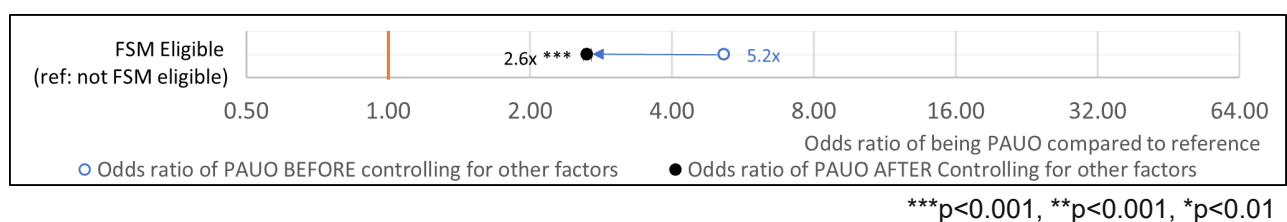

***p<0.001, **p<0.001, *p<0.01

Figure 19: Predicted odds ratios for PAUO for pupils eligible for free school meals compared to those not eligible.
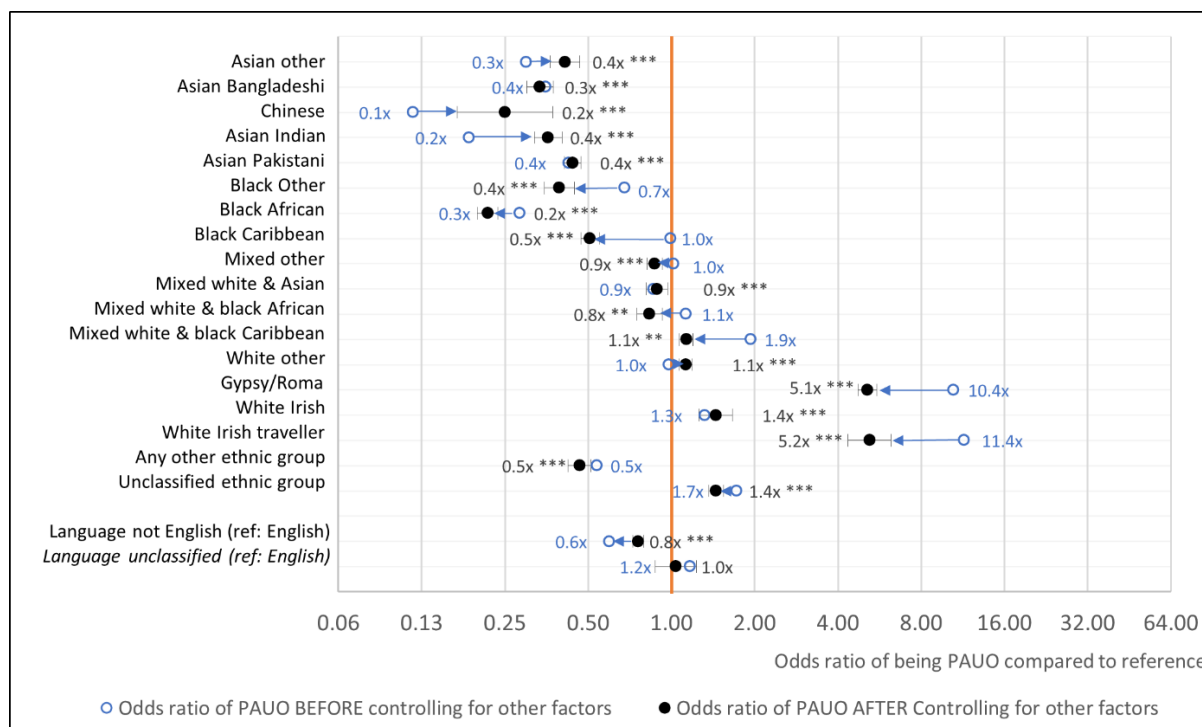
A.3.4 Ethnicity and language

Controlling for other factors, the odds of being PAUO for pupils of Gypsy/Roma or white Irish traveller ethnicity are 5.11x and 5.20x those of pupils of white British ethnicity respectively (Figure 20). Mixed white and black African, mixed other, mixed white and Asian, and black Caribbean pupils had a lower risk than white British pupils, while pupils

of Asian Pakistani, Asian Bangladeshi, Asian Indian, Chinese and black African ethnicities all had less than half the odds of white British pupils of being PAUO.

Black Caribbean pupils show increased overall persistent absence rates compared with white British pupils (13.3% compared with 11.0%)[36] and have very similar odds (0.99x) of being PAUO compared with white British pupils. However, when other factors including FSM, suspensions and CIN status are accounted for, black Caribbean pupils are half as likely to be PAUO compared with white British pupils (0.51x).

Controlling for other factors, the odds of being PAUO for pupils whose first language is known or believed to be other than English are around 0.76x those for pupils whose first language is known or believed to be English.

The extremely high rates of PAUO for pupils of Gypsy/Roma ethnic group (5.11x more likely to be PAUO than white British pupils after controlling for other factors), may be confounded by school level differences in the use of attendance codes for authorised Gypsy/Roma absence travelling for occupational purposes.[37]

Reference category: white British for all ethnicities, English for language

***p<0.001, **p<0.001, *p<0.01

Figure 20: Predicted odds ratios for PAUO by minor ethnic group and language compared to white British pupils and English speaking pupils.

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[36] 2018/19 Annual School Census. https://explore-education-statistics.service.gov.uk/data-tables/permalink/3e7eecd8-792f-4582-be3a-08db294a0287

[37] See School attendance guidance May 2022: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1073591/School_attendance_guidance_May-2022.pdf for further information on code T and code O.

A.3.5 Children in need

The risk of being PAUO for pupils who have received support from social care services are higher than those for pupils who have not, when other factors are accounted for (Figure 21). This is particularly true for pupils on a Child Protection Plan in the previous year, for whom the odds are around 3.0x those for pupils never classed as children in need.[38]
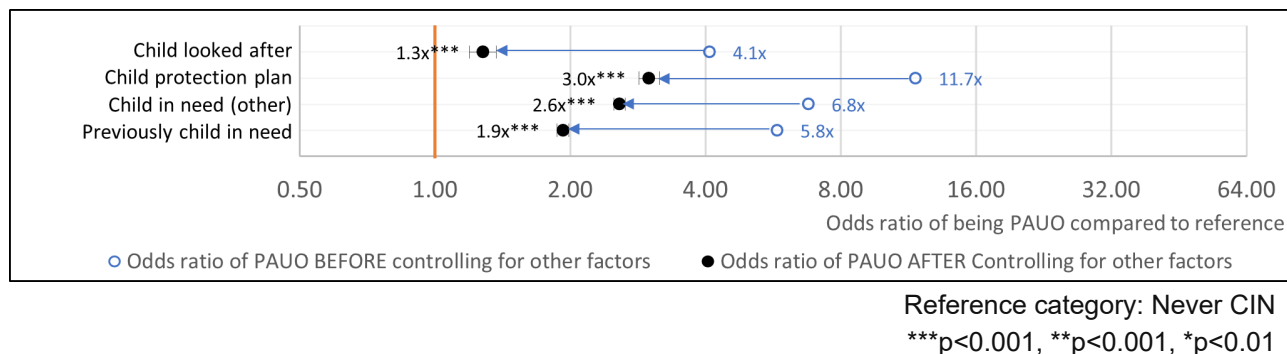

Child looked after — 1.3x*** — 4.1x
Child protection plan — 3.0x*** — 11.7x
Child in need (other) — 2.6x*** — 6.8x
Previously child in need — 1.9x*** — 5.8x

Odds ratio of being PAUO compared to reference

○ Odds ratio of PAUO BEFORE controlling for other factors   ● Odds ratio of PAUO AFTER Controlling for other factors

Reference category: Never CIN
***p<0.001, **p<0.001, *p<0.01

Figure 21: Predicted odds ratios for PAUO by pupil's social care status.

A.3.6 Special Educational Needs

Descriptively, pupils with SEN support or on an EHCP for SEMH have 7.87x and 9.67x the odds of being PAUO than pupils who have no identified SEN. However, when other factors are controlled for, the estimated odds of being PAUO for pupils with SEN support or an EHCP for SEMH reduce to 1.65x and 1.55x that of pupils with no SEN respectively (Figure 22). This suggests other factors are involved in the high rates of absence for this cohort of pupils.

Controlling for other factors, the odds of being PAUO for pupils who received SEN Support without an ECHP/SEN Statement in the previous year are generally greater than those for pupils with no identified SEN. Pupils who had an EHCP in the previous year generally had lower odds compared with those for pupils with no identified SEN, despite the unadjusted odds being generally greater.

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[38] 'Never CIN' refers to pupils never identified as children in need in the period from Year 6 (2013-14 financial year) to their current record in the dataset.
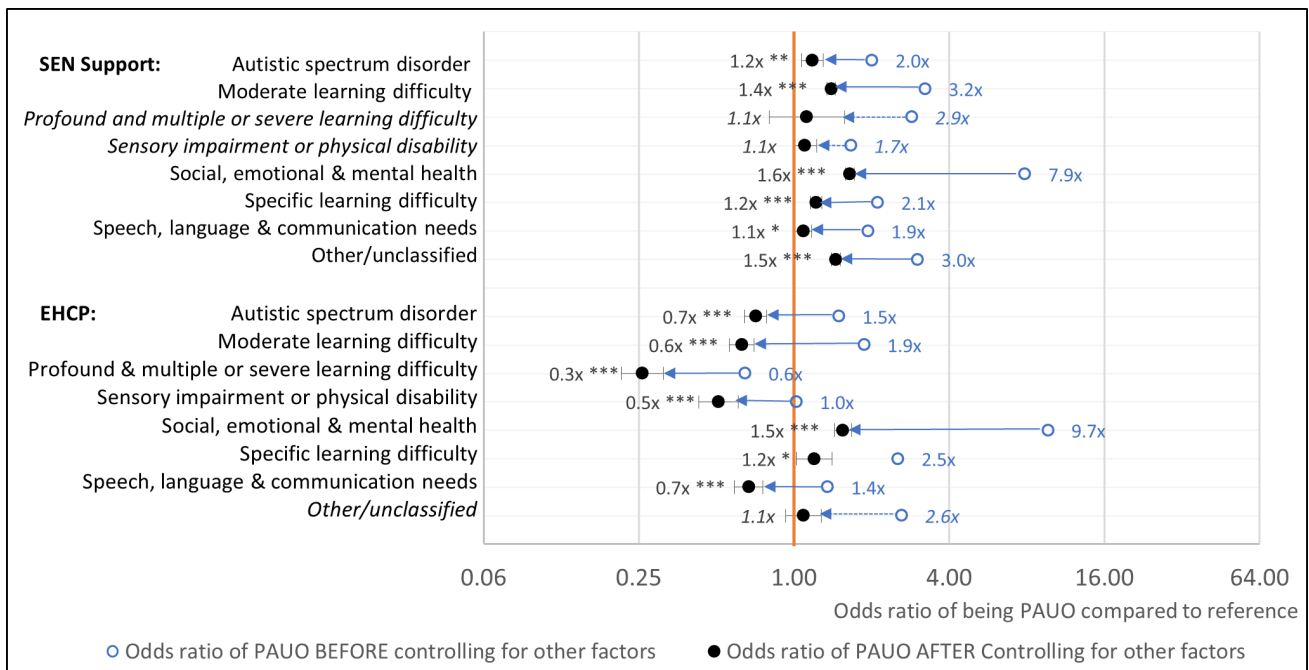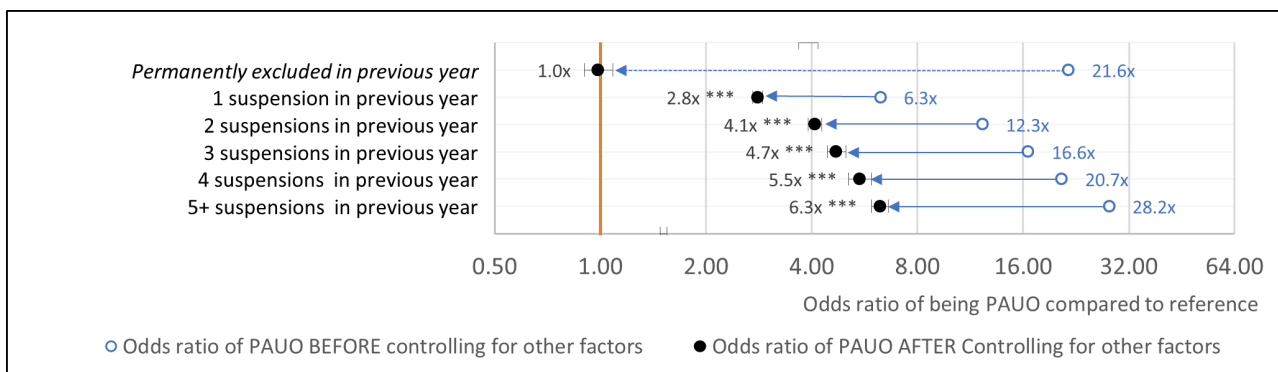
Reference category: No identified SEN

***p<0.001, **p<0.001, *p<0.01, factors in italics are not statistically significant

Figure 22: Predicted odds ratios for PAUO by SEN provision: SEN Support or EHCP for primary need identified compared with pupils with no identified SEN.

A.3.7 Suspensions and exclusions

The odds of being PAUO for pupils who were permanently excluded in the previous year was not found to be statistically different to those who were not excluded once other factors were accounted for despite unadjusted odds of pupils who are excluded being much higher (Figure 23). This is likely because the number of pupils who are excluded is so low that the sample was too small.

Pupils with one suspension in the previous year had 2.80x greater odds of being PAUO compared to pupils never suspended in the previous year, increasing to more than 6.26x the odds for pupils with five or more suspensions.


Reference category: Not permanently excluded/suspended

***p<0.001, **p<0.001, *p<0.01. *Factors in italics are not statistically significant*

Figure 23: Predicted odds ratios for PAUO for permanent exclusion *(not statistically significant)* and number of suspensions in the previous year.

A.3.8 School setting

The odds of being PAUO for pupils who spent time in state place-funded alternative provision (AP) in the previous year are more than double (2.29x) those for pupils who did not (Figure 24). This is particularly true for pupils who were expected to attend an AP school for the majority of their possible sessions; their odds are around 3.91x those for pupils who were not in AP. The odds of being PAUO for pupils who spent time in a special school in the previous year were not found to be 0.91x those who did not but the result was only significant at the $p<0.05$ level. The odds of being PAUO were reduced for pupils at an Ofsted rated outstanding school (0.77x); in a selective school (0.22x); in a rural school (0.80x); in a single sex school (0.81x); or in a faith school (0.83x), compared with good schools, non-selective schools, urban schools, mixed schools and non-faith schools, respectively.
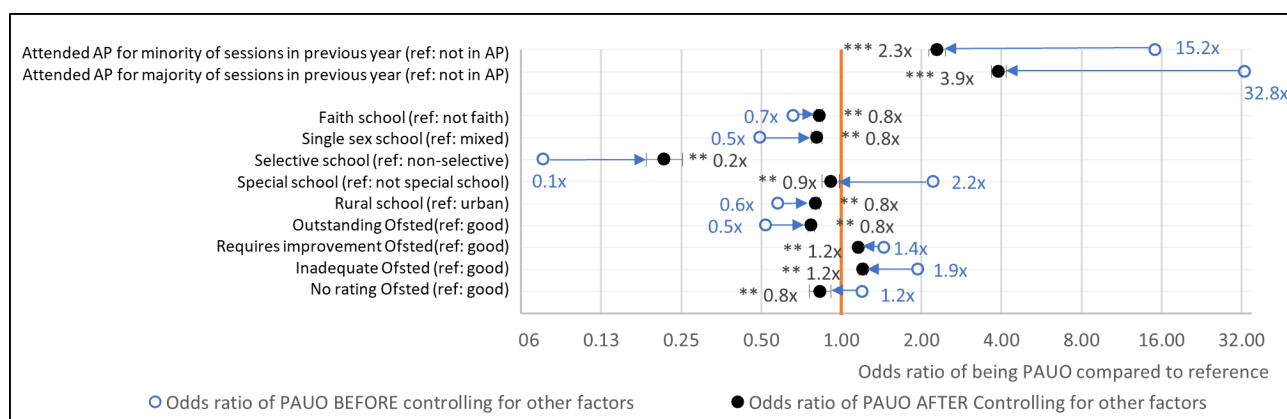

Reference categories shown in axis key
***p<0.001, **p<0.001, *p<0.01

Figure 24: Predicted odds ratios for PAUO for school setting factors compared to the reference categories shown in brackets.

A.3.9 Regional variation

Pupils in the South East and Yorkshire and the Humber had higher odds (1.14x and 1.06x respectively) of being PAUO compared with pupils in London, but pupils in other regions all had lower odds (Figure 25). Despite having some of the highest rates of overall unauthorised absence in the country with unadjusted odds of being PAUO 1.63x those of pupils London, pupils in the North East region have lower odds of being PAUO than pupils in London (0.94x) once other factors are controlled for.
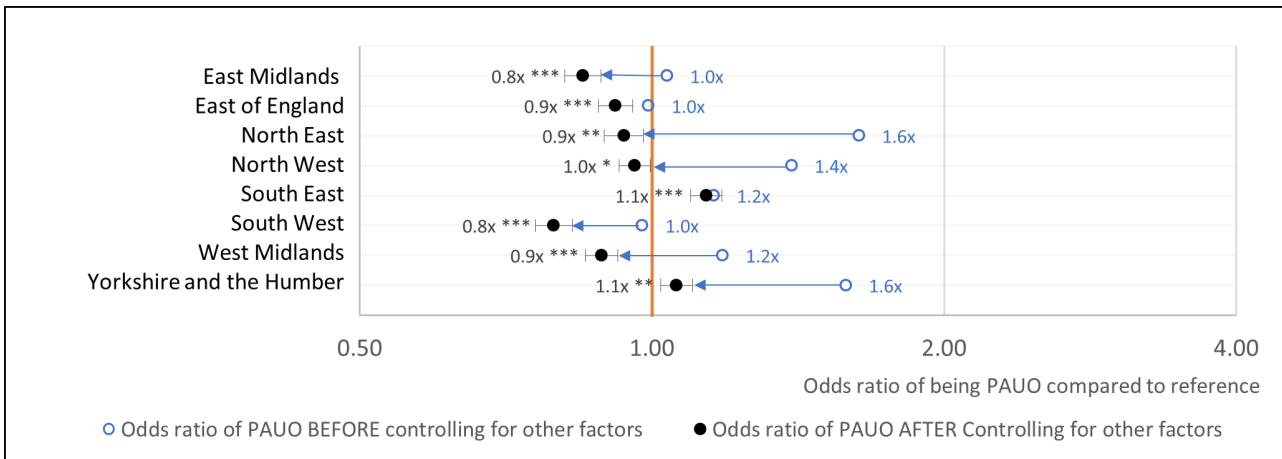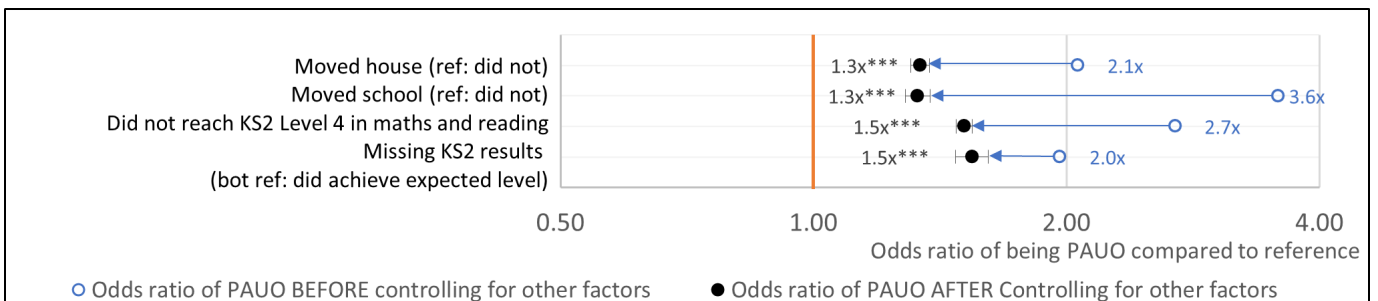
Figure 25: Predicted odds ratios for PAUO for pupils attending schools in regions compared with those in London.

A.3.10 Life events

Pupils who did not achieve level 4 or above in their key stage 2 (KS2) English, reading and maths tests or who had missing or incomplete KS2 results had odds of being PAUO around 1.51x and 1.54x respectively those for pupils who did achieve at least level 4 (Figure 26). Pupils who moved house or school in the previous year both have increased odds of being PAUO (1.34x and 1.33x those for pupils not known to have moved house or school respectively).

Figure 26: Predicted odds ratios for PAUO for selected life events: Pupils who did not achieve Level 4 or above in KS2 SATs or who moved house or school in the previous year.

A.3.11 Odds ratios for factors used in regression analysis

The estimated regression odds ratios presented here control where possible for the effects of all the other factors affecting a pupil, to identify the change in likelihood of being PAUO due to individual factors.

Factor	Level	Unadjusted Odds Ratio	Odds ratio (OR)	Standard error (SE)
Intercept			0.00 ***	0.03
Number of termly records (ref: 3)	1	10.63	5.51***	0.23
	2	4.98	2.76***	0.03
Term of birth (ref: autumn)	Spring	0.96	0.93***	0.01
	Summer	0.87	0.84***	0.01
Gender (ref: male)	Female	0.94	1.15***	0.01
Year group (ref: Year 7)	Year 8	1.77	1.70***	0.02
	Year 9	2.82	2.88***	0.02
	Year 10	3.97	4.08***	0.02
	Year 11	4.43	4.59***	0.02
Minor ethnic group (ref: white British)	Any other ethnic group	0.54	0.47***	0.05
	Asian Other	0.30	0.41***	0.06
	Asian Bangladeshi	0.35	0.33***	0.06
	Chinese	0.12	0.25***	0.20
	Asian Indian	0.19	0.36***	0.06
	Asian Pakistani	0.42	0.44***	0.03
	Black Other	0.68	0.39***	0.06
	Black African	0.28	0.22***	0.04
	Black Caribbean	0.99	0.51***	0.04
	Mixed Other	1.02	0.87***	0.03
	Mixed white and Asian	0.86	0.89*	0.05
	Mixed white and black African	1.13	0.83***	0.05
	Mixed white and black Caribbean	1.94	1.13***	0.03
	White Other	0.98	1.13***	0.03
	Gypsy/Roma	10.45	5.11***	0.04
	White Irish	1.32	1.45***	0.07
	White Irish Traveller	11.44	5.20***	0.09
	Unclassified	1.72	1.45***	0.03

Factor	Level	Unadjusted Odds Ratio	Odds ratio (OR)	Standard error (SE)
Major language group (ref: English)	Other than English	0.60	0.76***	0.02
	Unclassified	1.17	1.04	0.09
FSM (ref: not eligible)	Eligible for FSM	5.16	2.64***	0.01
Income deprivation affecting children score	One standard deviation lower	-	1.56***	0.03
SEN tier and primary need (ref: no SEN)	Tier 1: School Action (Plus)	0.98	1.46***	0.03
	Tier 1: Autistic spectrum disorder	2.01	1.18***	0.05
	Tier 1: Moderate learning difficulty	3.23	1.39***	0.02
	Tier 1: Profound and multiple or severe learning difficulty	2.87	1.12	0.17
	Tier 1: Sensory impairment or physical disability	1.66	1.10	0.05
	Tier 1: Social, emotional and mental health	7.87	1.65***	0.02
	Tier 1: Specific learning difficulty	2.11	1.22***	0.03
	Tier 1: Speech, language and communication needs	1.94	1.09§	0.04
	Tier 1: Other/unclassified	3.03	1.45***	0.02
	Tier 2: Autistic spectrum disorder	1.50	0.71***	0.05
	Tier 2: Moderate learning difficulty	1.87	0.63***	0.06
	Tier 2: Profound and multiple or severe learning difficulty	0.65	0.26***	0.10
	Tier 2: Sensory impairment or physical disability	1.02	0.51***	0.09
	Tier 2: Social, emotional and mental health	9.67	1.55***	0.04

	Tier 2: Specific learning difficulty	2.54	1.20§	0.08
	Tier 2: Speech, language and communication needs	1.35	0.67***	0.06
	Tier 2: Other/unclassified	2.62	1.09	0.08
Social care (ref: never CIN)	Child looked after	4.09	1.28***	0.03
	Child protection plan	11.74	3.00***	0.03
	Child in need (other)	6.78	2.57***	0.01
	Previously child in need	5.78	1.93***	0.02
State place-funded AP (ref: not in AP)	Minority of possible sessions	15.18	2.29***	0.04
	Majority of possible sessions	32.83	3.91***	0.03
Special school (ref: not in a special school)	At least one session in special	2.22	0.91§	0.04
Moved house (ref: did not move)	Moved house in the last year	2.06	1.34***	0.01
Moved school (ref: did not move)	Moved school in the last year	3.57	1.33***	0.02
Distance to current school (miles)	One standard deviation below		1.00§	0.00
Permanent exclusion (ref: not permanently excluded)	Permanently excluded	21.59	0.99	0.05
Number of suspensions (ref: not suspended)	1	6.29	2.80***	0.02
	2	12.29	4.08***	0.02
	3	16.61	4.72***	0.03
	4	20.66	5.48***	0.04
	5 or more	28.17	6.26***	0.03
KS2 reading and maths level (ref: level 4 or above)	Below level 4 in either test	2.69	1.51***	0.01
	Missing KS2 results	1.97	1.54***	0.02

Factor	Level	Unadjusted Odds Ratio	Odds ratio (OR)	Standard error (SE)
School urban/rural (ref: urban)	Rural	0.58	0.80***	0.02
School region (ref: London)	East Midlands	1.04	0.85***	0.02
	East of England	0.99	0.92***	0.02
	North East	1.63	0.94*	0.02
	North West	1.39	0.96§	0.02
	South East	1.16	1.14***	0.02
	South West	0.98	0.79***	0.02
	West Midlands	1.18	0.89***	0.02
	Yorkshire and the Humber	1.58	1.06*	0.02
Faith school (ref: not a faith school)	Faith school	0.66	0.83***	0.01
Single sex school (ref: not single sex)	Single sex	0.49	0.81***	0.02
Selective school (ref: not selective)	Selective	0.08	0.22***	0.08
Ofsted overall effectiveness (ref: good)	Outstanding	0.52	0.77***	0.01
	Requires improvement	1.44	1.16***	0.01
	Inadequate	1.94	1.21***	0.02
	No rating	1.20	0.83***	0.05

***$p<0.0001$, **$p<0.001$, *$p<0.01$, §$p<0.05$

Table 5: Unadjusted odds ratios and adjusted odds ratios from the regression model. These odds ratios are for factors affecting the likelihood of pupils being PAUO in the subsequent year compared to reference values.

A.3.12 Strength of the model

This regression uses a single level model containing all the factors. There is the potential for the standard errors of the variables to be under-estimated as some school level factors (such as school selection, Ofsted rating and religious ethos) are not completely independent and groups of students are clustered in schools with the same characteristics. There is the potential that school level differences in attendance and behaviour policy are not accounted for properly. This could be improved using a multi-level regression with the school unique identifier as an additional level used to control

these potential school level effects. However, it is not expected that these would change the odds ratios associated with pupil level factors substantially.

The area under the receiver operating curve (AUC)[39] and the Brier's score[40] are used to determine that model is good as it correctly predicted whether 85% of pupils would or would not be PAUO based on these factors (Table 6). The Akaike information criterion (AIC) and Bayesian information criterion (BIC)[41] are also presented to allow comparison of this model with any future model.

AIC	BIC	Data	AUC (1=perfect prediction)	Brier score (0=perfect accuracy)
418,812.1	419,846.6	Training	0.848	0.0265
		Validation	0.849	0.0262

Table 6: Model performance comparisons.

Stepwise regression modelling[42] showed that 20 of the factors in the model (all except special school flag and the distance to school) contributed significantly[43] to improving the ability of the model to describe the data. The following factors were found to be the most important for accurately predicting whether a pupil in the cohort dataset was PAUO in the following year (in descending order of importance): the number of suspensions,[44] social care activity,[45] attendance in AP[46] and FSM eligibility[47]. These four factors accounted for just under 85% of the model improvement compared to no factors at all.

It is important to caveat that this is only a model – the estimated likelihoods are only national averages. Local contexts may vary and utilising local intelligence and relationships are vital to making efficient resource allocation decisions. Nevertheless, the complementary use of local research and data where possible may maximise the

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[39] The AUC measures the ability of a model to correctly classify the PAUO based on the values of the explanatory variables; 0.5 indicates a 50:50 chance and 1 indicates perfect predictive ability.

[40] Brier scores measure the average squared difference between the predictions from the model and the actual outcomes to indicate the accuracy of models with binary outcomes; 0 means the model is completely accurate and 1 indicates complete inaccuracy. It is important to note that high accuracy of the model is partly due to the outcome (PAUO) being relatively rare, so the models correctly predict lower likelihood of the outcome for most pupils.

[41] The Akaike information criterion (AIC) and Bayesian information criterion (BIC) measure the relative performance of one model versus another, accounting for their complexity (i.e., the number of explanatory variables). Lower values are generally preferred for both criteria, as they indicate lower estimated information loss.

[42] Forward stepwise regression introduces factors into the model exhaustively one at a time until no significant improvement in the residual error in the model is found.

[43] Significance tested at $p<0.05$

[44] Possible values: 0, 1, 2, 3, 4, 5+.

[45] Possible values include flags for: looked after child, child on a child protection plan, child in need, or previously child in need

[46] Possible values include flags for: attending AP for a minority of possible school sessions, attending AP for the majority of possible schools sessions.

[47] Possible values include a flag indicating whether a pupil is eligible for free school meals.

efficiency of interventions, in particular by considering pupils identified by these four factors for additional support.
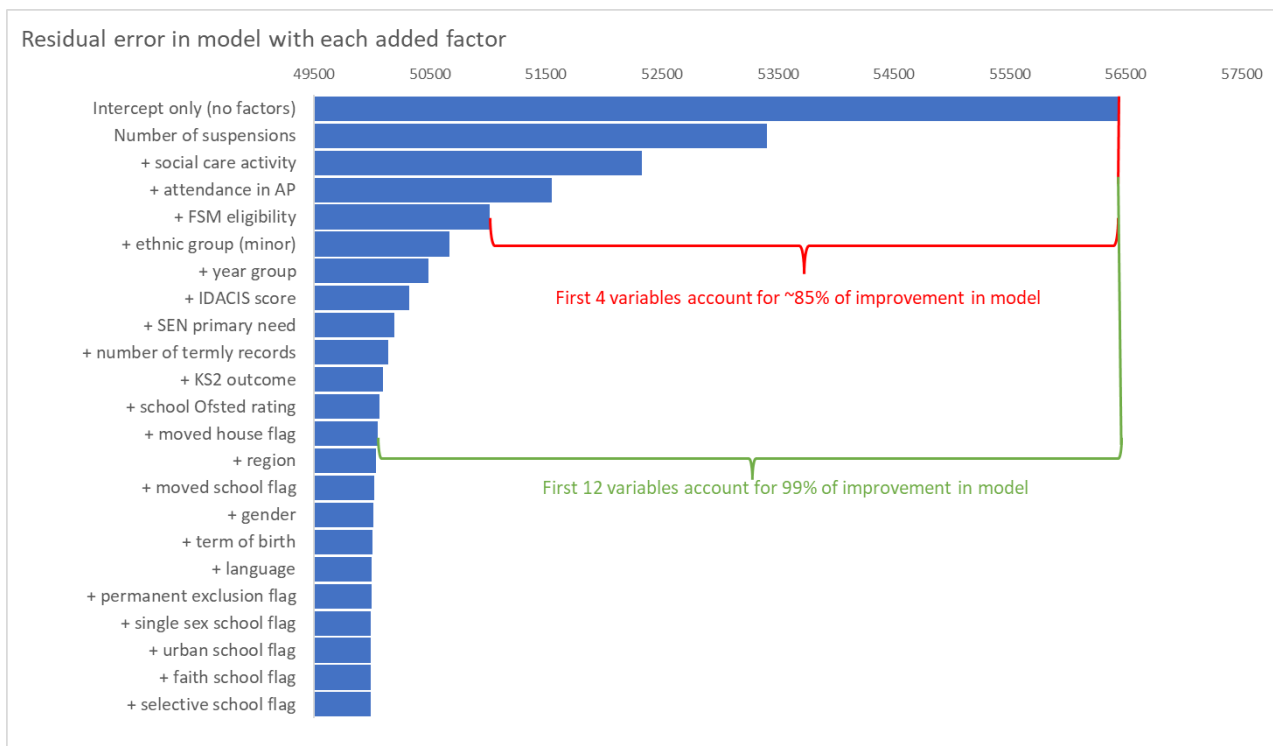

Figure 27: The order of factors included in a forward stepwise regression model showing the most important factors in the accuracy of the model. Nearly 85% of improvement in the model is accounted for by the first four factors.

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