RESEARCH

An Analysis of Pupil Attendance Data in Excellence in Cities (EIC) Areas and Non-EIC EAZs: Final Report

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National Foundation for Educational Research

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EXECUTIVE SUMMARY

The focus on pupil attendance, which is central to DfES initiatives such as the Behaviour Improvement Programme (BIP) and Excellence in Cities (EiC), is based on the concern that high absence rates may have a significant impact on pupil attainment. The analysis presented in the National Foundation for Educational Research (NFER) report, '*An Analysis of Pupil Attendance Data in Excellence in Cities (EiC) Areas: An Interim Report',* which was published by the Department for Education and Skills (DfES) in 2004, suggests that this concern was well founded.[1] This final report provides a detailed analysis of pupil-level data that was collected by a consortium (led by the NFER) for the national evaluation of EiC. During this evaluation, attendance data was provided, on an annual basis, by secondary schools agreeing to take part in the longitudinal evaluation of EiC. The data included in this report was in the form of authorised and unauthorised absence (in half-day sessions) on young people in Year 7 through to Year 10 in **454** schools over a three-year period.

Key findings

- The majority of pupils in the 454 participating EiC schools (65 per cent) had no recorded periods of **unauthorised absence**. However, for a minority of pupils (just over five per cent) incidents of unauthorised absence amounted to up to two weeks per school year. For over one per cent this absence amounted to half a term or longer. Indeed, the majority of incidents of unauthorised absence were accounted for by a *minority* of pupils. Nearly half the recorded sessions of unauthorised absence were attributable to just two per cent of the pupils in the study.
- For just under one-third of the pupils in the EiC schools **authorised absences** amounted to one week or less per year, although fewer than one in ten pupils had no authorised absences. Nearly five per cent of the pupils in the EiC schools, and more than six per cent of those in Year 10, had authorised absence periods that equated to approximately half a term (80 half-day sessions).
- Once pupil and school background characteristics for young people in Year 9 and Year 10 were taken into account:
  - **Higher** than average levels of **authorised absence** were seen amongst girls; young people with special educational needs; those in receipt of Free School Meals.
  - **Higher** than average levels of **unauthorised absence** were seen amongst young people with special educational needs; those in receipt of Free School Meals; Year 10 pupils in BIP schools, low performing schools, or in EiC schools in the south-west.

[1] MORRIS, M. and RUTT, S. (2004). *An Analysis of Pupil Attendance Data in Excellence in Cities (EiC) Areas: An Interim Report.* London: DfES.

- **Lower** than average levels of **authorised** absence were seen amongst young people with lower levels of fluency in English; young people for whom English was not a first language but who were bi-lingual; young people who were from relatively less deprived neighbourhoods (but also neighbourhoods where unemployment was relatively high); young people in small schools (Year 10 only) and Specialist schools (Year 10 only). Amongst the cohorts for whom ethnicity data was available, lower levels of authorised absence were seen amongst Black African, Chinese, Indian, Black Caribbean, Pakistani, Bangladeshi and Black other minority ethnic groups.
- **Lower** than average levels of **unauthorised** absence were seen amongst young people with lower levels of fluency in English and those for whom English was not a first language but who were bi-lingual; those who were from relatively less deprived neighbourhoods; Year 9 and 10 Black African and Year 10 Pakistani pupils.

Once pupil and school background characteristics were taken into account, there appeared to be an association between absence rates and pupil attainment:

- **Higher** than average levels of **absence** (authorised and/or unauthorised) were associated with **reduced attainment** at GCSE in Year 11, with a particular impact on boys; reduced probability of achieving five or more GCSEs at A*-C; increased likelihood of not obtaining any GCSEs at grade C or above; reduced attainment in Key Stage 3, with a particular impact on boys and a reduced likelihood of making one level of progress between Key Stage 2 and Key Stage 3.

The Research

Individual pupil-level data from over 100,000 young people in EiC schools was used to provide descriptive statistics on authorised absence, unauthorised absence and total absence and to facilitate multilevel analyses in order to address some key research issues. These included:

- The extent to which there are any identifiable variations in authorised and unauthorised absence rates between young people from different year groups and with different background characteristics.
- The general pattern of absence and attendance amongst different groups of pupils.
- The relationship (if any) between attendance and attainment and the extent to which such relationships were apparent once individual pupil and school characteristics and pupil prior attainment were taken into account.
- The extent to which it was possible to identify a critical threshold at which levels of absence might affect attainment.

Individual authorised and unauthorised absence data, collected from EiC schools over a period from 2000/01 to 2002/03, was matched to pupil-level data held on the Pupil Level Annual School Census (PLASC) and the National Pupil Database (NPD) in order to obtain background characteristics of the

pupils (including prior attainment), to the 2001 Census to obtain information on the nature of a pupil's home neighbourhood and the neighbourhood of the school, and to the NFER's Register of Schools to obtain school level information (such as school type, location, age range, status and aggregated attendance and attainment figures).

Findings from descriptive statistics

For just under one-third of the pupils (32.3%) in the 454 participating EiC schools **authorised absences** amounted to one week or less per year (10 half day sessions), although fewer than 10% of pupils had no authorised absences. Just over half of the pupils (54%) had no more than two weeks of authorised absence during the academic year, although there was some variation by year group, with lower levels of such absence amongst the younger pupils.

However, nearly five per cent of the pupils (4.8%) in the EiC schools, and more than six per cent of those in Year 10 (6.2%) had authorised absence periods that equated to approximately half a term (80 half day sessions). On average, just under one per cent of all of the pupils in such schools were absent for the equivalent of at least one school term or longer, although there was some minor variation by year group, with 0.2% of Year 7 pupils, but 0.8% of Year 10 pupils having such long periods of authorised absence.

The story for **unauthorised absence** was rather different. The majority of pupils (65%) had no recorded periods of unauthorised absence, while a further 25.2% had incidents of unauthorised absence amounting to no more than one week. For over five per cent of pupils, however, unauthorised absence amounted to up to two weeks and for over one per cent this absence amounted to half a term or longer. Indeed, for some pupils (0.6%) this unauthorised absence was equivalent to more than one-third of the academic year, with two pupils (one in Year 9 and one in Year 10) having attended school for less than one week in the year.

The majority of incidents of unauthorised absence were accounted for by a *minority* of pupils. Nearly half of the recorded sessions of unauthorised absence (44.9%), for example, were attributable to just two per cent of the pupils in the study, each of whom had missed 51 or more half-day sessions (equivalent to five or more weeks in the academic year).

Combined authorised and unauthorised absence data was available for 87,197 young people and was used to derive an **overall absence** variable. This suggested that overall mean absence rates were significantly higher in 2003 (at 34.10 half days or 91% attendance) than in 2002 (at 30.68 half days or 91.9% attendance) or 2001 (at 32.16 half days or 91.5% attendance). There were also some significant differences between year groups, with younger pupils displaying better attendance records. Overall absence was significantly lower in Year 7 than in all other year groups, while absence in Year 8 was significantly lower than in Year 9 or 10. Absence in Year 9 was significantly lower than in Year 10.

The outcomes of analysis of variance suggested that there were some significant differences in authorised and unauthorised absence and attendance rates between different groups of young people (girls had higher rates of authorised absence than boys, young people in Specialist schools had lower rates of authorised absence than other pupils and young people from Black African backgrounds had a lower incidence of unauthorised absence than their peers from all other groups, for example). However, this analysis did not indicate whether there were any variations between the absence rates of Black African girls in Specialist schools compared with Black African girls in non-Specialist schools, for instance. In order to examine the relative impact of background variables on attendance a multilevel modelling approach was taken.

Findings from the modelling process: authorised and unauthorised absence and overall absence

Using hierarchical modelling techniques, models were constructed for authorised and unauthorised absence and attendance for young people in Years 9 and 10. Across both cohorts, and once other pupil and school characteristics were taken into account, there appeared to be a significant association between special educational needs and poor attendance, with comparatively high levels of both authorised and unauthorised absence particularly amongst those on School Action Plus. Young people for whom English was not a first language had a better record of attendance than those for whom English was a first language. In both Year 9 and Year 10, those who were becoming familiar or confident with English and those who were fluent bi-lingual speakers had better attendance records (and a lower incidence of both authorised and unauthorised absence) than those for whom English was a first language.

Findings from the modelling process: the relationship between authorised and unauthorised absence and attainment

There appears to be a significant association between authorised and unauthorised absence and attainment at both Key Stage 3 and Key Stage 4, even when pupil and school level characteristics have been taken into account. At Key Stage 3, this was most evident in relation to overall achievement and to the probability of making at least one level of progress at Key Stage 3, while at Key Stage 4 higher levels of absence (though, particularly, higher levels of unauthorised absence) were negatively associated with lower capped eight scores, a reduced probability of attaining five A* to C grades and an increased probability that young people would not obtain any GCSEs above a grade D. Across both Key Stages, the impact of pupil absence on attainment was more apparent amongst boys than amongst girls, particularly in relation to unauthorised absence.

An examination of the coefficients for authorised and unauthorised absences suggest that higher levels of unauthorised absences may be more significant in determining the extent to which young people's performance at GCSE is affected by their attendance in school. However, there was also evidence that there may be critical thresholds of absence (31 or more half day sessions), above which performance is significantly lower, whether or not young

people's absence is authorised or unauthorised. It is worth acknowledging that the impact of such non-attendance may have a bigger impact on boys' achievement than on girls' achievement.

Discussion

The statistical techniques that have been used in the analyses that are presented here do not imply causality. We cannot tell from the associations identified above whether the increased likelihood of low levels of attainment with higher levels of absence are the direct result of poor attendance, whether poor prior attainment has led to poor attendance or whether some other factor, not included in the modelling process, is having a significant impact.

For example, in the case of boys' apparent underperformance by comparison with girls with the same level of attendance, prior attainment and other characteristics, one would need to question whether this means that boys need more time in school in order to achieve the same results as their female peers, or whether, perhaps, other factors (particularly attitudinal factors) are contributing to this difference in outcome. In the analyses conducted for the national evaluation of EiC, one of the key factors associated with higher levels of performance was a positive attitude to education: girls were significantly more likely than boys to be associated with such attitudes.

It should also be noted that the apparent relationship between pupil absence and pupil attainment is not even. While a decrease in absence may be marked by an increase in the probability of higher level attainment, an increase in absence (particularly in authorised absence) does not necessarily lead to a concomitant decrease in such a probability. At Key Stage 3, the relationship between absence and attainment also appeared to vary by subject, with unauthorised absence, for instance, being more particularly associated with lower levels of performance in English than in Maths. Moreover, the apparent relationship between pupil absence and pupil attainment was not evident across all pupil groups: the higher rates of attendance amongst Black Caribbean and Black Other pupils than amongst White UK pupils in Year 9 were not reflected in higher attainment at Key Stage 3.

To what extent, therefore, is it possible to find answers to the questions posed at the outset of this analysis? Clearly, there are variations in authorised and unauthorised absence rates between young people from different year groups and with different background characteristics and these rates vary by school type and location. There appears to be some relationship between attendance and attainment, although, as indicated above, this relationship is not straightforward. However, it would appear that any periods of absence beyond one week were associated with a significant reduction in the likelihood of young people making at least one level of expected progress from Key Stages 2 to 3. At Key Stage 4, where periods of total absence exceeded three weeks, a young person's probability of achieving five or more A* to C grades was reduced by 18%, while their probability of achieving no grades above a C increased by one third (33%). Periods of absence above five weeks decreased a pupil's probability of achieving five or more A* to C grades by one third; it

increased the probability of achieving no higher grade GCSEs by over 80%. Given that the models control for all pupil background characteristics (including prior attainment), this might suggest that the impact of poor attendance might be greater for lower attaining pupils than for higher attainers. Certainly, there is already an indication that poor attendance has a more significant impact on boys than on girls. The implications of this study, therefore, are that monitoring attendance data at individual pupil level is crucial. While the impact of unauthorised absence appears to be greater, it would appear that any periods of absence may be critical in terms of reduced attainment, particularly once they exceeded 10 half days at Key Stage 3 and (for lower attainers) at Key Stage 4.

1. INTRODUCTION

The focus on pupil attendance, which is central to Department for Education and Skills (DfES) initiatives such as the Behaviour Improvement Programme (BIP)[2] and Excellence in Cities (EiC),[3] is based on the concern that high absence rates may have a significant impact on pupil attainment. The analysis presented in the National Foundation for Educational Research (NFER) report, '*An Analysis of Pupil Attendance Data in Excellence in Cities (EiC) Areas: An Interim Report',* which was published by the Department for Education and Skills (DfES) in 2004, suggests that this concern was well founded.[4] To begin with, the detailed pupil level analysis conducted for that study suggested that the majority of both authorised and unauthorised absences in EiC schools were accounted for by a minority of pupils. Secondly, once the background characteristics of these pupils (including levels of prior attainment) were taken into account, higher than average levels of absence were associated with reduced levels of attainment at Key Stage 3 and Key Stage 4.

Prior to the 2004 study, existing data collection strategies enabled the DfES to monitor aggregated attendance at a school level. However, the lack of nationally available pupil-level attendance data hampered any detailed understanding of the relative impact of interventions designed to address poor attendance. Moreover, the lack of such data precluded any comprehensive awareness of the relationship between attendance levels and pupil attainment and meant that it was difficult to identify the critical points at which a *lack* of appropriate intervention to tackle poor attendance might lead to reduced attainment amongst vulnerable young people.

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2 The Behaviour Improvement Programme was established in July 2002 as part of the Government's Street Crime Initiative and forms a central element of the £470,000,000 National Behaviour and Attendance Strategy. Currently operating in 60 Local Education Authority areas (34 were included in Phase 1 of the programme with 26 further authorities incorporated in 2003), the package of measures available to LEAs include behaviour audits to identify schools' behaviour and attendance issues, systems to assist schools in monitoring attendance (such as electronic registration systems) and a series of strategies aimed at reducing truancy (including school-based educational welfare officers) and providing appropriate support to schools, staff, pupils and parents. In addition to staff training, these support measures include Behaviour and Education Support Teams (who can identify and provide intensive multi-agency help to pupils at risk of developing emotional, social and behavioural problems), Learning Mentors, 'Safer School Partnerships' (where a dedicated full-time police officer is based in selected schools) and 'extended schools' (with activities outside of the school day).

3 Launched in September 1999, Excellence in Cities is one of the Government's key policy initiatives for redressing educational disadvantage and under-performance in schools located within the most deprived urban areas of England. It has adopted a multi-strand approach to raising standards and performance and emphasises the use of locally based partnership approaches and targeted provision. While some of the policy strands (such as Excellence Action Zones, City Learning Centres, Learning Support Units, Beacon Schools and Specialist Schools) operate at either area or whole school level, others (the Gifted and Talented Strand and Learning Mentors) are specifically targeted at the individual student.

4 MORRIS, M. and RUTT, S. (2004). *An Analysis of Pupil Attendance Data in Excellence in Cities (EiC) Areas: An Interim Report.* London: DfES.

The 2004 study was commissioned to explore further the data that had been collected (by a consortium led by the NFER) for the national evaluation of EiC. During this evaluation, attendance data was provided, on an annual basis, by secondary schools agreeing to take part in the longitudinal evaluation of EiC.[5] This data, in the form of authorised and unauthorised absence (in half day sessions) was available on a pupil by pupil basis for each young person in the seven participating cohorts, for a time period from the academic year 1999/00 to the academic year 2001/2002.[6] The 2004 report (Morris and Rutt) analysed the data from young people who were in Years 7 to 11 in the academic years 1999/00 and 2000/01.[7] This report includes additional data from the academic year 2001/02.

As in 2004, individual pupil-level data has been used to provide both descriptive statistics on authorised absence, unauthorised absence and total absence. It has also been used to facilitate more complex multilevel analyses, in order to address the key research questions. These include:

- To what extent are there any variations in authorised and unauthorised absence rates between young people from different year groups and with different background characteristics? Do these rates vary by school type or location?
- What is the general pattern of absence and attendance amongst different groups of pupils?
- What is the relationship (if any) between attendance and attainment? Can the impact on attainment of different levels of non-attendance be quantified? Is any relationship so identified still apparent once individual pupil and school characteristics and pupil prior attainment are taken into account?
- Is it possible to identify a critical threshold at which levels of absence might affect attainment significantly?

The profile of the EiC cohorts (and non-EiC EAZ cohorts) included in the study is not identical to that of all secondary schools nationally. To begin with, EiC schools are predominantly located in metropolitan areas (only 26% of EiC schools are in non-metropolitan areas) and represent those schools in which there are higher levels of socio-economic and educational disadvantage. Compared with non-EIC schools, for example, they have higher proportions of pupils who are entitled to Free School Meals (49% of EiC schools are in the top quintile of pupil eligibility, compared with 19% of all secondary schools) or who speak English as an additional language (13% of EiC schools are in the top quartile – where more than 50% of the population are identified as speakers of a first language other than English [previously categorised as

[5] The analysis also includes data from young people in non-EiC Education Action Zones (EAZs), who took part in the evaluation of Aimhigher: Excellence Challenge.

[6] A breakdown of the various cohorts, by size, year group and academic year is provided in Chapter 2.

[7] Note that the attendance data on young people in Year 11 refers to their attendance in the previous academic year – that is, when they were in Year 10.

English as an additional language or EAL][8] – compared with only four per cent of all schools nationally). Mean levels of aggregated attainment are generally lower than in non-EiC schools. Only ten per cent of EiC schools are in the highest band of achievement at Key Stage 3, compared with 18% of non-EiC schools, while 41% are in the lowest band in contrast with only 20% of non-EiC schools. The picture is similar at Key Stage 4, with eight per cent of EiC schools in the highest band of achievement, compared with 15% of non-EiC schools, and 39% in the lowest band, in comparison with 20% of non-EiC schools.

Table 1 and **2** in **Appendix 1** provide a picture of the representativeness of the EiC schools (and of the participating EiC and EAZ schools) compared with all schools in England. The figures are based on a consideration of three sets of cohorts (young people who were in Year 8, 9 and Year 10 cohorts in 2000/01) and on those young people (and their schools) for whom *complete* data on authorised and unauthorised absence has been received (some **87,197** pupils from **454** schools). From this data it is evident that the sample of participating schools is more broadly representative of EiC schools than of the population of schools as a whole, even though the sample more closely represents all schools nationally in terms of local authority type (a higher proportion – 29% – of responding schools were in non-metropolitan areas). Despite these differences between EiC and non-EiC schools, the data that is available from the participating EiC and EAZ schools provides a clearer picture of the distribution patterns of individual pupil attendance and of the apparent relationships between pupil attendance and pupil attainment than has been possible to access prior to this date. However, it is important to be mindful that the data represents attendance patterns in schools that are predominantly in less advantaged urban areas and may not represent the patterns that exist in other parts of the country. Nonetheless, national statistics suggest that there was an overall increase in aggregated absence rates (both authorised and unauthorised) between 1999/00 and 2001/02;[9] the data from the schools in this study also suggest that absence rates were higher in 2001/02 than in 1999/00, particularly among young people in the older year groups.

The report as a whole draws on attendance data provided by schools for **77,630** pupils on their attendance in 1999/00, **47,146** pupils on their attendance in 2000/01 and **83,350** pupils on their attendance in 2001/02 and includes data on young people in Year 7 through to Year 10.[10] Individual authorised and unauthorised absence data was matched to pupil- and the NPD (National Pupil Database) in order to obtain background characteristics level data held on PLASC (the Pupil Level Annual School Census) of the pupils (including prior attainment) and to the NFER's Register of Schools to obtain

[8] Note that, for ease of presentation, some tables use the previous abbreviated form of EAL.

[9] DEPARTMENT FOR EDUCATION AND SKILLS (2003). *Pupil Absence in Schools in England 2002/03 (Revised)*. Statistical First Release. SFR 34/2003 [online]. Available. http://www.dfes.gov.uk/rsgateway/DB/SFR/s000434/sfr34-2003.pdf. [6, May 2005].

[10] These 208,126 records represent the sum total of data available across Years 7 to 10 over the three year period. As indicated above, the **87,197** pupils profiled in Appendix 2 are those young people for whom complete data (authorised absence, unauthorised absence, NPD and school data) was available.

school level information (such as school type, location, age range, status and aggregated attendance and attainment figures).

The report provides a series of different analyses that were carried out in March 2005. It follows the broad structure of the 2004 study and comments on any notable differences between the combined datasets for 1999/2000 and 2000/01 and those for 1999/2000, 2000/01 and 2001/02.

- **Chapter 3** provides an overview of the distribution patterns and a series of descriptive statistics on the attendance patterns of young people in Years 7 to 10, split by a range of different pupil background characteristics (such as male/female, ethnic background, first language other than English, level of fluency in English, young people in receipt of Free School Meals, special educational needs status [SEN] and prior attainment at Key Stage 2) and school characteristics (including location, size, age range, status and involvement in the Behaviour Improvement Programme). It also includes variables obtained from the 2001 Census to provide an indication of a) the characteristics of the neighbourhood in which a young person lives and b) the characteristics of the neighbourhood of the school.
- **Chapter 4** examines the apparent relationship between pupil-level attendance and attainment that emerges from simple logistic modelling, prior to the inclusion of a full set of background characteristics.
- The findings from a set of multilevel models developed for the Year 9 and Year 11 cohorts for 1999/2000, 2000/01 and 2001/02 are reported in **Chapter 5**. Three models were constructed for each year group and these comprise authorised absence, unauthorised absence and total absence. The Year 9 models included actual attendance in Year 9, the Year 11 models included attendance data from the previous academic year, when young people were in Year 10. Background variables at pupil and school level were included in these models.
- **Chapter 6** presents the findings from a series of multilevel cross-sectional models exploring the relationship between attendance and attainment outcomes for young people in 1999/2000, 2000/01 and 2001/02. For pupils in Year 9, these include models examining the relationship between authorised, unauthorised and total absence in Year 9 and attainment outcomes for average level at Key Stage 3, average level in Key Stage 3 Mathematics and average level in Key Stage 3 English model. It also includes a model to explore the relationship between absence and the probability of making at least one level of progress between Key Stage 2 and 3 (some 68.3% of the 15,708 pupils in the Year 9 cohorts in the model made such progress). For pupils in Year 11, the models examine the relationship between attendance in Year 10 and best (or capped) eight GCSE scores, the probability of achieving five or more GCSEs at A* to C and the probability of lower levels of attainment, specifically young people achieving no GCSEs above grade D (some 25.8% of the 20,258 cases in the Year 11 cohorts in the model).

The outcomes of these analyses are used to re-examine the apparent links between attendance and attainment and to explore any potential critical thresholds for attendance.

Prior to the presentation of these various analyses, **Chapter 2** provides an overview of the various datasets that have been included in the study.

2. THE DATA SETS

This report, compiled in March 2005, draws on Year 7 to Year 10 attendance data for 1999/2000, 2000/01 and 2001/02. The pupil surveys, upon which the analysis is based, first took place in 2000/01, in EiC Phase 1 and 2 areas and in non-EiC comparison areas. In subsequent years, data was also collected in Phase 3 EiC areas and in non-EiC Education Action Zones (EAZs).[11] Attendance data for pupils in the schools involved in those surveys was collected from schools in the autumn of that year and represented pupil attendance during the *previous* academic year, such that data collected for a Year 10 pupil reflected their attendance in Year 9, for instance.

Table 2.1 summarises the structure of the survey cohorts and demonstrates that, over a four year period from autumn 2000 to autumn 2003, individual pupil attendance data was collected for six different cohorts of young people from Years 7 to 10. It should be noted that, although young people in Year 11 were involved in questionnaire surveys and data on their Key Stage 4 attainment was obtained from the NPD, the individual attendance data for the Year 11 cohort relates only to Year 10; attendance data during the final year of compulsory education is not available. All post-16 contact with pupils was via home addresses and not via schools, so no attendance data was collected for Year 11 pupils. For these cohorts alone, the analysis that was undertaken for this study refers to their attendance in the previous year (Year 10). For all other cohorts, the analysis refers to attendance in the year for which attainment data (and other data) was collected.

Table 2.1 Year groups for which attendance data was collected

	Year Group			
Cohorts	**Pre-EiC attendance data 1999/2000 [a]**	**EiC attendance data**		
		2000/2001 [b]	**2001/2002 [c]**	**2002/2003 [d]**
Cohort 1	–	7	8	9
Cohort 2	7	8	9	10
Cohort 3	8	9	10	
Cohort 4	9	10		–
Cohort 5	10		–	–
Cohort 6	–	–	7	8

Notes: [a] Collected in autumn 2000. [b] Collected in autumn 2001 [c] Collected in autumn 2002. [d] Collected in autumn 2003 as part of the evaluation of Aimhigher: Excellence Challenge.

[11] These EAZs have transformed, or are in the processing of transforming, to Excellence Clusters. Data was collected from pupils in these schools as part of the evaluation of Aimhigher: Excellence Challenge, which built upon the evaluation of EiC.

In order to maximise the amount of data available for the analyses, all young people for whom a school provided individual data on authorised and unauthorised absence on pupil data forms were included in the initial matching process with PLASC and NPD (this data was included in the distribution analyses – see **Table 2.2**).[12] At each stage of the descriptive data analysis, young people for whom the relevant individual data item (such as prior attainment at Key Stage 2) was missing were omitted. Such young people remained eligible for inclusion for subsequent descriptive analyses, however. This means that the population value (n) for the descriptive statistics varies across and within each year group, depending upon the amount of missing data. The total numbers of young people to which this stage of the analysis had access is indicated in **Table 2.3**.

Table 2.2 Total available matched data

For academic year	Numbers
2000/01	77,630
2001/02	47,146
2002/03	83,350
Total	**208,126**

Table 2.3 Data included in distribution analyses

Distribution Data (attendance)	Authorised	Unauthorised
Year 7	23,481	19,970
Year 8	26,645	31,743
Year 9	25,261	21,591
Year 10	24,837	23,441
Total	**100,224**	**96,745**

In order to be included in the multilevel modelling process, however, *all* relevant background data (at pupil and school level) needed to be available. The number of young people for whom the various models were constructed is therefore lower than the number for whom the basic descriptive statistics were derived. **Table 2.4** provides an overview of the numbers of young people included in each of the various attendance and attainment models. The models were constructed to measure the relationship between attendance in Year 10 and outcomes at the end of Year 11 (Key Stage 4/GCSE) and the relationship between attendance in Year 9 and outcomes at the end of Year 9 (Key Stage 3).

[12] For the earliest cohorts (2000/2001), attendance data collected by the NFER consortium was matched to the data files that DfES then used for attainment, as the data collection exercises for PLASC and the construction of the NPD had not yet taken place.

Table 2.4 Data included in multilevel modelling

Multilevel models	Year 9	Year 11
Authorised absence	21,405	24,143[a]
Unauthorised absence	21,035	22,366[a]
Total absence	21,405	22,366[a]
Key Stage 3 average level	15,448	–
Key Stage 3 English	15,065	–
Key Stage 3 Maths	14,700	–
Progress of at least one level at Key Stage 3	15,708	–
Total score at GCSE	–	20,449
Capped 8 GCSEs	–	20,449
5 A*–C grades	–	20,258
No GCSEs above grade D	–	20,258

[a] Absence Data for Year 10 is included because Year 11 data is not available

The numbers of pupils in each of the models is sufficiently large, therefore, to enable the research team to have confidence in the relative reliability of the findings.

3. KEY FINDINGS: PATTERNS OF ATTENDANCE

This Chapter examines some of the significant variations that exist within the data between the attendance patterns of young people from different backgrounds and from different schools. It also explores the *apparent relative impact* of each of these individual background factors on authorised and unauthorised absence and total absence for young people in Year 9 and Year 10, prior to an examination of the relative apparent impact of absence (including both authorised and unauthorised absence) on attainment outcomes at Key Stages 3 and 4 (see Chapters 4 and 6).

The descriptive statistics presented in this chapter incorporate individual pupil-level data covering the whole of each academic year (that is, a mean of 380 half-day sessions[13]) to provide a picture of the distributions for authorised absence, unauthorised absence and attendance. National DfES statistics for this period, based on five half terms, suggests that, in 1999/2000, the percentage of half-day sessions missed by pupils for authorised absence was 7.58%, while that for unauthorised absence was 1.04%.[14] Figures for authorised absence in 2000/01 were marginally higher, at 7.98% while unauthorised absence had risen 0.03 percentage points to 1.07%. By 2001/02, there was some indication of a decrease from the previous year for authorised absence (7.63%), but unauthorised absence had increased to 1.09%.

These figures, however, provide only an indication of mean aggregated absence across the whole secondary school population and do not provide any indication of the extent of absence by year group or pupil type. As the *pupil-level* analysis conducted in 2004 also revealed,[15] patterns of authorised and unauthorised absence were not evenly spread across the secondary school population. For just under one-third of the pupils (32.3%) in the 454 participating schools **authorised absences** amounted to one week or less (10 half-day sessions), although fewer than 10% of pupils had no authorised absences (such low levels of authorised absence were more evident in Years 7, 8 and Year 9 than in Year 10).[16] Just over half of the sample population (53%) had no more than two weeks of authorised absence during the academic year, although there was some variation by year group, with higher levels of

[13] It should be noted that the school-level data that is analysed by the DfES to present national statistics is based on fewer half-day sessions, since the DfES data does not include information for the second half of the summer term.

[14] http://www.dfes.gov.uk/rsgateway/DB/SFR/s000547/tab001.shtml [online] Accessed 21-03-05.

[15] MORRIS, M. and RUTT, S. (2004). *An Analysis of Pupil Attendance Data in Excellence in Cities (EiC) Areas: An Interim Report.* London: DfES.

[16] Across the survey cohorts, only 6.9% of pupils had no periods of either authorised or unauthorised absence. Highest attendance rates were found in Year 8 (8.2% with no periods of absence) and Year 7 (7.9% with no periods of absence), with only 5.1% of young people in Year 10 (1,143 pupils) recorded as having a full attendance record.

such absence amongst the older pupils (only 48.8% of Year 10 pupils had 20 or fewer half days of absence). However, nearly five per cent of the pupils (4.8%) in the study schools, and more than six per cent of those in Year 10 (6.2%) had authorised absence periods that equated to approximately half a term (80 half-day sessions).[17] On average, just under one per cent of all of the pupils in such schools were absent for the equivalent of at least one school term or longer, although there was some minor variation by year group; 0.2% of Years 7, 0.6% of Years 8 and 9 and 0.8% of Year 10 had such long periods of authorised absence.

As in the study reported in 2004, the story for **unauthorised absence** was rather different. The majority of pupils across the survey cohorts (65%) had no recorded periods of unauthorised absence, while a further 25.2% had incidents of unauthorised absence amounting to no more than one week. For over five per cent of pupils (5.6%), however, unauthorised absence amounted to up to two weeks in the year and for over one per cent this absence amounted to half a term or longer. Indeed, for some pupils (0.6%) this unauthorised absence was equivalent to more than one third of the academic year, with two pupils (one in Year 9 and one in Year 10) attending school for less than one week in the year, having truanted for the remaining period.

The data also indicates that the majority of incidents of unauthorised absence were accounted for by a *minority* of pupils. As suggested in 2004, nearly half of the recorded sessions of unauthorised absence (44.9%), for example, were attributable to just two per cent of the pupils in the study. Each of these pupils had missed 51 or more half-day sessions (equivalent to five or more weeks in the academic year).

In order to obtain further insights into patterns of attendance and non-attendance, the data for the three academic years was split in a number of different ways. Authorised and unauthorised absences were explored in relation to a) variations in school type, b) variations in school catchments and c) variations at individual pupil level by sex (and by sex within year group), by first language other than English, by level of fluency in English, by young people in receipt of Free School Meals, by SEN status and by prior attainment at Key Stage 2 or Key Stage 3, as appropriate. Analyses by ethnic background were also carried out, although, for Year 10, these only included the data collected in 2002 and 2003 for attendance in 2000/01 and 2001/02. Prior to the implementation of PLASC, the range of different coding mechanisms that were used by schools and Local Education Authorities (LEAs) meant that no comparable ethnicity data was available at pupil level for the 1999/2000 dataset.[18]

[17] This is marginally higher than was noted in 2004, prior to the incorporation of the 2002/03 data (5.3% of Year 10 pupils were said to have authorised absence periods that equated to approximately half a term – 80 half-day sessions – at that point).

[18] The analyses for the national evaluation of EiC in 2001 made use of young people's self-reported ethnicity in returned pupil questionnaires (subsequent analyses were able to make use of back-matching to PLASC for all year groups other than Year 10). Since not all of the young people included in the analysis for this report returned questionnaires, it was not considered appropriate to include ethnicity data for the 2001 Year 10 cohort.

Tables 3.1 to **3.10** present a summary of the data for each of these different groups of pupils. It should be noted that, for clarity, statistically significant differences have *not* been indicated in these figures. The significant differences between groups (for example, male/female, those eligible for Free School Meals/not eligible for Free School Meals) and between multiple groups (such as between young people from different ethnic groups or from different types of schools) for authorised and unauthorised absence and attendance rates are summarised in the text.

Table 3.1 Authorised and unauthorised absence by: year group and sex

	Authorised absence*			Unauthorised absence*		
1999/2000	**Median**	**Mean**	**Standard deviation**	**Median**	**Mean**	**Standard deviation**
Year 7	15	23.3	26.9	0.0	4.3	14.9
Year 8	18	25.8	28.7	0.0	3.4	16.2
Year 9	19	27.5	30.5	0.0	6.2	21.7
Year 10	20	28.7	32.2	0.0	6.8	25.4
2000/01						
Year 7	18	24.3	24.2	0.0	2.9	8.5
Year 8	17	25.6	29.8	0.0	3.5	11.4
Year 9	20	26.4	26.5	1.0	6.3	19.5
Year 10	21	27.8	25.6	0.0	3.6	11.4
2001/02						
Year 7	16	22.2	22.1	0.0	2.7	11.1
Year 8	21	28.4	28.8	0.0	4.4	19.7
Year 9	20	28.1	30.8	0.0	6.2	24.2
Year 10	22	31.5	33.0	0.0	8.3	25.5
1999/2000, 2000/01 and 2001/02 combined						
Year 7	16	23.1	24.3	0.0	3.3	12.1
Year 8	18	26.5	29.0	0.0	3.6	16.4
Year 9	20	27.3	29.1	0.0	6.2	21.7
Year 10	21	29.8	31.4	0.0	6.9	23.7
All years and year groups	19.0	26.7	28.7	0.0	4.9	19.0
Male						
Year 7	16.0	23.0	24.3	0.0	3.6	12.0
Year 8	19.0	26.5	29.2	0.0	4.1	17.9
Year 9	19.0	26.9	29.0	0.0	5.3	17.9
Year 10	20.0	28.0	30.5	0.0	7.5	24.9
Female						
Year 7	17.0	23.5	24.4	0.0	3.2	12.3
Year 8	19.0	26.9	28.8	0.0	3.5	16.1
Year 9	20.0	28.1	29.4	0.0	7.1	24.6
Year 10	23.0	31.6	32.3	0.0	6.5	23.5

** Authorised and unauthorised absence figures represent the number of half day sessions missed, out of a maximum of 380.*

Prior to testing the data for significant differences between young people from different backgrounds, however, the differences between the aggregated absence data for 1999/2000, 2000/01 and that for 2001/02 were tested in order to check whether any of the subsequent findings might be due simply to a year effect or cohort effect.

Authorised absence in 2001/02 (a mean of 27.7 half days) was significantly higher (at the $p<0.05$ level) than that for 1999/00 (a mean of 26.3 half days) and 2000/01 (a mean of 26.0 half days);[19] there was no statistically significant difference between the survey cohorts in 1999/00 and 2000/01. The story at individual year group level was rather more complex, however.

- By comparison with other survey cohorts, authorised absence was significantly higher in 2002/03 in Year groups 8, 9 and 10. Within the 2001/02 survey cohort, levels of authorised absence were also significantly higher amongst girls than amongst boys.[20]
- For younger pupils, those in Year 7, authorised absence was significantly lower in 2001/02 than in 1999/00 and 2000/01.

The differences between the year groups varied from just over half a day (Year 9) to nearly three half days in Years 8 and 10.

Statistically significant differences were also found between the academic year 2001/02 and the two other survey years in terms of **unauthorised absences**. The mean of 5.6 half days in 2001/02 was greater than the mean of 4.4 half days in 2000/01 and 4.4 half days in 1999/00. While this might suggest that unauthorised absence was on the increase amongst pupils in these schools, there was evidence to suggest that this was true only for Years 8 and 10; there was no difference in unauthorised absence amongst any of the Year 9 cohorts, whilst in Year 7, such absence was statistically lower by 2001/02 than it had been in 1999/2000. Nationally, it should be noted, unauthorised absence fell by 0.02 percentage points between 2000/01 and 2001/02.[21]

These findings suggest that, amongst young people in the schools in the study, absence rates in Year 7 may be decreasing, but that, in other year groups, rates of attendance may have not improved (or, at least, not improved consistently) over the three year period of the study. In order to explore this more fully, a further variable was derived, combining authorised and unauthorised absence data for the 87,197 young people for whom both sets of data existed (see **Table 3.2**). This suggested that overall mean absence rates were significantly higher in 2001/02 (at 34.10 half days or 91% attendance) than in 2000/01 (at

[19] At a national level (and aggregated by school), however, the percentage of half days missed for authorised absence *decreased* by 0.42 percentage points from 7.63% in 2001/02 to 7.21% in 2002/03. DEPARTMENT FOR EDUCATION AND SKILLS (2003). *Pupil Absence in Schools in England 2002/03 (Revised)*. Statistical First Release. SFR 34/2003 [online]. Available. http://www.dfes.gov.uk/rsgateway/DB/SFR/s000434/sfr34-2003.pdf. [6, May 2005]. It should be noted that the figures presented in the current report relate to individual pupil data rather than school level data.

[20] This sex difference, with significantly higher authorised absence amongst girls than boys, was also evident in the Year 10 1999/00 cohort and in the Years 7, 9 and 10 cohorts in 2000/01.

[21] DEPARTMENT FOR EDUCATION AND SKILLS (2003). *Pupil Absence in Schools in England 2002/03 (Revised)*. Statistical First Release. SFR 34/2003 [online]. Available. http://www.dfes.gov.uk/rsgateway/DB/SFR/s000434/sfr34-2003.pdf. [6, May 2005].

30.68 half days or 91.9% attendance) or 1999/00 (at 32.16 half days or 91.5% attendance) at the $p<0.0001$ level.[22] There were also some significant differences between year groups, with younger pupils displaying better attendance records. Overall absence was significantly lower in Year 7 (26.4 half days or 93% attendance) than in all other year groups, while absence in Year 8 (31.53 half days or 91.7% attendance) was significantly lower than in Year 9 or 10. Absence in Year 9 was significantly lower than in Year 10 (a mean of 34.45 half days or 90.9% attendance, compared with a mean of 36.8 half days or 90.3% attendance). The educational implications of these differences in attendance rates are explored more fully in Chapter 6.

Table 3.2 Overall absence: by year group and sex

	Overall Absence*		
1999/00	**Median**	**Mean**	**Standard deviation**
Year 7	18	28.0	32.8
Year 8	20	31.1	37.4
Year 9	23	34.1	39.6
Year 10	22	35.5	44.2
2000/01			
Year 7	20	26.5	26.4
Year 8	20	30.1	36.3
Year 9	24	33.3	36.1
Year 10	24	31.2	29.9
2001/02			
Year 7	18	24.9	26.5
Year 8	23	33.4	37.3
Year 9	24	36.4	42.3
Year 10	27	40.4	45.2
1999/2000, 2000/01 and 2001/02 combined			
Year 7	18	26.4	28.9
Year 8	21	31.5	37.2
Year 9	24	34.5	39.1
Year 10	24	36.8	42.6
All years and year groups	22	32.5	37.7
Male			
Year 7	18	26.7	29.2
Year 8	21	32.0	38.1
Year 9	23	33.4	37.0
Year 10	23	35.8	42.9
Female			
Year 7	17	26.5	28.6
Year 8	19	32.0	36.1
Year 9	20	35.9	41.1
Year 10	23	38.1	42.8

** Overall absence figures represent the number of half day sessions missed, out of a maximum of 380, which would indicate full attendance across the academic year.*

[22] Nationally, there was a decrease of 0.32 percentage points in total absence between 2000/01 and 2001/02. DEPARTMENT FOR EDUCATION AND SKILLS (2003). *Pupil Absence in Schools in England 2002/03 (Revised)*. Statistical First Release. SFR 34/2003 [online]. Available. http://www.dfes.gov.uk/rsgateway/DB/SFR/s000434/sfr34-2003.pdf. [6, May 2005].

To what extent is it possible to relate these differences between survey cohorts and year groups to school and pupil characteristics? In the following sub-sections, the pattern of authorised and unauthorised absence and pupil attendance is explored and the apparent relative impact of individual factors (such as sex, ethnicity and special educational needs) and of school factors (size, location, status and so forth) are explored.

3.1 Differences in Rates of Absence and Attendance: Variations by Pupil Type

Tables 3.3 to **3.7** present a summary of the basic descriptive data for absence and attendance by pupil background characteristics and pupil neighbourhood. The latter set of variables was derived using key statistics and univariate Census area statistics from the 2001 Census. All pupil post-code data from the 2002/03 NPD for each school in the study was matched to 2001 Census variables and then weighted, in order to provide a clearer picture of the neighbourhoods in which the pupils lived than that which would be available by looking at the school catchment alone. For each pupil, the percentage of people who were unemployed, or in single parent households, for instance, in their immediate home geographical area was calculated.[23] The data for each variable was then divided into quintiles, so that an assessment of the relative deprivation of young people's neighbourhoods could be made.[24]

As in 2004, analysis of variance techniques were used to assess the significance of the differences noted in the means between the groups. Caution should be exercised in ascribing variations solely to the specific pupil variable in which they are observed. Authorised and unauthorised absence rates were significantly higher amongst young people in receipt of Free School Meals, for example, but this does not mean that all such young people would have higher rates of absence.

It should also be noted that, while Tables 3.4 and 3.5 indicate the differences between different ethnic groups by sex, the analysis of variance technique does not allow an investigation of the differences in attendance between girls from Black African backgrounds in an all-girls' school and Black African boys in a mixed school, for example. Such differences are more correctly assessed through the use of multilevel modelling (see Chapters 5 and 6).

[23] This area, known as the output area by the Office for National Statistics, comprises (on average) 123 households or 297 people and is the smallest area available for Census data. It therefore represents the highest resolution for the purposes of data matching.

[24] It should be noted that these variables represent young people's neighbourhoods, not their own home circumstances. Data on some aspects of young people's socio-economic and family backgrounds was available for a sub-set of pupils, from EiC and Aimhigher: Excellence Challenge questionnaire data, but not for all of the young people used in this study or set of analyses.

Table 3.3 Authorised and unauthorised absence: by sex, Free School Meals, Special Educational Needs (SEN), first language other than English and level of English fluency

	Authorised absence*			Unauthorised absence*		
Sex	**Median**	**Mean**	**Standard deviation**	**Median**	**Mean**	**Standard deviation**
Male	18	26.1	28.4	0.0	5.1	18.9
Female	20	27.6	29.1	0.0	5.1	19.9
Free school meals						
Eligible	25	34.7	35.3	0.0	9.1	28.1
Not eligible	18	25.3	26.8	0.0	4.6	17.2
SEN status						
Statemented (S)	24	33.4	35.6	0.0	8.6	27.7
SEN without a statement (A, P and Q)	25	34.2	34.9	0.0	9.3	27.7
Non-SEN (0)	18	25.1	26.9	0.0	4.0	16.0
First language other than English						
EAL[25]	13.5	21.6	23.9	0.0	4.9	15.6
not EAL	20.0	27.8	29.4	0.0	4.8	19.2
Not known		28.5	27.5		6.9	26.6
English fluency						
New to English	11.5	17.5	19.9	0.0	4.5	15.1
Becoming familiar	13.0	19.9	23.5	2.0	5.7	14.8
Becoming confident	15.0	22.0	24.8	1.0	4.4	12.1
Fluent user	15.0	21.4	23.1	0.0	5.1	18.4
First language	20.0	27.6	29.0	0.0	4.7	18.9
Prior attainment Key Stage 2						
Below level 2	26.0	36.1	35.8	1.0	13.3	37.4
Level 2	25.0	34.9	36.0	0.0	9.2	26.8
Level 3	24.0	32.0	32.2	0.0	7.1	24.1
Level 4 and above	18.0	24.4	25.4	0.0	3.4	14.4
Key Stage 3						
Below level 3	28.0	41.7	43.5	2.0	16.0	37.4
Level 3	28.0	37.8	36.6	2.0	11.6	30.6
Level 4	27.0	34.2	32.0	0.0	7.9	23.1
Level 5 and above	17.0	24.0	24.5	0.0	3.2	12.3

** Authorised and unauthorised absence figures represent the number of half day sessions missed, out of a maximum of 380.*

[25] As indicated in Chapter 1, EAL is used in these tables for ease of presentation.

Table 3.4 Authorised absence: by sex and ethnicity

	Male			Female		
	Median	**Mean**	**Standard deviation**	**Median**	**Mean**	**Standard deviation**
UK White	20	27.3	28.6	22	29.3	26.4
White European	18	22.8	19.9	20	25.8	23.9
White, other (known)	20	25.6	25.4	22	28.3	27.8
Black, Caribbean	15	22.6	24.9	13	20.7	24.8
Black, African	10	15.1	16.8	9	16.2	19.9
Black, other	15	21.4	21.1	16.5	24.4	25.7
Indian	13	19.3	21.6	13	20.5	25.1
Pakistani	18	24.6	24.4	20	27.0	25.9
Bangladeshi	16	22.1	24.5	19	27.1	27.0
Chinese	9	13.6	15.7	8	11.7	13.3
Other (known)	16.5	24.0	25.2	17	24.0	25.9
Parent/pupil preferred not to say	24	32.9	31.6	27	34.4	31.2
Information not obtained	21	31.1	34.2	23	33.4	36.2

** Authorised absence figures represent the number of half day sessions missed, out of a maximum of 380.*

Table 3.5 Unauthorised absence: by sex and ethnicity

	Male			Female		
	Median	**Mean**	**Standard deviation**	**Median**	**Mean**	**Standard deviation**
UK White	0.0	5.0	18.6	0.0	5.5	21.2
White European	0.0	5.7	15.9	0.0	5.0	16.1
White, other (known)	0.0	8.4	24.2	1.0	8.4	27.0
Black, Caribbean	0.0	5.5	16.1	0.0	4.5	16.0
Black, African	0.0	3.0	9.4	0.0	3.3	15.4
Black, other	1.0	7.5	21.9	1.0	8.9	25.5
Indian	0.0	3.1	9.7	0.0	3.2	9.8
Pakistani	0.0	4.5	12.5	1.0	4.4	12.7
Bangladeshi	2.0	6.4	13.8	0.0	3.3	8.1
Chinese	0.0	1.9	8.5	0.0	1.5	4.4
Other (known)	0.0	4.9	15.2	0.0	5.0	20.1
Parent/pupil preferred not to say	0.0	4.9	17.8	0.0	4.3	13.8
Information not obtained	0.0	7.1	24.5	0.0	14.4	36.7

** Unauthorised absence figures represent the number of half day sessions missed, out of a maximum of 380.*

Table 3.6 Authorised and unauthorised absence: by pupil and school neighbourhood**

	Authorised absence*			Unauthorised absence*		
	Median	Mean	Standard deviation	Median	Mean	Standard deviation
Percentage unemployment						
Lowest 20%	0	1.2	6.0	0	0	0
2nd lowest 20%	14	20.3	23.3	0	2.1	9.9
Middle 20%	18	24.7	26.8	0	4.0	18.4
2nd highest 20%	20	27.0	27.9	0	4.5	17.7
Highest 20%	19	27.5	29.8	0	6.2	21.4
Percentage 16-74 with level 2 qualifications						
Lowest 20%	20	27.9	29.9	0	6.3	21.0
2nd lowest 20%	19	26.1	27.9	0	5.5	20.1
Middle 20%	18	25.2	27.9	0	4.1	18.6
2nd highest 20%	19	26.1	27.1	0	2.9	14.7
Highest 20%	18	24.2	26.0	0	1.2	9.0
Percentage age 16-74 in managerial/professional qualifications						
Lowest 20%	22	30.2	30.9	0	6.9	23.2
2nd lowest 20%	19	26.5	28.5	0	5.0	19.7
Middle 20%	17	24.2	26.6	0	3.3	13.8
2nd highest 20%	16	22.6	24.5	0	3.5	15.1
Highest 20%	13	19.5	23.4	0	3.7	14.9
Percentage low mobility						
Lowest 20%	16	24.4	27.7	0	6.4	21.2
2nd lowest 20%	20	27.5	29.0	0	5.5	20.5
Middle 20%	19	27.5	29.7	0	5.1	20.2
2nd highest 20%	20	27.2	29.2	0	5.3	19.0
Highest 20%	19	26.2	26.6	0	2.7	13.5
Percentage lone parent households						
Lowest 20%	9	14.8	19.9	0	1.1	5.9
2nd lowest 20%	16	22.6	24.5	0	1.5	8.6
Middle 20%	18	24.2	25.9	0	2.6	11.9
2nd highest 20%	19	26.9	28.7	0	5.3	20.1
Highest 20%	21	28.9	30.5	0	7.2	23.2
Percentage households not deprived***						
Lowest 20%	22	30.6	31.2	0	6.9	23.0
2nd lowest 20%	18	25.4	27.6	0	5.4	20.0
Middle 20%	17	24.3	26.2	0	3.4	14.3
2nd highest 20%	16	22.4	25.2	0	1.2	11.0
Highest 20%	9	14.5	19.5	0	0.9	0.9
Percentage white UK						
Lowest 20%	17	24.9	28.0	0	5.4	19.1
2nd lowest 20%	21	28.9	30.3	0	7.0	24.0
Middle 20%	18	25.9	27.9	0	4.3	18.7
2nd highest 20%	20	27.5	28.3	0	3.7	15.8
Highest 20%	21	27.3	27.0	0	2.2	10.7
Percentage not in good health						
Lowest 20%	14	19.0	19.1	0	0.04	0.2
2nd lowest 20%	15	22.1	25.3	0	2.1	11.5
Middle 20%	18	22.2	25.7	0	4.2	15.1
2nd highest 20%	18	25.5	27.2	0	5.1	18.8
Highest 20%	22	30.0	30.9	0	6.2	22.7

* *Authorised and unauthorised absence figures represent the number of half day sessions missed, out of a maximum of 380. ** Variables are calculated for each pupil on the school role and aggregated to school level, except in the case of percentage households not deprived***, which is calculated per pupil.*

3.1.1 Authorised Absence

From the descriptive analyses, it emerged that the statistically significant relationships identified in 2004 were still evident once further cohorts of pupils (including those from outwith EiC areas) were included.

- Authorised absence was higher amongst **girls** (27.6 half days) than boys (26.1 half days). Within the cohorts, these differences were statistically significant amongst boys and girls in Year 9 and Year 10, although not in Year 7 and Year 8.
- Authorised absence was higher amongst those for whom **English was a first language**. Amongst the 65,940 young people in this category, the mean level of authorised absence was 27.6 half days. By contrast, such absence was significantly lower amongst all other groups (by 10.1 half days for new users, by 7.7 half days for those becoming familiar with the language, by 5.57 half days for those who were becoming confident and by 6.2 half days for those who were fluent users).

  On a different but related measure, exploring the use of a first language other than English, the pattern was similar, with a significant difference between those for whom English was a first language (27.8 half days) and those for whom English was an additional language (21.6 half days).
- Authorised absence was higher amongst those in receipt of **Free School Meals** (35.3 half days) than those who were not in receipt of them (26.8 half days).
- Authorised absence was significantly different between those with **SEN** status (17,598 young people) compared to those with none (74,979 young people). Young people without any recorded special needs had a mean authorised absence of 25.13 half days. There was no significant difference between those on School Action or School Action Plus (15,261 pupils), with a mean authorised absence of 34.1 half days, and those with a statement of SEN (2,337 pupils) whose mean authorised absence was 33.44 half days.[26]
- Authorised absence was significantly different between young people (across all age groups) with different levels of **prior attainment at Key Stage 2**. This was evident whether the score under scrutiny was for attainment in Key Stage 2 English, Maths or Science.
  - For example, when prior attainment at Key Stage 2 English was explored, the difference was equivalent to around 5 half days per level, with young people who were at level 3 at the end of Key Stage 2 (20,275 young people) subsequently recording a mean of 31.2 half days authorised absence while those on level 5 (14,005) had a mean of 20.99 half days. The difference between the authorised absence record for those young people (1063) who were on level 2 by the end of Year

[26] Note that, between, 2001/02 and 2002/03, the categorisation of SEN changed. For the purposes of this study the categories that were previously used (no SEN, Stages 1, 2, 3, 4 and 5 –statemented) have been mapped against the new categories (N, A, P, Q and S), such that N is equivalent to no SEN, A (School Action) is equivalent to old stage 1, P and Q (School Action Plus) are equivalent to old stages 2, 3 and 4 and S is equivalent to old stage 5.

6 (35.9 half days) and those who were classified as 'below level' (4,001) who had a mean of 34.55 half days was *not* significant, however.

- The differential associated with prior attainment at Key Stage 2 Maths was between three and six half days.
- The differential associated with prior attainment at Key Stage 2 Science was between four and six half days.

- Amongst the 130,362 young people for whom **ethnic background data** was available, authorised absence was significantly higher amongst young people of **White UK heritage** (28.3 half days) than amongst young people of Pakistani (25.9 half days), Bangladeshi (24.36), Black Caribbean (21.59), Indian (19.83), Black African (15.67) or Chinese (12.63) heritage. Black Caribbean pupils, Indian, Pakistani and Bangladeshi pupils had significantly higher authorised absence than Black African pupils. The mean level of authorised absence amongst the 521 Chinese pupils was significantly lower than that amongst all other groups.
- **Young people from different neighbourhoods** – significant differences were evident here, with highest levels of authorised absence, for instance, amongst young people from neighbourhoods or schools that were in areas of the highest deprivation (a mean of 30.6 half days), and particularly where:
  - unemployment was high
  - few people aged 17-24 were qualified to Level 2[27]
  - few people were in managerial or professional occupations
  - few people lived in owner-occupied housing
  - there was a high proportion of lone parent families
  - there was a high proportion of people not in good health.

Authorised absence was *lowest* in areas where mobility was high (those areas with the lowest proportion of households in the same address in the previous year).

For authorised absence, therefore, a picture emerges of higher absence amongst girls, amongst speakers of English as a first language and (for the 2001/02 and 2002/03 cohorts) those of white UK heritage, amongst those on Free School Meals, amongst lower attainers amongst those with some level of special educational needs and amongst those who lived in neighbourhoods with high levels of deprivation relative to the rest of the cohort.

3.1.2 Unauthorised Absence

From the descriptive analyses, the following key findings emerged in relation to young people for whom unauthorised absence data was available (these findings showed some minor variations from the analysis undertaken in 2004, primarily in relation to minority ethnic group and speakers of English as an additional language):

[27] A Level 2 qualification is equivalent to five GCSEs at grades A* to C.

- There was **no significant difference** in unauthorised absence between **girls** (5.05 half days) and boys (5.07 half days). However, within the cohorts, girls in Year 9 and girls in Year 10 had significantly higher unauthorised absence than boys in those year groups.
- Unauthorised absence was higher amongst those in receipt of **Free School Meals** (9.14 half days) than those who were not (4.46 half days).
- Unauthorised absence was significantly different between those with **SEN** status (16,329 young people) compared to those with none (67,028 young people). Young people without any recorded special needs had a mean unauthorised absence of 3.96 half days. Unauthorised absence for those with SEN status decreased (though not significantly) from those on School Action and School Action Plus (a mean of 9.30 half days) to those with a statement of SEN (a mean of 8.62 half days).
- Unauthorised absence was significantly different between young people (across all age groups) with different levels of **attainment at Key Stage 2**. This was evident whether the score under scrutiny was for attainment in Key Stage 2 English, Maths or Science. This equated to a difference of around three half days between the lower levels of attainment, but just over one and a half days for those at the higher levels (between level 4 and level 5).
  - For example, when prior attainment at Key Stage 2 Maths was explored, young people who were at level 2 at the end of Key Stage 2 (1205) subsequently recorded a mean of 9.7 half days unauthorised absence compared with those had been at level 3 (22,519 young people) who recorded a mean of 6.47 half days unauthorised absence (a difference of 3.23 half days). Those on level 5 (11,671) had a mean unauthorised absence of 2.05 half days compared with a mean of 3.89 for those who had been at level 4 (a difference of 1.84 half days).
- Young people lived in **areas of high deprivation**. The identifiers noted with respect to authorised absence were also significant for unauthorised absence, with the impact of high unemployment, low qualifications and poor health being particularly noticeable. It was also evident, however, that while authorised absence had been lowest in areas of highest mobility, unauthorised absence was highest in these areas. Significantly higher levels of unauthorised absence were seen where:
  - unemployment was high
  - few people aged 17-24 were qualified to Level 2
  - few people were in managerial or professional occupations
  - few people lived in owner-occupied housing
  - there was a high proportion of lone parent families
  - levels of housing density were high
  - there was a high proportion of people not in good health
  - mobility was high.
- There were **few significant differences** in unauthorised absence between young people from different **minority ethnic backgrounds**. However, those from White UK heritage had a mean unauthorised absence (5.28 half

days) that was significantly higher than those from Black African (3.21 half days) or Indian (3.16 half days) heritage.

- There were no significant differences in levels of unauthorised absence between speakers of English as a first or additional language, nor in terms of levels of English fluency.

The picture for unauthorised absence, therefore, differed in some respects from that for authorised absence. Significantly higher levels of unauthorised absence were observed amongst those with any level of special educational needs, in deprived neighbourhoods, in receipt of Free School Meals and amongst lower attainers, as in the case of authorised absence. However, there was no sex difference in unauthorised absence, whilst those who were fluent users (though not first language speakers) of English were not associated with levels of unauthorised absence that were any different from those who spoke English as a first language. Amongst the survey cohorts for whom ethnicity data was available, high levels of unauthorised absence were more evident amongst young people from White UK backgrounds than amongst Black African or Indian heritage.

3.1.3 Overall Absence Rates

Tables 3.6 and 3.7 illustrate the pattern of absence for the 87,197 pupils for whom complete authorised absence and unauthorised absence data was available. An analysis of this data indicated the following.

- Overall absence rates were significantly lower amongst **boys** (32.01 half days total absence, equivalent to 91.55% attendance) than girls (33.27 half days total absence, equivalent to 91.25% attendance). Within the cohorts, this was evident amongst pupils in Years 9 and 10, but not in Year 7 or Year 8.
- Absence rates were significantly higher amongst those in receipt of Free School Meals (44.44 half days total absence, equivalent to 88.3% attendance) than amongst those who were not (30.18 half days total absence, equivalent to 92.06% attendance).
- In terms of fluency in English, attendance was lowest amongst those for whom **English was a first language**. Amongst the 55,669 young people in this category, the mean level of absence was 32.97 half days (equivalent to 91.3% attendance). By contrast, such absence was significantly lower amongst all other groups (by 11.73 half days for new users of English, by 7.84 half days for those becoming familiar with the language, by 6.58 half days for those who were becoming confident and by 6.82 half days for those who were fluent or bilingual users).
- On a different, but related measure, exploring the use of **English as an additional language**, the pattern was similar, with a significant difference between those who spoke English as a first language (33.31 half days or 91.23% attendance) and those for whom it was an additional language (26.28 half days or 93.08% attendance).

- Attendance was significantly different between those with **SEN** status (15,722 young people) compared to those who had none (64,920 young people). Young people without any recorded special needs had a mean total absence of 29.4 half days (equivalent to an attendance rate of 92.26%). Attendance did not differ significantly for those on School Action or School Plus (a mean of 44.2 half days total absence equivalent to 88.42% attendance) and those with a statement of SEN (a mean of 43.06 half days on 88.67% attendance).
- Mean overall absence amongst the young people for whom **ethnic background data** was available was significantly higher amongst those from W**hite UK backgrounds** (34.58 half days or 90.09% attendance) than amongst those from Chinese (14.66 half days or 96.14% attendance), Black African (17.72 half days or 95.34% attendance), Indian (22.78 half days or 94 % attendance), Black Caribbean (26.4 half days 93.05% attendance) and Bangladeshi (29.46 half days or 92.24% attendance). The mean level of absence amongst young people from Black African heritage was significantly lower than amongst those from all other minority ethnic groups except Chinese pupils (from whom there was no significant difference in attendance).

In summary, school attendance was highest amongst boys, those not in receipt of Free School Meals and those who did not speak English as a first language (whatever their level of fluency) and amongst Black African and Chinese pupils.

Table 3.7 Total absence: by sex, Free School Meals, SEN, first language other than English and level of English fluency

	Total Absence (half day sessions)		
Sex	**Median**	**Mean**	**Standard deviation**
Male	21	32.0	37.4
Female	22	33.3	38.1
Free school meals			
Eligible	30	44.4	47.6
Not eligible	21	30.2	34.5
SEN status			
Statemented (S)	29	43.1	48.6
SEN without a statement (A,P,Q)	30	44.2	47.4
Non-SEN (N)	20	29.4	33.9
First language other than English			
EAL	95.8	26.3	30.8
not EAL	94.2	33.3	38.0
Not known		36.0	34.3
English fluency			
New to English	14	21.2	24.4
Becoming familiar	18	25.1	28.0
Becoming confident	18	26.4	29.8
Fluent user	17	26.2	31.5
First language	22	33.0	37.5
Prior attainment Key Stage 2			
Below level 2	33	50.2	55.0
Level 2	31	45.1	48.2
Level 3	28	40.0	43.5
Level 4 and above	20	28.4	31.7
Key Stage 3			
Below level 3	88.9	57.8	58.0
Level 3	90.7	49.0	48.4
Level 4	92.1	42.2	41.4
Level 5 and above	95.5	27.5	29.3

** Total absence figures represent the number of half day sessions missed, out of a maximum of 380.*

Table 3.8 Total absence rates: by sex and ethnicity

	Male			Female		
	Median	**Mean**	**Standard deviation**	**Median**	**Mean**	**Standard deviation**
UK White	23	33.4	37.7	25	35.7	39.2
White European	21	29.3	29.4	22	30.8	30.1
White, other (known)	23	33.6	38.5	26	37.7	42.2
Black, Caribbean	18	28.6	32.9	15	24.5	31.3
Black, African	12	16.7	17.7	11	18.6	23.4
Black, other	19	30.0	33.7	22	33.9	40.1
Indian	15	22.4	25.8	16	23.3	28.4
Pakistani	20	29.4	29.3	24	31.7	31.1
Bangladeshi	21	27.9	27.6	23	31.4	30.6
Chinese	11	16.3	20.5	9	12.9	13.2
Other (known)	20	29.1	32.8	19	30.0	36.3
Parent/pupil preferred not to say	29	39.6	39.8	31	40.1	37.8
Information not obtained	24	38.0	42.1	28.5	47.3	56.3

** Total absence figures represent the number of half day sessions missed, out of a maximum of 380.*

3.2 Differences in Rates of Absence and Attendance: Variations by School

Tables 3.9 to **3.10** summarise some of the key findings related to absence and attendance patterns in EiC schools. They highlight the variations that exist in relation to school size, type and location (derived from NFER's Register of Schools).

The addition of the 2001/02 cohort led to only a few changes in the variations in rates of absence noted between schools during the interim study in 2004, suggesting that the overall pattern of attendance between school types was relatively stable over the period of the study. The apparent differences between authorised and unauthorised absence rates between boys' schools and mixed schools and those for girls' schools that had been noted in the combined cohorts for 1999/00 and for 2000/01, for instance, were no longer evident once the 2001/02 dataset was added, suggesting that it may have been an effect of cohort size, for instance.

Table 3.9 Authorised and unauthorised absence: by school size, type and location

	Authorised absence			Unauthorised absence		
	Median	Mean	Standard deviation	Median	Mean	Standard deviation
School size						
0–500	21	30.1	32.5	0.0	2.7	11.2
501–750	20	27.9	30.1	0.0	4.7	18.5
751–1000	18	25.8	27.6	0.0	5.3	19.8
1001–1500	19	26.5	28.4	0.0	5.0	18.8
over 1500	18	25.8	28.4	0.0	6.0	22.7
School type						
Boys only	16	23.1	26.6	0.0	3.5	13.6
Girls only	17	24.8	27.5	0.0	4.6	19.2
Mixed	19	27.0	28.8	0.0	5.3	19.7
School management						
Middle deemed secondary	22	27.3	26.1	0.0	2.9	10.6
Secondary modern	20	27.4	29.5	0.0	2.9	11.3
Comprehensive to 16	20	27.6	28.6	0.0	4.6	18.5
Comprehensive to 18	18	25.8	28.6	0.0	5.8	20.7
Grammar	10	14.7	17.0	0.0	0.6	1.5
Other secondary schools	24	33.2	32.4	0.0	2.1	10.1
City Technology Colleges	14	20.6	22.2	0.0	0.1	0.7
Beacon						
Yes	16	23.2	25.6	0.0	3.0	13.2
No	19	27.2	29.0	0.0	5.4	20.1
Specialist School						
Yes	18	25.4	27.3	0.0	5.1	19.4
No	19	27.2	29.2	0.0	5.1	19.4
Government office region						
North East	17	24.4	26.0	0.0	2.7	14.8
North West/Merseyside	22	29.6	30.1	0.0	5.0	20.7
Yorkshire and The Humber	20	26.9	28.5	0.0	6.1	21.0
East Midlands	18	26.4	29.7	0.0	5.1	16.7
West Midlands	21	28.7	30.2	0.0	4.4	16.9
Eastern	19.5	26.9	26.2	0.0	2.4	14.2
London	14	21.6	25.3	0.0	5.3	17.2
South East	20	28.4	29.6	0.0	2.5	10.6
South West	22	35.3	40.3	24	36.2	51.0
Behaviour Improvement Programme						
BIP Phase 1 school	19	26.4	27.9	2.0	11.8	28.3
BIP Phase 2 school	21	28.4	28.6	0.0	5.1`	19.4
EiC/EAZ non-BIP school	18	26.3	28.6	0.0	4.5	18.1
EAZ/non EAZ schools						
EAZ	21	28.8	30.3	0.0	7.3	24.1
Non-EAZ	19	26.3	28.4	0.0	4.9	18.8

** Authorised and unauthorised absence figures represent the number of half day sessions missed, out of a maximum of 380.*

Table 3.10 Total absence: by school size, type and location

	Total absence		
	Median	**Mean**	**Standard deviation**
School size			
0–500	24	34.6	37.0
501–750	22	33.6	38.5
751–1000	21	31.6	36.8
1001–1500	22	32.2	37.1
over 1500	21	32.5	40.5
School type			
Boys only	18	27.9	33.5
Girls only	19	29.7	36.8
Mixed	22	33.0	38.0
School management			
Middle deemed secondary	23	30.3	30.6
Secondary modern	21	31.2	35.5
Comprehensive to 16	22	32.7	37.0
Comprehensive to 18	21	32.2	38.5
Grammar	12	16.1	15.1
Other secondary schools	26	37.3	38.6
City Technology Colleges	14	20.8	22.3
Beacon			
Yes	18	26.7	31.5
No	22	33.2	38.4
Specialist School			
Yes	21	31.0	36.5
No	22	33.1	38.2
Government office region			
North East	19	27.7	32.1
North West/Merseyside	24	35.4	39.7
Yorkshire and The Humber	23	33.7	38.4
East Midlands	20	31.4	37.0
West Midlands	24	34.0	37.7
Eastern	22	31.3	32.9
London	17	27.1	33.6
South East	23	33.8	36.4
South West	51	70.8	68.8
Behaviour Improvement Programme			
BIP Phase 1 school	26	38.6	43.1
BIP Phase 2 school	24	33.8	36.9
EiC non-BIP school	21	31.5	37.1
EAZ/non-EAZ schools			
EAZ	25	36.6	42.6
Non-EAZ	21	31.2	37.1

* *Authorised and unauthorised absence figures represent the number of half day sessions missed, out of a maximum of 380.*

Tests for analysis of variance revealed statistically significant differences in authorised absences, unauthorised absences and overall absence between the following:

- **Schools of different types** – for instance, grammar schools had lower levels of authorised absence than all other school types; 11–16 comprehensive schools had higher levels of authorised absence but lower levels of unauthorised absence than 11–18 schools; 11-18 comprehensive schools had higher levels of unauthorised absence than all other school types.
- **Single sex and mixed schools** – Girls' schools had higher levels of authorised absence and unauthorised absence than boys' schools. Mixed schools had higher levels of authorised absence and unauthorised absence than boys' or girls' schools.
- **Schools of different sizes** – Small schools had higher levels of authorised absence, but lower levels of unauthorised absence, than all other schools. Large schools had higher levels of unauthorised absence than all other schools. There were few significant differences between schools of different sizes in terms of overall absence, however.
- **Beacon and non-Beacon schools** – Beacon schools had lower levels of authorised and unauthorised absence than non-Beacon schools.
- **Specialist and non-Specialist Schools** – Specialist Schools had lower levels of authorised absence than non-Specialist Schools (there was no significant difference for unauthorised absence).
- **Schools in EAZ areas** – schools in EAZ areas had higher levels of both authorised and unauthorised absence than non-EAZ schools and lower levels of overall attendance.[28]
- **Schools in different government office regions** – for example, schools in London had lower levels of authorised absence than schools in any other region, but rates of unauthorised absence were higher than in any other region except Yorkshire and the Humber and EiC schools in the South West (the high unauthorised absence rates in the South west refer to 1114 pupils in EiC schools, not to the whole of the South West).
- **Schools in BIP and non-BIP areas** – BIP schools had higher levels of both authorised and unauthorised absence than other schools. BIP Phase 1 schools had lower levels of authorised absence but higher levels of unauthorised absence than BIP Phase 2 schools. It should be noted that this analysis does not explore the impact of the BIP strategies, since these figures do not include any measurement of change from the baseline attendance figures in BIP schools. Moreover, schools were selected to be part of BIP Phase 1 partly because of their lower attendance levels.

These variations, while apparently significant at the school level, may not be significant, however, once pupil characteristics are taken into account. The high unauthorised absences noted in schools in the South West may be a

[28] These figures should not be regarded as an evaluation of the strategies adopted in EAZs to raise attendance, since they do not include a measure of change from any previous baselines in these areas.

function of the background characteristics of the pupils (such as high proportions of young people on Free School Meals or with high levels of mobility) rather than of location. The multilevel models that were constructed for the next stage of the analysis (see Chapter 4) explored the interaction between pupil and school type in order to identify the factors most associated with high levels of authorised or unauthorised absence.

4. ISOLATING THE IMPACTS OF PUPIL AND SCHOOL CHARACTERISTICS ON ATTENDANCE

The analysis that was presented in Chapter 3 identified some apparently significant relationships between pupil background characteristics and patterns of attendance. However, as the discussion suggested, the analysis, using analyses of variance techniques, was not able to investigate the interactions between the various independent variables. Do boys in receipt of Free School Meals in Specialist Schools have lower or higher attendance rates than boys in receipt of Free School Meals in other schools? Do girls in small schools in EAZ areas have lower or higher attendance rates than girls in such schools in other areas? The use of hierarchical modelling techniques (outlined in Appendix 3) enabled the research team to explore the associations between pupil-level characteristics, school-level characteristics and attendance. It helped to address such questions as whether or not there was any association between eligibility for Free School Meals and attendance, or school location an attendance, once the range of background characteristics (at pupil and school level) identified in Chapter 3 were taken into account.

Models were constructed for authorised and unauthorised absence and overall absence for the Year 10 cohorts and the Year 9 cohorts. The models included a year variable (attainment year 2000/01, 2001/02 and 2002/03), pupil neighbourhood data and school catchment data, both based on NPD data matched to the 2001 Census. The first sets of models did not include either ethnicity (which was included in a separate model for combined 2001/02 and 2002/03 attainment data) or prior attainment. The addition of these variables in subsequent models is discussed later in the chapter and in Chapter 6. Full tables showing the coefficients for the modelling process can be found in Appendix 3.

4.1 Authorised Absence

Complete background data was available for **24,143** of the 24,837 Year 10 pupils for whom authorised absence data was available. Across the three cohorts (those who were in Year 11 in 2000/01, 2001/02 and 2002/03), the background pupil factors that were associated with authorised absence were SEN, Free School Meals, levels of fluency in English and sex. It should be noted that, at this stage of the analysis, two sets of variables, prior attainment and ethnicity, were omitted from the analysis:

- Although the earlier analysis of variance suggested that there might be a relationship between prior attainment and attendance, this association was

identified at an aggregate level. Prior attainment was therefore omitted from the multilevel models, in the first instance, in order to identify the key variables (*other* than attainment) that appeared to be associated with patterns of absence and, secondly, in order to facilitate a more accurate assessment (through subsequent analysis) of the relative extent to which prior attainment might be associated with attendance and was a key factor in patterns of attainment.[29]

- Ethnicity data was omitted from the combined analyses since PLASC data on ethnicity was not available for the 2000/01 Year11 cohorts. Subsequent analyses combined the cohorts for whom such data was available.

The analysis of variance had suggested that the authorised absence of the young people identified as having a statement of SEN was no different from those on School Action or School Action Plus, but higher than those without any identified needs. The modelling process revealed that the story was a little more complex (see Table 1 in Appendix 3). A statement of SEN was associated with a mean additional 8.04 half days of authorised absence, over and above young people without any identified special educational needs (who had a mean authorised absence of 28.9 half days during Year 10), but was associated with a lower level of absence than the 1,201 pupils on School Action Plus (who were associated with an additional 9.97 half days), once other pupil and school background characteristics were taken into account. The final model also indicated that those on School Action (1,703 pupils) were associated with a mean additional 8.03 half days.

By contrast, young people with lower **levels of fluency in English** were associated with *lower* levels of authorised absence. Those becoming familiar with English (204 pupils) were associated with a mean of 9.31 fewer half days of authorised absence during Year 10 than those for whom English was a first language, while those who were becoming confident (624 pupils) and those who were fluent users (1,741 pupils) were associated with means of 9.37 and 9.71 fewer half days, respectively.[30]

Young people from neighbourhoods that had **lower levels of deprivation** relative to the cohort were associated with fewer half days of authorised absence than their peers from more deprived areas, once all other background characteristics were taken into account. Every three per cent increase in deprivation was associated with an additional one half day authorised absence (1.02 half day sessions). Young people in receipt of **Free School Meals** (4,894 pupils) were associated with a mean additional 8.3 half days, while **girls** (12,049 pupils) were associated with an additional 3.86 half days

[29] The inclusion of prior attainment at Key Stage 3 in the Year 11 attendance models increased the explanatory power of the models by a mean of around 17 percentage points. However, the inclusion of Key Stage 2 prior attainment data in the Year 9 models had a lesser impact on the explanatory power of the models (a mean of three percentage points). These findings suggest that, while prior attainment may be associated with attendance patterns, it is not the sole or necessarily most important factor, particularly for the younger cohorts.

[30] Those who were new to English were associated with 7.6 fewer half days of authorised absence than those for whom English was a first language. However, this included only a very small number of young people (14).

compared with boys (12,094 pupils). Thus, for a girl with special educational needs (on School Action) and in receipt of Free School Meals, the model would predict an average authorised absence, all other things being equal, of 49.09 half days, or just under five weeks. Such a girl living in a relatively less deprived neighbourhood would be associated with a lower level of authorised absence (43.52 half days, or just over four weeks).

However, it also appeared that young people from neighbourhoods in which the mean level of **unemployment** was high relative to the rest of the cohort were associated with fewer half days of authorised absence. A one per cent increase in unemployment was associated with two and a half fewer half days of authorised absence. This is surprising, given the findings from the analysis of variance, which suggested that, as unemployment increased, authorised absence increased. The reasons for the findings in the multilevel model are not immediately apparent and they may simply be a function of the interaction of the various deprivation measures in the model. It may, however, be a function of local circumstances, with young people (or their parents) motivated by the lack of available job opportunities to attend school (or to encourage their children to attend school) and so gain the qualifications that might enable them to embark on a further education course, or obtain a job or training place.

The school level variables that were associated with authorised absence during Year 10 were:

- **school type:** young people in 11–18 comprehensive schools – 12,042 pupils – were associated with 4.12 fewer half days of authorised absence than their peers in other schools, once pupil background characteristics were taken into account.
- **school size:** the 8,109 young people in small schools – those with fewer than 500 pupils – were associated with 4.29 fewer half days of authorised absence than their peers in other schools.
- **Specialist Schools:** young people in Specialist Schools – 9,245 pupils – were associated with 3.92 fewer half days of authorised absence than their peers in other schools.
- **school catchment:** pupils in schools based in catchment areas that had lower levels of deprivation relative to the other schools in the study were associated with 3.38 fewer half days of authorised absence.
- **region:** young people in schools in the **South West** (652 of the 24,143 Year 10 pupils were based in such schools) were associated with a significantly higher rate of authorised absence (9.49 more half days) than those in other schools, even when all other background characteristics were taken into account.

Thus, were the girl described above to attend an 11–18, small comprehensive Specialist School, with a catchment area that had average or low levels of deprivation, it is likely that her 49.09 days of authorised absence would be reduced by 17.9 half days to 31.19 half days.

The significantly higher authorised absence noted for the participating 2002/03 Year 11 study cohort in the early stages of the analysis was still evident once all background characteristics were taken into account. Pupils from this cohort were associated with 3.17 more half days of authorised absence than their peers in previous cohorts.

These pupil- and school-level effects were still evident once **prior attainment** had been incorporated into the models. Controlling for prior attainment reduced the size, though not the direction, of associations, such that girls, those in receipt of Free School Meals, young people in the 2002/03 Year 11 cohort, young people on School Action or School Action Plus and young people in the South West were associated with higher levels of authorised absence (see Table 2 in Appendix 3). Young people with lower levels of fluency and those in specialist schools, small schools, schools with relatively advantaged catchment areas (and those in areas where unemployment was relatively high) and in 11-18 comprehensive schools were associated with lower levels of authorised absence. The only association that was no longer significant was that of young people with a statement of SEN; the authorised absence of pupils with a statement of special educational needs was not significantly different from that of all other pupils once prior attainment was taken into account.

Amongst the **Year 10** cohort for whom **ethnicity data** was available (13,469 young people – see Table 3 in Appendix 3), the pupil level differences that were noted included significantly lower levels of authorised absence (in Year 10) amongst:

- Black African pupils (some 16.15 half days lower than their peers from all other ethnic groups other than Chinese, Black Caribbean, Indian and Pakistani pupils)
- Chinese pupils (-14.39 half days)
- Black Caribbean pupils (-9.06 half days)
- Indian pupils (-8.74 half days)
- Pakistani pupils (-6.92 half days).

The story for the **21,405** pupils in the **Year 9** dataset was very similar to that for Year 10, with significant associations with special educational needs, receipt of Free School Meals, levels of fluency in English, level of deprivation in pupil neighbourhoods and sex (see Table 4 in Appendix 3). The relationship with school type, size, location and Specialist School designation was not evident, however, nor was the deprivation level of the neighbourhood of the school. The association with prior attainment, while statistically significant (see Table 5 in Appendix 3), was not as evident amongst Year 9 pupils as in Year 11.

However, there were variations by ethnic group, as in the year 10 cohort. Amongst the 14,614 young people for whom ethnicity data was available

(Table 6 in Appendix 3), authorised absence was lower amongst Black African (by 12.45 half days), Chinese (by 11.08 half days) Black Caribbean (by 7.8 half days), Indian (by 6.75 half days), Black other (by 6.36 half days), Bangladeshi (by 5.38 half days) and Pakistani (by 3.77 half days) pupils, by comparison with pupils from White UK and other minority ethnic backgrounds. Indeed, authorised absence was also higher amongst pupils in schools with a predominantly white pupil roll.

While the pictures that emerged from the initial analysis of variance and the modelling process are broadly similar, the variations (particularly for SEN) suggest that the modelling process provides a more helpful insight into the investigation of factors associated with authorised absence. Overall, the models also suggested that, while prior attainment appeared to be significantly associated with attendance, it did not override the need to take account of other background characteristics, at both pupil- and school-level, in considering patterns of authorised absence.

4.2 Unauthorised Absence

As with authorised absence, the models indicated that SEN, Free School Meals, levels of fluency in English and pupil neighbourhood were key factors associated with levels of unauthorised absence amongst the Year 10 and Year 9 pupils (see Tables 7 and 8 in Appendix 3). There was, however, no association with the sex of pupils in relation to unauthorised absence in either cohort, other than in the case of Black African girls whose unauthorised absence (whilst lower than that of pupils from other ethnic groups) was higher than that of Black African boys (see Tables 9 and 10 in Appendix 3). School level factors (size, area, level of overall GCSE performance in the school, year, Phase of BIP[31] and geographical location) emerged as significant in Year 10, although they did not appear to be significant in Year 9.

Significantly higher levels of unauthorised absence were noted amongst young people on **School Action or School Action Plus**, by comparison with young people with no identified level of need. Such absence in Year 10 for those (1,560 pupils) on School Action by Year 11 (an additional 5.2 half days) meant that mean unauthorised absence for this group was more than twice the mean of 3.45 half days noted for other pupils, once all other known background characteristics at pupil and school level had been controlled for. Unauthorised attendance was even higher for those on School Action Plus (a mean additional 8.86 half days) or with a statement of SEN (a mean additional 6.50 half days). This picture was also evident amongst the Year 9 cohorts, with School Action (1,587 pupils) associated with a mean additional 2.9 half days, School Action Plus (1,107 pupils) with a mean additional 5.26 half days and statements of SEN (362 pupils) with a mean additional 2.85 half days.

[31] This association was no longer evident in Year 10 once prior attainment was included in the model, however.

Young people for whom **English was not a first language**, but who were becoming confident in its use, were associated with a mean of 5.15 half days *fewer* unauthorised absences than all other young people in Year 10 (and 4.08 fewer half days in Year 9), once other pupil- and school-level characteristics were taken into account. Those who were becoming familiar with English were also associated with a mean of 3.54 fewer half days' unauthorised absence in Year 9. Those who had become fluent users of English (though it was not their first language) were associated with a mean of 3.52 half days fewer unauthorised absences in Year 10 and 4.53 half days in Year 9. Amongst the Year 10 cohorts for whom ethnicity data was available, there were fewer significant differences for unauthorised absence than had been noted in relation to authorised absence. Once prior attainment and fluency had been taken into account, Black African and Pakistani pupils were associated with fewer unauthorised absences than their peers from all other ethnic groups (-4.0 and -3.4 half days, respectively). Black African boys in Year 9 were associated with fewer unauthorised absences than their peers (by 7.08 half days); the mean unauthorised absence for Black African girls was also lower, but only by 1.98 half days.

As with authorised absences, young people in receipt of **Free School Meals** were associated with higher levels of unauthorised absence, both in Year 10 and Year 9. This was equivalent to a mean of 4.07 half days amongst the Year 10 cohorts (4,678 pupils) and a mean of 3.02 half days amongst those in Year 9 (5,122 pupils). Young people who lived in areas characterised by relatively low deprivation, however, were associated with a mean level of unauthorised absence that was lower than the mean for the cohort. Thus a young person in receipt of Free School Meals, but living in an area that was relatively less deprived, would be associated with a lower level of unauthorised absence than a similar young person, with the same background characteristics and prior attainment, living in a more disadvantaged area. There was also an indication that pupils in different year groups behaved differently. For young people in Year 10 a change of seven per cent in deprivation was associated with one half day session of unauthorised absence; for those in Year 9 the same association was only evident with a change of 16% in the percentage of deprived households. This may imply that older pupils respond more negatively than younger pupils (in terms of their attendance patterns) to high levels of deprivation in their neighbourhood. The suggestion is, therefore, that it may be a combination of an individual's circumstances and age combined with an awareness of the environs of their home, which could act as a more effective indicator of potential unauthorised absence than family socio-economic circumstances alone.

The association with school-level variables was more evident with Year 10 pupils than with Year 9 pupils. Young people in Year 10 in BIP Phase 1 schools (1,955 pupils) were associated with significantly higher levels of unauthorised absence than young people in all other schools (a mean of 4.08 additional half days), although this association was no longer significant once prior attainment at Key Stage 3 was included in the models (see Table 11 in

Appendix 3). The 6,924 pupils in **low-performing schools**[32] (an additional 5.42 half days) and those in schools in the **South West** (the 635 pupils in this model in EiC schools in the South West were associated with a mean of 16.67 additional half days) had a poorer record of unauthorised absence than all other pupils, associations that remained significant even when prior attainment was included (see Table 12 in Appendix 3). Such unauthorised absence in Year 10 was generally better in 2000/01 than in 1999/2000, with a mean reduction of 3.6 half days per pupil in 2000/01, but was worse in 2001/02, with a mean additional increase of 2.71 half days.[33] This means, for example, that a boy or girl in Year 10 in a low-performing EiC BIP school in the South West in 1999/2000 could have an unauthorised absence record that was around 26.17 half day sessions (equivalent to more than two school weeks) worse than a similar pupil in Year 10 in a mid- or high-performing school in 2000/01 elsewhere in the country.

The only school level factor that emerged in Year 9 was related to the percentage of Free School Meals; young people in schools where the percentage eligibility was high were associated with 0.15 additional half day unauthorised absences (equivalent to truanting from one lesson).

4.3 Overall Absence and Pupil Attendance

The mean of overall absence for the 22,366 young people in Year 10 in the models was 26.7 half days (equivalent to an overall attendance of 92.97%), while that for the 21,405 young people in Year 9 was 30.1 half days (equivalent to an attendance rate of 92.07%).[34]

Once pupil and school background characteristics had been taken into account, absence in Year 10 was lowest amongst:

- those becoming familiar with English (14 half days missed or 98.9% attendance), becoming confident with English (11.77 half days missed or 96.9% attendance) and becoming fluent in English (12.99 half days missed or 96.58% attendance)
- young people in high performing schools (16.07 half days missed or 95.77% attendance)
- young people from relatively less deprived neighbourhoods (young people in areas in which the percentage of deprived households was the mean for the study cohort had a mean of 26.7 half days absence. For every two per cent change in the percentage of deprived households there was a change of one half day session)

[32] Low performing schools were deemed to be those in which less than 30% of the Year 11 cohort achieved five or more GCSES at A* to C in the year in which young people in the study began their Key Stage 4 courses. Mid-performing schools were deemed to be those in which between 31% and 65% achieved the higher grades and high performing schools were those in which more than 65% of the Year 11 cohort obtained five or more A* to C grades.

[33] There was no significant year effect noted in the Year 9 model.

[34] See Tables 13 and 14 in Appendix 3.

- young people from neighbourhoods where unemployment was relatively high (young people in areas in which the percentage of unemployment was the mean for the study cohort had a mean of 26.7 half days absence. For every one per cent change in unemployment there was a change of just over two half day sessions).

Given that these findings remained significant even when pupil-level prior attainment was included in the model (see Table 15 in Appendix 3), this latter finding is challenging. Does it suggest that, in areas of high unemployment, young people (and their families) may have a greater perception of the need for education than in areas where unemployment rates are relatively low (and where young people may see the route into employment as being straightforward and the achievement of qualifications as less imperative)?[35] Or is it a function of some other factor or factors?

By contrast, absence was highest amongst:

- those with a statement of SEN (41.96 half days missed or 88.96% attendance),[36] on School Action Plus (45.16 half days missed or 88.11% attendance) and on School Action (39.8 half days missed or 89.53% attendance)
- young people in low performing schools (32.93 half days missed or 91.33% attendance)
- those on Free School Meals (39.38 half days missed or 92.58% attendance)
- girls (30.80 half days missed or 91.89% attendance)
- young people in EiC and EAZ schools in the South West (48.22 half days missed or 87.1% attendance).

In each case, young people in the 2001/02 EiC and EAZ cohorts had higher mean levels of absence (thus lower levels of attendance) than pupil from the other cohorts; these young people were associated with 6.93 missed half days more than the mean for the combined cohorts (a reduction of 1.8% in attendance rates). This association was significant even when prior attainment was taken into account.[37]

[35] There would be value in exploring young people's attitudinal data in relation to this. The questionnaires completed by the EiC and Aimhigher: Excellence Challenge survey respondents (a sub-set of the young people in this study) yielded data on a range of issues such as young people's attitudes to their school, to education, including post-16 education and parental attitudes to education, and to their longer-term plans, for example.

[36] This association with a statement of SEN was no longer significant once prior attainment was taken into account.

[37] Once prior attainment was included in the model, the difference was even greater, with young people in 2002/03 associated with 8.89 additional half days of absence (a reduction of 2.3% in attendance rates).

Amongst the young people for whom ethnicity data was available (for whom the mean total absence was 27.06 half days), mean total absence was significantly lower amongst:

- Black African pupils (4.77 half days or a mean of 98.7% attendance)
- Chinese pupils (6.14 half days or a mean of 98.4% attendance)
- Pakistani pupils (15.94 half days or a mean of 95.8% attendance)
- Indian pupils (16.03 half days or a mean of 95.8% attendance)
- Black Caribbean pupils (16.94 half days or a mean of 95.5% attendance)
- Bangladeshi pupils (19.05 half days or a mean of 95.0% attendance).[38]

There were fewer variations in overall mean absence amongst the Year 9 cohorts. Once pupil and school background characteristics had been taken into account (see Table 14 in Appendix 3), absence in Year 9 was lowest amongst:

- those becoming familiar with English (a mean of 18.63 half days missed or 95.1% attendance), becoming fluent in English (20.16 half days missed or 94.69% attendance) and becoming confident with English (21.84 half days missed or 94.25% attendance)
- young people from relatively less deprived neighbourhoods (24.69 half days missed or 93.5% attendance).

Absence was highest (and attendance was lowest) amongst:

- those on Free School Meals (a mean of 43.39 half days missed or 88.58% attendance)
- those on School Action Plus (status Q) (40.83 half days missed or 89.26% attendance), on School Action Plus (status P) (45.75 half days missed or 87.96% attendance), with a statement of SEN (38.02 half days missed or 89.99% attendance) and on School Action (40.93 half days missed or 89.23% attendance)[39]
- girls (33.25 half days missed or 91.25% attendance)
- young people in the North West (37.35 half days missed or 90.17% attendance).[40]

In each case, young people in the 2000/01 cohorts had lower mean levels of absence (thus higher rates of attendance) than pupil from the other cohorts; these young people were associated with 6.55 fewer missed half days than the mean for the combined cohorts (an increase of 1.7% in attendance rates).

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38 See Table 16 in Appendix 3.

39 The associations with School Action Plus (status Q) and statements of SEN were no longer significant once prior attainment was taken into account (see Table 17 in Appendix 3).

40 This regional difference only emerges in the total absence model; there were no significant associations between pupils in schools in the North West and levels of either authorised or unauthorised absence. However, it remains evident even when prior attainment is included in the model.

Amongst the young people in Year 9 for whom ethnicity data was available (for whom the mean total absence was 26.25 half days), mean total absence was significantly lower amongst:

- Black African pupils (7.98 half days or a mean of 97.9% attendance)
- Chinese pupils (10.93 half days or a mean of 97.1% attendance)
- Black Caribbean pupils (16.44 half days or a mean of 95.7% attendance)
- Indian pupils (17.56 half days or a mean of 95.8% attendance)
- Bangladeshi pupils (17.72 half days or a mean of 95.3% attendance)
- Black Other pupils (20.23 half days or a mean of 94.7% attendance)
- Pakistani pupils (20.62 half days or a mean of 94.6% attendance).[41]

4.4 The Story so Far

Across both cohorts, and once other pupil and school characteristics (including pupil prior attainment) were taken into account, there appeared to be a significant association between poor attendance and levels of SEN, with comparatively high levels both of authorised and unauthorised absence particularly amongst those on School Action Plus. At this stage of the analysis, we do not have access to specific data to suggest *why* incidence of poorer attendance was associated with such young people or why such incidence was generally more evident amongst young people at the earlier stages of school identified support than amongst those who were fully statemented. Data on young people's attitudes (related to young people's views on their school, its facilities and the support it provided, related to their views on education, including post-16 education, and learning, and related to their views on parental support and to their longer-term plans, for example) is available and might provide some insights to this issue. However, it is only available for a sub-set of the young people in the combined cohorts and so has not been incorporated into the models developed for this study.

Young people for whom English was not a first language had a better record of attendance than those for whom English was a first language. In both Year 9 and Year 10, those who were becoming familiar or confident with English and those who were fluent bilingual speakers had better attendance records (and a lower incidence both of authorised and unauthorised absence) than first language English speakers. The implications of these findings may be that there is a need to examine the strategies used to encourage attendance (and particularly to reduce incidents of unauthorised absence) amongst those whose first language is English, in order to strengthen their impact.

There was a strong association between poor attendance and young people from families with low incomes (as measured by eligibility for Free School Meals). There was also a negative association between young people from high deprivation neighbourhoods and the incidence of authorised absence;

[41] See Table 18 in Appendix 3.

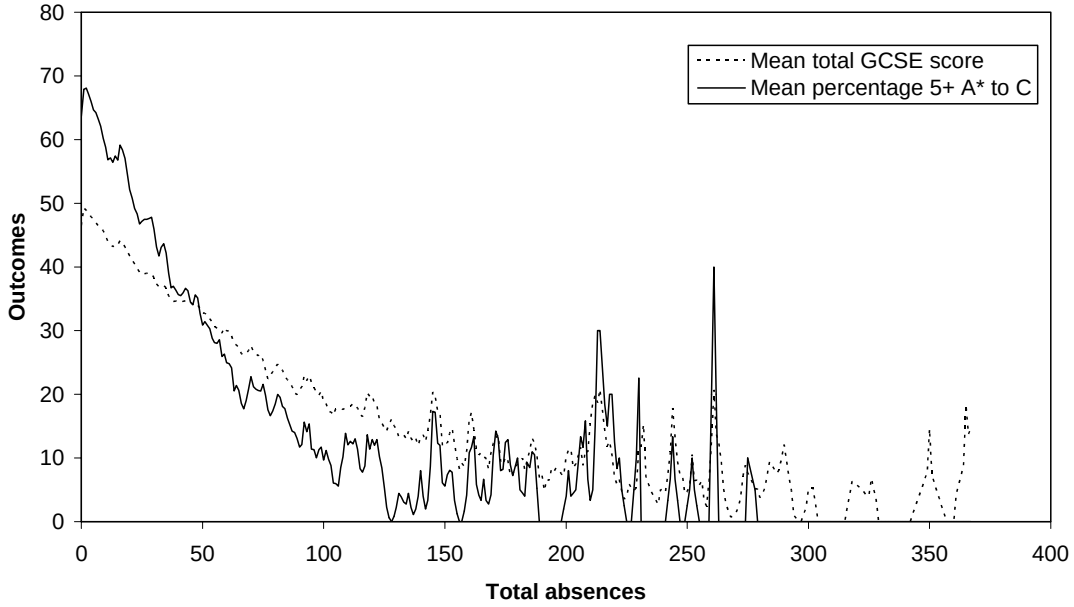
young people from such neighbourhoods were associated with higher levels of both authorised and unauthorised absence. However, young people from neighbourhoods in which unemployment rates were high were associated with lower levels of authorised absence and demonstrated no significant difference in unauthorised absence levels than those from areas where employment was high. These findings suggest that, in order to promote higher levels of attendance amongst young people from lower income backgrounds, the focus may need to be on the family (and on its specific circumstances) and on the wider features of the neighbourhood in which the family lives. Local employment patterns alone do not appear to be a sufficient predictor of school attendance.

5. THE RELATIONSHIP BETWEEN ATTENDANCE AND ATTAINMENT?

The previous chapters have provided an overview of the general patterns of absence amongst different groups of young people and have identified the key factors that appear to be associated with such patterns, including a consideration of the role played by prior attainment.[42] Subsequently, the research team sought to explore the relationship (if any) between attendance and eventual attainment at Key Stage 3 and Key Stage 4. Was there any significant difference in levels of achievement amongst young people with different levels of absence? Could those differences be quantified? And was any relationship so identified still apparent once individual pupil and school characteristics and pupil prior attainment were taken into account? This last question is addressed more fully in Chapter 6; Chapter 5 first provides an overview of the apparent relationship between pupil absence and pupil attainment.

A simple plot of attendance data (by number of sessions missed) against mean attainment at GCSE suggests that there might be a relationship between attainment in Year 11 and attendance in Year 10, but that it is not a simple one, particularly at the higher levels of non-attendance (see **Figure 5.1**).

Figure 5.1 Relationship between total number of sessions missed and attainment at GCSE



[42] It should be noted that the analysis did not include any of the attitudinal data collected for the evaluations of EiC and Aimhigher: Excellence Challenge, since such an analysis would have been for a sub-set of the current data only.

When the data on authorised absence was examined in relation to attainment there appeared to be some clear and statistically significant variations (see **Tables 5.1** and **5.2**). Once such absence was divided into quartile groups, based on the distribution statistics for Years 9 and 10, analysis of variance suggested that those with higher levels of absence in Year 9, for instance, (**Table 5.1**) had lower levels attainment by the end of Key Stage 3 (the differences between each of the quartile groups was significant at the 0.05 level). Those with seven or fewer half day absences achieved a mean of 0.66 of a level more at Key Stage 3 than young people with 37 or more half day authorised absences (just over three weeks).

This is not to imply a causal relationship; young people with high levels of absence on Year 9 were also associated with lower levels of prior attainment. Nonetheless, and on average, young people with low levels of absence (fewer than seven half day absences) seem to have made more progress between Key Stage 2 and Key Stage 3 than those with higher levels of absence.[43] Looking at raw data alone, those with good attendance records appear to have made an average progress of more than one level – around 1.25 or 45 months of progress in the 36 months between Key Stage 2 and Key Stage 3; those with poor attendance appear to have made an average of less than one level of progress – approximately 0.9 of a level or 32 months of progress over the same time period.

Table 5.1 Statistically significant differences in attainment by level of half day authorised absence: Year 9 cohorts

Authorised absences	Average prior attainment at Key Stage 2	Average attainment at Key Stage 3
0–7 absences	3.84*	5.09*
8–19 absences	3.80*	4.99*
20–36absences	3.72*	4.83*
37+ absences	3.53*	4.43*

* Statistically significant differences at $p<0.05$

The picture was repeated for the Year 11 cohort, with significant differences in outcome at Key Stage 4 associated with different levels of attendance in Year 10 (see **Table 5.2**).

[43] The 'months of progress' equivalence is based on an expected progress of at least one level in the 36 months between Key Stage 2 and Key Stage 3 assessments.

Table 5.2 Statistically significant differences in attainment by level of half day authorised absence: Year 11 cohorts

Authorised absences	Average Key Stage 3 prior attainment	Average attainment for Year 11 cohort			
		Total GCSE score	Best 8 GCSE score	Number of grades A*–C	Number of grades A*–G
0–8 absences	5.15*	45.79*	38.6*	6.01*	9.32*
9–20 absences	4.98*	42.40*	36.30*	5.27*	9.14*
21–39 absences	4.76*	37.36*	32.64*	4.2*	8.76*
40+ absences	4.4*	27.56*	24.75*	2.57*	7.50*

* Statistically significant differences at p<0.05

However, it is worth noting that attainment also varied significantly by, for example, sex (for pupils in Key Stage 4) and Free School Meals (see **Tables 5.3 and 5.4**). Amongst the Year 9 cohort, mean prior attainment (at Key Stage 2) was not statistically different between girls and boys, but mean Key Stage 3 attainment was higher for girls, suggesting that girls made more progress than boys through Key Stage 3. Those in receipt of Free School Meals appeared to have significantly lower levels both of prior attainment and attainment at the end of Year 9. In other words, differences in attainment may be explained by a range of factors, only one of which may be related to absence (see Chapter 6).

Table 5.3 Statistically significant differences in attainment by sex and Free School Meals: Year 9 cohorts

	Average prior attainment at Key Stage 2	Average attainment at Key Stage 3
Sex		
Boy	3.72	4.75*
Girl	3.72	4.87*
Free school meals		
With Free School Meals	3.39*	4.23*
No Free School Meals	3.83*	4.98*

* Statistically significant differences at p<0.0001

Table 5.4 Statistically significant differences in attainment by sex and Free School Meals: Year 11 cohorts

	Average Key Stage 3 prior attainment	Average attainment for Year 11 cohort			
		Total GCSE score	Best 8 GCSE score	Number of grades A*–C	Number of grades A*–G
Sex					
Boy	4.74*	35.33*	30.82*	3.95*	8.44*
Girl	4.89*	40.72*	34.95*	4.98*	8.88*
Free school meals					
With Free School Meals	4.24*	28.89*	25.71*	2.76*	7.69*
No Free School Meals	4.97*	40.49*	34.82*	4.93*	8.92*

* Statistically significant differences at $p<0.05$

The story at each Key Stage was similar, with the girls' attainment greater than that of boys (both in terms of Key Stage 3 average levels and outcomes at GCSE) and those in receipt of Free School Meals achieving mean Key Stage 3 and Key Stage 4 results that were significantly lower than those in different socio-economic circumstances.

As with authorised absence, there were significant differences in the attainment of groups of young people with different levels of unauthorised absence. When the data for unauthorised absence for the Year 9 cohort was divided into such groups, with young people with no unauthorised absence in one group and the remaining pupils divided into three groups to reflect overall amounts of unauthorised absence, a difference of over half a level at Key Stage 3 was observed between those with no unauthorised absence and those with more than 10 half days (the difference, of 0.78 of a level, is equivalent to around 28 months of progress, or more than two academic years). By Key Stage 4, this difference was even more apparent, with young people who had high levels of unauthorised absence achieving mean GCSE scores that were less than half the number of points achieved by young people with no unauthorised absence (see **Tables 5.5 and 5.6**).

Table 5.5 Statistically significant differences in attainment: by level of half day unauthorised absence: Year 9 cohorts

Unauthorised absences	Average prior attainment at Key Stage 2	Average attainment at Key Stage 3
0 absences	3.78*	4.98*
1–3 absences	3.66*	4.75*
4–10 absences	3.59*	4.57*
11+ absences	3.42*	4.20*

* Statistically significant differences at $p<0.0001$

Table 5.6 Statistically significant differences in attainment: by level of half day unauthorised absence: Year 11 cohorts

	Average Key Stage 3 prior attainment	Average attainment for Year 11 cohort			
		Total GCSE score	Best 8 GCSE score	Number of grades A*–C	Number of grades A*–G
Unauthorised absences					
0 absences	5.06*	43.55*	37.12*	5.47*	9.25*
1–3 absences	4.63*	35.66*	31.38*	3.84*	8.57*
4–10 absences	4.46*	30.93*	27.69*	3.00*	8.05*
11+ absences	4.05*	18.95*	17.56*	1.44*	6.02*

* Statistically significant differences at p<0.0001

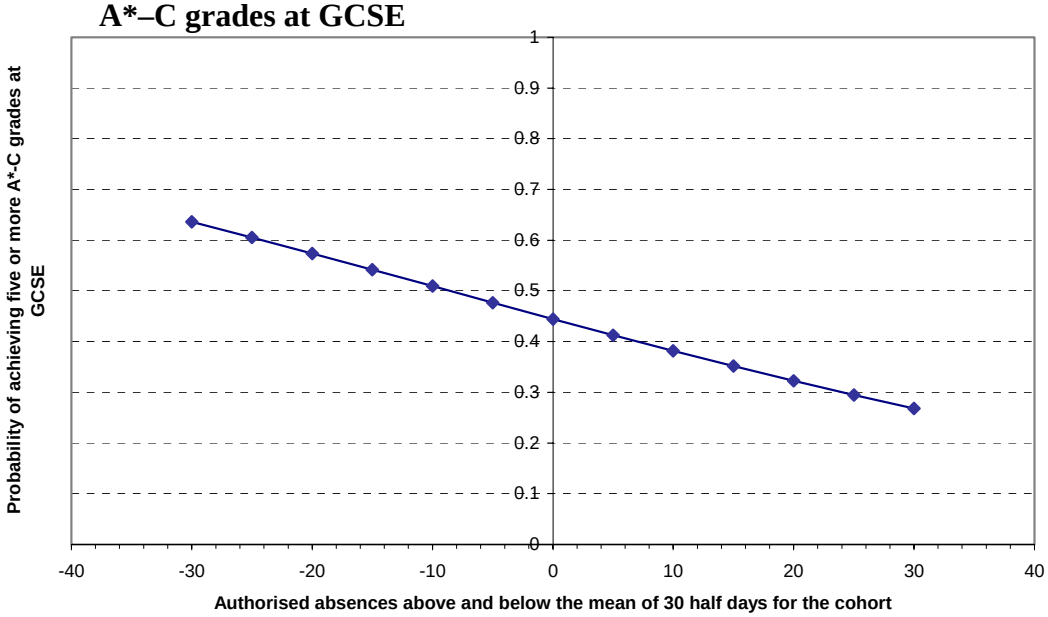
Using logistic models,[44] a clearer picture of the apparent relationship between pupil level attendance and attainment can be obtained. **Figure 5.2** illustrates the link that appears to exist between authorised absence and attainment at GCSE for the three combined Year 11 cohorts. This suggests that, in order to have a 50% chance of achieving five A* to C grades, young people's authorised absence in Year 10 needed to be approximately 10 half days *less* than the mean level of absence (29.8 half days) for the three combined cohorts;[45] only 44% of the cohort had such an attendance pattern.[46] It is also evident that as authorised absence decreased, the probability of achieving five A* to C grades increased to just under 65% (63.6%) for those with no authorised absence. Conversely, as authorised absence increased, the probability of achieving five A* to C grades decreased. A young person with 30 half day sessions of absence more than the mean (that is, 59.8 half days) had less than a 27% probability of achieving five or more higher grades; some 18% of the cohort had authorised absences in excess of this period.

44 Logistic regression is a form of regression analysis in which the outcome of interest is binary; that is, it has only two values. A young person would either achieve five or more A* to C grades at GCSE, or they would not, for example, or they would make (or fail to make) at least one level of progress between Key Stage 2 and Key Stage 3. The model calculates the probability of the outcome occurring – in this case, the probability of attaining five or more higher A* to C grades. At this stage in the analysis, the models did not control for any background variables at pupil or school level (an exception is the analysis presented in Figure 4.5, which controlled for pupil sex); the models presented in Chapter 6 controlled for pupil and school-level variables, including prior attainment.

45 This figure, 19.8 half days (or just under two weeks of school sessions) is marginally lower than the 22.76 half days identified in the interim study of the two cohorts (1999/2000 and 2000/01) alone. However, this variation, of around one day either side of a 10 day period, suggests that current guidelines to schools for maximum periods of term-time absence may be justified in terms of their impact on attainment.

46 Clearly, this does not mean that only 44% of the cohort would achieve five or more A* to C grades; attendance patterns alone are not a sufficient predictor of attainment. However, the data suggests that it may be a strong contributory factor, all other things being equal.

Figure 5.2 Authorised absence and the probability of achieving 5 or more A*–C grades at GCSE



The story with respect to unauthorised absence was even more evident, with a low probability (38%) of higher levels of achievement amongst those with even a mean level of unauthorised absence (6.9 half days for the combined cohorts) (see **Figure 5.3**). Those with high levels of unauthorised absence (such as the 11.8 half days noted amongst young people from BIP Phase 1 schools – see Section 5.2) had only a 29% probability of achieving five A* to C grades. In other words, just one week of unauthorised absence appears to be associated with a significant reduction in the probability of success at GCSE.

Figure 5.3 Unauthorised absence and the probability of achieving 5 or more A*–C grades at GCSE

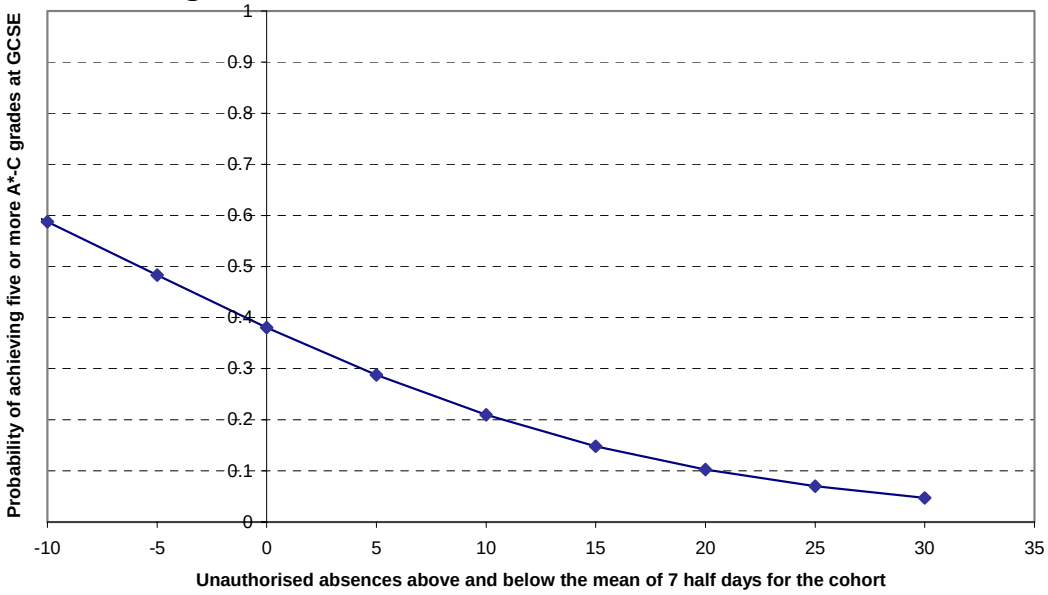
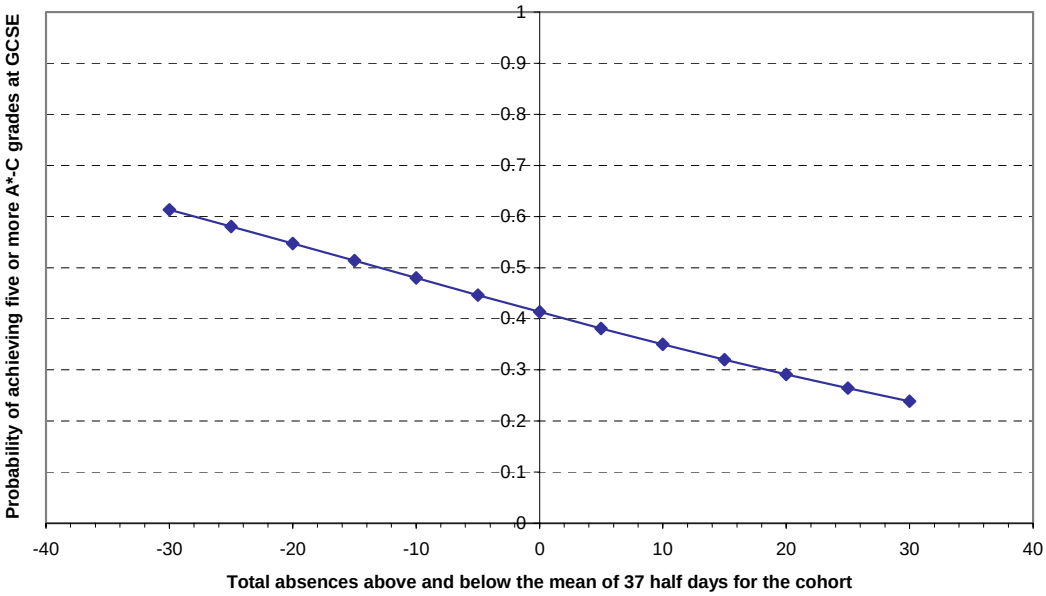


Figure 5.4 illustrates the picture in relation to overall absence. This suggests that, in order to have a 50% probability of achieving five A* to C grades, young people's overall absence would need to be nearly 12 half days *less* than

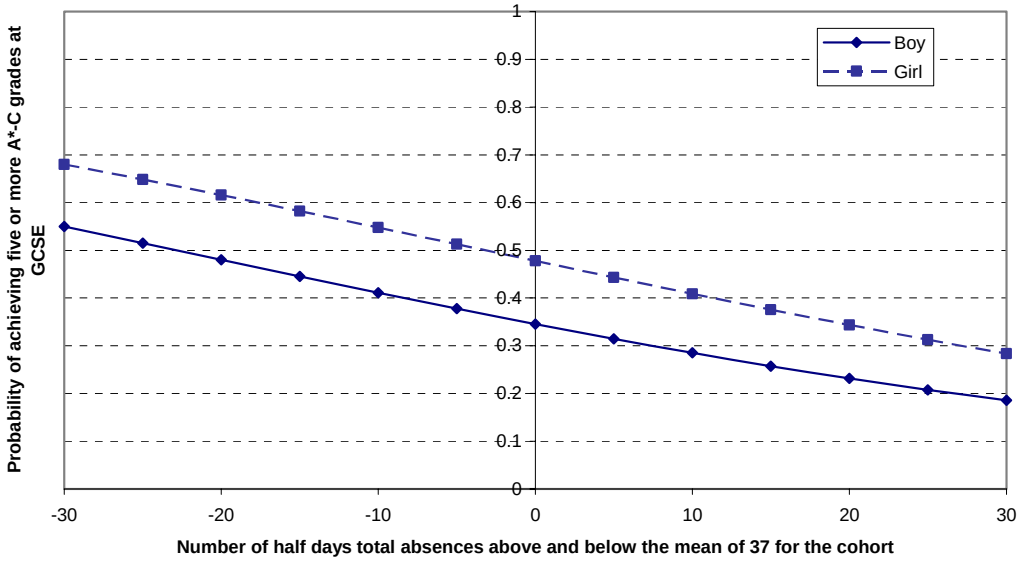
the mean for the combined Year 10 cohorts (or the equivalent of no more than 12.4 days of absence).

Figure 5.4 Overall absence and the probability of achieving 5 or more A*–C grades at GCSE



The story was not identical for boys and girls, however. Girls whose mean attendance was the same as the mean for the cohort appeared to have a 48% probability of achieving five A* to C grades. Boys, in contrast, seemed to need an attendance that was some 20 half days (or two weeks) higher than the mean to have the same probability of achieving the same result at GCSE (see **Figure 5.5**).

Figure 5.5 Overall absence and the probability of achieving 5 or more A*–C grades at GCSE: by sex



Clearly the picture that is presented here, while indicating a relationship between attendance and attainment, oversimplifies the actual relationship,

since the introduction of even one additional variable (the sex of pupils) suggests that outcomes for different groups of pupils (in this case boys and girls) may well be different even when levels of attendance are the same. Other factors, related to prior attainment, individual background characteristics (such as ethnicity, fluency in English and home circumstances, including neighbourhood indicators) and school factors (including performance levels, type and location) have emerged from previous research as significant indicators of attainment. The interim study suggested that there was some interaction between these various background factors and attendance and that it was possible to identify different patterns of attendance amongst different groups of young people. To what extent do these patterns appear to be consistent over time? Do they have a consistent association with young people's attainment, over and above the other characteristics that may be associated with pupil outcomes? Chapters 6 and 7 seek to address these questions.

6. EXPLORING THE IMPACT OF ABSENCE ON ATTAINMENT

In order to assess the relationship between absence and attainment once a range of known background characteristics at pupil and school level were taken into account, a series of models were constructed for the attainment outcomes for young people in Years 9 and 11. These incorporated (as background variables) prior attainment (at Key Stage 2 and Key Stage 3, respectively) and their total absence (including variables to differentiate between authorised and unauthorised absence) for Year 9 and (for the Year 11 cohort) Year 10. The models were constructed for the data for Year 11 attainment in 2000/01, 2001/02 and 2002/03, and for Year 9 attainment in 1999/2000, 2000/01 and 2001/02, all omitting ethnicity in the first instance. This information (which was available from PLASC for the cohorts from 2001/02 onwards) was then included in the models (using sub-sets of the data for Year 11) and any significant differences were observed and recorded.[47]

6.1 Attainment at Key Stage 4

Amongst the Year 11 cohorts in 2000/01, 2001/02 and 2002/03, the highest levels of attainment at GCSE (in terms of capped eight scores[48]), once all other pupil characteristics, prior attainment and school variables were taken into account, were associated with:

- young people for whom English was not a first language but who were fluent/bilingual in English (a mean additional 4.3 points at GCSE, approximately equivalent to raising four grade Ds to four grade Cs), who were confident in the use of English (an additional 4.4 points) or who were becoming familiar with the language (an additional 6 points)[49]
- girls, who achieved a mean of 2.8 GCSE points more than boys with the same prior attainment and characteristics.
- young people who lived in areas of relatively less deprivation compared with the cohort (an 17% increase in deprivation was associated with one additional GCSE point).

Lower levels of attainment, however, were associated with:

47 PLASC and NPD data only became available in 2001/02. As a result the models incorporating ethnicity data are a sub-set of the combined cohorts and included data from the 2001/02 and 2002/03 cohorts alone.

48 See Table 19, Appendix 3. Table 20 gives the coefficients for the total GCSE scores.

49 This group was small and included only 142 young people.

- young people on Free School Meals (a mean reduced attainment of -0.85 GCSE points amongst the 21% of young people in this cohort who were in receipt of Free School Meals)
- young people in the 2002/03 Year 11 attainment cohort (a mean reduced attainment of -1.43 points).[50]

For *all* young people, however, there was evidence of an incremental impact of reduced attendance. The story is not straightforward, with the impact of unauthorised absence greater than that of authorised absence and the difference between different periods of absence showing some potential critical thresholds. For a boy, with average prior attainment for the cohort, who did not speak English as a first language, was not in receipt of Free School Meals and lived in an area of average deprivation, a period of total absence of up to one week is associated with a minimal reduction of -0.29 GCSE points for capped eight GCSEs.[51] An increase of absence up to two weeks is associated with a reduction of -1.36 GCSE points (equivalent to reducing at least one GCSE from a grade C to a grade D).[52] Total absences beyond that point reduce this further, such that, should the boy have absences of up three weeks,[53] capped eight GCSE scores would be reduced by -2.3 points; up to four weeks they would be reduced by -3.53 points, up to five weeks by -4.45 points and beyond five weeks by -6.57 points. In other words, five or more weeks of absence could reduce his capped GCSE score from 35.5 GCSE points (the mean for the cohort in this model, equivalent to around five grade Cs, one grade D and two grade Es) to 28.93 points or one grade C, five grade Ds, one grade E and one grade G. For two young people with the same background characteristics and prior attainment, therefore, GCSE outcomes could be markedly different if they had different patterns of attendance.

The factors identified above were also significant in terms of the probability of achieving five or more A*–C grades (see Table 21, Appendix 3). Girls were nearly twice (1.97 times) as likely to achieve such grades as boys with the same prior attainment. Bilingual pupils were 2.99 times as likely to achieve five A* to C grades as other pupils with the same prior attainment. For all pupils, however, high levels of **authorised** and/or **unauthorised absence**

[50] Young people in these cohorts, it will be remembered, had higher levels of total absence than young people in the other cohorts.

[51] For the purposes of this model, calculations for total absence are based on a ratio of 82:18 of authorised: unauthorised absences, reflecting the mean ratio for the cohort. It is possible, of course, that this ratio changes as overall absence increases. Moreover, since the model also includes both continuous variables (authorised absence, unauthorised absence and total absence) and dichotomous variables (periods of absence of up to one week, two weeks etc.), calculations of the effect size have been done for the mid-point of the categorical variables (such that the effect size for periods of absence of up to one week are based on five half day session,, up to two weeks on 15 half day sessions, up to three weeks on 25 half day session and so forth). Just under one quarter of the combined Year 11 cohorts (24.7%) had periods of total absence of less than one week.

[52] Some 3940 of the pupils (19%) in the combined Year 11 cohorts in this model had periods of absence that were between one and two weeks.

[53] Of the young people in the model for this cohort, 15% had periods of absence of between two and three weeks, 11% of periods between three and four weeks, eight per cent of between four and five weeks but some 22% of periods in excess of five weeks.

reduced the probability of achieving level 2 qualifications,[54] with the impact of unauthorised absence marginally more evident. There appeared to be a critical threshold around absences in excess of three weeks; young people with more extensive periods of absence were less likely than their academic and social peers to have attained five or more A* to C grades. Young people with periods of absence up to five weeks were only 73% as likely as their peers to be high achievers, those with more than five weeks were only 67% as likely to have attained five or more higher grades.

These apparent critical thresholds were even more evident with respect to an **increased likelihood of low attainment**. The impact of total absences of up to three weeks appeared to be on a par with social deprivation factors; young people in receipt of Free School Meals were 1.26 times as likely as their peers to be lower attainers, whilst young people with up to two or three weeks of absence were 1.3 and 1.34 times as likely (respectively) as their academic peers with less than one weeks absence to have failed to gain any higher grade GCSEs (see Table 22 in Appendix 3). However, for periods of absence in excess of two weeks, the likelihood of low levels of attainment increased. Young people who had a total absence in excess of five weeks were nearly twice as likely as their academic peers to gain no GCSEs at grades above a D. Interestingly, the relative impact of authorised and unauthorised absence seems to be similar; any type of extended absence, it would appear, increases the likelihood of poor attainment at GCSE.

Amongst the **Year 11** cohorts for whom ethnicity data was available (13,011 pupils), the picture varied little from that outlined above, with fluency in English, confidence in English and girls associated with higher levels of performance.[55] Those in receipt of Free School Meals were associated with lower levels of performance. Absences in excess of two weeks were associated with lower attainment, with the impact of unauthorised absence greater than that of authorised absence. However, four groups, young people from Black African, Pakistani, Indian and Bangladeshi backgrounds, achieved higher capped eight GCSE scores than would have been anticipated from their levels of prior attainment.

It is important to emphasise that, while the statistical associations between different levels of absence and different levels of attainment were significant, they cannot be regarded as directly causal.[56] The background variables included in the models (including those related to levels of authorised and unauthorised absence) represent those variables that were available for *all* of the pupils. They do not include the attitudinal variables, for example, that were collected for the evaluation of EiC, which were only available for a sub-set of the pupils included in the analysis for this report. During the EiC evaluation, these attitudinal variables (particularly those related to young people's views on education and learning) were shown to be significantly associated with attainment (see Morris and Rutt, forthcoming). While

[54] As noted in Chapter 3, Level 2 qualifications are equivalent to five GCSES at A* to C grades.
[55] See Table 23 in Appendix 3.
[56] See discussion on multilevel modelling and causality in Appendix 2.

improved attendance might lead to improved attainment for some young people, for others it might only do so if other barriers to learning (including a negative attitude to education or a negative attitude to school) were addressed as well.

6.2 Attainment at Key Stage 3

For the **Year 9** cohorts, pupil background factors such as gender, Free School Meals, special educational needs, levels of fluency were all associated with different levels of performance at Key Stage 3, as was the relative level of deprivation of the neighbourhood in which a young person lived.[57] Once all background characteristics had been taken into account, lower levels of performance were associated with:

- Young people with **SEN** status compared with those with no SEN status; this was most evident for those on School Action Plus (who performed at 0.35 of a level lower than their academic and social peers, equivalent to making one year less progress) and on School Action (-2.3 of a level or 8.3 months less progress).
- Young people who were in receipt of **Free School Meals**; such pupils were associated with lower levels of attainment than their peers (-0.1 of a level).
- Young people in **low performing schools**; such young people were associated with -0.15 of a level (or 5.4 months) less progress than their peers. This difference was not evident in relation to Maths.

Higher levels of performance were associated with:

- Young people who were **fluent** English speakers (though English was not their first language); these performed at a *higher* level than their peers who spoke English as a first language (+0.16 of a level), a difference that was evident in both Maths (+0.19 of a level) and English (+0.22 of a level).[58]
- **Girls** (+0.11 of a level or nearly four months of progress). However, while girls mean level of attainment was nearly half a level greater than boys in English (+0.48 of a level or nearly one a half years of progress), their level of attainment was 0.05 lower in Maths (equivalent to -1.8 months of progress).
- Young people from relatively **less deprived neighbourhoods** (a change of 16.7% in percentage of households that are deprived is associated with a change of 0.1 of a level or 3.6months of progress)
- Young people in schools in the **North West** (+0.09 of a level or 3.24 months of progress) or **East** (+0.15 of a level or 5.4 months of progress). These regional differences were not evident in relation to English scores.

[57] See Tables 24, 25 and 26 in Appendix 3.

[58] It should be noted that, in English, young people who were becoming familiar with the language, performed at 0.48 of a level below their peers. There was no such association with Maths scores.

- Young people in the 2000/01 Year 9 cohort, who attained a mean of 0.2 of a level more than their peers in the 1999/2000 and 2001/02 cohorts.[59] This difference in levels of attainment was evident in relation to both English and Maths scores. The 2001/02 cohort performed at a lower level than both other cohorts in Maths.

As at Key Stage 4, total absence was related to young people's attainment at Key Stage 3. For a boy whose first language was English with average prior attainment in an average or high attaining school, and who was not in receipt of Free School Meals or with any special educational needs, the impact of increased absence could be between -0.01 of a level (or just over one month of progress) for periods of absence of up to one week or up to -0.30 of a level (or nearly eleven months of progress) for periods in excess of five weeks.[60] Over 20% of the Year 9 cohorts in the study had periods of total absence of more than five weeks, suggesting that, in some cases, higher levels of achievement at Key Stage 3 could have been obtained with higher levels of attendance. The apparent impact of unauthorised absence was greater than that of authorised absence, except in Maths, where any type of absence appeared to be detrimental.

There also appeared to be a significant relationship between attendance and the extent of progress young people made from Key Stage 2 to 3. Once all other known background factors were controlled for, girls, bi-lingual pupils who were fluent in English and young people from the 2000/01 cohort had a higher probability of making at least one level of progress than their peers, as did young people in Specialist schools and those in schools in the North West and the East (see Table 27, Appendix 3). However, young people with up to two weeks absence were only three quarters as likely to have made one level of progress over the 36 months from Year 6 to Year 9, while those with more than five weeks absence were less than half as likely to have progressed to the extent that would have been expected.

- For the **Year 9** cohorts for whom ethnicity data was available (13,124 young people), some differences between different minority ethnic groups emerged:[61]
  - Young people from Chinese backgrounds attained *higher* than expected scores at Key Stage 3 than would have been anticipated from their Key Stage 2 results (at +0.3 of a level or 10.8 months of progress). Chinese pupils were more likely to make at least one level of progress between Key Stage 2 and Key Stage 3 than all other pupils. Black African pupils, by contrast, were less likely to make the expected level of progress.
  - Young people from Black Caribbean and Black Other backgrounds *underperformed* at Key Stage 3 (respectively by -0.07 or 2.52 months less progress, and -0.14 of a level or 5.04 months less progress,). It

[59] This cohort had lower mean levels of total absence than their peers (see Section 5.3)

[60] Note that the calculations for effect size are based on the mid-point of the categorical variables, as in the Key Stage 4 models.

[61] See Tables 28, 29, 30 and 31 in Appendix 3.

was noted previously that Black Caribbean and Black Other pupils had higher levels of attendance than their White UK peers, but this does not appear to be associated with higher levels of performance at Key Stage 3.

- There were significant differences in Key Stage 3 English levels between different minority ethnic groups, even when levels of English fluency and prior attainment and other background variables had been taken into account. Young people from Chinese (+0.24 of a level or 8.64 months of progress), Bangladeshi (+0.2 of a level or 7.2 months of progress), Indian (+0.14 of a level or 5.04 months of progress) and Pakistani (+0.1 of a level or 3.6 months of progress) backgrounds all made more progress than would have been expected from performance at Key Stage 2. Black Other pupils underperformed (-0.17 of a level or 6.12 fewer months of progress).
- The Maths models revealed that Black Caribbean (-0.2 of a level) and Black African (-0.17 of a level) pupils were associated with lower than expected levels of attainment, while Indian (+0.15 of a level) and Chinese (+0.53 of a level) pupils were associated with higher than expected levels of attainment.

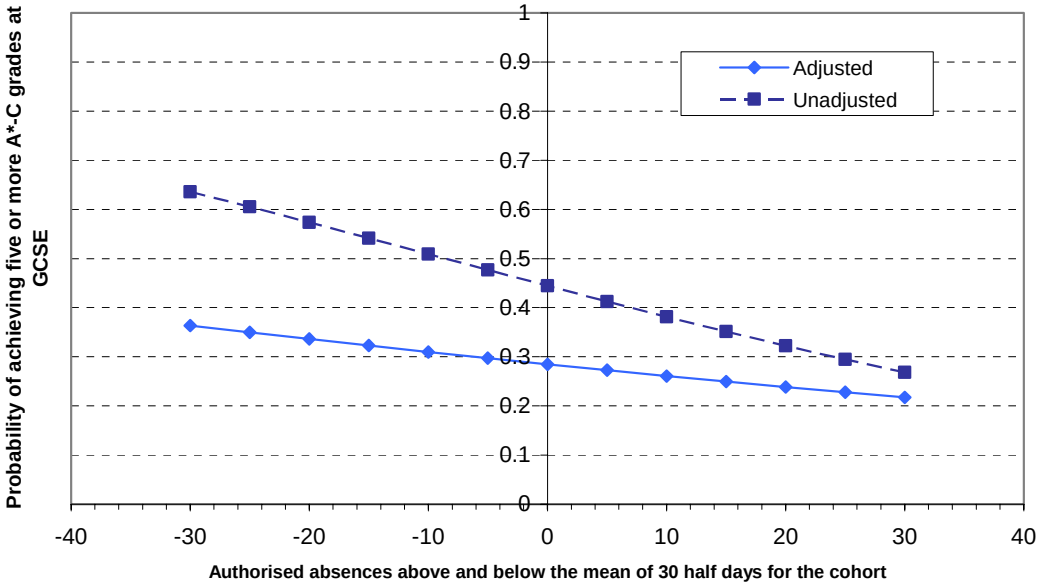
6.3 Summary

While Chapter 5 showed that there appeared to be a significant association between absence and attainment both at Key Stage 3 and Key Stage 4, this chapter has shown that these associations remain even when pupil- and school-level characteristics have been taken into account. At Key Stage 3, this was evident in relation to the probability of making expected levels of progress between Key Stages 2 and 3 and to achievement in both Maths (where the impact of any absence was negatively associated with attainment) and English (where the impact of unauthorised absence was particularly apparent). At Key Stage 4 higher levels of absence were negatively associated with lower capped eight scores, a reduced probability of attaining five A*–C grades and an increased probability that young people would not obtain any GCSEs above a grade D.

However, the relationship that emerges between attendance and attainment is not quite as overt as an examination of the raw data alone would suggest. An initial review of the distribution data suggested, for example, that in order to have a 50% chance of achieving five A*–C grades, young people's authorised absence in Year 10 needed to be 10 half days *less* than the mean for the combined cohorts that is, no more than 20 half days (see **Figure 5.2**). The outcomes of the modelling process, however, in which background characteristics are incorporated, suggest that, for a boy from a White UK background, for whom English was not a first language, and who was not in receipt of Free School Meals, did not have any SEN status and had an average level of prior attainment (4.8 at Key Stage 3 for this cohort), an authorised absence of 10 half days fewer than the mean for the cohort would be

associated with only a 31% probability of achieving five A*–C grades (see **Figure 6.1**).[62]

Figure 6.1 Authorised absences and the probability of achieving 5 or more A*–C grades at GCSE: revised probabilities

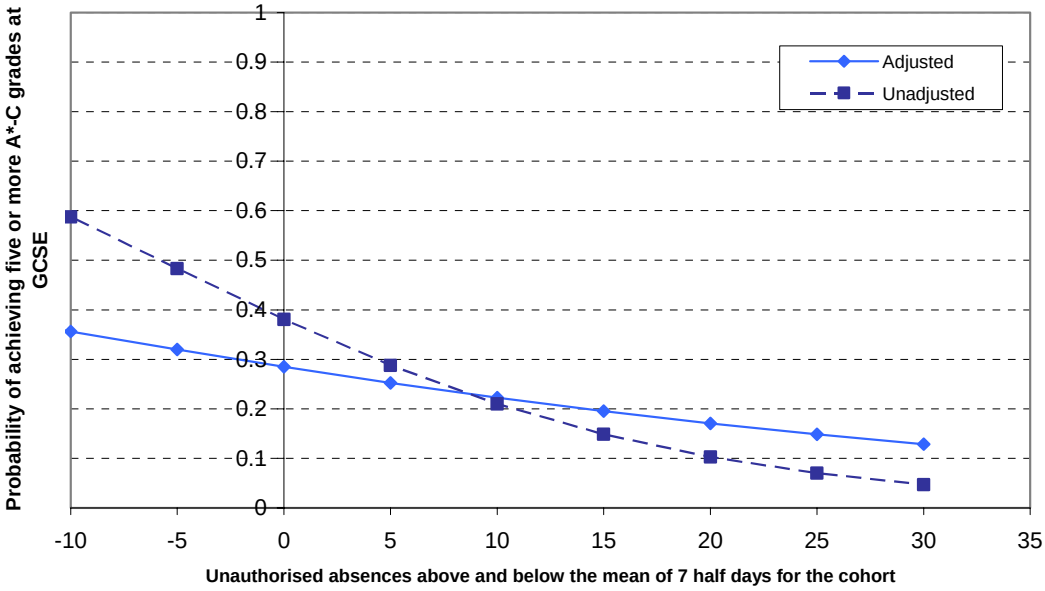


The model also suggested that (as in the initial logistic models) the probability of this young person achieving five A* –C grades continued to increase as their authorised absences decreased to zero (30 half days below the mean). However, while this increase was at a similar rate to that in the initial models, it was to a lower level of probability; that is, to just over 38% (a 13 percentage point increase from a mean probability of 25%) rather than the 55% indicated by the initial analysis (a 20 percentage point increase from a mean probability of 35%). Moreover, the probability of achieving five A*–C grades did not decrease as rapidly as originally predicted with an increased record of authorised absence. The picture presented in Figure 4.2 suggested an 18% reduction in probability with a doubling of authorised absence above the mean, whilst the reduction indicated by the logistic multilevel model was only in the order of seven per cent. In other words, while the analysis revealed that a reduction in authorised absence led to an increased probability of achieving higher grade GCSEs, it also suggested that an increase in authorised absence did not lead to as marked a decrease in the probability of high attainment.

The relationship with unauthorised absence was more marked, but was still not as big as suggested in the simple logistic models presented in Chapter 5. For the average pupil in Key Stage 4, the probability of higher levels of attainment at GCSE reduced more rapidly with increases in unauthorised absence than it had with increases in authorised absence (see **Figure 6.2**), but not as rapidly as an examination of the raw data alone would imply.

[62] Note that, in Figures 6.1 to 6.4, the adjusted rates control for known background characteristics at school and pupil level.

Figure 6.2 Unauthorised absences and the probability of achieving 5 or more A*–C grades at GCSE: revised



An examination of the coefficients for total absence (calculated on the basis of a ratio of 1:5.8 for unauthorised and authorised absences) highlights the **significant impact of absences greater than three weeks** on young people's performance at GCSE (see **Figure 6.3**). While the unadjusted data suggests a steady decline in the probability of higher attainment, the adjusted data indicates that there is a marked decrease in probability once absence increases beyond 30 half days. However, it is worth acknowledging that the impact of such non-attendance may have a bigger impact on boys' achievement than on girls' achievement. As **Figure 6.4** suggests, a girl whose combined authorised and unauthorised absence was the mean for the cohort in the models (35.79 half days) would have a 39% probability of achieving five or more A*–C grades, all other things being equal. By contrast, it suggests that a boy with similar background characteristics would need to have a 100% attendance record. However, while an increase in absences appeared to lead to a more rapid decline in attainment amongst girls than amongst boys, a girl with 30 days more non-attendance than the mean for the cohort still had a higher probability (25%) of achieving five or more GCSEs at grade C or above than a boy (14%) with similar background characteristics and prior attainment.

Figure 6.3 Total absences and the probability of achieving 5 or more A*–C grades at GCSE

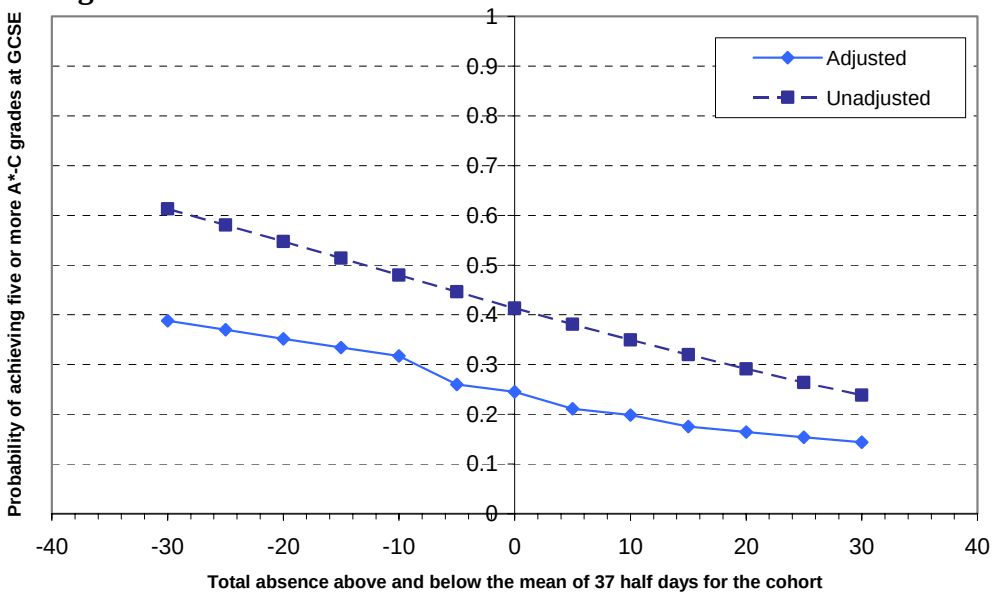
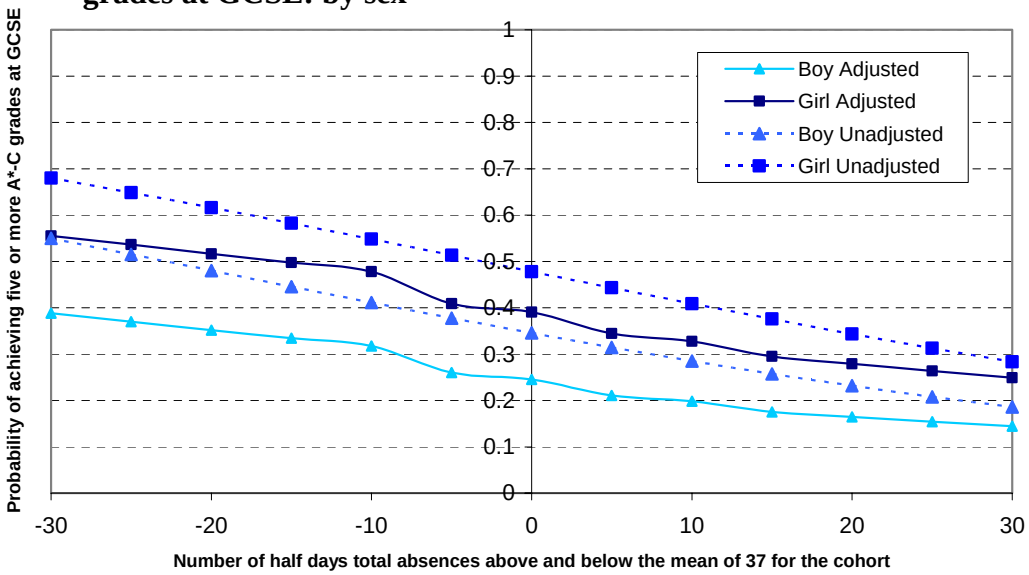


Figure 6.4 Total absences and the probability of achieving 5 or more A*–C grades at GCSE: by sex



The results of these analyses, controlling for observable background characteristics, suggest that the impact of different levels of absence (and of different types of absence), whilst significant, may be less than would be expected from an examination of the descriptive statistics alone. Moreover, they have clearly demonstrated that the impact of non-attendance was greater for boys than for girls. The relationship between attainment and attendance, therefore, is not a straightforward one; this research suggests that the impact of higher absence rates may affect different groups of people in different ways.

7. DISCUSSION

In addressing the key questions posed at the outset of this analysis (the identification of a critical threshold of attendance and the quantification of different levels of non-attendance amongst different groups of young people), the analysis of the cross-sectional data for the cohorts first addressed the following questions:

Question 1 To what extent are there any variations in authorised and unauthorised absence rates between young people from different year groups and with different background characteristics? Do these rates vary by school type or location?

Question 2 What is the general pattern of absence and attendance amongst different groups of pupils?

The analysis identified some key patterns of authorised and unauthorised absence, taking into account variables at pupil-level (sex, ethnicity, socio-economic circumstances and SEN) and school-level (size, age range, management type, location and involvement in BIP and other initiatives). The key findings are summarised below:

Patterns of authorised and unauthorised absence

The average level of authorised absence for the combined **Year 10** cohorts was **29.78 half day sessions** (just under 15 days). The average level of authorised absence for the combined **Year 9** cohorts was **26.45 half day sessions** (just over 13 days). Once pupil and school background characteristics were taken into account, the following patterns emerged.

- **Higher** than average levels of **authorised** absence were seen amongst:
  - young people with SEN (but particularly amongst those on School Action Plus and with a statement of SEN)
  - those in receipt of Free School Meals
  - girls
  - young people in EiC and EAZ schools in the South West.

- **Lower** than average levels of **authorised** absence were seen amongst:
  - Pupils from Black African, Chinese, Indian, Pakistani and Black Caribbean and Black other minority ethnic groups in Years 9 and 10 and, in Year 9 alone, amongst Bangladeshi pupils.
  - young people with lower levels of fluency in English and young people who were bilingual speakers of English

- those in 11–18 comprehensive schools
- young people in small schools and Specialist Schools (Year 10 only)
- young people from schools in relatively less deprived catchment areas
- young people from neighbourhoods with relatively lower levels of deprivation and unemployment.

The average level of unauthorised absence for the combined **Year 10** cohorts was **6.9 half day sessions** (just over three days). The average level of authorised absence for the combined **Year 9** cohorts was **6.2 half day sessions**. Once pupil and school background characteristics were taken into account, the following patterns emerged.

- **Higher** than average levels of **unauthorised** absence were seen amongst:
  - young people with SEN, but particularly amongst those on School Action Plus
  - Pupils in BIP schools (Year 10 only), in low performing schools or in EiC and EAZ schools in the South West
  - young people in receipt of Free School Meals and young people in schools with a high percentage of pupils eligible for Free School Meals.
- **Lower** than average levels of **unauthorised** absence were seen amongst:
  - young people with lower levels of fluency in English and those who were bilingual speakers of English
  - young people from relatively less deprived neighbourhoods
  - Black African pupils in Years 9 and 10 and, in Year 10 alone, Pakistani pupils.

In the second stage of the multilevel analysis, the apparent relationship between authorised and unauthorised absence and attainment was explored.

The apparent relationship between absence and attainment

Once pupil and school background characteristics were taken into account, **higher** than average levels of **authorised** absence were associated with:

- reduced attainment at GCSE (capped eight scores), with a particular impact on boys
- reduced probability of achieving five or more GCSEs at A*–C
- increased likelihood of not obtaining any GCSEs at grade C or above
- reduced attainment in Key Stage 3 Maths and English, with a particular impact on boys.

Once pupil and school background characteristics were taken into account, **higher** than average levels of **unauthorised** absence were associated with:

- reduced attainment at GCSE (capped eight scores), with a particular impact on boys
- reduced probability of achieving five or more GCSEs at A*–C

- increased likelihood of not obtaining any GCSEs at grade C or above
- reduced attainment in Key Stage 3, particularly in English and with a particular impact on boys.
- reduced probability of making at least one level of progress between Key Stage 2 and Key Stage 3.

It should be emphasised, however, that the statistical techniques that have been used in the analyses presented here do not imply causality. We cannot tell from the associations identified above whether the increased likelihood of low levels of attainment with higher levels of absence are the direct result of poor attendance, whether poor prior attainment has *led* to poor attendance or whether some other factor, not included in the modelling process, is having a significant impact. For instance, it should be noted that, while the background pupil-level and school-level variables reduced the pupil-level variance by 73%, over one quarter of the variance at pupil level was left unexplained in the model constructed for capped eight GCSE scores.

In the case of boys' apparent underperformance by comparison with girls with the same level of attendance, prior attainment and other characteristics, one would need to question whether this means that boys need more time in school in order to achieve the same results as their female peers or whether, perhaps, other factors (particularly attitudinal factors) are contributing to this difference in outcome. In the analyses conducted for the national evaluation of EiC, for instance, one of the key factors associated with higher levels of performance was a positive attitude to education: girls were significantly more likely than boys to be associated with such attitudes. Were it possible to change boys' attitudes to education to more closely reflect that of girls, would boys' outcomes then match girls' outcomes with the same level of attendance?

It should also be noted (and as the discussion in Chapter 6 indicated) that the apparent relationship between pupil absence and pupil attainment is not even. While a decrease in absence may be marked by an increase in the probability of higher level attainment (see **Figure 6.1**), an increase in absence (particularly in authorised absence) does not necessarily lead to a concomitant decrease in such a probability. At Key Stage 3, the relationship between absence and attainment also appeared to vary by subject, with unauthorised absence, for instance, being more particularly associated with lower levels of performance in English than in Maths. This cannot be attributed (statistically) to fluency levels amongst young people in the cohort; young people with lower levels of fluency were associated with fewer half days either of authorised or unauthorised absence than their peers for whom English was a first language. Moreover, the apparent relationship between pupil absence and pupil attainment was not evident across all pupil groups: the higher rates of attendance amongst Black Caribbean and Black Other pupils than amongst White UK pupils in Year 9 were not reflected in higher attainment at Key Stage 3.

To what extent, therefore, is it possible to find answers to the questions posed at the outset of this analysis? Clearly, there are variations in authorised and unauthorised absence rates between young people from different year groups and with different background characteristics and these rates vary by school type and location (Questions 1 and 2). However, there also appears to be some relationship between

attendance and attainment (Question 3), and an indication that there may be a critical threshold of attendance, beyond which levels of absence significantly affect attainment (Question 4). The evidence for these latter two questions is examined below.

Question 3 Can the impact on attainment of different levels of non-attendance be quantified?

The analysis initially sought to quantify the impact on attainment of different levels of non-attendance by examining the analysis of variance between the mean attainment levels of young people with different levels of attendance (see **Tables 5.1** and **5.2**). This demonstrated a number of statistically significant differences, with lower levels of attainment at each Key Stage amongst young people with higher levels of absences. Unlike the multilevel modelling analyses, however, these tests did not control for different background characteristics, while the identified various levels of non-attendance were founded upon an arbitrary partition of the data into quartiles on the basis of the distribution statistics. Through the subsequent multilevel process, the research team sought to examine both continuous data (actual pupil absence) and categorical data (absence divided into periods of weeks) in order to identify potential critical levels of non-attendance. This suggested that, above and beyond the statistically identifiable impact of any period of non-attendance (and particularly of periods of unauthorised absence), absence that exceeded certain numbers of sessions had an additional (and negative) impact on attainment.

Question 4 What is the critical threshold at which poor attendance might affect attainment?

As indicated above, the analysis of the combined 1999/2000, 2000/01 and 2001/02 attendance data suggests that there may be some **critical thresholds** for attendance. For the Year 9 cohorts, for example, there is a suggestion that, although any period of unauthorised absence was associated with a reduction in the likelihood of making an expected level of progress from Key Stage 2 to Key Stage 3, short periods of authorised absence (up to one week) during Year 9 were not so associated. However, any periods of absence beyond that point were associated with a significant reduction in the likelihood of expected progress. Young people with up to two weeks total absence, for instance, were associated with a 23% reduction in probability compared with those with no absences or with absences of no more than one week (10 half day sessions). For young people with longer periods of absence, the difference between a period of absence of three weeks (a 34% reduction in probability) and of four weeks (a 35% reduction in probability) was not marked, but periods of five weeks absence during Year 9 were associated with a 43% reduction in the probability of making expected progress, while periods of five weeks and more appeared to reduce the probability by more than half. Young people with such extended periods of absence had only a 49% probability of making the anticipated level of progress between Key stage 2 and Key Stage 3.

For Year 11, it would appear that thresholds beyond which the probability of lower levels of performance resulted from poorer attendance in Year 10 also existed, although these varied according to the outcome being examined. Average periods of authorised (29.7 half days) and unauthorised absence (6.9 half days) were both

associated with a lower probability of high attainment in GCSE and a marginally higher probability of no GCSEs above a grade C, all other things being equal. However, when periods of total absence exceeded three weeks, a young person's probability of achieving five or more A* to C grades was reduced by 18%; their probability of achieving no grades above a C increased by one third (33%). Periods of absence above five weeks decreased a pupil's probability of achieving five or more A* to C grades by one third; it increased the probability of achieving no higher grade GCSEs by over 80%.

Given that the models control for all pupil background characteristics (including prior attainment), this might suggest that the impact of poor attendance might be greater for lower attaining pupils than for higher attainers. Certainly, there is already an indication that poor attendance has a more significant impact on boys than on girls. In order to have a 50% probability of achieving five or more GCSEs at grades A*–C, for example, a girl who was not in a low-performing school and who was of average prior attainment for the cohort (4.8 at Key Stage 3), was not in receipt of Free School Meals and had no SEN would need an attendance record of at least 96%. A boy with similar characteristics and a similar attendance record would only have a 33% probability of attaining five higher grades.

The implications of this study are that monitoring attendance data at individual pupil level is crucial. While the impact of unauthorised absence appears to be greater, it would appear that any periods of absence may be critical in terms of reduced attainment, particularly once they exceeded ten half days at Key Stage 3 and (most particularly for lower attainers) at Key Stage 4.

APPENDIX 1 Sample Representativeness Tables

Table 1. School sample representation for attendance data

		EIC Schools					
		Schools in sample		All EIC schools		All schools	
		Number	%	Number	%	Number	%
Metropolitan							
	Non-Metropolitan	132	29	271	26	2312	67
	Metropolitan	322	71	778	74	1139	33
Region	North	237	52	519	49	1008	29
	Midlands	112	25	229	22	1191	35
	South	105	23	301	29	1252	36
% EAL pupils							
	None	130	29	256	24	1220	35
	1–5%	116	26	258	25	1353	39
	6–49%	144	32	365	35	669	19
	50% +	55	12	136	13	150	4
	Not available	9	2	34	3	59	2
% eligible Free school meals 2001							
	Lowest 20%	3	1	10	1	212	6
	2nd lowest 20%	23	5	63	6	814	24
	Middle 20%	66	15	158	15	932	27
	2nd highest 20%	137	30	296	28	840	24
	Highest 20%	225	50	518	49	648	19
	Not available	0	0	4	0	5	0
Achievement band (KS3 overall performance)							
	Lowest band	189	42	430	41	684	20
	2nd lowest band	107	24	232	22	657	19
	Middle band	82	18	156	15	594	17
	2nd highest band	33	7	98	9	580	17
	Highest band	41	9	106	10	609	18
	Not available	2	0	27	3	327	9
Achievement band (GCSE total point score)							
	Lowest band	182	40	412	39	695	20
	2nd lowest band	115	25	240	23	654	19
	Middle band	74	16	166	16	626	18
	2nd highest band	47	10	113	11	606	18
	Highest band	31	7	86	8	510	15
	Not available	5	1	32	3	360	10
Beacon School							
	No	395	87	914	87	3138	91
	Yes	59	13	135	13	313	9
Specialist School							
	No	313	69	743	71	2470	72
	Yes	141	31	306	29	981	28
Total schools		454	100	1049	100	3451	100

Since percentages are rounded to the nearest integer, they may not always sum to 100.

Table 2. Pupil sample representation for attendance data (Year 9 and Year 10)

		EIC Schools					
		Pupils in sample		All EIC schools		All schools	
		Number	%	Number	%	Number	%
Metropolitan							
	Non-Metropolitan	26539	30	237563	23	2066736	64
	Metropolitan	60658	70	788792	77	1152257	36
Government office region							
	North East	13390	15	114059	11	181539	6
	North West/Merseyside	20245	23	219521	21	454642	14
	Yorkshire and The Humber	16767	19	184757	18	317713	10
	East Midlands	5271	6	42313	4	310145	10
	West Midlands	10676	12	133442	13	367891	11
	Eastern	3017	3	32040	3	370249	12
	London	15233	17	260764	25	410530	13
	South East	1508	2	19701	2	490646	15
	South West	1090	1	19758	2	315638	10
% EAL pupils							
	None	26616	31	251541	25	1070844	33
	1–5%	23621	27	267717	26	1326585	41
	6–49%	25651	29	350597	34	638469	20
	50% +	9947	11	138593	14	151108	5
	Not available	1362	2	17907	2	31987	1
% eligible Free school meals 2001							
	Lowest 20%	513	1	9770	1	212367	7
	2nd lowest 20%	5469	6	70599	7	819188	25
	Middle 20%	13454	15	177688	17	890803	28
	2nd highest 20%	30000	34	313473	31	758621	24
	Highest 20%	37761	43	454825	44	538014	17
Achievement band (KS3 overall performance)							
	Lowest band	31334	36	387886	38	577699	18
	2nd lowest band	21343	24	226416	22	617857	19
	Middle band	18718	21	174696	17	616797	19
	2nd highest band	6893	8	114165	11	612336	19
	Highest band	8785	10	115595	11	643149	20
	Not available	124	0	7597	1	151155	5
Achievement band (GCSE total point score)							
	Lowest band	30338	35	356638	35	571351	18
	2nd lowest band	23878	27	258162	25	648453	20
	Middle band	15632	18	181240	18	644088	20
	2nd highest band	10739	12	130889	13	659827	20
	Highest band	6031	7	90263	9	537566	17
	Not available	579	1	9163	1	157708	5
Beacon School	No	75280	86	874686	85	2875759	89
	Yes	11917	14	151669	15	343234	11
Specialist School	No	56760	65	679636	66	2123155	66
	Yes	30437	35	346719	34	1095838	34
Total schools		87197	100	1026355	100	3218993	100

Since percentages are rounded to the nearest integer, they may not always sum to 100.

APPENDIX 2 Towards Multilevel Modelling – A Summary

An exploration of the relative impact of attendance on attainment requires a systematic approach to the analysis of the available statistical data. In order to assess the ways in which, for example, young people's levels of attainment at Key Stages 3 and 4 are associated with different levels of authorised and unauthorised absence, cognizance needs to be made of a range of different variables. Young people come from a variety of home and school backgrounds, have different academic abilities and have been exposed, to varying degrees, to a range of different educational experiences. All of these could be expected to have an impact on their attendance and their levels of attainment.

Since the data to which the research team has access is hierarchical (variables can be identified at distinct levels – that of the school and the student) the decision was made to use a multilevel modelling approach to data analysis. In multilevel modelling, the process is begun by identifying an outcome variable (for example pupil attainment), then for each level of the data, the background variables that might be thought to influence that outcome are defined. Regardless of the outcome variables that are selected, it is expected that there will be differences of outcome at each level:

- **individuals** will be different from each other
- individuals within one **school** will be **collectively different** from those in other schools
- individuals within schools implementing a specific policy, initiative or activity will be **collectively different** from those in schools not implementing the policy, initiative or activity.

These differences can be measured in terms of the extent to which each outcome variable is 'conditioned' by the background variables at each level. For example, the effect that a high level of unauthorised absence may be having on any pupil can be assessed through comparing the mean observed difference in the attainment of that young person with the expected mean for all young people in the dataset, taking into account the relevant background variables at school and pupil level (including prior attainment).

By analysing the data in this way, it is possible to see the overall effects of each of the variables and identify the variables that have a significant impact. However, it should be noted that:

- No multilevel model is likely to include every possible variable. The background variables included in the models for the assessment of the impact of attendance on attainment included those pupil- and school-level

variables that are known from past and current research to be relevant to pupil outcomes.

- The models do not identify causality in a definitive way, but simply indicate significant factors that appear to bear some relationship to the outcomes. For instance, the analysis of the data indicated that young people in receipt of free school meals had higher levels of authorised and unauthorised absence than young people not in receipt of free school meals. This does not mean that being in receipt of free school meals caused lower levels of attendance, but simply indicates that the level of absence amongst such young people was higher than would have been expected by comparison with young people with the same level of prior attainment and other background characteristics.
- A multilevel model is only as good as our understanding of the educational processes at work in influencing young people's attendance and attainment.

In order to prepare the data for inclusion in the models, the items in the questionnaires need to be reduced to a more manageable data set. Ideally, data needs to be either *dichotomous* (for example, male or not male) or *continuous* (in which the variable can take any value over a given range). The data in the surveys had, therefore, to be manipulated in order to provide information that could be used in the models.

The Models

The multilevel models of pupil outcomes (attendance and attainment) included data obtained from a number of sources.

- Individual data on pupil attendance and level of English fluency obtained from pupil data forms returned by schools (these forms also included data on young people designated as part of the gifted and talented or widening participation cohorts under EiC and Aimhigher, although this information was not included in the current analysis).
- Data on young people's sex, eligibility for free school meals, special educational needs, English as an additional language and (for 2001/02 only) ethnicity, obtained from pupil data forms in 2000/01 and PLASC in 2001/02.
- Data on pupil prior attainment (at Key Stages 2 and 3) and attainment (at Key Stages 3 and 4) obtained from either the DfES's valued-added analysis (2000/01) or the National Pupil Database (2001/02 and 2002/03).
- Background data obtained from the NFER's Register of Schools (ROS). This included data on schools' location, size, age range, management type (Foundation, maintained, voluntary aided, etc.), school type (grammar, comprehensive, modern, etc.), aggregated profiles of SEN, free school meal eligibility, attainment profile, etc.
- Data on young people's home neighbourhood, obtained by matching pupil-post-code data to the 2001 Census. For each pupil, the percentage of people who were unemployed, or in single parent households, for instance,

in their immediate home geographical area (classified by the Office of National Statistics as the output area) was calculated and then aggregated to school level (these raw percentages were used in the multilevel models).[63] The data for each variable was then divided into quintiles, so that an assessment of the relative deprivation of young people's neighbourhoods could be made (these quintiles were used in the analyses of variance).[64] One variable (the percentage of households not deprived on any measure) was calculated at pupil neighbourhood alone, all other Census variables were calculated to represent the pupil catchment of the school.

- Policy specific data (e.g. Phase of EiC, school in an EAZ, designation as Beacon or Specialist School, Phase of BIP, etc.).

The analysis has focused on the outcomes for the Year 9 and Year 11 cohorts, for whom end of Key Stage attainment data (average levels at Key Stage 3 and GCSE and equivalent scores) is available. The construction of the models was an iterative, stepwise process. To begin with, each model was constructed at two levels, with simple residuals at school and pupil levels. In order to identify all significant variables, a procedure was adopted whereby the models were first set up without the background variables in order to establish the amount of variance at school and pupil level for each of the outcome variables. Subsequently, sets of the pupil-level variables were included and those that were not significant were removed. School-level variables were then fitted and all non-significant variables were removed in order to get the most 'parsimonious' overall model (that is, the model that would explain the greatest amount of variance with the removal of all non-significant variables).

During this process, a number of further strategies were introduced at each stage in order to make sure that the various derived variables and background data were not overly weighted in the models. As in all such modelling, background variables were checked to examine their interaction with other variables and, where necessary, specific interaction variables were derived for inclusion in the analysis.

Where data was recorded on a continuous scale (particularly in terms of prior attainment and free school meals) investigations were undertaken to see whether quadratic functions 'fitted' the input data better than a straight line function. Using this function reduced the likelihood that the impact of such data (such as the percentage of young people eligible for free school meals in a school) would be over-emphasised. In the final model, however, no variables to which quadratic functions were fitted emerged as significant.

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63 This area, known as the output area by the Office for National Statistics, comprises (on average) 123 households or 297 people and is the smallest area available for census data. It therefore represents the highest resolution for the purposes of data matching.

64 It should be noted that these variables represent young people's neighbourhoods, not their own home circumstances. Data on some aspects of young people's socio-economic and family backgrounds was available for a sub-set of pupils, from EiC and Aimhigher: Excellence Challenge questionnaire data, but not for all of the young people used in this study or set of analyses.

APPENDIX 3 Outcomes of Multilevel Modelling

Effect sizes are used as a way of directly comparing the impact of independent variables on the dependent variable in question, when the independent variables all have different scales (such as dichotomous or continuous). There are a variety of ways in which effect sizes can be displayed and this has resulted in much debate between statisticians and educationalists.

In the models presented in Appendix 3, the following approach to effect sizes has been adopted. For dichotomous variables, the change that is displayed is that which is seen in the dependent variable when the independent variable is present (that is, the pupil has that characteristic). An example of this is seen in the model for Capped 8 Total GCSE score. The coefficient for 'gender' is 2.83. This shows that a girl, on average, has 2.83 more GCSE points than a boy. For continuous variables (an area over which there is more debate), the $\sqrt{2}$*standard deviation has been used to determine the effect size. The effect size shown for these variables is therefore the change in the dependent variable for the same proportional change in the standard deviation of the independent variable. In the models summarised in Tables 7 and 8 and 11-13, the data incorporates both continuous variables (authorised absence, unauthorised absence and total absence) and categorical variables (absences of up to one week, two weeks etc.). The calculation of effect size for these models is more complex, since it needs to incorporate the impact of, for example, authorised absences (a continuous variable) of up to two weeks (a categorical variable) on an individual with particular characteristics. In such cases, an equation has to be applied to calculate the effect size; it cannot be imputed directly from the coefficients presented in the following tables.

Many of the models in the study sought to examine the impact of independent variables on an outcome (or dependent) variable that was continuous in nature (capped eight GCSE scores, which could range from 0 to 64 points, and Key Stage 3 average levels, for instance). Some of the models, however, sought to examine the impact of background variables on a dependent variable that was dichotomous in nature (achieved or did not achieve five or more GCSEs at grade C and above, or achieved or did not achieve one level of progress from Key Stage 2 to 3, for example). In these cases, the data is presented in terms of a probability (the likelihood that a young person would or would not achieve the outcome, once all other background variables were taken into account). Unlike the standard multilevel model, which presents an effect size and allows one to look at the possible outcome for any particular individual (the effect size for being a girl plus the effect size for being in receipt of free school meals, for example), these logistic models present the outcome in terms of an 'odds multiplier'. The logistic tables present the probability of a girl achieving five or more A* to C grades, or the probability of a young person in receipt of Free School Meals achieving five or more A* to C grades, for example. However, these probabilities may not be combined and so one cannot, therefore, read the logistic tables in the same way as the standard tables. In order to look at the probability of an outcome for a particular person (such as the likelihood of a girl on Free School Meals achieving five or more A* to C grades, for instance), a separate equation would have to be generated in each case.

List of variables included in the modelling process

nferno	NFER School ID
pupilid	Pupil ID
authab	Number of sessions authorised absence
unauth	Number of sessions unauthorised absence
totabs	Total number of sessions absent
gender	Gender
gendmis	Missing Gender
fsm2	Eligible for Free School Meals
fsmmis	Missing information on eligibility for Free School Meals
sen1	SEN Stage 1 / Status A (School Action)
sen2	SEN Stage 2 / Status P(School Action Plus)
sen4	SEN Stage 4 / Status Q (School Action Plus)
sen5	Statement / Status S (SEN with statement of needs)
whiteuro	White European
whitoth	White Other
bcarib	Black Caribbean
bafric	Black African
bother	Black Other
indian	Indian
pakist	Pakistani
bangla	Bangladeshi
chinese	Chinese
other	Other
unknown	Unknown
flu1	English Fluency Level 1
flu2	English Fluency Level 2
flu3	English Fluency Level 3
flu4	English Fluency Level 4
flumis	Missing Fluency data
year1	Year 1999/2000 (Absence models and Year 9 attainment models) or Year 2000/01 (Year 11 attainment models) Note: generally used as the default.
year2	Year 2000/01 (Absence models and Year 9 attainment models) or Year 2001/02 (Year 11 attainment models)
year3	Year 2001/02 (Absence models and Year 9 attainment models) or Year 2002/03 (Year 11 attainment models)
fteqt	Full Time Equivalent Teachers
pcfsm	School Level Free School Meals
pcsen1	School Level Percenatge of pupils SEN – No statement
pcsen2	School Level Percenatge of pupils SEN – Statement
eaz1	School is in EAZ area
small	Small School (#)
medium	Medium sized School (#)
large	Large School (#)
sizemis	Missing Size of school
beacon	Beacon School
special	Specialist School
bip	BIP School
middle	Middle School
secmod	Secondary Modern
comp16	Comprehensive 11-16
comp18	Comprehensive 11-18
gramm	Grammar School
othsec	Other Secondary School

ctc	CTC
schmis	Missing School Type
boys	Boys' School
girls	Girls' School
schsexm	Missing School Sex
bipph1	BIP Phase 1 School
bipph2	BIP Phase 2 School
neast	North East
nwest	North West
york	Yorkshire
eastmid	East Midlands
westmis	West Midlands
east	East
london	London
seast	South East
swest	South West
regmis	Missing Region
low	Low Performing School (< 30% 5+ A* to C)
med	Medium Performing School (31% to 65% 5+ A* to C)
high	High Performing School (> 65% 5+A* to C)
sexwheu	White European Girl
sexwhot	White Other Girl
sexblc	Black Caribbean Girl
sexbla	Black African Girl
sexboth	Black Other Girl
sexind	Indian Girl
sexpak	Pakistani Girl
sexbang	Bangladeshi Girl
sexch	Chinese Girl
ks2elev	Key Stage 2 English Level
ks2mlev	Key Stage 2 Maths Level
ks2av	Key Stage 2 Average Level
ks3elev	Key Stage 3 English Level
ks3mlev	Key Stage 3 Maths Level
ks3slev	Key Stage 3 Science Level
ks3av	Key Stage 3 Average Level
totscore	GCSE Total Score
totsc8	GCSE Capped 8 Score
totatoc	Total Grades A to C
totatog	Total Grades A to G
fiveplus	5+ A* to C Grades
sexks3	Key Stage 3 Average Level Girls
sexauth	Authorised Absence Girls
sexunau	Unauthorised Absence Girls
sextotab	Total Absences Girls
Census data	
pnotdep	Percentage of Households not Deprived on any Measure (Pupil neighbourhood level)
pwhite	mean percentage of people who are from ethnic group (Aggregated to school level)
punemp	mean % of people aged 16-74 who are unemployed (Aggregated to school level)
pqual2	mean % of people aged 16-74 whose highest qualification attained is 5+ 0 Levels (Aggregated to school level)
powner	mean % of households who are owner occupiers (Aggregated to school level)
pgood	mean % of people in good health (Aggregated to school level)
pngood	mean % of people not in good health (Aggregated to school level)
schdep	Percentage of Households not Deprived on any Measure (Aggregated to school level)

Derived variables	
Up to 1 Week	Up to 1 Week Total Absences
Up to 2 Weeks	Up to 2 Weeks Total Absences
Up to 3 Weeks	Up to 3 Weeks Total Absences
Up to 4 Weeks	Up to 4 Weeks Total Absences
Up to 5 Weeks	Up to 5 Weeks Total Absences
5 Weeks +	5 Weeks + Total Absences

Table 1. Coefficients for Year 10 authorised absence model

Authorised Absences		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	85.488	10.581	*	64.749	106.227			
Pupil variance	908.412	8.176	*	892.387	924.437			
Final model								
School variance	50.018	6.539	*	37.202	62.834			
Pupil variance	853.442	7.791	*	838.172	868.712		**Effect Size**	
Fixed coefficients								
CONS	28.901	1.398	*	26.161	31.641	**Lower**	**Mean**	**Upper**
GENDER	3.858	0.419	*	3.037	4.679	3.04	3.86	4.68
FSM	8.296	0.506	*	7.304	9.288	7.30	8.30	9.29
FLU2	-9.305	2.285	*	-13.784	-4.826	-13.78	-9.31	-4.83
FLU3	-9.374	1.392	*	-12.102	-6.646	-12.10	-9.37	-6.65
FLU4	-9.711	0.958	*	-11.589	-7.833	-11.59	-9.71	-7.83
YEAR3	3.174	1.262	*	0.700	5.648	0.70	3.17	5.65
PNOTDEPC	-0.340	0.018	*	-0.375	-0.305	-6.15	-5.57	-4.99
SEN1	8.025	0.772	*	6.512	9.538	6.51	8.03	9.54
SEN2	9.968	0.911	*	8.182	11.754	8.18	9.97	11.75
SEN5	8.044	1.270	*	5.555	10.533	5.55	8.04	10.53
SPECIAL	-3.919	1.359	*	-6.583	-1.255	-6.58	-3.92	-1.26
SWEST	9.489	3.314	*	2.994	15.984	2.99	9.49	15.98
SMALL	-4.288	1.360	*	-6.954	-1.622	-6.95	-4.29	-1.62
PUNEMPC	-2.467	0.576	*	-3.596	-1.338	-7.49	-5.14	-2.79
SCHDEPC	-0.354	0.121	*	-0.591	-0.117	-5.64	-3.38	-1.11
COMP18	-4.115	1.330	*	-6.722	-1.508	-6.72	-4.12	-1.51

Percentage reduction = 6% of pupil variance
Model does not control for prior attainment or pupil attitudes

Table 2. Coefficients for Year 10 authorised absence: model with prior attainment

Authorised Absences		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	85.488	10.581	*	64.749	106.227			
Pupil variance	908.412	8.176	*	892.387	924.437			
Final model								
School variance	48.287	6.388	*	35.767	60.807			
Pupil variance	736.922	7.010	*	723.182	750.662		**Effect**	
Fixed coefficients							**Size**	
CONS	55.100	1.703	*	51.762	58.438	**Lower**	**Mean**	**Upper**
KS3AV	-5.528	0.192	*	-5.904	-5.152	-9.57	-8.96	-8.35
GENDER	4.137	0.403	*	3.347	4.927	3.35	4.14	4.93
FSM	6.470	0.495	*	5.500	7.440	5.50	6.47	7.44
FLU2	-12.466	2.521	*	-17.407	-7.525	-17.41	-12.47	-7.52
FLU3	-11.741	1.409	*	-14.503	-8.979	-14.50	-11.74	-8.98
FLU4	-8.633	0.939	*	-10.473	-6.793	-10.47	-8.63	-6.79
YEAR3	3.346	1.260	*	0.876	5.816	0.88	3.35	5.82
PNOTDEPC	-0.261	0.018	*	-0.296	-0.226	-4.85	-4.27	-3.70
SEN1	2.763	0.758	*	1.277	4.249	1.28	2.76	4.25
SEN2	3.887	0.918	*	2.088	5.686	2.09	3.89	5.69
SPECIAL	-3.284	1.341	*	-5.912	-0.656	-5.91	-3.28	-0.66
SWEST	7.936	3.253	*	1.560	14.312	1.56	7.94	14.31
SMALL	-3.993	1.361	*	-6.661	-1.325	-6.66	-3.99	-1.33
PUNEMPC	-1.839	0.440	*	-2.701	-0.977	-5.62	-3.83	-2.03
COMP18	-2.817	1.325	*	-5.414	-0.220	-5.41	-2.82	-0.22

Percentage reduction = 19% of pupil variance
Model controls for prior attainment
Model does not control for pupil attitudes

Table 3. Coefficients for Year 10 authorised absence: model with ethnicity data

Authorised Absences		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	80.765	12.088	*	57.073	104.457			
Pupil variance	881.729	9.907	*	862.311	901.147			
Final model								
School variance	83.096	12.960	*	57.694	108.498			
Pupil variance	847.317	10.364	*	827.004	867.630		**Effect**	
Fixed coefficients							**Size**	
CONS	33.319	1.789	*	29.813	36.825	**Lower**	**Mean**	**Upper**
GENDER	2.619	0.553	*	1.535	3.703	1.54	2.62	3.70
FSM	8.234	0.656	*	6.948	9.520	6.95	8.23	9.52
FLU4	-5.503	1.428	*	-8.302	-2.704	-8.30	-5.50	-2.70
YEAR3	5.202	2.012	*	1.258	9.146	1.26	5.20	9.15
PNOTDEPC	-0.316	0.024	*	-0.363	-0.269	-6.66	-5.80	-4.93
BAFRICAN	-16.151	2.064	*	-20.196	-12.106	-20.20	-16.15	-12.11
PAKISTANI	-6.918	1.443	*	-9.746	-4.090	-9.75	-6.92	-4.09
INDIAN	-8.741	2.062	*	-12.783	-4.699	-12.78	-8.74	-4.70
BCARIB	-9.063	2.057	*	-13.095	-5.031	-13.09	-9.06	-5.03
CHINESE	-14.385	4.550	*	-23.303	-5.467	-23.30	-14.39	-5.47
OTHER	-6.386	1.523	*	-9.371	-3.401	-9.37	-6.39	-3.40
UNKNOWN	7.293	1.964	*	3.444	11.142	3.44	7.29	11.14
SWEST	12.214	5.704	*	1.034	23.394	1.03	12.21	23.39
UNAUTH	0.165	0.012	*	0.141	0.189	4.42	5.16	5.89

Percentage reduction = 4% of pupil variance
Model does not control for prior attainment or pupil attitudes

Table 4. Coefficients for Year 9 authorised absence model

Authorised Absences		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	106.547	12.541	*	81.967	131.127			
Pupil variance	758.808	6.774	*	745.531	772.085			
Final model								
School variance	114.594	14.246	*	86.672	142.516			
Pupil variance	756.335	7.338	*	741.953	770.717		Effect	
Fixed coefficients							Size	
CONS	23.897	1.305	*	21.339	26.455	Lower	Mean	Upper
GENDER	2.458	0.419	*	1.637	3.279	1.64	2.46	3.28
FSM	8.695	0.474	*	7.766	9.624	7.77	8.70	9.62
FLU2	-6.993	2.342	*	-11.583	-2.403	-11.58	-6.99	-2.40
FLU3	-3.319	1.469	*	-6.198	-0.440	-6.20	-3.32	-0.44
FLU4	-4.387	1.017	*	-6.380	-2.394	-6.38	-4.39	-2.39
Y2002	-3.939	1.781	*	-7.430	-0.448	-7.43	-3.94	-0.45
PNOTDEPc	-0.283	0.021	*	-0.324	-0.242	-4.56	-3.98	-3.40
SEN1	6.600	0.756	*	5.118	8.082	5.12	6.60	8.08
SEN2	8.369	0.876	*	6.652	10.086	6.65	8.37	10.09
SEN4	7.899	2.092	*	3.799	11.999	3.80	7.90	12.00
SEN5	4.120	1.473	*	1.233	7.007	1.23	4.12	7.01
UNAUTH	0.183	0.010	*	0.163	0.203	4.99	5.59	6.19

Model does not control for prior attainment or pupil attitudes

Table 5. Coefficients for Year 9 authorised absence: model with prior attainment

Authorised Absences		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	106.547	12.541	*	81.967	131.127			
Pupil variance	758.808	6.774	*	745.531	772.085			
Final model								
School variance	118.604	15.164	*	88.883	148.325			
Pupil variance	721.215	8.003	*	705.529	736.901		**Effect**	
Fixed coefficients							**Size**	
CONS	37.652	1.729	*	34.263	41.041	**Lower**	**Mean**	**Upper**
KS2AV	-3.103	0.289	*	-3.669	-2.537	-4.28	-3.62	-2.96
GENDER	1.955	0.467	*	1.040	2.870	1.04	1.96	2.87
FSM	8.138	0.529	*	7.101	9.175	7.10	8.14	9.17
FLU2	-10.213	3.211	*	-16.507	-3.919	-16.51	-10.21	-3.92
FLU3	-5.997	1.668	*	-9.266	-2.728	-9.27	-6.00	-2.73
FLU4	-5.132	1.124	*	-7.335	-2.929	-7.34	-5.13	-2.93
Y2002	-4.020	1.865	*	-7.675	-0.365	-7.68	-4.02	-0.36
PNOTDEPc	-0.251	0.024	*	-0.298	-0.204	-4.20	-3.53	-2.87
SEN1	4.503	0.844	*	2.849	6.157	2.85	4.50	6.16
SEN2	6.715	1.017	*	4.722	8.708	4.72	6.72	8.71
UNAUTH	0.167	0.011	*	0.145	0.189	4.45	5.10	5.76

Percentage reduction = 5% of pupil variance
Model controls for prior attainment
Model does not control for pupil attitudes

Table 6. Coefficients for Year 9 authorised absence: model with ethnicity data

Authorised Absences		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	115.923	15.494	*	85.555	146.291			
Pupil variance	721.177	7.552	*	706.375	735.979			
Final model								
School variance	112.643	16.090	*	81.107	144.179			
Pupil variance	722.323	8.486	*	705.690	738.956		Effect	
Fixed coefficients							Size	
CONS	11.214	4.345	*	2.698	19.730	Lower	Mean	Upper
GENDER	2.574	0.503	*	1.588	3.560	1.59	2.57	3.56
FSM	8.771	0.551	*	7.691	9.851	7.69	8.77	9.85
SEN1	6.020	0.852	*	4.350	7.690	4.35	6.02	7.69
SEN2	9.041	1.053	*	6.977	11.105	6.98	9.04	11.10
PNOTDEPC	-0.268	0.025	*	-0.317	-0.219	-4.58	-3.88	-3.17
BCARIB	-7.804	1.408	*	-10.564	-5.044	-10.56	-7.80	-5.04
CHINESE	-11.076	3.560	*	-18.054	-4.098	-18.05	-11.08	-4.10
Y2003	5.045	2.074	*	0.980	9.110	0.98	5.05	9.11
PWHITE	0.127	0.050	*	0.029	0.225	0.84	3.70	6.55
UNAUTH	0.188	0.013	*	0.163	0.213	4.97	5.75	6.53
BAFRICAN	-12.450	1.501	*	-15.392	-9.508	-15.39	-12.45	-9.51
BOTHER	-6.357	2.224	*	-10.716	-1.998	-10.72	-6.36	-2.00
INDIAN	-6.749	1.241	*	-9.181	-4.317	-9.18	-6.75	-4.32
PAKISTANI	-3.774	1.172	*	-6.071	-1.477	-6.07	-3.77	-1.48
BANGLADESHI	-5.380	2.117	*	-9.529	-1.231	-9.53	-5.38	-1.23

Percentage reduction = 0% of pupil variance
Model does not control for prior attainment or pupil attitudes

Table 7. Coefficients for Year 10 unauthorised absence model

Unauthorised Absences		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	69.176	8.613	*	52.295	86.057			
Pupil variance	490.786	4.656	*	481.660	499.912			
Final model								
School variance	35.564	4.653	*	26.444	44.684			
Pupil variance	478.336	4.538	*	469.442	487.230		Effect	
Fixed coefficients							Size	
CONS	3.454	1.055	*	1.386	5.522	**Lower**	**Mean**	**Upper**
FSM	4.070	0.389	*	3.308	4.832	3.31	4.07	4.83
FLU3	-5.153	1.047	*	-7.205	-3.101	-7.21	-5.15	-3.10
FLU4	-3.519	0.748	*	-4.985	-2.053	-4.99	-3.52	-2.05
YEAR3	2.705	1.276	*	0.204	5.206	0.20	2.71	5.21
PNOTDEP	-0.146	0.014	*	-0.173	-0.119	-2.84	-2.39	-1.94
SEN1	5.196	0.604	*	4.012	6.380	4.01	5.20	6.38
SEN2	8.860	0.705	*	7.478	10.242	7.48	8.86	10.24
SEN5	6.500	0.973	*	4.593	8.407	4.59	6.50	8.41
SWEST	16.666	2.727	*	11.321	22.011	11.32	16.67	22.01
SMALL	-2.894	1.102	*	-5.054	-0.734	-5.05	-2.89	-0.73
LOW	5.423	1.159	*	3.151	7.695	3.15	5.42	7.69
BIPPH1	4.082	1.942	*	0.276	7.888	0.28	4.08	7.89
YEAR2	-3.598	1.437	*	-6.415	-0.781	-6.41	-3.60	-0.78

Percentage reduction = 3% of pupil variance
Model does not control for prior attainment or pupil attitudes

Table 8. Coefficients for Year 9 unauthorised absence model

Unauthorised Absences		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	140.183	16.330	*	108.176	172.190			
Pupil variance	349.598	3.393	*	342.948	356.248			
Final model								
School variance	137.684	16.260	*	105.814	169.554			
Pupil variance	339.186	3.320	*	332.679	345.693		Effect	
Fixed coefficients							Size	
CONS	-0.667	2.073		-4.730	3.396	Lower	Mean	Upper
FSM	3.023	0.323	*	2.390	3.656	2.39	3.02	3.66
FLU2	-3.543	1.573	*	-6.626	-0.460	-6.63	-3.54	-0.46
FLU3	-4.078	0.989	*	-6.016	-2.140	-6.02	-4.08	-2.14
FLU4	-4.531	0.688	*	-5.879	-3.183	-5.88	-4.53	-3.18
PCFSM	0.150	0.065	*	0.023	0.277	0.02	0.15	0.28
PNOTDEP	-0.061	0.014	*	-0.088	-0.034	-1.24	-0.86	-0.47
SEN1	2.896	0.510	*	1.896	3.896	1.90	2.90	3.90
SEN2	5.260	0.595	*	4.094	6.426	4.09	5.26	6.43
SEN5	2.845	0.994	*	0.897	4.793	0.90	2.85	4.79
AUTH	0.085	0.005	*	0.075	0.095	3.18	3.60	4.01

Percentage reduction = 3% of pupil variance
Model does not control for prior attainment or pupil attitudes

Table 9. Coefficients for Year 10 unauthorised absence: model with ethnicity data

Unauthorised Absences		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	80.660	12.051	*	57.040	104.280			
Pupil variance	414.515	5.070	*	404.578	424.452			
Final model								
School variance	46.167	7.103	*	32.245	60.089			
Pupil variance	402.699	4.926	*	393.044	412.354		**Effect**	
Fixed coefficients							**Size**	
CONS	2.441	1.308		-0.123	5.005	**Lower**	**Mean**	**Upper**
FSM	3.670	0.453	*	2.782	4.558	2.78	3.67	4.56
YEAR3	5.921	1.486	*	3.008	8.834	3.01	5.92	8.83
PNOTDEP	-0.112	0.017	*	-0.145	-0.079	-2.67	-2.05	-1.44
BAFRICAN	-4.001	1.387	*	-6.720	-1.282	-6.72	-4.00	-1.28
PAKISTANI	-3.395	0.920	*	-5.198	-1.592	-5.20	-3.40	-1.59
SWEST	26.993	4.211	*	18.739	35.247	18.74	26.99	35.25
AUTHAB	0.080	0.006	*	0.068	0.092	3.04	3.56	4.08

Percentage reduction = 3% of pupil variance
Model does not control for prior attainment or pupil attitudes

Table 10. Coefficients for Year 9 unauthorised absence: model with ethnicity data

Unauthorised Absences		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	164.609	21.533	*	122.404	206.814			
Pupil variance	320.588	3.734	*	313.269	327.907			
Final model								
School variance	173.415	22.910	*	128.511	218.319			
Pupil variance	298.769	3.511	*	291.887	305.651		Effect	
Fixed coefficients							Size	
CONS	-1.325	2.597		-6.415	3.765	Lower	Mean	Upper
FSM	2.869	0.356	*	2.171	3.567	2.17	2.87	3.57
SEN1	3.804	0.548	*	2.730	4.878	2.73	3.80	4.88
SEN2	4.924	0.677	*	3.597	6.251	3.60	4.92	6.25
FLU4	-3.871	0.680	*	-5.204	-2.538	-5.20	-3.87	-2.54
PNOTDEPC	-0.037	0.016	*	-0.068	-0.006	-0.99	-0.54	-0.08
BAFRICAN	-7.083	1.606	*	-10.231	-3.935	-10.23	-7.08	-3.94
AUTHAB	0.081	0.005	*	0.071	0.091	3.01	3.42	3.84
PCFSM	0.187	0.082	*	0.026	0.348	0.50	3.59	6.68
SEXBLAFRIC	5.107	1.928	*	1.328	8.886	1.33	5.11	8.89

Percentage reduction = 7% of pupil variance
Model does not control for prior attainment or pupil attitudes

Table 11. Coefficients for Year 10 unauthorised absence: model with prior attainment

Unauthorised Absences		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	69.176	8.613	*	52.295	86.057			
Pupil variance	490.786	4.656	*	481.660	499.912			
Final model								
School variance	37.197	4.873	*	27.646	46.748			
Pupil variance	368.482	3.654	*	361.320	375.644		Effect	
Fixed coefficients							Size	
CONS	16.247	1.148	*	13.997	18.497	Lower	Mean	Upper
KS3AV	-2.746	0.140	*	-3.020	-2.472	-4.90	-4.45	-4.01
FSM	2.721	0.361	*	2.013	3.429	2.01	2.72	3.43
FLU3	-6.081	1.003	*	-8.047	-4.115	-8.05	-6.08	-4.12
FLU4	-2.732	0.700	*	-4.104	-1.360	-4.10	-2.73	-1.36
YEAR3	4.484	1.093	*	2.342	6.626	2.34	4.48	6.63
PNOTDEP	-0.096	0.013	*	-0.121	-0.071	-1.99	-1.57	-1.15
SEN1	1.596	0.562	*	0.494	2.698	0.49	1.60	2.70
SEN2	4.753	0.674	*	3.432	6.074	3.43	4.75	6.07
SWEST	16.131	2.757	*	10.727	21.535	10.73	16.13	21.53
SMALL	-3.272	1.134	*	-5.495	-1.049	-5.49	-3.27	-1.05
LOW	4.089	1.158	*	1.819	6.359	1.82	4.09	6.36

Percentage reduction = 25% of pupil variance
Model controls for prior attainment
Model does not control for pupil attitudes

Table 12. Coefficients for Year 9 unauthorised absence: model with prior attainment

Unauthorised Absences		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	140.183	16.330	*	108.176	172.190			
Pupil variance	349.598	3.393	*	342.948	356.248			
Final model								
School variance	164.490	19.841	*	125.602	203.378			
Pupil variance	332.941	3.713	*	325.664	340.218		Effect	
Fixed coefficients							Size	
CONS	5.119	2.500	*	0.219	10.019	Lower	Mean	Upper
KS2AV	-1.502	0.198	*	-1.890	-1.114	-2.20	-1.75	-1.30
FSM	2.597	0.365	*	1.882	3.312	1.88	2.60	3.31
FLU2	-5.002	2.192	*	-9.298	-0.706	-9.30	-5.00	-0.71
FLU3	-4.700	1.140	*	-6.934	-2.466	-6.93	-4.70	-2.47
FLU4	-4.993	0.775	*	-6.512	-3.474	-6.51	-4.99	-3.47
PCFSM	0.171	0.075	*	0.024	0.318	0.02	0.17	0.32
PNOTDEPC	-0.042	0.016	*	-0.073	-0.011	-1.03	-0.59	-0.15
SEN1	1.956	0.576	*	0.827	3.085	0.83	1.96	3.08
SEN2	3.771	0.695	*	2.409	5.133	2.41	3.77	5.13
AUTH	0.079	0.005	*	0.069	0.089	2.93	3.34	3.76

Percentage reduction = 4% of pupil variance
Model controls for prior attainment
Model does not control for pupil attitudes

Table 13. Coefficients for Year 10 total absence

Total Absences		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	264.525	32.567	*	200.694	328.356			
Pupil variance	1596.922	15.192	*	1567.146	1626.698			
Final model								
School variance	152.641	19.503	*	114.415	190.867			
Pupil variance	1497.900	14.211	*	1470.046	1525.754		**Effect**	
Fixed coefficients							**Size**	
CONS	26.724	1.761	*	23.272	30.176	**Lower**	**Mean**	**Upper**
GENDER	4.084	0.578	*	2.951	5.217	2.95	4.08	5.22
FSM	12.655	0.689	*	11.305	14.005	11.30	12.66	14.01
FLU2	-12.722	3.062	*	-18.724	-6.720	-18.72	-12.72	-6.72
FLU3	-14.950	1.890	*	-18.654	-11.246	-18.65	-14.95	-11.25
FLU4	-13.737	1.345	*	-16.373	-11.101	-16.37	-13.74	-11.10
YEAR3	6.930	2.187	*	2.643	11.217	2.64	6.93	11.22
PNOTDEPC	-0.485	0.026	*	-0.536	-0.434	-8.67	-7.85	-7.02
SEN1	13.077	1.072	*	10.976	15.178	10.98	13.08	15.18
SEN2	18.437	1.252	*	15.983	20.891	15.98	18.44	20.89
SEN5	15.237	1.724	*	11.858	18.616	11.86	15.24	18.62
LOW	6.213	2.432	*	1.446	10.980	1.45	6.21	10.98
HIGH	-10.655	4.575	*	-19.622	-1.688	-19.62	-10.66	-1.69
PUNEMP	-2.204	0.793	*	-3.758	-0.650	-7.75	-4.54	-1.34
SWEST	21.502	5.604	*	10.518	32.486	10.52	21.50	32.49

Percentage reduction = 6% of pupil variance
Model does not control for prior attainment or pupil attitudes

Table 14. Coefficients for Year 9 total absence

Total Absences		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	269.268	32.449	*	205.668	332.868			
Pupil variance	1314.877	12.759	*	1289.869	1339.885			
Final model								
School variance	230.071	27.975	*	175.240	284.902			
Pupil variance	1238.174	12.014	*	1214.627	1261.721		Effect	
Fixed coefficients							Size	
CONS	30.113	1.847	*	26.493	33.733	Lower	Mean	Upper
GENDER	3.151	0.536	*	2.100	4.202	2.10	3.15	4.20
FSM	13.288	0.604	*	12.104	14.472	12.10	13.29	14.47
SEN1	10.828	0.966	*	8.935	12.721	8.93	10.83	12.72
SEN2	15.651	1.118	*	13.460	17.842	13.46	15.65	17.84
FLU4	-9.899	1.304	*	-12.455	-7.343	-12.45	-9.90	-7.34
NWEST	7.249	2.958	*	1.451	13.047	1.45	7.25	13.05
PNOTDEPc	-0.384	0.027	*	-0.437	-0.331	-6.15	-5.41	-4.66
Y2002	-6.551	2.506	*	-11.463	-1.639	-11.46	-6.55	-1.64
FLU2	-11.472	2.999	*	-17.350	-5.594	-17.35	-11.47	-5.59
FLU3	-8.255	1.882	*	-11.944	-4.566	-11.94	-8.26	-4.57
SEN4	10.726	2.677	*	5.479	15.973	5.48	10.73	15.97
SEN5	7.920	1.885	*	4.225	11.615	4.23	7.92	11.61

Percentage reduction = 6% of pupil variance
Model does not control for prior attainment or pupil attitudes

Table 15. Coefficients for Year 10 total absence: model with prior attainment

Total Absences		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	264.525	32.567	*	200.694	328.356			
Pupil variance	1596.922	15.192	*	1567.146	1626.698			
Final model								
School variance	134.506	17.516	*	100.175	168.837			
Pupil variance	1223.994	12.137	*	1200.205	1247.783		Effect	
Fixed coefficients							Size	
CONS	67.727	1.942	*	63.921	71.533	Lower	Mean	Upper
KS3AV	-8.290	0.256	*	-8.792	-7.788	-14.25	-13.44	-12.62
GENDER	4.472	0.541	*	3.412	5.532	3.41	4.47	5.53
FSM	9.439	0.658	*	8.149	10.729	8.15	9.44	10.73
FLU2	-17.543	3.283	*	-23.978	-11.108	-23.98	-17.54	-11.11
FLU3	-18.219	1.861	*	-21.867	-14.571	-21.87	-18.22	-14.57
FLU4	-11.665	1.286	*	-14.186	-9.144	-14.19	-11.67	-9.14
YEAR3	8.891	2.057	*	4.859	12.923	4.86	8.89	12.92
PNOTDEPC	-0.354	0.024	*	-0.401	-0.307	-6.49	-5.73	-4.97
SEN1	4.214	1.025	*	2.205	6.223	2.21	4.21	6.22
SEN2	8.497	1.231	*	6.084	10.910	6.08	8.50	10.91
PUNEMPC	-1.926	0.692	*	-3.282	-0.570	-6.77	-3.97	-1.17
SWEST	22.154	5.154	*	12.052	32.256	12.05	22.15	32.26

Percentage reduction = 23% of pupil variance
Model controls for prior attainment
Model does not control for pupil attitudes

Table 16. Coefficients for Year 10 total absence: model with ethnicity data

Total Absences		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	301.489	44.639	*	213.997	388.981			
Pupil variance	1478.538	18.087	*	1443.087	1513.989			
Final model								
School variance	176.894	27.254	*	123.476	230.312			
Pupil variance	1397.081	17.088	*	1363.589	1430.573		Effect	
Fixed coefficients							Size	
CONS	27.057	2.397	*	22.359	31.755	Lower	Mean	Upper
GENDER	3.165	0.711	*	1.771	4.559	1.77	3.17	4.56
FSM	13.623	0.845	*	11.967	15.279	11.97	13.62	15.28
FLU3	-5.444	2.600	*	-10.540	-0.348	-10.54	-5.44	-0.35
FLU4	-8.008	2.026	*	-11.979	-4.037	-11.98	-8.01	-4.04
YEAR3	12.702	2.896	*	7.026	18.378	7.03	12.70	18.38
PNOTDEPC	-0.479	0.031	*	-0.540	-0.418	-9.90	-8.79	-7.67
BAFRICAN	-22.233	2.707	*	-27.539	-16.927	-27.54	-22.23	-16.93
PAKISTANI	-11.072	2.017	*	-15.025	-7.119	-15.03	-11.07	-7.12
INDIAN	-10.998	2.735	*	-16.359	-5.637	-16.36	-11.00	-5.64
BANGLADESHI	-8.018	3.434	*	-14.749	-1.287	-14.75	-8.02	-1.29
BCARIB	-10.011	2.650	*	-15.205	-4.817	-15.21	-10.01	-4.82
CHINESE	-20.870	5.856	*	-32.348	-9.392	-32.35	-20.87	-9.39
OTHER	-8.297	1.991	*	-12.199	-4.395	-12.20	-8.30	-4.39
UNKNOWN	10.517	2.537	*	5.544	15.490	5.54	10.52	15.49
SWEST	44.883	8.206	*	28.799	60.967	28.80	44.88	60.97

Percentage reduction = 19% of pupil variance
Model does not control for prior attainment or pupil attitudes

Table 17. Coefficients for Year 9 total absence: model with prior attainment

Total Absences		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	269.268	32.449	*	205.668	332.868			
Pupil variance	1314.877	12.759	*	1289.869	1339.885			
Final model								
School variance	242.403	30.303	*	183.009	301.797			
Pupil variance	1182.735	13.125	*	1157.010	1208.460		Effect	
Fixed coefficients							Size	
CONS	51.677	2.426	*	46.922	56.432	Lower	Mean	Upper
KS2AV	-5.184	0.369	*	-5.907	-4.461	-6.88	-6.04	-5.20
GENDER	2.638	0.599	*	1.464	3.812	1.46	2.64	3.81
FSM	12.130	0.676	*	10.805	13.455	10.81	12.13	13.45
SEN1	7.266	1.081	*	5.147	9.385	5.15	7.27	9.38
SEN2	11.831	1.301	*	9.281	14.381	9.28	11.83	14.38
FLU4	-11.039	1.443	*	-13.867	-8.211	-13.87	-11.04	-8.21
NWEST	7.776	3.089	*	1.722	13.830	1.72	7.78	13.83
PNOTDEP	-0.323	0.030	*	-0.382	-0.264	-5.38	-4.55	-3.72
Y2002	-7.057	2.645	*	-12.241	-1.873	-12.24	-7.06	-1.87
FLU2	-16.395	4.116	*	-24.462	-8.328	-24.46	-16.40	-8.33
FLU3	-11.774	2.139	*	-15.966	-7.582	-15.97	-11.77	-7.58

Percentage reduction = 10% of pupil variance
Model controls for prior attainment
Model does not control for pupil attitudes

Table 18. Coefficients for Year 9 total absence: model with ethnicity data

Total Absences		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	342.030	46.530	*	250.831	433.229			
Pupil variance	1238.508	14.516	*	1210.057	1266.959			
Final model								
School variance	282.936	38.973	*	206.549	359.323			
Pupil variance	1153.355	13.517	*	1126.862	1179.848		Effect	
Fixed coefficients							Size	
CONS	26.349	2.043	*	22.345	30.353	Lower	Mean	Upper
GENDER	3.522	0.635	*	2.277	4.767	2.28	3.52	4.77
FSM	13.342	0.693	*	11.984	14.700	11.98	13.34	14.70
SEN1	11.320	1.074	*	9.215	13.425	9.21	11.32	13.43
SEN2	15.801	1.323	*	13.208	18.394	13.21	15.80	18.39
FLU4	-5.989	1.437	*	-8.806	-3.172	-8.81	-5.99	-3.17
PNOTDEPC	-0.336	0.031	*	-0.397	-0.275	-5.72	-4.85	-3.97
Y2003	9.520	3.203	*	3.242	15.798	3.24	9.52	15.80
BCARIB	-9.907	1.777	*	-13.390	-6.424	-13.39	-9.91	-6.42
CHINESE	-16.422	4.520	*	-25.281	-7.563	-25.28	-16.42	-7.56
FLU2	-7.398	2.993	*	-13.264	-1.532	-13.26	-7.40	-1.53
BAFRICAN	-18.371	1.900	*	-22.095	-14.647	-22.10	-18.37	-14.65
BOTHER	-6.117	2.811	*	-11.627	-0.607	-11.63	-6.12	-0.61
INDIAN	-8.788	1.632	*	-11.987	-5.589	-11.99	-8.79	-5.59
PAKISTANI	-5.726	1.527	*	-8.719	-2.733	-8.72	-5.73	-2.73
BANGLADESHI	-8.634	2.698	*	-13.922	-3.346	-13.92	-8.63	-3.35

Percentage reduction = 7% of pupil variance
Model does not control for prior attainment or pupil attitudes

Table 19. Coefficients for Year 11 model: capped 8 total GCSE score

Capped 8 Total score		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	40.843	4.937	*	31.166	50.520			
Pupil variance	189.720	1.752	*	186.286	193.154			
Final model								
School variance	26.888	4.295	*	18.470	35.306			
School KS3 covar.	-3.463	0.664	*	-4.764	-2.162			
School KS3 variance	0.573	0.113	*	0.352	0.794			
Pupil variance	52.173	0.519	*	51.156	53.190		**Effect**	
Fixed coefficients							**Size**	
CONS	35.483	0.326	*	34.844	36.122	**Lower**	**Mean**	**Upper**
KS3AVc	9.546	0.086	*	9.377	9.715	15.20	15.47	15.74
GENDER	2.826	0.112	*	2.606	3.046	2.61	2.83	3.05
FSM	-0.854	0.137	*	-1.123	-0.585	-1.12	-0.85	-0.59
FLU2	5.970	0.704	*	4.590	7.350	4.59	5.97	7.35
FLU3	4.391	0.397	*	3.613	5.169	3.61	4.39	5.17
FLU4	4.279	0.269	*	3.752	4.806	3.75	4.28	4.81
YEAR3	-1.428	0.440	*	-2.290	-0.566	-2.29	-1.43	-0.57
AUTHAB	0.041	0.004	*	0.033	0.049	1.40	1.73	2.06
UPTO2WEEKS	-0.487	0.160	*	-0.801	-0.173	-0.80	-0.49	-0.17
UPTO3WEEKS	-0.851	0.180	*	-1.204	-0.498	-1.20	-0.85	-0.50
UPTO4WEEKS	-1.490	0.209	*	-1.900	-1.080	-1.90	-1.49	-1.08
UPTO5WEEKS	-1.829	0.241	*	-2.301	-1.357	-2.30	-1.83	-1.36
5WEEKS+	-3.373	0.274	*	-3.910	-2.836	-3.91	-3.37	-2.84
TOTABS	-0.092	0.003	*	-0.098	-0.086	-5.47	-5.14	-4.81
PNOTDEPc	0.059	0.005	*	0.049	0.069	0.81	0.97	1.13

Percentage reduction = 72% of pupil variance
Model controls for prior attainment
Model does not control for pupil attitudes

Table 20. Coefficients for Year 11 model: total GCSE score

Capped 8 Total score		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	71.399	8.624	*	54.496	88.302			
Pupil variance	314.108	2.901	*	308.422	319.794			
Final model								
School variance	62.489	9.436	*	43.994	80.984			
School KS3 covar.	-11.924	1.926	*	-15.699	-8.149			
School KS3 variance	2.952	0.044	*	2.867	3.037			
Pupil variance	88.337	0.880	*	86.612	90.062		Effect	
Fixed coefficients							Size	
CONS	40.271	0.380	*	39.526	41.016	Lower	Mean	Upper
KS3AVc	11.939	0.175	*	11.596	12.282	18.79	19.35	19.91
GENDER	3.720	0.147	*	3.432	4.008	3.43	3.72	4.01
FSM	-1.109	0.179	*	-1.460	-0.758	-1.46	-1.11	-0.76
FLU2	7.089	0.921	*	5.284	8.894	5.28	7.09	8.89
FLU3	5.494	0.522	*	4.471	6.517	4.47	5.49	6.52
FLU4	5.744	0.357	*	5.044	6.444	5.04	5.74	6.44
AUTHAB	0.041	0.005	*	0.031	0.051	1.32	1.73	2.15
UPTO2WEEKS	-1.023	0.205	*	-1.425	-0.621	-1.42	-1.02	-0.62
UPTO3WEEKS	-1.699	0.234	*	-2.158	-1.240	-2.16	-1.70	-1.24
UPTO4WEEKS	-2.796	0.272	*	-3.329	-2.263	-3.33	-2.80	-2.26
UPTO5WEEKS	-3.282	0.314	*	-3.897	-2.667	-3.90	-3.28	-2.67
5WEEKS+	-5.227	0.357	*	-5.927	-4.527	-5.93	-5.23	-4.53
TOTABS	-0.099	0.004	*	-0.107	-0.091	-5.97	-5.53	-5.10
PNOTDEPc	0.077	0.007	*	0.063	0.091	1.15	1.40	1.65
SEXKS3	0.525	0.120	*	0.290	0.760	0.33	0.60	0.86
PWHITEc	-0.058	0.019	*	-0.095	-0.021	-2.43	-1.48	-0.53

Percentage reduction = 72% of pupil variance
Model controls for prior attainment
Model does not control for pupil attitudes

Table 21. Coefficients for Year 11 model: 5+ A*-C grades

5+ A* to C Grades		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	0.48	0.06	*	0.36	0.60			
Final model								
School variance	0.77	0.10	*	0.57	0.97			
School KS2 covar.	-0.49	0.09	*	-0.67	-0.31			
School KS2 variance	0.73	0.12	*	0.49	0.97			
Fixed coefficients							**Odds multiplier**	
CONS	-0.92	0.095	*	-1.107	-0.735	Lower	Mean	Upper
KS3AV	2.746	0.086	*	2.577	2.915	13.16	15.58	18.44
GENDER	0.677	0.049	*	0.581	0.773	1.79	1.97	2.17
FSM	-0.191	0.061	*	-0.311	-0.071	0.73	0.83	0.93
FLU2	1.154	0.405	*	0.360	1.948	1.43	3.17	7.01
FLU3	1.096	0.186	*	0.731	1.461	2.08	2.99	4.31
FLU4	1.094	0.119	*	0.861	1.327	2.36	2.99	3.77
AUTHABC	-0.012	0.002	*	-0.016	-0.008	0.98	0.99	0.99
UNAUTHC	-0.033	0.003	*	-0.039	-0.027	0.96	0.97	0.97
UPTO4WEEKS	-0.202	0.078	*	-0.355	-0.049	0.70	0.82	0.95
UPTO5WEEKS	-0.321	0.095	*	-0.507	-0.135	0.60	0.73	0.873891
5WEEKS+	-0.394	0.120	*	-0.629	-0.159	0.53	0.67	0.853167
PNOTDEPC	0.009	0.002	*	0.005	0.013	1.01	1.01	1.013004

Logistic model
Model controls for prior attainment
Model does not control for pupil attitudes

Table 22. Coefficients for Year 11 model: no GCSE grades above grade C (no C grade)

Multilevel results								
				95% Confidence interval				
Parameter	**Estimate**	**Standard error**	**Sig.**	**Min.**	**Max.**			
Base case								
School variance	0.42	0.05	*	0.32	0.53			
Final model								
School variance	0.32	0.05	*	0.22	0.42			
School KS2 covar.	-0.05	0.04		-0.13	0.02			
School KS2 variance	0.28	0.05	*	0.18	0.37			
Fixed coefficients							**Odds multiplier**	
CONS	-1.69	0.089	*	-1.863	-1.515	Lower	Mean	Upper
KS3AV	-1.826	0.056	*	-1.936	-1.716	0.14	0.16	0.18
GENDER	-0.789	0.049	*	-0.885	-0.693	0.41	0.45	0.50
FSM	0.229	0.053	*	0.125	0.333	1.13	1.26	1.39
FLU2	-1.981	0.286	*	-2.542	-1.420	0.08	0.14	0.24
FLU3	-0.766	0.157	*	-1.074	-0.458	0.34	0.46	0.63
FLU4	-0.801	0.119	*	-1.034	-0.568	0.36	0.45	0.57
AUTHABC	0.008	0.001	*	0.006	0.010	1.01	1.01	1.01
UNAUTHC	0.019	0.002	*	0.015	0.023	1.02	1.02	1.02
UPTO2WEEKS	0.262	0.080	*	0.105	0.419	1.11	1.30	1.52
UPTO3WEEKS	0.296	0.084	*	0.131	0.461	1.14	1.34	1.59
UPTO4WEEKS	0.475	0.092	*	0.295	0.655	1.34	1.61	1.93
UPTO5WEEKS	0.486	0.103	*	0.284	0.688	1.33	1.63	1.989493
5WEEKS+	0.623	0.117	*	0.394	0.852	1.48	1.86	2.345081
PNOTDEPC	-0.009	0.002	*	-0.013	-0.005	0.99	0.99	0.994933

Model controls for prior attainment
Model does not control for pupil attitudes

Table 23. Coefficients for Year 11 model: 5+ A*-C grades with ethnicity data

Capped 8 Total score		Multilevel results						
				95% Confidence interval				
Parameter	**Estimate**	**Standard error**	**Sig.**	**Min.**	**Max.**			
Base case								
School variance	35.361	5.075	*	25.414	45.308			
Pupil variance	185.002	2.086	*	180.913	189.091			
Final model								
School variance	32.031	5.293	*	21.657	42.405			
School KS3 covar.	-4.459	0.937	*	-6.296	-2.622			
School KS3 variance	0.710	0.157	*	0.402	1.018			
Pupil variance	50.508	0.631	*	49.271	51.745		**Effect**	
Fixed coefficients							**Size**	
CONS	-11.687	0.766	*	-13.188	-10.186	**Lower**	**Mean**	**Upper**
KS3AVc	9.545	0.110	*	9.329	9.761	15.12	15.47	15.82
GENDER	2.981	0.138	*	2.711	3.251	2.71	2.98	3.25
FSM	-1.103	0.168	*	-1.432	-0.774	-1.43	-1.10	-0.77
FLU2	3.766	0.975	*	1.855	5.677	1.86	3.77	5.68
FLU3	3.137	0.543	*	2.073	4.201	2.07	3.14	4.20
FLU4	3.178	0.406	*	2.382	3.974	2.38	3.18	3.97
YEAR3	-1.956	0.482	*	-2.901	-1.011	-2.90	-1.96	-1.01
AUTHAB	0.035	0.005	*	0.025	0.045	1.07	1.49	1.90
UPTO2WEEKS	-0.613	0.199	*	-1.003	-0.223	-1.00	-0.61	-0.22
UPTO3WEEKS	-0.851	0.224	*	-1.290	-0.412	-1.29	-0.85	-0.41
UPTO4WEEKS	-1.351	0.256	*	-1.853	-0.849	-1.85	-1.35	-0.85
UPTO5WEEKS	-1.907	0.295	*	-2.485	-1.329	-2.49	-1.91	-1.33
5WEEKS+	-3.366	0.334	*	-4.021	-2.711	-4.02	-3.37	-2.71
TOTABS	-0.087	0.004	*	-0.095	-0.079	-5.34	-4.90	-4.46
PNOTDEPc	0.056	0.006	*	0.044	0.068	0.81	1.03	1.25
BAFRICAN	2.772	0.557	*	1.680	3.864	1.68	2.77	3.86
PAKISTAN	2.177	0.400	*	1.393	2.961	1.39	2.18	2.96
INDIAN	1.705	0.528	*	0.670	2.740	0.67	1.71	2.74
BANGLADESHI	4.261	0.690	*	2.909	5.613	2.91	4.26	5.61
OTHER	1.291	0.391	*	0.525	2.057	0.52	1.29	2.06

Percentage reduction = 73% of pupil variance
Model controls for prior attainment
Model does not control for pupil attitudes

Table 24. Coefficients for Year 9 model: Key Stage 3 average level

KS3 Average	Multilevel results							
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	0.269	0.032	*	0.206	0.332			
Pupil variance	1.142	0.011	*	1.120	1.164			
Final model								
School variance	0.151	0.029	*	0.094	0.208			
School KS3 covar.	-0.039	0.008	*	-0.055	-0.023			
School KS3 variance	0.012	0.002	*	0.008	0.016			
Pupil variance	0.374	0.004	*	0.366	0.382		Effect	
Fixed coefficients							Size	
CONS	4.904	0.030	*	4.845	4.963	**Lower**	**Mean**	**Upper**
KS2AVc	0.983	0.012	*	0.959	1.007	1.11	1.13	1.16
TOTABS	-0.002	0.000	*	-0.002	-0.002	-0.11	-0.10	-0.09
UNAUTH	-0.002	0.000	*	-0.002	-0.002	-0.05	-0.05	-0.04
GENDER	0.112	0.011	*	0.090	0.134	0.09	0.11	0.13
FSM	-0.097	0.013	*	-0.122	-0.072	-0.12	-0.10	-0.07
SEN1	-0.230	0.020	*	-0.269	-0.191	-0.27	-0.23	-0.19
SEN2	-0.354	0.025	*	-0.403	-0.305	-0.40	-0.35	-0.31
FLU4	0.157	0.025	*	0.108	0.206	0.11	0.16	0.21
NWEST	0.087	0.035	*	0.018	0.156	0.02	0.09	0.16
EAST	0.151	0.064	*	0.026	0.276	0.03	0.15	0.28
LOW	-0.152	0.030	*	-0.211	-0.093	-0.21	-0.15	-0.09
PNOTDEPc	0.006	0.001	*	0.004	0.008	0.06	0.09	0.12
2002	0.199	0.030	*	0.140	0.258	0.14	0.20	0.26
UPTO2WKS	-0.073	0.016	*	-0.104	-0.042	-0.10	-0.07	-0.04
UPTO3WKS	-0.116	0.017	*	-0.149	-0.083	-0.15	-0.12	-0.08
UPTO4WKS	-0.122	0.020	*	-0.161	-0.083	-0.16	-0.12	-0.08
UPTO5WKS	-0.156	0.024	*	-0.203	-0.109	-0.20	-0.16	-0.11
5WEEKS+	-0.174	0.028	*	-0.229	-0.119	-0.23	-0.17	-0.12

Percentage reduction = 67% of pupil variance
Model controls for prior attainment
Model does not control for pupil attitudes

Table 25. Coefficients for Year 9 model: Key Stage 3 English

KS3 English Level		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	0.302	0.036	*	0.231	0.373			
Pupil variance	1.394	0.013	*	1.369	1.419			
Final model								
School variance	0.072	0.010	*	0.052	0.092			
School KS3 covar.	0.004	0.005		-0.006	0.014			
School KS3 variance	0.023	0.004	*	0.015	0.031			
Pupil variance	0.695	0.008	*	0.679	0.711		Effect	
Fixed coefficients							Size	
CONS	4.810	0.046	*	4.720	4.900	Lower	Mean	Upper
KS2AVc	0.863	0.017	*	0.830	0.896	0.95	0.99	1.03
TOTABS	-0.002	0.000	*	-0.002	-0.002	-0.11	-0.10	-0.09
UNAUTH	-0.003	0.001	*	-0.005	-0.001	-0.12	-0.07	-0.02
GENDER	0.477	0.015	*	0.448	0.506	0.45	0.48	0.51
FSM	-0.124	0.018	*	-0.159	-0.089	-0.16	-0.12	-0.09
SEN1	-0.332	0.028	*	-0.387	-0.277	-0.39	-0.33	-0.28
SEN2	-0.516	0.034	*	-0.583	-0.449	-0.58	-0.52	-0.45
FLU2	-0.477	0.103	*	-0.679	-0.275	-0.68	-0.48	-0.28
FLU4	0.223	0.035	*	0.154	0.292	0.15	0.22	0.29
LOW	-0.191	0.049	*	-0.287	-0.095	-0.29	-0.19	-0.09
PNOTDEPc	0.007	0.001	*	0.005	0.009	0.07	0.10	0.13
2002	0.180	0.049	*	0.084	0.276	0.08	0.18	0.28
UPTO2WKS	-0.081	0.021	*	-0.122	-0.040	-0.12	-0.08	-0.04
UPTO3WKS	-0.133	0.024	*	-0.180	-0.086	-0.18	-0.13	-0.09
UPTO4WKS	-0.114	0.028	*	-0.169	-0.059	-0.17	-0.11	-0.06
UPTO5WKS	-0.130	0.034	*	-0.197	-0.063	-0.20	-0.13	-0.06
5WEEKS+	-0.190	0.039	*	-0.266	-0.114	-0.27	-0.19	-0.11

Percentage reduction = 50% of pupil variance
Model controls for prior attainment
Model does not control for pupil attitudes

Table 26. Coefficients for Year 9 model: Key Stage 3 mathematics

KS3 Maths Level		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	0.270	0.032	*	0.207	0.333			
Pupil variance	1.555	0.015	*	1.526	1.584			
Final model								
School variance	0.386	0.066	*	0.257	0.515			
School KS3 covar.	-0.102	0.018	*	-0.137	-0.067			
School KS3 variance	0.029	0.005	*	0.019	0.039			
Pupil variance	0.625	0.007	*	0.611	0.639		Effect	
Fixed coefficients							Size	
CONS	5.189	0.054	*	5.083	5.295	**Lower**	**Mean**	**Upper**
KS2AVc	1.157	0.018	*	1.122	1.192	1.27	1.31	1.35
TOTABS	-0.003	0.000	*	-0.003	-0.003	-0.16	-0.15	-0.14
GENDER	-0.053	0.014	*	-0.080	-0.026	-0.08	-0.05	-0.03
FSM	-0.069	0.017	*	-0.102	-0.036	-0.10	-0.07	-0.04
SEN1	-0.194	0.027	*	-0.247	-0.141	-0.25	-0.19	-0.14
SEN2	-0.264	0.032	*	-0.327	-0.201	-0.33	-0.26	-0.20
FLU4	0.188	0.034	*	0.121	0.255	0.12	0.19	0.25
PNOTDEPc	0.004	0.001	*	0.002	0.006	0.03	0.06	0.09
2002	0.110	0.047	*	0.018	0.202	0.02	0.11	0.20
2003	-0.165	0.050	*	-0.263	-0.067	-0.26	-0.17	-0.07
UPTO2WKS	-0.056	0.021	*	-0.097	-0.015	-0.10	-0.06	-0.01
UPTO3WKS	-0.106	0.023	*	-0.151	-0.061	-0.15	-0.11	-0.06
UPTO4WKS	-0.110	0.026	*	-0.161	-0.059	-0.16	-0.11	-0.06
UPTO5WKS	-0.140	0.032	*	-0.203	-0.077	-0.20	-0.14	-0.08
5WEEKS+	-0.153	0.036	*	-0.224	-0.082	-0.22	-0.15	-0.08
PCFSM	-0.006	0.001	*	-0.008	-0.004	-0.01	-0.01	0.00
NWEST	0.109	0.040	*	0.031	0.187	0.03	0.11	0.19
EAST	0.249	0.075	*	0.102	0.396	0.10	0.25	0.40

Percentage reduction = 60% of pupil variance
Model controls for prior attainment
Model does not control for pupil attitudes

Table 27. Likelihood of making at least one level of progress between Key stage 2 and 3

One Level of Progree Between KS2 and KS3		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	0.38	0.06	*	0.26	0.49			
Final model								
School variance	0.20	0.04	*	0.13	0.27			
School KS2 covar.	0.01	0.02		-0.02	0.04			
School KS2 variance	0.04	0.01	*	0.01	0.06			
Fixed coefficients						Odds multiplier		
CONS	1.27	0.158	*	0.959	1.579	**Lower**	**Mean**	**Upper**
KS2AVC	-0.117	0.035	*	-0.186	-0.048	0.83	0.89	0.95
AUTHAB	-0.003	0.001	*	-0.005	-0.001	1.00	1.00	1.00
UNAUTH	-0.009	0.002	*	-0.013	-0.005	0.99	0.99	0.99
UPTO2WKS	-0.267	0.066	*	-0.396	-0.138	0.67	0.77	0.87
UPTO3WKS	-0.507	0.071	*	-0.646	-0.368	0.52	0.60	0.69
UPTO4WKS	-0.445	0.081	*	-0.604	-0.286	0.55	0.64	0.75
UPTO5WKS	-0.578	0.095	*	-0.764	-0.392	0.47	0.56	0.68
5WEEKS+	-0.789	0.108	*	-1.001	-0.577	0.37	0.45	0.56
GENDER	0.324	0.044	*	0.238	0.410	1.27	1.38	1.51
FSM	-0.285	0.048	*	-0.379	-0.191	0.68	0.75	0.83
SEN1	-0.69	0.074	*	-0.835	-0.545	0.43	0.50	0.58
SEN2	-1.009	0.093	*	-1.191	-0.827	0.30	0.36	0.44
SEN4	-0.567	0.182	*	-0.924	-0.210	0.40	0.57	0.81
SEN5	-1.382	0.172	*	-1.719	-1.045	0.18	0.25	0.35
FLU4	0.43	0.095	*	0.244	0.616	1.28	1.54	1.85
PCFSM	-0.011	0.004	*	-0.019	-0.003	0.98	0.99	1.00
SPECIAL	0.291	0.108	*	0.079	0.503	1.08	1.34	1.65
NWEST	0.461	0.113	*	0.240	0.682	1.27	1.59	1.98
EAST	0.498	0.195	*	0.116	0.880	1.12	1.65	2.41
PNOTDEP	0.015	0.002	*	0.011	0.019	1.01	1.02	1.02
Y2003	-0.534	0.100	*	-0.730	-0.338	0.48	0.59	0.71
CHINESE	1.575	0.612	*	0.375	2.775	1.46	4.83	16.03
BAFRICAN	-0.32	0.147	*	-0.608	-0.032	0.54	0.73	0.97

Table 28. Coefficients for Year 9 model: Key Stage 3 average with ethnicity data

KS3 Average		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	0.277	0.039	*	0.201	0.353			
Pupil variance	1.047	0.012	*	1.023	1.071			
Final model								
School variance	0.026	0.004	*	0.018	0.034			
School KS3 covar.	0.005	0.002	*	0.001	0.009			
School KS3 variance	0.012	0.002	*	0.008	0.016			
Pupil variance	0.374	0.005	*	0.364	0.384		Effect	
Fixed coefficients							Size	
CONS	5.173	0.032	*	5.110	5.236	Lower	Mean	Upper
KS2AV	0.974	0.013	*	0.949	0.999	1.09	1.12	1.15
TOTABS	-0.002	0.000	*	-0.002	-0.002	-0.11	-0.10	-0.09
UNAUTH	-0.002	0.001	*	-0.004	0.000	-0.10	-0.05	0.00
GENDER	0.128	0.012	*	0.104	0.152	0.10	0.13	0.15
FSM	-0.096	0.014	*	-0.123	-0.069	-0.12	-0.10	-0.07
SEN1	-0.222	0.021	*	-0.263	-0.181	-0.26	-0.22	-0.18
SEN2	-0.350	0.026	*	-0.401	-0.299	-0.40	-0.35	-0.30
FLU4	0.144	0.026	*	0.093	0.195	0.09	0.14	0.19
NWEST	0.105	0.038	*	0.031	0.179	0.03	0.11	0.18
LOW	-0.165	0.033	*	-0.230	-0.100	-0.23	-0.17	-0.10
PNOTDEP	0.005	0.001	*	0.003	0.007	0.05	0.07	0.10
UPTO2WKS	-0.070	0.017	*	-0.103	-0.037	-0.10	-0.07	-0.04
UPTO3WKS	-0.133	0.019	*	-0.170	-0.096	-0.17	-0.13	-0.10
UPTO4WKS	-0.130	0.022	*	-0.173	-0.087	-0.17	-0.13	-0.09
UPTO5WKS	-0.161	0.026	*	-0.212	-0.110	-0.21	-0.16	-0.11
5WEEKS+	-0.193	0.030	*	-0.252	-0.134	-0.25	-0.19	-0.13
BCARIB	-0.074	0.034	*	-0.141	-0.007	-0.14	-0.07	-0.01
BOTHER	-0.140	0.054	*	-0.246	-0.034	-0.25	-0.14	-0.03
CHINESE	0.300	0.088	*	0.128	0.472	0.13	0.30	0.47
FLU1	-0.496	0.202	*	-0.892	-0.100	-0.89	-0.50	-0.10
FLU2	-0.293	0.078	*	-0.446	-0.140	-0.45	-0.29	-0.14
2003	-0.209	0.034	*	-0.276	-0.142	-0.28	-0.21	-0.14

Percentage reduction = 64% of pupil variance
Model controls for prior attainment
Model does not control for pupil attitudes

Table 29. Likelihood of making at least one level of progress between Key stage 2 and 3 with ethnicity data

One Level of Progress between KS2 and KS3	Multilevel results							
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	0.37	0.05	*	0.28	0.47			
Final model								
School variance	0.20	0.03	*	0.14	0.26			
School KS2 covar.	0.00	0.02		-0.03	0.04			
School KS2 variance	0.05	0.02	*	0.02	0.08			
Fixed coefficients						**Odds multiplier**		
CONS	0.87	0.141	*	0.590	1.142	**Lower**	**Mean**	**Upper**
KS2AVC	-0.098	0.034	*	-0.165	-0.031	0.85	0.91	0.97
AUTHAB	-0.003	0.001	*	-0.005	-0.001	1.00	1.00	1.00
UNAUTH	-0.01	0.001	*	-0.012	-0.008	0.99	0.99	0.99
UPTO2WKS	-0.257	0.060	*	-0.375	-0.139	0.69	0.77	0.87
UPTO3WKS	-0.411	0.065	*	-0.538	-0.284	0.58	0.66	0.75
UPTO4WKS	-0.424	0.074	*	-0.569	-0.279	0.57	0.65	0.76
UPTO5WKS	-0.559	0.087	*	-0.730	-0.388	0.48	0.57	0.68
5WEEKS+	-0.72	0.099	*	-0.914	-0.526	0.40	0.49	0.59
GENDER	0.27	0.040	*	0.192	0.348	1.21	1.31	1.42
FSM	-0.269	0.045	*	-0.357	-0.181	0.70	0.76	0.83
SEN1	-0.702	0.070	*	-0.839	-0.565	0.43	0.50	0.57
SEN2	-0.984	0.086	*	-1.153	-0.815	0.32	0.37	0.44
SEN4	-0.564	0.180	*	-0.917	-0.211	0.40	0.57	0.81
SEN5	-1.163	0.153	*	-1.463	-0.863	0.23	0.31	0.42
FLU2	-0.622	0.256	*	-1.124	-0.120	0.33	0.54	0.886708
FLU4	0.418	0.093	*	0.236	0.600	1.27	1.52	1.822629
PCFSM	-0.013	0.003	*	-0.019	-0.007	0.98	0.99	0.992905
SPECIAL	0.249	0.097	*	0.059	0.439	1.06	1.28	1.551341
NWEST	0.356	0.103	*	0.154	0.558	1.17	1.43	1.746965
EAST	0.494	0.196	*	0.110	0.878	1.12	1.64	2.406468
PNOTDEP	0.016	0.002	*	0.012	0.020	1.01	1.02	1.02012
Y2002	0.464	0.089	*	0.290	0.638	1.34	1.59	1.893525

Table 30. Coefficients for Year 9 model: Key Stage 3 English with ethnicity data

KS3 English Level		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	0.365	0.036	*	0.294	0.436			
Pupil variance	1.417	0.011	*	1.395	1.439			
Final model								
School variance	0.065	0.010	*	0.045	0.085			
School KS3 covar.	0.002	0.005		-0.008	0.012			
School KS3 variance	0.025	0.005	*	0.015	0.035			
Pupil variance	0.713	0.009	*	0.695	0.731		Effect	
Fixed coefficients							Size	
CONS	4.993	0.051	*	4.893	5.093	Lower	Mean	Upper
KS2AV	0.860	0.019	*	0.823	0.897	0.94	0.98	1.02
TOTABS	-0.002	0.001	*	-0.004	0.000	-0.19	-0.10	0.00
UNAUTH	-0.002	0.001	*	-0.004	0.000	-0.09	-0.05	0.00
GENDER	0.491	0.017	*	0.458	0.524	0.46	0.49	0.52
FSM	-0.130	0.019	*	-0.167	-0.093	-0.17	-0.13	-0.09
SEN1	-0.333	0.030	*	-0.392	-0.274	-0.39	-0.33	-0.27
SEN2	-0.505	0.037	*	-0.578	-0.432	-0.58	-0.51	-0.43
FLU2	-0.522	0.108	*	-0.734	-0.310	-0.73	-0.52	-0.31
FLU4	0.161	0.039	*	0.085	0.237	0.08	0.16	0.24
NWEST	0.182	0.060	*	0.064	0.300	0.06	0.18	0.30
LOW	-0.251	0.053	*	-0.355	-0.147	-0.35	-0.25	-0.15
PNOTDEP	0.006	0.001	*	0.004	0.008	0.06	0.09	0.12
2003	-0.165	0.054	*	-0.271	-0.059	-0.27	-0.17	-0.06
UPTO2WKS	-0.082	0.024	*	-0.129	-0.035	-0.13	-0.08	-0.03
UPTO3WKS	-0.155	0.027	*	-0.208	-0.102	-0.21	-0.16	-0.10
UPTO4WKS	-0.122	0.031	*	-0.183	-0.061	-0.18	-0.12	-0.06
UPTO5WKS	-0.129	0.037	*	-0.202	-0.056	-0.20	-0.13	-0.06
5WEEKS+	-0.211	0.043	*	-0.295	-0.127	-0.30	-0.21	-0.13
BOTHER	-0.174	0.076	*	-0.323	-0.025	-0.32	-0.17	-0.03
CHINESE	0.241	0.121	*	0.004	0.478	0.00	0.24	0.48
PAKISTANI	0.098	0.041	*	0.018	0.178	0.02	0.10	0.18
INDIAN	0.144	0.042	*	0.062	0.226	0.06	0.14	0.23
BANGLADESHI	0.203	0.072	*	0.062	0.344	0.06	0.20	0.34
OTHER	0.121	0.048	*	0.027	0.215	0.03	0.12	0.22

Percentage reduction = 49% of pupil variance
Model controls for prior attainment
Model does not control for pupil attitudes

Table 31. Coefficients for Year 9 model: Key Stage 3 mathematics with ethnicity data

KS3 Maths Level		Multilevel results						
				95% Confidence interval				
Parameter	Estimate	Standard error	Sig.	Min.	Max.			
Base case								
School variance	0.355	0.041	*	0.275	0.435			
Pupil variance	1.524	0.012	*	1.500	1.548			
Final model								
School variance	0.037	0.006	*	0.025	0.049			
School KS3 covar.	0.010	0.004	*	0.002	0.018			
School KS3 variance	0.025	0.005	*	0.015	0.035			
Pupil variance	0.619	0.008	*	0.603	0.635		Effect	
Fixed coefficients							Size	
CONS	5.333	0.038	*	5.259	5.407	Lower	Mean	Upper
KS2AV	1.124	0.022	*	1.081	1.167	1.21	1.26	1.31
TOTABS	-0.002	0.000	*	-0.002	-0.002	-0.11	-0.10	-0.09
UNAUTH	-0.002	0.001	*	-0.004	0.000	-0.09	-0.05	0.00
GENDER	-0.032	0.016	*	-0.063	-0.001	-0.06	-0.03	0.00
FSM	-0.069	0.018	*	-0.104	-0.034	-0.10	-0.07	-0.03
SEN1	-0.183	0.028	*	-0.238	-0.128	-0.24	-0.18	-0.13
SEN2	-0.285	0.035	*	-0.354	-0.216	-0.35	-0.29	-0.22
FLU4	0.141	0.036	*	0.070	0.212	0.07	0.14	0.21
LOW	-0.094	0.040	*	-0.172	-0.016	-0.17	-0.09	-0.02
PNOTDEP	0.004	0.001	*	0.002	0.006	0.03	0.06	0.09
UPTO2WKS	-0.065	0.023	*	-0.110	-0.020	-0.11	-0.07	-0.02
UPTO3WKS	-0.134	0.025	*	-0.183	-0.085	-0.18	-0.13	-0.09
UPTO4WKS	-0.133	0.029	*	-0.190	-0.076	-0.19	-0.13	-0.08
UPTO5WKS	-0.185	0.035	*	-0.254	-0.116	-0.25	-0.19	-0.12
5WEEKS+	-0.195	0.041	*	-0.275	-0.115	-0.28	-0.20	-0.11
BCARIB	-0.202	0.045	*	-0.290	-0.114	-0.29	-0.20	-0.11
CHINESE	0.533	0.122	*	0.294	0.772	0.29	0.53	0.77
2003	-0.283	0.040	*	-0.361	-0.205	-0.36	-0.28	-0.20
BAFRICAN	-0.165	0.056	*	-0.275	-0.055	-0.27	-0.17	-0.06
INDIAN	0.146	0.038	*	0.072	0.220	0.07	0.15	0.22
SEXKS2AV	0.058	0.020	*	0.019	0.097	0.02	0.05	0.08

Percentage reduction = 59% of pupil variance
Model controls for prior attainment
Model does not control for pupil attitudes

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