

Identifying Components of Attainment Gaps

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1 Introduction

1.1 Background

The purpose of this research report is to explore the data collected as part of the Longitudinal Study of Young People in England (LSYPE) to increase understanding of a number of themes surrounding pupil attainment at the end of Key Stage Four (KS4). While it works towards decomposing gaps between the performance of pupils known to be eligible for Free School Meals (FSM) and their peers, as well as gaps between White British pupils and pupils from underperforming ethnic groups, the research does not attempt to answer any one specific question. There are also sections looking at aspirations and those pupils who get the fewest qualifications at the end of KS4, so the research explores a wide range of topics.

Given the nature of the source data, the report does not provide figures that will be updated on a regular basis - this is intended as a standalone report.

1.2 The Longitudinal Study of Young People in England

Much of the analysis carried out in this report is based on LSYPE data. The LSYPE is a panel study, managed by DCSF, which involves over 15,000 young people. They and their families have been interviewed annually since 2004, at which point they were aged 13 or 14, making them the cohort of pupils who reached the end of KS4 in 2006. The analysis in this report, except where otherwise stated, is based on questions asked in that first wave of the study when the young people were half way through secondary school.

LSYPE collects a very broad range of information, including details about parental background as well as the attitudes, behaviours and aspirations of the young person and their parent. This data has been matched to the National Pupil Database (NPD), which contains pupil level attainment as well as both pupil and school characteristics, such as ethnicity, information about Special Education Needs (SEN) and school level prior attainment.

The two datasets together allow comparison of the relative importance of the different types of factors in determining GCSE attainment outcomes. We can see how levels of parental education compares with gender, how family composition compares with the neighbourhood that a pupil lives in and how household income compares with the pupil's age within their school year¹.

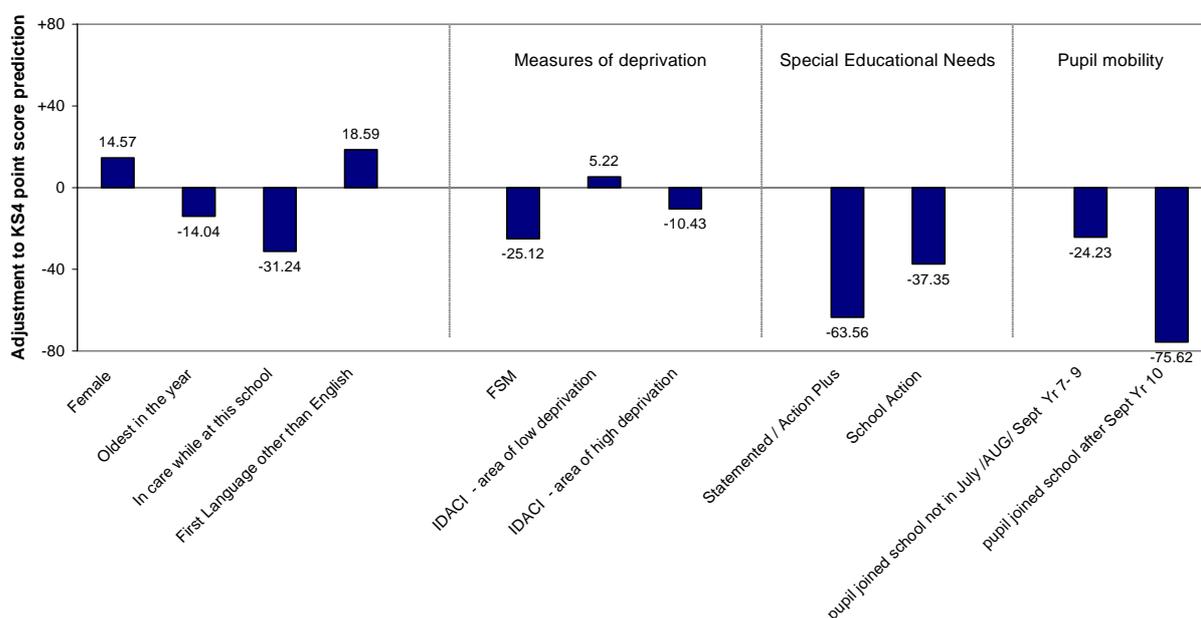
1.3 Models of pupil attainment and progression

Using NPD information alone, models can be constructed which show the impact of each of the Pupil Level Annual School Census (PLASC) factors, as well as Key

¹ For more information on LSYPE, see www.esds.ac.uk/longitudinal/access/lstype/L5545.asp or <https://ilsype.gide.net/workspaces/public/wiki/Welcome> where the data can be explored.

Stage 2 (KS2) attainment, on GCSE outcomes, after controlling for the other factors. One such NPD model is used to derive Contextual Value Added (CVA) scores for schools. These take account of pupil factors outside the school's control for which data is available on the NPD that have an impact on attainment. Annex A gives a list of factors included in the CVA model² and their coefficients, but Figure 1.1 below shows the impacts of some of the basic pupil characteristics on progress between KS2 and KS4, once prior attainment and the impact of each of the other factors is controlled for.

Figure 1.1: Adjustments made due to basic pupil characteristics in KS2-4 CVA, 2006



Taking gender as an example, the coefficient for female is +14.6 points. This suggests that females make, on average, 14.6 points more progress than males with otherwise the same characteristics and prior attainment. To interpret these figures, consider that one grade in one GCSE subject is worth six points. Therefore, 12 points roughly equates to the equivalent of getting two A grades as opposed to two B grades.

Girls and those pupils who have English as an additional language make more progress than their peers once prior attainment and characteristics are accounted for. Pupils who are oldest in the year, in care, deprived, have a special educational need or who move between schools make less progress on average.

For further details on the CVA methodology and ready reckoners which show how scores are calculated, see the guidance on the Achievement and Attainment Tables website: www.dcsf.gov.uk/performance/tables.

² CVA models for different cohorts have slightly different coefficients; for the purposes of this report, 'the CVA model' refers to the 2006 KS2-4 model.

1.4 Definitions of common terms

1) 5 A*-C including English and Maths

Five or more GCSE and equivalents³ at grades A*-C including GCSE English and Maths.

2) Capped eight best points score

The points for a pupil's best eight GCSE or equivalent grades. Table 1.2 gives the points awarded for each grade at GCSE. Further information on how the capped point score is calculated and points scores for common equivalencies can be found on the Achievement and Attainment Tables website (see previous page).

Table 1.2: GCSE points scores

GCSE grade	Points score
A*	58
A	52
B	46
C	40
D	34
E	28
F	22
G	16

3) EAL

English as an additional language.

4) FSM

Free School Meals. Free School Meals are offered to children of families who are in receipt of Employment and Support Allowance (Income Related), Income Support, Income Based Job Seekers Allowance or Guaranteed Element of State Pension Credit. Pupils are recorded as eligible only if a claim for free school meals has been made by them or on their behalf by parents and either (a) the relevant authority has confirmed their eligibility and a free school meal is currently being provided for them, or (b) the school or the LEA have seen the necessary documentation (for example, an Income Support order book) that supports their eligibility, and the administration of the free meal is to follow as a matter of process.

5) IDACI

IDACI (Income Deprivation Affecting Children Index) is part of the Indices of Multiple Deprivation (IMD). The index is the proportion of a super output

³ Information on all accredited qualifications approved by the Secretary of State which count as equivalencies can be found at the QCA website at: <http://www.ndaq.org.uk>

area's children aged under 16 living in 'income deprived' families. This is defined as families in receipt of Income Support and Job Seekers Allowance (Income Based) or families in receipt of Working Family Tax Credit/Disabled Persons Tax credit whose equivalised income is below 60 per cent of the median before housing costs. The IDACI scores are attached to pupils using school census information on home postcode.

6) LSYPE

The Longitudinal Study of Young People in England.

7) NPD

The National Pupil Database: a combination of PLASC and the attainment records of pupils. See Chapter 2 for further details.

8) NS-SEC

National Statistics – Socio-Economic Classification⁴.

9) PLASC

Pupil Level Annual School Census.

10) SEN

Special Educational Needs. There are three types of SEN:

- a) School Action – a teacher identifies a child with SEN and provides interventions.
- b) School Action Plus – as with school action, but with help from external services.
- c) Statemented – the Local Authority provides written statement of SEN needs of the child.

11) Underperforming ethnic minority groups

These are the ethnic groups that DCSF has identified as underperforming and which Local Authorities set targets for. They are Black African, White and Black African, Black Caribbean, White and Black Caribbean, Pakistani, Any other White background, Any other Black background, Gypsy, Roma and Traveller of Irish Heritage⁵.

⁴ For more on NS-SEC, please see <http://www.ons.gov.uk/about-statistics/classifications/current/ns-sec/index.html>. For the purposes of LSYPE, the NS-SEC of a pupil's family is the NS-SEC of the Household Reference Person, where the Household Reference Person is selected using the following criteria in order until a single person is chosen: (i) the person who owns/rents the home, then; (ii) the person with the highest income in the household, then; (iii) the oldest person in the household.

⁵ See page 21 of <http://www.standards.dcsf.gov.uk/ts/docs/tsguidance2011part1.pdf>

2 Models of progress using PLASC variables

- The 2006 KS2-4 CVA model can be replicated using just the LSYPE sample to assess whether the LSYPE sample is representative of the national population for that year.
- The models have some differences in areas where the LSYPE sample has only small numbers, such as Gypsy Romany pupils or those pupils who have been in care.
- The FSM coefficient is slightly different, but this is probably partly due to the oversampling of schools with high FSM rates in LSYPE.
- There is nothing in the LSYPE version of the model to suggest that it is especially unrepresentative of the population. So long as conclusions are only drawn carefully, the chapter concludes that it is reasonable to assume that patterns observed in the sample reflect those in the wider population.

2.1 Background to PLASC and the CVA models

Every school is required to supply information to the DCSF each January through the Annual Schools Census (ASC). In January 2002 the Pupil Level Annual Schools Census (PLASC) was created as an expansion of the ASC, which is supplied electronically from each maintained school's Management Information System. The Census continued to collect school level data about classes being taught and staff in schools but it also collected pupil level information from Maintained Primary, Middle, Secondary and Specials schools, including over 7.5 million pupils. The data items collected in PLASC include a unique pupil number, pupil name, gender, date of birth, home postcode, ethnic group, first language, free school meal eligibility and special educational needs information. The information from PLASC is combined with pupil attainment data to create the National Pupil Database (NPD). Although PLASC has to meet the requirements of the Data Protection Act, analysis of the individual pupil records from PLASC, in concurrence with attainment outcomes, provides a far greater range of information than was possible with the ASC totals.

PLASC is a crucial data set for creating Contextual Value Added (CVA) Models. CVA models provide an illustration of how each contextual factor contributes to a pupil's 'predicted' outcome at a later Key Stage. The prediction consists of three parts. Those are pupil's prior attainment, pupil's characteristics and school's characteristics. All the variables used come from PLASC.

2.2 Replicating the CVA model using the LSYPE sample

The LSYPE dataset has been matched with NPD. So, although LSYPE contains only a population sample of just over 15,000 pupils, instead of a whole cohort of over 600,000 pupils, it contains both the wide range of LSYPE variables and all of the NPD variables.

As a result of this, the national CVA model can be replicated using just the LSYPE sample. For the purpose of the analysis of LSYPE, the 2006 KS2-4 version was examined as that is when most of the LSYPE sample reached the end of KS4. Since LSYPE is matched with NPD, identical variables to those from the national model could be used as explanatory factors. While the national model uses Multi-Level Modelling, this replication was carried out using Linear Regression. This may lead to some discrepancies between the two models in terms of the coefficients, but it is not anticipated that the different methodology will cause major differences.

The purpose of this exercise is to assess whether the LSYPE sample is comparable to that of the entire cohort in terms of their progression. By comparing the coefficients of the model using just the LSYPE sample with the coefficients from the 2006 Key Stage 2-4 (KS2-4) CVA model, it is possible to assess how much weight we can apply to any findings based on similar models using just the LSYPE sample, and whether it makes sense to suggest that those findings might be true for the whole of their cohort.

2.3 Comparing the coefficients of the two models

Table 2.1 shows some of the coefficients from the national model compared to those derived from the LSYPE sample. The full models can be found in Annex A. While the coefficients of the two models shown in the table differ in places, there are also some coefficients that are remarkably similar to one another. A simple example of similarities between the models comes from looking at the coefficients relating to Indian pupils. While not identical, the two coefficients for this group are really very similar (24.4 in the national model and 25.5 in the LSYPE version). This suggests that, at least with respect to the effects on progress of being Indian, the LSYPE sample is fairly representative of the national cohort for this year group.

A more complex example of similarities between the models is shown by considering Income Deprivation Affecting Children Index (IDACI). IDACI is measured on a scale between zero and one, with scores skewed towards the lower end of that scale. To demonstrate the similarity between the coefficients of the two models, it is most sensible to look at what happens for typical pupils in the models. The IDACI scores at the upper and lower quartiles for the LSYPE sample are 0.32 and 0.06. Multiplying these values by the coefficient of the CVA model (-65.2) results in gap of 16.9 points in the predicted scores for two otherwise identical pupils. In the model produced using just the LSYPE sample, the coefficient of -60.9 gives a gap of 15.8 points in their predicted scores. The difference of just 1.1 points between the outcomes using the two models shows that they produce broadly similar gaps for pupils with typical (but different) IDACI scores.

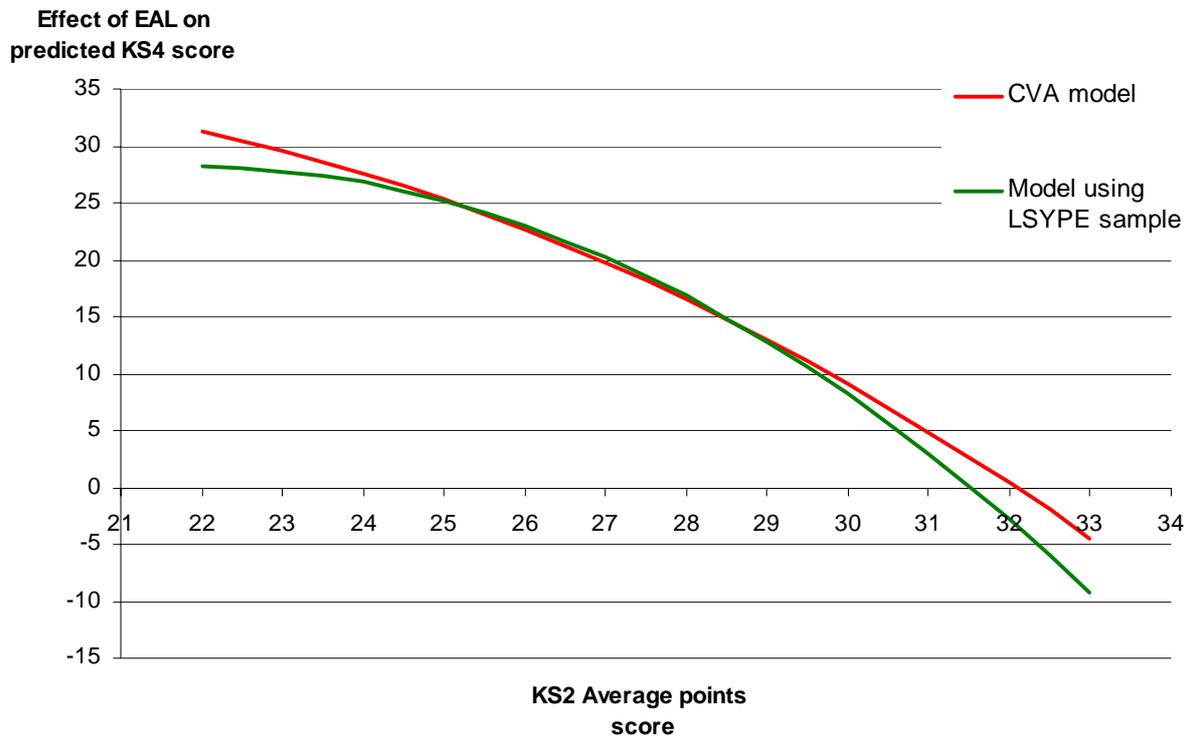
Table 2.1: Comparing the coefficients of the national CVA model and the LSYPE sample CVA model

	Coefficient in 2006 KS2-4 model	Coefficient in model using LSYPE sample
Been in care	-31.2	-14.0
FSM	-25.1	-33.0
EAL	-12.5	-116.9
EAL and KS2 points score interaction	5.5	13.3
EAL and quadratic of KS2 points score interaction	-0.2	-0.3
Female	14.6	13.5
IDACI	-65.2	-60.9
SEN - School Action	-37.3	-28.2
SEN - School action/statement	-63.6	-47.3
Age within school year ⁶	-14.0	-16.7
Black African	27.7	30.3
Bangladeshi	23.8	35.8
Black Caribbean	13.8	18.7
Chinese	34.2	42.9
Gypsy/Roma	-58.8	1.7
Indian	24.4	25.5
Irish	-1.4	18.5
Pakistani	17.5	20.9
Traveller of Irish Heritage	-45.5	21.0
White and Asian	9.3	16.4
White and Black African	9.4	5.9
White and Black Caribbean	-2.3	-2.6
Pupil joined school during school year in year 7-9	-24.2	-19.4
Pupil joined school after start of Year 10	-75.6	-72.0

A final interesting example to consider is what happens for pupils with English as an additional language (EAL). There are three variables relating to EAL in the models, which combine together to form quadratic functions based on prior attainment at KS2. A quadratic function is used because pupils who have EAL make even faster progress if they start from a lower KS2 level than if they have good prior attainment, and the relationship between them is not linear. While the coefficients in the quadratics are quite different, Chart 2.2 plots the curves of the functions for different levels of KS2 attainment and shows that they combine to produce fairly similar impacts on predicted scores:

⁶ Pupils born in September through to December are the oldest in the academic year and those born in May through to August are the youngest in the academic year. When interpreting the coefficients for this variable, it should be remembered that each individual is given a score for their age of birth based on the fact that 1 September = 1.00 and 31 August = 0.00, with dates in between scored accordingly. For the LSYPE sample, the same process was carried out using month of birth, with each month awarded the score for its 'middle' day.

Chart 2.2: Comparing the effects of coefficients for pupils with English as an additional language in the national model and in the LSYPE sample model



The biggest gap between the predictions of the models that is shown in the chart is for those pupils with a KS2 average points score of 33. Even at this very high level of KS2 attainment, the difference between the two models is worth less than one grade in one GCSE. Among the more common average points scores, the two lines are really very close to one another, which indicates that the model using just the LSYPE sample fits relatively closely to the national model. So even though the three coefficients are different, the combined effect of them is quite similar, and it isn't unreasonable to suggest that the models have produced broadly similar outcomes on EAL for most pupils.

Despite all the similarities between the models, there are also some differences. One of the reasons for variations between the models is the fact that LSYPE includes only a population sample instead of the whole population. Therefore the confidence intervals on the coefficients are much bigger than with the use of the whole cohort. The Gypsy/Roma ethnic minority group is a very good example of this, and shows what can happen with small samples. The difference between the two coefficients is large, but we can presume that much of it has been caused by the fact that in LSYPE the group consists of only a few people. For the same reason, the coefficients for the 'in care' variable differ between the two models. According to the LSYPE model, the difference between a pupil who has been in care and a pupil who has not been in care, but with all the other characteristics being the same, is just a little over two grades, whereas the national CVA model predicts the gap is five grades. The small number of pupils in the LSYPE sample who have been in care means that this coefficient has a larger confidence interval and that perhaps explains why there is some discrepancy.

The quintiles of schools with the highest Free School Meals (FSM) rates were oversampled, which may have helped to cause the difference between the models' coefficients for FSM eligibility. The gap between the coefficients is almost eight GCSE points, but this may be because pupils in the LSYPE sample were disproportionately from higher banded FSM schools and so differ from the pupils more widely in the cohort. If that is the case, then it is reasonable to expect that difference to appear in the FSM coefficients.

2.4 Conclusions on the use of LSYPE data for this kind of modelling

The comparisons made above suggest that the LSYPE sample provides a group of people from which we can draw reasonably robust conclusions. In most areas, the coefficients of the two models are similar, and where there are larger differences it has either been possible to show that they actually produce reasonably similar effects on individual pupils – as with IDACI and EAL – or else we can find reasons why the gaps may be due to the sampling of the study. Where the sampling means that there are small numbers of certain groups of pupils, such as those who have been in care, the later analysis will allow for the fact that these characteristics are relatively rare. And while there is a discrepancy over the FSM coefficients, it is felt that this can be kept in mind when looking at future analysis and that this will ensure that any extrapolation to the wider population will be done sensibly and only where appropriate.

As such, it is felt that so long as sensible analysis is carried out and appropriate caveats are remembered, the findings from analysis of LSYPE data using progress modelling will be robust, and that the findings can reasonably be assumed to reflect general patterns in the wider cohort of pupils.

3 Aspirations and pupils obtaining very few qualifications

Summary

- Most pupils want to stay in full-time education post 16 but the likelihood varies by the individual's characteristics. Boys, White British pupils, those with lower levels of KS2 attainment, those whose parents have lower levels of education and those who think that their friends wanted to leave full-time education are all less likely to have high aspirations.
- Eligibility for FSM is not a significant predictor of aspirations once other factors have been controlled for, and pupils from deprived areas actually have higher aspirations than others when controlling for their other characteristics.
- Pupils who get no, or very few, qualifications are disproportionately from households with low income and single parent families with nobody working. They are also more likely to have SEN and to come from families where neither parent has any qualifications.
- Aspirations have a significant effect on KS4 attainment, even after controlling for factors such as KS2 attainment which affect both aspirations and KS4 outcomes. Differences in aspirations can explain some of the effects otherwise attributed to gender and ethnicity in national results.

3.1 Defining Aspirations

Using LSYPE data it is possible to assess the impact of aspirations on pupils' attainment and progression. At age 14, the young people were asked:

When you're 16 and have finished Year 11 at school what do you want to do next?

Two possible answers were read out for the young person to choose from:

- a) Stay on in full-time education, either at the school you are at now or somewhere else; and*
- b) Leave full-time education.*

A third possible answer could also be recorded by the interviewer if it was given by the young person, but this was not on the list of answers read out for the young person to choose from:

- c) Leave full-time education but return later (e.g. gap year).*

If the young person said that they didn't know what they wanted to do after they had finished Year 11, then this was also recorded. For the purposes of the analysis in this research report, those respondents who talked of leaving full-time education but returning later were grouped together with those planning to stay in full-time

education; this was because they share the aspiration to be involved in more full-time education at some stage. This gives three groups: those wanting to stay in full-time education, those wanting to leave full-time education and those who were unsure what they want to do.

Rather than using those somewhat long-winded descriptions of the groups, they will henceforth be referred to as pupils with ‘high aspirations’, pupils with ‘low aspirations’ and those who don’t know what they want to do. It is important at this stage to note that these definitions refer strictly to aspirations with respect to full-time education and that in some cases the best thing for a given pupil to do may well be to leave full-time education. In particular, when the participation age is raised, the requirement will be for pupils to be in education or training up to age 18, which demonstrates that full-time education is quite a narrow measure of what pupils might want to be doing after age 16. Bearing this in mind, the terms ‘high’ and ‘low’ aspirations are used rather warily. It should not be inferred that those with ‘high’ aspirations are, by virtue of their attitude towards full-time education, any better or worse than those pupils with ‘low’ aspirations.

3.2 Which pupils have different types of aspirations?

This chapter will go on to show that aspirations are a useful predictor of pupil attainment and progression, as well as other behaviours, even when other pupil level factors that are collected as part of PLASC have been controlled for. Before that, it is important to understand how common each type of aspiration is, and whether any groups of pupils are more likely to have certain aspirations than other groups.

Table 3.1 shows the responses to the question from which aspirations have been measured. It shows that at age 14 the vast majority (81 per cent) of these pupils said that they intended to stay on in full-time education. This leaves around one in five pupils who did not say this; of these, a little over two thirds (13 per cent of all pupils) said that they wanted to leave full-time education with the remaining pupils unsure of what they wanted to do after finishing Year 11.

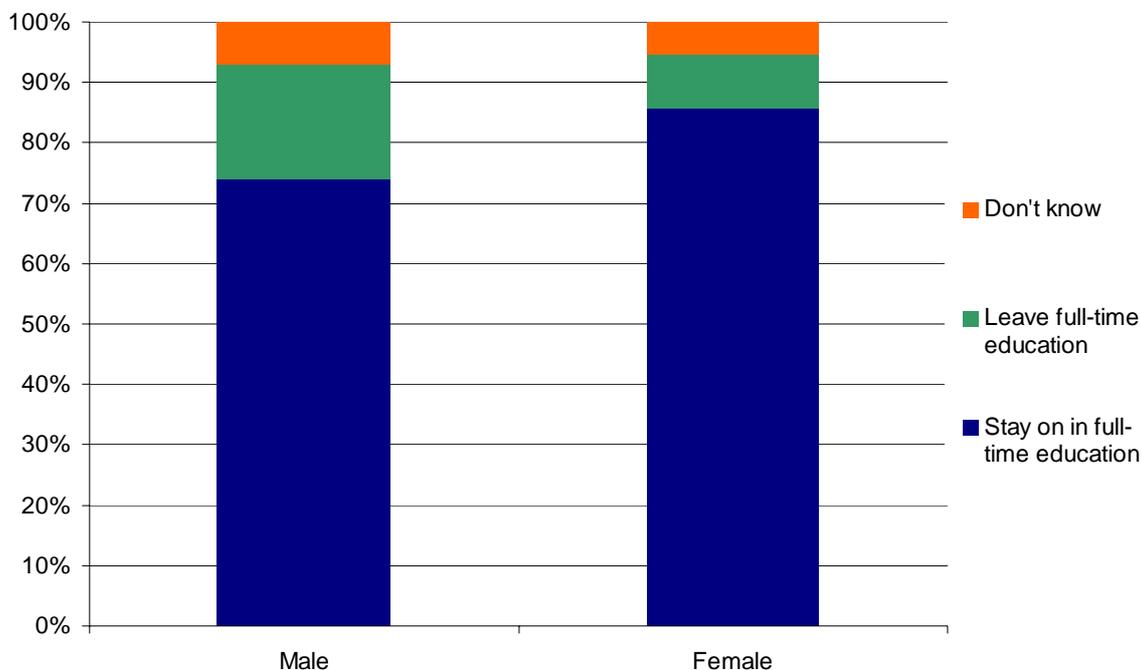
Table 3.1: Number and proportion of pupils with different aspirations

	Frequency	Percentage
Stay on in full-time education	12,457	81%
Leave full-time education	2,067	13%
Don't know	916	6%
Total	15,439	100%

As might be expected, these proportions are not the same across all subgroups of the sample, and the rest of this section will look at how aspirations vary across different groups of pupils. Chart 3.2, for example, shows that at age 14 girls are more likely to plan to stay in full-time education than boys. Eighty-six per cent of girls had high aspirations, compared to just 74 per cent of boys. While there is only a small gap in terms of the percentages of each gender unsure of what they wanted to do,

boys were much more likely to want to leave full-time education (19 per cent compared to just nine per cent).

Chart 3.2: Proportions of boys and girls with different levels of aspirations



Another demographic factor which appears to be correlated with aspirations is ethnicity. The table below shows the distribution of aspirations among various different ethnicities.

Table 3.3: The distribution of aspirations among different ethnicities⁷

	High aspirations	Low aspirations	Unsure of plans
White British	78%	16%	7%
Black African	96%	2%	2%
Bangladeshi	91%	4%	4%
Black Caribbean	87%	7%	6%
Indian	94%	2%	3%
Pakistani	92%	4%	4%
Mixed	84%	10%	6%
Any other White background	89%	6%	5%
Any other Asian background	91%	6%	2%
Any other ethnic group	87%	6%	7%
All pupils	81%	13%	6%

⁷ Over two thirds of the sample are White British pupils. However, the other ethnic groups shown in the table all have between 130 and 330 pupils in the sample, and so provide large enough groups for this analysis.

The most striking figures in the table are those for the White British pupils; they have the lowest rate of high aspirations and highest rate of low aspirations. Although some of the other rows only contain small numbers of pupils, there are some clear relationships to be seen among those too. Black African pupils were most likely to want to stay on in full-time education (96 per cent), with Indian and Pakistani pupils also keen to stay on. Pupils from mixed ethnic groups, however, had much higher proportions that had low aspirations.

Ethnicity and gender are not the only PLASC variables which appear to produce patterns when the aspirations of different groups are compared. Only 56 per cent of pupils with SEN at School Action Plus or Statemented said that they wanted to stay on in full-time education, compared to 84 per cent of non-SEN respondents. Just four per cent of EAL pupils said that they wanted to leave full-time education, with the same percentage not knowing what they wanted to do. These figures compare to fifteen per cent of pupils with English as a first language having low aspirations, and six per cent unsure of what they wanted to do.

Chart 3.4 shows that there is also a relationship between the area a pupil lives in and their aspirations. It shows the aspirations of those pupils in each quartile for the IDACI score of their home postcode, with higher proportions of those in less deprived quartiles saying that they had high aspirations and, similarly, more of those who live in more deprived quartiles saying that they wanted to leave full-time education at age 16.

Chart 3.4: Proportions of pupils in each IDACI quartile who have different levels of aspirations

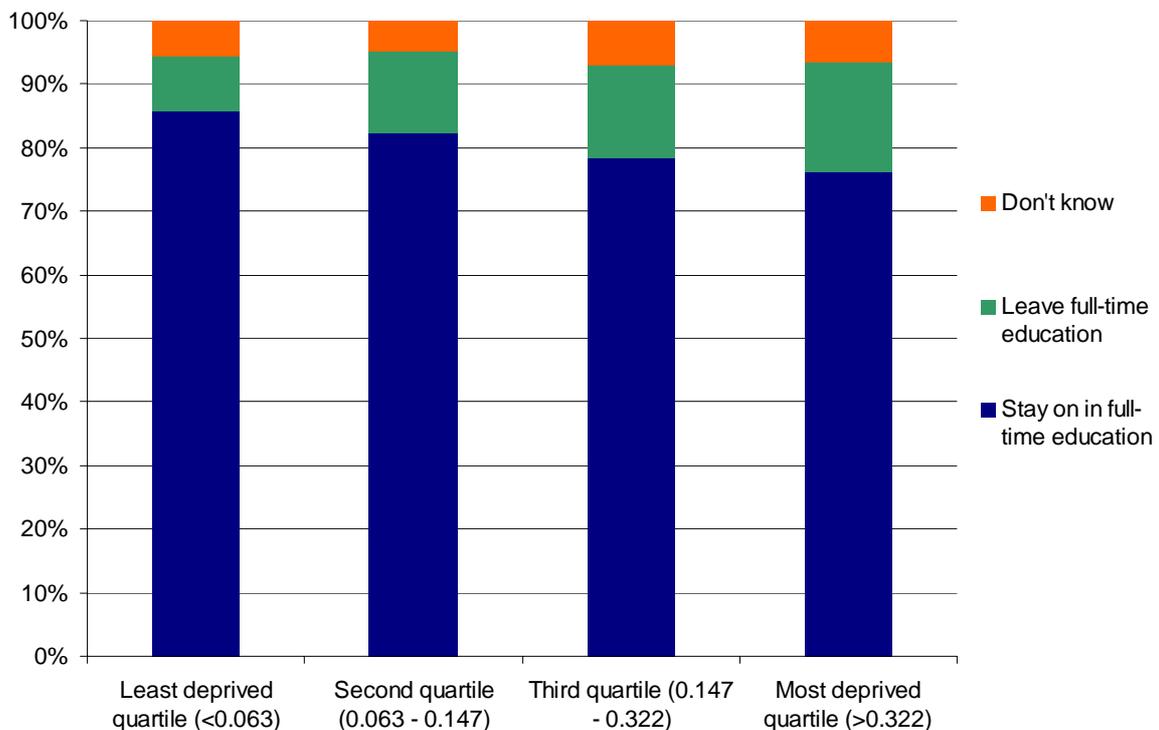


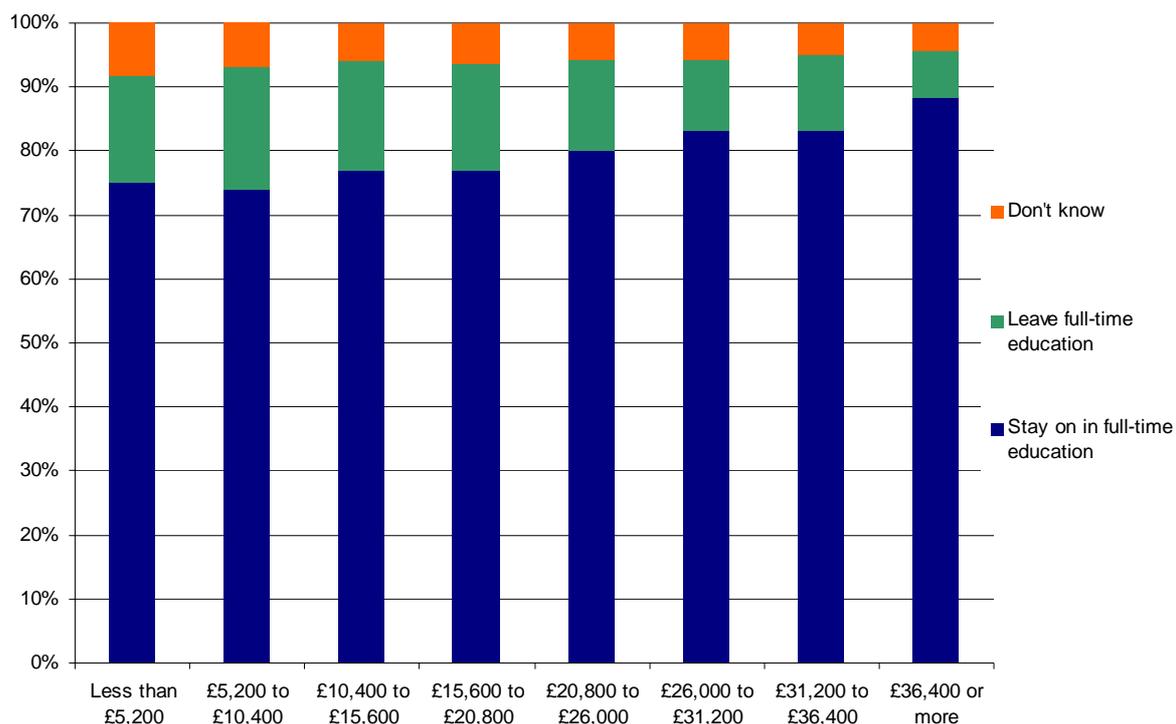
Table 3.5 shows the way in which two other NPD factors appear to be related to the aspirations of pupils. The first two rows show an FSM gap; FSM pupils are more likely to plan to leave full-time education at age 16 than their non-FSM peers (20 per cent compared to 13 per cent). It could be argued, though, that while there is a gap here, it is not as substantial a gap as is seen in other areas, such as attainment. The four rows below show how prior attainment interacts with aspirations at age 14. Twenty-seven per cent of those pupils in the lowest quartile for average points at KS2 had low aspirations, compared to just three per cent of the upper quartile. While the table shows a relationship between KS2 attainment and later aspirations, it is important to note that this doesn't imply causation. Aspirations and attainment could feasibly impact on each other and it's not possible to disentangle their relationship from this in order to say that lower attainment leads to low aspirations, or indeed vice versa.

Table 3.5: The interactions of FSM eligibility and prior attainment with aspirations

	High aspirations	Low aspirations	Unsure of plans
Not known to be eligible for FSM	81%	13%	6%
Known to be eligible for FSM	72%	20%	8%
Upper quartile at KS2	95%	3%	3%
Second quartile at KS2	86%	9%	5%
Third quartile at KS2	77%	16%	7%
Lower quartile at KS2	64%	27%	9%
All pupils	81%	13%	6%

It is also possible to look at how aspirations vary with some of the other information that was collected as part of LSYPE. The first of these to be considered here is household income. Chart 3.6 shows how aspirations vary for pupils from households with incomes in different ranges. The general trend shown by the chart is that those pupils from households with higher incomes are more likely to have said that they wanted to stay in full-time education. The proportion of people unsure of their plans didn't vary quite so much across the groups; most of the difference shows up as more pupils from households with lower income having lower aspirations.

Chart 3.6: The relationship between aspirations and household income



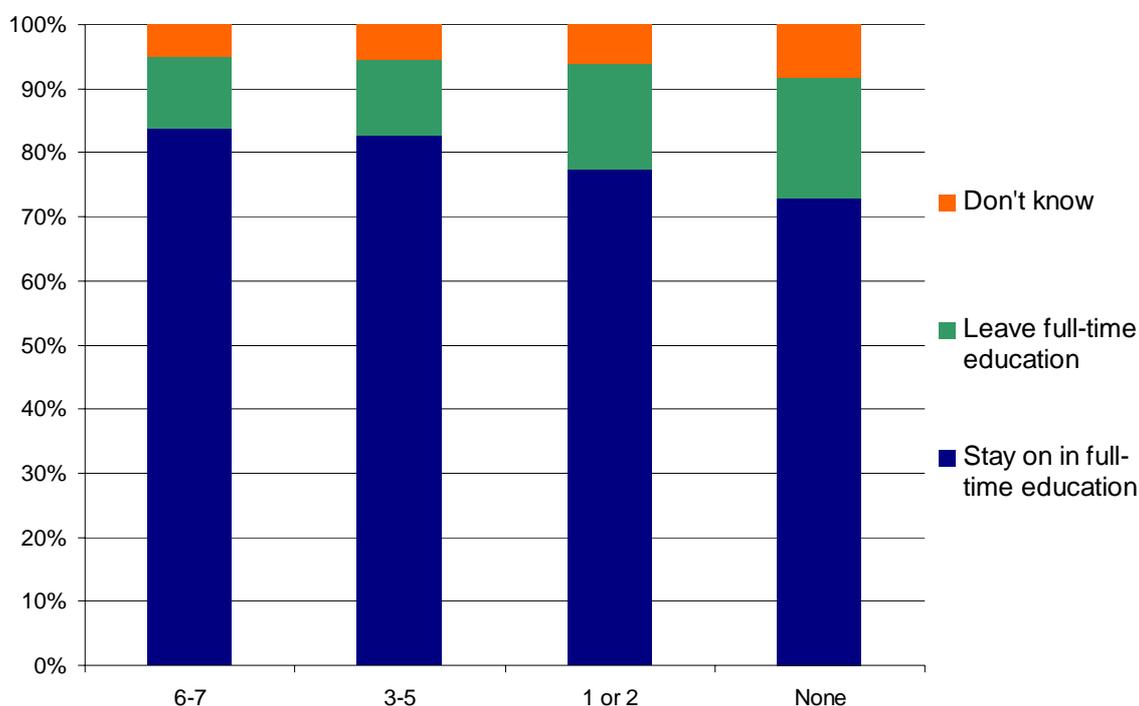
As well as asking pupils what they wanted to do after they finished Year 11, LSYPE also asked them what they thought that their friends would do at that point. Table 3.7, below, shows that there is a correlation between the two sets of answers; those who said that they thought their friends would stay on in full-time education were most likely to say that this was what they wanted to do themselves (92 per cent compared to 57 per cent of those who said that their friends would leave full-time education and 56 per cent of those who said they didn't know what their friends would do). The equivalent is also true for those who thought that their friends would leave full-time education and even those who weren't sure what their friends would do, who were the group most likely to say that they weren't sure what they would do themselves. This table clearly says something about peer groups within schools, but it doesn't tell us whether the groups of friends formed because they shared attitudes or whether the attitudes got shared within groups. Alternatively, there could be a third explanation, whereby pupils assumed that their friends shared their own attitudes.

Table 3.7: The similarity between what pupils want to do post 16 and what they think their friends will do

	High aspirations	Low aspirations	Unsure of plans
Friends will stay in full-time education	92%	5%	3%
Friends will leave full-time education	57%	35%	8%
Don't know what friends will do	56%	22%	22%
All pupils	81%	13%	6%

The final part of this section will look at one of the topics from LSYPE that was asked as a proxy for family cohesion. Pupils were asked how many times in the previous week they had eaten their evening meal with their family. Chart 3.8 shows that the pupils who had eaten the most meals with their family had the highest proportion with high aspirations. Those not eating any meals with their family had the highest rate of low aspirations (19 per cent) and also the highest rate of being unsure (eight per cent). As was suggested before, this does not necessarily mean that eating meals with the family can affect aspirations; it probably means that aspirations are related in some way to family cohesion.

Chart 3.8: The relationship between a pupil's aspirations and the number of evening meals eaten with their family in a week



3.3 Modelling factors that predict pupil aspirations

As seen in section 3.2, there are various characteristics which seem to be linked with a pupil's aspirations. The different factors that show up will often overlap, and it is

important to unpick which of the factors is the one driving the aspirations. For example, on average girls have higher KS2 scores than boys; when both gender and prior attainment appear linked with aspirations, it is important to know whether girls genuinely have higher aspirations than boys or whether they just appear to have higher aspirations on account of having scored higher at KS2.

A logistic regression model, using the aspirations question as the outcome variable, can be used to investigate the relative importance of different characteristics in predicting whether a given pupil will have high aspirations. Doing this means that the individual effect of each characteristic can be seen once all other characteristics in the model have been controlled for.

When this model is run, some of the factors that looked in section 3.2 as if they might be important predictors of aspirations are shown to be insignificant once other factors have been controlled for. FSM pupils, for example, appeared to be more likely to have low aspirations than their peers (see Table 3.5), but once other variables have been controlled for this effect does not show up as significant. The same thing happens for the household income data that also appeared linked to aspirations when the two were looked at together in Chart 3.6.

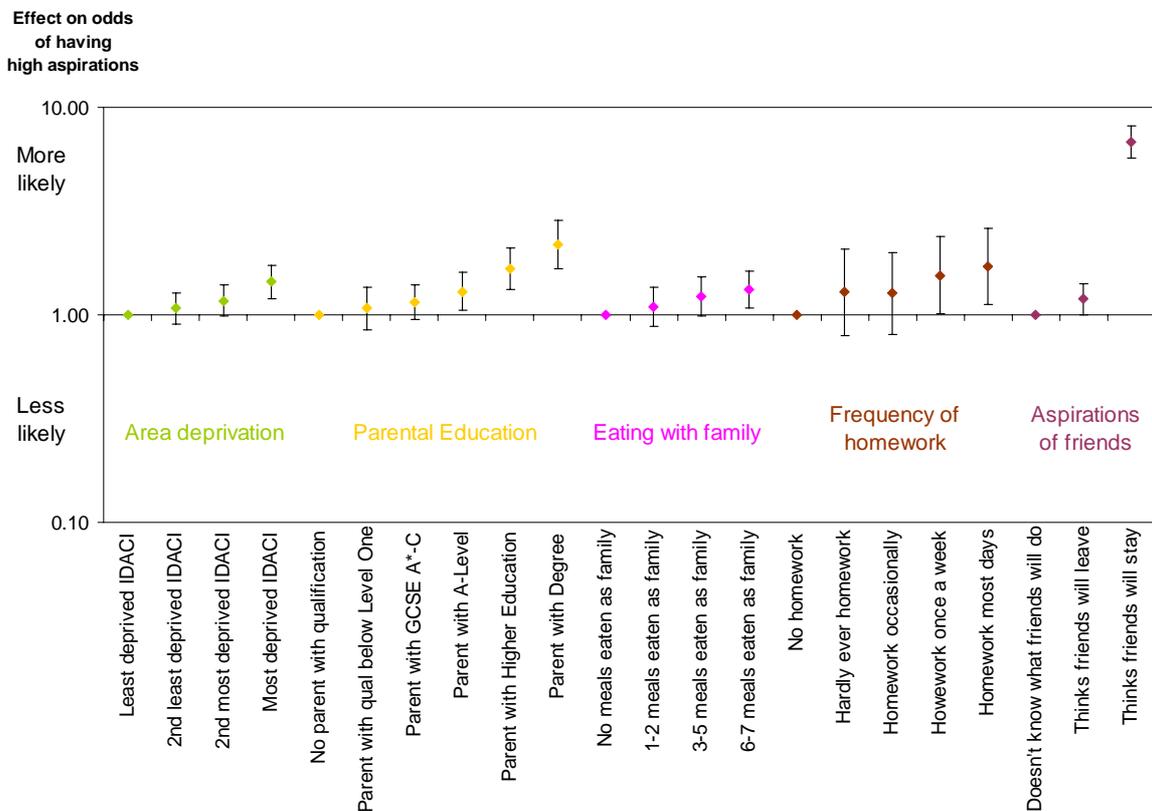
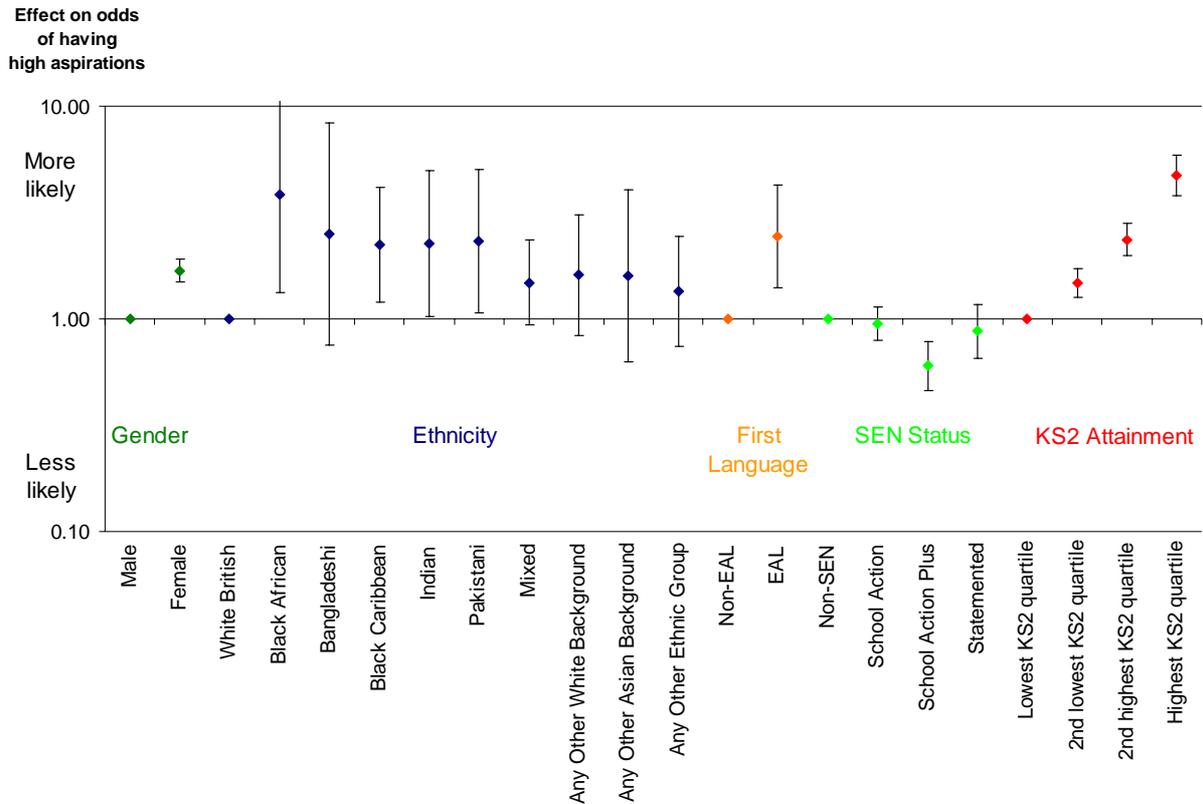
Perhaps most intriguing is that the effect that was seen in Chart 3.4 is reversed once other factors have been controlled for. When the aspirations of pupils from different IDACI quartiles are looked at by themselves, those from areas with less deprivation appear to be more likely to have high aspirations. However, once other factors have been controlled for, the effect of IDACI goes in the opposite direction; a pupil from an area in the most deprived IDACI quartile is more likely to have high aspirations than an otherwise identical pupil from an area in the least deprived IDACI quartile.

The following pair of charts shows the effect of having various characteristics on the odds of planning to stay in education after age 16. As outlined above, each effect shown is the effect of that particular characteristic if all other characteristics were held constant. The chart has a logarithmic y-axis⁸, with points above the axis meaning a characteristic increases the odds of having high aspirations and points below meaning the opposite.

The strongest positive relationships are seen with high levels of KS2 attainment and with those pupils who think that their friends plan to stay in full-time education. Factors linked to lower likelihoods of having high aspirations are speaking English as a first language and being male. Small samples mean that some of the characteristics, such as some of the ethnicities, have quite wide error bars. In some of these cases the effects of the characteristics are not statistically significant, even though the coefficient produced in the model may be quite large.

⁸ The logarithmic scale means that the distance of a point from the axis is proportional to the magnitude of the effect of each factor. That is, two points equidistant from the x-axis, one positive and one negative, have effects of equal magnitudes but opposite directions. The bars around each point show 95 per cent confidence intervals; where the whole bar is either above or below the x-axis there is a statistically significant effect.

Charts 3.9a and 3.9b: The effect of different characteristics on the odds of having high aspirations

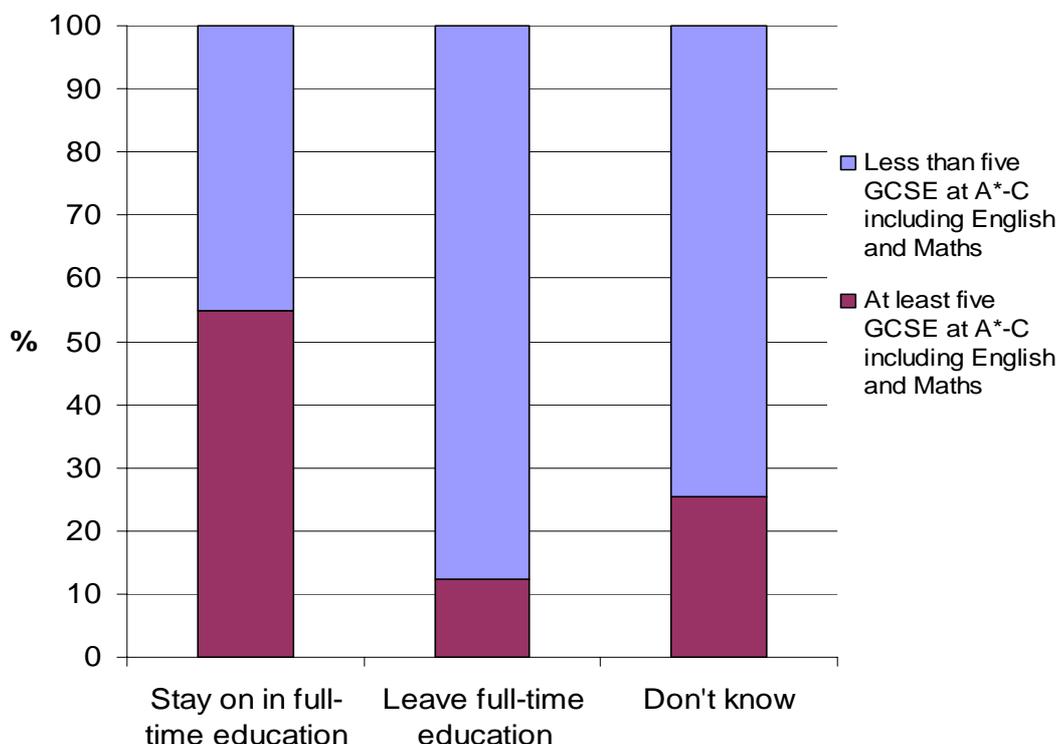


3.4 Outcomes for pupils with different types of aspirations

Since the LSYPE dataset has been matched to the NPD, the next logical step is to look at the outcomes at the end of KS4 of pupils who, at age 14, had different aspirations. There is a certain amount of circularity to this process since, as has just been seen, those pupils who achieve the highest results in KS2 are the ones most likely to have higher aspirations, and it is well known that prior attainment is the best predictor of a pupil's attainment at age 16. This suggests that pupils with high aspirations will be likely to score better at KS4 than those pupils with low aspirations, and this is indeed true. Later in this chapter further modelling will be presented which will show the independent effect of aspirations on top of prior attainment and the various factors collected as part of PLASC; this initial section just sets out the raw differences between the groups.

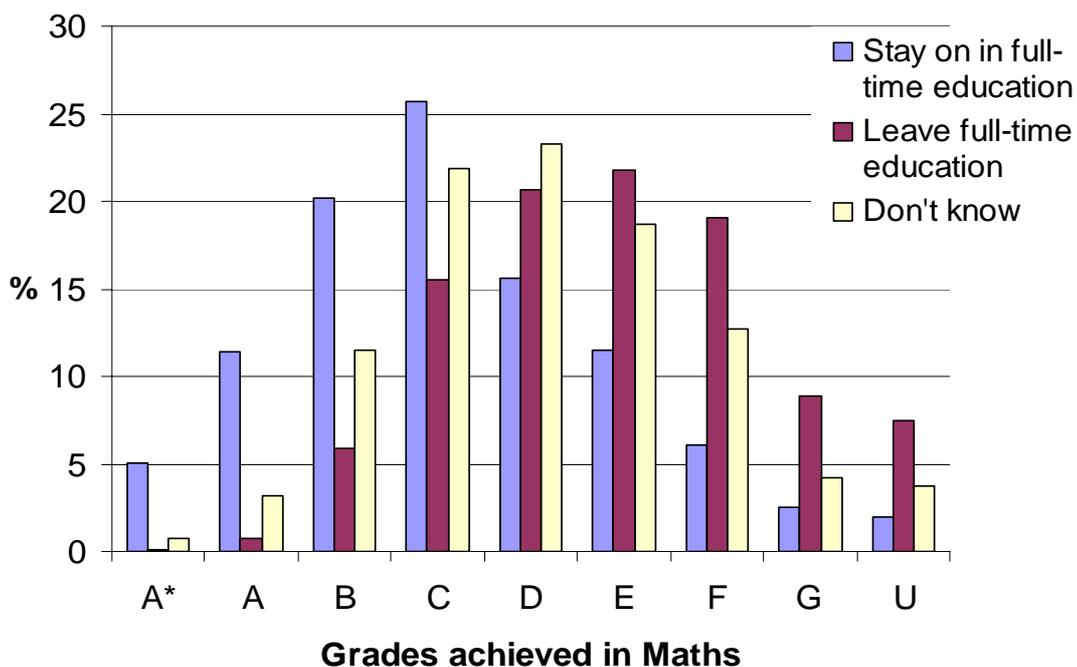
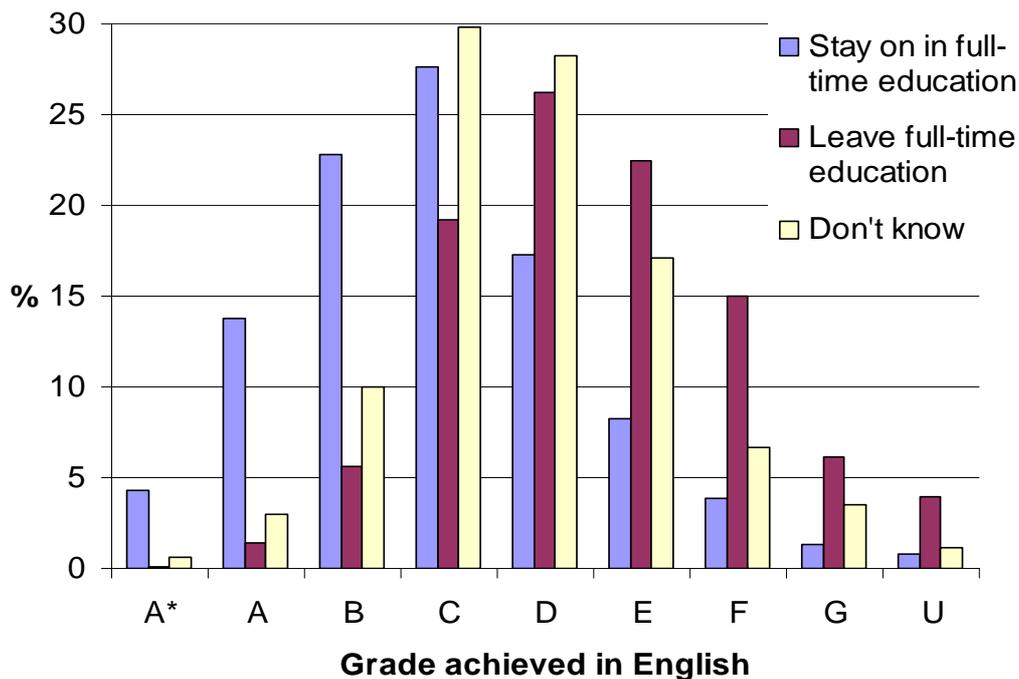
One of the key measures of attainment at KS4 is whether a pupil obtains five A*-C grades including English and Maths. Chart 3.10, below, shows that over half of the LSYPE sample who had high aspirations went on to obtain at least five A*-C including English and Maths, whereas only around one in ten pupils with low aspirations achieved the same level. As will be seen for many of the other outcomes in this section, the group of pupils who weren't sure what they wanted to do post 16 fall in between the other two groups; a smaller percentage of them achieved five A*-C including English and Maths than the group of pupils with high aspirations, but a greater proportion than among the group with low aspirations.

Chart 3.10: Proportions of pupils with different aspirations who go on to obtain at least five A*- C including English and Maths



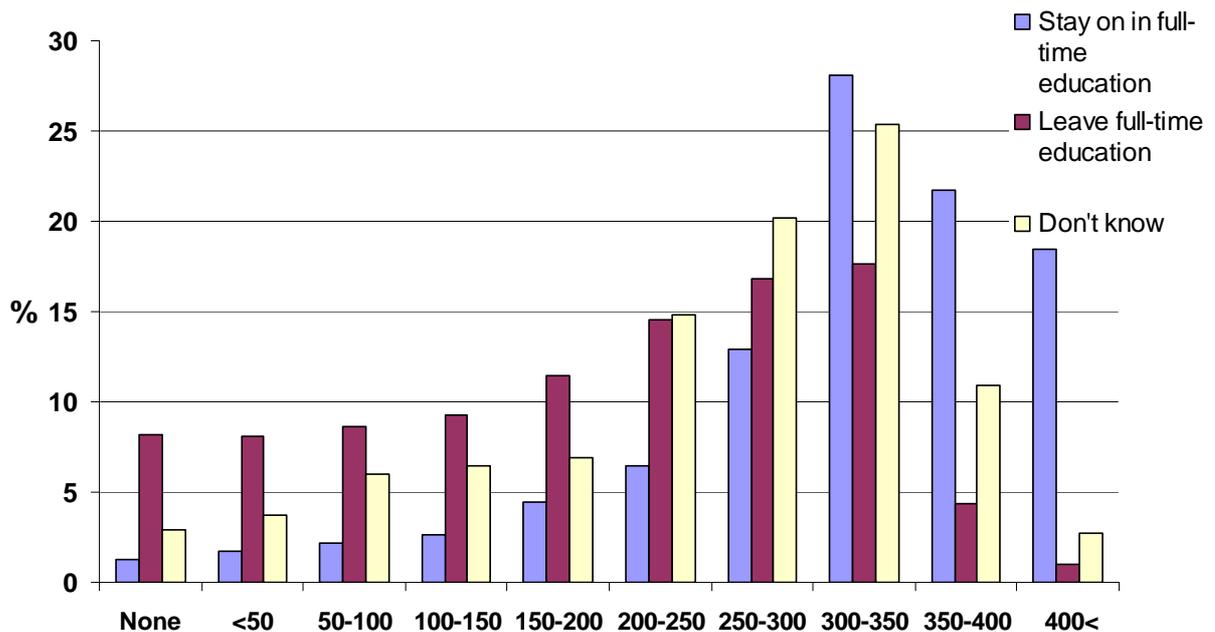
Given their importance to that measure, the next two charts look at performance in English and Maths GCSEs. As might be expected, aspirations and performance in these subjects were positively correlated, with higher aspirations associated with higher grades, but a substantial proportion of those with low aspirations achieved A*-C grades (26 per cent in English and 22 per cent in Maths).

Chart 3.11a and 3.11b: The grades obtained in GCSE English and Maths by those pupils with different types of aspirations



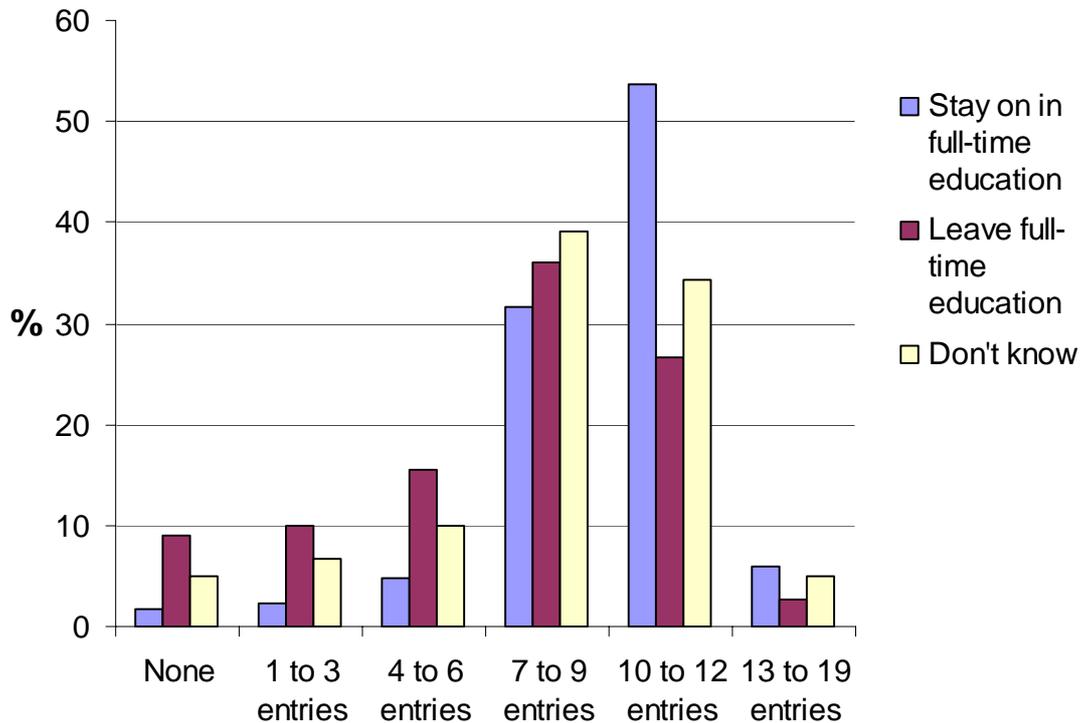
Another familiar measure of pupil attainment is the capped eight best points score. This allows comparison of how pupils perform across a range of subjects, without skewing the scores for those pupils who are entered for a particularly large number of subjects. The following chart shows, again, that those pupils with higher aspirations are those who tend to have the highest attainment. The pupils who want to leave full-time education at age 16 are the ones who, on average, achieve the lowest points scores at KS4.

Chart 3.12: Capped eight best points scores of pupils with different aspirations



Given the number of pupils who scored very few points in the chart above, it seems sensible to consider whether they are scoring particularly few points in the subjects that they take, or whether they are simply not being entered for any qualifications. The following chart shows that while around 60 per cent of pupils with high aspirations were entered for more than 10 GCSEs and GNVQs, only about 30 per cent of those with low aspirations were entered for that many. Indeed, a substantial number of pupils (nearly 10 per cent) with low aspirations were not entered for any GCSEs or GNVQs at all, and a similar proportion was entered for between one and three qualifications. This suggests that many of those pupils with low aspirations who showed up in Chart 3.12 as having scored very few points were actually entered for very few qualifications.

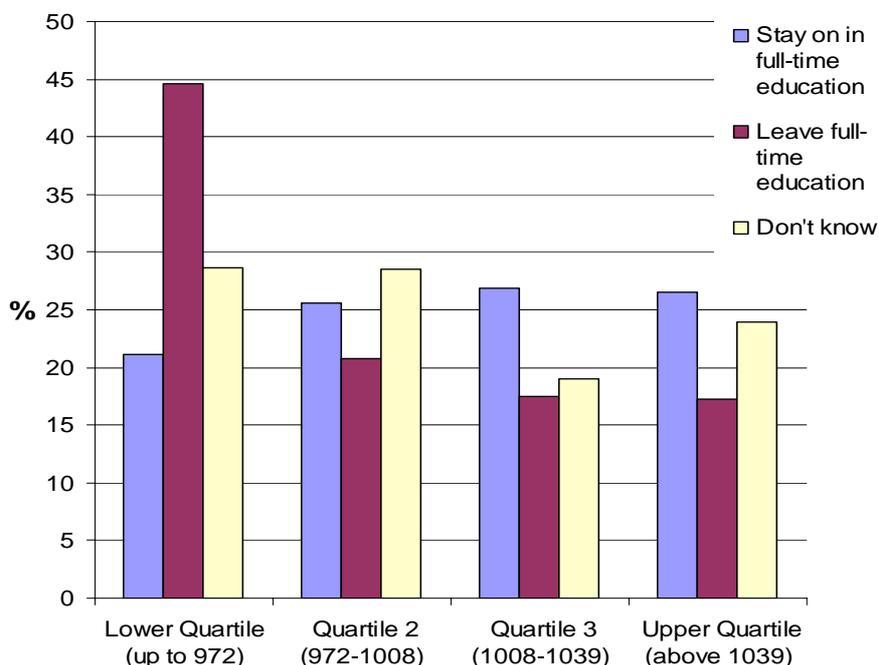
Chart 3.13: Numbers of entries in GCSEs and GNVQs of pupils with different types of aspirations



As described earlier, the charts presented so far have only reflected the raw outcomes for pupils at the end of KS4. The next one, however, shows which quartile pupils with different aspirations were in for KS2-4 CVA. This means that prior attainment has been controlled for; those pupils in the higher quartiles for CVA make greater progress between KS2 and KS4 once their KS2 results and their PLASC characteristics have been accounted for.

The chart shows quite a stark difference between the progress made by those with low aspirations and other pupils. Forty-five per cent of those who had low aspirations at age 14 were in the lowest quartile for CVA at age 16, compared to only around one in five of those with high aspirations. Those who weren't sure what they wanted to do when they reached the end of Year 11 tended to be slightly disproportionately in the lower quartiles, but not to the extent that those with low aspirations were in the lowest quartile. Those with high aspirations were spread relatively evenly across the quartiles but with slightly more than a quarter of them in the higher quartiles.

Chart 3.14: The KS2-4 CVA quartiles that pupils with different aspirations go on to be in



This suggests that there is a relationship between a pupil's aspirations and the amount of progress they make between KS2 and KS4. It could be that those wanting to stay on in full-time education work harder in order to obtain the grades necessary for that. Alternatively, it could be that those who have not progressed well between KS2 and the time at which they were asked about their post 16 plans have decided that their lower levels of progress means that they don't want to stay in full-time education. Either way, there does appear to be a correlation between aspirations and progression. This is something that that will be revisited and explored using linear regression in Section 3.6.

3.5 Which pupils get no or very few qualifications?

Charts 3.12 and 3.13 showed that some pupils score really very few GCSE points, and also that some are not entered for many qualifications. Those pupils who do not obtain any qualifications, or who only get very few, are a group that should cause some concern. As a result, this section now uses PLASC and LSYPE variables to investigate which types of pupils are disproportionately likely to get to the end of KS4 with no more than two qualifications.

Table 3.15 puts the section in some context by showing the size of the groups that we are interested in here. Four per cent of pupils in the LSYPE sample did not achieve any qualifications; when those with just one or two qualifications are also included, the group contains seven per cent of the total sample.

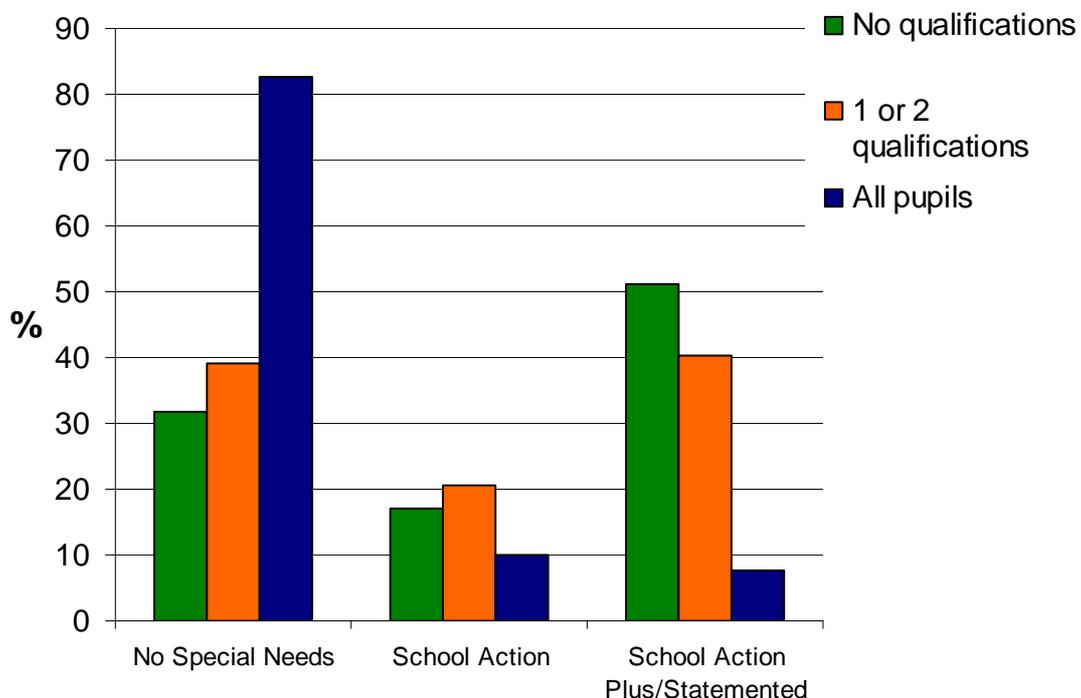
Table 3.15: Proportions of pupils with very low attainment

	Proportion of all pupils
No qualifications	4%
One or two qualifications	3%

A strong predictor of pupil progress and attainment is whether or not a pupil has SEN. Those pupils who are classified as SEN, whether it be School Action, School Action Plus or Statemented, tend to do less well than otherwise identical non-SEN pupils. As such, it makes sense to look at whether SEN pupils are disproportionately likely to be among these pupils who get very few qualifications.

Chart 3.16 shows that just over half of the pupils who achieved no qualifications were classified in 2004 as School Action Plus or Statemented. This is considerably higher than the proportion across the whole population (just eight per cent). Similarly, of those who obtained only one or two qualifications, two in five were classified as being School Action Plus or Statemented. At the other end of the scale, almost a third of pupils who get no qualifications are not listed with any kind of SEN, with the figure at almost 40 per cent for those who get just one or two qualifications.

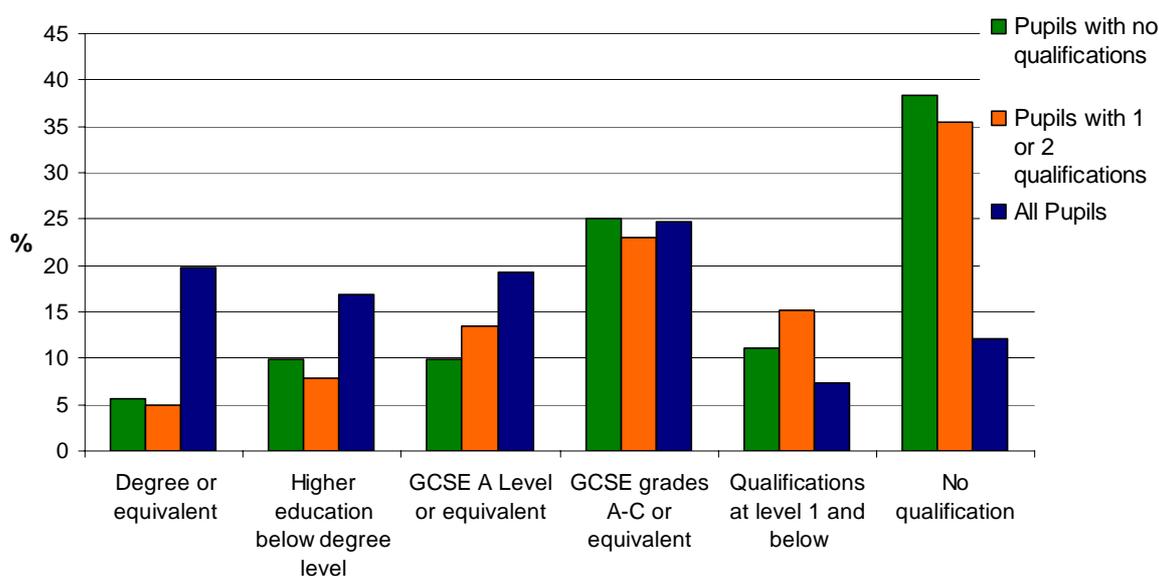
Chart 3.16: The SEN status at age 14 of those pupils who go on to get the smallest numbers of qualifications



Using the LSYPE variables and the extra information that they can provide, it can be shown that parental background is strongly related to whether a pupil achieves more than just one or two qualifications. For example, over 50 per cent of parents of pupils

with no more than two qualifications were classified as being in the routine NS-SEC⁹ group, which is twice as many as the proportion across all pupils. Similarly, the chart below shows that over a third of pupils with the lowest attainment have parents with no qualifications themselves (compared to 12 per cent of all pupils who have parents with no qualifications). At the opposite end of the scale, while one in five pupils have at least one parent with a degree, only around one in twenty of those pupils who get the lowest numbers of qualifications are born to families where a parent has a degree.

Chart 3.17: The highest qualification held by the parents of those pupils who get the smallest numbers of qualifications

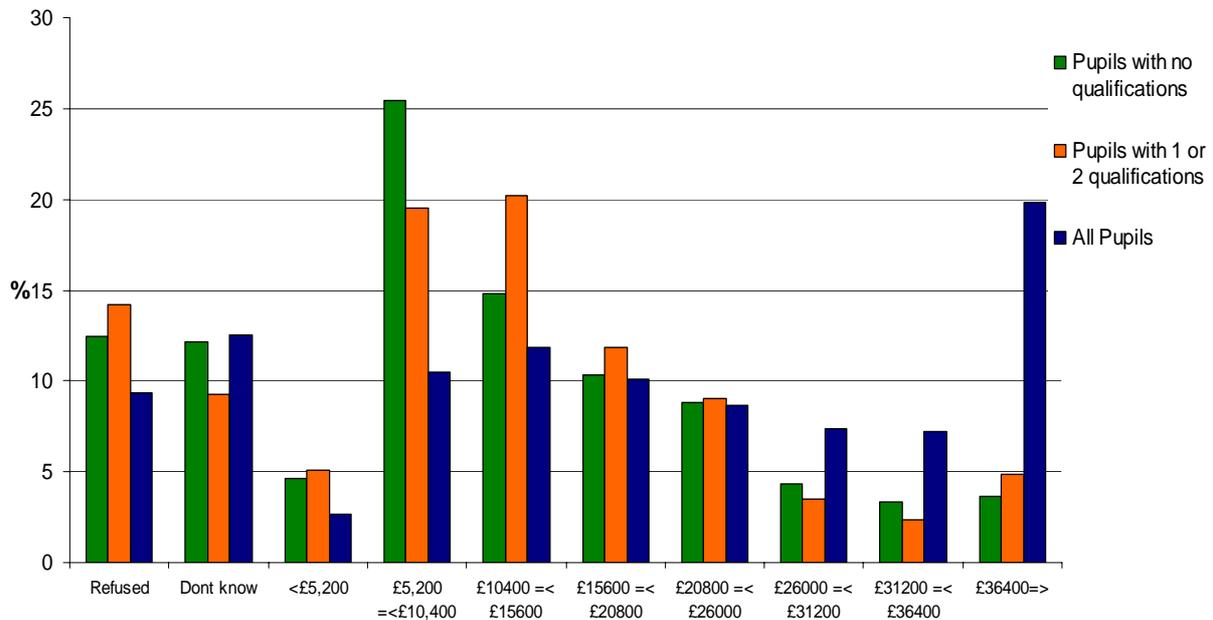


LSYPE also collected household income data; this can be used to show that pupils with the lowest attainment are more likely to be from households with lower incomes. For pupils with no more than two qualifications, the median¹⁰ household income is in the band of £10,400 to £15,600. The equivalent range for the whole sample is in the range from £15,600 up to £20,800. Further, whilst almost one in five pupils comes from a household with income over £36,400, less than one in twenty of those with no qualifications (and those with just one or two qualifications) come from a family with income this high. At the other end of the scale, pupils who get the fewest qualifications are more likely to come from households with incomes below £10,400.

⁹ National Statistics Social Economic Classification – see Chapter One.

¹⁰ Median groups shown here exclude those families who either refused to answer the income question or said that they didn't know their household income as it would not be sensible to try to guess what the incomes of these families is.

Chart 3.18: The household incomes of pupils who get the fewest qualifications



On a similar point, the PLASC data can be used to show that 41 per cent of pupils with no qualifications and those with only one or two qualifications are known to be eligible for FSM, whereas only 14 per cent of all pupils in the sample are known to be eligible for FSM. This corresponds with the chart above where those with few qualifications were disproportionately likely to be from households with low income.

Family composition and the employment status of a pupil's parents are also correlated with whether or not the pupil gets no more than two qualifications. Pupils with very few, or zero, qualifications are disproportionately unlikely to live in a household with two parents who both work, and considerably more likely to live with an unemployed lone parent (around a third of these pupils live with a single unemployed parent compared to one in ten of all pupils). Chart 3.19 shows these findings along with the various other possible combinations of family composition and parental employment status.

Chart 3.19: The family composition and parental employment status of the pupils who get the fewest qualifications

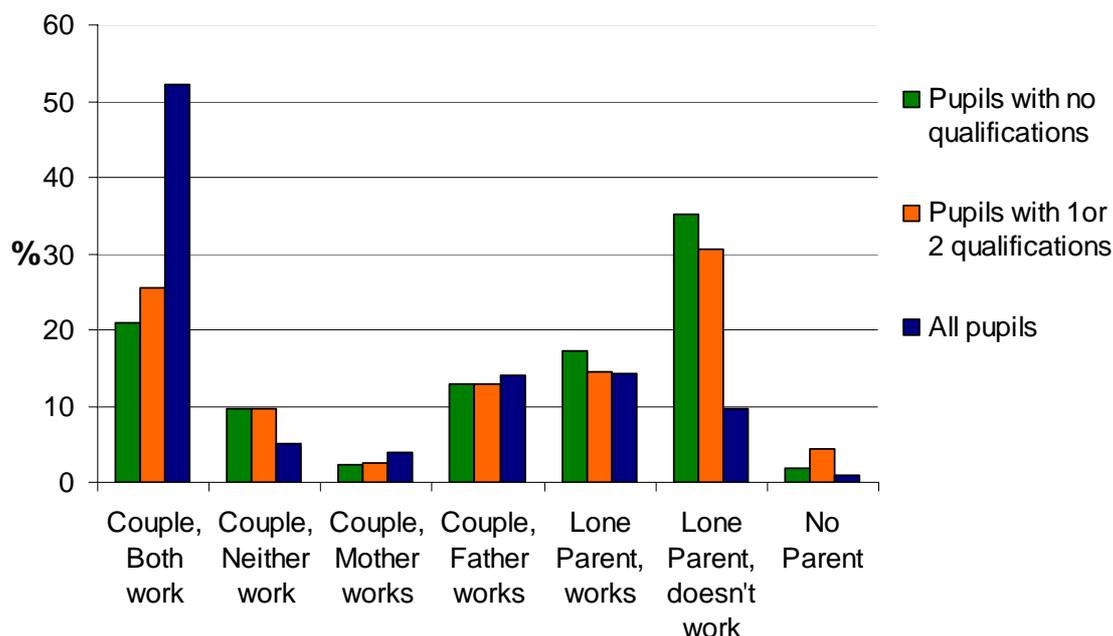


Table 3.20, below, shows that more than two in every five pupils who achieved just one or two qualifications at the end of KS4 said that they had played truant in the 12 months prior to the first wave of LSYPE questions. A similar proportion of those getting no qualifications also said that that was the case. Only 15 per cent of all pupils said that they had played truant in the previous 12 months, meaning that those with the lowest attainment were disproportionately likely to have said that they had played truant. A similar finding is shown in Table 3.21; only nine per cent of all pupils said they had been temporarily or permanently excluded from a school in the last three years, compared to half of those pupils who went on to get no qualifications and 43 per cent who got just one or two qualifications.

Table 3.20: Proportions of pupils who went on to get very few qualifications who said that they had played truant in the last 12 months¹¹

	Proportion playing truant
No qualifications	46%
One or two qualifications	42%
All pupils	15%

¹¹ 'Last 12 months' refers to the 12 months up to the first LSYPE survey at age 14

Table 3.21: Proportions of pupils who went on to get very few qualifications that had been temporarily or permanently excluded from school in the last three years

	Proportion suspended or excluded
No qualifications	50%
One or two qualifications	43%
All pupils	9%

This section has shown how pupils who get very few qualifications at the end of KS4, or even get no qualifications, are disproportionately likely to be affected by disadvantageous background factors. Not only are they more likely to be SEN pupils, they are likely to come from families with lower parental qualifications, from lower NS-SEC groups and from households with lower income. Further, they are more likely to have spent time out of school, either as a result of truancy or as a result of exclusions. This section does not show causation in any direction at any point, it merely notes some of the factors that are linked with these pupils who leave Year 11 with very limited qualifications.

3.6 Including aspirations in the pupil progression model

Section 3.4 suggested that there was some relationship between aspirations and pupil outcomes. In particular, there seemed to be a relationship between aspirations and CVA score, which implied that aspirations may be important in terms of progression and attainment, even when PLASC characteristics have been controlled for. This section tests this out by adding aspirations to the model that was seen in Chapter 2. The model that will be discussed here is identical to the one that was seen earlier, except for the inclusion of this extra variable, which means the questions of whether aspirations are a significant predictor of pupil progression can be addressed. It also provides an opportunity to see what happens to the other coefficients in the model when aspirations are also included.

The model uses pupils who didn't know what they wanted to do at age 16 as a reference category, meaning that it produces coefficients for each of

- a) *the effect of having high aspirations; and*
- b) *the effect of having low aspirations.*

Table 3.22, below, shows some of the key results from the running of this model¹². First, it is worth noting that each of the aspirations characteristics came out as being statistically significant predictors of attainment at KS4. Further, high aspirations have a coefficient of 15 GCSE points in the model, and the coefficient for having low aspirations is almost -25 points. Compared to those pupils who were unsure what they wanted to do at age 16, low aspirations are worth four fewer grades (the equivalent of 4 Cs and 4 Ds at GCSE rather than 8 Cs), and high aspirations have a positive impact of around two and a half grades. This means that the gap between

¹² The full model is shown in Annex A.

those pupils with high aspirations and those with low aspirations, once prior attainment and PLASC factors have been controlled for, is 40 GCSE points (the equivalent of almost seven GCSE grades). The final indicator of how important aspirations are is that adding aspirations to the model improves the R Squared from 60 to 61 per cent. This means that slightly more of the variation in pupil results is explained by the model which includes aspirations than the model without it.

The most notable changes to other coefficients in the model come with the variables for gender and ethnicity. Once aspirations are included in the model, being a girl becomes a less important factor in attainment. In Chapter 2, holding other factors constant, being female was worth an extra 13 GCSE points, but here it is worth only 10 points. This drop of around a quarter suggests that part of the reason why girls make more progress than boys is that they have higher aspirations; Chart 3.2 suggested that this was the case, and now the models of progression reflect this fact. Similarly, the effect of being in many of the ethnic minority groups also drops slightly. This suggests that part of the reason White British pupils do so poorly in terms of progress is that they have lower aspirations than their ethnic minority peers.

Table 3.22: Comparing some of the coefficients in the pupil progression model once aspirations have been included

Characteristic	Coefficient in LSYPE version of KS2-4 model	Coefficient in model including aspirations
Male	0.0	0.0
Female	13.5	10.3
White British	0.0	0.0
Black African	30.3	25.9
Bangladeshi	35.8	32.6
Black Caribbean	18.7	14.4
Chinese	42.9	41.0
Gypsy/Roma	1.7	-8.6
Indian	25.5	21.7
Irish	18.5	13.5
Pakistani	20.9	17.6
Traveller of Irish Heritage	21.0	6.7
White and Asian	16.4	12.6
White and Black African	5.9	3.4
White and Black Caribbean	-2.6	-3.1
Any Other Asian background	11.8	8.5
Any Other Black background	18.4	13.6
Any Other Mixed background	9.0	6.6
Any Other White background	16.4	15.0
Any Other Ethnic group	33.9	28.5
Unclassified Ethnic group	5.9	4.2
Unsure what to do post 16	-	0.0
High aspirations	-	15.0
Low aspirations	-	-24.2
R Squared	0.60	0.61

In Chapter 4, we shall see another model which contains aspirations together with other LSYPE variables relating to things like pupil background and parental engagement. In this model, while the aspirations effect is not quite as large it still remains statistically significant. This will show that aspirations are not just a useful predictor of attainment when put alongside the PLASC variables, but that they are still important even when controlling for other background factors.

One final point to be made in this section is that a more detailed model (not presented here) shows that aspirations are equally important predictors of attainment and progression for both FSM and non FSM pupils. This links to some of the ideas that will be seen in Chapter 5, where attention will turn to the factors that contribute to the FSM gap.

3.7 Aspirations and which pupils achieve five A*-C including English and Maths

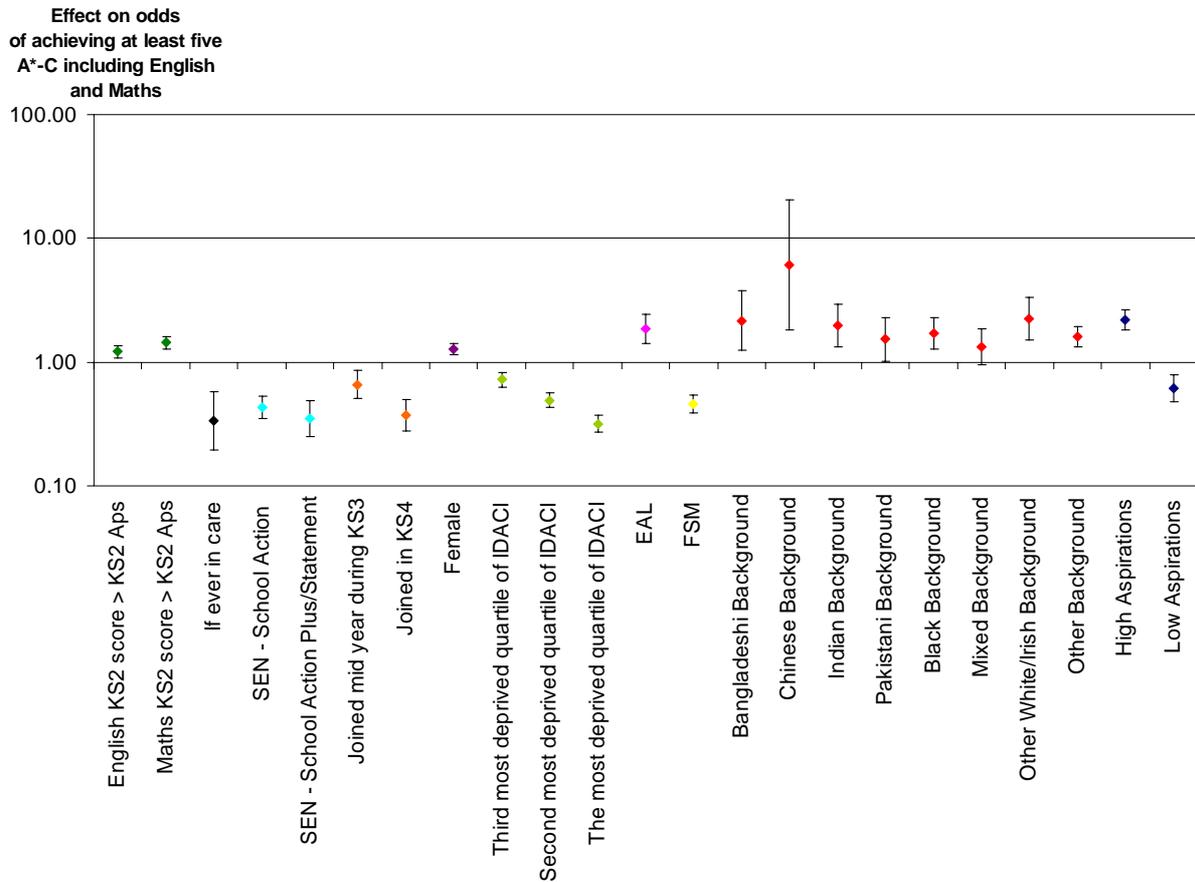
The final section of Chapter 3 is based around a logistic regression model, which looks at some of the factors which can be used to predict the odds of a pupil getting five A*-C including English and Maths. Chart 3.23 shows the effect of each characteristic on the odds of achieving this, once all of the other factors in the model have been controlled for, as well as prior attainment at KS2¹³. This means that, for example, a pupil with EAL is 1.9 times as likely to get five A*-C including English and Maths as a pupil who is identical in all other ways except for the fact that they have English as a first language. Effects shown are all relative to a pupil with the following characteristics:

- Unsure of what they want to do at age 16
- White British
- English as a first language
- The least deprived quartile of IDACI
- Male
- Joined school at the start of a KS3 school year
- Non-SEN
- Never been in care
- KS2 average point score higher than KS2 English and KS2 Maths
- Non-FSM

Even after all the other factors have been controlled for, a pupil having high aspirations still more than doubles the odds of them achieving five A*-C including English and Maths. A pupil with low aspirations has less than two thirds the odds of getting five A*-C including English and Maths of a pupil who is otherwise identical but unsure of what they want to do post 16.

¹³ The control for KS2 prior attainment controls for which quartile of the sample a pupil falls into for their KS2 average point score.

Chart 3.23: The effect of various characteristics on the odds of a pupil achieving at least five A*-C including English and Maths¹⁴



This model shows that not only are aspirations important predictors of a pupil's points score, they are also important predictors of whether they reach the benchmark level of five A*-C including English and Maths. Furthermore, they are still important predictors even once all of the other predictors have been controlled for.

3.8 Conclusions from Chapter 3

In addition to a brief sidestep to look at which pupils are likely to get very few qualifications at the end of KS4, this chapter has shown that most pupils have high aspirations. However, the likelihood of having high aspirations varies with the characteristics of the individual. It also shows that aspirations are related to outcomes for pupils, with pupils with high aspirations generally having better educational outcomes than those with low aspirations or who don't know what they want to do post 16. Further, the relationships between aspirations and outcomes hold even after other characteristics have been controlled for.

This suggests that if solutions can be found that help to improve the progress of those pupils with low aspirations, or to improve the aspirations themselves, then it

¹⁴ Note that, as seen in previous charts, this uses a logarithmic scale.

might be possible to improve their attainment. The fact that aspirations appear to be important even when other factors have been controlled for suggests that this improvement would be in addition to any benefits achieved by improving the outcomes of pupils affected by other negative factors, such as FSM pupils, those with SEN or those from deprived areas.

4 Extending the models of progress using LSYPE

Summary

- Adding in a broad range of LSYPE variables and school level variables from the Annual School Census “explains” more of the variation in pupil attainment at KS4 than is possible with the limited range of pupil characteristics in the schools census (PLASC).
- Extending the models of pupil progress to include more variables reduces the apparent importance of some of the PLASC characteristics. In particular, FSM has a much smaller effect on the predicted pupil outcome than before, with much of the ‘FSM effect’ being explained by other factors in the model.
- There remains a significant gap between the performance of pupils known to be eligible for FSM and other pupils, even when controlling for income and other factors.
- Factors which, independently, affect GCSE attainment and progress include:
 - Household income and material deprivation;
 - Area deprivation;
 - Family composition;
 - Parental employment status;
 - Pupil aspirations;
 - Parental engagement;
 - Parental background (social class and education levels);
 - School composition; and
 - School effectiveness.

4.1 Adding new components into the LSYPE sample model of progress

In the previous chapter it was shown that there are strong relationships between aspirations and other pupil characteristics, and that including aspirations in models of pupil progress has a substantial impact on the importance of other factors in that model. In this chapter we include more of the data that has been collected as part of LSYPE in the models, together with a range of school level information, and see which of these play an important role in predicting educational outcomes. Where they do play an important role, it will be possible to look at what happens to the other factors that had previously been useful predictors, as well as see the relative importance of the new factors themselves. That is what Chapter 4 will now do.

Table 4.1 shows the additional factors that, along with PLASC characteristics and pupil aspirations, have been included in the model of progress in this chapter. These factors were chosen because they cover a broad range of topics which are known to be related to attainment. For the purpose of this research, the additional factors have been grouped into broad themes. The themes are also shown in the table, and they enable the impacts of different types of factor to be compared.

Table 4.1: Additional components in the progression model¹⁵

Category	Additional components
Income and material deprivation	Household income Access to a computer/internet/vehicle Paying for private classes
Parental background	Family's Social Economic Classification Parental education level
Family composition	Parental arrangement in household Birth order within siblings Employment status of adults in household
Parental engagement	Parental aspirations for child's activities post 16 Involvement in child's Year 10 subject choice Talking with child about their school reports Frequency of eating family meals Opinion on info provided by school about child's progress Attendance at parents' evenings or similar events
School composition	School FSM band KS2 average point score of KS4 cohort Gender mix of school
School effectiveness	School KS2-4 CVA for 2006

4.2 Brief discussion on parental engagement

Before proceeding any further, it is worth pausing to reflect on the 'parental engagement' theme from the table. This report doesn't attempt to be exhaustive in its analysis of parental engagement, but it would have been naïve to have constructed models of pupil progress and attainment without including it in some way. Even restricting engagement to the specific area of educational engagement, it remains a complex theme made up of a number of very distinct aspects. The following list provides some, but perhaps not all, of the areas covered by parental engagement:

- Parental aspirations
- Attitudes towards education
- Relationship between parent and child
- Confidence in engaging with schools

In particular, it is clear that it is very possible to be quite engaged on some of these measures, but not on others. For example, a parent may have very high aspirations for their child's education but not have a particularly close bond with them. As such,

¹⁵ The variables in the model were all measured in 2004, except for "Attendance at parents' evenings or similar events" and "Parental qualifications" which were measured in 2005. The components in the School composition and School effectiveness categories come from the Annual School Census rather than LSYPE. Where FSM band was missing in the original dataset, mostly due to new schools opening, some entries have been completed using 2006 data. Some other variables have default values for missing cases. This is all explained more fully in Annex A.

it was important to try to measure as many different aspects of parental engagement as possible in order to ensure that measures of it are as fair as possible. While LSYPE is limited in the sense that the data has been collected already, it was possible to find reasonable approximations for some of the different areas covered by parental engagement. The parental aspirations row of Table 4.1 maps clearly onto the first aspect listed above, with the next two relating to both educational attitudes and, to a lesser extent the relationship between the parent and the child. This latter factor is also covered by the frequency with which a family eats an evening meal together, while the parent's confidence in engaging with schools is represented by the last two rows under the theme of parental engagement.

It is also worth noting at this point that parental engagement, and also some of the other background factors (such as family NS-SEC or parental qualifications), are likely to be quite different for those children who are, or have been, in care. However, given the small numbers of pupils who fall into this category in the LSYPE sample, it is not possible to look at this group separately here.

4.3 The importance of PLASC factors in a more complete model of attainment

The remainder of Chapter 4 concentrates on the effect of different characteristics in more complete models of pupil progress. This section will look specifically at what happens to the PLASC characteristics that were in the model seen in Chapter 2 when new information is introduced to the model, while the next one will look more widely at the importance of the other factors as well. The next section will also present the results of a second model which is otherwise identical except that KS2 prior attainment has not been included. This reflects the influences of the various factors on overall educational attainment, whereas the progression model narrowly shows the effects on progress during secondary school. As in Chapter 2 and Section 3.6, the models presented in this chapter use multiple linear regression to determine the relative importance of different factors in determining the capped points score at KS4 of individual pupils.

Table 4.2 highlights some of the NPD characteristics which had interesting, and often substantial, changes to their importance once all of the additional variables had been included in the model. The first column of figures shows the coefficients in the model of Chapter 2 where the CVA model was replicated using the LSYPE sample, and the second shows the corresponding coefficients in a model containing the full set of variables. The final row of the table presents the R squared values of the two models; the increase from 0.61 to 0.67 tells us that including the additional characteristics in the new model has explained an extra six percentage points of the variation in capped points scores. Since new factors have been introduced into the model and have helped explain more of the variation, many of the original characteristics have become less important in the new model (the magnitude of their coefficients has got smaller). However, there are some characteristics that have become more important; it is just as important to consider both cases as they each tell us something about the characteristics in relation to the new ones in the model.

Table 4.2: Changes in the importance of characteristics once the new components have been included in the model¹⁶

	Coefficient in Chapter 2 PLASC model	Coefficient in more complete LSYPE model
Been in care	-14.0	-14.5
FSM	-33.0	-7.2
Female	13.5	9.8
IDACI	-60.9	-21.0
KS2 average point score of KS4 cohort	3.9	2.8
SEN - School Action	-28.2	-25.7
SEN - School action/statement	-47.3	-44.5
Age within school year	-16.7	-12.3
Black African	30.3	13.3
Chinese	42.9	54.3
Indian	25.5	18.5
Pupil joined school during school year in year 7-9	-19.4	-15.6
Pupil joined school after start of Year 10	-72.0	-60.7
R Squared	0.61	0.67

Given the content of Chapter 5, the first point worth highlighting from the table above is the change in the FSM coefficient. In the model using just PLASC variables, being eligible for FSM had an effect of -33 points on an individual's predicted KS4 score. Now that the different socio-economic variables have been included in the model, this coefficient has dropped in magnitude to just -7 points. This suggests that FSM eligibility is not as much of a negative factor in itself, but that in the simpler model it was acting as a proxy for some of the other factors which have now been put into the model. The definition of FSM eligibility tells us, for example, that this factor is closely related to household income. Now that this variable, along with many others, is in the model, it is not unsurprising to see the effect of FSM decrease dramatically. In fact, it may be more surprising that FSM eligibility is still a negative factor, showing that pupils known to be eligible for FSM make somewhat poorer progress, even after allowing for things like family income. The next section will show which of these new factors have the strongest impacts on predicted scores, and therefore which ones may have contributed most to this drop in importance of FSM eligibility.

The coefficient for IDACI in the new model is -21, having been -61 in the model using just PLASC characteristics. As a drop of around two thirds this appears to be quite a big change but, as in Chapter 2, the best way to check is to look at what happens for typical pupils in the two models. In the PLASC model, the gap between the IDACI effects on a pupil at the upper quartile and one at the lower quartile is 15.8 points, whereas in the new model it is just 5.4 points¹⁷. The change in the effects is therefore 10 points, the equivalent of just under a grades in each of two GCSE subjects (for instance a prediction of 6 Cs and 2 Bs instead of 8 Cs). As with FSM, the drop in importance of area deprivation is the result of introducing so many other variables that measure different types of deprivation, and means the IDACI

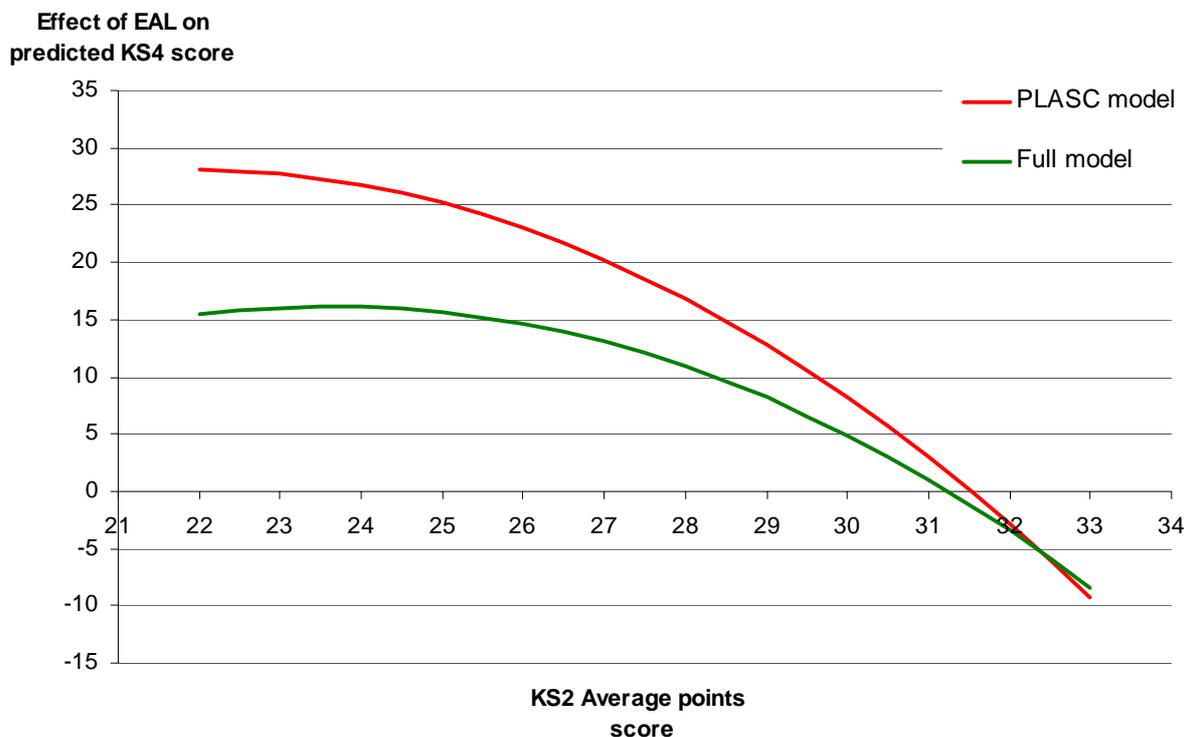
¹⁶ The complete list of coefficients can be found in Annex A.

¹⁷ These are calculated using the upper and lower quartiles for IDACI score of the LSYPE sample which are 0.06 and 0.32.

coefficient was previously measuring the effect of some other factors as well which have now been introduced into the model themselves.

Chart 4.3 plots the effect in the two models of having English as an additional language. As before, this effect is a quadratic using KS2 prior attainment. The chart shows that, for higher levels of prior attainment, there is little difference in the effect of EAL status on a pupil's predicted capped points score in the two models. However, for KS2 average points scores of 28 or less the difference is at least a grade in one subject (six points), and for KS2 average points scores of 22 it is more than a grade in two subjects (12 points). Where there are larger gaps, it is again the full model which gives the smaller effect and the PLASC model that says EAL is more important. This suggests again that the coefficient for EAL in the PLASC model is measuring some other effects too, which are now measurable in their own right.

Chart 4.3: The effect in the two models of EAL status on predicted KS4 score for different levels of KS2 prior attainment



While most of the coefficients dropped in magnitude, the effect of some of the characteristics actually increased. An example of this is the coefficient for being of Chinese ethnicity, which went up from 43 to 54 in the new model. This suggests that, relative to others, these pupils do even better when the additional factors such as parental qualifications or NS-SEC, have been controlled for. That is, it suggests that Chinese pupils are on average more likely to have the characteristics added to the model which are associated with less KS2-4 progress than White British pupils, but that they still make better progress than those White British pupils.

Lastly, it is worth noting that some of the coefficients did not change much at all. The effect, for example, of having been in care is very similar in the two models (-14 GCSE points in the PLASC model and -15 in the more complete model), as are the effects of different SEN statuses. The reason for this could be that both characteristics have independent effects to those of the new characteristics in the model, or it could be that any dependent effects cancel each other out. That is, if pupils with SEN are disproportionately affected by some other characteristics which are linked with good KS2-4 progress, then their impact is broadly cancelled out by another collection of characteristics associated with making less progress.

Thus, the effect of including new components in the model varies according to what original component is being affected. While most of them are reduced in magnitude, as some of the original effect can now be explained more accurately using the new variables, some are increased in size and some remain relatively similar. It now makes sense to look at the coefficients for the new components and see which of them have the biggest effects, and which ones do not appear to be as important as the PLASC factors that had already been controlled for in the model.

4.4 The importance of the new components in predicting KS4 outcomes

The previous section showed how the impacts of PLASC characteristics on KS2-4 progress were affected by including the new components from the LSYPE data. It was shown that the variation explained by the model increased by six percentage points, and that the magnitude of the effect of most of the original factors decreased. This implied that the socio-economic characteristics of LSYPE are related to some of the PLASC characteristics and that they are useful predictors of KS4 attainment. In this section, attention will turn to those new components, and we shall see how important they are in predicting KS4 outcomes.

Of course, even with the much richer LSYPE dataset, there may be other important factors which are not measured. So, in turn, some of the variables which will appear to be important here might become less important if other factors were included (in the same way that the PLASC factors are affected by including the LSYPE information). However, the risk of this is lower, because the range of variables included now is broader and there are diminishing returns when including more and more information in models.

Two models will be presented¹⁸, one of which has been discussed in part in Section 4.3. This shows KS2 attainment and the effects of other factors on pupil progress from KS2-4. The second model excludes prior attainment. The means that the effects shown for other characteristics are their effect on the raw outcome measure of KS4 capped points score. In order to look at what affects a pupil's outcomes during secondary school given a certain level of KS2 attainment, the first model is more useful. The second model is the more useful to assess the impact of factors on the overall attainment at age 16. A series of charts will be presented over the next few pages which show the results of this modelling. It is important to note that all of them show the same models; the effects shown for each characteristic is the effect

¹⁸ Complete versions of both models can be found in Annex A.

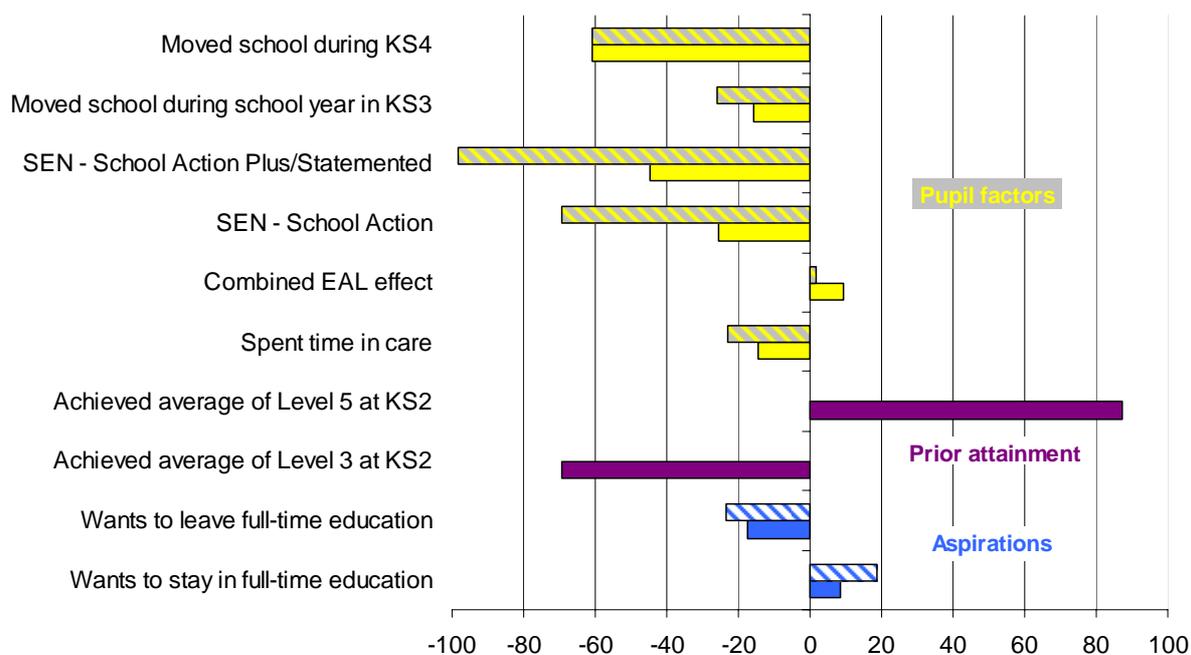
once all characteristics in the model have been controlled for, not just those characteristics presented in that specific chart.

In these charts, the first model (which we shall refer to as a model of progress) is shown with the bars filled completely, while the second model (of raw attainment) is shown with the bars striped. Characteristics are separated into the categories listed in Table 4.1 to allow themes to be easily compared. There are a total of five charts, each plotted on matching axes, which allows easy comparison between them. Attention should be focussed on the size of the bars as much as the direction, as the directions of a component could be reversed by altering the reference category for it. For example, a positive effect for not spending time in care, relative to spending time in care, is equivalent to the negative effect shown in Chart 4.4 for spending time in care relative to not spending time in care.

It is also important to remember that effects are additive. That means that a pupil who, for example, spent time in care and who moved school during KS4 has their predicted score changed by the combined effects for each of these characteristics. The more of the characteristics that a pupil has, the more their predicted score changes. So pupils with lots of 'negative' characteristics can have very low expected scores once the impacts of all of these have been taken into account.

The first chart looks at some of the PLASC categories discussed in Section 4.3, but also includes the effects of the aspirations variables that were discussed in Chapter 3.

Chart 4.4: Effects on KS4 outcomes of components in the categories of Pupil factors, Prior attainment and Aspirations¹⁹

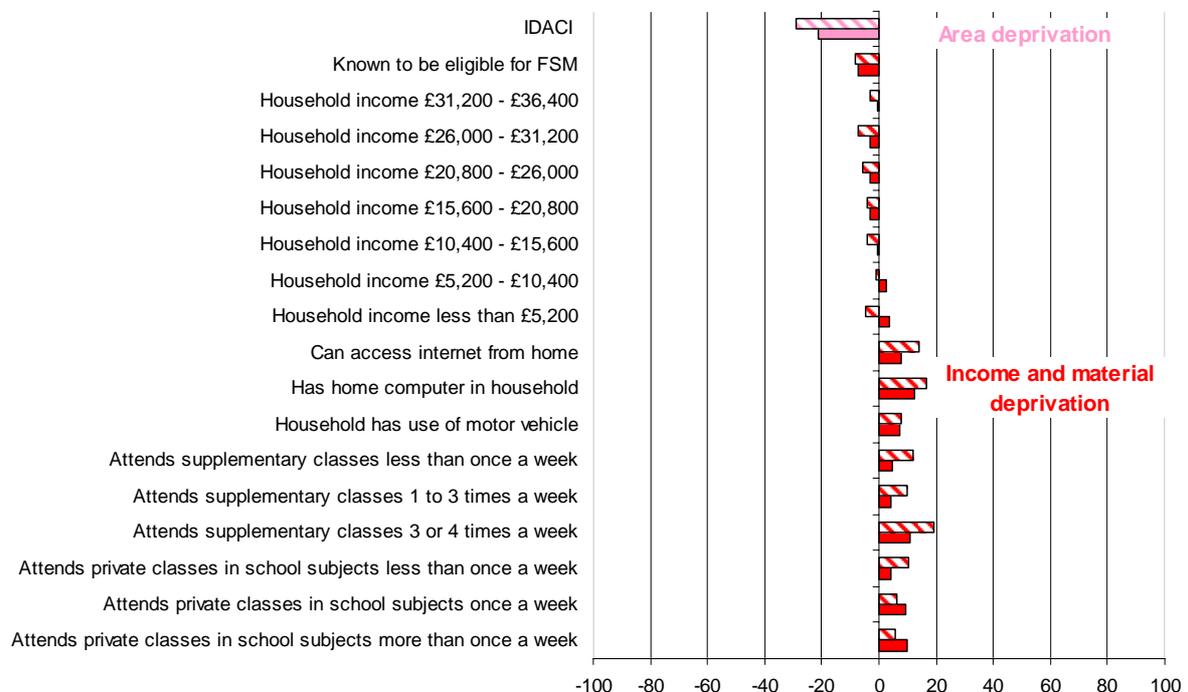


¹⁹ The effects of prior attainment are shown relative to a pupil achieving Level 4 at KS2.

The biggest effects shown, and indeed the biggest that will be shown in any of these charts, are for prior attainment, which is the biggest predictor of KS4 attainment. Some pupil factors become much more important when prior attainment is not included in the model; in particular SEN status, which is a strong predictor of KS2 attainment, is much more important in the model for raw KS4 attainment than in the progress model. The size of the aspirations bars should be compared with the sizes of the coefficients seen in Section 3.6, where they had been included in a model along with the PLASC characteristics but none of the other variables. In that model, which was a model of progress, high aspirations added 15 points to the predicted capped points score of a pupil, while low aspirations reduced the prediction by 24 points. In the larger model of progress, these effects are reduced in magnitude to just +8 for high aspirations and -17 points for low aspirations, suggesting that aspirations were measuring some of the categories that have been included in this expanded model. In the raw attainment model, the coefficients are back to levels similar to those seen in Chapter 3 (+19 and -24 respectively).

The second of this series of charts, Chart 4.5, shows the effects of those variables in the area deprivation and income and material deprivation categories. It is worth noting that the FSM effect is actually smaller than the combined magnitudes of the 'household income' bars. This supports the ideas discussed in the previous section when considering the smaller FSM effect than was seen in the simpler model.

Chart 4.5: Effects on KS4 outcomes of components in the categories of Area deprivation and Income and material deprivation²⁰

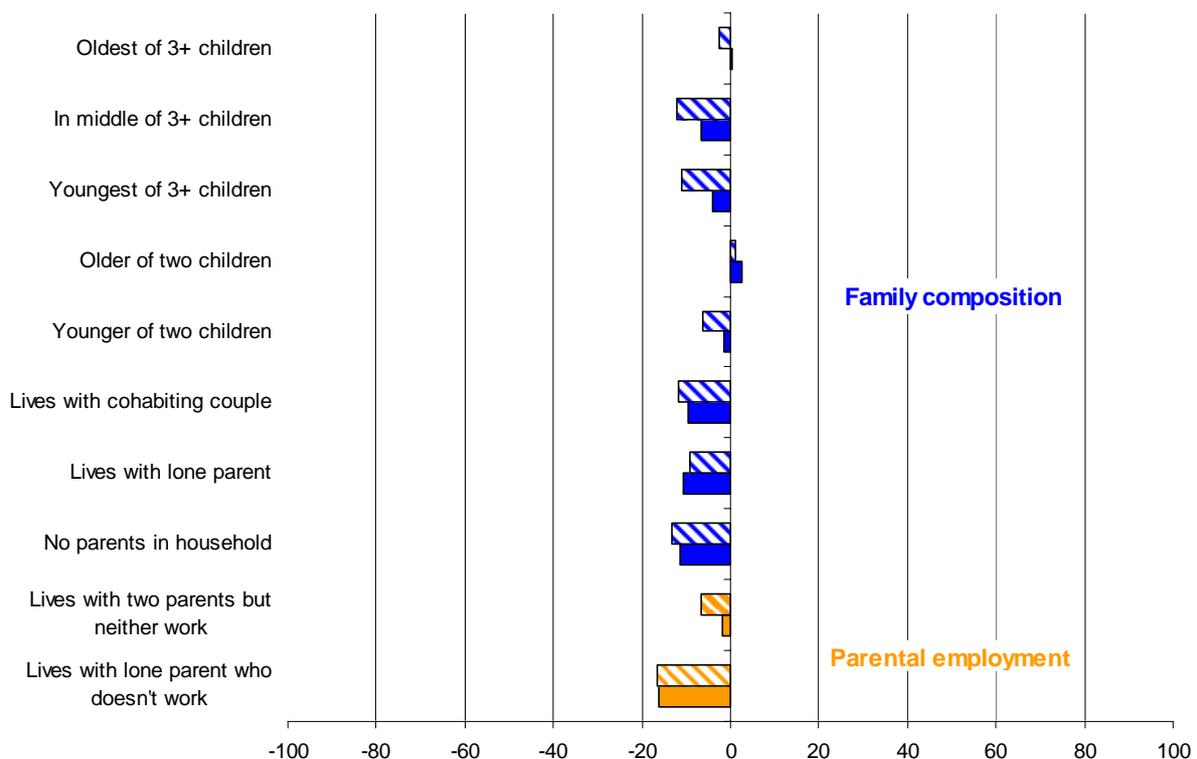


²⁰ The income bars are relative to a household with income of more than £36,400

It is also worth noting that other deprivation factors have an additional effect on top of the effect of income and FSM status, and that some of these effects are not unsubstantial. Frequent attendance at supplementary classes, for example, adds more than a grade in each of three GCSEs (19 points) to a pupil's predicted capped points score in the raw attainment model. The LSYPE research is from 2004, and so questions on computer and internet access may appear a bit dated, but it would seem possible that a more relevant question would have a similar effect on predicted points score now.

Chart 4.6 shows the effects of various family factors on KS4 outcomes. The bottom section shows that even when other family characteristics and household income have been taken into account, the employment status of a pupil's parents still has an effect on their KS4 outcomes. While living with a married set of parents is seen to be the best for attainment, the other three possibilities (living with a cohabiting couple, a lone parent or with neither parent) are all shown to have similarly sized negative impacts on the predicted KS4 outcome. The position in the birth order of the children in a household is also linked with KS4 outcomes; the chart shows that children in smaller families, and those who are the eldest child, tend to do better than children in larger families or who have older siblings, even when all the other factors in the model have been controlled for.

Chart 4.6: Effects on KS4 outcomes of components in the categories of Parental employment and Family composition²¹



²¹ Effects in this chart are relative to being an only child and living with a married couple at least one of whom is employed.

While the structure of the household is important in determining how well a pupil is likely to do at KS4, so are other family factors; Chart 4.7 presents the effects of various parental engagement and parental background factors on KS4 outcomes. The parental engagement factors, towards the top of the chart, show quite large effects for some components. In particular, parents not talking to their child about their Year 10 subject choices results in predicted scores of around 20 points fewer than for those pupils whose parents offered advice on which subjects they should choose. Similarly, low parental aspirations have a negative impact on the predicted scores, there is not a corresponding difference between those pupils whose parents had high aspirations and those whose parents didn't know what they wanted their child to do post 16.

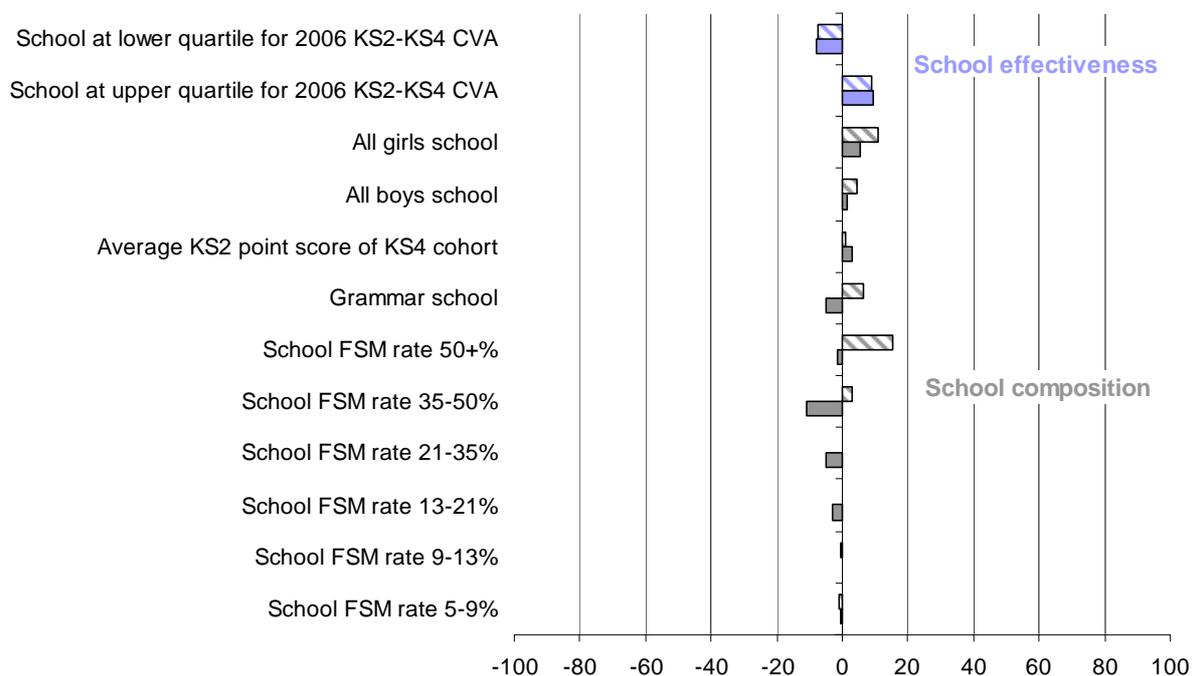
Chart 4.7: Effects on KS4 outcomes of components in the categories of Parental engagement and Parental background



In terms of parental background, children with at least one parent with higher qualifications, on average, score more KS4 points than otherwise identical pupils with parents with lower qualifications. Similarly, pupils who are from families with higher NS-SEC classifications tend to score more points at KS4. Being from a 'higher professional' family adds a grade in two and a half GCSE subjects (15 points) to a pupil's predicted score in the raw attainment model compared to that of a pupil from a family with NS-SEC of 'routine'.

The previous four charts (Chart 4.4 to Chart 4.7) have shown strong relationships between socio-economic factors and KS4 outcomes. Chart 4.8 now turns towards school factors and shows that, after controlling for the socio-economic components, school effectiveness and composition are perhaps less important than might have been anticipated. School effectiveness is presented as the effect of attending a school at the upper or lower quartile for CVA, compared to a school with CVA of 1,000²². These add or remove only a little more than the equivalent of one grade in one subject at GCSE to a pupil's predicted score once other factors have been controlled for. Since this is a measure of KS2-4 effectiveness, it is to be expected that this effect is similar regardless of whether KS2 attainment is included in the model or not.

Chart 4.8: Effects on KS4 outcomes of components in the categories of School effectiveness and School composition



Some of the effects of school composition are slightly more complicated. The gender mix of a pupil's school doesn't appear to have much of an effect – although girls'

²² This is the average CVA score; scores above this mean a school's pupils made more progress between KS2-4 than other pupils with the same characteristics as them that attended other schools.

schools are associated with slightly better outcomes at KS4 than mixed schools, there is only a small effect for attending a boys' school relative to a mixed school. A pupil whose KS4 cohort has higher KS2 attainment tends to do slightly better at KS4 than an otherwise identical person in a cohort with lower prior attainment. The effects of different school FSM rates appear on the chart to be quite mixed, but it is worth noting, as shown in Annex A, that some of these effects are not statistically significant, which explains the erratic appearance somewhat.

This section has shown that many of the additional components that can be added to the models of pupil progress and attainment are strong predictors of KS4 outcomes. It has been shown that school factors can also be important in predicting outcomes but that generally they do not show such big effects as the socio-economic factors.

4.5 Conclusions from Chapter 4

The chapter as a whole has shown that although the PLASC characteristics of the CVA model (such as FSM eligibility, IDACI score and ethnicity) can be used to predict KS4 outcomes, they appear to be acting as proxies for other factors as well. Where these factors can be unpicked, models can explain more of the variance in pupil outcomes than can be explained without them. This means that while it still makes sense to think about pupil characteristics when trying to improve attainment, there is also a wide range of other factors that could be addressed. This chapter has shown independent effects for each of the following: income and material deprivation, area deprivation, aspirations, parental background, parental engagement, school composition, school effectiveness, prior attainment, family composition and parental employment. This suggests that these all have separate relationships with KS4 outcomes and could each be addressed separately to improve pupils' outcomes at KS4.

5 Components of FSM gaps

Summary

- Although FSM status itself only has a small impact on attainment, FSM pupils are more likely than non-FSM pupils to have characteristics that have separate, negative impacts on progress during secondary schooling, and also on overall attainment at KS4.
- Among White British pupils, those known to be eligible for FSM are substantially more likely than not known to be eligible for FSM to:
 - Live with a single parent;
 - Have parents with no qualifications;
 - Have low aspirations;
 - Attend schools with lower prior attainment; and
 - Be from families with at least three children.
- For White British pupils, the contributions to FSM gaps in secondary school attainment are, in decreasing order of size:
 - Prior attainment (around six GCSE grades);
 - Income and material deprivation (around three GCSE grades);
 - Parental engagement (a little more than one GCSE grade);
 - Parental employment;
 - School composition;
 - Pupil factors;
 - Family composition (one GCSE grade);
 - Parental background (a little less than one GCSE grade);
 - Area deprivation;
 - Aspirations (half a GCSE grade); and
 - School effectiveness (one sixth of a GCSE grade).
- The FSM gap is smaller for pupils from underperforming ethnic minority groups than for White British pupils. This is largely because there is less difference between the characteristics of FSM and non-FSM pupils in these groups than among White British pupils.
- Aspirations of pupils from underperforming ethnic minority groups do not seem to vary much with FSM eligibility, and FSM pupils from these groups actually attend schools with higher CVA scores. However, while only a small portion of the FSM gap is attributed to aspirations and school effectiveness helps to keep the gap narrower in these groups, other factors are in a similar order to the White British FSM gap in terms of the sizes of their contributions.
- Some factors are more strongly related to gaps in raw outcomes than in progress during secondary school. In particular, parental background, school composition and pupil factors (such as SEN status) are much more important in terms of raw attainment FSM gaps.

5.1 Background to the FSM gap

It is well known that there is a wide FSM gap in GCSE attainment. In 2009, only 27 per cent of FSM pupils achieved 5 A*-C including English and Maths, compared to 54 per cent of non-FSM pupils. In 2006, when the LSYPE sample reached the end of KS4, the gap was even wider, with the corresponding figures standing at 20 per cent and 48 per cent. In the 2006 KS2-4 CVA model, White British FSM pupils were predicted to score 25 points less on the capped eight best points score than otherwise identical non-FSM pupils. This is the equivalent of around one grade in each of four subjects (or 4 Cs and 4 Ds instead of 8 Cs).

In Chapter 4, it was stated that there are many other factors in LSYPE (as well as some school level variables) which can be used to explain pupil progress and attainment. In this broader model of pupil progress, the effect of FSM eligibility among White British pupils was just seven GCSE points (just over one grade in one subject). This is particularly small when compared to the coefficient of 33 that was seen when the CVA model was replicated using the LSYPE sample, meaning that the other factors helped to reduce the original coefficient by almost 80 per cent. This doesn't mean that the FSM gap in attainment or progress has been reduced by 80 per cent; it means that FSM status itself has only a small effect on attainment and progress, and that much of the FSM gap can be explained using the other factors.

This chapter will investigate this and show that the vast majority of the FSM gap occurs because FSM pupils are more likely to have the characteristics in the model which are associated with lower raw attainment and making less progress.

5.2 Comparing the frequency with which characteristics occur in White British FSM pupils and in non-FSM White British pupils

The modelling in Chapter 4 showed that some of the characteristics that are recorded in LSYPE are associated with different levels of attainment and progression. These characteristics occur with different frequencies among different groups of the population; in particular they occur at different rates among pupils known to be eligible for free school meals and those not known to be eligible. This section shows that FSM pupils are disproportionately affected by 'negative' factors. Since the coefficient for FSM refers specifically to White British pupils (other ethnicities are covered by the FSM and ethnicity interactions) this section will focus on FSM gaps among White British pupils; FSM gaps among other ethnicities will be looked at in Section 5.6.

Table 5.1 highlights how White British FSM pupils differ from non-FSM White British pupils. One of the key things to notice, particularly given the strong importance of this factor in terms of KS4 outcomes, is that the FSM pupils have much lower prior attainment than the non-FSM pupils. The mean KS2 average points score for White British FSM pupils is almost three points lower (24.6 compared to 27.5) than it is for their non-FSM peers, which is equivalent to about half a National Curriculum level. This immediately provides some explanation for why there is an FSM gap; the FSM pupils start from a lower base, and this is a negative factor when predicting KS4 outcomes.

Table 5.1 Characteristics of White British pupils known to be eligible for free school meals, and those not known to be eligible²³

Characteristic	Non-FSM	FSM
Household income £5,200 - £10,400	8%	46%
Household income £10,400 - £15,600	13%	30%
Household income £36,400 and above	27%	0%
Lives with lone parent	20%	62%
Lives with two parents but neither work	3%	20%
Lives with lone parent who doesn't work	6%	50%
Younger of two children	22%	10%
Older of two children	23%	12%
Youngest of 3+ children	14%	15%
In middle of 3+ children	22%	38%
Oldest of 3+ children	12%	19%
Parent pays for private classes in school subjects	11%	3%
Household has use of motor vehicle	93%	50%
Has home computer in household	93%	65%
Can access internet from home	82%	39%
Family NS-SEC – higher professional	14%	1%
Family NS-SEC – lower professional	28%	8%
Family NS-SEC – routine	22%	68%
Highest parental qualification – Degree	18%	3%
Highest parental qualification – Higher Education	18%	6%
Highest parental qualification – A Level	22%	9%
Highest parental qualification – No qualifications	6%	36%
Parents didn't talk about Year 10 subject choice with child	6%	20%
No one has been to parents' evenings or similar events at school	14%	31%
Eat family meal every night of the week	34%	48%
SEN - School Action	9%	19%
SEN - School Action Plus/Statemented	7%	21%
Pupil has high aspirations	80%	66%
Pupil has low aspirations	14%	25%
School FSM rate 0-5%	21%	5%
School FSM rate 35-50%	4%	19%
Mean KS2 average points score	27.46	24.56
Mean IDACI	0.18	0.38
School level mean of KS2 scores of KS4 cohorts	27.22	25.82

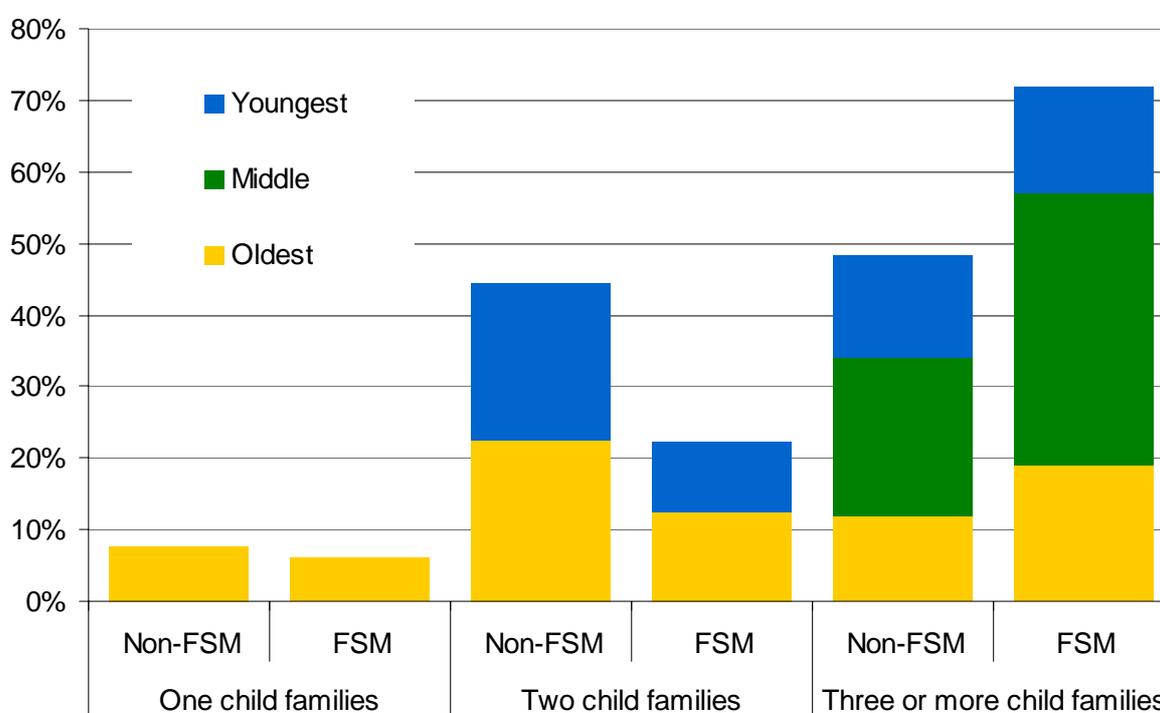
White British FSM pupils are more likely to come from single parent families, households with low income and households where no parents work than non-FSM White British pupils, all of which reflects the criteria for FSM eligibility. While almost half (46 per cent) of White British FSM pupils came from households with income between £5,200 and £10,400, and less than half of one per cent of their parents said that they had household income of at least £36,400, only eight per cent of non-FSM White British pupils fell into the lower income bracket and more than a quarter of them (27 per cent) were from households with income over £36,400. And while one in five of the non-FSM group lived with a single parent, more than three in five of the FSM group were from single parent families (62 per cent). The gaps for the

²³ Except for characteristics relating to aspirations, percentages are calculated excluding missing and refused responses and those who didn't know answers to questions.

employment status are even larger, with a large proportion of White British FSM pupils (70 per cent) coming from families where there are no parents working.

Another characteristic that shows big differences between the groups is the size of the family, which is shown in Chart 5.2. Only 22 per cent of White British FSM pupils were from families with two children, but 72 per cent were from families with at least three children. Among non-FSM White British pupils, 44 per cent were in two child families and 48 per cent had at least two siblings. In particular, the especially large difference between the proportions of the groups who were in the middle of at least three children means that FSM pupils are more likely to be from families with more than three children (since here there are more positions in the birth order which would count as being in the middle).

Chart 5.2 Birth order within families of White British pupils known to be eligible for FSM and White British pupils not known to be eligible



Income deprivation appears to spread into material deprivation for White British FSM pupils, as they are also less likely to attend private classes in school subjects, or to live in households with access to a vehicle, a home computer or the internet. The levels of access to those later characteristics are perhaps a little dated, due to the fact that the questions were asked in 2004, but it seems probable that similar gaps would appear if more topical questions were asked now. The White British FSM pupils also live, on average, in more deprived areas than non-FSM White British pupils. The mean IDACI scores for the two groups (0.18 and 0.38) show quite a substantial gap in the types of area the two groups live in, which means the FSM

group is disproportionately affected by another factor associated with worse KS4 outcomes.

Categories associated with parental background also favour those pupils not known to be eligible for free school meals. Only one per cent of White British FSM pupils are from families with an NS-SEC of higher professional, while 68 per cent of them have a family NS-SEC of routine. White British pupils who are not FSM eligible are much more likely to be from higher professional families (14 per cent) and less likely to be from families with NS-SEC of routine (only 22 per cent). They also tend to have parents with higher qualifications, with 18 per cent of them having at least one parent with a degree and just six per cent coming from families where neither parent has a qualification. Among White British FSM pupils, only three per cent have a parent with a degree, and for almost two in five (36 per cent) neither parent has any qualifications at all.

Parental engagement is also important. FSM pupils are less likely to have parents engaged in their education; 20 per cent hadn't discussed Year 10 options with their parents, and 31 per cent hadn't had anyone attend events such as parents evening, compared to figures of six per cent and 14 per cent for non-FSM White British pupils. However, the FSM group do have higher rates on one of the characteristics shown in Chapter 4 to be linked with good KS4 outcomes; they were more likely to have eaten an evening meal with their family every day of the week than the non-FSM group (48 per cent compared to 34 per cent). Whilst also measuring family cohesion, this probably also reflects the employment status of FSM pupils' parents to a certain extent, as it is more likely that parents of non-FSM pupils might be at work and unable to have a family meal every evening.

In addition to being disproportionately affected by deprivation and negative factors relating to their family, White British FSM pupils are also more likely to have personal characteristics that are associated with worse KS4 outcomes. While only 16 per cent of non-FSM White British pupils are listed as having some kind of SEN, as many as 40 per cent of the White British FSM pupils have SEN. Perhaps related to their prior attainment is the fact that they also have much lower aspirations than non-FSM White British pupils; while 80 per cent of the non-FSM group had high aspirations, only 66 per cent of the FSM group wanted to stay in full-time education after Year 11. Both SEN status and aspirations, therefore, impact particularly negatively on White British FSM pupils in the models of progress and attainment.

Lastly, White British FSM pupils are also more likely to attend schools with higher FSM rates and that have, on average, intakes with lower prior attainment. The average prior attainment at a White British FSM pupil's school is 1.4 points lower than that of a non-FSM White British pupil's school, and while 21 per cent of the non-FSM pupils attend schools with FSM rates of below five per cent, only five per cent of the FSM pupils do so. Similarly, 19 per cent of White British FSM pupils attend schools with FSM rates between 35 and 50 per cent, compared to only four per cent of non-FSM White British pupils.

This section has shown that White British pupils who are eligible for free school meals have very different characteristics compared to their non-FSM peers. In particular, on average they are disproportionately likely to be affected by the

characteristics shown in Chapter 4 to be associated with making less progress from KS2-4 and achieving lower scores at the end of KS4. The next few sections will show how this disproportionate influence of different characteristics leads to gaps in the outcomes for the two groups, and how relatively important the different factors are in terms of their contribution to these gaps.

5.3 The methodology for deconstructing gaps

The main purpose of Chapters 5 and 6 is to deconstruct gaps between groups of pupils. This will be done using the models of Chapter 4, so there are two sets of deconstructed gaps; those from the progress model and those from the model of raw attainment. The models show how important different characteristics are in determining a pupil's KS4 outcomes, but it has been shown in Section 5.2 that these characteristics are not spread equally across all pupils.

This means that some groups are more affected by some factors than others; the negative effect of not having access to a motor vehicle, for example, has only a small impact on the average KS4 outcomes of non-FSM pupils (because 93 per cent of this group have access to a vehicle), but will have a bigger impact on the average attainment of FSM pupils (since only 50 per cent have access) and therefore the difference contributes to the FSM attainment gap. Meanwhile characteristics in the model such as gender do not contribute to FSM gaps because, although gender may appear important in the model, there is a similar gender mix in both FSM and non-FSM groups and therefore a similar impact on each. In more general terms, a characteristic will contribute most to a gap between two groups where the effect of it is large and where there is a big difference between the rates with which it occurs in the two groups.

To simplify the analysis, the categories identified in Chapter 4 will be used to look at gaps, along with new ones which represent the PLASC characteristics. Table 5.3 shows the categories that will be used to explain the gaps, along with the individual components of those categories.

Table 5.3: The components used to deconstruct gaps

Category	Components
Income and material deprivation	Household income FSM eligibility Access to a computer/internet/vehicle Paying for private classes
Parental background	Family's SEC Parental education level
Parental engagement	Parental aspirations Involvement in Year 10 subject choice Talking with child about reports Frequency of eating family meals Opinion on info provided by school about child's progress Attendance at parents' evenings or similar events
Family composition	Parental arrangement in household Birth order within sibling
Family employment	Employment status of adults in household
Aspirations	Pupil aspirations
Area deprivation	IDACI score of pupil home postcode
Prior attainment	KS2 average points score (as a quadratic)
Pupil factors	Having been in care at some stage EAL status SEN status Mobility Ethnicity
School composition	School FSM band KS2 average point score of KS4 cohort Gender mix of school
School effectiveness	School KS2-4 CVA for 2006

The method for deconstructing gaps between groups looks at the effect of each of the components in Table 5.3 on an 'average' pupil from each group. This means that the average characteristics the entire group are mapped onto the pupil so, since 50 per cent of White British FSM pupils do not have access to a motor vehicle, the 'average' White British pupil is 50 per cent affected by the coefficient for not having access to a vehicle and 49 per cent by the coefficient for having access²⁴. For numerical characteristics such as KS2 average points score or school CVA score, the mean value for each group was used as the value that applied to the 'average pupil' for that measure. The difference between the effects of each component on

²⁴ They are also one per cent affected by the coefficient for having missing information on this category

each group's average pupil is the size of the gap that can be attributed to that component. These can be combined to give net effects for each category, and then even further to give the net gap overall between the two groups that results from the factors in the model.

Table 5.4 shows a worked example of this process. It is the calculation of the gap between White British FSM and non-FSM pupils that can be attributed to National Statistics Socio-Economic Classification in the progress model. There is a row for each of the different NS-SEC groups and then columns for their coefficients and the rates with which they occur in the two groups. The next column shows the difference between these two rates, and the final column is a simple multiplication of the difference between the rates and the coefficient. This gives the gap attributable to each characteristic. The sum of that final column, 1.98 points, is the portion of the White British FSM progress gap that can be explained by NS-SEC. The full workings of all gaps in all models can be found in Annexes B-G.

Table 5.4: Worked example: calculating the contribution of NS-SEC to the White British FSM gap in the progress model²⁵

	Coefficient	Rate in Non-FSM	Rate in FSM	Difference in rates	Gap (points)
Higher professional	7.04	12.6%	0.7%	11.9 ppts	0.84
Lower professional	3.82	25.4%	5.8%	19.6 ppts	0.75
Intermediate	4.85	19.4%	8.9%	10.5 ppts	0.51
Lower supervisory	-0.01	12.6%	8.5%	4.0 ppts	-0.00
Routine	0.00	19.6%	50.2%	-30.6 ppts	0.00
Missing	0.78	10.3%	25.9%	-15.5 ppts	-0.12
Total	-	100.0%	100.0%	0.0 ppts	1.98

Before moving on to the sections which will deconstruct FSM gaps, it is important to note that the net gaps produced using this process will not match perfectly with the currently observed overall gaps between groups. This happens for reasons related to both the data and this process. The fact that the data refers to a sample of the 2006 KS4 cohort means that the process can only try to explain the gaps among these pupils. If the sample has particularly unusual features then the results will not even be representative of the whole 2006 cohort, and the patterns in 2006 may not remain the same in later years. However, Chapter 2 found no particularly unusual features of the sample that would lead to concerns about its representativeness, and it would

²⁵ Note: the coefficient for the NS-SEC of Routine is zero because this was used as the default outcome in the model.

seem likely that the factors contributing to gaps in 2006 are not entirely different to those that contribute to them now.

Further, Table 5.3 did not list the full set of variables that were in the Chapter 4 models. Gender, for example, is not included in the gap deconstruction because it balances out across the groups that will be looked at here (that is, all groups being compared will have the same gender breakdown). All factors excluded from gap deconstruction have been left out for similar reasons, but any minor contribution that they do make will not appear in these chapters. Lastly, where certain information is missing, then some pupils may not have been included in the model. This means that while the gaps in terms of points scores are calculated on one group of pupils, the gap analysis looks at a slightly smaller subset of them.

5.4 Components of the White British FSM gap

In the previous two sections, it has been shown that White British FSM pupils are disproportionately affected by a range of factors that we know to be linked with poor KS4 outcomes, and then a process for attributing gaps across those factors was described. This process will now be used to deconstruct the FSM gap among White British pupils across the categories listed in Table 5.3. This section will use the model of KS2-4 progression (that is, the model which includes prior attainment), while Section 5.5 will look at the effects of the characteristics on raw attainment.

Before going any further, it is worth looking at what sized gap the models are attempting to explain. The table below shows the mean capped points score of those White British pupils eligible for FSM and also those not eligible. They show an FSM gap of just under 110 points among White British pupils.

Table 5.5: Mean capped points scores at KS4 of White British pupils²⁶

Mean capped points score at KS4	
FSM	193.1
Non-FSM	302.9

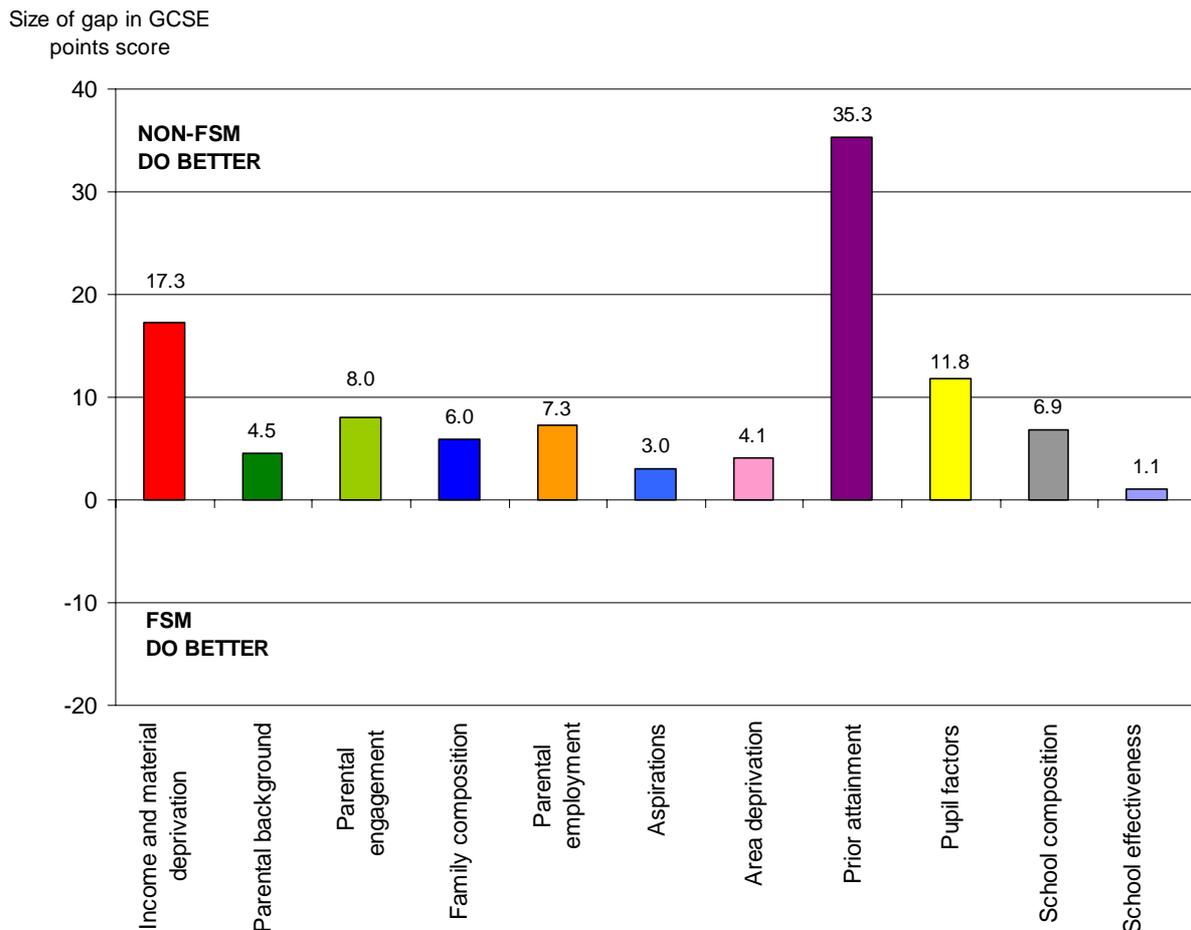
As described towards the end of the previous section, the gaps deconstructed here are not expected to sum to exactly this amount. Indeed, the first gaps analysis, presented in Chart 5.6, shows a net gap across all components of 105 GCSE points, but the table is useful for putting the gap into context. This is the gap analysis using the model of progress, so the effects shown in the chart are the effects of prior attainment and then the effects of the other categories on progress from KS2-4.

In Chapter 4, it was explained that prior attainment is one of the strongest predictors of KS4 outcomes, and in Section 5.2 that there was almost three points difference in the mean KS2 average points score of these two groups. Therefore, it follows in Chart 5.6 that prior attainment makes up the largest proportion of the FSM gap. Thirty-five points of the White British FSM gap at KS4 can be explained using the

²⁶ Note that the figures displayed in this table are for 2006 and for pupils in the LSYPE sample only

fact that those eligible for free school meals have lower prior attainment than those not eligible. This is the equivalent of a grade in almost six different GCSEs (for example, getting 6 Bs and 2 Cs instead of 8 Cs), and it is more than twice as big as the amount of gap that can be explained using any of the other categories, which highlights how important earlier outcomes are in shaping later ones.

Chart 5.6: Components of the White British FSM gap – KS2 attainment and the effects on progress of other factors



The second biggest effect in the chart above is the impact of income and material deprivation. Table 5.1 showed the big differences in terms of household income and access to things like the internet (82 per cent of non-FSM White pupils had access to the internet at home, compared to just 39 per cent of White British pupils eligible for FSM). These factors, along with the effect of simply being eligible for FSM, contribute 17 points to the White British FSM gap, which is the equivalent of almost a GCSE grade in each of three subjects.

The pupil factors bar is the next biggest in Chart 5.6. This is largely because, among White British pupils, FSM pupils are more likely than non-FSM pupils to have SEN. SEN status makes up nine of the 12 points of gap attributed to pupil factors, with the remainder mostly coming from the fact that the FSM group are also more likely to

move schools during KS4. The 12 points that are shown as coming from pupil factors is the equivalent of a grade in each of two GCSE subjects.

Between four and eight points are attributable to most of the other categories in model, with parental engagement and the employment status of parents the next biggest contributors. The chart shows that aspirations, on the other hand, only contribute three GCSE points to the White British FSM gap. This equates to just half a grade in one GCSE, so while FSM pupils from White British backgrounds may tend to have slightly lower aspirations than their peers, the difference isn't big enough to make as much of an impact on capped points scores of the groups as some of the other factors.

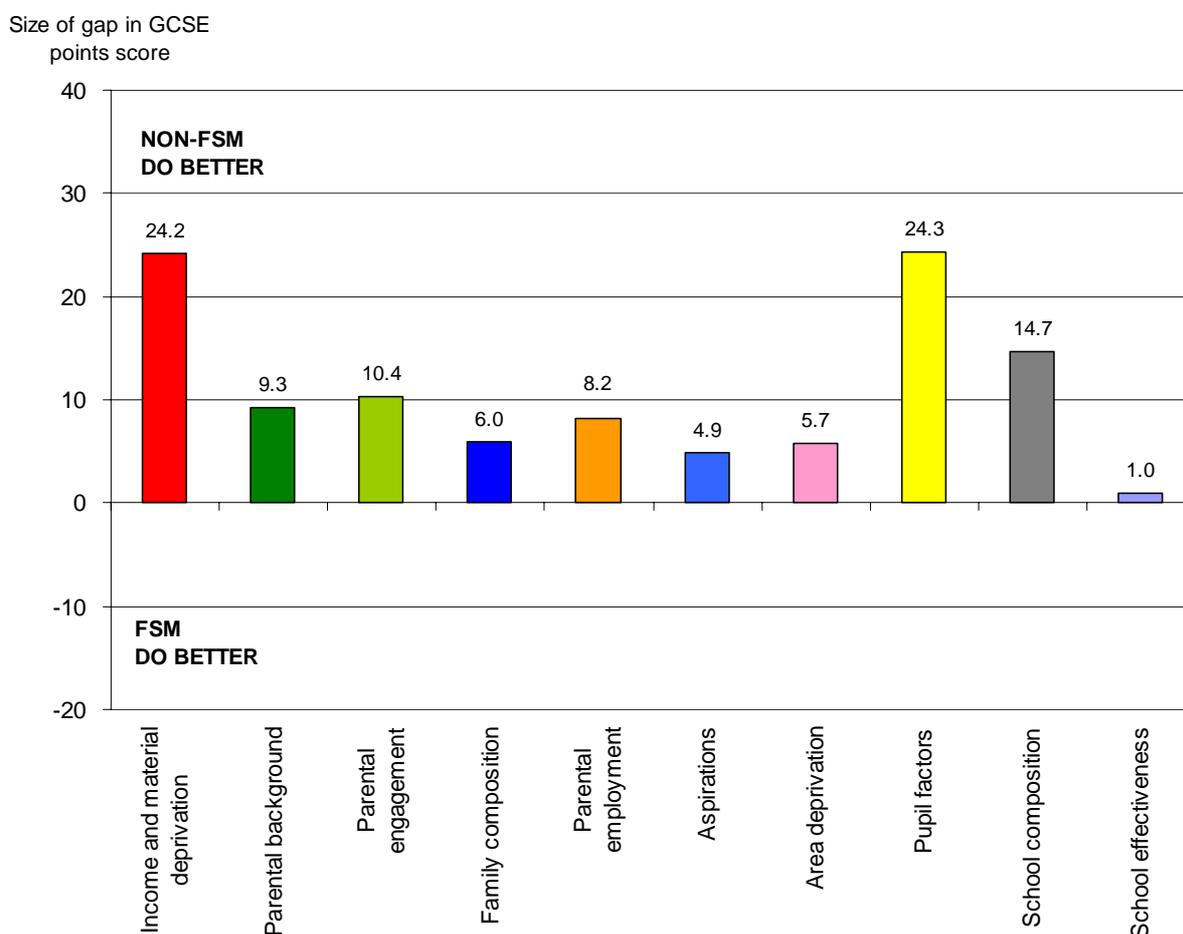
The final bar of the chart shows the importance of school effectiveness in the White British FSM gap. Just one GCSE point is attributable to this factor in the model; a result of a fairly small coefficient for this factor and similar school CVA scores for the two groups (the mean school CVA score for White British FSM pupils is 999.7 compared to 998.5 for the non-FSM group). It is important to note that the small coefficient doesn't necessarily mean that schools are not important to pupils' attainment – just that *differences* in school effectiveness have a relatively small impact. And the small differences in mean scores shows that the lower attainment of FSM pupils is mostly due to the other factors shown on Chart 5.6 and not just due to the effectiveness of the school that they attend up to KS4.

5.5 Components of the raw FSM gap at KS4 among White British pupils

It is also useful to know what affects KS4 outcomes in the longer term, rather than just pupils' progression during secondary schooling. This section now explains the White British FSM gap at KS4 without including the attainment at KS2. This means we see the impacts of these same categories on a pupil's KS4 results regardless of the route they take there in terms of their KS2 results. Chart 5.7 shows the gaps in this model, which sum to 109 points and while similar to those seen in the previous section also have some very obvious differences.

The first thing to notice is that while the effect of prior attainment has been removed, the sum of the different factors is still broadly in line with that of the previous section. This is because the prior attainment effect has been collected up by the other things in the model which affect these two groups at different rates. Most noticeable is the much larger pupil factors bar, which is largely due to the influence of SEN status. Forty per cent of White British FSM pupils have some kind of SEN, compared to just 16 per cent of their non-FSM counterparts. The large coefficients for the SEN characteristics in the model of raw attainment, combined with this big difference in the SEN rates in the two groups mean that SEN status contributes 21 points to the raw White British FSM gap, and pupil factors as a whole make up 24 points of the gap, compared to just six points in the previous gap chart. Since SEN status is so closely linked with prior attainment, this factor is the one that mops up most of this when KS2 results are removed from the model.

Chart 5.7: Components of the raw FSM gap at KS4 among White British pupils



Almost all of the other categories in the model also have larger portions of the gap attributable to them in Chart 5.7 than in Chart 5.6, but the two that have increased the most are parental background and school composition. The ‘average’ pupils used to calculate the gaps still have the same characteristics in this model as in the last one, which means that these are categories which have much bigger effects on the KS4 outcomes of pupils than they do on KS2-4 progress. It was seen earlier that White British FSM pupils were much more likely to have parents with no qualifications and come from families in lower NS-SEC groups than non-FSM White British pupils. These factors contribute much more here than before, suggesting that White British FSM gaps resulting from parental background cannot just be tackled during secondary schooling.

The larger school composition contribution seen here seems to reflect the fact that pupils often attend schools with others who have similar prior attainment to them. The effect of the school’s KS2 prior attainment contributes 15 points towards the FSM gap, which suggests that once pupil prior attainment is removed from the model, some of the effect shows up under the prior attainment of the pupil’s cohort

instead. The gap attributed to this characteristic is the equivalent of one grade's difference in two and a half GCSE subjects.

The contribution of school effectiveness to KS4 outcomes is the only bar that is smaller in the raw attainment model than in the progress model. This is probably because the school effectiveness variable is the CVA score of the school attended for KS4, and therefore it doesn't take account of what happens at other schools a pupil attended previously. It is, in fact, not that surprising that the effectiveness of KS2-4 schooling is more closely related to KS2-4 progress than it is to KS4 raw attainment. The only other category that is not more important in the progress model than in the raw attainment model is the family composition, which appears to just as much to gaps in KS2-4 progress as it does in raw attainment. This is perhaps because it was measured in Year 9, in the middle of that KS2-4 period; another measurement during primary schooling may have a separate effect that might contribute more to raw outcomes than it does to progression.

This section has showed how the factors that influence the White British attainment at KS4 are similar, but not identical, to those which influence KS2-4 progress. So far, this chapter has looked entirely at White British pupils, but FSM gaps also exist among other ethnicities. Therefore, it makes sense to look at whether the contributions to gaps are the same among those ethnicities, and in particular to focus on ethnic groups which tend to have worse performance more generally.

5.6 Comparing the frequency with which characteristics occur in FSM and non-FSM pupils from the underperforming ethnic minority groups

The previous sections looked at the White British FSM gap and demonstrated which characteristics explain most of that gap. It seems likely that contributions to FSM gaps vary with ethnicity, as different pupils from different ethnic groups may well have different characteristics. In the next part of this chapter, we shall therefore look at the group of ethnicities which have been identified as underperforming²⁷ and investigate the FSM gap among these pupils.

The first step of this process, as before, is to look at the characteristics of the two groups and see how similar they are. If there are big differences then these characteristics may well be useful when it comes to explaining the FSM gaps among the underperforming ethnic minority groups. Table 5.8 highlights some of the characteristics of underperforming ethnic minority pupils who are known to be eligible for free school meals and those who are not known to be eligible.

Much of what is shown in the table echoes what was seen in Table 5.1; pupils known to be eligible for free school meals tend to be disproportionately affected, relative to those not known to be eligible for free school meals, by those factors shown in Chapter 4 to be associated with worse outcomes. In particular, pupils from

²⁷ The underperforming ethnic groups are Black African, White and Black African, Black Caribbean, White and Black Caribbean, Pakistani, Any other White background, Any other Black background, Gypsy, Roma and Traveller of Irish Heritage. These are listed on page 21 of Guidance for Local Authorities and School on Setting Education Performance Targets for 2011, which can be found at <http://www.standards.dcsf.gov.uk/ts/docs/tsguidance2011part1.pdf>

underperforming ethnic minority groups who are eligible for FSM have, on average, KS2 prior attainment that is 2.3 points lower than that of those not known to be eligible. Given that prior attainment has been shown to be a strong predictor of KS4 attainment, it would seem that this will contribute to the FSM group having lower KS4 outcomes than the non-FSM group.

Table 5.8: Socio-economic factors split by non-FSM ethnic group and FSM ethnic group²⁸

Characteristic	Non-FSM	FSM
Lives with lone parent	26%	58%
Lives with two parents but neither work	2%	26%
Lives with lone parent who doesn't work	6%	47%
Younger of two children	13%	8%
Older of two children	15%	9%
Youngest of 3+ children	15%	16%
In middle of 3+ children	32%	44%
Oldest of 3+ children	17%	18%
Household has use of motor vehicle	85%	47%
Has home computer in household	90%	70%
Can access internet from home	73%	45%
Family NS-SEC – higher professional	14%	2%
Family NS-SEC – routine	24%	52%
Highest parental qualification – Degree	24%	5%
Highest parental qualification – No qualifications	21%	48%
Eat family meal every night of the week	47%	66%
Eat family meal one or twice a week	20%	10%
School FSM rate 5-9%	13%	5%
School FSM rate >50%	8%	23%
SEN - School Action	11%	19%
SEN - School Action Plus/Statemented	6%	12%
Mean KS2 average points score	26.64	24.34
Mean IDACI	0.30	0.42
Mean school KS2-4 CVA score	1002.8	1004.5

Again, given the criteria for FSM eligibility, it follows that the FSM pupils from the underperforming ethnic minority groups are more likely to come from single parent families than their non-FSM peers (58 per cent compared to 26 per cent) and that they are more likely to come from households with no employed parents (nine per cent compared to 72 per cent²⁹). In addition, they are much more likely to come from larger families, with 36 per cent of non-FSM pupils from the underperforming ethnic minority groups having no more than one sibling, compared to just 23 per cent of their FSM counterparts. Further, while there are only small differences in the rates with which the two groups are the youngest or oldest of at least three children, the FSM group are much more likely to have been born somewhere in the middle of at

²⁸ Note that, again, except for characteristics relating to aspirations, percentages are calculated excluding missing and refused responses and those who didn't know answers to questions.

²⁹ These figures are the sums of the second and third rows of Table 5.8 – figures don't appear to sum correctly due to rounding.

least three children and suggests that their families are more likely to have at least four children in them.

Those pupils from the underperforming ethnic minority groups who are eligible for FSM also tend, on average, to live in more deprived areas. The average IDACI score for the non-FSM group is quite high (0.30) but it is even worse for the FSM pupils (0.42). The deprivation also spreads into what has been categorised as material deprivation, as they are more likely to come from households without access to vehicles, computers or the internet. Less than half of FSM pupils from underperforming ethnic minority groups come from homes with access to a motor vehicle, and even fewer have access to the internet at home, whereas almost three quarters of those pupils from the underperforming ethnic minority groups who are non-FSM have the internet at home and 85 per cent have motor vehicle access at home.

In addition, the pupils from underperforming ethnic minority groups who are eligible for FSM are also more likely to come from family backgrounds that were associated with worse outcomes than their non-FSM peers. Fourteen per cent of the non-FSM group come from families with an NS-SEC of higher professional, and 24 per cent come from families with routine NS-SEC. These figures compare to just two per cent and 52 per cent respectively for the FSM group. Similarly, while almost a quarter of the non-FSM group have at least one parent with a degree, and only 21 per cent have parents with no qualifications at all, just five per cent of FSM pupils from the underperforming ethnic minority groups have a parent with a degree and almost half of them have no parents with any qualifications at all.

Like their White British equivalents, there are areas on which the FSM pupils among underperforming ethnic minority groups have better characteristics than non-FSM pupils in terms of their impacts on KS4 outcomes. Around two thirds of the FSM group ate an evening meal with their family every day of the week prior to questioning, compared to less than half of the non-FSM group, and the frequency of eating an evening meal with the family was shown in Chapter 4 to be positively correlated with KS4 outcomes.

Pupils from underperforming ethnic minority groups who are FSM eligible also tend to go to schools that have better CVA scores than those not eligible for FSM. Both groups have good mean CVA scores, with the schools of the non-FSM pupils having an average CVA of nearly 1003, but the FSM pupils' schools have a mean CVA that is almost two points higher. Another school factor with a big difference between the groups is the school's FSM rate. Almost a quarter of FSM pupils from the underperforming ethnic minority groups attend schools with FSM rates over 50 per cent, whereas less than one in 10 of the non-FSM group attending schools with FSM rates that high.

The last difference that will be highlighted here is that the underperforming ethnic minority group pupils were more likely to have SEN if they were FSM eligible. Almost a third (31 per cent) of the FSM group have SEN, compared to just 17 per cent of the non-FSM pupils from underperforming ethnic minority groups. SEN is a particularly strong predictor of raw attainment at KS4 and therefore will show up quite strongly in Section 5.8, which looks at deconstructing attainment (rather than progress) gaps.

5.7 Components of the FSM gap among the underperforming ethnic minority groups

Having looked at the different characteristics of FSM eligible and non-FSM eligible pupils from the underperforming ethnic minority groups, it now makes to see how these translate into gaps in KS4 outcomes between the groups. Like the White British FSM pupils, FSM pupils from the underperforming ethnic minority groups tend to achieve lower outcomes at KS4 than their non-FSM peers. To put this into context, and to set the scene for the kinds of gaps that the next two sections will try to explain, Table 5.9 shows the capped GCSE points scores of the two groups that we are interested in here. Although the gap is not as large as the FSM gap among White British pupils, there is still a gap of 57 points, or the equivalent of almost 10 GCSE grades.

Table 5.9: Mean capped points scores at KS4 of pupils from underperforming ethnic minority groups³⁰

	Mean capped points score at KS4
FSM	248.8
Non-FSM	306.0

This section will use the progress model from Chapter 4, which includes prior attainment, and the difference in characteristics of those two groups shown in the previous section, to deconstruct that FSM gap. Then, in Section 5.8, the model of raw attainment will be used to do the same thing to see which factors contribute most to the FSM gap among pupils from underperforming ethnic minority groups. As was explained earlier in this chapter, the deconstructed gaps will not necessarily be 57 points in size. This means that although the gap in Chart 5.10 is 67 points, we should not be too concerned by that.

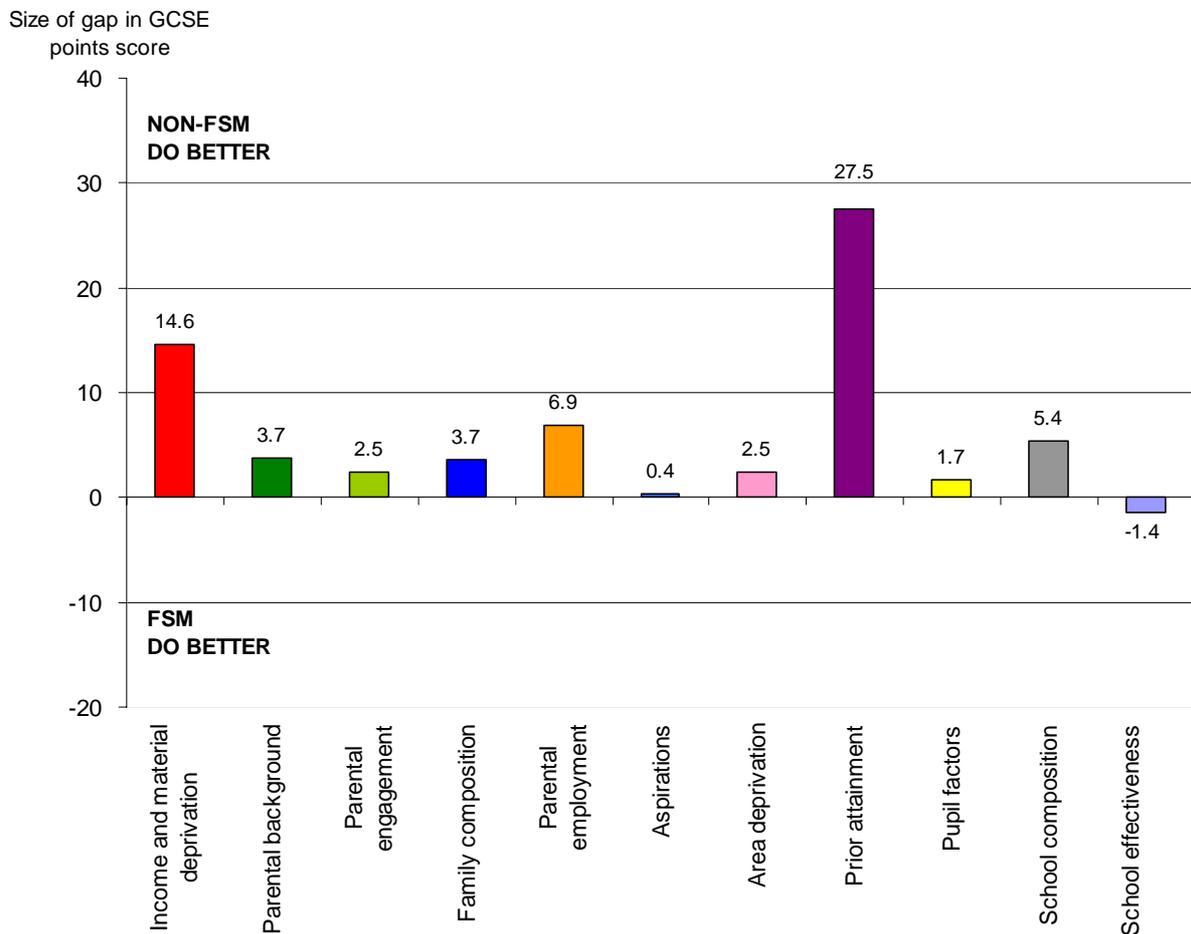
As with the White British FSM gap, the biggest contributors to the FSM gap are prior attainment and income and material deprivation. The previous section showed big differences in these categories (the FSM group has a mean KS2 average points score of 24.3 and only 45 per cent of them had internet access at home, whereas 73 per cent of the non-FSM group had home access to the internet and their mean KS2 average points score was 26.6). This has translated into these categories having large proportions of the FSM gap attributed to them; together they contribute the equivalent of a grade in each of seven different GCSE subjects.

The spread of the rest of the gap is in broadly the same proportions as the spread of the White British FSM gap, although there are some differences. Parental engagement, pupil factors and aspirations contribute less to the FSM gap among underperforming ethnic minority groups. Given that the coefficients are the same means that the discrepancy between the parental engagement levels and aspirations

³⁰ Note that the figures displayed in this table are for 2006 and for pupils in the LSYPE sample only

of FSM and non-FSM pupils is smaller here than for White British pupils. This is seen, for example, by the aspirations of the underperforming ethnic minority group pupils; 90 per cent of non-FSM pupils and 88 per cent of FSM pupils had high aspirations, so the FSM group’s KS2-4 progress is not especially negatively impacted by this factor. Pupil factors is less important here for two reasons; SEN status does not vary quite as much with FSM status, but also EAL status helps to keep the gap narrower. Pupils from the underperforming ethnic minority groups are more likely to have English as an additional language if they are also known to be eligible for FSM. EAL pupils make more progress from KS2-4 than non-EAL pupils, and, since this is more prevalent among FSM pupils, this helps to keep the gap due to pupil factors smaller than it would otherwise be.

Chart 5.10: Components of the FSM gap among underperforming ethnic minority groups – KS2 attainment and the effects on progress of other factors



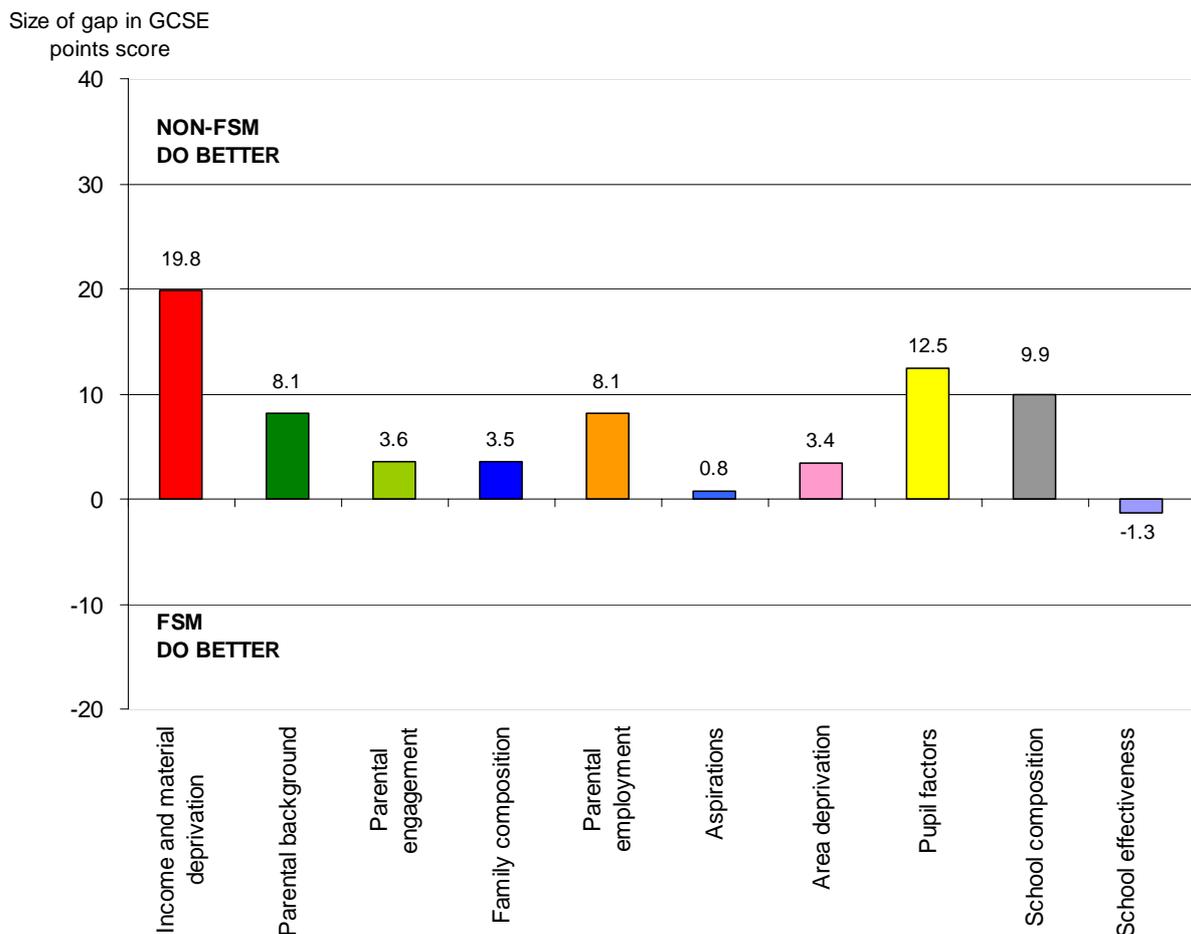
The FSM gap among underperforming ethnic minority group pupils would actually be wider was it not for the fact that, on average, those eligible for FSM attend more effective schools. As was shown in Section 5.6, the FSM group’s mean school KS2-4 CVA score was almost two points higher than the non-FSM groups, and Chart 5.10 demonstrates that this actually narrows the gap by a little over one GCSE point. This is only a small amount, particularly relative to size of the effects of some of the

factors that contribute to the gap, but it shows that FSM pupils from these groups do not have their KS2-4 progress especially negatively affected by their schools. This means that the FSM gap among underperforming ethnic minority groups, at least in terms of progression, cannot be tackled by addressing the effectiveness of the schools that the FSM group attend for KS4; looking at the other categories in Chart 5.10 would seem to provide greater room for narrowing the gap.

5.8 Components of the raw FSM gap at KS4 among underperforming ethnic minority groups

As with the White British FSM gap, it is also important to consider the impacts of the factors in the model on the raw FSM gap among the underperforming ethnic minority groups, since overall educational achievement is ultimately more important than secondary school progression alone. Chart 5.11 presents the gaps for underperforming ethnic minority groups where prior attainment has not been included in the model, and therefore the size of the other factors is their impact on final KS4 outcomes. In this chart, the size of the net gap is 68 GCSE points.

Chart 5.11: Components of the raw FSM gap at KS4 among underperforming ethnic minority groups



Much like with the White British FSM gap again, the biggest changes come in the importance of pupil factors. As before, SEN status becomes much more important without KS2 attainment in the model, and that makes up the vast majority of this bar. Twelve GCSE points of the gap are now attributed to pupil effects, which is the equivalent of a grade in each of two GCSE subjects. While still not the biggest contributor to the FSM gap between these groups, the importance of the likelihood of having SEN is very clear.

The other factors which are much more important in the raw attainment model for FSM gaps among underperforming ethnic minority groups than in the equivalent model for KS2-4 progress are, again, parental background and school composition. While these contributed a total of just nine points to the gap in Chart 5.10, they are each now shown to be around twice as important in this model (eight points are attributed to parental background and 10 to school composition). This suggests that parental background is an issue that could be tackled in primary schools in order to narrow KS4 FSM gaps in the underperforming ethnic minority groups, but that once KS2 had been completed it has less impact on what happens during secondary school. Meanwhile, the increase in importance of school composition reflects the increase in the importance of the prior attainment of a pupil's KS4 cohort once their own prior attainment has been removed from the model. So once the fact that FSM pupils have lower prior attainment is no longer a part of the gap, this is replaced by the fact that they attend schools where the other pupils have lower prior attainment.

As in the previous section, aspirations and school effectiveness are the factors that do not appear to contribute as much of the FSM gap among the underperforming ethnic minority groups. The contribution of aspirations is again less than one GCSE point, since the FSM group have aspirations that are very similar to the non-FSM group, and school effectiveness again works to narrow the gap (since, as we've seen, the FSM pupils go to schools with, on average, higher CVA scores). This means that trying to target these areas will not have as much impact on narrowing FSM gaps among the underperforming ethnic minority groups, as any work to improve them would target both groups at similar rates and, in the case of school effectiveness, might actually widen the gap.

5.9 Conclusions from Chapter 5

Chapter 5 has used the results of the modelling work in the previous chapter to look at which characteristics contribute most to FSM gaps. FSM pupils, from White British backgrounds and from the underperforming ethnic minority groups, have very different characteristics to their non-FSM peers. In particular, they are disproportionately likely to have many of the characteristics shown in the models to be associated with worse outcomes at KS4. While the FSM status itself still appears to have an impact on outcomes, the other factors in the model have been shown to contribute much more to the gaps. Large parts of the gaps have been shown to be down to prior attainment and income and material deprivation, which have especially large negative impacts on FSM pupils.

Other factors, notably school effectiveness, are not as important in terms of the contribution to FSM gaps. This does not mean that schools are not important in terms of their impact on FSM pupils, just that FSM pupils do not attend schools with CVA scores that are substantially worse than non-FSM pupils. So, while there may be differences between schools, these do not affect FSM pupils more negatively than non-FSM pupils.

Some factors, particularly aspirations, pupil factors and parental engagement, seem to be more important in terms of the White British FSM gap than the gap among underperforming ethnic minority groups. This is because the differences between the characteristics of FSM and non-FSM pupils in terms of these characteristics are starker in White British pupils than underperforming ethnic minority groups.

Similarly, some factors are much more important in models of raw attainment than in models of KS2-4 progress. Parental background and SEN status, for example, contribute more to the raw attainment gaps. This means that even if efforts to narrow the gaps which open up during secondary education were successful, these would only have a small impact on overall attainment gaps which require initiatives aimed at younger pupils who have not reached the end of KS2.

In conclusion, a range of policies aimed at a number of different groups of pupils may help to narrow FSM gaps, even if they are not directly targeted at those eligible for FSM. Policies which tried to improve, say, parental engagement would disproportionately impact on those pupils who are FSM eligible, and therefore may help to narrow the gap just as much as trying to target the FSM pupils on the basis of that status alone. Depending on the nature of the problem, such policies could either try to remove the problems themselves, or else reduce the impacts of the problems on KS4 outcomes. Either way, it seems there may be a range of different ways in which attempts to narrow gaps may be made.

6 Components of the 'ethnicity gap'

Summary

- White British pupils are very different to those from the underperforming ethnic minority groups in terms of their characteristics. Some of the factors associated with better KS4 outcomes are more prevalent among White British pupils, while others occur disproportionately among those from the underperforming ethnic minority groups.
- Relative to pupils from the underperforming ethnic minority groups, White British pupils benefit from:
 - Living in households with higher incomes;
 - Living in families with working parents;
 - Attending schools with lower FSM rates;
 - Living in less deprived areas; and
 - Being less likely to have parents with no qualifications.
- Relative to White British pupils, pupils from the underperforming ethnic minority groups benefit from:
 - Having higher aspirations;
 - Attending schools with higher CVA scores;
 - Higher parental engagement; and
 - Being more likely to have at least one parent with a degree.
- The factors disproportionately affecting White British pupils and those which are more likely to occur among the underperforming ethnic minority groups virtually balance out in terms of their impacts on KS4 outcomes. This means that the KS4 outcomes of White British pupils are only slightly better than that of the underperforming ethnic minority groups.

6.1 Introduction to 'ethnicity gaps'

In Chapter 5, the information collected in LSYPE was used to explain the contributions that different factors make to the FSM gap at GCSE. FSM status itself was shown to only have a relatively small effect on attainment and progress, with most of the gap resulting from the fact that FSM pupils are more likely to have characteristics associated with less progress and lower attainment than their non-FSM peers. The relative contributions of the characteristics to the FSM gap varied between the gaps among White British pupils and gaps among pupils from underperforming ethnic minority groups³¹.

³¹ The underperforming ethnic groups are Black African, White and Black African, Black Caribbean, White and Black Caribbean, Pakistani, Any other White background, Any other Black background, Gypsy, Roma and Traveller of Irish Heritage. These are listed on page 21 of Guidance for Local Authorities and School on Setting Education Performance Targets for 2011, which can be found at <http://www.standards.dcsf.gov.uk/ts/docs/tsguidance2011part1.pdf>

Since the underperformance of certain ethnic minority groups is a concern in itself, Chapter 6 will now go through the same process to deconstruct ‘gaps’ between pupils from the underperforming ethnic minority groups and those who are White British³². The underperforming ethnic minority groups are probably not very homogeneous. However, for the purpose of this report, they are treated as one single group, albeit made up of pupils from different ethnic backgrounds.

As White British pupils have very different characteristics to those from the underperforming ethnic minority groups, the chapter will show that the importance of these factors is again very different in terms of their contribution to gaps in educational outcomes. It will be seen that the underperforming ethnic minority groups are more likely to be affected by some of the factors associated with poor outcomes than their White British pupils, but also that they are disproportionately likely to have some of the other characteristics which are linked to better outcomes. This means that while there are some factors that contribute to an ‘ethnicity gap’, there are other protective factors which help to keep the performance of the underperforming ethnic minority groups closer to that of White British pupils than it might otherwise be.

6.2 Comparing the frequency with which characteristics occur in White British pupils and in pupils from underperforming ethnic minority groups

As the first step in this process, this section will look at the characteristics of the two groups. There are some fairly substantial differences between the rates at which some characteristics occur, and the average score for some characteristics can be very different for the two groups. Table 6.1 shows some of the differences that can be seen when looking at the variables in the model from Chapter 4. Those variables that are associated with better educational outcomes don’t all appear more frequently in either group; some are more common among White British pupils, while others are more common among the underperforming ethnic minority groups.

One of the first things to notice from the table is the difference in prior attainment between the two groups. The mean KS2 average points score of White British pupils in the LSYPE sample is 27.1, compared to 25.9 for those pupils from the underperforming ethnic minority groups. Given the large effect of prior attainment on KS4 outcomes seen in Chapter 4, it would seem that KS2 results would be expected to result in White British pupils doing better than the underperforming ethnic minority groups at KS4.

The difference in the FSM rates of the two groups is shown in the first row of the table. While only 13 per cent of White British pupils are known to be eligible for FSM, one third of pupils from the underperforming ethnic minority groups are FSM eligible, almost three times as large a proportion as that of the White British pupils. Given the relationship between FSM status and income, it follows that while nearly a quarter of White British pupils live in households with an annual income of at least £36,400, the equivalent proportion is only just over one in ten for those pupils from

³² Although the performance of these ethnic groups is usually compared to that of all pupils, in order to be analogous with Chapter 5 (comparing the outcomes of two distinct groups) this work compares them with White British pupils.

underperforming ethnic minority groups. Similarly, a pupil's FSM eligibility is likely to be influenced by whether they come from a single parent family, and also the working status of their parents. The table shows that the pupils from the underperforming ethnic minority groups are more likely to be raised by a lone parent (36 per cent compared to 24 per cent) and also that it is more likely that any parents that they live with will be unemployed.

Table 6.1: Characteristics of pupils who are White British compared to those from the underperforming ethnic minority groups³³

Characteristic	White British	Underperforming ethnic groups
Known to be eligible for FSM	13%	33%
Household income at least £36,400	23%	13%
Lives with lone parent	24%	36%
Lives with two parents but neither work	4%	10%
Lives with lone parent who doesn't work	9%	19%
Youngest of 3+ children	14%	15%
In middle of 3+ children	24%	36%
Oldest of 3+ children	13%	17%
Pays for private classes in school subjects	10%	16%
Parent has high aspirations for young person	76%	91%
Parent has low aspirations for child	22%	8%
Pupil has high aspirations	78%	90%
Pupil has low aspirations	16%	5%
EAL	0%	48%
Highest parental qualification - Degree	16%	18%
Highest parental qualification - A Level	20%	12%
Highest parental qualification - GCSE A*-C	27%	16%
Highest parental qualification - None	10%	30%
Attends all boys school	4%	6%
Attends all girls school	4%	14%
School FSM rate 0-5%	19%	7%
School FSM rate 5-9%	24%	11%
School FSM rate 35-50%	6%	20%
School FSM rate >50%	1%	13%
SEN - School Action	11%	14%
SEN - School Action Plus/Statement	8%	8%
Mean KS2 average points score	27.11	25.91
Mean school KS2-4 CVA score	999.6	1003.4
School level mean of KS2 scores of KS4 cohorts	27.04	26.39
Mean IDACI	0.20	0.34

Pupils from underperforming ethnic minority groups also come from larger families than White British pupils. Forty-one per cent of White British pupils come from two child families, compared to just 25 per cent of pupils from underperforming ethnic minority groups. Further, not only are the underperforming ethnic minority group

³³ Except for characteristics relating to aspirations, percentages are calculated excluding missing and refused responses and those who didn't know answers to questions.

pupils more likely to be the youngest or eldest of at least three children, they are considerably more likely to be somewhere in the middle of at least three children (36 per cent compared to 24 per cent). This implies that there must be many more families in the underperforming ethnic minority groups with at least four children in them. This follows from the fact that such families require at least two children to be in the 'middle of 3+ children' group, and that is the most likely way in which the gap between the proportions in the 'middle of 3+ children' groups can be much larger than the gaps for the 'youngest' and 'eldest' equivalents.

Despite their apparent financial deprivation, relative to the White British group, pupils from the underperforming ethnic minority groups were more likely than White British pupils to attend private classes in school subjects paid for by their parents (16 per cent compared to 10 per cent). Their parents also seem to have higher educational aspirations than the parents of White British pupils, as 91 per cent claimed that they would like their child to continue in full-time education after post 16. This is 15 percentage points higher than the proportion of parents of White British pupils. Similarly, over a fifth of White British pupils' parents have low aspirations for their child, almost three times as large a proportion as that among underperforming ethnic minority groups. The difference in aspirations is replicated among pupils themselves. Only five per cent of pupils from the underperforming ethnic minority groups wanted to leave full-time education at age 16, compared to 16 per cent of White British pupils.

There is a big gap in the EAL rates of the two groups. While virtually half of pupils from underperforming ethnic minority groups have English as an additional language, the same is true for less than half of one per cent of White British pupils. Parental education level is another family background factor where there are gaps between White British pupils and those from underperforming ethnic minority groups. Almost a third of pupils from underperforming ethnic minority groups are from families where neither parent has any qualifications at all; much more than the 10 per cent of White British pupils in the same position. However, more pupils from the underperforming ethnic minority groups had at least one parent with a degree than those from the White British group (18 per cent compared to 16 per cent). So, the underperforming ethnic minority groups have higher rates at both ends of this scale, and there is not a common theme across the characteristic. This is perhaps due to variation between the different ethnic groups that make up this overall group.

There is also some variation in terms of the schools that the two groups attend. First, there is a big difference between the gender make up of the schools that the two groups attend. While there is only a small difference in the proportion of pupils attending boys' schools, 14 per cent of pupils from underperforming ethnic minority groups attend all girls schools compared to just four per cent of White British pupils. Another difference is that pupils from underperforming ethnic minority groups tend to go to schools with higher CVA scores than White British pupils. The mean CVA score for a school a White British pupil attended was just under 1,000; the equivalent mean for the pupils from underperforming ethnic minority groups is almost four points higher.

At the same time, pupils from the underperforming ethnic minority groups tend to attend schools with higher FSM rates. Only seven per cent of the underperforming

ethnic minority group pupils were in schools with an FSM rate of 0-5 per cent, compared to 13 per cent in schools with FSM rates of at least 50 per cent. On the other hand, almost a fifth (19 per cent) of White British pupils are in schools with the lowest FSM rates, and just one per cent are in schools where at least half of the pupils are known to be eligible for free school meals. Not only are pupils from an underperforming ethnic minority group in schools with higher FSM rates, they also tend to go to schools with slightly lower average prior attainment. The average of the KS2 average points scores of a White British pupil's school cohort is 27.0, compared to an average of 26.4 for the cohort of a pupil from an underperforming ethnic minority group.

It is finally worth highlighting a couple of other NPD variables here. The IDACI means of 0.34 for pupils from underperforming ethnic minority groups and 0.20 for White British pupils show another substantial gap. The distribution of IDACI scores is skewed heavily towards lower figures, so this gap is actually quite substantial, and means that White British pupils tend to live in much less deprived areas. The last variable that shall be noted is SEN status. This example shows that on some characteristics there is actually very little gap; both of the groups have eight per cent of their pupils listed as School Action Plus or Statemented, which suggests there is little difference between them in terms of this factor.

6.3 Components of the 'ethnicity gap' at KS4

The previous section looked at the main differences between the characteristics of pupils from the underperforming ethnic minority groups and the characteristics of White British pupils. The next two sections will now use these differences, combined with the effects of the characteristics on educational outcomes, to look at which of them have the biggest impacts on the relative performance of the two groups at KS4. This will use the same methodology as was described in Section 5.3, combining the models from Chapter 4 with the types of figures seen in Section 6.2.

Before proceeding, it's worth considering what the difference between the two groups' performances actually is. Table 6.2 shows the mean capped points scores of the two groups and demonstrates that the outcomes at KS4 are actually quite similar for White British pupils and those from the underperforming ethnic minority groups, with a difference of just 1.6 points between the two figures.

Table 6.2: Mean capped points scores at KS4 of the two groups³⁴

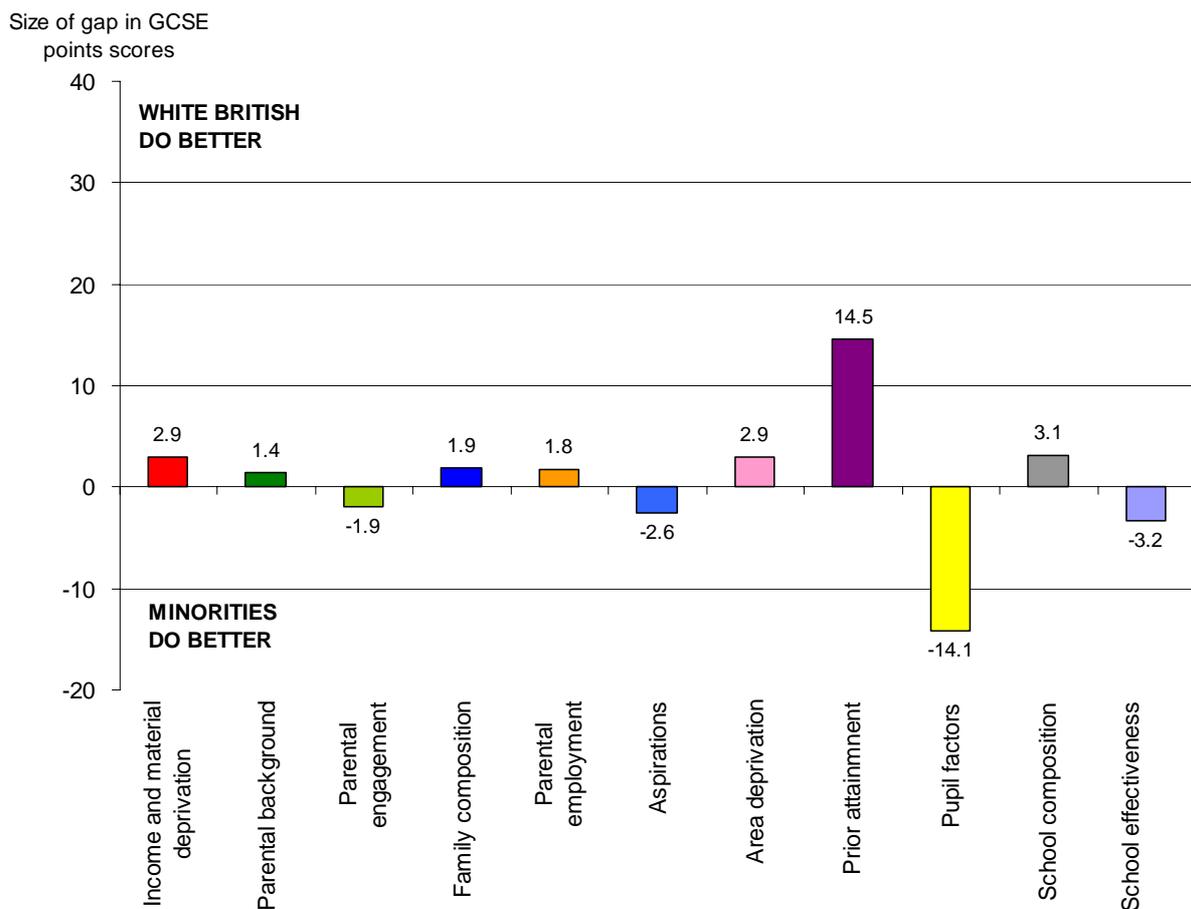
	Mean capped points score at KS4
White British	288.8
Underperforming ethnic minority groups	287.2

The table above implies that there should not be much of a 'gap' between the two groups in terms of their educational outcomes. However, for reasons outlined

³⁴ Note that the figures displayed in this table are for 2006 and for pupils in the LSYPE sample only

towards the end of Section 5.3, the gaps presented in the following sections will not necessarily be exactly the same as the one shown in Table 6.2. This section uses the progression model from Chapter 4 and, indeed, Chart 6.3 shows a net gap of seven GCSE points with White British pupils doing better than their counterparts from the underperforming ethnic minority groups. As described previously, this model includes KS2 attainment, and the sizes of other effects in the model reflect the contributions of the factors to progress from KS2-4.

Chart 6.3 Components of the ‘ethnicity gap’ – KS2 attainment and the effects on progress of other factors



In the chart, prior attainment shows up as the biggest contributor to the ‘ethnicity gap’. Differences in prior attainment would be expected to result in pupils from underperforming ethnic minority groups obtaining an average of 15 GCSE points fewer than White British pupils, the equivalent of one grade in two and a half GCSE subjects. However, this effect is virtually balanced out by pupil effects, which actually narrows the gap by 14 GCSE points. Much of this narrowing of the gap is related to the effect in the models for being from the underperforming ethnic minority groups. Pupils from some of these groups tend to make more progress from KS2-4 than White British pupils with similar characteristics, and so the ethnic make up of the group is worth eleven points in terms of narrowing the gap caused by prior attainment. Similarly, since pupils with EAL and low prior attainment tend to make

faster progress than others with similar KS2 scores, the greater proportion of EAL pupils in the group (48 per cent compared to 0 per cent) is worth five additional points for an average pupil from one of the underperforming ethnic minority groups compared to a White British pupil. Other pupil factors, such as mobility, contribute to the gap, but it's worth noting that language and ethnicity, intrinsic parts of the make-up of the underperforming ethnic minority groups actually contribute to them making better progress between KS2-4 than White British pupils.

Alongside the characteristics of the individuals in the group of underperforming ethnic minority groups, aspirations also make a positive contribution to their KS2-4 progress relative to that of White British pupils. The progress model in Chapter 4 showed that, controlling for other factors, a pupil having high aspirations has a positive effect on their predicted score of eight points. Section 6.2 showed 90 per cent of the underperforming ethnic minority groups have high aspirations compared to just 78 per cent of White British pupils. This results a narrowing of the gap by three GCSE points due to the make up of aspirations in the two groups. This narrowing is slightly less than the narrowing due to school effectiveness. The average KS2-4 CVA score of schools attended by White British pupils was shown earlier in this chapter to be lower than the corresponding average for the underperforming ethnic minority group pupils. School effectiveness has been shown to have an effect on progress, so those pupils from the underperforming ethnic minority groups make an average of three points more progress than White British pupils on account of the effectiveness of the schools they attend.

However, as described previously, we do still see a gap overall, and this comes about, in addition to prior attainment, as a result of many other factors all leading to slightly better outcomes for an average White British pupil. Examples, as shown in the chart above are area deprivation and school composition; pupils from underperforming ethnic minority groups are more likely to live in deprived areas, and to attend schools which have higher FSM rates and intakes with lower prior attainment. These are both negative factors which are associated with making less progress and so contribute towards the fact that the pupils from the underperforming ethnic minority groups get slightly lower KS4 scores than White British pupils.

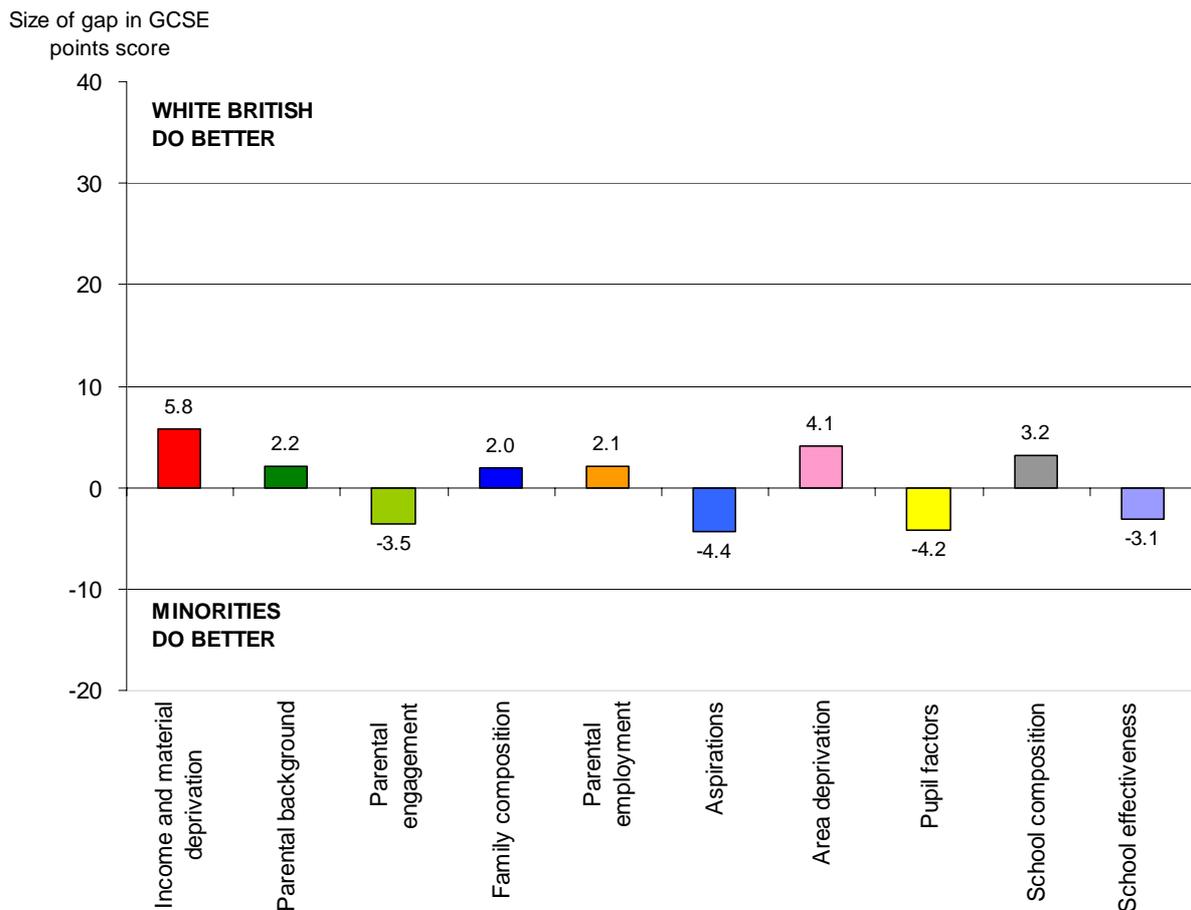
6.4 Components of the raw ethnicity gap at KS4

While Section 6.3 used the progress model from Chapter 4 to look at the factors that have different effects on the educational outcomes of White British pupils and those from underperforming ethnic minority groups, Section 6.4 will now look at the model of raw attainment. Here, prior attainment (which would be expected to result in pupils from underperforming ethnic minority groups obtaining an average of 15 GCSE points fewer than White British pupils) has been stripped out of the model, and the other factors have had their relative importance adjusted as a result.

Chapter 4 showed that some characteristics are less important in terms of predicting raw attainment than they are in terms of predicting progress. In particular, pupils with EAL or from certain ethnicities have low KS2 attainment but then make good progress through to KS4. This means that ethnicity and first language are less important when it comes to predicting raw KS4 scores than predicting progression

and, since there are big differences between the two groups on these factors, pupil factors contribute much less to the difference in KS4 outcomes here than in Section 6.3. Changes like this mean that the overall 'ethnicity gap' found in this section is broadly in line with that seen in Chart 6.3 (we actually get a net gap here of four points) and not simply that gap without the 15 points contributed by prior attainment. Chart 6.4 shows the contributions to raw ethnicity gaps at KS4 of the different categories of factors.

Chart 6.4: Components of the raw 'ethnicity gap' at KS4



The first thing that is apparent from the gaps chart above is that none of the factors contributes a difference of more than one grade in one GCSE subject. The largest effect on the chart is the six points caused by the fact that pupils from the underperforming ethnic minority groups suffer greater income and material deprivation, and even this only equal to the gap of one GCSE grade. While none of the factors contribute huge differences to the outcomes of pupils from underperforming ethnic minority groups compared to White British pupils in this model, the relative importance of the different factors is similar to that which was seen in the previous model. However, there are still some differences between Charts 6.3 and 6.4 that are worth discussing.

The biggest change resulting from switching from the model of progress to the model of raw attainment is the substantial reduction in the effect of pupil characteristics. In the last section, pupil effects narrowed the gap by 14 points, but here the narrowing effect is just four points. Some of the reasons for this (EAL and ethnicity being more important in KS2-4 progress model than raw attainment model) were outlined previously. Further, once the effect of KS2 attainment has been removed from the model, SEN status becomes much more important in predicting KS4 outcomes. This means that the relatively small difference in SEN School Action rates (14 per cent of underperforming ethnic minority group pupils compared to 11 per cent of White British pupils) now contributes two points towards a widening of the gap whereas its effect was previously more negligible.

Examples of other factors that are more important in the model of raw attainment are area deprivation and income and material deprivation. The effect of each of these increases when prior attainment is not controlled for, meaning they contribute more to raw attainment than KS2-4 progress. Similarly, once the effect of prior attainment has been stripped out, pupil aspirations become even more important in terms of keeping the performance of those pupils from underperforming ethnic minority groups close to that of White British pupils. Their higher aspirations result in pupils from underperforming ethnic minority groups being expected to score an average of four points more at KS4.

6.5 Conclusions from Chapter 6

This chapter has demonstrated why the performance of the underperforming ethnic minority groups, in terms of capped GCSE points, is more similar to that of White British pupils than might be imagined. It has shown that the characteristics of the two groups of pupils are very different, but that while some of the characteristics associated with worse educational outcomes are more prevalent among the underperforming ethnic minority groups, so are some of the characteristics associated with better outcomes. While area deprivation, prior attainment and FSM rates are worse for the pupils from underperforming ethnic minority groups, the negative impacts of these factors are counterbalanced by things like the fact that White British pupils have lower aspirations and attend schools with worse CVA scores. Further, even when other factors have been controlled for in the model, being from some of the underperforming ethnic minority groups is actually associated with making better progress than being White British. This means that being from some of these groups actually appears protective against the 'ethnicity gap' at KS4.

Although 'ethnic gaps' are not shown to be especially large at KS4, it can also be seen that they are likely to be tackled by similar interventions as those that might be used to tackle the FSM gaps that were deconstructed in Chapter 5. Improving the attainment of pupils from low income backgrounds, or who live in less affluent areas would disproportionately improve the attainment of those pupils from the underperforming ethnic minority groups as well, and thus help to improve their KS4 outcomes at greater rates than the outcomes of White British pupils.

7 Conclusions

7.1 Aspirations

While most pupils have high aspirations, the likelihood of this varies with the individual's characteristics. Boys, White British pupils, those with lower levels of KS2 attainment, those whose parents have lower levels of education and those who think that their friends wanted to leave full time education are all less likely to want to stay in full time education post 16 than their peers. However, once other factors have been controlled for, FSM eligibility is not a significant predictor of aspirations, and pupils from deprived areas actually have higher aspirations than others when controlling for their other characteristics.

Aspirations are closely related to many outcomes at KS4, and they actually have a significant relationship with KS4 attainment even after controlling for factors, such as KS2 attainment, which affect both aspirations and KS4 outcomes. When including pupil aspirations in models of KS2-4 progress, the size of the effects related to gender and ethnicity are much smaller. This means that differences in aspirations can explain some of the effects otherwise attributed to gender and ethnicity in national results.

7.2 Models of pupil progress

Models of pupil progress that use PLASC variables are useful tools for predicting KS4 outcomes for pupils with different characteristics. However, by including more information in these models, such as that collected in LSYPE or school level data collected in the Annual School Census, can explain more of the variation in pupil outcomes. When this is done, the effect of the PLASC variables is reduced, suggesting that they were proxying for some of the new variables in the model. In particular, the FSM effect is much smaller, with much of it now explained by other background characteristics.

The extended model shows that there are independent effects on KS4 outcomes for a wide range of characteristics. In addition to the PLASC characteristics, deprivation, parental background and engagement, family composition and employment status, pupil aspirations, school composition and school effectiveness are all separately related to pupils' KS4 attainment.

7.3 FSM gaps

Although FSM status itself only has a relatively small impact on attainment, FSM pupils have very different characteristics to non-FSM pupils. In particular, they are more likely to have characteristics which have separate, negative, impacts on progress during secondary schooling, and also on overall attainment at KS4.

Among White British pupils, those on FSM are substantially more likely than those not known to be eligible to live with a single parent, have parents with no

qualifications, have low aspirations, attend schools with lower prior attainment and be from families with at least three children. Other negative factors are also disproportionately likely to affect them, and it is these factors that contribute to the FSM gap among White British pupils. Table 7.1 shows that prior attainment is the biggest contributor to White British FSM gaps, followed by income and material deprivation and then pupil factors and parental engagement. At the bottom of the list are pupil aspirations and school effectiveness, which contribute only very small parts to the gap. It is important to note that this doesn't mean these aren't important factors relating to pupil outcomes, just that they don't contribute as much to the FSM gap among White British pupils. That means that White British FSM pupils' outcomes are not much worse as a result of their aspirations or the effectiveness of their schools.

Table 7.1: Contributions of different categories to the White British FSM gap

Category	FSM gap (points)
Prior attainment	35
Income and material deprivation	17
Pupil factors	12
Parental engagement	8
Parental employment	7
School composition	7
Family composition	6
Parental background	4
Area deprivation	4
Aspirations	3
School effectiveness	1

The FSM gap is smaller for pupils from underperforming ethnic minority groups than for White British pupils. This is largely because there is less difference between the characteristics of FSM and non-FSM pupils in these groups than among White British pupils. Pupils from the underperforming ethnic minority groups have quite similar aspirations regardless of FSM eligibility, and FSM pupils from these groups actually attend schools with higher CVA scores. They are also more likely to have English as an additional language, which is associated with greater progress from KS2-4. However, while only very small portions of the gap are attributed to pupil factors and aspirations, and school effectiveness is actually shown to help keep the FSM gap narrower in these groups, other factors have a similar order of importance when predicting these FSM gaps as they do when predicting White British FSM gaps.

Some factors are more strongly related to gaps in raw outcomes than in progress during secondary school. In particular, parental background, school composition and pupil factors (such as SEN status) are much more important in terms of raw attainment FSM gaps. School effectiveness only makes a small contribution to gaps in both models.

7.4 Ethnicity gaps

White British pupils are very different to those from the underperforming ethnic minority groups in terms of their characteristics. Some of the factors associated with better KS4 outcomes are more prevalent among White British pupils, while others occur disproportionately among those from the underperforming ethnic minority groups. Relative to pupils from the underperforming ethnic minority groups, White British pupils are more likely to live in households with higher incomes, live in families with working parents, attend schools with lower FSM rates, live in less deprived areas and less likely to have parents with no qualifications. Each of these has a positive relationship with their outcomes at KS4.

However, White British pupils are also less likely to have high aspirations, they attend schools with lower CVA scores, their parents are less engaged and they are also less likely to have at least one parent with a degree. Each of these factors is associated with making less progress during KS2-4. This means that while some characteristics of the underperforming ethnic minority groups are related to lower KS4 outcomes, there are others that are related to higher KS4 outcomes. This is shown in Table 7.2, where those keeping the gap narrowed are the negative numbers.

Table 7.2: Contributions of different categories to the ‘ethnicity gap’

Category	Ethnicity gap (points)
Prior attainment	15
School composition	3
Area deprivation	3
Income and material deprivation	3
Family composition	2
Parental employment	2
Parental background	1
Parental engagement	-2
Aspirations	-3
School effectiveness	-3
Pupil factors	-14

As the table shows, the factors disproportionately affecting White British pupils and those which are more likely to occur among the underperforming ethnic minority groups broadly balance out in terms of their impacts on KS4 outcomes. This means that the KS4 outcomes of White British pupils are only slightly better than that of the underperforming ethnic minority groups.

7.5 Implications

This research has shown that there is no single factor that is responsible for gaps between different groups of pupils. However, this does not mean that those gaps cannot be narrowed; rather it suggests that initiatives that are aimed at narrowing them can target a number of different areas. For example, policies that improved

parental engagement would affect a greater proportion of FSM pupils than non-FSM pupils. Similarly, tackling the relationship between living in deprived areas and lower KS4 attainment would disproportionately affect pupils from underperforming ethnic minority groups. Therefore, some of the gaps that have been described in this research could be addressed by looking at factors which generally have negative effects on attainment.

As the report has mentioned, policies to address the factors contributing to gaps could be targeted in two ways. They could be formed with the aim of removing the characteristics, or they could set out to reduce the impact of the characteristics. Taking area deprivation as an example, initiatives could look to improve those areas which are deprived, or they could look to how schools could break the link between living in deprived areas and lower attainment. Where it is difficult to address the problem itself, the latter solution will naturally be more appropriate, but it is important to remember that both options are available.

The relative importance of the different components could also be used to look at how much emphasis is put on each of those components when attempts are made to narrow these gaps. These give an indication of the maximum impact possible from targeting a particular aspect, and this can be used as a starting point, together with assessment of costs, for appraising policy options. Whilst some areas may be more amenable to change or easier to deal with, it is important not to overlook the full range of approaches which could be useful.

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School and college achievement and attainment tables:
www.dcsf.gov.uk/performance/tables

Annexes

Annex A: Models

www.dfes.gov.uk/research/data/general/Annex A - Models.xls

Annex B: White British FSM gaps including prior attainment

www.dfes.gov.uk/research/data/general/Annex B - White British FSM gaps including prior attainment.xls

Annex C: Underperforming Ethnic Minority Group FSM gaps including prior attainment

www.dfes.gov.uk/research/data/general/Annex C - Underperforming Ethnic Minority Group FSM gaps including prior attainment.xls

Annex D: Ethnicity gaps including prior attainment

www.dfes.gov.uk/research/data/general/Annex D - Ethnicity gaps including prior attainment.xls

Annex E: White British FSM gaps excluding prior attainment

www.dfes.gov.uk/research/data/general/Annex E - White British FSM gaps excluding prior attainment.xls

Annex F: Underperforming Ethnic Minority Group FSM gaps excluding prior attainment

www.dfes.gov.uk/research/data/general/Annex F - Underperforming Ethnic Minority Group FSM gaps excluding prior attainment.xls

Annex G: Ethnicity gaps excluding prior attainment

www.dfes.gov.uk/research/data/general/Annex G - Ethnicity gaps excluding prior attainment.xls

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