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Minority Ethnic Pupils in the Longitudinal Study of Young People in England (LSYPE)

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Executive Summary

Introduction

There has been concern for some time about the educational attainment and progress of children from minority ethnic groups in the UK. Recent analyses of national test data by the Department for Education and Skills (DfES)[1] reveal continuing low attainment by several minority ethnic groups (DfES, 2006). However the national datasets do not contain wide and rich contextual data to help interpret these results, such as information on pupil attitudes or family circumstances. In 2004 the DfES Longitudinal Study of Young People in England (LSYPE) interviewed a nationally representative sample of over 15,000 young people in Year 9 of school (i.e. those aged 13 or 14 years). The study also interviewed their parents/guardians about their involvement in their children's education. The study collected information on a wide range of topics and presents a unique insight into the experiences, attitudes and opinions of young people with regards to their school, their education and their choices and aspirations for the future. The primary aim of this analysis of the LSYPE data was to focus on the relationships between various pupil, family, school and neighbourhood factors in order to better understand the reasons for differences in the educational attainment of different ethnic groups.

Key Findings

Gaps in educational attainment

The 'gaps' associated with ethnicity in national tests at the end of Key Stage 3 (KS3) (age 14) are large. Pakistani, Bangladeshi, Black Caribbean and Black African groups achieve a KS3 average points score around 3.0 points less than White British pupils. This is equivalent to around a whole year of progress in terms of National Curriculum levels.

This ethnic gap should be interpreted in terms of the size of other 'gaps'. The social class gap was largest with a 10 point gap between pupils from higher managerial and professional families and those where the main parent was long term unemployed. The maternal education gap was also large with a nine point gap between pupils with mothers qualified to degree level or higher and those with mothers with no educational qualifications. These compare to an

[1] *On the 28th June 2007, the Department for Education and Skills became the Department for Children, Schools and Families.*

ethnic gap of three points. The gender gap was just 0.8 points, with boys scoring lower than girls.

Contextualising attainment gaps for minority ethnic groups

Statistical control for social class, maternal education, family poverty as indicated by entitlement to a Free School Meal (FSM), home ownership and family composition (single parent households), substantially reduced the attainment gaps for minority ethnic pupils, relative to White British pupils. Indian and Bangladeshi groups achieved higher results than would be expected given the extent of their disadvantage, the gap for Pakistani pupils relative to White British pupils was reduced by four-fifths and the Black African pupils gap by two-thirds. However the low attainment of the Black Caribbean group was not accounted for by such controls, remaining 2.5 points below the White British pupils' average.

A wide range of further variables including parental involvement in school, parents' educational aspirations for their children, pupils' academic self concept, homework completion, attitudes to school, educational aspirations, educational risk (special educational needs, absence, truancy, exclusion, involvement with police or social services) and school and neighbourhood characteristics were added to create a 'full context' model. While this model could account for the low attainment of Bangladeshi pupils, and around half of the low attainment of Pakistani pupils, it could not account for the low attainment of Black Caribbean and Black African groups whose scores were 2.5 points below what would be expected given their personal, family, school and neighbourhood characteristics.

Ethnicity and pupil progress

Much of the difference between ethnic groups at age 14 can be accounted for by prior attainment at the end of KS2 (age 11). After controlling for prior attainment and all pupil, family and school factors, Pakistani and Black African gaps at KS3 reflect earlier gaps at KS2, indicating a need to focus on processes occurring during primary school for a full understanding of the gaps. However Indian pupils and Bangladeshi girls made more progress than White British pupils over the course of KS3, pulling even further ahead than they were at KS2. Conversely, Black Caribbean pupils and Bangladeshi boys made less progress than their White British peers, and they were the only groups where underachievement relative to White British pupils increased significantly over the course of KS3.

In-school factors and teacher expectations

Black Caribbean pupils were found to be under-represented in entry to the higher tiers of the KS3 tests, even after adjusting for prior attainment and all other pupil, family, school and

neighbourhood factors. All other things being equal, for every three White British pupils entered to the higher tiers only two Black Caribbean pupils were entered both for mathematics and science. Black Caribbean pupils were the only ethnic group to be under-represented in this way.

Methodology

The findings reported here are based on analysis of a wide range of quantitative data about pupils, their families and their school and neighbourhood contexts. These analyses identify the unique (net) contribution of particular factors to variations in pupil outcomes, while other background factors are controlled. This is important because research shows that much of the difference in attainment associated with ethnicity may be attributable to the impact of other socio-economic and demographic factors (for example family social class, maternal education, pupil attitudes, homework completion). The report adopts a hierarchal approach to building multiple regression models by sequentially entering blocks of variables. The four main blocks were composed of:

- Structural features of family background (social class, maternal education, entitlement to FSM, home ownership and family composition);
- More dynamic aspects of the family context (for example parental involvement in school, parents' educational aspirations for the pupil, provision of material resources such as a home computer and private tuition, the quality of family relationships);
- Pupil characteristics, both in terms of positive motivational factors (pupils' educational aspirations, frequency of completing homework, academic self concept, attitude to school) and risk factors (Special Educational Needs, truancy, exclusion, involvement with police, social service and EWS);
- School context (school type, mixed/co-educational status, admissions policy and percentage of pupils entitled to FSM) and neighbourhood deprivation (Income Deprivation Affecting Children Index).

For each model the coefficients associated with each ethnic group were evaluated to determine the significance of ethnicity in explaining variation in KS3 educational attainment.

Detailed findings

Ethnic group differences in pupil, family, school and neighbourhood characteristics

Family background: The data revealed substantial social and economic disadvantage among some ethnic groups. The proportion of heads of households from managerial and professional occupations was 41% for White British and Mixed heritage households and 37% for Black Caribbean households, compared to 26% for Indian, 15% for Pakistani and only 7% for Bangladeshi households. Conversely, 43% of Bangladeshi, 27% of Black African and 26% of Pakistani heads of households have never worked or were long term unemployed (White British: 4%). Fewer than 8% of Pakistani and Bangladeshi mothers were educated to Higher Education level or above, compared to 24% of White British mothers and 33% of Black Caribbean and Black African mothers. Entitlement to FSM was 13% among White British, but rose to 26% for Black Caribbean, 38% for Pakistani, 41% for Black African and 59% for Bangladeshi pupils. The percentage of pupils living in single parent households was 23% for White British and rose to 41% for Mixed heritage, 44% for Black African and 57% for Black Caribbean households.

Parental attitudes and behaviour: Parents educational aspirations for their children to continue in FTE were significantly higher among all minority groups than for White British. Black African parents were more strongly involved with their child's school than White British parents, who in turn were more involved than Pakistani or Bangladeshi parents. Indian parents were most likely to have paid for private classes or tuition in subjects also taught in school and White British parents the least likely. Indian parents were also the most likely to have a home computer and Pakistani, Bangladeshi and Black Caribbean households were least likely. Indian parents were most likely to report they always knew where their child was when out and White British and Black Caribbean parents least likely. White British parents were most likely to report quarrelling with their children more often than once a week and Indian, Pakistani and Bangladeshi parents were least likely.

Pupil attitudes, motivation and risk factors: On average Indian, Black African, Pakistani and Bangladeshi pupils were more likely than White British pupils to have high educational aspirations, to have a positive academic self concept, to complete more homework, to plan for the future and to have a positive attitude to school. Black Caribbean and Mixed heritage pupils were more similar to White British pupils. Results in terms of 'risk factors' were more varied across ethnic groups, but generally Indian, Pakistani, Bangladeshi and Black African pupils

were less likely to be identified on the educational risk measures than White British, Black Caribbean and Mixed heritage pupils.

School and neighbourhood context: 66% of Bangladeshi, 41% of Pakistani and 39% of Black African pupils attended the most disadvantaged schools (more than 35% of pupils entitled to FSM) compared to only 6% of White British pupils. Over two thirds of Pakistani, Black Caribbean and Black African families lived in the most deprived areas, rising to 85% for Bangladeshi families, compared to just 25% of White British families.

Contextualising ethnic attainment gaps

As reported in the key findings, statistical control for social class, maternal education, family poverty as indicated by FSM, home ownership and family composition (single parent households) accounted for the Bangladeshi gap, and for a large part of the Pakistani and Black African gaps, relative to White British. However the low attainment of the Black Caribbean group was not accounted for and their mean KS3 score remained 2.5 points below the White British average. Adding the full range of pupil, family, school and neighbourhood factors could account for the low attainment of Bangladeshi pupils, and around half of the low attainment of Pakistani pupils, but could not account for the low attainment of the Black Caribbean and Black African groups whose scores were significantly lower than expected. It was notable that although minority ethnic pupils were often more advantaged on many of the parental attitude and educational risk measures this did not result in the increased attainment seen for their White British peers.

Ethnicity and pupil progress

Prior attainment as indicated by end of KS2 test marks at age 11 was the most powerful predictor of later attainment, explaining 80% of the variance in KS3 average score. However there were still significant associations between contextual variables and educational progress.

- Pupils in the top social class, those with mothers with any educational qualifications and those not entitled to FSM all made greater than expected progress.
- Pupils whose parents had high educational aspirations, who provided a home computer or private tuition, who were more involved in school activities and infrequently quarrelled with their children all made greater than expected progress.
- Pupils with SEN, those excluded from school, those whose behaviour had led to the involvement of the police, social services or the EWS, those with long term absence and those who had truanted, all made less than expected progress. Conversely pupils who

aspired to continue in FTE after the age of 16, completed more homework, had high academic self concept, who planned for their future and had positive attitudes to school all made greater than expected progress.

- Pupils in the most deprived schools (35% or more entitled to FSM) and those living in the most deprived neighbourhoods made less than expected progress, while pupils attending grammar schools and girls in single sex schools made more than expected progress.

After controlling for prior attainment and all pupil, family and school factors, Pakistani and Black African gaps at KS3 reflected earlier gaps at KS2. However Indian pupils and Bangladeshi girls made more progress than White British pupils over the course of KS3, pulling even further ahead than they were at KS2. Conversely Black Caribbean pupils and Bangladeshi boys made less progress than their White British peers, and they are the only groups where underachievement relative to White British pupils increased significantly over the course of KS3.

Mixed heritage, Pakistani, Bangladeshi and Indian pupils attending religious classes/courses at a religious establishment more than once a week made less progress during KS3 than their peers not attending such classes or attending less frequently. However this result applies to a minority of pupils for example 24% of Bangladeshi and Pakistani pupils attend religious classes more than once a week. This finding needs further investigation to explore the relationship between attendance at religious classes/courses and pupil progress.

<u>In school factors and teacher expectations</u>

Teachers have to decide which tier to enter pupils, either a lower (levels 3-6) or upper (levels 5-7) tier for science, or one of four tiers in mathematics (levels 3-5, 4-6, 5-7 or 6-8). The decision is important because some levels can only be achieved if pupils are entered for the higher tier papers. Black Caribbean pupils were under-represented in entry to the higher test tiers for the science and mathematics tests, even after adjusting for prior attainment, social class, gender, entitlement to FSM, motivation, educational risk factors and school and neighbourhood deprivation. All other things being equal, for every three White British pupils entered to the higher tiers only two Black Caribbean pupils were entered, both for mathematics and science. Black Caribbean pupils were the only ethnic group to be under-represented in this way.

Discussion

Most explanations for why ethnic groups differ in their educational attainment fall into three general categories. The first is about social class and how the structural position of ethnic groups in society affects pupils' home, peer and school environments. The second concerns how the cultural orientations of certain ethnic groups promote or discourage academic achievement. The third is about teacher expectations and institutional racism. These explanations are reviewed in detail in the main report.

The current research suggests that explanation of ethnic gaps involving social class and social disadvantage, while important, are not sufficient to account for the attainment gaps for some ethnic groups, particularly Black Caribbean pupils. Other factors need to be considered, for example, it is notable that Black Caribbean and Mixed White & Black Caribbean groups are also distinct as the only ethnic groups over-represented relative to White British pupils among those excluded from schools (Parsons et al., 2005) and among those identified with behavioural, emotional and social difficulties (Lindsay, Pather & Strand, 2006). While only a relatively small proportion of pupils are directly included in these groups, the results may be symptomatic of wider behaviour issues. There is research evidence that pupil behaviour, or teachers' perceptions of pupil behaviour, can have a distorting influence on their judgements of academic ability. If the behaviour of Black Caribbean pupils is more challenging, or even if it is simply that teachers *perceive* their behaviour as more problematic, there may be a tendency to underestimate the academic ability of these pupils. Decisions on tiering are typically made well in advance of the test, at least six months and sometimes considerably more, and importantly make the teacher's expectation of the pupil explicit and public. The response of Black Caribbean pupils may be to become demotivated and to try less hard. This may contribute to the under-achievement of Black Caribbean pupils.

Some authors point out that Black Caribbean boys experience considerable pressure by their peers to adopt the norms of an 'urban' or 'street' subculture (e.g. Sewell, 1997). More prestige is given to unruly behaviour with teachers and antagonistic behaviour with other pupils than to high achievement or effort to succeed, particularly at secondary school. Fordham and Ogbu (1986) further argue that notions of 'acting white' or 'acting black' become identified in opposition to one another. Hence because acting white includes doing well at school, acting black necessarily implies not doing well in school. In contrast Gillborn and Youdell (2000) highlight the role of teacher expectations. They argue that unintentional racism stems from long standing social conditioning involving negative images of Black people (particularly Black men)

which stereotype them as threatening. Such conditioning is reinforced by the media portrayal of Black 'street culture'. It encourages school staff to expect Black pupils to be worse behaved, more disaffected and less motivated. However it is perhaps most likely that both sets of factors are involved and feed off each other in a vicious cycle of amplification.

Recommendations

Interventions to address the needs of low attaining minority ethnic groups should focus to a greater extent than at present on processes occurring during primary school. This is because ethnic group differences in attainment at age 14 are largely a replication of pre-existing ethnic group differences at the end of primary school.

However KS3 should be a particular focus in relation to Black Caribbean pupils who continue to fall further behind their White British peers. Initiatives such as the Black Pupils Achievement Programme are important in supporting a focus on this group of pupils in secondary schools.

There is evidence that many ethnic groups make stronger educational progress during KS4 than they do during KS3. The current analysis should be extended to include KS4 outcomes for the same pupils.

Teachers' awareness of potential bias in entry decisions should be raised by requiring schools to monitor tier of entry by ethnicity. Schools should seek wider external evidence when making tiering decisions.

Introduction

What do we know about ethnicity and educational attainment in England?

There has been a long standing concern about the educational attainment of minority ethnic pupils in England. Early work was summarised in the Committee of Inquiry into the education of children from minority ethnic groups (Swann report) (1985) which concluded that "West Indian children as a group are underachieving in our education system". While the Swann report focused on public examination results at age 16, other research in the 1980's indicated significant differences between ethnic groups in performance at primary school (e.g. Scarr et al., 1983; Mortimore et al., 1988) and this continued into the 1990's (Sammons, 1995; Gillborn & Gipps, 1996; Strand, 1997, 1999b).

In terms of national data, the Youth Cohort Study (YCS) has historically provided the best estimate of national figures for attainment at school leaving age by ethnicity. A representative sample of approximately 30,000 pupils is surveyed approximately every two years. Analysis of examination results at age 16 for 1992, 1994, 1996, 1998, 2000 and 2002 shows a consistent picture of Indian pupils gaining higher examination scores than White British pupils, while Black, Bangladeshi and Pakistani pupils consistently achieve lower examination scores than White British. In the last published results for GCSE examinations for 2006 (DfES, 2007), 80% of Chinese pupils, 72% of Indian and 69% of Mixed White & Asian pupils achieved the benchmark of five or more GCSE A*-C grades, compared to 58% of White British pupils. This level of success was achieved by 57% of Bangladeshi pupils, 51% of Black African and Pakistani pupils, 45% of Black Caribbean pupils and just 10% of Gypsy/Roma pupils.

Most recently comprehensive national data are available through matching the Pupil Level Annual School Census (PLASC) records with the national test and examination results held in the National Pupil Database (NPD). A recent topic paper from the DfES (DfES, 2006) has reviewed the data for Key Stage 1, Key Stage 2 and Key Stage 3, as well as GCSE/GNVQ examinations at age 16. The data reveal consistent differences between ethnic groups in attainment. Broadly speaking, the performance of Black Caribbean, Black African, Black Other, Pakistani and Bangladeshi groups is below that of their White British peers, while Chinese, Indian and Irish pupils score higher than White British.

A recent review for the DfES of national data on Special Educational Needs and ethnicity has also identified disproportionality in the identification of pupils from some ethnic groups (Lindsay, Pather & Strand, 2006). For example pupils from the Black Caribbean and Mixed White & Black Caribbean groups are over-represented among those identified with Behaviour, Emotional and Social difficulties (BESD), while Chinese and Indian pupils are under-represented among those identified with moderate learning difficulties (MLD).

These data, by themselves, are limited. In England ethnicity is strongly confounded with poverty and economic disadvantage which is itself strongly related to educational attainment. Levels of entitlement to Free School Meals (FSM), a commonly used indicator of economic disadvantage, are 11% for Chinese, 12% for Indian, and 14% for White British, and rise to 30% for Black Caribbean, 34% for Pakistani, 44% Black African and 47% for Bangladeshi pupils[2]. Gender also plays a part, with a particularly pronounced gender difference among Black groups, with Black boys under-achieving relative to Black girls. These variables do not necessarily combine in a simple additive fashion. For example the educational attainment of White British pupils from economically disadvantaged circumstances is particularly low. Thus in 2006 (DfES, 2007) the lowest performing group nationally at GCSE was White British boys entitled to FSM, with only 24% of pupils achieving 5+ A*-C grades (the equivalent figure for Black Caribbean boys entitled to FSM was 27%). Similar results have been reported in primary schools, for example at KS1 and KS2 in Inner London authorities, where White British pupils are often the lowest attaining group (Strand, 1999a, 1999b, 2002, 2006).

Pupil progress

How do ethnic group differences change over time, as pupils progress through school? Do ethnic groups differences increase or decrease over the course of schooling?[3] Strand (1999b) in a study of over 5,000 inner London pupils reported that Black Caribbean and Black Other boys, Black African pupils with high attainment at age 4 and White British pupils entitled to FSM all made less than expected progress between age 4 and age 7, after also accounting for age, pre-school education, English as an Additional Language (EAL) and SEN. The particular school

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2. *These results are based on national data combining both primary schools and secondary schools reported by Lindsay, Pather & Strand, 2006.*
3. *It is important to keep in mind that this question refers to longitudinal rather than cross-sectional change, i.e. whether any ethnic groups differences in the attainment of a cohort in 2001 might change for the same cohort of pupils followed through to 2004, as opposed to changes in the attainment of different cohorts over time (e.g. a comparison of the 2001 vs. the 2004 national averages).*

a pupil attended had a significant effect on pupil progress, but there was no evidence of differential school effectiveness by ethnicity, gender or poverty, i.e. the same schools that were more effective for White British, girls or economically advantage pupils were also most effective for Black Caribbean, boys or economically disadvantaged pupils. The EPPE project (Sylva et al., 2004) also suggests ethnicity is significantly related to progress age 4 to age 7, although home learning environment[4] is an important protective factor, and a stronger influence on subsequent attainment than mothers educational qualifications or family social class. The DfES (2006, table 10) have used national data to report on pupil progress between age 7 and age 11 while also controlling for poverty at both individual pupil (entitlement to FSM) and neighbourhood level (IDACI index). They report that between age 7 and age 11 Black Caribbean, Black Other and Pakistani pupils make less progress than White British, even after controlling for poverty. Melhuish et al. (2006) explored progress across age 7 to 11 for three successive national cohorts taking KS2 tests in 2002, 2003 and 2004. In terms of average test score, Black Caribbean and Pakistani improved less than White British while White Other, Bangladeshi and Chinese pupils improved more. In common with Strand (1999b), some interaction effects were reported with Black Caribbean and Black African boys making particularly poor progress in terms of average score, and Pakistani girls making particularly poor progress in mathematics.

The picture is different when progress during secondary school is considered. Demie and Strand (2006) and Strand (2006) analysed progress between age 11 and age 16 in an inner London LA and report that all minority ethnic groups made more progress than White British pupils. White British boys and girls, and both White British pupils entitled to FSM and those not entitled to FSM, made the poorest progress[5]. While White British had the highest average test marks of any group (barring Chinese) at age 11, by age 16 Black African, White Other, Bangladeshi, Pakistani and Indian pupils all achieved significantly better results, and no group performed significantly less well than the White British group. The DfES (2006) also report that between age 11 and age 16 pupils from all minority ethnic groups are either catching up with White British (Black Caribbean or Other Black heritage) or overtaking White British pupils (Indian, Pakistani, Bangladeshi and Black African), again after controls for poverty. Wilson et al (2005) report that the improvement is particularly strong in the last two years of secondary education. They also report that this improvement was near universal across schools,

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4. Parent reads with their child, helps them to play with letters, learn songs and rhymes, paint, draw or visit the library.

5. The analysis included controls for age, entitlement to FSM, gender, severity of SEN, stage of fluency in English, pupil mobility and school composition effects.

suggesting that school influences on ethnic gaps are small, although variation between schools in the progress made by Black groups was more pronounced than for other ethnic minorities.

What do we know about ethnicity and educational aspirations?

Recent research suggests that differences in attainment may be causally related to educational and career aspirations. The Longitudinal Survey of Australian Youth (LSAY) shows that intentions to complete or leave school formed early in secondary schooling are powerful predictors of participation in the latter years of school (Khoo & Ainley, 2005). For example the correlation between the intention in Year 9 to proceed to Year 12 and actual participation in Year 12 is very high (r = .80). It is therefore important to study aspirations in early secondary years in order to understand and possibly effect change on later educational attainment. Furthermore, the LSAY research suggests that these educational aspirations were themselves strongly influenced by attitudes to school, which implies that early nurturing of positive attitudes to school could be the key to increasing participation in post-compulsory education.

What factors affect educational aspirations? Marjoribanks (2003) reports on a longitudinal study of over 7,000 Australian youth suggesting that family background, individual characteristics and proximal learning settings combine to have large associations with adolescents' aspirations. In another Australian study, Alloway et al. (2004) separate these factors into personal dimensions (the impact of significant others such as family, friends and teachers, and pupils' perceptions of personal attributes) and social dimensions (quality of schooling and pupils' broader understandings of issues such as the social impact of gender and local economic opportunities). Other research suggests more specific factors as key. In a Canadian study, Garg et el. (2002) conclude that parental attitudes are significantly more important than socio-economic status as predictors of adolescent aspiration; and a study of 11 year-old pupils in Taiwan proposes parental aspiration as the key mediating factor determining children's aspirations (Hung & Marjoribanks, 2005).

A number of studies point to the significance of ethnicity in developing aspirations. While some authors suggest that minority pupils develop low aspirations (Majoribanks, 1998) others suggest the opposite. Wentzel (1998) suggests that minority parents in Canada possess higher aspirations for their children than White parents, which in turn affect their own children's aspirations. A similar conclusion is reached by Francis and Archer (2005) in their study of British Chinese pupils and parents, where the high value placed on education by parents,

coupled with a strong cultural tradition of respect for one's elders, is seen to facilitate the transmission of high educational aspiration from parents to children of both sexes; and they point to statistics that show British Chinese adolescents as more likely to enter post compulsory education than any other ethnic group. Cheng and Starks (2002) conclude that 'significant others' (teachers, pupils and above all family members) are the key influencers of young people's educational aspirations and that these differ according to ethnicity. Khattab (2003) studied minority Palestinian pupils in Israel and concludes that, despite all the political and economic odds stacked against them, educational aspirations among ninth and eleventh graders remained high due mainly to what he calls 'the social capital within the family that results in norms, values and perceptions regarding the importance of education' and how these impact on pupils' perceptions of future opportunities.

In England, Strand and Winston (2006) explored the educational aspirations, and factors associated with these aspirations, of 850 Year 7 and Year 9 pupils attending five inner city comprehensive secondary schools, selected because of the schools' low levels of attendance, examination success and continuation in education post 16, relative to both local and national averages. Educational aspirations were measured by whether the pupil intended to continue in full-time education after age 16, and the level of qualification they expected to achieve at the end of their education, ranging from no GCSE/GNVQs to university degree. All pupils also completed a questionnaire assessing their experience of home, school and their peers, and a sub-sample of 48 pupils also participated in detailed focus group interviews. There were highly significant differences in educational aspirations between ethnic groups. White British pupils had the lowest aspirations; Black African and Other Asian groups were seven times more likely than White British pupils to say they intended to stay in full time education post 16, and Pakistani pupils were three times more likely than White British pupils to aspire to achieve A/AS levels or a university degree. The home, school and peer variables explained a large proportion of the variance in aspirations between ethnic groups. The high aspiration of Black African and Asian Other pupils were mediated through strong academic self-concept, positive peer support, a commitment to schooling and high educational aspirations in the home. Low educational aspirations had different mediating influences in different ethnic groups. Thus the low aspirations of White British pupils seemed to relate most strongly to poor academic self-concept and low educational aspirations in the home, while for Black Caribbean pupils' disaffection, negative peers and low commitment to schooling appeared more relevant.

Therefore, it may be that differences in attitudes to school, academic self-concept, parental aspirations and peer group influences may all impact on educational aspirations which may in turn impact on educational attainment.

The need for further research

To date no single study has assembled all the relevant data to be able to explore the relationships between the above factors with a large and representative national sample. Research on ethnicity and attainment to date is largely based on analysis of PLASC and national tests and contains no data about family or attitudes (e.g., DfES, 2006). Typically data are only available on a limited range of variables and at a relatively crude level, for example socio-economic data is limited to entitlement to FSM. Other research is detailed and descriptive but based on small qualitative studies which may not be representative (e.g. Gillborn & Youdell, 2000). What is needed is a large dataset also incorporating finer-grained data to allow a 'teasing out' of the factors that may have a significant impact on attainment, including data on family circumstances, parental attitudes, peer groups influences and school context.

The Longitudinal Study of Young People in England (LSYPE)

The Longitudinal Study of Young People in England (LSYPE) is a major panel study of young people which brings together rich and detailed data from interviews with young people and their parents with test data from the National Pupil Database. The study began in spring 2004, when the young people sampled were in Year 9 (aged 13-14), and the first interviews with sample members and their parents were completed. The rich data from LSYPE (with extensive information on family circumstances, pupil and parental aspirations) offers the potential to identify factors influencing attainment and progress in early secondary education and to greatly extend knowledge about the experience of minority ethnic pupils in schools. This report focuses on the pupils' attainment in national end of KS3 tests completed in summer 2004.

The aim of this report

The primary aim of this report, as specified by the DfES, was to explore contextual differences between ethnic groups and the impact that these differences have on their attainment. A secondary aim was to explore differences within these groups associated with factors such as gender, family composition, socio-economic position and faith adherence.

As such the specific objectives of the research are:

- To build up a picture of the socio-economic context and household characteristics of the different ethnic and faith groups.

- To build up a picture of the attitudes towards school, and future aspirations, of pupils (and parents) within the different ethnic and faith groups.

- To build up a picture of the school experiences of pupils from different ethnic and faith groups (enjoyment of school and different subjects, relationships with teachers, views on behaviour and school discipline etc.).

- To explore how all of the above interact with each other and what their impact is on the attainment of these pupils.

The structure of the report

The results are structured into five main sections.

Section 1 describes the extent of ethnic group differences in attainment at the end of KS3 tests. It establishes that the LSYPE sample reflects national gaps in attainment and the outcomes that need to be explained.

Section 2 describes the extent of variation between ethnic groups in key contextual variables. These variables are selected because they are significantly associated with educational attainment. The section is therefore primarily descriptive. The variables described are organised into four main groups; family background, parental attitudes and behaviour, pupil attitudes, motivation and educational risk and school and neighbourhood context.

Section 3 presents statistical analyses to explore the effects of the contextual variables on (a) educational attainment at the end of KS3, and (b) educational progress over the first three years of secondary school, between the end of KS2 and the end of KS3. For both outcomes the key focus is on the extent to which the contextual variables can account for ethnic differences in attainment and progress.

Section 4 describes an analysis of entry to the different tiers of the KS3 national science and mathematics tests. Differences between ethnic groups in their entry to different test tiers are

considered, and the extent to which this can be explained by prior attainment or contextual factors is evaluated.

Section 5 reviews the results and considers explanations for ethnic gaps in attainment. It also draws conclusions and makes recommendations for further research and practice.

Methodology

The LSYPE sample

The target population sampled was young people in Year 9 (or equivalent) in all schools in England in February 2004 and born between 1st September 1989 and 31st August 1990. For various practical reasons certain exclusions were made. Among those excluded from the sample were: those educated solely at home (and therefore not present on a school roll); pupils in schools with fewer than 12 (maintained sector) or fewer than six (independent sector) Year 9 pupils (less than 1% of the cohort); boarders and those in the UK solely for education purposes.

Sample boosts took place for ethnicity at the pupil level with boosts made in the following six groups: Black African; Black Caribbean; Bangladeshi; Indian; Pakistani and Mixed heritage. These boosts are representative samples of the relevant sub-populations as a whole, rather than drawn disproportionately from areas or schools with high numbers of minority ethnic pupils. The achieved sample consisted of 15,570 pupils drawn from over 658 schools. The average number of pupils per school was 24 (range 1 to 48, SD 5.0). *Appendix 1* describes in detail the procedures used in drawing the sample.

Data collection

All data collection was based on face to face interviews using multiple interviews per household. Interviewers were asked to interview the young person sampled and both parents (where present) or those *in loco parentis.* The parent interviews involved a main parent interview (of about 40-45 minutes) and a second parent interview (about 10 minutes). Second parent interviews covered only those topics where specific information was needed for both parents (employment details and employment history). Full household composition details were also collected.

Accounting for design, non-response and clustering

The data have been weighted to compensate for differential selection chances in the sample design and to remove non-response biases. Non response weights were calculated through comparison of respondents to PLASC pupil level population data. The combined design and non-response weights have been applied in all analyses using the SPSS Complex Samples module V15.0. The over sampling among deprived schools was reflected by including deprivation status as a separate stratum selected with unequal probability (1.5:1). Clustering was accounted for by identifying school (the primary sampling unit) as a cluster variable. The application of these features should ensure the calculation of appropriate standard errors and allow for the recapture of population figures.

Treatment of missing data

The total sample in the LSYPE was 15,770 households. However not all of these cases were eligible for inclusion in this analysis of KS3 attainment. For example, 938 pupils had no KS3 test results and so cannot be included. These include all 530 pupils drawn from independent schools. Additionally 354 pupils were not interviewed or refused to give their ethnicity. A smaller number (193) either refused the computer assisted component or were lost because of interpreter problems. As a result the true eligible sample is nearer 14,000 pupils.

Further problems were bound to arise because of the large number of variables to be employed in the analysis. An analysis using listwise deletion rapidly reduced the sample to around 9,000 cases. To prevent such data loss, it was decided to explicitly include missing values as dummy categories within each variable. Variables that had initially been calculated as continuous scales (such as academic self concept and attitude to school) were divided into discrete categories.

This has certain advantages since it:

- prevents the loss of explanatory power that would come from listwise deletion;
- allows for the direct modelling of missing data rather than imputing values, for example by mean substitution, which has its own interpretative problems;
- allows for non-linearities in the relationships with attainment;
- can simplify the interpretation of the relationships with attainment, since we can directly contrast different groups; and

- ensures a consistent base in terms of the sample size across a range of hierarchical regression models including increasingly large number of explanatory variables.

Key Stage 2 and 3 differentiated levels

National Curriculum (NC) levels are a blunt tool. Each level is designed to represent two years of educational attainment, and so levels offer little differentiation. For example two-thirds of pupils are contained in just three outcomes for the mathematics test (levels 5, 6 and 7) and 80% of pupils are distributed across just three outcomes for the English and science tests (levels 4, 5 and 6). The points scores usually employed in analysis of national tests are therefore a very blunt tool. This research used the actual test marks obtained by each pupil, and the tiers to which they were entered, to generate 'fine grained' test levels on a decimal scale. These fine grained levels were then converted to points scores to give differentiated outcome measures. *Appendix 2* includes a histogram of the resulting KS3 average points score. A differentiated measure of attainment at age 11 was also calculated by summing the total marks across all three KS2 tests and applying a normal score transformation so the mean KS2 test mark is represented by zero with a SD of 1 (see *Appendix 2*).

Ethnic group coding

Information on ethnic group was collected through self-identification during the LSYPE interviews. The interviews presented 16 categories (plus don't know/refused)[6]. Table 1 presents the full ethnic data. The brief for this analysis, and the rationale for the sampling strategy, is to focus on the contrast between the six main minority ethnic groups and White British pupils. The ethnic identification was therefore collapsed into seven categories, plus a generic 'any other group', following the example given in the DfES (2006) topic paper on ethnicity and education. The main categories were White British, Mixed heritage, Indian, Pakistani, Bangladeshi, Black Caribbean and Black African. Together these groups accounted for 96% of all those interviewed, as shown in Table 2.

[6] *Two categories included in PLASC (Travellers of Irish heritage and Gypsy Roma) were not included in the LSYPE interviews.*

Table 1 - Breakdown of self-identified ethnic group from LSYPE

		Frequency	Percent	Valid %	Cum. %
Valid	White British	10103	64.1	65.5	65.6
	White Irish	29	.2	.2	65.7
	Any other White background	203	1.3	1.3	67.1
	White and Black Caribbean	394	2.5	2.6	69.6
	White and Black African	91	.6	.6	70.2
	White and Asian	182	1.2	1.2	71.4
	Any other mixed background	128	.8	.8	72.2
	Indian	1013	6.4	6.6	78.8
	Pakistani	940	6.0	6.1	84.9
	Bangladeshi	722	4.6	4.7	89.6
	Any other Asian background	153	1.0	1.0	90.6
	Black Caribbean	576	3.7	3.7	94.3
	Black African	613	3.9	4.0	98.3
	Any other Black background	91	.6	.6	98.9
	Chinese	44	.3	.3	99.2
	Any other ethnic group	130	.8	.8	100.0
	Total	15416	97.8	100.0	
Missing	Not interviewed, don't know, refused	358	2.2		
Total		15770	100.0		

Table 2 - Ethnic groups used for analysis

Ethnic group		Frequency	Percent	Valid %	Cum. %
Valid	White British	10103	64.1	65.5	65.5
	Mixed heritage	795	5.0	5.2	70.6
	Indian	1013	6.4	6.6	77.2
	Pakistani	940	6.0	6.1	83.3
	Bangladeshi	722	4.6	4.7	88.0
	Black Caribbean	576	3.7	3.7	91.7
	Black African	613	3.9	4.0	95.7
	Any other group	669	4.2	4.3	100.0
	Total	15431	97.9	100.0	
Missing		358	2.2		
Total		15770	100.0		

Section 1: Ethnic group differences in educational attainment at KS3

An important starting point to this analysis is to determine the extent of ethnic group differences in national tests at the end of KS3 and whether the LSYPE sample reflects national differences in attainment at KS3. Table 3 presents the mean and SD of the scores for each ethnic group in the KS3 English, mathematics and science tests, and the overall KS3 average points score, for the LSYPE sample.

Table 3 - Mean and SD for KS3 test points scores by ethnic group

	English		Maths		Science		Average points score	
Ethnic group	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
White British	33.2	(6.3)	35.6	(8.0)	33.3	(6.7)	33.9	(6.7)
Mixed heritage	33.1	(6.0)	35.0	(8.0)	32.6	(6.7)	33.4	(6.6)
Indian	33.5	(5.9)	36.6	(8.1)	33.2	(6.8)	34.4	(6.6)
Pakistani	30.8	(6.0)	32.2	(8.2)	29.6	(7.0)	30.8	(6.7)
Bangladeshi	30.9	(6.1)	32.5	(8.6)	29.8	(7.4)	31.0	(7.0)
Black Caribbean	31.2	(5.9)	31.1	(7.9)	29.6	(6.7)	30.6	(6.4)
Black African	31.5	(6.2)	32.0	(8.4)	29.6	(7.4)	30.9	(7.0)
Any other group	32.8	(6.9)	35.7	(9.0)	32.6	(7.8)	33.6	(7.6)
Total	33.0	(6.3)	35.4	(8.1)	33.0	(6.8)	33.7	(6.7)

Notes. All outcomes are fine grained points scores calculated using test marks and levels. Data are weighted by combined design and non-response weights.

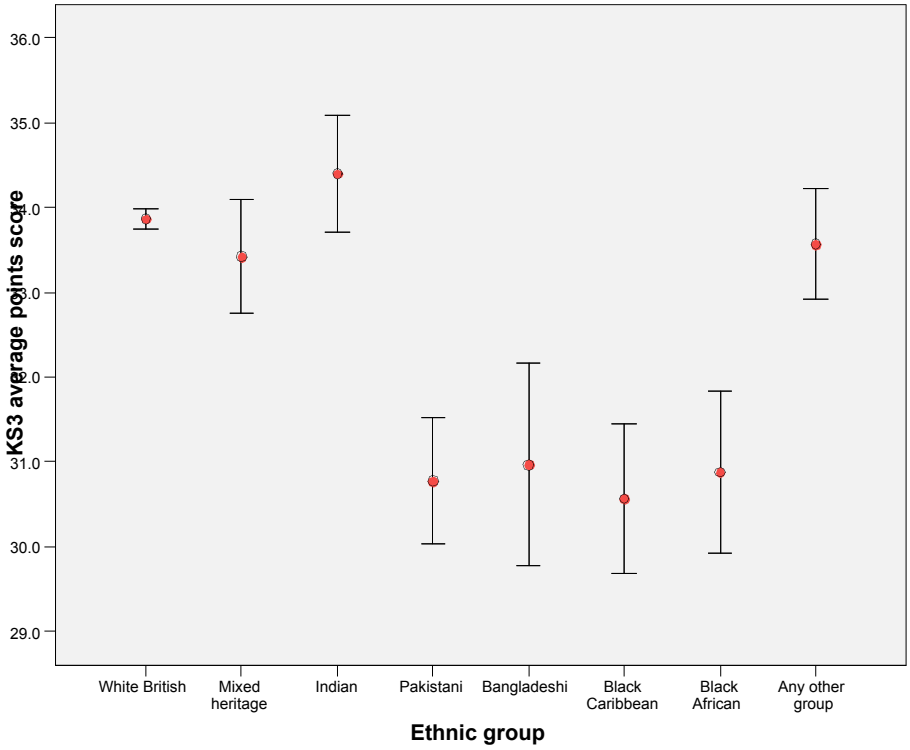
KS3 average points score

Figure 1 plots the weighted means for KS3 average points score by ethnic group also showing 95% confidence bands. A regression analysis was completed entering ethnic group, gender and the interaction between ethnicity and gender as explanatory variables. The interaction between ethnicity and gender was not significant[7], so only the main effects of ethnic group are considered here. The mean score for the Indian group was slightly higher than for White British pupils *($p<.05$*). There was no significant difference between the mean scores for the White British, Mixed heritage and Any Other groups, but Pakistani, Bangladeshi, Black African and

[7] . *The interaction coefficients indicate that within the Mixed heritage, Indian and Pakistani groups, boys had higher attainment than girls, but within the Black Caribbean, Black African and Any Other groups boys had lower attainment than girls. However these differences were not statistically significant from the overall gender difference for White British (boys 0.8 points lower than girls).*

Black Caribbean groups all had a substantially lower mean score than White British group. The gap relative to White British pupils for each of these four ethnic groups is around three points. This is equivalent to over a whole year of progress in terms of the definition of NC levels adopted by the Task Group on Assessment and Testing (TGAT)(see *Appendix 2* for explanation).

Figure 1 - Mean score and 95% Confidence Intervals for KS3 Average Points Score by ethnic group.



KS3 subject scores

Figure 2 presents the mean scores for each ethnic group on each KS3 test. Statistical tests of the effect of ethnic group, gender and the interaction between ethnic group and gender were completed for each subject[8]. There was no significant interaction between ethnic group and gender for any KS3 test, so only the main effects of ethnic group are considered. The results reveal that:

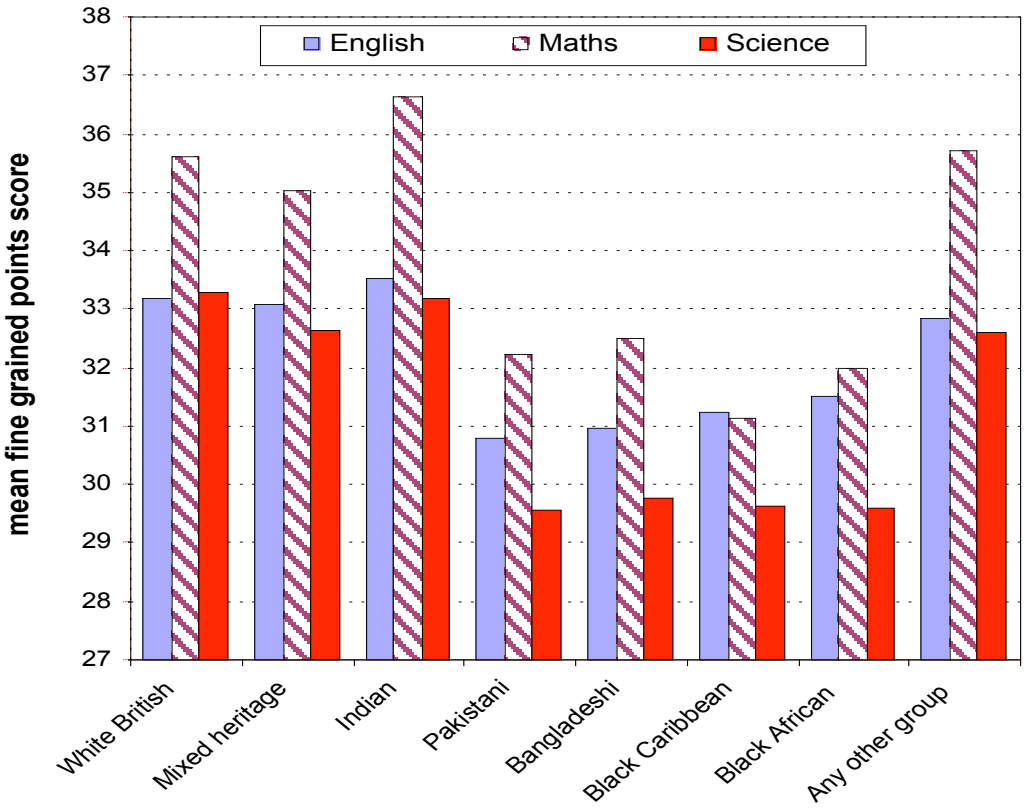
- Relative to White British, the mean scores for Pakistani, Bangladeshi, Black Caribbean and Black African groups were significantly lower in all three subjects.

[8]. *There is no MANOVA test within the SPSS complex samples module hence the use of separate regressions.*

- Pakistani pupils had a particularly low mean score in English, and Black Caribbean pupils a particularly low mean score in mathematics, relative to all other ethnic groups.

- Indian pupils had a significantly higher mean score for mathematics than White British pupils, but did not differ significantly from White British pupils on any other outcome.

Figure 2 - Mean points score for each KS3 test by ethnic group



The results can also be expressed in terms of the percentage of pupils reaching or exceeding specified levels of attainment. Table 4 shows the proportion of pupils achieving level 5 or above, and level 6 or above, respectively in each subject. To be consistent with national reporting, these percentages are based on all those pupils eligible for KS3 assessment, i.e. excluding 749 pupils who could not be matched but including any absent or disapplied pupils (2.6%, 3.0% and 3.7% of the LSYPE sample for English, mathematics and science respectively). These results show the same gaps as the previous tables. For example 60% of Pakistani pupils achieve level 5 or above in English compared to 72% of White British pupils, and 60% of Black Caribbean pupils achieve level 5 or above in mathematics, compared to 76% of White British pupils.

Table 4 - Percentage of pupils achieving level 5 or above and level 6 or above by KS3 subject and by ethnic group

	Unweighted	KS3 English		KS3 maths		KS3 science	
Ethnic group	count	L5+	L6+	L5+	L6+	L5+	L6+
White British	9,734	72.3	35.5	75.6	54.3	68.8	37.1
Mixed heritage	788	74.7	32.7	75.3	52.7	66.2	32.2
Indian	1,004	77.2	36.2	81.3	59.7	69.7	37.0
Pakistani	954	59.6	20.4	59.0	37.3	46.9	18.8
Bangladeshi	726	64.9	21.9	65.3	40.6	53.0	22.9
Black Caribbean	578	65.2	22.7	59.7	33.9	48.8	19.4
Black African	595	64.7	25.7	60.7	39.8	49.7	22.9
Any other group	640	69.2	32.5	72.5	52.0	62.3	35.9
Total	15,019	70.0	34.0	73.0	52.0	66.0	35.0
England 2004	-	71.0	34.0	73.0	52.0	66.0	35.0

Notes: National data for 2004 taken from the Secondary School Improvement Summary Report (SISR). National data are rounded to whole figures. For comparison the LSYPE sample averages have also been rounded to whole figures.

Comparison of LSYPE and national data

The England averages for 2004 are given in the bottom row of Table 4. These indicate the LSYPE sample average is identical to the England average, except for a one percentage point difference for English level 5 or above. Given national figures are rounded to whole numbers the error due to rounding is up to 1% point (e.g. 70.49% would be rounded down to 70% while 70.50% would be rounded up to 71%). This consistency between LSYPE and national data also holds within each ethnic group[9]. The LSYPE sample is therefore representative of the national population in terms of KS3 attainment.

Summary

This section has established that ethnic group differences in KS3 attainment are substantial. While Indian pupils on average achieve slightly better results than White British pupils, the gaps for Bangladeshi, Pakistani, Black African and Black Caribbean pupils relative to White British pupils are substantial and equivalent to over a year's progress in terms of NC levels. The results for the LSYPE sample accord with national data, indicating the sample is representative of the national population in terms of KS3 attainment.

[9] . *The only figure to vary by more than two percentage points was for Indian pupils in English where the sample average (77%) was slightly lower than the England average (80%). However given the error in rounding, and the fact that level 5 represents a single cut-point in a presumed continuous distribution, the differences overall are minimal.*

Section 2: Ethnic group differences in key contextual variables

Family Background

Socio Economic Classification (SEC)

SEC has been derived in the LSYPE dataset by matching the employment status/size of organisation of the person to the Office of National Statistics (ONS) eight SEC analytic classes. The lookup has been made for each interviewed adult in the sample households. There are 12,839 valid cases for mother's SEC, but only 9,564 valid cases for father's SEC. Considered below are the values of SEC for the Household Reference Person (HRP) as this seems the person most relevant to the economic status of the household. Using the HRP maintains a high degree of coverage with 12,839 valid values. Table 5 and Figure 3 present the SEC for the HRP.

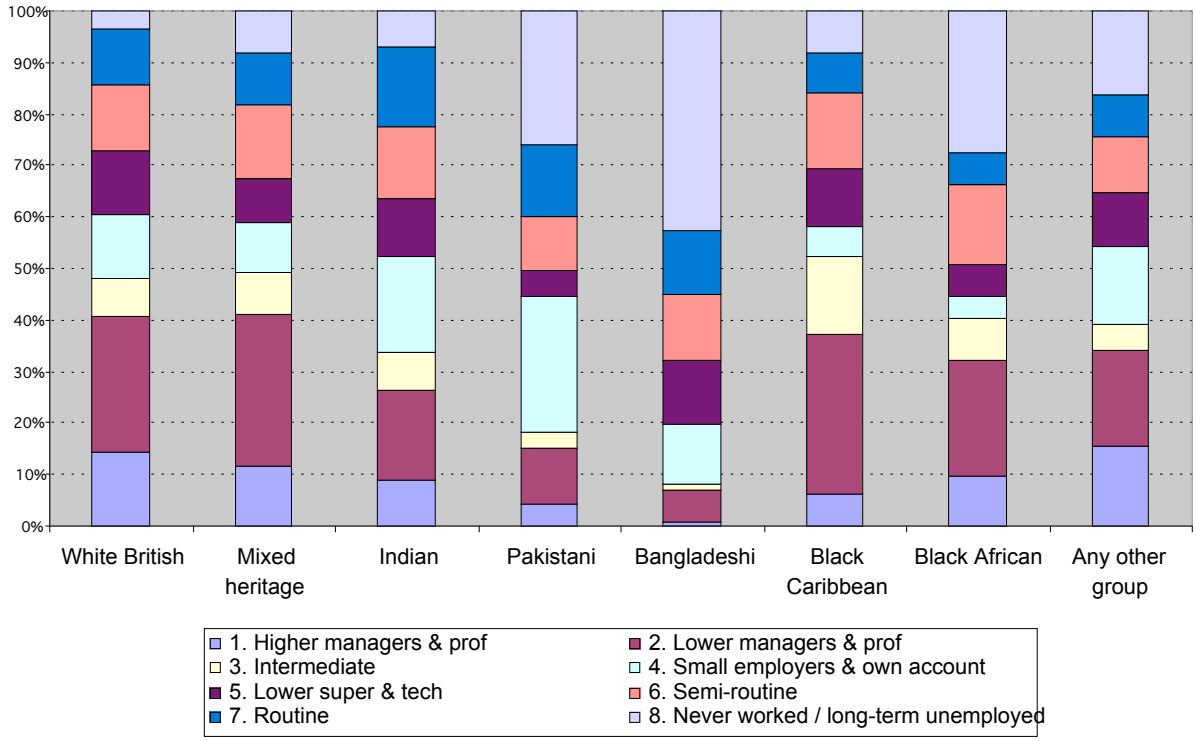
The results show substantial differences between ethnic groups. The proportion of households in social classes I & II (higher/lower managerial and professional occupations) is 41% for White British and Mixed heritage households. and 37% for Black Caribbean households. However the proportion is lower for Black African (32%), Indian (26%), Pakistani (15%) and Bangladeshi (7%) households. At the other end of the range, the proportion of HRPs who have never worked or are long term unemployed is 4% for White British but 26% for Pakistani, 27% for Black African and 43% for Bangladeshi households.

The HRP is not necessarily the highest status person for the 3,000 young people for whom father's SEC is not available, and there may be debate about whether the SEC of the mother is an appropriate substitute. However, for current purposes the SEC of the HRP is favored because of the wider coverage and because the HRP is presumed to be most relevant to the economic status of the household.

Table 5 - Socio-economic classification (SEC) of Household Reference Person (HRP) by ethic group

		Higher Managers & prof-essional	Lower managers & prof-essional	Inter-mediate	Small employers & own account workers	Lower super-visory & technical	Semi-routine	Routine	Never worked / long term unemployed	Total
White British	n	1218	2273	651	1073	1065	1084	937	297	8598
	%	***14.2***	***26.4***	***7.6***	***12.5***	***12.4***	***12.6***	***10.9***	***3.5***	***100***
Mixed heritage	n	78	197	55	65	57	95	68	54	669
	%	***11.7***	***29.4***	***8.2***	***9.7***	***8.5***	***14.2***	***10.2***	***8.1***	***100***
Indian	n	72	141	58	151	91	112	125	55	805
	%	***8.9***	***17.5***	***7.2***	***18.8***	***11.3***	***13.9***	***15.5***	***6.8***	***100***
Pakistani	n	32	78	23	193	38	75	104	190	733
	%	***4.4***	***10.6***	***3.1***	***26.3***	***5.2***	***10.2***	***14.2***	***25.9***	***100***
Bangladeshi	n	3	33	5	59	63	65	63	217	508
	%	***0.6***	***6.5***	***1.0***	***11.6***	***12.4***	***12.8***	***12.4***	***42.7***	***100***
Black Caribbean	n	30	148	73	28	54	71	36	40	480
	%	***6.3***	***30.8***	***15.2***	***5.8***	***11.3***	***14.8***	***7.5***	***8.3***	***100***
Black African	n	48	111	40	21	30	77	31	135	493
	%	***9.7***	***22.5***	***8.1***	***4.3***	***6.1***	***15.6***	***6.3***	***27.4***	***100***
Any other group	n	83	99	27	81	56	56	45	86	533
	%	***15.6***	***18.6***	***5.1***	***15.2***	***10.5***	***10.5***	***8.4***	***16.1***	***100***
Total	n	1564	3080	932	1671	1454	1635	1409	1074	12819
	%	***12.2***	***24.0***	***7.3***	***13.0***	***11.3***	***12.8***	***11.0***	***8.4***	***100***

Figure 3 - Cumulative distribution of HRP socio-economic class by ethnic group



Family Income

SEC is in some respects a proxy for the most relevant measure of socio-economic status which is actual family income. During the LSYPE interviews respondents were asked for the reported income from all sources (including unemployment, incapacity or other state-benefits) using showcards splitting income into 32 bands, showing weekly, monthly and annual equivalents. The annual equivalent ranged from <£520 to £36,400 and above in £520 increments. Over 17% of all households reported income in the top band (£36,400+) so a further 60 bands were used to extend the range up to £400,000 and above. These 92 income bands were recoded to the mid-point of the band to give a single value and a continuous distribution.

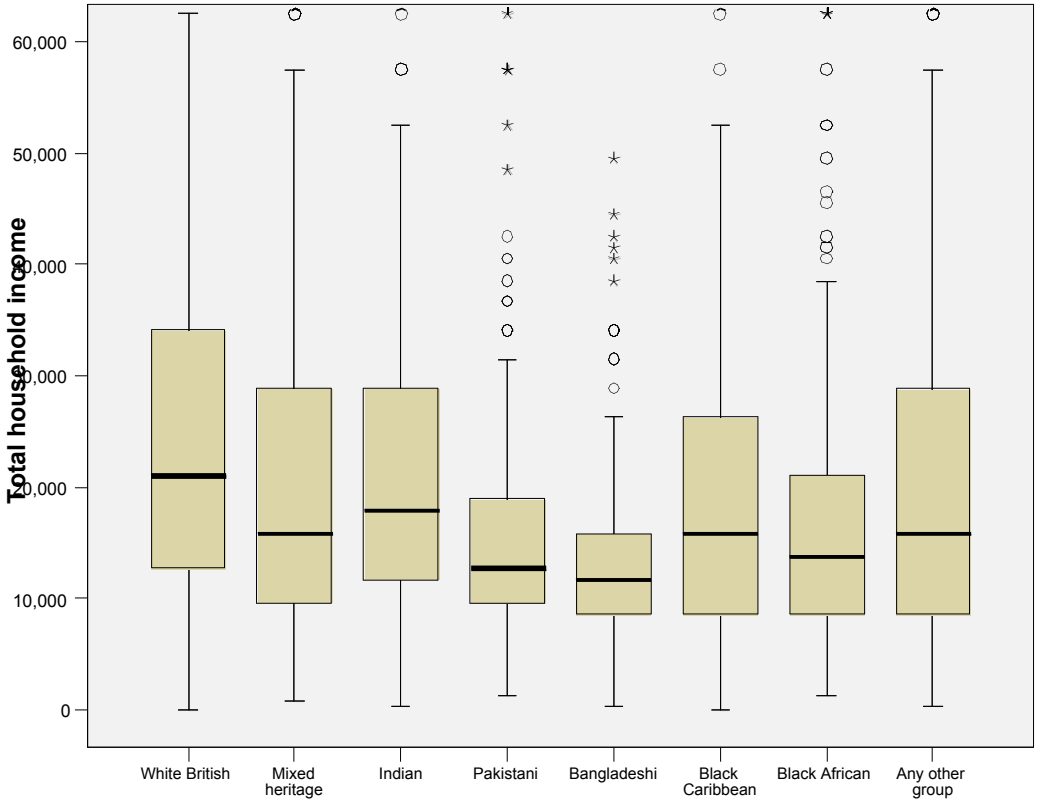
The data was strongly skewed making the mean (£27,475) a poor indicator of typical income. Median household total income was £20,020, and the middle 50% of households were in the range £11,700 to £31,460. Table 6 presents the percentile values for total household income for each ethnic group, and Figure 4 presents median and inter-quartile range for total household income.

Table 6 highlights that White British households had the highest median income (£21,060), significantly higher than all other ethnic groups, and were overrepresented in the higher ranges of income. While there is a degree of overlap in income between White British households and other ethnic groups, this is markedly less so for Black African, Pakistani and Bangladeshi families. Even income at the upper quartile (75th percentile) for Black African households was only at the median for White British households, and income at the upper quartile for Pakistani households was below the median for White British households. For Bangladeshi households, even those at the 90th centile had incomes only at the median for White British households. This reflects the fact that many Pakistani, Bangladeshi and Black African households have no wage earner. Indeed a majority of Pakistani and Bangladeshi households are dependent on means-tested benefits (Berthoud, 2005).

Table 6 - Percentiles for total household income (£) by ethnic group

	Percentiles						
	5	10	25	50	75	90	95
White British	5,460	7,540	12,740	21,060	34,060	57,500	87,500
Mixed heritage	4,940	5,460	9,620	15,860	28,860	52,500	72,500
Indian	4,940	6,500	11,180	17,940	28,860	39,500	57,500
Pakistani	4,550	6,500	9,620	12,740	18,980	26,260	33,410
Bangladeshi	4,420	6,500	8,580	11,700	15,860	21,060	28,340
Black Caribbean	4,420	5,460	8,580	15,860	26,260	34,060	52,500
Black African	3,900	5,460	8,580	13,780	21,060	36,700	50,850
Any other group	4,420	5,460	8,580	15,860	28,860	52,500	75,250
Total	5,460	6,500	11,700	20,020	31,460	52,500	77,500

Figure 4 - Median and inter-quartile range for reported total household income coded by mid-band



There are four problems in using the household income estimates:

- Income data is difficult to collect because of its extreme sensitivity in relation to tax and benefit issues. 10% of households refused to respond and 14% responded they didn't

know what the household income was. A further 1.6% was not interviewed in error. Income data is therefore only available for 72.5% of the pupil sample.

- The missing cases are not drawn randomly across ethnic groups. While 79% of White British households responded, only 65% of Indian and 55% of Pakistani and Bangladeshi households did so. A very high proportion of the parents in these groups reported they 'didn't know' about income levels.
- Recoding banded estimates of income to the mid-point value introduces a potential error into the estimated income of up to £999.
- Any measure of income estimated in this way may be prone to error in recall or accuracy.

The household income data give a strong picture of income differentials across different ethnic groups. However the low coverage (n=11,432) suggests too many cases would be lost in modelling the link with educational attainment. In common with other authors (e.g., Jenkins & Levacic, 2006) this analysis will use proxies such as SEC and FSM instead of income.

Entitlement to Free School Meals (FSM)

Table 7 shows the proportion of pupils in each ethnic group entitled to a FSM. This varies considerably across ethnic groups. The lowest proportions are 13% for White British pupils and 14% for Indian pupils. Compared to White British pupils, twice as many Black Caribbean pupils were entitled to FSM (26%), over three times as many Pakistani and African pupils (38% and 41%) and almost five times as many Bangladeshi pupils (59%).

Table 7 - Percentage of pupils entitled to a Free School Meal (FSM)

Ethnic group	% entitled to FSM	unweighted n
White British	12.8	9727
Mixed heritage	25.2	787
Indian	13.7	1001
Pakistani	38.2	949
Bangladeshi	58.5	724
Black Caribbean	26.2	577
Black African	41.4	588
Any other group	29.6	638
Group Total	15.4	14991

Across the sample as a whole, 15% of pupils are entitled to FSM (the England average is approximately 17%). These pupils are relatively homogenous since they all come from families who experience severe levels of economic disadvantage. However the group not entitled to FSM (around 85% of the sample) is extremely heterogeneous. It will include some families who are only just above the threshold for entitlement to FSM, right through to those from extremely affluent homes. Entitlement to FSM is therefore a 'blunt instrument' in estimating the extent of socio-economic disadvantage for the majority of pupils, but it does have the advantage of being collected at the individual pupil level.

Parents' highest educational qualifications

Mothers' highest educational qualification was available for 14,596 sample members. Fathers' highest qualification was available for 9,889 sample members. The difference arises because for approximately 4,000 pupils in single parent families, fathers were not part of the survey household and so could not be interviewed.

Figure 5 shows that similar proportions of White British (38%), Mixed heritage (41%) and Black African (42%) mothers are educated to GCE 'A' level equivalent or above. A higher proportion of Black Caribbean mothers are qualified to this level (49%), and a lower proportion of Indian (22%), Pakistani (12%) and Bangladeshi (4%) mothers. Looking at mothers with no qualifications, this is highest for Bangladeshi (87%) and Pakistani (74%) mothers, at a mid-level for Indian (46%) and Black African (40%) mothers and lowest for Mixed heritage (24%), White British (16%) and Black Caribbean (12%) mothers. Looking at fathers' highest qualification (Figure 6) shows a higher proportion of fathers than mothers are qualified for the three Asian groups. However it does not change the overall picture for these groups relative to White British households, they still contain the highest proportion of parents with no qualifications. Larger changes are seen for the Black African group, where over 40% of fathers are qualified to degree level compared to 15% of mothers, and the Black Caribbean group, where the proportion of fathers with no qualifications is 26% compared to 12% of mothers.

Ideally the analysis would use a parental level variable, taking the highest of the mother's or father's qualifications, but LSYPE does not yet contain such a variable[10]. For this reason mothers highest educational qualification will be used in the modelling with attainment because it has the broadest coverage across the sample.

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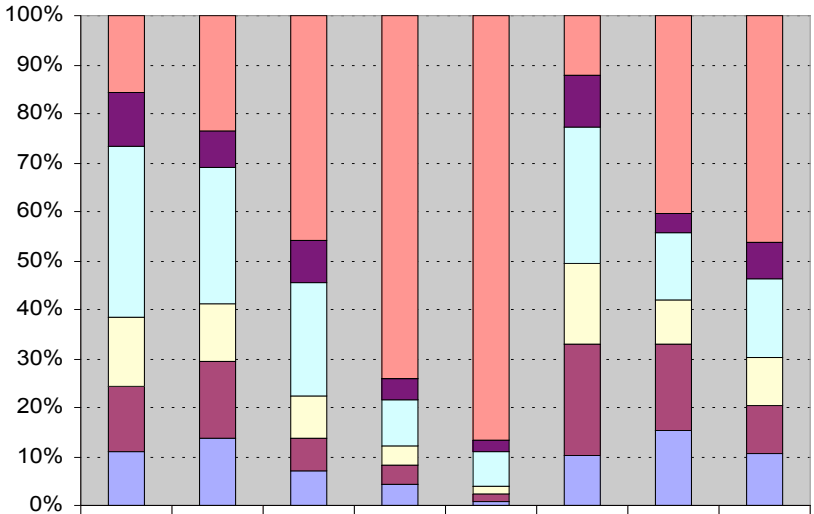
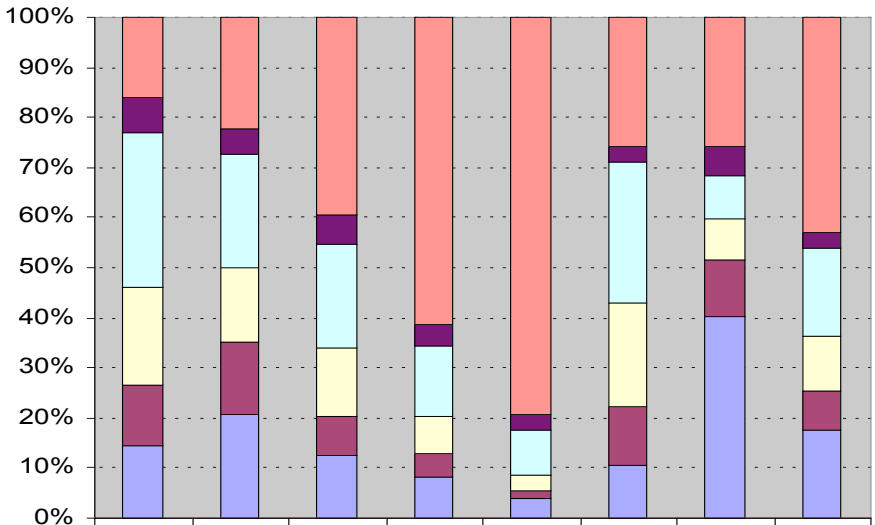
[10]. *This cannot be easily constructed because there are 1,800 households where there are two parents in the household but qualifications information is only available for one of them.*

Figure 5 - Mother's highest educational qualification by ethnic group.



	White British	Mixed heritage	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Any other group
No qualification	15.9	23.6	45.8	74.2	86.9	12.3	40.2	46.4
Other qualifications	10.8	7.3	8.6	4.2	2.2	10.4	4.0	7.3
GCSE grades A-C or equiv.	34.8	28.0	23.2	9.5	7.2	28.1	13.8	16.1
GCE A Level or equiv.	14.3	11.6	8.7	3.8	1.4	16.2	9.1	9.8
HE below degree level	13.2	15.7	6.4	4.1	1.4	22.8	17.8	9.8
Degree or equivalent	11.1	13.7	7.2	4.2	0.9	10.2	15.2	10.6

Figure 6: Father's highest educational qualification by ethnic group.



	White British	Mixed heritage	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Any other group
No qualification	15.9	22.2	39.6	61.4	79.3	25.7	25.9	42.9
Other qualifications	7.1	4.9	5.7	4.3	2.9	3.3	5.6	3.0
GCSE grades A-C or equiv.	31.0	23.0	20.8	14.1	9.2	28.1	8.6	17.7
GCE A Level or equiv.	19.6	14.8	13.6	7.3	2.9	20.5	8.3	11.0
HE below degree level	11.8	14.3	7.7	4.9	1.7	11.9	11.3	7.9
Degree or equivalent	14.6	20.7	12.6	8.0	4.0	10.5	40.2	17.5

Home ownership

Home ownership provides a measure of socio-economic status in the UK, where many families aspire to own their own home and there is relatively little Local Authority housing.

Table 8 - Proportion of families owning or renting their home by ethnic group

Ethnic Group	% rented	% owned	% Other, Don't Know, Refused
White British	25.1	73.4	1.6
Mixed heritage	41.2	57.1	1.7
Indian	13.5	85.2	1.3
Pakistani	20.9	76.1	2.9
Bangladeshi	53.2	45.3	1.4
Black Caribbean	54.0	43.3	2.8
Black African	65.8	30.7	3.5
Any other group	45.9	50.8	3.3
Total	27.2	71.1	1.7

For the White British group 73% of pupils reported their families owned their own home, and 25% reported renting. A higher proportion of Indian pupils (85%) reported their families owned the property in which they resided, while only 45% of Bangladeshi, 43% of Black Caribbean and 31% of Black African pupils reported their families owned their own home.

Single parent households

Table 9 shows that approximately 23% of White British pupils lived in single parent households.

Table 9 - Percentage of pupils living in single parent households

Ethnic group	%	unweighted n
White British	22.8	10225
Mixed heritage	41.4	815
Indian	12.2	1010
Pakistani	15.3	954
Bangladeshi	14.6	731
Black Caribbean	56.9	583
Black African	44.4	620
Any other group	21.9	681
Group total	23.6	15619

This nearly doubles to 41% of Mixed heritage and 44% of Black African pupils, and rises to 57% of Black Caribbean pupils. In contrast, only 12% of Indian and 15% of both Bangladeshi and Pakistani pupils live in single parent households. Living in a single parent household is not necessarily a cause of low attainment, but it is a significant risk factor. Single parent households have on average lower income, greater levels of parental stress, and less time for educational input to the child, all of which may impact negatively on educational attainment.

Parental attitudes and behaviour

Parents' educational aspirations - Post 16 and Higher Education

Parental expectations can have a strong association with pupils' educational outcomes, although the causal nature of the relationship is not always clear. In the LSYPE interviews the parent was asked what they would like the pupil to do when s/he reaches age 16. Table 10 presents the results, broken down by the ethnic group and gender of the pupil.

Table 10 - Parents view of what they would like the pupil to do when s/he reaches 16 by pupil gender

	% Continue in FTE			% Trade, apprenticeship or job			% Don't Know/Other		
Ethnic group	Boys	Girls	All	Boys	Girls	All	Boys	Girls	All
White British	70.2	84.2	**77.0**	25.7	12.3	**19.2**	4.1	3.5	**3.8**
Mixed heritage	82.9	91.9	**87.6**	15.5	7.3	**11.2**	1.6	0.7	**1.1**
Indian	94.4	96.2	**95.2**	4.8	2.6	**3.8**	0.8	1.3	**1.0**
Pakistani	96.7	91.3	**94.0**	2.2	3.8	**3.0**	1.1	4.9	**3.0**
Bangladeshi	95.4	93.7	**94.5**	2.3	2.3	**2.3**	2.3	3.9	**3.2**
Black Caribbean	87.5	95.8	**91.7**	10.3	3.2	**6.7**	2.1	1.1	**1.6**
Black African	98.3	98.0	**98.2**	1.7	1.6	**1.7**	0.0	0.3	**0.2**
Any other group	89.7	94.3	**92.0**	8.8	4.4	**6.7**	1.5	1.3	**1.4**
Total	77.5	87.7	**82.5**	19.3	9.3	**14.4**	3.2	3.0	**3.1**

Overall, parents had high aspirations for the children's education with 83% of them expecting the pupil to continue in Full Time Education (FTE). There was a 10% point gender gap, with parents expecting 88% of girls to continue in FTE compared to 78% of boys. In relation to ethnic group educational aspirations were lowest for White British parents, with 77% expecting the pupil to stay in FTE. Parental aspirations for White British boys were the lowest of any

group (70%), with 26% expected to start learning a trade, take a place on a training course, start an apprenticeship or get a full-time paid job. Parental aspirations for White British girls to continue in FTE (84%) were also the lowest for girls from any ethnic group. Aspirations for their children to continue in FTE were high (above 90%) in all other groups, except the Mixed heritage group (88%). Aspirations were particularly high among the African (98%) and Indian (95%) parents. While parents' aspirations that children should continue in FTE were generally higher for girls than boys, for Black African parents they were uniformly high for both boys and girls, and Pakistani and Bangladeshi parents' aspirations were higher for boys than for girls.

Parents' involvement in school activities

The parent interview included questions on parents' involvement in education and school activities. Variables that offered little discrimination were ignored (e.g. 98.2% of parents talked to their children about their reports) for the purpose of this analysis. Activities that required special knowledge or resources were also excluded (e.g. help out with teacher assessment, hosted an exchange pupil, donations or financial support to school, employed at school, help with special interest group like sport or drama). Following this process seven binary outcomes were created. Table 11 present the extent of involvement in each of the seven activities by ethnic group.

Table 11 - Percentage of parental involvement in school activities

Ethnic group	attended a parents evening in last 12 months	talked to teacher about child in last 12 months	Help out in class	Help out elsewhere e.g. library, school trips, dinner duty	Help out with fundraising activities	Get involved in parents & teachers assoc.	School or parent govern-or
White British	89.4	72.1	0.6	2.2	10.0	4.4	0.7
Mixed heritage	89.7	77.6	1.0	2.8	9.6	3.7	0.7
Indian	94.0	61.8	1.0	2.4	9.7	2.7	0.9
Pakistani	87.6	71.0	0.9	2.6	6.6	2.3	0.5
Bangladeshi	82.8	67.0	0.6	3.1	3.3	1.7	0.1
Black Caribbean	90.0	81.7	0.9	1.0	7.4	2.7	0.2
Black African	92.1	80.6	1.1	5.1	9.4	6.1	0.3
Any other group	90.0	71.4	1.0	2.9	10.3	4.7	0.7
Total	89.5	72.1	0.7	2.4	9.4	4.0	0.7

Note: All questions asked for the involvement of main parent and/or husband/wife/partner.

Black African parents were very strongly involved with the school; significantly more so than White British parents. The mean score for Pakistani and Bangladeshi parents was significantly lower than for White British parents, and the mean score for Bangladeshi parents was the lowest of all ethnic groups. This finding does not necessarily indicate a lack of interest among Pakistani and Bangladeshi parents in their children's education. The results might reflect language barriers to involvement with the school. Nevertheless the lower involvement may be significant, as research suggests this is a strong factor in relation to low attainment (Sylva et al., 2004). For the analysis with educational attainment this variable was reduced to three levels: involved in no activities, involved in one or two activities and involved in three or more activities with the school.

Parental support

Questions which were positively correlated with educational attainment were, whether the parents provided material support (specifically private tuition and a home computer), and indicators of parental supervision (parent always knows where the pupil is when they are out), and family discord (the frequency of parental reported quarrelling with the pupil). While it may be easier to provide resources where gross income is high, the provision of educational resources is not always directly related to income and may reflect the priority parents place on their children's education. Measures of parental help with homework and the frequency of family activities (family meal together, evening in, and family outing, but not shopping) did not correlate with attainment.

Table 12 - Percentage of pupils receiving support by ethnic group

Ethnic group	Paid for private classes in a subjects also taught at school in last 12 months	Household has home computer	Parents always knows where child is when out	Parent reports quarrels with the pupil most days	Parent reports quarrels with the pupil more than once a week
White British	11.1	89.9	81.6	13.6	25.5
Mixed heritage	16.9	84.8	81.8	15.0	20.5
Indian	24.8	93.9	91.7	9.7	17.1
Pakistani	14.2	81.8	88.7	13.6	13.6
Bangladeshi	12.1	80.5	85.7	6.6	11.5
Black Caribbean	14.2	81.0	81.6	12.4	23.9
Black African	21.7	86.4	90.5	11.8	17.7
Any other group	20.1	87.0	88.7	12.5	16.7
Total	12.2	89.3	82.4	13.4	24.6

White British parents were the least likely to have paid for private tuition in a subject also taught at school (11%). The proportions were relatively high for Black African (22%) and Indian (25%) parents. This is notable given the gross household income for these groups are substantially lower than White British (see Table 6). Indian households were the most likely to own a computer (94%) and Pakistani (82%), Bangladeshi (81%) and Black Caribbean households (81%) the least likely. Indian (92%) and Black African (91%) parents were most likely to report they always knew where their children were when they were out and White British, Black Caribbean and Mixed heritage parents the least likely (82%). Parent reported quarrelling with their children once a week or more was lowest among Bangladeshi parents (18%) and highest for White British parents (39%).

Pupil attitudes, motivation and risk factors

Educational aspirations

Pupils were asked whether, when they were 16 and had finished Year 11, they wanted to continue in FTE. They were also asked how likely they thought it was that they would ever go into Higher Education (HE) that is doing a degree course at a university. Table 13 presents the results by ethnic group and gender.

Table 13 - Pupils' educational aspirations by ethnic group and gender

	% Will stay in FTE after Y11			% Very/fairly likely to enter Higher Education		
Ethnic group	Boys	Girls	All	Boys	Girls	All
White British	70.9	83.3	76.9	58.9	66.2	62.4
Mixed heritage	79.0	89.1	84.3	68.8	78.7	74.0
Indian	94.0	94.8	94.4	88.1	91.1	89.5
Pakistani	91.5	91.1	91.3	85.0	79.0	82.0
Bangladeshi	91.3	92.3	91.8	81.6	76.6	78.8
Black Caribbean	78.4	92.7	85.6	77.0	82.0	79.5
Black African	94.6	97.8	96.2	92.6	93.7	93.1
Any other group	83.0	94.4	88.5	80.5	83.8	82.1
Total	76.6	86.8	81.6	66.7	72.3	69.5

Over four-fifths (82%) of young people intended to continue in FTE after leaving Year 11; there was a large overall gender difference with 77% of boys but 87% of girls intending to continue in

FTE. In relation to ethnicity White British pupils (77%) were the least likely group to say they intended to continue in FTE. Black African (96%), Indian (94%), Bangladeshi (92%) and Pakistani (91%) pupils were the most likely to intend to stay in FTE. It was notable that the gender difference was minimal for Indian, Pakistani and Bangladeshi groups. Boys in these groups were as likely as girls to intend to stay in FTE. A similar pattern of ethnic differences was found in relation to aspirations to enter HE.

Pupil attitudes to school

A scale was created from nine questions relating to attitude to school and to lessons, each answered on a five point Likert scale which had good internal consistency (Cronbach's alpha= .84). The specific questions are given in *Appendix 3*. The scale scores were grouped into four score bands. The results are presented in the Table 14.

Table 14 - Attitude to school and lessons by ethnic group

	Attitude to school %			
Ethnic group	very high	high	low	very low
White British	26.7	20.7	26.1	26.5
Mixed heritage	26.8	18.9	30.2	24.1
Indian	42.4	24.9	23.5	9.2
Pakistani	44.1	21.7	24.0	10.2
Bangladeshi	38.4	21.6	27.2	12.8
Black Caribbean	30.3	20.7	25.8	23.2
Black African	46.4	16.6	22.7	14.2
Any other group	34.4	18.6	29.3	17.7
Total	28.2	20.6	26.2	25.0

White British, Mixed heritage and Black Caribbean pupils had the least favourable attitudes to school. In contrast Indian, Pakistani, Bangladeshi and Black African pupils had the most favourable attitudes to school. It is important not to over-generalise these results to all pupils in each ethnic group, as the item by item results (see Appendix 3) indicate that the vast majority of pupils have very positive attitudes to school.

Academic self concept

A scale measuring academic self concept was created from seven items each measured on a five point Likert scale. The seven items were: I get good marks for my work, how good do you think you are at school work, how good do your teachers think you are at school work, and how

good do you think you are at English, mathematics, science and ICT respectively. The scores were summed to create a short scale which had good internal consistency (Cronbach's alpha= .73). The scores were divided into four score bands and are presented in the Table 15.

Table 15 - Academic self-concept by ethnic group

	Academic self-concept groups %			
Ethnic group	very high	high	low	very low
White British	18.3	33.8	33.9	14.0
Mixed heritage	22.9	34.7	31.2	11.2
Indian	30.9	38.3	24.0	6.9
Pakistani	28.8	41.8	24.1	5.4
Bangladeshi	28.2	37.9	28.2	5.6
Black Caribbean	24.5	31.6	35.2	8.7
Black African	33.5	36.4	23.9	6.2
Any other group	25.3	40.6	25.3	8.7
Total	19.6%	34.4	32.9	13.1

There is no evidence that minority pupils have low academic self-concept. White British and Mixed heritage groups had the lowest mean score for academic self-concept. Black Caribbean pupils had a significantly more positive academic self-concept, and Black African and Asian (Indian, Pakistani and Bangladeshi) pupils had the highest mean scores for academic self concept.

Planning for the future

Pupils were asked three questions related to the importance of job/career to them and their planning for their future. The specific questions were: I don't think much about what I will do in the future, I'll just wait and see where I end up and having a job/career is important to me. The results were summed to create a short scale which had low but acceptable internal consistency (Cronbach's alpha= .52) and scores were banded into four groups. Table 16 presents results by ethnic group.

Table 16 - Extent of planning for the future by ethnic group

	Extent of planning for the future			
Ethnic group	Very Low	low	medium	high
White British	8.1	9.5	34.3	48.1
Mixed heritage	7.9	8.1	34.0	50.0
Indian	8.3	9.7	33.6	48.4
Pakistani	14.5	12.7	29.5	43.4
Bangladeshi	17.3	16.5	30.2	36.0
Black Caribbean	8.9	6.1	28.0	57.0
Black African	10.6	6.2	30.0	53.3
Any other group	8.5	9.0	39.3	43.3
Total	8.4	9.4	34.2	48.0

Black Caribbean pupils were significantly more likely to plan for the future than White British pupils, and Pakistani and Bangladeshi pupils significantly less so.

Educational risk factors

Six questions about factors associated with an increase risk of low educational attainment were asked of parents and the pupil. Table 17 shows the results by ethnic group.

Table 17 - Six educational risk factors by ethnic group

Ethnic Group	% Truanted any time during KS3	% Absent for more than one month in last year	% Parents contacted by SS / EWS	% Police contact because of pupil behaviour	% Excluded from school anytime in last 3 years	% Identified Special Education -al Need (SEN)
White British	15.8	4.2	7.5	8.5	10.5	8.2
Mixed heritage	21.6	6.6	9.3	10.8	15.5	8.5
Indian	8.1	3.2	3.5	2.2	3.8	4.8
Pakistani	13.6	6.5	5.4	2.0	6.9	7.6
Bangladeshi	16.1	1.6	4.8	1.6	4.8	8.9
Black Caribbean	19.0	2.5	8.9	5.0	19.7	13.8
Black African	13.0	2.2	5.9	4.3	10.7	6.5
Any other group	12.1	2.9	5.4	3.7	8.5	5.7
Group Total	15.6	4.2	7.4	8.0	10.5	8.1

Indian pupils (8%) were the least likely to have truanted and Black Caribbean (19%) and Mixed heritage (22%) pupils the most likely. Pakistani and Mixed heritage pupils (7%) were the most

likely to have had an extended absence from school of a month or more in the last year and Bangladeshi pupils were the least likely (2%). Mixed heritage and Black Caribbean pupils were the most likely to have had contact with Social Services (SS) or Education Welfare Service (EWS) and Indian pupils the least likely (4%). Mixed heritage pupils were also the most likely to have been contacted by the police because of their behaviour (11%) and Bangladeshi pupils the least likely (2%). Black Caribbean pupils were the most likely to have had a temporary or permanent exclusion from school in the last three years (20%) and Asian groups the least likely (4%, 5% and 7% respectively for Indian, Bangladeshi and Pakistani pupils).

The measure of SEN was the proportion of pupils at School Action Plus or with statements of SEN since these pupils: *'have educational provision which is additional to, or different from, the educational provision made generally for children of their age - support has been sought from external sources'* (see Lindsay et al., 2006, p25). The results indicate that Indian pupils are less likely to have identified needs (5%) than White British (8%) and Black Caribbean pupils are the most likely to have identified needs (14%). These figures need to be interpreted with care since the interpretation very much depends on the type of need, for example visual or hearing impairments (VI/HI) might be interpreted in quite a different way from moderate learning difficulties (MLD) or from behavioural, emotional and social difficulties (BESD). This issue is considered in detail in the DfES research report "Ethnicity and SEN: issues or over- and under-representation" (Lindsay et al., 2006).

Homework

Pupils were asked on how many evenings a week they completed homework. Table 18 presents the results.

Table 18 - Number of evenings a week homework by ethnic group (%)

Ethnic Group	None	1 day	2 days	3 days	4days	5days	4+ Days
White British	3.6	14.1	21.4	26.8	14.8	19.3	34.1
Mixed heritage	4.1	13.3	17.7	27.7	14.7	22.6	37.2
Indian	1.7	7.9	12.6	27.0	18.5	32.3	50.8
Pakistani	2.2	10.5	17.8	28.0	15.7	25.8	41.5
Bangladeshi	2.3	11.5	19.8	28.2	14.5	23.7	38.2
Black Caribbean	4.0	12.1	17.2	36.9	10.6	19.2	29.8
Black African	1.8	6.0	17.1	30.0	15.7	29.5	45.2
Any other group	2.1	7.7	18.0	26.4	19.2	26.7	45.9
Group Total	3.4	13.4	20.7	27.1	15.1	20.3	35.4

White British pupils (34%) were least likely to report doing homework four or more evenings per week. Slightly fewer Black Caribbean pupils (30%) and significantly more Black African (45%) and Indian (51%) pupils reported doing homework four or more evenings a week.

School and neighbourhood context

Selective schools

Table 19 shows the proportion of the sample in each of three types of school with regard to selective admissions. Comprehensive schools do not select by ability and take in the whole ability range. Grammar schools select by ability, taking the more able children from a geographical area based on their scores on a reasoning test at age 11. Schools which are designed to cater for the pupils who are not selected by the grammar schools are deemed secondary modern schools.

Table 19 - Percentage of pupils in comprehensive, selective or secondary modern schools by ethnic group

Ethnic group	Comprehensive	Grammar	Secondary Modern
White British	91.9	3.5	4.6
Mixed heritage	93.1	3.8	3.1
Indian	91.4	6.7	1.9
Pakistani	94.4	1.8	3.8
Bangladeshi	97.1	1.4	1.4
Black Caribbean	96.7	1.9	1.4
Black African	94.3	2.6	3.1
Any Other	91.4	4.3	4.3
Total	92.1	3.5	4.4

In the sample a roughly similar proportion of White British and Indian pupils were not in comprehensive schools, and so presumably live in areas where selective education continues to exist. However a higher proportion of Indian pupils (7%) are attending grammar schools, compared to 4% of White British pupils. Less than 2% of Black Caribbean, Pakistani and Bangladeshi pupils attended grammar schools. However this may be because in the sample these groups are over-represented in areas where selection does not exist, as the proportion attending comprehensive schools among these groups (95%-97%) is much higher than for White British or Indian pupils (91%-92%).

School Type

A high proportion of Black African (28%) and Black Caribbean (26%) pupils attend Church schools compared to White British pupils (13%). Bangladeshi (9%), Indian (8%) and Pakistani (3%) pupils were the least likely to attend Church schools.

Table 20 - School type attended by ethnic group

Ethnic group	Church %	Foundation %	Community %
White British	12.9	15.7	71.4
Mixed heritage	17.5	16.3	66.3
Indian	8.3	16.9	74.7
Pakistani	2.9	10.3	86.7
Bangladeshi	9.4	6.5	84.2
Black Caribbean	26.2	12.1	61.7
Black African	27.6	8.3	64.0
Any other group	16.9	15.2	67.9
Total	13.2	15.3	71.5

Single sex schools

Overall around 9% of pupils in the LSYPE sample attended single sex schools, although the proportion of girls attending single sex schools (10%) was slightly higher than the proportion of boys (8%). Table 21 shows the results by ethnic group.

Table 21 - Proportion of pupils in single sex and mixed sex schools by ethnic group

Ethnic group	Percentage of ethnic group in			% of girls in single sex	% of boys in single sex
	Boys schools	Girls schools	Mixed sex schools		
White British	3.5	3.4	93.1	6.9	6.9
Mixed heritage	5.3	9.1	85.6	17.2	11.2
Indian	7.0	10.2	82.8	21.7	13.1
Pakistani	3.5	15.6	80.8	31.7	7.0
Bangladeshi	10.0	17.9	72.1	35.2	20.6
Black Caribbean	6.1	18.7	75.2	38.1	11.9
Black African	7.5	16.3	76.2	31.9	15.2
Any Other	7.1	12.1	80.8	26.7	13.0
Total	3.9	4.8	91.2	9.8	7.7

White British pupils (7%) were the least likely to attend single sex schools. All minority ethnic groups had a higher proportion of pupils in single sex schools, particularly the Bangladeshi, Black Caribbean and Black African groups. The proportions were particularly high for Black Caribbean girls (38%), Bangladeshi girls (35%), Pakistani girls (32%) and Black African girls (32%).

School deprivation

The percentage of pupils in the school entitled to Free School Meals (FSM) is an indicator of the relative deprivation of the school. Table 22 places schools into six bands ranging from the least deprived (<5% entitled to FSM) to the most deprived (35% or more entitled to FSM).

Table 22 - Percentage of pupils in the school entitled to Free School Meals (FSM) by ethnic group

Ethnic group	Percentage of pupils in the school entitled to FSM					
	<5%	5%-9%	9%-13%	13%-21%	21%-35%	35%+
White British	28.0	23.0	15.1	14.8	12.8	6.4
Mixed heritage	23.1	15.0	12.1	18.4	16.0	15.3
Indian	16.2	8.4	14.1	25.4	17.8	18.1
Pakistani	10.7	5.6	7.1	10.7	24.6	41.2
Bangladeshi	4.4	2.9	5.9	8.8	11.8	66.2
Black Caribbean	5.6	7.5	9.9	16.9	31.9	28.2
Black African	6.7	9.0	8.1	13.5	23.8	39.0
Any Other	25.3	11.1	13.4	13.4	16.4	20.4
Total	26.2	21.0	14.5	15.0	13.8	9.6

White British pupils were the least likely to attend deprived schools, with 28% in the least deprived and 6% in the most deprived schools. All other ethnic groups are over-represented in the more deprived schools. Most notably 60% of Black Caribbean pupils, 63% of Black African, 66% of Pakistani and 78% of Bangladeshi pupils attend the two most deprived groups of schools, compared to 19% of White British pupils.

Neighbourhood Deprivation

The Income Deprivation affecting Children Index (IDACI) is a supplementary index to the Indices of Multiple Deprivation produced by central government. It measures the proportion of children under the age of 16 in an area living in low income households. The measure is

focused on disadvantage and has a wide base including families in receipt of income support, job seekers allowance, and working families tax credit/disabled persons tax credit (for those below 60% of national median income). The indicator is available for very small localised areas called super output areas (SOA), of which there are 32,000 in England, each containing approximately 200 children (Standard Deviation=70). This can be used to give an indication of neighbourhood deprivation in the area in which the young person lives.

Table 23 presents the mean and SD of IDACI scores by ethnic group. It also divides SOAs to identify the 25% of areas with the highest level of deprivation, the middle 50% of areas in terms of deprivation and the 25% of areas with the least amount of deprivation. The table then shows what proportion of each ethnic group resides in the most deprived and the least deprived areas. Figure 7 displays this data graphically.

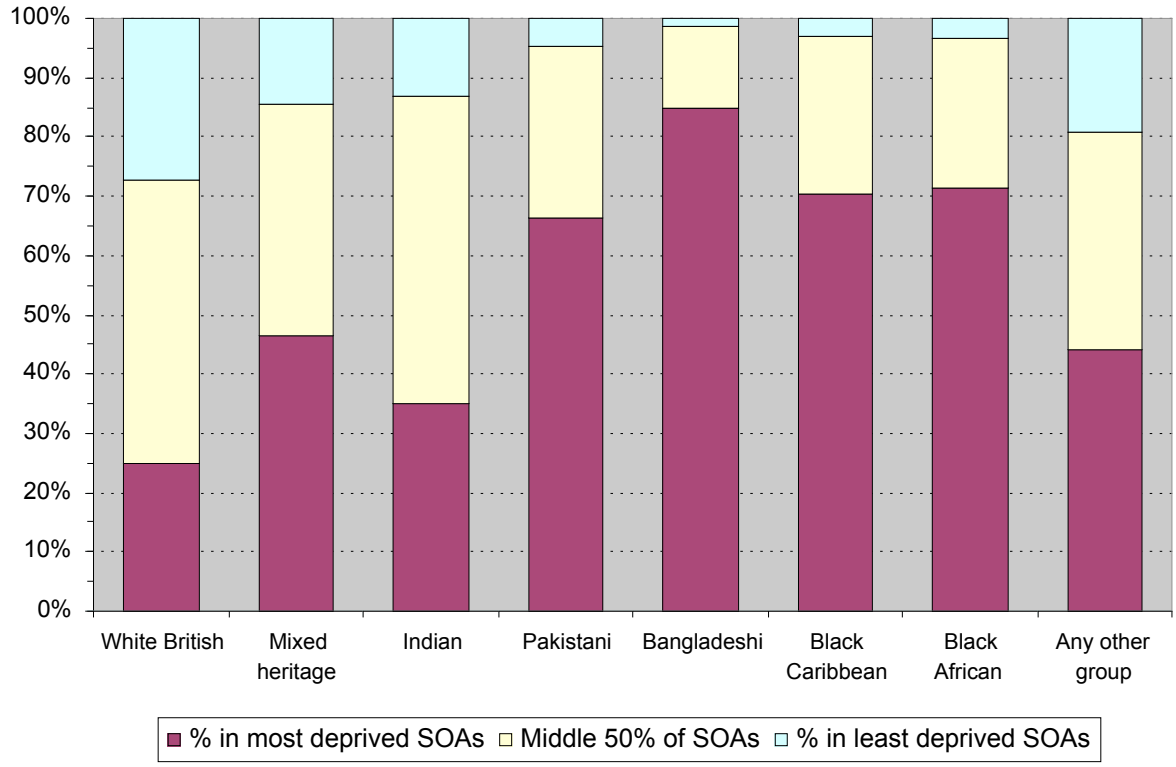
Table 23 - Mean and SD of IDACI score and the proportion of pupils in the most/least deprived areas by ethnic group

Ethnic group	Mean	unweighted n	SD	% living in the 25% most deprived SOAs	% living in the 25% least deprived SOAs
White British	0.196	10,283	0.17	25.0	27.4
Mixed heritage	0.288	819	0.20	46.3	14.6
Indian	0.241	1,021	0.15	35.1	13.2
Pakistani	0.350	969	0.16	66.5	4.9
Bangladeshi	0.455	740	0.17	84.9	1.2
Black Caribbean	0.391	593	0.19	70.5	2.9
Black African	0.404	625	0.18	71.5	3.5
Any other group	0.281	691	0.21	44.1	19.1
Total	0.245	15,741	0.19	36.5	21.0

The results indicate that among White British pupils in the sample, approximately 25% live in the most deprived SOAs and about 27% live in the least deprived SOAs. This indicates that a substantial proportion of the White British group do live in areas of significant income disadvantage, but also that there is broad spread typical of the national range.

In contrast, there are substantial skews in the distribution across SOAs for all other ethnic groups. The proportion living in the most disadvantaged areas rise to 35% of Indian pupils, 46% of Mixed heritage, 67% of Pakistani, 71% of Black Caribbean, 72% of African and 85% of Bangladeshi pupils. The proportion living in the least deprived areas decreases from 27% of White British pupils to 15% of Mixed heritage, 13% of Indian, 5% of Pakistani, 4% of Black African, 3% of Black Caribbean and 1% of Bangladeshi pupils.

Figure 7 - Distribution of neighbourhood deprivation by ethnic group



Section 3: Modelling ethnicity and educational attainment and progress

Section 1 showed that there are substantial differences between ethnic groups in attainment at KS3. Section 2 that there is also substantial variation between ethnic groups in a wide range of variables that are significantly related to educational attainment. Section 3 pulls these two sets of data together to model the relationship between the contextual variables and educational attainment. In so doing it allows an assessment of the extent to which the contextual variables can account for the ethnic gaps in attainment.

General approach

Two outcomes are modelled in the analyses:

- The first is an investigation of differences in ***educational attainment*** at the end of KS3, and the extent to which ethnic group differences can be explained through the contextual variables. Ethnic group is entered alone to create a base model. Explanatory variables are then entered in blocks, as described below, and the impact on the ethnic group coefficients evaluated.

- The second is an investigation of differences in ***educational progress*** between the age of 11 and 14, and the extent to which differences in progress between ethnic groups exist and can be accounted for by the explanatory variables. This involved first building a model with only ethnic group and KS2 test marks and examining the resulting coefficients for each ethnic group to give a measure of relative progress, before entering the other explanatory variables in the sequence described below.

Rather than entering all possible explanatory variables in one pass, groups of related variables were entered in blocks. These groupings were based on a theoretical model of the nature of various influences on educational attainment (Powdthavee, Levacic & Vignoles, 2006). The specific steps were:

Step 1: Ethnic group is entered alone to create a base model.

Step 2: Structural variables associated with family background are entered next. These included measures of parental social class, maternal education qualifications, entitlement to FSM, home ownership and single parent status, which are relatively

fixed aspects of family background, although none of these variables are truly invariant.

Step 3: More dynamic aspects of the family (parents' educational aspirations for the pupil, parental involvement with the school, provision of private tuition or a home computer and the quality of family relationships) were entered next. These variables were entered before any individual pupil measures on the presumption that family influences logically precede or at least create the context for individual pupil behaviour.

Step 4: Pupil characteristics, both in terms of risk factors (SEN, truancy, extended absence from school, involvement with Social Services/EWS or the police and exclusion from school) and positive motivational factors (pupils' educational aspirations, amount of homework completed, academic self concept, attitude to school and planning for the future) were entered next.

Step 5: School context and neighbourhood deprivation factors were entered last. These included variables for school type, admissions policy, percentage of the school intake entitled to FSM and neighbourhood deprivation. The rationale was to determine whether school or neighbourhood deprivation had any effect over and above the influence of individual and family deprivation.

The division of variables between these steps is not a strict categorisation; rather it is a useful means of highlighting the distinctiveness of the data on individual and family variables available through LSYPE. While there is a substantial body of research establishing the relation between structural variables such as social class and pupils' educational attainment (e.g. Sirin, 2005), there is relatively little evidence of the mechanisms or the more proximal influences through which this association is mediated. By entering the structural factors first, it is possible to explore the subsequent effect of entering more dynamic family or individual measures. If these more proximal measures influence or mediate the effect of social class we might expect the inclusion of these variables to (a) improve the prediction of educational attainment and (b) reduce the relative impact of variables such as social class. This may also help us to better understand how social class effects on attainment are mediated.

Contextual models of attainment at the end of KS3

Table 24 presents the results of the multiple regression analysis for KS3 average points score.

Model I - Base model

Model I includes only ethnic group as an explanatory variable. This shows the simple association between ethnic group and KS3 attainment, before taking account of any other variables. The model demonstrates a substantial association between ethnicity and attainment; with Pakistani, Bangladeshi, Black Caribbean and Black African groups achieving a mean score around three points (12 TGAT months) below the mean for White British pupils, as reported in Section 1.

Model II - Family Background

The first block of explanatory variables entered are the most commonly researched measures of family background. These represent structural factors that are largely beyond the control of the individual and are considered relatively stable or consistent features of the individual's environment, at least in comparison to the more dynamic characteristics considered in the next step of the model. Specifically the variables included here were:

- Gender (boy v girl)
- Social class (occupational coding)
- Maternal education (Mother's highest educational qualification)
- Poverty (entitlement to a FSM)
- Home ownership (owned v rented)
- Single parent household

All these factors were strongly and significantly related to KS3 attainment, and overall explained 25% of the variance in KS3 average score.

It is possible to identify the relative size of the 'ethnic, sex and social class' gaps through univariate analyses looking at the impact of each factor separately. The social class gap was largest with a **10** point gap between the higher managerial and professional group and the long term unemployed. The maternal education gap was also large with a nine point gap between mothers with a degree or higher vs. mothers with no qualifications. In contrast the ethnic gap

was only three points (this being the size of the difference between White British and each of Pakistani, Bangladeshi, Black Caribbean and Black African groups). Finally the gender gap was just **0.8** points (boys lower than girls).

However these factors are themselves correlated, for example social class and maternal education correlate 0.48. Therefore a more accurate picture of the unique influence of each variable is better assessed through the multiple regression coefficients indicated in Table 24. The coefficients are different than the gaps reported in the previous paragraph because the influence of each factor is adjusted to take account of the influence of each of the other factors in the model. Looking at these coefficients (Model II) the association with maternal education was the largest, a gap of six points between mothers with a degree or higher vs. mothers with no qualifications. The effect of social class was next largest with a gap of nearly four points between the higher managerial and professional group and the long term unemployed. These effects are additive, so taken together social class and maternal education are associated with a 10 point gap in attainment (equivalent to three years' of progress), four times larger than the biggest ethnic gap which was the 2.5 point gap between Black Caribbean and White British groups. The gender gap was just 0.7 points.

In addition to social class, maternal education and gender, there were also significant negative associations with entitlement to FSM (**-2.0** points), being in rented rather than owned accommodation (-**1.9** points) and being in a single parent family (-**0.4** points).

Table 24 - Contextual models of KS3 average points score

		CONTEXTUALISED MODELS									
		I		II		III		IV		V	
		Base		**Family background**		**+ Parental attitudes & behaviours**		**+ pupil attitudes, motivation & risk**		**+ school & neighbourhood context**	
Variable	**Value**	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff. t	Sig.	Coeff.	Sig.
Intercept	Intercept	33.88		28.9039		31.71		30.16		31.72	
ethnic group (Base=White British)	Mixed heritage	-0.38	0.125	0.29	0.198	-0.25	0.254	-0.34	0.070	-0.10	0.596
	Indian	0.55	0.043	1.39	0.000	0.18	0.396	-0.92	0.000	-0.49	0.003
	Pakistani	-3.09	0.000	-0.61	0.008	-1.34	0.000	-2.43	0.000	-1.49	0.000
	Bangladeshi	-2.81	0.000	1.31	0.000	0.30	0.334	-0.92	0.000	0.16	0.466
	Black Caribbean	-3.33	0.000	-2.50	0.000	-3.26	0.000	-3.37	0.000	-2.53	0.000
	Black African	-3.02	0.000	-1.05	0.000	-2.53	0.000	-3.87	0.000	-2.90	0.000
	Any other ethnic group	-0.27	0.396	1.58	0.000	0.66	0.009	-0.33	0.128	0.01	0.944
Gender	Male			-0.72	0.000	-0.14	0.177	0.31	0.001	0.13	0.055
Family Social class (base= Long term unemployed)	Higher managerial & prof.			3.83	0.000	3.06	0.000	2.16	0.000	1.57	0.000
	Lower managerial & prof.			2.48	0.000	1.83	0.000	1.18	0.000	0.94	0.000
	Intermediate			1.99	0.000	1.64	0.000	1.15	0.000	0.98	0.000
	Small employers & own account			1.46	0.000	1.10	0.000	0.83	0.000	0.54	0.010
	Lower supervisory & tech.			0.60	0.030	0.51	0.046	0.23	0.271	0.23	0.271
	Semi-routine			0.37	0.173	0.34	0.177	0.16	0.454	0.23	0.273
	Routine			-0.37	0.166	-0.27	0.292	-0.16	0.448	-0.08	0.717
Mother's higest education qualification (base= no qualifications)	Degree or equivalent			5.92	0.000	4.69	0.000	3.62	0.000	2.84	0.000
	HE below degree level			3.83	0.000	3.00	0.000	2.26	0.000	1.72	0.000
	GCE A Level or equiv			3.25	0.000	2.40	0.000	1.78	0.000	1.31	0.000
	GCSE grades A-C or equivalent			2.23	0.000	1.76	0.000	1.20	0.000	0.88	0.000
	Other qualifications			0.88	0.000	0.72	0.000	0.55	0.000	0.38	0.005
FSM	Not entitled to FSM			1.97	0.000	1.57	0.000	1.02	0.000	0.60	0.000
Home ownership	Rented vs. owned			-1.90	0.000	-1.46	0.000	-1.05	0.000	-0.70	0.000
Single parent	No (base=yes)			0.42	0.000	0.22	0.044	-0.05	0.555	-0.05	0.552
Computer	No (base=yes)					-2.17	0.000	-1.29	0.000	-1.14	0.000
Private tuition	No (base=yes)					-0.44	0.001	-0.29	0.015	-0.15	0.157
parent involvement in school	1-2 activities vs none					0.37	0.104	0.10	0.653	0.08	0.719
	3 activities vs none					0.95	0.000	0.59	0.014	0.30	0.200
Parental supervision	does not know always where YP is when out					-1.09	0.000	-0.14	0.152	-0.13	0.180
Parents aspirations	Not continue FTE (base=continue)					-4.03	0.000	-1.89	0.000	-1.77	0.000
Parents quarrels with pupil	most days vs. < once a week					-1.75	0.000	-0.79	0.000	-0.68	0.000
	> once a week vs. < once a week					-0.76	0.000	-0.44	0.000	-0.40	0.000

Table 24 - Contextual models of KS3 average points score (continued)

		CONTEXTUALISED MODELS									
		I		II		III		IV		V	
		Base		**Family background**		**+ Parental attitudes & behaviours**		**+ pupil attitudes, motivation & risk**		**+ school & neighbourhood context**	
Variable	**Value**	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff. t	Sig.	Coeff.	Sig.
SEN	SAP or statemented							-5.59	0.000	-5.23	0.000
truant	any time during KS3							-0.33	0.003	-0.27	0.014
Absence	>1 month in last year							-0.80	0.000	-0.65	0.000
Service	SS / EWS contact							-0.26	0.087	-0.24	0.092
Police	contacted family because of YP							-0.51	0.001	-0.49	0.001
Exclude	in last three years							-0.65	0.000	-0.63	0.000
Pupil aspirations	Not stay in FTE							-1.58	0.000	-1.51	0.000
Planning for the future (base=high)	very low							-2.22	0.000	-2.21	0.000
	low							-1.81	0.000	-1.80	0.000
	medium							-0.58	0.000	-0.62	0.000
Homework (base=none)	1 day							0.44	0.051	0.42	0.058
	2 days							1.09	0.000	0.92	0.000
	3 days							1.96	0.000	1.60	0.000
	4 days							2.72	0.000	1.97	0.000
	5 days							3.03	0.000	1.89	0.000
Academic self concept (base=very low)	very high							4.98	0.000	5.34	0.000
	high							3.13	0.000	3.39	0.000
	low							1.50	0.000	1.66	0.000
Attitude to school (base= v low)	very high							-0.92	0.000	-0.84	0.000
	high							-0.41	0.000	-0.36	0.001
	low							-0.39	0.000	-0.40	0.000
IDACI	normalised score									-0.30	0.000
School %FSM (Base <5%)	35%+									-3.10	0.000
	21%-35%									-1.86	0.000
	13%-21%									-1.33	0.000
	9%-13%									-1.22	0.000
	5%- 9%									-0.50	0.001
Selection (base=comp.)	Modern									-1.15	0.000
	grammar									4.66	0.000
SchType (base=community)	Church									0.44	0.002
	Foundation									-0.15	0.274
Schsex (base=mixed)	Boys									0.16	0.337
	Girls									0.89	0.000
Percentage of KS3 score variance explained (R^2)		**1.3%**		**24.9%**		**33.4%**		**53.1%**		**57.5%**	

How do these controls impact on the coefficients for ethnicity? Generally, after taking account of family background, Indian and Bangladeshi pupils achieve higher results than would be expected given their level of disadvantage. For Pakistani pupils the extent of underachievement is reduced by 80% from -3.1 to -0.6 points, and for Black African pupils by 66% from -3.0 to -1.1 points. What is notable is how small the impact of these controls is on the attainment of Black Caribbean pupils. Black Caribbean pupils are still -2.5 points below their White British peers even after accounting for social class, parental education, FSM, home ownership and single parent status.

Model III: Parental attitudes and behaviours

This stage added the following measures to the previous model:

- Parental educational aspirations - parent wants the pupil to continue in FTE after 16
- Provision of educational resources
    - computer - family provide a home computer
    - tuition - family pays for private lessons in school subjects
- Parental involvement in school - Parent involved in none, 1/2 or 3+ activities with school
- Family relationships
    - Supervision - parents reports they always knows where the pupil is when s/he is out
    - Discord - parent reported frequency of quarrelling with the pupil.

There were positive boosts associated with all the above factors. Parental expectations that the pupil would continue in education post 16 was associated with higher attainment (**4.0** points), as was providing a home computer (**2.0** points), a low level of quarrelling with the pupil (**1.7** points), a high level of parental involvement with the school (**1.0** point), parental supervision (**1.1** points) and providing extra private tuition (**0.5** points). Overall adding these variables provided a modest boost to the explanatory power of the model raising the percentage of the variance in KS3 average score explained from 25% to 34%.

These changes tended on the whole to impact negatively on the coefficients for all minority groups. This is because most groups were more advantaged on these measures than the White British group. On average minority ethnic parents were more likely to have paid for private tuition, more involved with their child's school, had higher educational aspirations for

their children, were more likely to know where their children were when they were out and less likely to quarrel with the children. All these are generally advantaging factors, as shown by the above coefficients, but they were not associated with proportionately greater attainment within the minority ethnic groups.

Model IV - Pupil attitudes, motivation and educational risk factors

In addition to all the previous variables two further sets of pupil variables were added in this model. The first set were educational risk factors which were associated with an increased risk of low attainment at KS3 and the second set were attitudes or motivations that are positively associated with high attainment. The specific variables were:

- *SEN* — *Pupil has statement for SEN or is at School Action Plus (SAP)*
- *Truant* — *Pupil has truanted in last 12 months*
- *Absence* — *Absent for one month or more in the last 12 months*
- *Service* — *Parents have been contacted by Social Services or the Educational Welfare Service about the pupil's behaviour*
- *Police* — *Parents contacted by police because of something the pupil has done*
- *Exclude* — *Pupil has been temporarily or permanently excluded in the last three years*
- *Aspirations* — *Pupil intends to remain in full-time education (FTE) after age 16*
- *Planning for the future* — *Continuous score based on three item scale (see section 2), partitioned into four bands and contrasted against highest band*
- *Homework* — *Number of evenings a week when homework is completed*
- *Academic self concept* — *Continuous score based on seven item scale (see section 2), partitioned into four bands and contrasted against the lowest band*
- *Attitude to school* — *Continuous score based on nine item scale (see section 2), partitioned into four bands and contrasted against the lowest band*

The inclusion of these variables substantially improved the fit of the model which now accounts for 53% of the variance in KS3 average score. The most substantial influences were SEN with a **5.6** point decrement associated with being at SAP or statemented for SEN, academic self concept with a **5.0** point difference between the top and bottom bands, homework with a **3.0** point gap between those completing homework every evening vs. those never completing homework, planning for the future with **2.3** point gap between the top and bottom bands and educational aspirations with a **1.6** point boost for those planning to continue in FTE post 16. There were negative associations of attainment with extended absence from school (**-0.8**), being excluded (-**0.7**), involvement with the police (-**0.5**), truanting (-**0.3**) and Social Service or EWS contact because of the pupil's behaviour (-**0.3**). Interestingly a positive

attitude to school was negatively associated with attainment, though it was positively associated with progress during KS3 (see the progress models in Table 26).
Again the net effect of including these variables (with the exception of Black Caribbean pupils) was to increase the minority ethnic coefficients in a negative direction. This is because most minority groups were more advantaged on these measures than White British pupils. On average minority pupils were more likely to have high educational aspirations, a positive academic self concept, more likely to plan for the future, less likely to have been excluded (except Black Caribbean pupils), less likely to have extended absence (except Pakistani) and more likely to have a positive attitude to school. All these are advantaging factors across the sample as a whole, as shown by the coefficients above, but they were not associated with proportionately greater attainment within the minority ethnic groups.

The coefficients for Indian, Pakistani, Bangladeshi and Black African groups relative to White British all declined by over 1.0 point. The exception was the Black Caribbean group where the coefficient did not change substantially from the previous model, from -3.3 to -3.4.

Model V - Full contextual model (including school and neighbourhood context)

The last model added school level variables and a measure of neighbourhood deprivation. The specific variables included were:

- *Schtype* *Church aided/maintained or Foundation (base=community school)*
- *Schsex* *Single sex boys or single sex girls school (base=mixed sex)*
- *Selection* *Grammar or secondary modern (base=comprehensive)*
- *%FSM* *Percentage of roll entitled to a free school meal in 6 bands*
- *IDACI* *Income Deprivation affecting Children Index (IDACI) normalised score*

These variables accounted for additional amounts of previously unexplained variance, increasing the percentage of KS3 score variance explained from 53% to 58%. It is notable that even after the detailed and wide ranging controls at the individual pupil level, there are still substantial associations with school context. This model included no controls for prior attainment, so some of these school factors may reflect differences in intake attainment to different types of schools (see the next model for 'value added' comparisons). However the following results were observed:

Pupils attending grammar schools scored **4.7** points higher, and secondary modern **-1.2** lower, than pupils attending comprehensive schools; pupils in the most deprived schools (35% or more entitled to FSM) scored **-3.1** points below those in the least deprived schools (<5% entitled to FSM); pupils in girls schools achieved on average **0.9** points higher than mixed sex schools; pupils in Church schools scored **0.4** points higher than pupils in community schools. Even after these school level variables were included, the neighbourhood in which the pupil resides, as indicated by IDACI score, has a significant association with attainment with a **0.6** point difference between those living in neighbourhoods one SD above the mean deprivation compared to those living in neighbourhoods one SD below the mean deprivation.

Minority ethnic pupils were much more likely to attend deprived schools, less likely (except Indian) to attend grammar schools, more likely to attend girls schools and lived in substantially more deprived neighbourhoods than White British pupils. As a result the gaps for Pakistani, Bangladeshi, Black Caribbean and Black African groups relative to White British decreased by roughly 1.0 point compared to Model IV, but were still substantial.

Summary regarding contextualising ethnic differences in attainment

The full set of contextual variables produced a multiple correlation of .76 with KS3 average score and explained well over half (58%) of the variation in KS3 average score. The model includes an extremely wide range of variables, both in terms of structural variables such as social class and maternal education, but also more subtle measures such as parental involvement in school, parental and pupil educational aspirations, academic self concept, homework completion, attitudes to school and a wide range of risk factors, as well as school and neighbourhood deprivation.

However the model (Model V) has mixed success in explaining the differences between ethnic groups in KS3 attainment. The measured contextual factors can effectively account for the low attainment of the Bangladeshi group. They can also explain a substantial amount of the low attainment of Pakistani pupils who still appear to underachieve by -1.5 points, but this is half the -3.0 point difference in raw attainment. However the success of the model in explaining the low attainment of Black Caribbean and Black African pupils is much smaller. Even after accounting for all the variables these groups are still achieving around -2.5 points less than would be expected given their pupil, family, school and neighbourhood context. Indian pupils are also underachieving. Although Indian pupils raw KS3 attainment is 0.5 of a point above

that of White British pupils, it is -0.5 of a point below what might be expected given the pupil, family, school and neighbourhood contexts.

Value added models of pupil progress during KS3

The above models have sought to interpret the attainment of minority ethnic pupils by drawing on a wide range of contextual variables. However there is one very powerful variable that has not so far been included and that is prior attainment. This has not been included so far because it changes the nature of the phenomenon that is to be explained. The models explored so far seek to explain differences in *educational attainment* through reference to other variables. By adding prior attainment the model is no longer exploring how these other variables impact on attainment, rather it is indicating how the variables impact on *educational progress* over the three years of KS3. This section will include the results of national KS2 tests completed by the pupils at age 11 in order to look at educational progress between age 11 and age 14 when the KS3 tests are completed.

KS2 results by ethnic group

Table 25 presents the results of the national end of KS2 tests completed at the age of 11. The results reveal significantly lower attainment for Pakistani, Bangladeshi, Black Caribbean and Black African groups relative to White British pupils at the end of primary school. The Pakistani mean KS2 score was almost half a SD below the White British mean, the Black Caribbean and Bangladeshi means were nearly one-third of a SD lower and the Black African mean was one-quarter of a SD below the White British mean.

Table 25 - KS2 results for the LSYPE sample by ethnic group

	KS2 % Level 4 or above			KS2 test marks (normalised)	
Ethnic group	English	maths	science	Mean	SD
White British	75.2	71.5	88.6	0.06	0.99
Mixed heritage	74.8	68.2	87.1	0.03	1.02
Indian	77.3	72.9	83.9	0.03	1.00
Pakistani	63.1	55.7	71.6	-0.45	0.96
Bangladeshi	65.7	59.6	76.4	-0.30	1.03
Black Caribbean	67.2	54.5	80.2	-0.33	0.95
Black African	68.2	59.2	79.7	-0.25	1.04
Any Other group	69.9	66.4	82.4	0.00	1.12
Total	75.0	70.0	88.0	0.04	1.00

Table 26 - Value added models of pupil progress during KS3

		PUPIL PROGRESS MODELS											
		I		II		III		IV		V		VI	
		Base		**KS2 only**		**Family background**		**+ Parental attitudes / behaviours**		**+ pupil risk, attitudes & motivation**		**+ school & neighbour-hood context**	
Variable	Value	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
Intercept		33.88		33.5	0.000	32.15	0.000	33.18	0.000	32.30	0.000	33.02	0.000
ethnic group (Base=White British)	Mixed heritage	-0.38	0.125	-0.08	0.505	0.15	0.160	-0.04	0.719	0.00	0.998	0.13	0.218
	Indian	0.55	0.043	0.83	0.000	1.00	0.000	0.47	0.000	0.01	0.896	0.28	0.012
	Pakistani	-3.09	0.000	0.08	0.561	0.50	0.000	0.01	0.917	-0.49	0.000	-0.14	0.197
	Bangladeshi	-2.81	0.000	-0.25	0.090	0.67	0.000	0.03	0.841	-0.40	0.006	0.00	0.998
	Black Caribbean	-3.33	0.000	-0.81	0.000	-0.64	0.000	-0.98	0.000	-1.22	0.000	-0.82	0.000
	Black African	-3.02	0.000	0.29	0.062	0.60	0.000	-0.06	0.634	-0.72	0.000	-0.37	0.006
	Any other ethnic group	-0.27	0.396	0.86	0.000	1.29	0.000	0.89	0.000	0.55	0.000	0.66	0.000
KS2 avg test marks	normal score			5.881	0.000	5.50	0.000	5.31	0.000	4.84	0.000	4.73	0.000
Gender	Male					-0.43	0.000	-0.24	0.000	-0.01	0.828	-0.02	0.598
Family social class (base= long term unemployed)	Higher managerial & prof.					0.88	0.000	0.74	0.000	0.60	0.000	0.38	0.006
	Lower managerial & prof.					0.53	0.000	0.40	0.002	0.30	0.018	0.22	0.087
	Intermediate					0.37	0.014	0.35	0.017	0.25	0.078	0.22	0.120
	Small employers & own account					0.64	0.000	0.56	0.000	0.46	0.001	0.34	0.010
	Lower supervisory & tech.					-0.04	0.768	-0.03	0.807	-0.10	0.452	-0.07	0.588
	Semi-routine					-0.11	0.402	-0.07	0.588	-0.10	0.427	-0.04	0.734
	Routine					-0.33	0.018	-0.24	0.078	-0.19	0.132	-0.14	0.274
Mothers Education qualification (base=no qualifications)	Degree or equivalent					1.47	0.000	1.17	0.000	1.11	0.000	0.87	0.000
	HE below degree level					1.01	0.000	0.79	0.000	0.73	0.000	0.52	0.000
	GCE A Level or equiv					0.78	0.000	0.56	0.000	0.49	0.000	0.30	0.000
	GCSE grades A-C or equiv					0.58	0.000	0.48	0.000	0.40	0.000	0.27	0.000
	Other qualifications					0.36	0.000	0.34	0.000	0.32	0.000	0.24	0.004
FSM	Not entitled to FSM					0.65	0.000	0.53	0.000	0.40	0.000	0.23	0.002
Home ownership	Rented vs. owned					-0.45	0.000	-0.31	0.000	-0.24	0.000	-0.10	0.113
Single parent	No (base=yes)					0.36	0.000	0.24	0.000	0.12	0.041	0.10	0.062
Computer	No (base=yes)							-0.89	0.000	-0.64	0.000	-0.57	0.000
Tuition	No (base=yes)							-0.48	0.000	-0.37	0.000	-0.30	0.000
parent involvement in school	1-2 activities vs none							0.36	0.005	0.26	0.038	0.24	0.054
	3 activities vs none							0.67	0.000	0.50	0.000	0.40	0.004
Supervision	does not know (base=always knows)							-0.84	0.000	-0.38	0.000	-0.37	0.000
Parent aspirations	Not continue FTE (base=continue)							-1.18	0.000	-0.68	0.000	-0.71	0.000
Family discord (base=<once week)	quarrel most days							-0.66	0.000	-0.34	0.000	-0.30	0.000
	quarrel > once week							-0.41	0.000	-0.26	0.000	-0.25	0.000

Table 26 - Value added models of pupil progress during KS3 (continued)

		PUPIL PROGRESS MODELS											
		I		II		III		IV		V		VI	
		Base		**KS2 only**		**Family background**		**+ Parental attitudes / behaviours**		**+ pupil risk, attitudes & motivation**		**+ school & neighbour-hood context**	
Variable	Value	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
SEN	SAP or statemented									-1.15	0.000	-1.15	0.000
Truant	any time during KS3									-0.39	0.000	-0.34	0.000
Absence	>1 month in last year									-0.47	0.000	-0.42	0.000
Service	SS / EWS contact									-0.21	0.022	-0.20	0.027
Police	contacted family because of YP									-0.48	0.000	-0.50	0.000
Excluded	in last three years									-0.69	0.000	-0.68	0.000
Pupil aspirations	Not stay in FTE									-0.52	0.000	-0.54	0.000
Planning for the future (base=high)	very low									-0.72	0.000	-0.72	0.000
	low									-0.65	0.000	-0.65	0.000
	medium									-0.22	0.000	-0.23	0.000
Homework (base=none)	1 day									0.31	0.029	0.30	0.037
	2 days									0.58	0.000	0.50	0.000
	3 days									0.96	0.000	0.81	0.000
	4 days									1.31	0.000	1.05	0.000
	5 days									1.47	0.000	1.11	0.000
Academic self concept (base=very low)	very high									1.10	0.000	1.37	0.000
	high									0.79	0.000	0.98	0.000
	low									0.44	0.000	0.55	0.000
Attitude to school (base= v low)	very high									0.13	0.068	0.13	0.048
	high									0.09	0.150	0.09	0.131
	low									0.00	0.956	-0.01	0.824
IDACI	Normal score											-0.16	0.000
School %FSM (base= <5%)	35%+											-1.35	0.000
	21%-35%											-1.11	0.000
	13%-21%											-0.97	0.000
	9%-13%											-0.68	0.000
	5%- 9%											-0.12	0.253
Selection (base=comp.)	Modern											-0.06	0.641
	grammar											0.39	0.010
SchType (base=community)	Church											0.00	0.984
	Foundation											-0.05	0.588
Schsex (base=mised)	Boys											0.21	0.110
	Girls											0.49	0.000
Percentage of variance explained (R^2)=		**1.3%**		**79.0%**		**80.7%**		**81.9%**		**83.9%**		**84.5%**	

Pupil progress during KS3

Table 26 presents the results of the modelling of pupil progress. The first column (model I) shows the base model again including just ethnic group to establish the ethnic gaps in attainment at KS3 as a reference point. The analysis of pupils' progress starts in model II where ethnic group and KS2 test marks are considered together to look at a 'pure' measure of ethnic differences in pupil progress. Prior attainment is a very powerful predictor of later attainment (the correlation between KS2 test marks and KS3 average points score is .89), so KS2 test marks explain 79% of the variance in KS3 average points score.

Taking KS2 test marks into account the differences between ethnic groups at KS3 largely disappear. This is to say that pupils from most ethnic groups make the same progress as White British pupils, the gaps relative to White British pupils neither widen nor lessen, they remain the same. The substantial ethnic group differences in attainment at KS3 therefore *primarily reflect earlier differences in attainment at the end of KS2*. There are however two exceptions:

- Indian pupils make 0.83 points more progress than White British pupils over the course of KS3, pulling further ahead than they were at KS2.

- Black Caribbean pupils make 0.81 points less progress than White British pupils over the course of KS3, falling further behind than they were at KS2.

Contextual value added models

Can the differences in 'pure' progress be explained by the contextual variables described in the previous section? Models III to VI add the same four blocks of explanatory variables as included previously (family background, parental factors, pupil risk and motivation factors and school/neighbourhood context). The final model (Model VI) may be termed a *Contextual Value Added (CVA) model,* including all pupil, family, school and neighbourhood variables.

Because prior attainment accounts for so much of the variance in KS3 score, the coefficients for all the explanatory variables are substantially smaller than they were in the full contextual model presented in Table 24. However there are still significant associations between the contextual variables and pupil progress.

- Pupils in the top social class make more progress (**0.4**) than the long term unemployed, as do pupils from the small employers/self-employed group (**0.3**). However none of the other contrasts are significant.

- Mothers' education qualifications continue to have a significant impact with children of mothers educated to degree level making more progress (**0.9**) than those with mothers with no qualifications. There are also significant but decreasing boosts associated with mothers educated to HE but below degree level (**0.5**), to 'A' level or equivalent **(0.3**), to GCSE 5+ A*-C or equivalent (**0.3**) and with other qualifications (**0.2**), relative to mothers with no qualifications.

- Pupils entitled to FSM make less progress (-**0.2**) than their peers not entitled to FSM.

- High parental educational aspirations (**0.7**), providing a home computer (**0.6**), high parental involvement in school (**0.4**), parental supervision (**0.4**), a low frequency of quarrelling with children (**0.3**) and providing private tuition (**0.3**) also have significant positive associations with pupil progress.

- All the educational risk and motivation variables have a significant impact on progress, most notably:

    - pupils in the top band of academic self-concept make more progress (**1.4**) than those in the bottom band;
    - pupils completing any amount of homework make more progress than those completing none, ranging from **1.1** points for those completing homework every weekday evening to **0.3** for those completing homework only one evening a week.
    - pupils with a statement of SEN or at SAP make less progress (-**1.2**) than their peers without SEN; and
    - pupils who plan for the future make more progress (**0.7**) than those who do not plan; pupils excluded from school make less progress (-**0.7**) than those not excluded; pupils whose behaviour has led to the involvement of the police make less progress (-**0.5**), pupils who aspire to continue in FTE after the age of 16 make more progress (**0.5**), pupils who have had long term absence make less progress (**-0.4**), pupils who have truanted during the key stage make less progress (-**0.3**), pupils whose behaviour has led to social services/EWS involvement make less

progress (-**0.2**) and, finally pupils with in the top band for attitudes to school make more progress (**0.1**) than those in the bottom band.

- Finally, school and neighbourhood variables are also related to progress:

    - pupils in the most deprived schools (35% or more entitled to FSM) make less progress (**-1.4**) than those in the least deprived schools (<5% entitled to FSM);
    - pupils attending grammar schools make more progress (**0.4**) than pupils attending comprehensive schools;
    - girls in single sex schools (but not boys in single sex schools) make more progress (**0.5**) than pupils in mixed sex schools; and
    - over and above the impact of individual and school disadvantage, pupils living in more deprived areas make less progress (-**0.3**) than those living in better off areas (contrast between +/- 1 SD of IDACI score).

With respect to ethnic group, and once all the above contextual factors are included:

- the better progress of Indian pupils relative to White British is somewhat moderated (0.28 points) but still statistically significant;
- the poor progress of the Black Caribbean pupils relative to White British is not explained at all, remaining at just over 0.80 points. Expressed in months of progress, this indicates Black Caribbean pupils made around three months less educational progress than would be predicted from their prior attainment and all other pupil, family school and neighbourhood factors; and
- Black African pupils appear to make less progress than White British pupils (0.37 points). However this effect is less robust than that for Indian or Black Caribbean pupils since the result was sensitive to subtle differences in the specification of the model. For example if the discrete four-band measure of academic self concept was replaced by the continuous scale, then the coefficient for Black African was no longer significant. Not too much should be made of this result.

Interactions between ethnic group and gender

Interactions between ethnic group and gender were explored in additional models, not shown in Tables 24 and 26. Separate terms were created to represent girls in each ethnic group. The average gender difference in favour of girls in KS3 average points score did not vary significantly across ethnic groups, i.e. there was no significant interaction between ethnicity and gender in the 'base' model. This was also true of the full contextual model. There were some ethnic by gender interactions for pupil progress during KS3. In the 'pure progress' model (Table 26, Model II), there was evidence that Indian boys made particularly good progress (1.1) catching up with Indian girls (1.0), and Bangladeshi boys made particularly poor progress (-0.6) compared to Bangladeshi girls (0.4). In the full contextual value added model (Table 26, Model VI) only the Bangladeshi interaction remained significant, indicating that Bangladeshi girls made more progress (0.3) and Bangladeshi boys less progress (-0.3) than expected.

Summary of differences between ethnic groups in pupil progress

Four groups made significantly more or less progress than White British pupils. The results for these groups are discussed below.

Indian pupils

Indian pupils made more progress than their White British peers during KS3. In terms of 'pure' progress they made 0.8 points more progress, equivalent to just over three TGAT months. This greater progress is partly explained by advantaging factors in their family and home lives. Thus in Model V, where pupil risk, attitude and motivation measures are included, the coefficient for Indian pupils is no longer significant. The Indian pupils are the most likely to complete homework five evenings a week (32% vs 19% of White British pupils); they are the group most likely to have a home computer (94% vs. 90% of White British pupils); they are the group most likely to pay for private lessons (25% vs. 11% of White British pupils); they are the group where parents are most likely to say they always know where their child is when they are out (92% vs. 82% of White British pupils); they are the group least likely to have a statement of SEN or be on SAP (5% vs 8% of White British pupils); they are the group least likely to truant (8% vs. 16% of White British pupils); they are the group least likely to have had social services or EWS contact (3.5% vs. 8% of White British pupils), and lastly, the group least likely to have been excluded from school (4% vs. 11% of White British pupils).

Against this there are also disadvantaging factors, for example only 28% of Indian pupils are from the top two social classes compared to 41% of White British pupils, the mothers of 46%

of the Indian pupils had no educational qualifications compared to 16% of White British pupils, they are more likely to attend the most disadvantaged schools (18% vs 6% White British pupils) and to live in more deprived neighbourhoods (35% in the most disadvantaged quartile and only 13% in the least disadvantaged quartile). When the complete set of factors are taken into account (Model VI) Indian pupils are making better than expected progress. It would seem that high parental and pupil aspirations and hard work, as indicated in the variables above, offset the disadvantaging effects of social and economic circumstances.

Black African pupils

Black African pupils do not make significantly different 'pure' progress relative to their White British peers (Model II). After accounting for family background (Model III) they appear to make more progress than expected relative to their high degree of social disadvantage (for example 41% are entitled to FSM vs. 13% of White British pupils, and the mothers of 40% of Black African pupils have no educational qualifications relative to the mothers of 16% of White British pupils). However when pupil motivation and educational risk factors are included (Model V) their progress is less than that expected (-0.72). Though they share many of the advantaging factors mentioned above with their Indian peers (for example parental and pupil educational aspirations are the highest of any ethnic group, they have the most positive attitudes to school of any group, the highest academic self concept and 30% complete homework on 5 or more evenings) their progress is less than would be expected. This suggests Black African pupils and their families do not get the return they might expect from their commitment to education. Because they are more likely to attend disadvantaged schools (39% vs 6% of White British pupils) and to live in disadvantaged neighbourhoods (72% in the most disadvantage quartile and only 4% in the least disadvantaged quartile) their progress is less extreme in the full CVA model (-0.37). However, the size of the effect is relatively small, representing just over 1.5 TGAT months, and as described earlier the coefficient for Black African is relatively unstable.

Black Caribbean pupils

The measured contextual factors do not account for the poor progress made by the Black Caribbean group. While the size of the coefficient varied slightly across the five pupil progress models it was consistently negative. In the full CVA model (Model VI) it was -0.82, equivalent to over three TGAT months. In terms of social class and mothers' educational qualifications, differences between Black Caribbean and White British groups are relatively small. Black Caribbean pupils are substantially more likely to live in single parent households, but this variable was not significantly related to educational progress in the CVA model. Relative to White British pupils Black Caribbean pupils on average experienced greater poverty, lived in more deprived neighbourhoods, were more likely to have identified SEN, more likely to be

excluded from school and were the group that completed the least homework. However these factors do not account for their poor progress. This is a key point and one that will be returned to later in discussing how in-school practices may impact negatively on the progress of Black Caribbean pupils.

Bangladeshi pupils

Overall the CVA model indicated no significant difference in the progress of Bangladeshi pupils relative to White British pupils. This overall finding masks greater than expected progress from Bangladeshi girls (0.3) and less than expected progress from Bangladeshi boys (-0.3). However the size of the effect for Bangladeshi boys is relatively small, -0.3 points is equivalent to just over one TGAT month.

Ethnicity and religious affiliation

The DfES specification for this project also included as a secondary aim “an analysis of differences within ethnic groups associated with factors including faith adherence”. The following section provides a subsidiary analysis of LSYPE questions related to faith and the interactions between ethnicity and faith.

Pupils were asked what, if any, was their religion. Table 27 presents the results.

Table 27 - Religious affiliation of LSYPE sample members

Religious affiliation		Unweighted n	Valid %
Christian	Church of England	4199	33.2
	Roman Catholic	1496	10.4
	Methodist	258	1.6
	Baptist	177	1.2
	UR, Presb & Cong(a)	64	0.4
	Other Christian	623	2.9
	Don't know	342	2.4
	All Christian Denominations	*7159*	*52.2*
Buddhist		26	.2
Hindu		414	1.2
Jewish		46	.5
Muslim		2329	5.4
Sikh		401	.9
Another religion		118	.7
None		4787	37.8
Don't know		169	1.1
Total		**15422**	**100.0**

(a) United Reformed, Presbyterian and Congregational.

The largest single faith group was Christian, representing over half (52%) of all pupils. The next largest group, over a third (38%), professed no religious affiliation. Other faiths representing at least one percent of respondents were Muslim (5%) and Hindu (1%). Within the Christian group, 64% identified themselves as Church of England, 20% identified themselves as Roman Catholic, and 6% identified themselves as Methodist, United Reformed, Presbyterian and Congregational or Baptist. A further 6% specified Other Christian and 5% did not know which denomination they belonged to.

Those who reported a religious affiliation were asked “how important would you say your religion is to the way you live your life? Table 28 crosstabulates the responses against religion.

Table 28 - Importance of religion to the pupil's way of life by faith group

	Importance of religion to the pupil's life (%)			
Religion	very	fairly	not very	not at all
Christian	9.0	28.7	42.2	20.1
Church of England	*3.8*	*24.6*	*47.8*	*23.9*
Roman Catholic	*13.0*	*41.2*	*33.8*	*12.0*
Methodist	*10.3*	*39.1*	*37.9*	*12.6*
UR, Presb & Cong(a)	*27.6*	*39.7*	*24.1*	*8.6*
Baptist	*39.4*	*37.8*	*17.0*	*5.9*
Other Christian	*43.4*	*27.8*	*20.3*	*8.6*
Don't know	*3.2*	*18.1*	*47.9*	*30.9*
Buddhist	21.4	42.9	21.4	14.3
Hindu	41.7	44.4	11.1	2.8
Jewish	49.3	31.5	11.0	8.2
Muslim	79.1	16.4	3.7	.8
Sikh	51.0	38.8	9.5	.7
Another religion	25.2	39.3	15.0	20.6
Total	17.0	28.2	37.1	17.6

(a) United Reformed, Presbyterian and Congregational.

Of the pupils who reported a religious affiliation (62% of the whole sample) just under one-half (45%) reported that religion was very or fairly important to their way of life. This figure varied widely between religions. The lowest figure was for Christian, where only 38% reported that religion was very or fairly important to their way of life. However there was quite large variation in the importance of religion between the different Christian denominations. For those identifying as Church of England, only 28% of pupils identified religion as fairly/very important to their way of life compared to 54% of Roman Catholics. The other Christian denominations also tended to place more importance on religion for their way of life. The ethnic groups reporting the greatest importance of religion to their way of life were Jewish (81%), Hindu (86%), Sikh (90%) and Muslim (96%).

Ethnicity and religious affiliation

Table 29 crosstabulates ethnic group by religious affiliation.

Table 29 - Crosstabulation of ethnic group and religious affiliation

		Religious affiliation									
Ethnic group		Don't know	None	Christ-ian	Budd-hist	Hindu	Jewish	Muslim	Sikh	Another religion	Total
White British	% Eth	1.2	42.1	55.4			0.5	0.2		0.6	100.0
	% Rel	91.7	94.7	90.2	10.7	1.1	91.5	2.8		71.0	85.1
Mixed heritage	% Eth	1.0	37.4	45.1	0.5	1.2	0.5	12.9	0.5	1.0	100.0
	% Rel	2.4	2.7	2.3	7.1	2.8	2.8	6.5	1.4	3.7	2.7
Indian	% Eth	0.3	0.8	3.5	0.3	38.9		20.4	34.3	1.6	100.0
	% Rel	0.6	0.1	0.2	3.6	81.0		9.1	88.3	5.6	2.4
Pakistani	% Eth		0.3	0.3				98.8	0.6		100.0
	% Rel							39.8	1.4		2.2
Bangladeshi	% Eth							99.3		0.7	100.0
	% Rel							16.4		0.9	0.9
Black Caribbean	% Eth	0.9	13.6	82.6				0.5		2.3	100.0
	% Rel	1.2	0.5	2.2				0.1		4.7	1.4
Black African	% Eth		2.2	70.2				27.2		0.4	100.0
	% Rel		0.1	2.0				7.4		0.9	1.5
Any other group	% Eth	1.2	18.7	41.6	3.7	4.5	0.7	25.1	2.2	2.3	100.0
	% Rel	4.1	1.9	3.1	78.6	15.1	5.6	17.9	9.0	13.1	3.9
Total	% Eth	1.1	37.8	52.3	0.2	1.2	0.5	5.4	0.9	0.7	100.0

Notes. % Eth indicates the percentage from each religion within an ethnic group (e.g. 55.4% of White British are Christians). % Rel indicates the percentage from each ethnic group within a religion (e.g. 90.2% of Christians are White British).

Looked at from a base of ethnicity, 99% of Bangladeshi and Pakistani pupils identify themselves as Muslim and 83% of Black Caribbean pupils identify themselves as Christian. There is more variation among White British pupils, where 55% identify themselves as Christian but 42% report no religious affiliation. Among the Black African group 70% of pupils

identified themselves as Christian and 27% as Muslim. Most diverse are Indian pupils with around 39% identifying as Hindu, 34% as Sikh and 20% as Muslim.

Looked at from a base of religion, 90% of Christians are White British, although this reflects the fact that White British are the largest group constituting 85% of the population. Among Sikhs 88% are Indian, and among Hindus 81% are Indian. There is more diversity in terms of ethnicity among Muslims since although the majority (56%) are Bangladeshi or Pakistani, 18% are from any other group, 9% are Indian, 7% Black African and 7% Mixed heritage.

There was strong variation between ethnic groups in how important religion was to the pupils way of life. Table 30 presents the results for all pupils who indicated they had a religious affiliation. Among White British pupils only 34% indicated that religion was very/fairly important. In contrast, 66% of Mixed heritage pupils considered religion very/fairly important. At the other end of the range 85% of Black Caribbean, 91% of Indian, 95% of Black African, and 99% of Bangladeshi and Pakistani pupils indicated that religion was very/fairly important to their way of life.

Table 30 - Importance of religion to the pupils' way of life by ethnic group

Ethnic group	unweig-	Importance of religion to pupils way of life			
	hted n	Very	fairly	not very	not at all
White British	5702	6.8	27.6	44.1	21.5
Mixed heritage	493	27.1	38.8	23.3	10.9
Indian	1006	53.5	37.2	8.4	0.8
Pakistani	938	87.5	11.9	0.6	-
Bangladeshi	721	86.3	12.9	0.7	-
Black Caribbean	502	39.9	45.4	11.5	3.3
Black African	597	71.2	23.9	3.6	1.4
Any other group	531	38.6	36.7	20.0	4.6
Total	10490	17.0	28.2	37.1	17.6

Note. Base is those pupils who indicate a religious affiliation. '-' indicates less than 0.05%.

Associations between faith groups and educational attainment

Table 31 shows the mean KS3 average points score for each religion. Of the faiths with at least 100 pupils, the highest performance is recorded by Hindu pupils (36.1) and the lowest by Muslim pupils (30.8). These results substantially reflect those reported for ethnicity. For

example the vast majority of Hindu pupils are Indian (81%), and the majority of Muslim pupils are Bangladeshi & Pakistani (56%). As such, the results probably reflect the same influences on attainment as have been described for these ethnic groups, for example the extreme social and economic disadvantage of the Bangladeshi / Pakistani groups and the very high parenting inputs of the Indian group.

Table 31 - Mean KS3 points score by religious affiliation

Religious affiliation	Mean	SD	unweighted N
None	33.2	6.75	4489
Christian	34.3	6.57	6687
Buddhist	31.3	5.72	23
Hindu	36.1	6.63	403
Jewish	39.2	4.47	22
Muslim	30.8	6.86	2251
Sikh	33.4	6.78	393
Another religion	33.1	6.53	113
Don't know	30.6	7.22	128
Total	33.7	6.74	14509

Differences between faith groups within ethnic groups

Because ethnicity and faith are so closely correlated it is not possible to include them both simultaneously in a regression analysis for the whole LSYPE sample. However it is possible to look within those ethnic groups where there is variation across faith groups (White British, Black African and Indian) in order to estimate the possible association between ethnicity and faith.

White British

White British pupils who identify themselves as Christian have significantly higher attainment at KS3 than those pupils who express no religious affiliation, a difference of 1.4 points in mean KS3 score. Table 32 presents the results.

Table 32 - Contrast between White British pupils of Christian or no religion

Variable	***No religion***	***Christian***
Unweighted count	*3,768*	*4,896*
KS3 average point score (SD)	*33.1 (6.7)*	*34.5 (6.5)*
Social classes 1&2 (Higher managerial & prof.) (%)	*32*	*38*
Social class (long-term unemployed) (%)	*4*	*2*
% entitled to FSM	*16*	*9*
Mothers hold no educational qualifications (%)	*18*	*12*
Parents aspire for pupil to continue in FTE post 16 (%)	*73*	*80*
4 or more evenings homework per week (%)	*24*	*35*
Estimated marginal means	*31.0*	*31.0*

However these groups are also differentiated along several other dimensions, as shown in the table. Pupils who profess no religion are less likely to come from families in the highest two social classes, more likely to come from families where the main parent is long term unemployed, more likely to be entitled to FSM, to have mothers with no educational qualifications, to experience lower parental aspirations to continue in FTE after age 16 and less likely to complete four or more evenings of homework. When these factors are considered the difference between Christian and no religion is no longer significant as shown by the estimated marginal means. Faith group is essentially a proxy for these variables.

Black African

Differences in KS3 attainment between faith communities within the Black African group are marked. Black African pupils who identify themselves as Christian have substantially higher attainment than Black African pupils who identify themselves as Muslim, a difference of four points. Table 33 presents the results.

Table 33 - Contrast between Black African pupils of Christian and Muslim faiths

Variable	***Black African Christian***	***Black African Muslim***
Unweighted count	*395*	*151*
KS3 average point score (SD)	*31.9 (7.0)*	*27.9 (6.3)*
Social classes 1&2 (Higher managerial & prof.) (%)	*33*	*21*
Social class (long-term unemployed) (%)	*11*	*46*
% entitled to FSM	*28*	*69*
Mothers hold no educational qualifications (%)	*25*	*63*
Language other than English is first or main lang (%)	*17*	*46*
4 or more evenings homework per week (%)	*47*	*34*
Estimated marginal means	*26.9*	*26.6*

However these groups are also differentiated along other dimensions, as shown in the table. Black African Muslim pupils are substantially less likely to come from families in the highest two social classes, more likely to come from families where the main parent is long term unemployed, more likely to be entitled to FSM, to have mothers with no educational qualifications, to speak a language other than English as their first or main language and less likely to complete four or more evenings of homework. When the additional social and economic factors are included in the regression model the association between religion and attainment is no longer significant as shown by the estimated marginal means. Black African

Muslim pupils are more likely to experience high levels of economic and social deprivation, and faith group is simply a proxy for these factors.

The majority of Black African Muslim pupils are of Somali heritage (as 51% indicate Somali is their main home language). Significant differences in attainment between Black pupils from different African countries have been reported. For example the DfES report that the proportion of pupils achieving 5 or more A*-C grades was 29% for Somali pupils, 53% for Black Ghanaian and 56% for Black Nigerian (DfES 2006, p55). However country of origin may be as much a proxy for economic and social disadvantage as faith group. The differences in educational attainment between these African countries may equally be accounted for by economic and social factors.

Indian

There are again substantial differences between different faith groups among Indian pupils. The mean score for Hindu pupils (36.1) is four points higher than the mean for Muslim pupils (32.2) and two points higher than the mean for Sikh pupils (34.0), as shown in Table 34.

Table 34 - Contrast between Indian pupils of Hindu, Muslim and Sikh faiths

Variable	***Indian Hindu***	***Indian Muslim***	***Indian Sikh***
Unweighted count	*359*	*212*	*351*
KS3 average point score (SD)	*36.1 (6.2)*	*32.2 (6.2)*	*34.0 (6.6)*
Social classes 1&2 (Higher managerial & prof) (%)	*28*	*21*	*19*
Social class (long-term unemployed) (%)	*3*	*12*	*5*
% entitled to FSM	*7*	*27*	*11*
Mothers hold no educational qualifications (%)	*36*	*57*	*37*
Language other than English is first or main lang (%)	*74*	*70*	*74*
Parents aspire for PUPIL to continue in FTE post 16 (%)	*98*	*94*	*94*
4 or more evenings homework per week (%)	*60*	*38*	*43*
Estimated marginal means (including all above)	*28.8*	*27.2*	*27.5*
Estimated marginal means (also including KS2)	*32.2*	*31.4*	*31.9*

Again there are significant differences between faith groups in a range of social and economic factors, including social class, entitlement to FSM, mother's educational qualifications, first/main language other than English and amount of time spent on homework. Adjusting for

these factors eliminates the difference between Muslim and Sikh pupils, and closes the gap between Hindu and Muslim pupils from nearly 4 points to just 1.6 points. If KS2 prior attainment is also included in the model this difference drops further to only 0.8 points ($p<.05$). It is not possible to totally discount faith as a relevant variable within the Indian group. However this does not mean that faith *per se* is causally related to attainment, it may simply be that it is correlated with other factors not included in the models.

A more general relation between faith and educational attainment

The above analyses indicate that faith group is relatively unimportant in explaining differences in educational attainment within ethnic groups. Where large difference in attainment between faith groups exist, they are usually proxies for other factors.

However the above analyses have evaluated the impact of belonging to *specific* faith groups within particular ethnic groups. This has not allowed an assessment of whether there may be more generalised factors, common to all faith groups, that impact on attainment. For example there could be a negative association with attainment if religious activities compete with or reduce time that would otherwise be spent of curriculum related activities, such as homework. Alternatively there could be a positive association if faith groups organise activities such as Saturday schools that have a strong focus on academic skills (Strand, 2007).

Two questions in LSYPE asked about attendance at classes or courses connected with a religious establishment. Pupils were asked whether they had attended religious classes in the last 12 months, and if so how frequently they attended. Table 35 presents the KS3 scores separately for those attending classes/courses more than once a week (2.5% of the sample), those attending about once a week (7.0%), those attending less than once a week (3.9%) and those who expressed a faith but did not attend religious classes or did not express a religious affiliation (89%).

Looking at the total across all ethnic groups, attendance at religious classes seems to have a positive association with attainment at a moderate level (about once a week or less) but there is a negative association with attending religious classes more frequently than once a week. Pupils who attend classes more than once a week have significantly lower KS3 scores than those who attend classes less frequently or not at all.

Table 35 - Mean and SD of KS3 average score by frequency of attendance at religious classes/courses and ethnic group

Ethnic group	more than once a week	about once a week	less than once a week	no classes / no religion
White British	36.5 (6.1)	36.7 (6.4)	37.2 (6.2)	33.7 (6.6)
Mixed heritage	30.5 (6.9)	36.2 (7.9)	36.4 (6.3)	33.2 (6.4)
Indian	32.3 (6.5)	35.1 (6.0)	34.3 (7.0)	34.7 (6.7)
Pakistani	29.9 (6.1)	31.0 (7.2)	32.5 (6.3)	30.9 (7.0)
Bangladeshi	31.6 (6.7)	30.6 (6.9)	31.0 (7.5)	30.8 (7.1)
Black Caribbean	31.1 (6.4)	31.6 (6.2)	31.6 (6.9)	30.3 (6.5)
Black African	28.8 (6.2)	31.8 (6.9)	31.0 (7.5)	31.0 (7.1)
Any other group	35.9 (7.7)	34.3 (8.4)	35.1 (7.4)	33.2 (7.5)
Total	32.7 (6.9)	35.1 (7.0)	36.1 (6.7)	33.5 (6.7)

The effect of attendance at religious classes interacted with ethnic group. For White British and Black Caribbean pupils attending religious classes more than once a week had a positive association with attainment, but for other ethnic groups, particularly those of Mixed heritage, Indian, Black African and Pakistani groups, the association was negative.

The results in Table 35 do not take account of the impact of the contextual factors on attainment reported earlier in this section. To account for this, Model V from Table 24 (full contextual model) was re-run including the frequency of attendance at religious classes and terms for the interactions between attendance and ethnicity. A summary of the results is given in Table 36. The overall negative impact of attendance more than once a week at religious classes is apparent and is particularly pronounced for Mixed heritage and Pakistani pupils.

The effects on pupil progress were also evaluated by re-running the CVA model (Table 26, model VI) and including the frequency of attendance at religious classes and terms for the interactions between attendance and ethnicity. Attending religious classes more than once a week had a negative association with pupil progress during KS3 for Mixed heritage, Indian, Pakistani and Bangladeshi pupils, as shown in Table 37.

Table 36 - Summary of full contextualised model of KS3 attainment including religious classes and interactions with ethnic group

Ethnic group	*Effect of ethnic group (relative to White British) for pupils not attending religious classes*	*Additional effect associated with attending religious classes/courses (a):*		
		more than once a week (relative to none)	*about once a week (relative to none)*	*less than once a week (relative to none)*
Mixed heritage		*-4.40*		*1.11*
Indian	*-0.42*	*-1.35*		
Pakistani	*-1.04*	*-2.24*	*-1.40*	
Bangladeshi		*-1.00*	*-1.52*	
Black Caribbean	*-2.56*	*-1.63*		
Black African	*-2.69*	*-2.13*		
Any other group				

Notes.
Overall R^2=.576. Only statistically significant effects are shown, blank cells are not significant.
Effects are also adjusted for all other factors in the full contextualized model (see Model V, Table 24).
(a) Effects shown are in addition to the overall effect of 0.84, 0.55 and 0.62 for >once, about once and <once respectively.

Table 37 - Summary of CVA model of progress during KS3 including religious classes and interactions with ethnic group

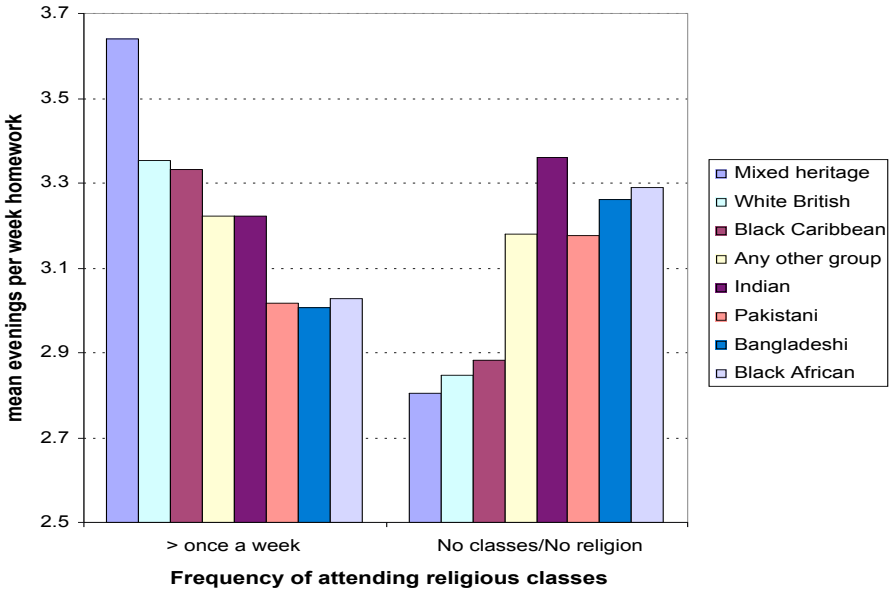
Ethnic group	*Effect of ethnic group (relative to White British) for pupils not attending religious classes*	*Additional effect associated with attending religious classes/courses [(a)]:*		
		more than once a week (relative to none)	*about once a week (relative to none)*	*less than once a week (relative to none)*
Mixed heritage		*-2.09*		
Indian	*0.25*	*-0.69*		
Pakistani		*-0.79*		
Bangladeshi		*-1.00*		
Black Caribbean	*-0.92*			*.87*
Black African[(b)]				
Any other group				

Notes.
Overall R^2=0.845. Only statistically significant effects are shown, blank cells are not significant.
Effects are also adjusted for all other factors in the full value added model (see Model VI, Table 28)
(a Effects shown are in addition to the overall effect of 0.70, 0.16 and -0.05 for more than once a week, about once a week and less than once a week respectively.
(b) The main effect for Black African is not statistically significant (-0.27, p<.067) compared to the statistically significant result for Black African in Table 28, Model VI. This attests to the marginal nature of the association between Black African and pupil progress.

While Indian pupils generally make *more* progress than White British, those attending religious classes more than once a week do not. Equally while Pakistani and Bangladeshi pupils overall make the same progress as White British pupils, those attending classes more than once a week make less progress. Finally Black Caribbean pupils overall make less than expected progress relative to White British pupils, but Black Caribbean pupils attending classes more than once a week make better than expected progress, although the effect is not statistically significant.

The interaction between frequency of attending religious classes and ethnic group may partly be explained by other factors. Generally boys attainment is lower than girls (see Table 24), and a high proportion of Bangladeshi (29%) and Pakistani (37%) boys attend religious classes more than once a week, compared to only 15% of Bangladeshi and Pakistani girls (although it is possible that boys attainment is lower as a result of their greater attendance). Also while the post 16 educational aspirations of White British pupils not attending religious classes are low (76%) they are markedly higher among those attending religious classes (87%) and a higher proportion are from families in the top two social classes (56% vs 41%). Analysis of the data does suggest that part of the impact of frequent attendance on progress lies in the association with homework. Pakistani, Bangladeshi and Indian pupils attending religious classes more than once a week report doing *less* evenings homework than those who do not attend classes, while White British and Black Caribbean pupils attending religious classes more than once a week report doing *more* evenings homework than those not attending. These data are shown in Figure 8.

Figure 8 - Mean evenings spent on homework by frequency of attending religious classes and ethnic group



Summary of faith and educational attainment

Differences between faith communities within ethnic groups have been explored. Sometimes there are large differences in attainment between faith groups within ethnic groups, but these are usually proxies for other social and economic factors. The results suggest that faith group *per se*. is relatively unimportant in explaining differences in educational attainment within ethnic groups.

However the results indicate that there are negative associations between attending religious classes/courses at religious establishments more than once a week and attainment and progress during KS3 for Indian, Pakistani, Bangladeshi and Mixed heritage pupils. While social and economic disadvantage are involved, they do not explain the differences. Partly the difference seems to be related to a negative association with the amount of the time pupils spend completing homework. White British and Black Caribbean pupils attending religious classes more than once a week spend more time on homework than those not attending, while among Indian, Pakistani and Bangladeshi groups this is reversed. This may reflect the impact of religious attendance on pupils' time. For example in a study in a North West Local Authority, Muslim boys reported allocating significant time in pursuing their religion (Lindsay & Muijs, 2005). In one school boys estimated this at two hours each night on average, the same time as spent on home work *per week* in the total sample of boys. There are suggestions of similar patterns here as Table 35 shows that 34% of African Muslims reported completing four or more evenings homework a week compared to 47% of African Christians, and in Table 36 38% of Indian Muslims reported completing homework four or more evenings a week compared to 60% of Indian Hindus. While religious attendance may have many positive aspects, it is also important to acknowledge a high frequency of attendance might reduce time available for curriculum related activities - however, these findings need further exploration. Also, the results should not be overemphasised. For example fewer than 2% of White British pupils attend religious classes more than once a week, and only 24% among Pakistani and Bangladeshi pupils, so the finding applies to a minority of pupils.

This section has necessarily focussed only on attendance at religious classes/courses at religious establishments because these were the only questions asked in the LSYPE survey. If LSYPE had asked questions about attendance at Saturday schools or curriculum related classes organised by faith groups, previous research (e.g., Strand, 2007) suggests this might have reported positive associations.

Section 4 - Ethnic group differences in entry to KS3 test tiers

Some authors have observed that minority ethnic pupils tend to be over-represented in entry to the lower tiers of the KS3 tests and GCSE examinations (Gillborn & Youdell, 2000, Tikly et al., 2006). However there has been no study using a large and nationally representative dataset to determine the extent of ethnic differences in tiered entry, or whether ethnic differences in tiered entry remain once controls for prior attainment are included. Elwood & Murphy (2002) identify that very little research has looked at the effect of assessment techniques and procedures such as tiering on the differential performance of ethnic or social class groups, particularly at KS3. The present study has information on tier of entry at KS3 alongside the wide and rich LSYPE data available, and is therefore in a position to address this issue.

Tiering results in science

The science tests are available in two tiers, a lower tier 3-6 and tier 5-7. The principal target levels for the 3–6 tier are level 4 and level 5, and for the 5–7 tier the principal target level is level 6. Importantly, if a pupil is entered for the upper tier but fails to achieve level 5, there is only a narrow range of marks that can lead to a compensatory level 4, otherwise the pupil is Unclassified (U). Therefore there are potentially severe consequences to entering a pupil for the upper tier should they not achieve the expected level. This system is shown diagrammatically in Figure 9.

Figure 9 - Diagrammatic representation of tiering outcomes for KS3 science

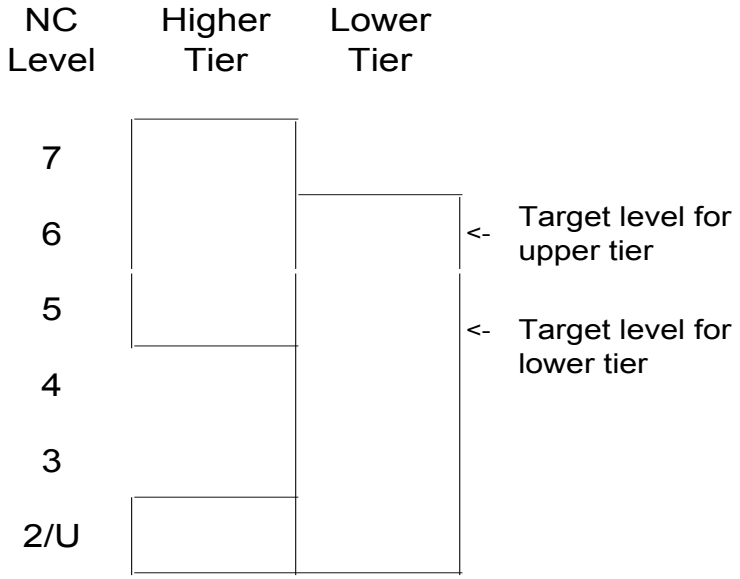


Table 38 present the KS3 sciences test results by level for each ethnic group. The table shows very few, only around 5%, of Pakistani, Bangladeshi, Black Caribbean and Black African pupils achieve level 7, compared to 12% of White British pupils.

Table 38 - Percentage of pupils achieving each level in the KS3 science test by ethnic group

	KS3 science level					
Ethnic Group	***<=2***	***3***	***4***	***5***	***6***	***7***
White British	*2.3*	*5.5*	*21.7*	*32.5*	*25.9*	*12.0*
Mixed heritage	*2.8*	*6.6*	*23.0*	*34.1*	*23.0*	*10.5*
Indian	*2.3*	*6.6*	*21.3*	*32.2*	*25.0*	*12.6*
Pakistani	*5.5*	*13.5*	*33.4*	*27.3*	*14.8*	***5.5***
Bangladeshi	*7.7*	*11.5*	*29.2*	*29.2*	*17.7*	***4.6***
Black Caribbean	*5.8*	*11.2*	*35.9*	*28.2*	*14.1*	***4.9***
Black African	*7.2*	*13.5*	*29.0*	*28.0*	*16.4*	***5.8***
Any other ethnic group	*4.1*	*10.5*	*21.4*	*23.6*	*25.7*	*14.6*
All pupils	*2.6*	*6.2*	*22.4*	*31.9*	*25.2*	*11.7*

However pupils are only able to achieve level 7 if entered for the higher tier (5-7). Table 39 presents the proportion of pupils entered for the lower and higher tiers by ethnic group. The first two columns show the percentage of each ethnic group entered for each tier. The results show that only 28% of Pakistani and Black Caribbean pupils, and 33% of Black African pupils, are entered for the upper tier, compared to 46% of White British pupils. These entry rates can also be expressed as Odds Ratios (OR) as shown in the third column titled Base Model. The OR shows the odds of being entered for the higher tier relative to the odds for White British

pupils. This shows that Pakistani, Black Caribbean and Black African pupils are about half as likely to be entered for the higher tier as White British pupils.

Table 39 - Percentage of pupils entered for each science test tier and Odds Ratios from four logistic regression models by ethnic group

Ethnic group	% entered for:		Odds Ratios (OR)			
	tier 36	tier 57	Base model	Prior attain-ment	Family backgr-ound[(a)]	All sig vars[(b)]
White British	53.6	46.4	-	-	-	-
Mixed heritage	56.4	43.6	0.89	0.87	0.94	0.86
Indian	51.0	49.0	1.12	*1.33*	*1.42*	0.94
Pakistani	71.6	28.4	**0.46**	0.88	1.09	0.75
Bangladeshi	62.5	37.5	**0.71**	1.24	1.84	1.17
Black Caribbean	71.9	28.1	**0.46**	**0.67**	**0.69**	**0.65**
Black African	66.7	33.3	**0.57**	1.13	1.18	0.88
Any other group	52.7	47.3	1.04	1.53	1.68	1.27

Notes:

(a) Adjusted for ethnic group, prior attainment, gender, social class, mother's education, FSM and home ownership.

(b) Further adjusted for all other variables significantly associated with tier of entry, including truancy, social service, EWS and police involvement, exclusion, pupil aspirations, homework, parental aspirations, parental involvement in school, parental care, academic self concept and IDACI.

Blue italic ORs - significantly more likely than White British to be entered for higher tiers.

Red bold ORs *- significantly less likely than White British to be entered for higher tiers.*

It is possible that this pattern in tiered entry reflects genuine differences in attainment between ethnic groups. The fourth column of Table 39 presents the ORs after a logistic regression including prior attainment as indicated by KS2 average test marks.[11] The ORs for Pakistani, Bangladeshi and Black African pupils rise to near parity with White British pupils, suggesting the entry decisions are broadly in line with pupils' prior attainment. However the OR for Black Caribbean pupils does not rise to the same extent increasing only to 0.67:1 and Black Caribbean pupils are still significantly less likely to be entered for the upper tier than White British pupils *of the same prior attainment*. An OR of 0.67:1 indicates that, after controlling for prior attainment, for every three White British pupils entered for the higher tier only two Black Caribbean pupils are entered.

[11]. *An initial analysis used KS2 science test marks as the measure of prior attainment. However science also requires good mathematics and language skills to access the curriculum. A significantly better correlation was achieved by employing the broader measure of total KS2 test marks (0.63) than just KS2 science marks alone (r=0.56).*

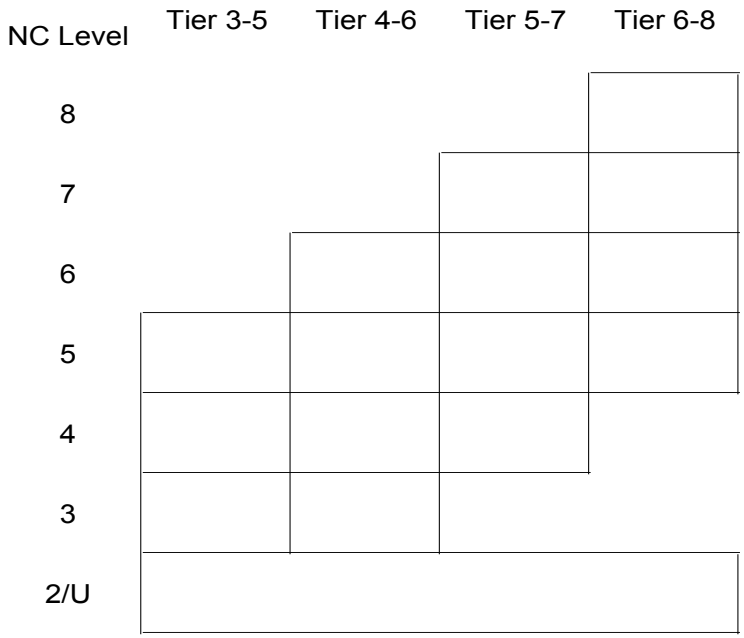
It may be that the under-representation reflects additional social and economic factors. The fifth column therefore presents the ORs after adding (in addition to prior attainment) further controls for family background including gender, social class, mothers highest educational qualification, entitlement to FSM and home ownership. Even after inclusion of these educationally relevant variables Black Caribbean pupils still continue to be under-represented to the same extent (0.69:1).

Might there be other variables that can explain this under-representation? For example it was shown in Section 2 that within the LSYPE sample Black Caribbean pupils are the ethnic group most likely to be excluded from school during KS3, to have the highest level of identified SEN, and along with Mixed heritage pupils are the most likely to have truanted at some time during KS3. The sixth column of Table 41 shows a final model that includes all explanatory variables that are significantly associated with tier of entry. In addition to those listed above this also included parental aspirations, parental involvement in school, parental supervision, social service, EWS and police involvement, truancy, exclusions, pupil aspirations, amount of homework, pupils' academic self concept and school and neighbourhood deprivation. However none of these factors explain why Black Caribbean pupils are under-represented in the higher science tier. Black Caribbean pupils still remain under-represented in the higher tier in the ratio 0.66:1. All other things being equal, for every three White British pupils entered for the higher tier only two Black Caribbean pupils are entered. It also notable than in this final model Pakistani pupils also appear to be under-represented in the ratio 0.75:1.

Tiering results in mathematics

The tiering arrangements for the mathematics test are more complex. The tests are available in four tiers, tiers 3-5, 4-6, 5-7 and 6-8. The principal target level for the 3–5 tier is level 4; for the 4-6 tier it is level 5; for the 5-7 tier it is level 6; and for the 6-8 tier level 7, with opportunities for pupils working at level 8 and accessing the key stage 4 programme of study to show their achievement. Pupils take the appropriate mental mathematics test depending on the written test tier of entry. Figure 10 gives a diagrammatic presentation of the tiering structure for KS3 mathematics.

Figure 10 - Diagrammatic presentation of the KS3 mathematics tiering structure



Notes: Shaded area indicates levels that can be achieved through the relevant tier. Hatched shaded area indicates target levels suggested by QCA(see text).

The KS3 mathematics test levels achieved by each ethnic group are shown in Table 40.

Table 40 - Proportion of pupils achieving each level in the KS3 mathematics test by ethnic group

	KS3 Mathematics test level							Level
Ethnic group	<=2	3	4	5	6	7	8	6+
White British	2.3	6.9	13.9	21.7	30.1	20.6	4.4	55.1
Mixed heritage	3.3	6.0	15.8	21.3	32.2	16.4	4.9	53.6
Indian	2.3	5.4	11.2	21.2	29.2	23.8	6.9	59.9
Pakistani	5.1	10.9	24.0	22.0	23.3	12.8	1.9	38.0
Bangladeshi	5.3	12.9	18.2	23.5	25.0	12.1	3.0	40.2
Black Caribbean	5.8	13.0	25.0	23.1	22.6	9.6	1.0	33.2
Black African	5.7	12.9	21.5	21.1	25.4	11.0	2.4	38.8
Any other ethnic group	2.6	10.0	12.8	20.6	23.2	22.6	8.3	54.0
Total	2.6	7.3	14.4	21.7	29.5	20.1	4.5	54.1

Black Caribbean pupils are the lowest attaining ethnic group at each of levels 6, 7 and 8, and cumulatively only one-third (33%) attain level 6 or above compared to over half (55%) of White British pupils. Conversely over 44% of Black Caribbean pupils are achieving level 4 or below, compared to only 23% of White British pupils. Pakistani, Black African and Bangladeshi pupils

also have significantly lower proportion of pupils achieving level 6+, and significantly higher proportions achieving level 4 or below, than White British pupils.

Table 41 presents the proportion of pupils from each ethnic group entered for each tier.

Table 41 - Percentage of pupils entered for each mathematics tier by ethnic group

	KS3 mathematics tier			
Ethnic group	3-5	4-6	5-7	6-8
White British	21.1	32.8	28.8	17.3
Mixed heritage	21.4	36.0	25.8	16.8
Indian	14.8	33.4	29.9	21.9
Pakistani	33.8	33.1	23.4	9.7
Bangladeshi	30.0	35.4	23.8	10.8
Black Caribbean	35.0	40.5	19.0	5.5
Black African	29.8	36.5	22.1	11.5
Any other ethnic group	23.3	30.2	23.9	22.5
Total	21.8	33.0	28.2	17.1

Black Caribbean pupils are substantially under-represented relative to White British in the upper two tiers (6% vs. 17% for tier 6-8 and 19% vs. 29% for tier 5-7) and conversely over-represented in the lower tiers (e.g. 35% vs. 21% in tier 3-5). The degree of under-representation in the top tiers is more extreme than for any other ethnic group, although Pakistani, Bangladeshi and Black African groups are also under-represented relative to White British.

As argued above, these data do not *per se* indicate the existence of bias in entry to tiers; the differential entry to test tiers may reflect differences in attainment between ethnic groups. Table 42 presents models that include prior attainment and other explanatory variables to test these associations. Multiple ordinal regression analysis is used to determine whether the odds of entry to higher tiers are equivalent for different ethnic groups. This provides a single cumulative Odds Ratio[12] for each ethnic group relative to White British pupils.

[12]. *This assumes a proportional odds model that postulates the regression parameters are equal for all cumulative responses (tiers). For each model the Wald statistic has been compute to test the null hypothesis that regression parameters are equal against a model with non-parallel lines. While this assumption is sometimes violated, the outcomes of multiple nominal regressions show consistent direction of effects associated with ethnicity, so for simplicity of presentation the cumulative OR is reported here.*

Table 42 - Cumulative Odds Ratios from ordinal logistic regression for mathematics tier of entry by ethnic group.

Ethnic group	Base model	Prior attainment	Family background	All sig. variables
Mixed heritage	0.96	1.16	1.27	1.29
Indian	*1.34*	*1.63*	*1.86*	*1.45*
Pakistani	**0.55**	1.19	*1.55*	1.21
Bangladeshi	**0.65**	1.08	*1.72*	1.24
Black Caribbean	**0.44**	**0.68**	**0.72**	**0.64**
Black African	**0.62**	*1.56*	*1.75*	1.26
Any other ethnic group	1.08	1.65	2.02	1.56
Nagelkerke R^2	0.8%	70.8%	72.3%	75.3%

Notes

Base	Ethnic group
PA	Ethnic group, KS2 maths test marks
Family background	Ethnic group, KS2 maths test marks, gender, social class, maternal education, FSM, home ownership, single parent households
All sig. explanatory vars.	*Ethnic group, KS2 maths test mark*s, gender, social class, maternal education, parenting (aspirations, school involvement, care, computer, tuition), pupil risk (SEN, absence & police involvement), pupil aspirations, number evening homework and academic self concept, school and neighborhood deprivation.

Blue italic - significantly more likely than White British to be entered for higher tiers.
Red bold *- significantly less likely than White British to be entered for higher tiers.*

Base model: The first model considers only ethnicity in order to establish the simple association between ethnicity and tier of entry. This is expressed as a single cumulative OR indicating the extent to which each ethnic group is under (or over) represented relative to the White British group. The results confirm that Black Caribbean pupils are the most under-represented ethnic group being less than half as likely to be entered for the higher tiers as White British pupils (0.44:1). Pakistani, Black African and Bangladeshi pupils are also under-represented relative to White British pupils by around 0.6:1. Indian pupils are over-represented in the higher tiers relative to White British pupils by 1.34:1.

Prior attainment: This model adds KS2 mathematics test marks as an explanatory variable[13]. Differences in entry tier for KS3 mathematics substantially reflects differences in prior KS2 attainment which accounts for 71% of the variation in KS3 tier of entry. Prior attainment can

account for the lower proportion of Pakistani and Bangladeshi pupils entered for the higher tiers as these odds ratios are no longer significantly different from White British pupils. Black African pupils are substantially over represented in the higher tiers given their prior attainment, as are Indian pupils. However Black Caribbean pupils are still significantly under-represented given their prior attainment. They are only two-thirds (0.68:1) as likely to be entered for higher tiers as White British pupils *with the same KS2 mathematics test score.*

Family background: KS2 test marks are very strongly correlated with subsequent attainment in KS3, but they are not the only influence as shown in section 3. As well as prior attainment, this model also includes gender, social class, maternal education, FSM, home ownership and single parent households as explanatory variables. The results show that Pakistani and Bangladeshi groups join the Black African and Indian groups in being over-represented in the higher tiers, after accounting for the high level of social disadvantage experienced by Pakistani and Bangladeshi groups. However Black Caribbean pupils remain the only group to be substantially under-represented in the higher tiers, even taking into account their prior attainment and family background, by a ratio of 0.72:1.

All significant variables: The final model included all variables that were significantly associated with tier of entry. The full set of variables included is given in the footnote to Table 42. The results reveal a reduced likelihood of being entered for the higher tiers for girls, pupils from families in routine employment or long term unemployed, pupils with mothers with no educational qualifications, pupils with less parental support, pupils with SEN, pupils who have had extended absence or been excluded from school or had police contact because of their behaviour, pupils with low academic self concept and educational aspirations, pupils who complete less than 4 or more evenings homework a week and pupils from more deprived schools (see Appendix 4 for the full model). These factors are statistically significant but their impact is small relative to prior attainment, explaining only an additional 4% of the variance in tiering.

Even after control for all the above variables the results show significant differences in representation within the higher tiers for two ethnic groups. Black Caribbean pupils are under-represented in the higher KS3 mathematics tiers relative to their White British peers in the ratio 0.64:1. In contrast Indian pupils are over-represented in entry to the higher KS3 test tiers

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[13]. *KS2 Mathematics and KS2 total test marks are equally strongly related to KS3 tier of entry (both r=.81). Mathematics test marks are used because the test content is closer to the KS3 test content.*

relative to their White British peers in the ratio 1.45:1, even after controlling for the same range of variables.

Summary of results on ethnicity and KS3 test tiers

The key result from this analysis is that Black Caribbean pupils are the only ethnic group to be consistently under-represented relative to White British pupils in entry to the higher mathematics and science test tiers. This under-representation is not a reflection of their lower prior attainment; Black Caribbean pupils are under-represented relative to White British pupils with the same prior KS2 scores. Neither is it related to gender, social class, maternal education, FSM, home ownership or single parent households. Again Black Caribbean pupils are under-represented relative to White British pupils with similar characteristics on all these measures. It was shown in Section 2 that within the LSYPE sample Black Caribbean pupils are the most likely to be excluded from school during KS3, to have the highest level of identified SEN, and along with Mixed heritage are the most likely to have truanted at some time during KS3. These factors are associated with a lower probability of entry to the higher test tiers, but they do not account for the under-representation of the Black Caribbean pupils. Finally, including all significant pupil, family, school and neighbourhood factors did not alter the under-representation, and for both KS3 mathematics and science tests Black Caribbean pupils remain under-represented in the higher tier in the ratio 0.66:1. All other things being equal, for every three White British pupils entered for the higher tier only two Black Caribbean pupils are entered. The data require consideration of other explanations for the under-representation of this (specific) minority ethnic group.

Accounting for bias in tiered entry

Has bias been established?

It may be suggested that while the results establish differential entry rates to higher tiers for Black Caribbean pupils (that are unexplained by other measured factors) they do not of themselves demonstrate discrimination against the Black Caribbean group. The argument might be that to demonstrate bias in some teachers' tier entry decisions, the test marks for Black Caribbean pupils entered for any tier should on average be higher than those of the White British group. The logic of this argument is that if more able Black Caribbean pupils are held back only by entry to an inappropriate tier, then their ability should be reflected in higher marks within the tier they were entered for. However this argument is misconceived at two levels.

First, tier of entry is not the only variable affecting performance. Even within a tier, test marks are substantially impacted by prior attainment, social class, maternal education etc. Given the

strong ethnic group differences in these contextual factors it is unlikely that Black Caribbean pupils would have a higher mean test mark than White British pupils even within a tier. It might be suggested that the same statistical controls used throughout this report could be completed however the sample size for separate analysis within a tier drops substantially. For example in an analysis within Mathematics tier 5-7 the number of Black Caribbean pupils drops to just 120. This makes it difficult to sustain a model with many explanatory variables[14]. However even if the mean mark for the Black Caribbean group is lower than the mean mark for White British group within a particular tier, which is largely what is found, this does not indicate the absence of bias. The same (unknown) factors that explain the poorer than expected progress of Black Caribbean pupils from KS2 to KS3 may also explain why they achieve on average lower marks than White British pupils within a tier.

More fundamentally the argument would be a misunderstanding of the tiering process. It should not be supposed that tier of entry is simply a decision made on the day of the test that might restrict some more able Black Caribbean pupils from achieving the highest levels. This misrepresents the subtly of the relationship between teacher expectation and tiering. Tiering decisions are required in November/December[15], some six months before the tests, although evidence suggest tiering decisions are often made substantially in advance of this (Gillborn & Youdell, 2000). In many schools pupils are grouped into ability sets and sometimes particular sets are prepared for specific tiers, so pupils may have studied different material to different depths over the whole course of KS3 in preparation for a particular tier. The point about the social consequences of tiering is that, just like ability grouping but even more so, it makes explicit what the teacher expects of the pupil, and this is typically revealed well in advance of the test. The lower test marks found for Black Caribbean pupils within tiers could therefore be a response to the tiering decision, for example to become demotivated and to try less hard. The important issue raised by the tiering results is not so much that differential entry rates are the cause of the low attainment and poor progress of Black Caribbean pupils (although they may contribute somewhat) but that it might illustrate wider teacher expectation effects. Tiering decisions therefore need to be seen as more than a technical issue about accurate

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14. Test marks could be treated as a single outcome with test tier, ethnicity and the interaction between the two as explanatory variables within a single equation. However this is problematic as the range of marks (variance) is unequal across tiers, violating one of the assumptions of ANOVA. In any event, the results indicate no significant main effect for Black Caribbean or any interaction between Caribbean and tier.

15. While the order for test papers in November/December does not commit schools to entering any individual pupil for a particular tier, they are told that "schools' orders should be as accurate as possible, as there is very limited time for processing and fulfilling late orders and correcting any shortfalls in ordering" (QCA, 2004, p32)

measurement at the point of assessment; they need to be set within the wider context of teachers' perceptions and the social consequences of assessment.

A measure of performance at age 14 that was independent of the KS3 tests, such as a reasoning test score, would in some regards be a better control variable than KS2 test marks, however this is not available in the LSYPE dataset[16]. While KS2 test marks at age 11 are not a perfect measure of attainment at age 14 they are very highly predictive of KS3 average test score (r=0.89 with KS2 average test marks), probably as high as can feasibly be expected. However the fact that Black Caribbean pupils are under-represented to such a significant degree in the higher tiers, even relative to White British pupils with the same KS2 scores, at the very least raises questions about why the tiering gap is so big, even if one holds to the view that the entry decisions are a fair reflection of Black Caribbean pupils' attainment at age 14. The fact that this under-representation in the higher tiers is specific to one ethnic group and persists even after taking account of extensive additional data on social class, maternal education, poverty, exclusions, truancy, SEN, attitude to school, aspirations and frequency of completing homework suggests the explanations are likely to be subtle and complex.

Behaviour issues

The bias affecting the entry of Black Caribbean pupils to the higher tiers of the KS3 test papers may relate to two other educational outcomes also distinctive to Black Caribbean (and Mixed White and Black Caribbean) pupils.

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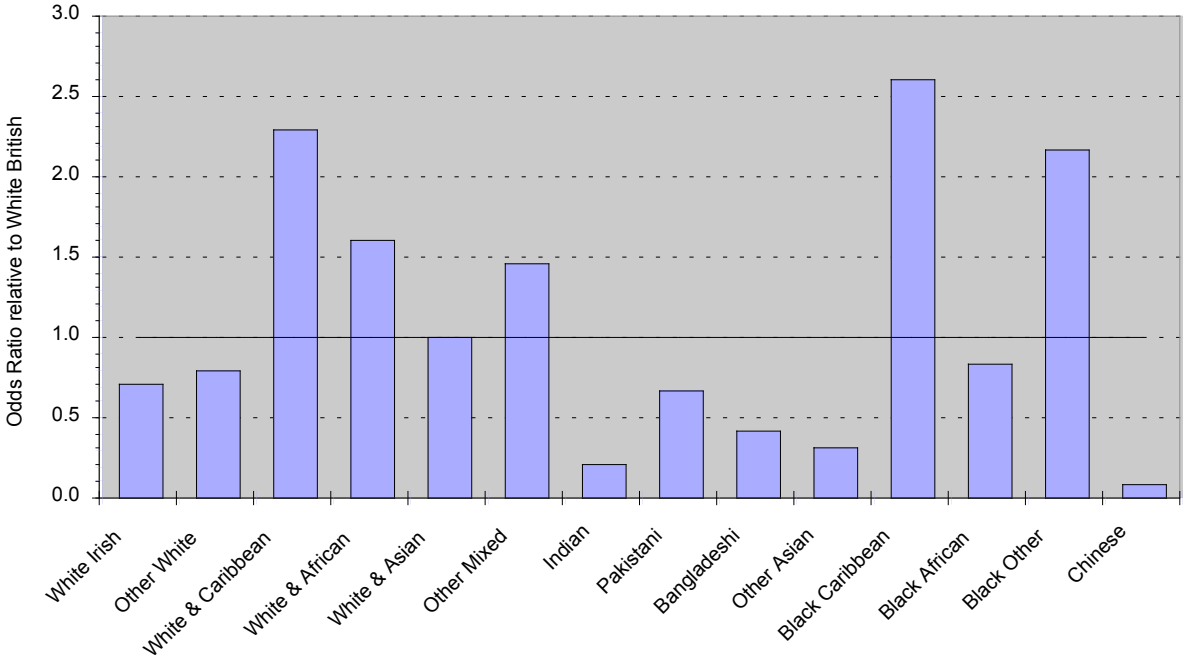
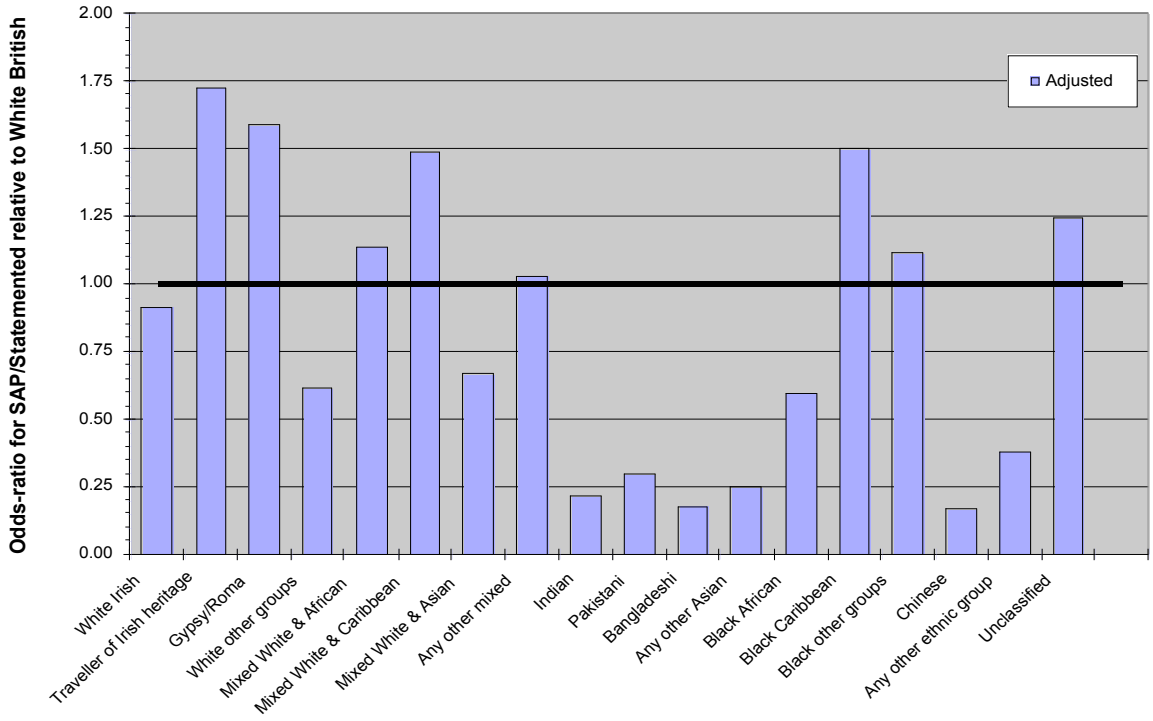
[16]. *Contrary to the arguments forwarded by Gillborn & Youdell (2000) against reasoning tests, this is exactly the reason why the use of such tests can be particularly helpful with Black Caribbean and other minority ethnic pupils. Reasoning tests offer evidence of performance, independent of curriculum content that can contradict teachers (potentially biased) perceptions of pupils' abilities, offering evidence that can suggest a reappraisal of what teachers think they know about a pupil.*

Figure 11 - Permanent exclusions 2002/03 by ethnic group



Notes: Data are adjusted to take account of LEA and school differences (a very limited control). Excludes Irish Travellers and Gypsy-Roma due to small sample size. Total permanent exclusions 2002/03= 9,270. Source: Parsons et al. (2005). Minority ethnic exclusions and the RR (A)A 2000. DfES Research Report 616/2004.

Figure 12 - Odds ratios for SAP/statemented BESD by ethnic group - adjusted for age, gender and poverty (FSM and IDACI)



Source: Lindsay, Pather & Strand (2006). DfES Research Report 757/2006.

First, Black Caribbean and mixed White & Black Caribbean pupils are 2.0 to 2.5 times more likely to be permanently excluded from school than White British pupils (Parsons et al., 2005). Figure 11 presents the relevant data.

Second, Black Caribbean pupils are 2.3 times more likely than White British pupils, and Mixed White & Black Caribbean pupils twice as likely as, White British pupils, to be statemented or at School Action Plus (SAP) for Behavioural, Emotional and Social Difficulties (BESD) (Lindsay et al., 2006). Even after pupil level controls for age, gender, entitlement to FSM and neighbourhood deprivation (IDACI) both groups remain 1.5 times more likely to be identified with BESD than White British pupils. Figure 12 presents the relevant data.

Pupils permanently excluded from school or identified at SAP/statemented for BESD represent a small proportion of the cohort. Even in Year 11, the peak year for BESD, only 5% of pupils are identified at SAP or Statemented for BESD (Lindsay et. al., 2006). However the exclusion and BESD results may be the 'tip of the iceberg' and symptomatic of wider behaviour issues.

There is research evidence that pupil behaviour, or more accurately teachers *perceptions* of pupil behaviour, can have a distorting influence on their judgements of academic ability. Thus Bennett et al. (1993) reported that teachers perceptions of pupils' behaviour constituted a significant component of their academic judgements. In other words, pupils who were perceived as exhibiting bad behaviour were judged to be poorer academically than those who behaved satisfactorily, even after controlling for test score and gender. The authors concluded there is a "need to supplement teacher judgments with other objective evidence of academic performance when important decisions about pupils are made" (p353). Similarly Thomas et al. (1998) analysed the impact of a range of pupil characteristics including entitlement to FSM, English as an Additional Language (EAL) and SEN on teacher assessment at age 7, after controlling for the performance of the pupils in the parallel standard tests. Even after differences in test score had been accounted for, each of these pupil characteristics still had a significant association with teacher assessment. Teacher assessment significantly underestimated the attainment of pupils in these groups relative to test scores. Mortimore et al. (1988) compared headteachers assignment of pupils to verbal reasoning bands to the band indicated by the actual test results. While high degrees of agreement were found for Asian (89%) and White British (86%) pupils there was less agreement for Black Caribbean pupils (79%). There was a greater tendency for some Black Caribbean pupils identified as band 1 on the test to be assigned to the lower band 2 by their school (Mortimore et al., 1988, p157).

If the behaviour of Black Caribbean pupils is more challenging, or even if it is simply that teachers *perceive* their behaviour as more problematic, there may be a tendency to underestimate their academic ability. Black Caribbean pupils may be disproportionality allocated to lower test tiers, not as a result of direct or conscious discrimination, but because teachers' judgements of their academic potential are distorted by affective factors such as perceptions of their behaviour.

Such perceptions may have particularly powerfully consequences when combined with a tiering system that includes high penalties if pupils are inappropriately entered to the higher tiers (the award of an Unclassified grade). Gillborn and Youdell (2000) in a detailed study of two secondary schools suggest that teachers were extremely cautious and risk averse with regard to entry to the higher tiers, reflecting a desire to protect pupils from failure. They suggest that teachers operated a 'hidden' system of tiering, such that only pupils they were confident could achieve level 7 (not the QCA suggested level 6) were entered for the higher science tier and the highest mathematics tier. This high threshold may impact negatively on Black Caribbean pupils if their ability is underestimated, or if they are seen as able but also more likely to be disaffected or less motivated, and at greater perceived risk of falling through the tier floor.

Section 5 - Accounting for ethnic group differences in attainment and progress

This research has reported wide variation in educational attainment at age 14 between different ethnic groups. Pakistani, Bangladeshi, Black Caribbean and Black African groups achieve a mean KS3 average points score around 3.0 points below the White British group, equivalent to around a whole year of progress in terms of the TGAT framework (1988).

Explanations of these gaps in terms of socio-economic status (for example social class, maternal education, poverty as indicated by FSM, home ownership and single parent status) have mixed success in accounting for the gaps. Indian and Bangladeshi pupils achieve higher results than would be expected given their social class and maternal educational qualifications. The Pakistani gap relative to White British pupils is reduced by over 80%, and the gap for Black African pupils is reduced by two-thirds. However the low attainment of the Black Caribbean group is not substantially reduced, and their mean KS3 score remains -2.5 points below the comparable White British mean. Social class therefore does not provide an adequate account of all ethnic group differences in attainment at KS3.

As well as the structural variables of social class, maternal education, entitlement to FSM, home ownership, and single parent households, the 'full context' model included more subtle measures such as parental involvement in school, parents' and pupils' educational aspirations, pupils' academic self concept, amount of homework completed, attitudes to school and a wide range of educational risk factors, as well as school and neighbourhood deprivation. This doubled the predictive power of the model. However the model could not account for the low attainment of the Pakistani group and was particularly poor at explaining the low attainment of Black Caribbean and Black African groups. Including these more detailed parental and pupil measures substantially *depressed* the attainment of all minority ethnic groups relative to White British pupils. Minority ethnic groups were frequently *more* advantaged on many of these parental and pupil factors than their White British peers, but this was not associated with proportionately greater attainment for the minority ethnic groups.

Much of the difference between ethnic groups at age 14 can be accounted for by pre-existing differences between ethnic groups at age 11. To address ethnic differences at KS3 a key focus must be on processes occurring during primary school, since the KS3 differences are largely replications of ethnic group differences already apparent at the end of primary school.

There are two ethnic groups of particular interest in that their gaps relative to the White British group actually widen between age 11 and age 14. These are Indian pupils, who widen the gap by pulling further ahead of their White British peers than they were at the end of KS2, and Black Caribbean pupils who widen the gap by falling even further behind their White British peers than they were at the end of KS2.

- Some element of the better progress of Indian pupils relative to White British pupils can be explained by positive factors such as: high parental and pupil educational aspirations; undertaking high levels of homework; low levels of truanting, exclusion, or social services/EWS involvement; high resource provision at home (computers and private tuition) and high parental monitoring of their children's whereabouts. These variables offset the negative impact of low social class and the high proportion of mothers with no educational qualifications among Indian households, although they do not totally offset the greater socio-economic disadvantage of the schools attended by Indian pupils or the neighbourhoods in which they reside. Nevertheless these are pointers to 'protective factors' in relation to the educational attainment and progress of minority ethnic pupils.

- The explanatory variables included in this report do not account for the poor progress of the Black Caribbean group. In terms of social class and mothers educational qualifications, Black Caribbean pupils do not differ markedly from White British pupils. With regard to disadvantaging factors, relative to White British pupils, Black Caribbean pupils on average experience greater poverty (entitlement to FSM), are more likely to live in rented accommodation, to have identified SEN, to be temporarily excluded from school, are less likely to complete four evenings or more of homework and are more likely to attend schools that are more deprived and live in more deprived neighbourhoods. In terms of advantaging factors relative to White British pupils, Black Caribbean pupils (and their parents) have higher educational aspirations, have a more positive attitude to school, a higher academic self concept and are more likely to be actively planning for the future. However, this extensive set of variables does not provide an explanation of the poor progress of the Black Caribbean group.

It is therefore necessary to look at wider explanations of ethnic group differences, beyond those captured by the specific variables described above.

Explanations of ethnic group gaps in educational attainment

Most explanations for why ethnic groups differ in their educational attainment fall into three general categories. The first is about social class and how the structural position of ethnic groups in society affects pupils' home, peer and school environments. The second is about teacher racism, not only directly but also indirectly as institutional racism. The third concerns how the cultural orientations of certain ethnic groups promote or discourage academic achievement. These explanations are explored in more detail below.

Social class

Social class is the most common explanation for ethnic group differences. The effect of social class might be direct, via material resources, but may also be less direct through varying parental practices or differential schooling opportunities which favour more advantaged groups. In relation to the Black-White test score gap in the US, Phillips et al. (1998) conclude from an extensive analysis of Children of the National Longitudinal Survey of Youth (CNLSY) data that socio-economic status, including racial disparities in family income, wealth, parental education and school resources, explain only about a third of the black-white test score gap for six year olds, and conclude that "reducing economic inequality between black and white parents would probably not reduce the black-white gap much" (p138). The current research suggest similar conclusions may be reached for some UK minority ethnic groups, since the broad range of SES variables could not explain the low attainment of the Black Caribbean group.

Increasingly therefore there is a move away from a reliance on social class towards explaining the ethnic group variation in attainment that remains after the effects of parental social class and/or maternal education are statistically removed. For example Phillips et al. (1998) report that also including differences in parenting practices may explain up to two-thirds of the black-white test gap of six year olds in the US, and the EPPE study in the UK also reveals the importance of parenting practices in the attainment and progress of young children age three to age seven (Sylva et al., 2004). Parenting practices tend to have their strongest impact on the attainment of young children and a smaller impact on older pupils, but the current study suggests that variables such as parents' educational aspirations for their children, provision of educational resources and involvement with school are also important in understanding attainment at age 14, since they improve the amount of variance in educational attainment that can be explained from one-quarter to one-third, relative to social class and maternal

education alone. However, paradoxically including these variables generally serves to increase the ethnic gaps relative to White British pupils, since the higher aspirations and motivations among many ethnic minorities do not seem to return the proportional gains in terms of attainment that they do for White British pupils. In conclusion, while social class and its correlates are important predictors of educational attainment, they have limited success in explaining the differences in attainment between ethnic groups.

Teacher expectations

A second set of explanations involve teacher expectations. For example it has been argued that the perceptions of teachers, acquired in the staffroom and the classroom through disciplinary problems with previous pupils, engender low expectations about the behaviour and academic potential of Black Caribbean pupils and can lead teachers to interpret certain behaviours more negatively than similar behaviour from White British pupils, and can even lead to 'pre-emptive' disciplining (Gillborn, 1990). Pupils are assumed to react to this discrimination by becoming demotivated or confrontational. This reinforces the social stereotyping by teachers and a vicious spiral ensues. In addition, the concept of indirect or 'institutional racism' has also become prominent, moving beyond individualistic conscious intent to encompass organisational arrangements that may have nothing to do with ethnicity directly, but may nevertheless have disproportionate negative impacts on some ethnic groups (see further discussion below). From this perspective any difference in educational outcomes between social groups constitutes *prima facie* evidence of discrimination (Gibson & Youdell, 2000, p3).

Other authors argue that racism, at least in the overt sense, cannot be a complete explanation for ethnic group differences in attainment. Modood (2003) argues "If racism leads to victims being turned off school and dropping out, why do Asian men and women have such high staying-on rates and make academic progress? While recognising that there are differences in the racism experienced by Caribbean and Asian groups, Asian pupils experience more frequent and more violent racial harassment from other pupils than do Caribbean pupils (yet) this high level peer racism and bullying does not stop Asian pupils from persisting with high levels of motivation and performance" (Modood, 2003, p58). This does not discount the possibility of social stereotyping or institutional racism against some ethnic groups, but does highlight the importance of considering how well general explanations apply to different minority ethnic groups.

Cultural theories

The third category of explanations allows that differences in attainment are at least partially to do with what pupils bring into the school with them. In explaining the relatively high attainment of Asian Americans, Caplan et al. (1991) argue that Asian Americans have a cultural understanding that prioritises self-reliance and achievement and that Asian American youth felt it was their responsibility to the family to do well in school. Francis and Archer (2005) in their study of British Chinese pupils and parents, similarly point to the high value placed on education by parents, coupled with a strong cultural tradition of respect for one's elders, which facilitates the transmission of high educational aspiration from parents to children, and that pupils derive positive self-esteem from constructing themselves as good pupils. Similar arguments are made in relation to Indian and to 'African Asian' groups in the UK (Modood, 2003). Cultural explanations are also proposed for the low attainment of some minority ethnic groups. For example, Sewell (1997) observes that Black Caribbean boys may experience considerable pressure by their peers to adopt the norms of an 'urban' or 'street' subculture. More credence is given to unruly behaviour with teachers and antagonistic behaviour with other pupils than to high achievement or effort to succeed, particularly at secondary school (Haynes et al., 2006). A highly influential paper by Fordham and Ogbu (1986) argues that notions of 'acting White' or 'acting Black' become identified in opposition to one another. Hence because acting White includes doing well at school, acting Black necessarily implies not doing well in school. Aspects of this view have been reflected in concerns about the development of 'gangsta' culture and the absence of positive Black male role models at home as well as in schools (e.g. Abbott, 2002; Philips, 2002).

However cultural explanations also have their problems. For example White pupils who work hard may not be taunted by their peers for 'Acting White' but they are also taunted as "nerds" and "geeks". As argued by Jencks and Phillips (1998) "*Black pupils fear of 'acting White' can only exacerbate the Black-White test gap if academic success has a higher cost for blacks than Whites, or if Blacks are more responsive than whites to such social costs. Since Fordham and Ogbu studied an all black high school, they could not investigate these issues" (p34).* The 'acting White' hypothesis rapidly grew from the status of ethnographic observation in a single all-black school, to a popular media story to conventional wisdom (Cook & Ludwig, 1998, p376). However Cook and Ludwig (1998) have found no empirical support for Ford and Ogbu's ethnographic claims when tested on a wide and representative sample. This shows how important it is to frame the conclusions from small scale ethnographic research into hypotheses that can be tested with large and representative samples.

The impact of ability grouping and tiering

Several US authors have proposed that Black pupils are disproportionately placed in low-ability groups early in their educational careers, and that such placement leads to the development of negative attitudes and behaviours related to learning and ultimately to poorer attainment (e.g. Oakes, 1985, Braddock & Slavin, 1993). The robustness of the evidence of discrimination is challenged though by findings that ethnic differences in ability groupings often disappear if controls for measured ability or prior attainment are included in analytic models (Alexander & Cook, 1982; Hallinan, 1991, 1994; Ferguson, 1998).

Similar arguments regarding the effects of setting and tiering on minority ethnic pupils have been made in the UK (Gillborn, 1990; Gillborn & Youdell, 2000). However the quantitative evidence for such bias is limited, predominantly being drawn from small scale ethnographic studies. This has led some authors to conclude that "the research fails to establish that discrimination against Black pupils occurs on any scale in the allocation of pupils to courses, or through the effects of this allocation" (Foster, Gomm & Hammersley, 1996, p105). Recent evidence from the evaluation of the DfES African Caribbean Achievement Project (Tikly et al. 2006) does appear to indicate that Black Caribbean pupils are under-represented in higher ability sets, higher test and examination tiers and in gifted and talented cohorts. However the 30 schools in the project were specifically selected on the basis that their African and Caribbean pupils were performing below the average for all pupils at KS3 and KS4, so do not constitute a representative sample. In addition the quantitative data were returned by only 18 schools at the start of the project and 11 schools at the end of the project, further undermining the representativeness of the data. Finally there is no evidence that the reported under-representation reflects anything other than pre-existing differences in attainment at the end of KS2, that is it does not establish bias in secondary school practices.

The current study adds significantly to this debate by demonstrating unequivocally the extent of ethnic differences in tiered entry in a large and representative national sample. The results reveal that Black Caribbean, Black African, Pakistani and Bangladeshi groups are roughly half as likely to be entered for the higher tier papers in KS3 science and mathematics compared to their White British peers. This under-representation disappears for the Bangladeshi, Pakistani and Black African groups when prior attainment is considered. However after controlling for prior attainment Black Caribbean pupils are still under-represented, around 0.67:1 compared to White British pupils with the *same KS2 scores*. It is not possible to rule out the possibility

that the under-representation of Black Caribbean pupils in the lower tiers, even after accounting for KS2 test marks, reflects the fact that they make poorer progress over the course of KS3, although their lower KS3 test marks may be as much a reflection of biased entry to tiers as a cause of it. However this under-representation persists even after taking account of gender, social class, maternal education, FSM, home ownership and single parent households. Lastly even though Black Caribbean pupils are the most likely to be excluded from school during KS3, to have truanted during KS3 and to have the highest level of identified SEN, and these factors are associated with a lower probability of entry to the higher test tiers, these factors do not account for the under-representation of the Black Caribbean group. After accounting for all factors the under-representation is specific to this one ethnic group and indicates that, all other things being equal, for every three White British pupils entered for the higher tier only two Black Caribbean pupils are entered[17].

Section 4 reviewed evidence that suggests that teachers' perceptions of behaviour can have a distorting influence on their judgements of academic ability (Mortimore et al., 1988; Bennett et al., 1993; Thomas et al., 1998). It also noted that Black Caribbean pupils are over-represented among those pupils excluded from school and identified with BESD. This analysis hypothesised that if the behaviour of Black Caribbean pupils is more challenging, or if it is simply that teachers *perceive* their behaviour as more problematic, there may be a tendency to underestimate the academic ability of some of these pupils, leading to disproportionate placement of Black Caribbean pupils in lower ability sets and ultimately in lower test tiers[18]. If the response of Black Caribbean pupils is to become demotivated and to try less hard, then a viscous cycle of low expectation and low performance may result. Therefore behaviour seems to be a key related issue.

While the exclusion and BESD data relate to a small minority of pupils, there seems to be general agreement that, at least in the latter stages of schooling, the behaviour of some Black Caribbean pupils is more challenging (Pilkington, 1999; Modood, 2003). However there are fundamental disagreements over the explanation of 'bad behaviour'. Authors such as Foster et al. (1996) give primacy to out-of-school factors, hypothesising that Black Caribbean pupils adopt a distinct sub-culture as a recognition of poor post-school prospects and a reaction to racism in the wider society. For others primacy is given to school processes, with some

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17. *A recent report from the DfES (DfES, 2007b) appears to suggest that Black Caribbean pupils are not under-represented in the highest tier of the KS3 mathematics test. See Appendix 4 of this report for a discussion of the limitations of the DfES analysis.*
18. *LSYPE does not contain data on ability setting within schools. However tiering decisions have the same effect as setting in making the teachers expectation of the pupils explicit and public.*

Caribbean pupils turning towards a distinct sub-culture to resist their differential treatment by schools. Nowhere is this more clearly illustrated than in recent debate about the reason for Black Caribbean over-representation in those excluded from secondary school. In an article in the TES (TES, 15th December 2006, p8) Peter Wanless, Director of School Performance at the DfES, concludes that "largely unwitting" racial discrimination by teachers was to blame for the exclusions gap. In response Mick Brookes, general secretary of the National Association of Headteachers (NAHT) was reported to say that "behaviour that disrupts the education of others must always be acted upon. Where there is an external culture of violence, anarchy and lack of respect for authority, that clash of cultures poses huge problem for our schools", highlighting a difference over whether it is the behaviour of schools, or the behaviour of pupils, that is responsible for the ethnic disparity in school exclusions.

We are therefore seemingly faced with two alternative explanations. One emphasises culture and seems to attribute responsibility for pupils' low attainment to their peer groups, while the other highlights school processes and seems to shift the blame to teachers (Pilkington, 1999, p412). Neither of the explanations seems entirely adequate on its own, and it is wise to always be wary of single (simple) explanations. The tendency to see these explanations as mutually exclusive (e.g. the under-achievement of Black Caribbean pupils relative to White British is due either to teacher racism or to a 'street' culture that does not value education) should be resisted. There is no reason for these accounts to be mutually exclusive. Cultural explanations do not preclude the existence of institutional processes that may exacerbate group differences in attainment (the reverse is also true). Indeed it is likely that both these factors are involved and feed off each other in a vicious cycle of amplification. Rather than argue which factor is the most influential, there is a need to intervening to break the cycle of disadvantage. This suggests a focus on teachers and schools as the point in the cycle where change may most readily be effected.

A note on differentiation within ethnic groups

It is important not to over-generalise from group mean scores to all members of any ethnic group. The focus of the research has been on explaining the differences between ethnic groups in their educational attainment, so the analysis has focussed on mean differences between groups rather than on the differences between members of the same ethnic group. This is clearly a simplification when looking at the attainment or progress of any individual pupil. Some Black Caribbean pupils have very high attainment and make excellent progress. Also some White British pupils have extremely low attainment, particularly those from

economically disadvantaged groups, and make poor progress. For example national statistics highlight the fact that only 24% of White British boys entitled to FSM achieved 5 or more GCSE grades at A*-C compared to 27% of Black Caribbean boys entitled to FSM (DfES, 2007). Also White British working class pupils in inner city areas are sometimes the group making the least progress over the secondary phase (e.g. Strand, 2006; Wilson et al. 2005).

In modelling terms, the above differences would be detected through interactions between variables, for example between ethnic group and gender, or between ethnic group and social class. This research has tested some interaction effects. For example interactions between ethnic group and gender were evaluated but there were no significant interactions for 'raw' KS3 attainment or in any of the contextualised models of attainment. The only significant ethnic by gender interaction was for pupil progress during KS3 which revealed that Bangladeshi boys made less than expected progress while Bangladeshi girls made more than expected progress. Interactions between ethnic group and entitlement to FSM were also tested, but there were no significant effects. In some instances significant interactions may arise because of inadequate statistical controls. For example Lindsay et al. (2006) show that apparent interactions between ethnic group and FSM disappeared when better controls for poverty (the IDACI index) were also included. Other authors have debated whether interaction effects are actually as widespread as the literature suggests, and propose that a simple 'additive model' is sufficient to account for social class, ethnicity and gender effects on GCSE attainment (Connolly, 2006). It was not possible to explore all the potential interactions that could be occurring within the current dataset, since the model would rapidly become over-saturated. While researchers should be alert to the possibility of interaction effects, the inclusion of interactions terms needs to be guided by some *a priori* hypotheses.

US analyses of 'Black-White' differences seem somewhat naïve in a UK context. High-level categories such as 'Black' appear limited given the significant differences in attainment between Black African, Black Caribbean and Other Black groups in England, as do categories such as 'Asian' given the significant differences between Indian, Pakistani and Bangladeshi groups. In the UK some authors do continue to describe 'Black' pupils as if they constitute a homogeneous group. The current results indicate it is misleading to conflate Black Caribbean and Black African groups when the patterns of aspirations, attainment and progress are distinct. At worst it supports the idea that racism is somehow associated with colour, whereas the current results suggest more subtle differentiations. It may be that the plural term 'racisms' (Mahood, 2003) captures the complexity better.

Ethnic categories do however need to be large enough to support statistical analysis, so some degree of heterogeneity within groups is inevitable. However in the current study Mixed heritage does not appear to be a useful analytic category. National attainment results suggest very different patterns of performance within the different mixed heritage groups. Thus the attainment of the Mixed White and Caribbean group is closer to Black Caribbean, and the attainment of the Mixed White and Asian group is closer to Indian, than they are to each other (DfES, 2006). It is likely therefore that results for the Mixed heritage group obscure considerable diversity within relevant sub-groups. Future analyses might consider boosting the separate samples within the largest two mixed heritage groups to support more differentiated evaluation.

Policy implications

General recommendations

Interventions to identify relevant issues in relation to ethnicity and to address the needs of low attaining minority ethnic pupils need to focus to a greater extent than at present on processes occurring during primary school. This is because ethnic group differences at age 14 are largely replications of pre-existing ethnic group differences already apparent at the end of primary school.

However KS3 should be a particular focus in relation to Black Caribbean pupils who continue to fall further behind their White British peers. The National Secondary Strategy should continue to have a key focus on Black Caribbean pupils. Initiatives such as Aiming High, which includes the Black Pupils Achievement Programme, are important in supporting a focus on this group of pupils in secondary schools.

The LSYPE is an immensely rich dataset that will support a wide range of further detailed analyses. For example there are data within LSYPE that would be relevant to an evaluation of the Fordham and Ogbu (1986) 'acting White' hypothesis in relation to differential effort between White British and minority groups. It could also focus on better mapping the extent of differences within ethnic groups, particular with the 'mixed heritage' group. The inclusion of the dataset in the National Data Archive will support numerous additional analyses.

The end of KS3 represents an intermediate stage in secondary education, just over halfway through the secondary phase. There is evidence that many minority ethnic groups make

stronger educational progress during KS4 than they do during KS3 (Strand, 2006; Demie & Strand, 2006; Wilson et al., 2005). The current analysis of end of KS3 outcomes presents only half the picture in terms of pupil's progress through secondary school, and the results may not reflect those that would be obtained from an analysis across the full secondary phase. The current analysis should be extended to include KS4 outcomes for the same pupils.

Further new research beyond the data collected in LSYPE should also be commissioned. A particular focus should be on a large scale evaluation of the possible effect of ability grouping, particularly as it impacts on the performance of minority ethnic pupils. While a large scale quantitative study in the UK did not identify any consistent effect of ability grouping (Ireson, Hallam & Hurley, 2005) it did explore the impact of ability grouping practices on minority ethnic groups. The current results suggest that this might be a rich vein to study.

Perhaps the most striking results of this research are the findings in relation the practice of test tiering, and the recommendations below relate specifically to this area.

- Tiered entry papers are an efficient approach to assessment. Giving all pupils, regardless of their current attainment, exactly the same test is wasteful of assessment time. Requiring lower attaining pupils to repeatedly fail harder questions is potentially damaging to self-esteem, and requiring higher attaining pupils to answer a large number of easy questions is unlikely to provide accurate information on what they know and can do. The best assessment is accurately targeted to the current performance level of the pupil.

- The reduction in the complexity of the GCSE mathematics tiering system from three to two tiers is welcomed and will bring the subject into line with other GCSEs. A similar rationalisation for KS3 mathematics test with its complex arrangement of four separate tiers might be appropriate.

- It is important to raise teachers' awareness of potential bias in entry decisions by requiring schools to monitor tier of entry by pupil ethnicity, gender and social class (or a proxy such as entitlement to FSM). Schools should also seek the widest possible external evidence (such as reasoning test scores, parents views of the children's strengths and weaknesses, and pupils' involvement in out-of-school learning such as supplementary schools) as part of the decision making process.

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APPENDIX 1 - The LSYPE sampling strategy and treatment of data

The LSYPE sample

The target population sampled was young people in Year 9 (or equivalent) in all schools in England in February 2004 and born between 1st September 1989 and 31st August 1990. For various practical reasons certain exclusions were made. Among those excluded from the sample are: those educated solely at home (and therefore not present on a school roll); pupils in schools with fewer than 12 (maintained sector) or fewer than six (independent sector) Y9 pupils (less than 1% of the cohort); boarders and those in the UK solely for education purposes.

LSYPE used a *two stage sampling procedur*e. At the first stage a sample of 892 schools was drawn with PPS (the size measure being a weighted sum of Y9 pupils) from a stratified frame by school deprivation status. Two strata were formed on the basis of the proportion of pupils entitled to Free School Meals. Deprived schools were those defined in the top quintile of this distribution, non-deprived schools were defined as the remainder. Deprived schools were over-sampled in the ratio 1.5:1. The list of schools was ordered within each strata by Government Office Region (GOR) and then by school admission policy (Comprehensive, modern or selective). Schools were then sampled by the method of random start and fixed interval, and so were implicitly stratified by region and admissions policy. These schools were then approached for access to their pupil rolls. 647 schools (73% of the issue sample) co-operated with the study.

At the second stage a *sample of pupils in Y9* was drawn from the school rolls along with their parental and address details (these details not being available from PLASC returns before 2006). The average number of pupils sampled per school was 32. In the maintained sector schools the number sampled per school varied, however, according to the ethnic group composition of the school population. *Sample boosts* took place for *ethnicity* at the pupil level with boosts made in the following six groups: Black African; Black Caribbean; Bangladeshi; Indian; Pakistani and Mixed heritage. In a conventional two-stage sample design such boosts will deliver variation in either cluster size or within-sub-population sampling fraction. In contrast, the method used here delivered both a constant sampling fraction for each sub-population and a fixed cluster size. It therefore avoided precision losses through corrective (design) weighting and excessive variation in cluster sizes. These boosts are representative samples of the relevant sub-populations as a whole, rather than drawn disproportionately from areas or schools with high numbers of minority ethnic pupils. Further details on the procedure

are contained in the Wave 1 technical report (BMRB, 2006). After cleaning to remove cases where e.g. a home address was incomplete or unidentifiable the issued sample at Wave 1 was 21,234.

Response rate and weighting

Wave 1 achieved responses from 15,770 households (74% of the issued sample). The data have been weighted firstly to compensate for differential selection chances in the sample design, and secondly to remove non-response biases. These weights are the reciprocals of the selection probabilities. Non-response largely results from the *school sampling* stage rather than at the individual interview and affects particularly schools in London and, because of geographical imbalance, more so for pupils of Black Caribbean and Black African backgrounds. Non response weights were calculated through comparison of respondents to PLASC pupil level population data.

Family mapping

Much of the data collected in LSYPE from parents relating to social class, educational qualifications, income etc is collected for all adults in the young person's household. The variables can therefore be derived for the main parent or the second parent. The main parent (MP) is the one the parents themselves identify as the parent/guardian most involved in the young persons education and most likely to be able to know about his/her time at school. The second parent (SP) is any other adult living in the household identified as another parent or guardian of the young person (YP).

Table 1.1 presents the crosstabulation between MP/SP and their respective relationships to the YP. In the vast majority of cases, the MP/SP pair identifies the mother and father of the YP. In the majority of cases the MP is the mother and the SP the father (n=8,905, 57.1%), or the main parent is the father and the second parent is the mother (n=2,327, 14.9%), these combinations therefore accounting for 72% of sample cases. The majority of remaining cases are where the main parent lives in a single parent household, usually a single mother (n=3,768, 24.0%) or more rarely as a single father (n=375, 2.4%). In a small number of cases (n=233, 1.5%) the main parent was another adult in the house, such as a grandparent or a brother/sister.

Table 43 - Relationship of Main Parent to Young Person by relationship of Second Parent to Young person

		Relationship of Second Parent to YP				
		Missing	No second parent	mother	father	Total
Relation-ship of Main Parent to YP	Missing	19	7	0	0	26
	Refused	0	4	0	0	4
	mother	15	3768	0	8905	12688
	father	5	375	2327	0	2707
	other adult	5	186	28	14	233
	non-household	0	8	0	0	8
Total		44	4348	2355	8919	15666

Note: 'mother' and 'father' includes natural, step, foster and adoptive relationships.

Because of the large proportion of single mother households, there is less information available for the young people's fathers than there is for their mothers. Overall, 15,043 mothers were interviewed (either as MP or SP) compared to 11,626 fathers (either as MP or SP). This can cause a tension between the desire to maximize the sample size offered by using mother sourced measures against the possible greater relevance in some cases of information from the father, e.g., on SES or income related data.

For some variables rather than arbitrarily deciding to use the father or mother measure, there is the option to consider the Household Reference Person (HRP). This is the person responsible for owning or renting the home in which the young person lives, or who is otherwise responsible for the accommodation. In the case of joint householders, the person with the highest income takes precedence and becomes the HRP. In the case of joint income, the oldest person becomes the HRP. The role is clearly a key one in family life and is sometimes fulfilled by the mother and sometimes the father.

Table 1.2 below gives a breakdown of HRP by their relationship to the young person, either mother, father or other adult. We can see that the HRP is the father in 61% of cases and the mother in around 38% of cases. However this varies quite substantially across ethnic groups. For example in the Black Caribbean group the mother is the HRP for almost three-quarters of pupils, whereas for Indian, Pakistani and Bangladeshi groups the father is the HRP for three-quarters of pupils. This reflects the relative frequency of single parent households which is greatest among Black Caribbean and lowest among Asian groups, as discussed Section 2 of the report.

Table 1.2 - Relationship of Household Reference Person (HRP) to Young Person by ethnic group

Ethnic group		HRPs relation to YP			
		Mother	Father	Other adult	unweight-ed n
White British	Count	3639	6358	52	10049
	%	*36.2%*	*63.3%*	*.5%*	*100%*
Mixed heritage	Count	454	334	5	793
	%	*57.3%*	*42.1%*	*.6%*	*100%*
Indian	Count	255	704	3	962
	%	*26.5%*	*73.2%*	*.3%*	*100%*
Pakistani	Count	227	670	8	905
	%	*25.1%*	*74.0%*	*.9%*	*100%*
Bangladeshi	Count	170	514	11	695
	%	*24.5%*	*74.0%*	*1.6%*	*100%*
Black Caribbean	Count	394	154	12	560
	%	*70.4%*	*27.5%*	*2.1%*	*100%*
Black African	Count	375	203	27	605
	%	*62.0%*	*33.6%*	*4.5%*	*100%*
Any other group	Count	260	396	10	666
	%	*39.0%*	*59.5%*	*1.5%*	*100%*
Total	Count	5774	9333	128	15235
	%	*37.9%*	*61.3%*	*.8%*	*100%*

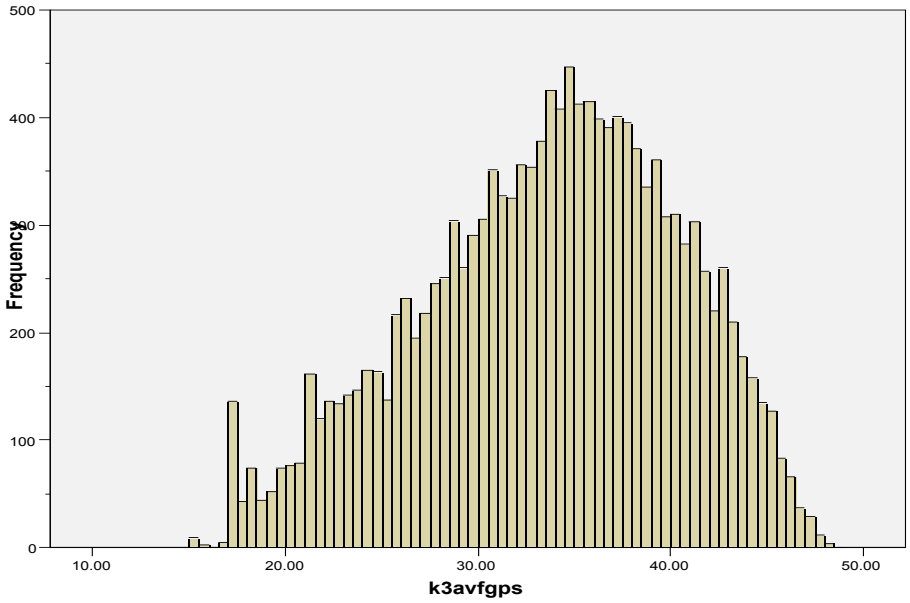
Note: Father/Mother includes natural, step, foster or adoptive father/mother.

Because of these differences there is no consistent rule for choosing the mother, the father or the HRP as the source for data on social class or educational qualification; it depends upon the particular variable under consideration. Specific examples will be highlighted during the report.

APPENDIX 2 - Key Stage 2 and 3 differentiated levels

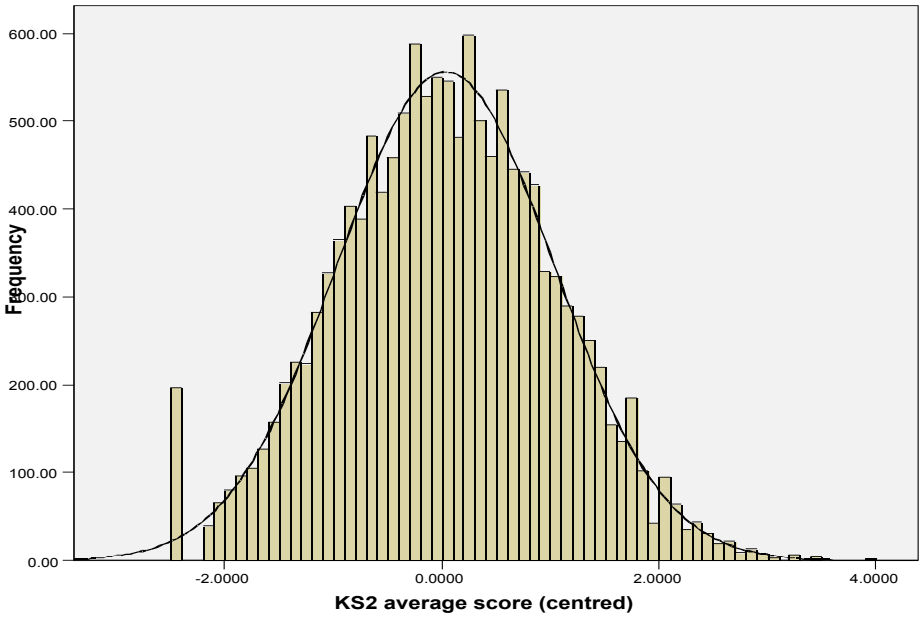
Test marks obtained by each pupil, and the tiers to which they were entered, were used to generate 'fine grained' test levels on a decimal scale. These fine grained levels were then converted to points scores to give differentiated outcome measures. This process was repeated for each test (English, mathematics and science) to give fine grained point scores for each subject. The KS3 average points score was then calculated as the average of the three subject scores. Figure 2.1 below shows the histogram of KS3 average points score to illustrate the degree of differentiation in the resulting scores.

Figure 2.1 - Key Stage 3 average points score



A differentiated measure of attainment at KS2 was also derived from total test marks. Total test marks across all three tests were calculated and then subject to a normal score transformation so the average test mark is represented by zero with SD of 1. The histogram is shown in Figure 2.2.

Figure 2.2 - KS2 average test marks



The coefficient for the normalised variable is easy to interpret in SD terms. The coefficient multiplied by two will represent the difference between a pupil scoring one SD below the national average KS2 total marks, and a pupil scoring one SD above the national average KS2 total marks. See Strand (2004) for further details.

'TGAT' months

Point scores have little meaning outside the field of educational measurement. However, the original Task Group on Assessment and Testing (TGAT) report (DES, 1987) suggested that the assumption should be that the average pupil would progress through a National Curriculum level in two years. We can therefore see a level as representing 24 TGAT months. The Autumn Package divides a level into 6 point scores. Therefore each point score represents 24/6 or four months of progress. Sometimes results in this report are also reported in "TGAT months" to give a clearer indication of the size of the effects.

APPENDIX 3 - Attitude to school and lessons by ethnic group

	Question	White British	Mixed heritage	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Any other group	Group Total
1	I am happy when I am at school	87%	87%	96%	93%	94%	87%	91%	90%	88%
2	School is a waste of time for me*	7%	6%	3%	5%	5%	6%	5%	6%	6%
4	Most of the time I don't want to go to school*	33%	33%	18%	25%	26%	33%	23%	28%	31%
6	On the whole I like being at school	85%	87%	95%	94%	94%	88%	93%	91%	87%
7	I work as hard as I can in school	82%	79%	92%	92%	92%	81%	90%	88%	84%
8	In a lesson, I often count the minutes till it ends*	53%	56%	42%	39%	45%	56%	48%	48%	51%
9	I am bored in lessons*	45%	46%	28%	28%	34%	40%	30%	40%	42%
10	The work I do in lessons is a waste of time*	10%	10%	4%	6%	7%	7%	6%	6%	9%
11	The work I do in lessons is interesting to me	80%	81%	89%	92%	88%	83%	89%	86%	82%

Table shows percentage who strongly agree/agree with the statement.

Notes: Q3 (school work is worth doing) was not include in the attitude to school scale because there was little variance in the responses (94% agreed) and the omission did not reduce Cronbach's alpha. Q5 (people think my school is a good school) was not included in the scale because it didn't bear directly on the pupils' own attitude to their school or lessons.

APPENDIX 4 - Proportional Odds model for KS3 mathematics tier of entry

	Parameter	B	SE	t	df	Sig.
Threshold	Tier 6-8	-11.96	0.24	-49.57	589	0.000
	Tier 5-7	-8.82	0.23	-38.97	589	0.000
	Tier 4-6	-5.05	0.21	-24.27	589	0.000
Ethnic group	Mixed heritage	-0.25	0.10	-2.43	589	0.016
	Indian	-0.37	0.09	-4.11	589	0.000
	Pakistani	-0.19	0.11	-1.74	589	0.082
	Bangladeshi	-0.22	0.11	-1.91	589	0.057
	Black Caribbean	0.45	0.13	3.54	589	0.000
	Black African	-0.23	0.11	-2.08	589	0.038
	Any other ethnic group	-0.45	0.11	-4.01	589	0.000
	White British	(a)	.	.	.	.
KS2	KS2 maths test marks	-0.13	0.00	-63.44	589	0.000
gender	Boy	0.17	0.04	4.33	589	0.000
	Girl	(a)	.	.	.	.
Social Class	Missing	-0.26	0.11	-2.49	589	0.013
	Higher managerial & professional	-0.51	0.11	-4.49	589	0.000
	Lower managerial & professional	-0.37	0.11	-3.36	589	0.001
	Intermediate	-0.32	0.12	-2.79	589	0.006
	Small employers & own account	-0.37	0.11	-3.27	589	0.001
	Lower supervisory & tech.	-0.14	0.11	-1.25	589	0.212
	Semi-routine	-0.25	0.11	-2.23	589	0.026
	Routine	-0.04	0.11	-0.41	589	0.685
	Long term unemployed	(a)	.	.	.	.
Mothers	Missing	0.01	0.09	0.14	589	0.887
Educational Quals.	Degree or equivalent	-0.59	0.07	-8.19	589	0.000
	HE below degree level	-0.29	0.07	-4.13	589	0.000
	GCE A Level or equiv	-0.23	0.07	-3.48	589	0.001
	GCSE grades A-C or equiv	-0.16	0.05	-2.95	589	0.003
	Other qualifications	-0.20	0.07	-2.78	589	0.006
	No qualifications	(a)	.	.	.	.
Parental Aspiration	Not continue in FTE	0.33	0.05	6.57	589	0.000
	Continue in FTE post 16	(a)	.	.	.	.
Parental Supervision	Does not know	0.17	0.05	3.20	589	0.001
	Always knows where child is when out	(a)	.	.	.	.
Computer	No home computer	0.24	0.06	3.96	589	0.000
	Has home computer	(a)	.	.	.	.
Private Tuition	No	0.13	0.05	2.52	589	0.012
	Yes	(a)	.	.	.	.
Spec. Educ. Needs	Missing	0.22	0.48	0.47	589	0.638
	SAP or Statemented	0.62	0.10	6.12	589	0.000
	Not SAP or statemented	(a)	.	.	.	.
Absent	Missing	0.22	0.18	1.22	589	0.223
	Absent >1 month in last year	0.23	0.10	2.32	589	0.021
	Not absent	(a)	.	.	.	.

	Parameter	B	SE	t	df	Sig.
Police	Missing	0.28	0.29	0.97	589	0.332
	Behaviour led to police involvement	0.38	0.08	4.91	589	0.000
	No	(a)	.	.	.	.
Exclude	Missing	-0.41	0.36	-1.16	589	0.246
	Fixed/Permanent exclusion	0.43	0.07	6.20	589	0.000
	No exclusion	(a)	.	.	.	.
Pupil Aspiration	Not continue in FTE post 16	0.18	0.05	3.64	589	0.000
	Continue in FTE post 16	(a)	.	.	.	.
Homework evenings per week	Missing	0.23	0.13	1.79	589	0.075
	1 day	0.13	0.12	1.10	589	0.272
	2 days	0.02	0.11	0.21	589	0.832
	3 days	-0.13	0.11	-1.16	589	0.247
	4 days	-0.37	0.12	-3.04	589	0.002
	5 days	-0.37	0.12	-3.09	589	0.002
	None	(a)	.	.	.	.
Academic self concept	ASC missing	-0.46	0.09	-4.97	589	0.000
	ASC very high	-1.28	0.08	-16.27	589	0.000
	ASC high	-0.77	0.07	-10.43	589	0.000
	ASC low	-0.38	0.07	-5.58	589	0.000
	ASC very low	(a)	.	.	.	.
School deprivation (% entitled to FSM)	35%+	0.61	0.13	4.83	589	0.000
	21%-35%	0.62	0.12	5.04	589	0.000
	13%-21%	0.55	0.12	4.76	589	0.000
	9%-13%	0.49	0.11	4.41	589	0.000
	5%- 9%	0.27	0.11	2.42	589	0.016
	<5%	(a)	.	.	.	.
neighbourhood deprivation	IDACI (normalised)	0.06	0.03	2.46	589	0.014

Dependent Variable: k3matier (Descending). Link function: Logit. (a) Set to zero because this parameter is redundant.

Tests of Model Effects

Source		df1	df2	Wald F	Sig.
ethnic3	Ethnic group	7	583	7.6	0.000
k2ma	KS2 maths test marks	1	589	4024.4	0.000
sex2	Gender	1	589	18.7	0.000
famsec2	Social Class	8	582	6.4	0.000
hiquamum2	Mothers Educational qualifications	6	584	13.0	0.000
parasp5	Parental Aspirations	1	589	43.2	0.000
par1	Parental supervision	1	589	10.2	0.001
computer	Home computer	1	589	15.7	0.000
tuition	Private tuition	1	589	6.4	0.012
SENSAP	SEN (SAP or statemented)	2	588	18.8	0.000
absent	Absence >1 month in last year	2	588	3.3	0.039
police	Beh. led to police involvement	2	588	12.9	0.000
exclude	Permanent/fixed term exclusion	2	588	20.6	0.000
SA1	Pupil aspirations	1	589	13.3	0.000
Homework	No. evenings a week homework	6	584	14.5	0.000
asc2	Academic self concept	4	586	93.3	0.000
FSMband	School deprivation (%FSM)	5	585	7.7	0.000
IDACI_n	Neighbourhood depriv. (normlised)	1	589	6.1	0.014

A comment on the DfES analysis of high attaining pupils, released 20th June 2007

A recent analysis by the DfES of the 2006 KS3 national data (DfES, 2007b) appears to indicate that Black Caribbean pupils are not under-represented relative to White British pupils in entry to the highest 68 tier of the KS3 mathematics test when prior attainment and neighbourhood deprivation (IDACI) are included in statistical models. However the report can mistakenly give the impression that the low prior attainment of Black Caribbean pupils accounts for any under-representation. DfES analysis of a model that includes just prior attainment and ethnicity variables showed that Black Caribbean pupils are under-represented relative to White British pupils in the ratio 0.69:1 (personal communication with DfES) This confirms the analysis presented in the current report (Table 42, column 2) showing that Black Caribbean pupils are less likely to be entered for the higher tiers than White British pupils with the same KS2 score. What changes the outcome in the DfES analysis is the inclusion of the IDACI variable. However there are at least three limitations to the DfES model in this regard.

First, and most fundamentally, IDACI is an area based measure of deprivation not a direct measure of the individual pupil or their family circumstances. Area based measures require an inference that aggregate data for an area (there are approximately 1,500 individuals per small output area) is applicable for all families/individuals residing in that area. This assumption can be problematic and it is always preferable to have direct measures of actual family or individual circumstances. LSYPE has very good measures of the family's socio-economic status (social class, maternal education, rented/owned accommodation, FSM, single parent households) and a wealth of data on the individual pupils' attitudes, self esteem, homework completion, educational risk etc. The analysis of the LYPSE data presented in this report shows that when direct measures of family circumstances are used, as well as IDACI, Black Caribbean pupils are under-represented in the higher tiers. Thus the DfES results are not replicated when better data on actual family circumstances are available.

Second if IDACI is the only socio-economic variable available, as is the case for the national data, then the analysis should allow for an interaction between ethnicity and IDACI. An analysis of the LSYPE data including only prior attainment and IDACI showed that White British and Black Caribbean pupils in disadvantaged areas did not differ greatly in their likelihood of entry to the higher tiers, but that White British and Black Caribbean pupils in non-disadvantaged areas differed substantially. Not including the interaction term may

underestimate the extent to which Black Caribbean pupils in advantaged areas are under-represented relative to White British pupils.
Third, the DfES report uses a binary logistic regression to model only entry to the highest (6-8) maths tier, treating tiers 3-5, 4-6 and 5-7 as a single homogenous category. This model is congruent with the specific focus of the DfES report on the highest attaining pupils. However for exploring the issue of tiering more generally the model entails the assumption that White British and Black Caribbean pupils do not differ in their relative distributions across tiers 3-5, 4-6 and 5-7, which we have seen is not the case (see Table 41). Again this may underestimate the extent of the Black Caribbean under-representation.

In conclusion, the DfES results do not contradict the conclusion of the current report that a focus on in-school factors is necessary to account for the under-representation of Black Caribbean pupils in the higher test tiers and for the significantly poorer progress of Black Caribbean pupils relative to White British pupils during KS3. However the DfES analysis does suggest there may be changes in the extent to which Black Caribbean pupils are under-represented between 2004 and 2006, with Black Caribbean pupils being less likely to be under-represented in 2006. This issue requires further research using the national data.

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