

Econometric Analysis of the Demand for Higher Education

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This report has been revised due to the descriptive statistics in the original report not being weighted. As the YCS aims to be a nationally representative survey, not using weights can give a misleading picture of national attainment and progression.

However it is important to note that the econometric analysis and the substantive conclusions of the report remain unchanged.

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Summary Of Findings

In the U.K. there has been a massive expansion in student numbers in higher education. An increasing proportion of young people go to university. It is established that educational attainment is central to entry to higher education. The overall focus of this research is to identify which factors, net of educational attainment, influence young people's entry to higher education.

This project is based on an analysis of the Youth Cohort Study of England and Wales (YCS). The YCS is a major programme of longitudinal research and is designed to monitor the behaviour and decisions of young people as they reach minimum school leaving age and either stay on in education or enter the labour market. The survey collects information on the young person's experiences of education, training and work as well as information on their aspirations, their family and their personal circumstances. This project analyses data from Cohort 9 of the YCS.

- * YCS Cohort 9 surveyed young people eligible to leave school in 1997.
- * In YCS Cohort 9 there were 6,304 young people present in Sweeps 1 – 3.
- * Twenty two percent of young people (1,378) were studying for a degree by Sweep 3 (year 2000).
- * Forty percent of young people (2,494) were undertaking A'Levels in Sweep 1 of the survey. We term this as the 'A'Level Route' in this analysis.
- * Despite changes in the secondary school curriculum and changes to qualifications in school and further education the A'Level Route is still the main highway to degree level higher education.
- * Fifty percent of A'Level Route pupils (1,258) were studying for a degree by Sweep 3 (year 2000).
- * A'Level attainment is central to the transition to degree level higher education.

- * Educational attainment in Year 11 is also important. Young people with more GCSE passes are more likely to go on to degree level higher education.
- * A variety of explanatory variables were analysed. These included gender, family social class, ethnicity, disability and health problems, Year 11 school information, family housing tenure, region of residence (Government Offices), and measures related to family structure and composition, marital status, parental education and parental employment. Net of Year 11 and A'Level attainment a number of other factors are significant.
- * Ethnicity overall is not significant – however two groups (young people of Indian origin and young people of Chinese origin) have higher levels of participation in degree level higher education, all other things being equal.
- * Housing tenure is significant. The YCS does not include a direct measure of family income or family wealth. Housing tenure can be considered as a proxy measure of family wealth. Young people whose parents do not own their own homes are less likely to enter higher education, all other things being equal.
- * Regional effects are also significant. Young people living in the West Midlands, Eastern region, London, the South East and the South West, all have lower probabilities of entering higher education, all other things being equal. The YCS does not contain detailed geographical information. The regional areas are based on Government Offices and are generally large geographical areas. Therefore we do not place too much emphasis on these particular results but are aware that there are differential rates of entry to higher education at the level of these broad geographical areas.
- * Parental education is also significant. Young people with graduate parents are more likely to enter degree level higher education.

Structure Of The Report

The report begins on page 8 and is organised in the following fashion. We are aware that this report is for a general audience and have limited the technical statistical details included in the main body of the report. There are a series of appendices in which technical and statistical details are provided. A list of tables and figures is provided on page 866.

Chapter 1 provides a general introduction to the issue of entry to higher education and a discussion of earlier research in this area. The research question is presented and there is a section on youth transitions in the U.K.

Chapter 2 introduces the Youth Cohort Study of England and Wales and the data analysed in this project.

Chapter 3 outlines the statistical modelling procedures that are employed in the research. This chapter also describes how the results are presented in the report and comments on how various measures should be interpreted.

Chapter 4 reports a series of general results from exploratory analyses. Information on qualifications and schools are presented as well as data on gender, social class and ethnicity and a range of other factors.

Chapter 5 reports the statistical modelling results related to entry into degree level higher education. The first part of the chapter focuses on pupils who have studied for A'Levels. The second part of the chapter focuses on all pupils. Some descriptive illustrative examples are provided on page 43.

Chapter 6 contains additional analyses of entry to higher education. A series of alternative statistical models are explored and compared.

Chapter 7 reports some cursory analysis of entry into the A'Level Route. This material provides information about an early stage in the process of entry to higher education.

Chapter 8 sketches out some areas for future research. It outlines some more complex modelling procedures, which may be employed in future research.

Chapter 9 discusses the scope and the limitations of YCS data.

Chapter 10 provides general conclusions and specific conclusions regarding the effects of gender, social class, ethnicity and other factors are provided.

Chapter 1 Introduction

Higher Education in the U.K. has undergone a ‘quiet revolution’ (Daniel 1993), the most remarkable aspect being the expansion of student numbers and young peoples’ increased participation (Paterson 1992; Tinklin and Raffe 1999). Figures for 2000/01 show that in this academic year there were a total of 2,231,860 enrolments on courses leading to higher education qualifications and credits. There were just under a million full-time students studying first degrees in the U.K. UCAS reported that 249,590 of the 357,085 first degree entrants in 2000/01 were known to be aged under 21 (UCAS Press Release PR60, Thursday 26 September 2002).

The *National Committee of Enquiry into Higher Education* (Dearing 1997) highlighted the existence of unequal rates of participation in higher education by some groups within society. The Green Paper *The Learning Age - A renaissance for a new Britain*, directly addresses the issue of opening up access to higher education. The government states that their priority is to reach out and include those from groups that have been under-represented in higher education. These include young people from semi-skilled or unskilled family backgrounds and certain minority ethnic groups.

The government has put the subject of inequality of access on the education agenda suggesting that there is a need to identify the reasons that lead some young people not to enter higher education (see especially Section 4.31 of the Green Paper). Also, within the wider context of tackling social exclusion the government has raised concerns about inequalities within education and higher education. The government

propose to tackle social exclusion through increasing levels of participation in education and training.

The Department for Education and Skills is committed to working towards wider participation in higher education and expanding provision in order to create opportunities.¹ The recent White Paper, *The Future of Higher Education* proposes a wide range of reform to higher education. This research will provide some detailed empirical insights into two related issues raised in the white paper. These are the expansion of higher education and increasing participation,² and fair access³.

In brief, the White Paper states that the expansion of higher education has not yet extended to the talented and best from all backgrounds. There is a concern that in Britain today too many young people from less advantaged families still see a university place as being beyond their reach, whatever their ability. The White Paper explicitly states that the social class gap among those entering university remains too wide. It is argued that national economic imperatives support the government's target to increase participation in higher education towards 50 per cent of those aged 18–30 by the end of the decade. This is linked to the government's wider aim to prepare 90 per cent of young people for higher education or skilled employment. It is estimated that at the current time participation in England has already reached 43%, therefore the additional increase required is relatively modest. However, the government recognises that there are uneven patterns of participation in higher education and that

¹ See *Widening participation in Higher Education in England*, Report by the Controller and Auditor General, HC485 Session 2001-2002: 18th January 2002.

² See Chapter 5 of the White Paper.

³ See Chapter 6 of the White Paper.

there are still significant barriers preventing young people from non-traditional backgrounds, and those from some minority ethnic groups going to university.⁴

The government's underlying philosophy is that education must be a force for opportunity and social justice, not for the entrenchment of privilege. The government suggest that the opportunities that higher education brings should be available to all those who have the potential to benefit from them, regardless of their background. This should be achieved through working actively to make sure that potential is recognised and fostered wherever it is found and by tackling active discrimination. The White Paper asserts that there is no simple means of achieving wider access. Success in opening up higher education to all who have the potential to benefit from it will depend on building both attainment and aspirations throughout all stages of the education system.

Entry to Higher Education

The analysis of differential rates of access to higher education has a long history (see for example Rudd 1976, 1987a and 1987b; Halsey, Heath and Ridge 1980; Moore 1983; Royal Statistical Society 1985; Redpath and Harvey 1987; Burnhill *et al* 1988 and 1990; Blackburn and Jarman 1993; Cheng and Heath 1993; Eggerton and Halsey 1993; Halsey 1993; Modood 1993; Paterson 1993 and 1997; Batey and Brown 1997; Metcalf 1997; Parry 1997; Savage and Egerton 1997; Raab 1998; Connor *et al* 2001; National Audit Office 2002; Forsyth and Furlong 2003). Anyone surveying the literature in this area will become aware of its muddled nature. This is partly due to

⁴ Recent evidence tentatively (given uncertainty over the reliability of population estimates) suggests that no minority ethnic group is under-represented in higher education. However, minority ethnic students still appear to be under-represented in certain types of institution and in certain subjects (Connor *et al* 2003).

the different focus of these research projects. Some studies are primarily concerned with the analysis of the education system, whereas others focus on young people and higher education, upon class analysis and social mobility, or address issues of planning and social policy. Whilst the existing studies document useful results, the disparate nature of the sources of data that are analysed and the methodologies that are employed mean that comparisons are problematic.

Overall the literature on access to higher education sends the message that there is social inequality. Breen and Goldthorpe (1997) argue that the wealth of sociological evidence seems to suggest that a series of empirical generalisations can readily be made and constitute *explananda*. Young people of less advantaged social backgrounds have not increased their levels of participation in more ambitious educational options thus closing the gap with their more advantaged counterparts.

Youth Transitions in the U.K.

Entry to degree level higher education is one transition, or choice, that is open to young people. We argue that in addition to recognising the effects of expansion in higher education it is also important to have an awareness of the wider context of the range of options open to young people. We also contend that an awareness of the recent changes to the circumstance against which young people make choices and transitions is also important.

‘Youth transitions’ is a key theme that runs through the sociology of youth literature. Much contemporary research has been bound up with what is colloquially termed as

‘the school to work transition’ (see Hollands 1990; MacDonald, Banks and Hollands 1993; Irwin 1995; Gayle 1998). The claim that ‘school to work’ transitions have been radically restructured, in Britain at least, in the late part of the twentieth century is really not in dispute. Throughout the 1980s and 1990s numerous writers have described how young people, differentiated by social class, gender and ethnicity, follow different paths during the teenage years after they leave school (MacDonald 1999).

Accounts within the sociology of youth have stressed how individual young people’s pathways have been transformed over the past twenty years as a result of the collapse in the youth labour market (Maguire and Maguire 1997). In the last two decades the sharp decline in the number of apprenticeships and suitable jobs for young people led to a number of policy interventions. The most notable of these policy interventions was the introduction of widespread youth training provisions and the expansion of further education (Roberts 1995). Simultaneously, a number of reforms to the welfare system have changed young people’s entitlement to state benefits (Dean 1997).

The central message of the contemporary youth transitions literature is that there are complex social processes underpinning young people’s transitions out of education. The general message that is put forward is that changes in the economy as well as social and economic policy during the 1980s have protracted the process of young people’s move out of education. As Craine (1997) pointed out, sociologists have deployed a series of adjectives such as ‘long’, ‘broken’, ‘fractured’ and ‘uneasy’, in order to capture the changes, which have occurred in youth transitions.

As Irwin (1995) suggested it is now considered that the ‘normal’ school to work transition that characterised the ‘traditional’ rite of passage from youth to adult status has been disrupted. In Britain the school leaving age was raised to 16 in the early 1970s. Over the last three decades it has become increasingly common for young people to remain in education after the compulsory period.

Banks *et al.* (1992) stated that there are now wide variations in the rates of young people of various social backgrounds making an early transition out of education. There was always a minority of young people who remained in education for long periods before entering the labour market but, by the late 1980s, only a minority made an early transition straight from school to work. Further, they argued that the choices that young people make are not made in isolation; the young person is subject to ‘structural’ influences stemming from the social and cultural groups to which he or she belongs. Therefore social class, gender and ethnicity will play a part in shaping aspirations.

We consider that young people’s demand for, and entry to, higher education will be located within the spectrum of choices available to them as they reach the end of compulsory education. We believe that changes in the labour market in general and the youth labour market in particular, coupled with changes in training, the benefits system and education more generally all help to paint the backdrop against which young people make choices. We consider that an awareness of the wider context in which young people make choices and transition is important when investigating young people’s demand and take-up of higher education.

Earlier Research

Our earlier research has analysed data from Cohort 3 of the Youth Cohort Study of England and Wales⁵ (YCS) (see Gayle, Berridge, and Davies 2000; 2002). The overall motivation for our earlier analysis was that the government had recently raised the issue of differential rates of participation in higher education. The overall aim of Gayle, Berridge and Davies (2002) was to present an example of the kind of detailed research necessary to identify factors associated with low rates of participation in higher education by some groups of young people.

A number of studies had suggested that in addition to educational attainment, factors such as social class, gender and parental education also influence a young person's likelihood of entering higher education. In this paper we undertook exploratory analysis of YCS data and through statistical modelling we then identified the factors that influenced a young person's chances of entry into higher education and participating on a degree level course. We found that net of educational attainment a number of factors (e.g. gender and social background variables) influence the likelihood of a young person entering higher education and participating on a degree level course. In addition our analysis highlights the interwoven effects of parental education and schooling and we discuss the effects of ethnicity.

In Gayle, Berridge and Davies (2000), we extend the methodology and exploit the longitudinal aspects of the YCS data. We report that, net of individual attainment, a series of individual and family related factors influence young people's participation in post-compulsory education and their entry into higher education. The analysis

⁵ See Data section (page 3) below for a description of the YCS.

revealed a number of important findings, for example, young women are more likely to stay in education, but having remained in education are less likely to enter higher education. In terms of entry into higher education there is also an important interaction between parental education and the type of school that the young person attended. Young people with graduate parents had increased odds of entering higher education, as did young people who attended an Independent school. Young people who had graduate parents and attended an Independent school had increased odds of entering higher education but this was not equivalent to the sum of the individual positive effects of these two factors.⁶

The Research Question

It is established that educational attainment is central to entry to higher education. The overall focus of this research is to identify which factors, net of educational attainment, influence young people's entry to higher education. In this project we update our earlier research by using a more recent cohort of YCS data. We attempt to draw on the insights of our two previous papers. To extend the analysis we also exploit the improved measures now included in the YCS (e.g. A'Level point scores). We also endeavour to better represent educational attainment.

In the main part of the analysis we focus on pupils who are studying for A'Levels and we term this as the A'Level Route. There have been changes in the school curriculum, changes in the structure of qualifications, new qualifications have been introduced and higher education entry requirements have become more inclusive. Furlong and Cartmel (1997) use a transportation metaphor to describe youth transitions. Following

⁶ For a fuller explanation see Gayle, Berridge and Davies (2002) p.14-15.

on from this, we argue that despite the changes noted above, the A'Level Route is still the main highway for young people to enter higher education.

In this analysis we explore entry to higher education and define this term as entry to 'degree level' higher education. We also undertake some analysis of entry to all forms of university-based higher education this includes non-degree level courses (see Annex 3). In the analysis in Annex 3 we employ the term 'entry to university' rather than entry to 'higher education' in order to avoid confusion.

Chapter 2 Data

The Youth Cohort Study of England and Wales (YCS) is a major programme of longitudinal research. It is designed to monitor the behaviour and decisions of young people as they reach minimum school leaving age and either stay on in education or enter the labour market. The survey collects information on the young person's experiences of education, training and work as well as information on their aspirations, their family and their personal circumstances.

The study contacts a sample of an academic year group or "cohort" in the spring following completion of compulsory education. The sample is designed to be representative of all Year 11 pupils in England and Wales (excluding those in special schools). The initial sample of young people is obtained through schools. They are asked to provide names and addresses of young people who have birthdays on particular days of the month. The final sample is selected at random from the sampling frame generated by the schools.

The analysis is based on newly available data from YCS cohort 9. This cohort of young people comprised pupils that were eligible to leave school in 1997. Each survey is known as a "Sweep". Consistent with the general YCS protocol, they were surveyed in the following spring (Sweep1) and twice again at one year intervals (i.e. Sweep 2, 1999; Sweep 3, 2000). An additional sweep of data was also collected in the autumn of year 2000 (Sweep 4). In YCS Cohort 9 there were 6,304 young people present in sweeps 1 – 3.

This research concentrates on the data collected in Sweeps 1-3. This is the period from age 16 to age 19. As Banks *et al.* (1992) stated, this period is when past experience and achievements in education and in social life are consolidated and crucial choices about future directions are made.

Chapter 3 Modelling

A statistical modelling approach is essential because we are dealing with survey (i.e. observational) data rather than experimental data where clear comparisons between control and experimental (or treatment) groups can be established. Compared to experimental designs, in observational studies much less of the burden of control rests in the study design and it is unlikely that simpler analyses (e.g. bivariate) will be sufficient. Summary statistics and some bivariate analyses are useful for describing patterns within the data. However, it is theoretically implausible that an event like entry to higher education will only be affected by a single explanatory variable. Therefore it is imperative that more comprehensive analyses, which include a range of explanatory variables are undertaken.

Standard statistical modelling techniques (or more precisely a generalized linear modelling approach) were used in this project. Our strategy for statistical modelling is described in Figure 1. We commence by undertaking more rudimentary analysis and then move on to more comprehensive analysis and estimate (or fit) statistical models with a number of explanatory variables.⁷

We are aware that this report is for a general audience. We have necessarily limited the technical statistical details included in the main body of the report. However, we have provided more details in a series of appendices should these be required. In the main text we report on the significance of explanatory factors (variables) in terms of their relationship with an outcome (e.g. entry to degree level higher education). We

⁷ YCS data is weighted in order to make the sample nationally representative. Results using the weighted data are reported for the rudimentary (descriptive) analysis. The more comprehensive statistical model follow the standard practice of using unweighted sample data.

employ the term significance in an orthodox statistical manner. That is, an effect is said to be ‘significant’ if the value of the relevant statistical measure lies outside of acceptable limits (Kendall and Buckland 1971). Throughout this report we have adopted the standard 5% level of significance (i.e. $p \leq .05$). A full account of statistical significance can be found in most comprehensive introductory level texts (e.g. Blalock 1981).

The majority of the analysis is based on standard logistic regression (see Agresti and Finlay 1997). Logistic regression models are attractive because they are appropriate when dealing with binary outcomes (e.g. entry to degree level higher education; yes or no). A further attraction of these models is that we can identify significant explanatory variables and highlight their importance. An approachable introduction to logistic regression can be found in Gayle (2000).

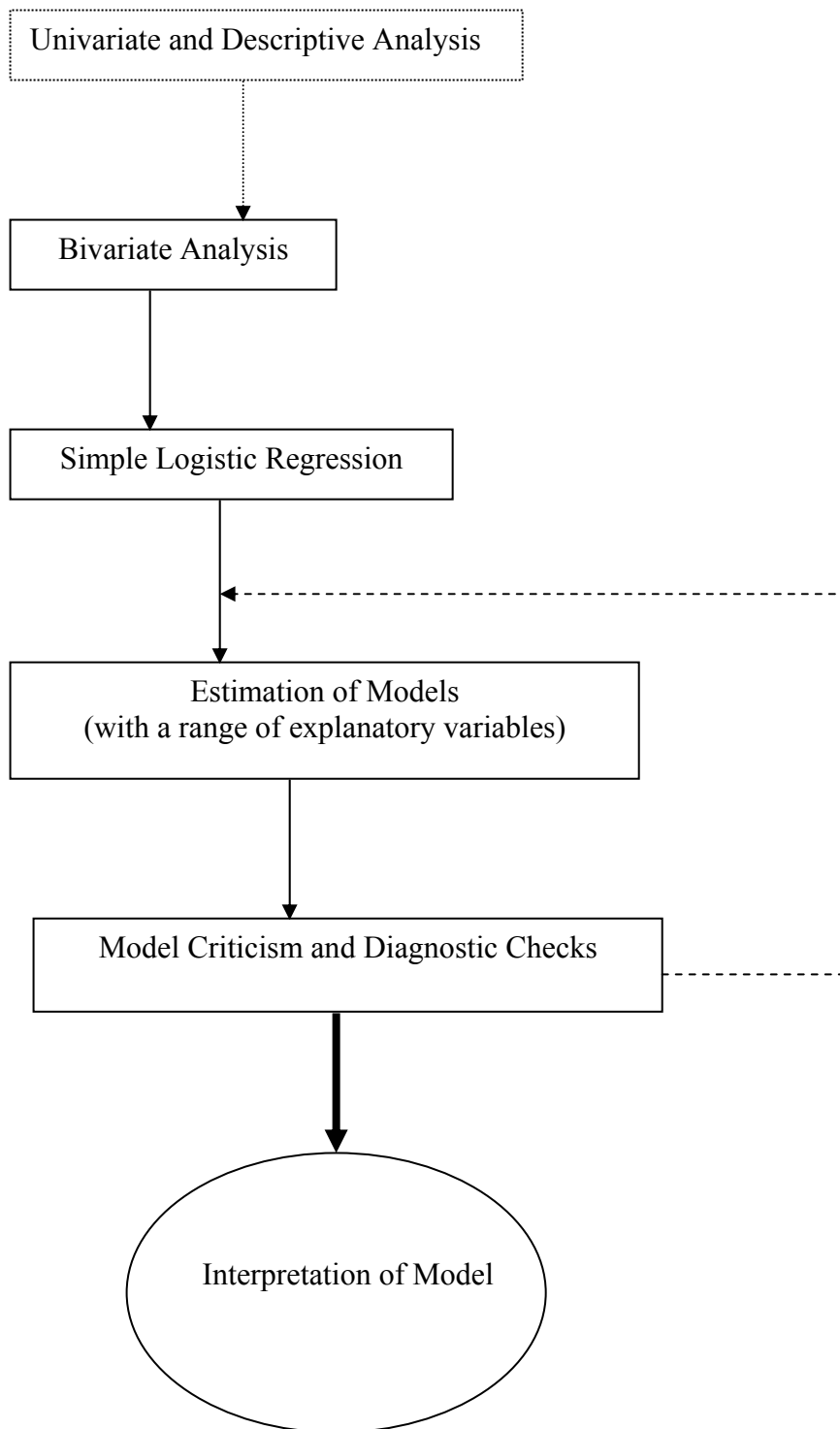
In the analyses below we report various measures relevant to the models estimated. We report the values of parameter estimates (conventionally denoted as β or beta) and the standard errors of these estimates. The parameter estimate (or ‘estimate’) is similar to the coefficient in standard linear regression. However, these measures are based on the log odds scale and are not easily interpreted.

We also report odds ratios. Odds ratios allow the reader to compare groups with a base category. For example in a model of entry to degree level higher education, if the odds ratio is greater than 1 for a particular group then they have increased odds of entering degree level higher education compared with those in the base category. If, by contrast, the odds ratio is less than 1 for a particular group then they have

decreased odds of entering degree level higher education compared with those in the base category. We will describe increases and decreases in odds. When referring to probabilities we will generally describe these in terms of chances. For example when describing a probability of $p=.74$ of entering higher education, we will generally describe this as a 74% chance of entering higher education.

We have argued elsewhere that the comparison of odds ratios can sometimes be ambiguous (see Davies 1992; Gayle and Davies 2000). We are conscious that this report is for a general rather than a technical audience. Where possible we have calculated and reported probabilities, for example the probability of a young person with certain characteristics entering degree level higher education. This approach should greatly aid the reader in understanding the effects of particular explanatory variables and allow them to compare groups more easily.

Figure 1 Statistical Modelling Process

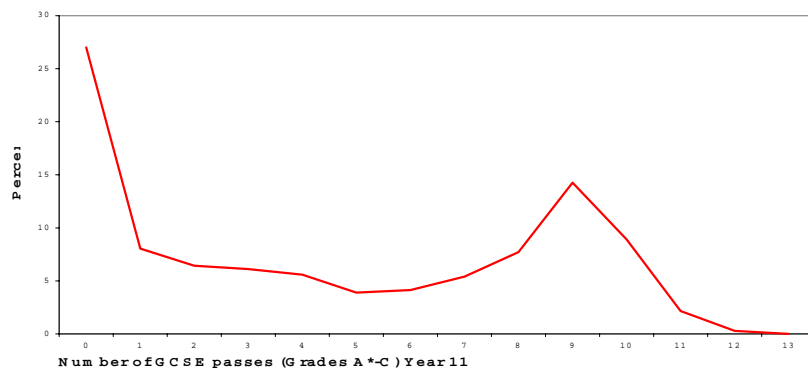


Chapter 4 Exploratory Analyses

In this chapter we present a series of results from exploratory analysis. We are keen to highlight that these results are intended to be illustrative and are reported to provide contextual information. In subsequent chapters we will present more comprehensive results.

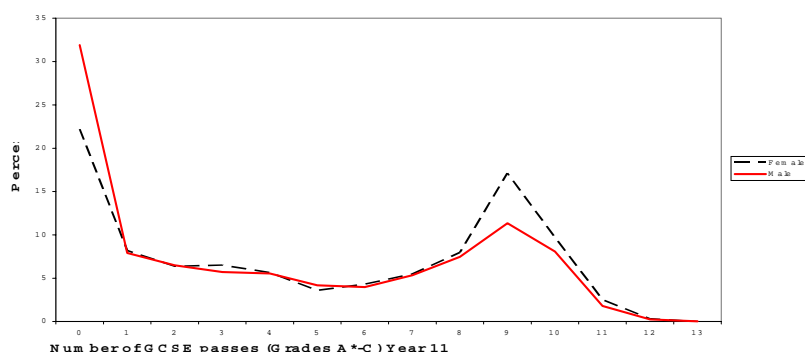
A summary of the general characteristics of the young people in the Cohort 9 sample is available in Annex 1 (see page 90). The pattern of Year 11 GCSE attainment is displayed in Figure 2. Forty seven per cent of young people achieved 5+ GCSEs at grades A*-C and twenty six per cent achieved 1 - 4 GCSE passes at grades A*-C (see Table 35).

Figure 2 Number Of GCSE Passes (Grade A* - C) Year 11



Generally, female pupils performed a little better than male pupils at GCSE in Year 11 (see Figure 3). Fewer female pupils attained no GCSE passes however the attainment gap was not particularly wide.

Figure 3 Number Of GCSE Passes (Grade A*-C) Year 11 By Gender



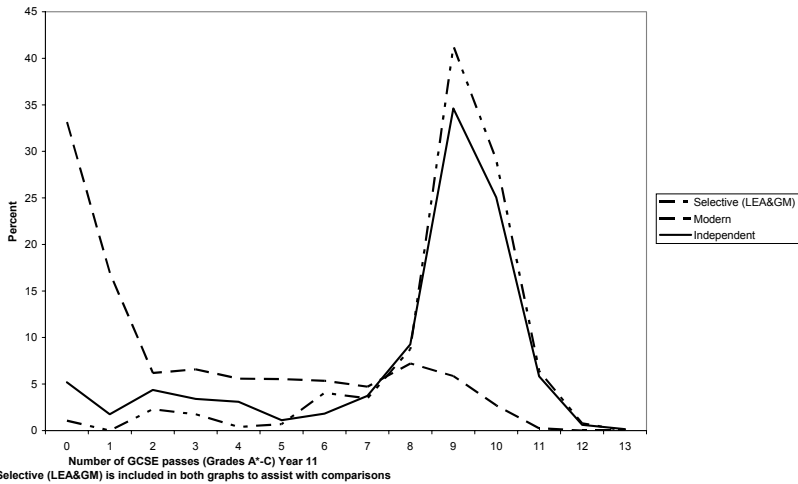
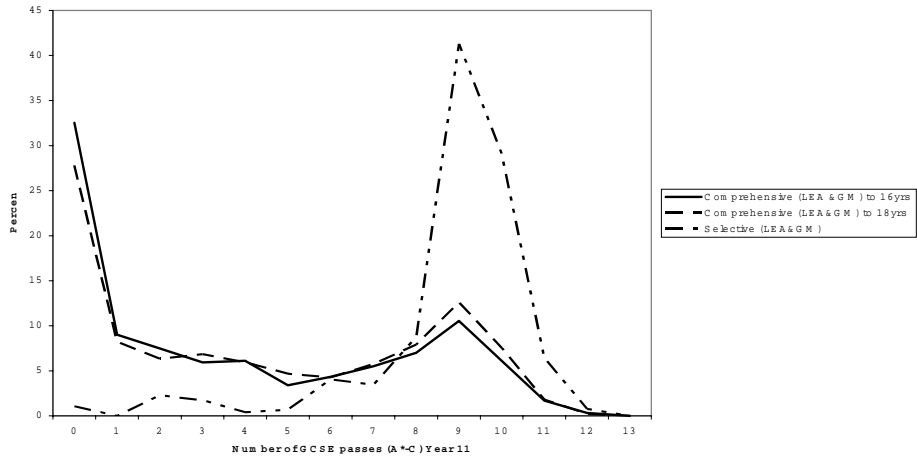
The patterns of Year 11 GCSE attainment by Year 11 school type are displayed in Figure 4. Pupils in LEA and Grant Maintained Selective schools are outperforming their counterparts in both Grant Maintained and LEA Comprehensives and in Secondary Modern schools in terms of the number of GCSEs attained.

The mean number of GCSE passes in Year 11 crosstabulated by school type is reported in Table 36. Pupils from both LEA and Grant Maintained selective schools, on average, attained more GCSE passes and were closely followed by pupils from Independent schools. On average pupils from Secondary Modern schools had the lowest number of Year 11 GCSE passes. Table 37 reports the mean number of GCSE passes in Year 11 for various groups of young people.

Figure 5 displays the pattern of A'Level attainment. Around a third of the young people had achieved at least one A'Level by Sweep 3 of the study (see Table 40). The maximum number of A'Levels achieved was six (see Table 41). Twenty three percent of young people achieved three or more A'Levels. The mean A'Level points score⁸ was 6.07.

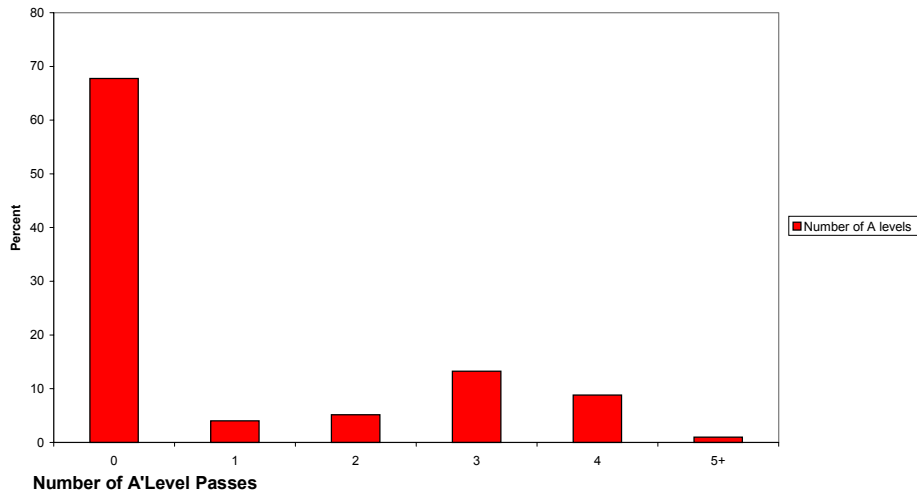
⁸ The A'Level points score is based on a scale that awards scores for grades where A=10; B=8; C=6; D=4; E=2.

Figure 4 Number Of Year 11 GCSE Passes By School Type



Selective (LEA&GM) is included in both graphs to assist with comparisons

Figure 5 Number Of A'Level Passes (all pupils)



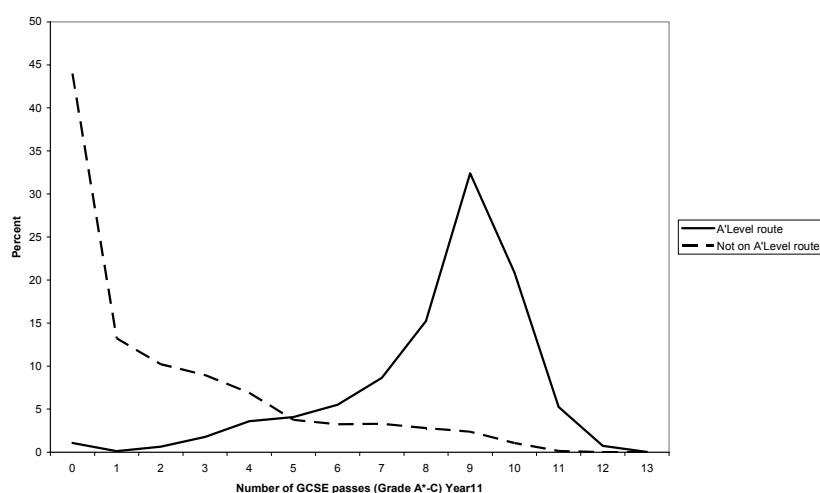
Studying For A Degree

In this section we turn our attention to young people's participation in degree level higher education in sweep 3 of the survey (i.e. age 18 /19). A similar alternative analysis of entry to higher education (university) is provided in Annex 3. These analyses are largely equivalent. There were 1,378 studying on degree level courses and 1,491 young people studying at university (for all types of qualifications) in sweep 3.

Qualifications

Educational attainment is central to individual young people's progression to higher education. Overall, GCSE attainment at the end of Year 11 significantly influences entry to degree level higher education. Ninety three percent of pupils on the A'Level Route had at least five GCSE passes (Grade A*-C). The patterns of Year 11 GCSE passes for pupils on the A'Level Route and other pupils is reported in Figure 6.

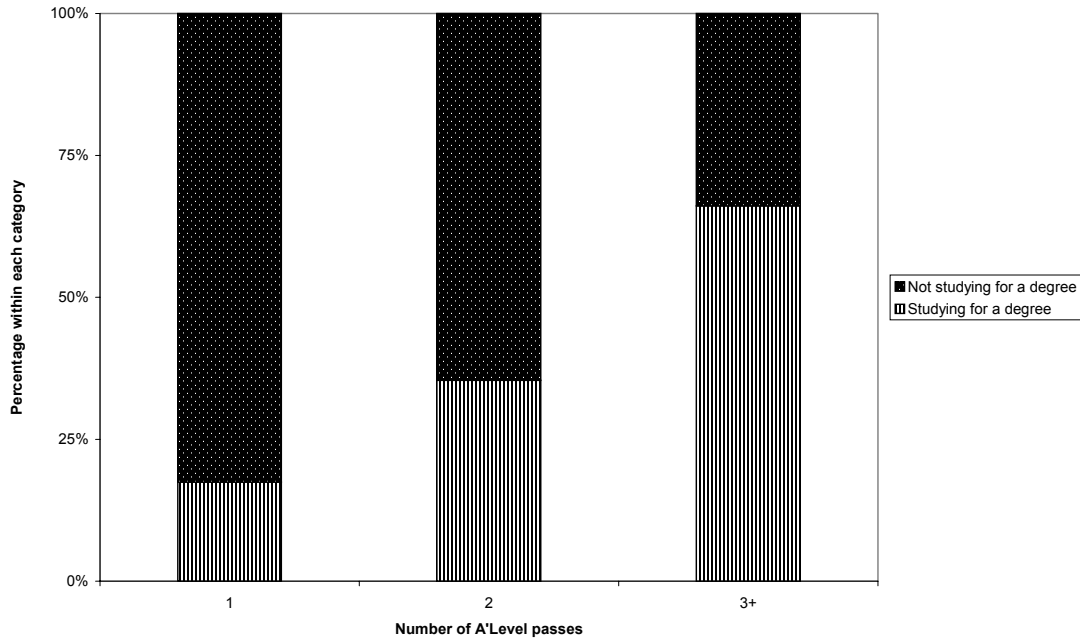
Figure 6 Number Of Year 11 GCSE Passes (Grade A* - C)



The number of A'Levels passes that a young person achieves is also significant. Sixty six percent of young people with three or more A'Levels went on to study for a

degree, whereas only 35% of young people with two A'Level passes and 19% with one A'Level pass went on to study for a degree (see Figure 7).

Figure 7 Entry To Degree Level Higher Education By Number Of A'Level Passes – A'Level Route Pupils.



A detailed analysis of the relationship between A'Level results and progression to degree level higher education is provided in Table 47. The overall mean A'Level point score for A'Level Route pupils was 14.99; the mean for those young people who went on to study for a degree was 19.58, whereas the mean for those young people who did not go on to study for a degree was 10.31. The individual's average A'Level point score (a derived measure) was also significant. The number of grade A A'Level passes was also significant. This measure is an alternative gold standard.

Schools

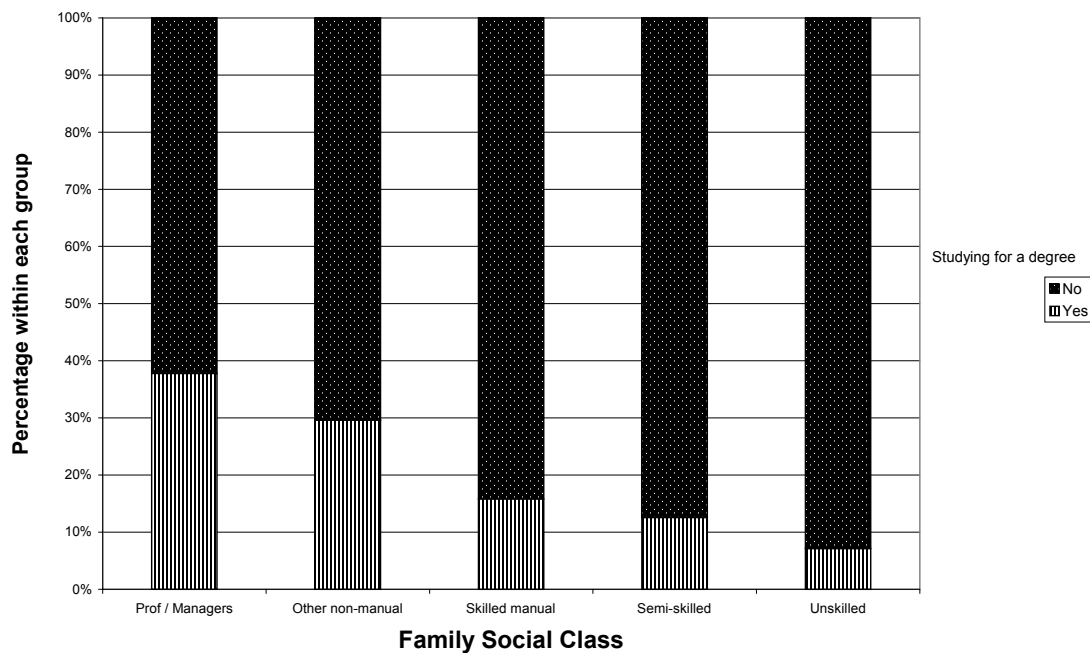
The YCS contains detailed information on the type of school that pupils attended in Year 11. Unfortunately, there is no detailed information about the type of educational institution that the young person attended after Year 11. The type of school that the

young person attended in Year 11 significantly influences their entry to degree level higher education. A higher proportion of pupils who attended an Independent school rather than a state school in Year 11 entered university (see Table 49). As we might expect the lowest proportion of pupils entering higher education were those from Secondary Modern schools. A higher proportion of pupils who attended ‘selective’ rather than ‘non-selective’ schools entered higher education (see Table 50). We are keen to highlight that this information is important but data on the type of educational establishment where the young person studies A’Levels would greatly augment this analysis.

Gender, Social Class And Ethnicity

Halsey (1993) argued that class, gender and ethnicity are now the three giants in the path of aspirations toward equality of access within education. There was not a significant difference between the proportions of young men and young women entering higher education (see Table 51). A slightly higher proportion of young women entered higher education. This is important because traditionally female participation has been lower than male participation however, since the mid-1990s the gender gap has been closing.

Figure 8 Family Social Class And Studying For A Degree



Throughout this report we use the terms ‘social class’. The measures that we employ are based on the socio-economic group variables measured in the YCS⁹. This approximates to the Registrar General’s Classification schema. We have continued to use this measure and the term ‘social class’ because it is widely understood and consistent with our previous research in this area.

⁹ Derived from variables (pseg1 – pseg7) included in the YCS 9.

There is a significant relationship between family social class and entry to higher education.

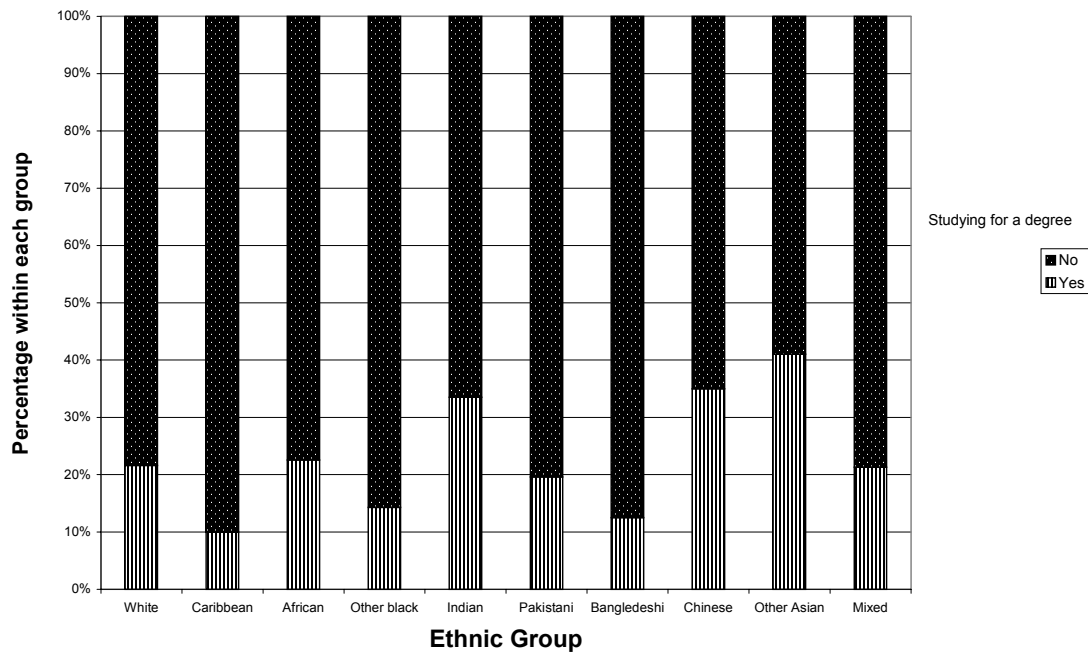
Figure 8 displays the patterns of participation in degree level higher education by pupils from each social class group. The measure of family social class is derived from the YCS and equates to the highest social class of either parent¹⁰. As we would expect more young people from advantaged social class backgrounds enter degree level higher education. Thirty eight percent of the sons and daughters of professional and managers entered higher education; this is compared to only 16% of pupils from skilled manual families and 7% of pupils from unskilled families (see Table 52).

There is a wide variation in the levels of participation in higher education across the minority ethnic groups (see Figure 9). Twenty two percent of white young people entered higher education. There were lower rates of participation by young people from Caribbean, other black, Pakistani, Bangladeshi, mixed and other minority ethnic groups. Participation in higher education was higher for minority ethnic young people who identified themselves as African, Indian, Chinese or other Asian than it was white young people (see Table 53). Overall, these are important findings because the government wishes to expand higher education and raise the level of participation of young people from currently under-represented minority ethnic groups.¹¹

¹⁰ The development of a combined family's occupational social class measure was informed by earlier sociological work (see Erikson 1984).

¹¹ Recent evidence tentatively (given uncertainty over the reliability of population estimates) suggests that no minority ethnic group is currently under-represented in higher education. However, minority ethnic students do still appear to be under-represented in certain types of institution and in certain subjects (Connor et al 2003).

Figure 9 Minority Ethnic Group And Studying For A Degree



We are conscious to point out that our analysis uses a measure from the YCS that combines all young people of Indian origin. This combines Hindus, Muslims and Sikhs as well as young people from East Africa who might also consider themselves as being of Indian origin. It is plausible to assume that these sub-groups might be distinctively different in terms of their educational progress since they come from families with different religions, cultural values and language backgrounds.

A further caveat is that the measure contained within the YCS also does not distinguish young people born in Britain from those born overseas. This presents a problem as we might plausibly expect that native and non-native English speakers would have different educational experiences.

Other Factors

A number of other factors were significant. These factors include disability and health problems. A higher proportion of young people who reported that they were not disabled or did not suffer ill health entered degree level higher education (see Table

54 and Table 55). Housing tenure was also important. As we would expect the highest level of participation in degree level higher education was from young people whose parents owned their own homes. There were much lower levels of participation from those young people whose parents rented their home from the (Council) Local Authority or from Housing Associations (see Table 56).

Geographic Region was not significant overall but some regions had significantly different levels of participation in higher education. The South East had the highest level of participation in degree level higher education and the North East the lowest (see Table 57). The composition of the household in which the young person lived was significant. Twenty three percent of young people who lived with their father in Sweep 1 entered degree level higher education compared with only 15% who did not live with their father (see Table 58). Twenty four percent of young people who lived with both parents in Sweep 2 entered degree level higher education compared with 16% who lived with their mother only (see Table 60). Only 2% of young people who were couples in Sweep 2 and 5% of young people in couples in Sweep 3 entered higher education (see Table 61 and Table 62). As we might expect becoming parents themselves influenced individual young people's entry to degree level higher education. Only 2% of those young people with children of their own entered higher education (Table 64).

Parental education was also significant. Higher proportions of young people with better educated parents entered degree level higher education (see Table 65; Table 66; Table 67; Table 68). Parents' employment was also significant (see Table 69; Table 70; Table 71; Table 72)

Twenty four percent of young people with fathers in full-time employment entered degree level higher education compared with only 16% of young people whose fathers were not in full-time work.

The A'Level Route

In this section we turn our attention to pupils on the A'Level Route. Forty percent (2,494) of YCS Cohort 9 pupils were studying for A'Levels in Sweep 1 of the survey. We term this as the 'A'Level Route' in this analysis. A summary of the characteristics of the young people in the A'Level Route is available in Annex 4.

As we have argued the A'Level Route is still the main highway, or primary route, to both university and to studying for a degree. This is readily illustrated when we consider that only 120 young people who were not in the A'Level Route in Sweep 1 (1998) were studying for a degree in Sweep 3 (year 2000). These young people are a minority and only represent 3% of young people outside of the A'Level Route (and 2% of the overall YCS sample). Because the A'Level Route is the main route to higher education the core analysis of this project focuses on this group of young people.

There were 1,491 young people (23.7%) studying at university by Sweep 3 (year 2000), the majority of these young people (1,331) were studying for a degree. Twenty two percent of young people (1,378) in YCS cohort 9 were studying for a degree by Sweep 3 (year 2000). Fifty percent of A'Level Route pupils (1,258) were studying for a degree by Sweep 3 (year 2000).

Qualifications

By Sweep 2 of the survey 23% of pupils on the A'Level Route had obtained an additional academic qualification since Year 11 (see Table 98) and only 16% had not

achieved an additional academic qualification by Sweep 3 (see Table 99). Seventy nine percent of pupils on the A'Level Route achieved an A'Level qualification (see Table 100). The maximum number of A'Levels achieved by pupils on the A'Level Route was six (see Table 101). Fifty seven percent of pupils on the A'Level Route passed three (or more) A'Levels and just over a fifth of pupils did not pass any A'Levels (see Table 102). Further information on attainment is provided in Table 103, Table 104 and Table 105.

Chapter 5 Modelling Results

Modelling Entry To Degree Level Higher Education A'Level Route Pupils

In this section we focus on modelling entry to degree level higher education for young people on the A'Level Route. Table 1 reports the factors that significantly affect entry into degree level higher education, net of Year 11 and A'Level attainment, for young people on the A'Level Route. Gender and family social class are not significant.

Ethnicity, housing tenure and region of residence, Year 11 school type and having graduate parents¹² are all significant.

The results of the statistical model (Model A) are summarised in Table 2 and reported fully in Table 107. Model A contains three measures of educational attainment. First, a simplified measure of Year 11 attainment, i.e. whether or not the young person obtained 5+ (Grade A*-C) passes at GCSE. Second, a simplified measure of A'Level attainment, i.e. whether or not the young person obtained 3 A'Level passes. Third, A'Level points score, which is a comprehensive measure of A'Level attainment.

As we would expect, young people with lower Year 11 attainment have lower odds of entering degree level higher education. Pupils who attain less than three A'Level passes have decreased odds of entering higher education. A'Level point scores are positively related to entry into degree level higher education.

¹² We prefer the measure 'either' parent is a graduate to the individual parental measures. We are aware that the parental education measures are proxy measures. The young people are asked rather than their parents and we are aware that this potentially leads to accuracy of measurement problems. We are also aware that a large proportion of young people are not sure about their parents' qualification. The 'either' parent is a graduate measure is an approximation of parental educational capital and is consistent with the measure used in our earlier research.

Net of Year 11 and A'Level educational attainment a number of other factors are significant. Year 11 school type is significant. Those pupils who attended Independent schools had increased odds of entering degree level higher education. Net of educational attainment there were differences in participation between minority ethnic groups. In particular three minority ethnic groups had significantly different patterns of participation. Young people who reported that they were of Indian origin had increased odds of entering degree level higher education compared with non-Indians. Young people of Chinese origin and young people from other Asian groups¹³ also had increased odds of entering degree level higher education.

Overall, housing tenure is significant and two groups stand out in this analysis. Young people whose parents rent from Local Authorities (Councils) and Housing Associations had lower odds of entering degree level higher education. There are also regional differences in entry to degree level higher education. Young people from the West Midlands, Eastern, London, the South East and the South West have decreased odds of entering degree level higher education. We will refer to these five regions as 'selected regions'. Young people with graduate parents have increased odds of entering higher education.

Table 3 shows the dramatic effects of educational attainment on entry to higher education¹⁴. The model estimates that young people that pass 5+ GCSE (A*-C Grade) in Year 11 and who attain three A'Levels at grade A have a 74% chance of entering higher education. All other factors being equal, this falls to 66% if they only achieve

¹³ This group does NOT include Pakistanis and Bangladeshis who are classified separately.

¹⁴ These probabilities are for young people who attended a state school, are white, whose parents own their own home, who are not from one of the selected regions and have non-graduate parents.

three A'Level passes at grade C, and 56% if they only achieve three passes at grade E. Attaining only two A'Level passes reduces a young person's chances of entering higher education. Pupils that pass 5+ GCSE (A*-C Grades) in Year 11 and who attain two A'Level passes at grade A have only a 50% chance of entering higher education, and pupils with only two passes at grade E have only an 38% chance of entering higher education.

Table 1 Entry To Degree Level Higher Education – Significant Factors Net Of Year 11 And A'Level Attainment

FACTOR	SIGNIFICANT
Gender	X
Family Social Class	X
Ethnicity	√
Disability (sweep 1)	X
Health Problems / Disability (sweep 2)	X
Housing Tenure (sweep 1)	√
Region of Resident (Government Offices)	√
Lives With Father (sweep 1)	X
Lives With Mother (sweep 1)	X
Lives At Home With Parents (sweep 2)	X
Marital Status (sweep 2)	X
Marital Status (sweep 3)	X
Children In Household (sweep 2)	X
Own Children (sweep 3)	X
Year 11 School Type	√
Father's Education (A'Levels)	X
Father's Education (graduate)	√
Mother's Education (A'Levels)	X
Mother's Education (graduate)	X
Either Parent Graduate	√
Father Employed Full-Time (sweep 1)	X
Father Self-Employed (sweep 1)	X
Mother Employed Full-Time (sweep 1)	X
Mother Self-Employed (sweep 1)	X

√ = significant $p \leq .05$
X = not significant $p > .05$

Table 2 Logistic Regression Model (Model A) - Studying For A Degree (sweep 3), A'Level Route Pupils

Factor	Odds
Constant	-
5+ GCSE Year 11	1.00
<5 GCSE Year 11	0.21
3 A'Levels	1.00
<3 A'Levels	0.50
A'Level Points Score	1.03
State School Year 11	1.00
Independent School Year 11	1.29
Non-Indian Origin	1.00
Indian Origin	1.95
Non-Chinese Origin	1.00
Chinese Origin	3.54
Non-Other Asian Origin	1.00
Other Asian Origin	2.52
Housing All Other Types	1.00
Council Housing	0.63
Housing Association	0.40
All Other Regions	1.00
West Midlands	0.69
Eastern	0.68
London	0.67
South East	0.67
South West	0.61
Non-Graduate Parents	1.00
Graduate Parents	1.25

Table 3 (Model A) A'Level Route Pupils Probability Of Entry To Degree Level Education - Attainment

Year 11 Attainment	A'Level Grades	Probability ¹
5+ GCSE Year 11	AAA	.74
5+ GCSE Year 11	CCC	.66
5+ GCSE Year 11	EEE	.56
5+ GCSE Year 11	AA	.50
5+ GCSE Year 11	CC	.44
5+ GCSE Year 11	EE	.38
<5 GCSE Year 11	AA	.18
<5 GCSE Year 11	CC	.14
<5 GCSE Year 11	EE	.11

1. These probabilities are for young people who attended a state school, are white, whose parents own their own home, are not from one of the selected regions and have non-graduate parents.

Table 4 (Model A) A'Level Route Pupils Probability Of Entry To Degree Level Education - Year 11 School Type

Year 11 School Type	A'Level Grades	Probability ¹
State School Year 11	AAA	.74
State School Year 11	CCC	.66
State School Year 11	EEE	.56
Independent School Year 11	AAA	.79
Independent School Year 11	CCC	.71
Independent School Year 11	EEE	.62

1. These probabilities are for young people who have 5+ GCSE passes, are white, whose parents own their own home, are not from one of the selected regions and have non-graduate parents.

Table 4 reports the probability for entering higher education for young people who attended state and Independent schools in Year 11. Net of Year 11 GCSE and A'Level attainment, young people that attended Independent schools in Year 11 have an increased chance of entering higher education. Table 5 reports the effects of ethnicity on entry to degree level higher education. Compared with whites, all other things being equal, young people of Indian origin have increased chances of entering higher education, as do Chinese young people and young people from the 'other' Asian group.

Table 5 (Model A) A’Level Route Pupils Probability Of Entry To Degree Level Education - Ethnicity

Ethnicity	A’Level Grades	Probability ¹
Whites & All Other Ethnic Groups ²	AAA	.74
Whites & All Other Ethnic Groups ²	CCC	.66
Whites & All Other Ethnic Groups ²	EEE	.56
Indian Origin	AAA	.85
Indian Origin	CCC	.79
Indian Origin	EEE	.72
Chinese Origin	AAA	.91
Chinese Origin	CCC	.87
Chinese Origin	EEE	.82
Other Asian Origins	AAA	.88
Other Asian Origins	CCC	.83
Other Asian Origins	EEE	.76

1. These probabilities are calculated for young people with 5+ GCSE passes, in state schools, whose parents own their own home, who are not from one of the selected regions and who do not have graduate parents.

2. This group includes whites, Caribbeans, Africans, other blacks, mixed groups and other minority ethnic groups.

Table 6 (Model A) A’Level Route Pupils Probability Of Entry To Degree Level Education - Housing

Housing	A’Level Grades	Probability ¹
Council Housing	AAA	.64
Council Housing	CCC	.55
Council Housing	EEE	.45
Housing Association	AAA	.54
Housing Association	CCC	.44
Housing Association	EEE	.34
All Other Accommodation ²	AAA	.74
All Other Accommodation ²	CCC	.66
All Other Accommodation ²	EEE	.56

1. These probabilities are computed for young people with 5+ GCSE passes, who attended a state school in Year 11, are white, do not live in one of the selected regions and have non-graduate parents.

2. This category includes young people whose parents either, own their own home, rent from a private landlord or have job related accommodation, and young people in ‘other’ accommodation.

Housing tenure is often regarded as a proxy measure for family wealth. Table 6

reports the effects of housing tenure on entry to degree level higher education. Young

people whose parents rent from the Local Authority (Council) or Housing Associations have lower chances of entering higher education.

Table 7 (Model A) A'Level Route Pupils Probability Of Entry To Degree Level Education - Regions

Regions	A'Level Grades	Probability ¹
All Other Regions ²	AAA	.74
All Other Regions ²	CCC	.66
All Other Regions ²	EEE	.56
West Midlands	AAA	.66
West Midlands	CCC	.57
West Midlands	EEE	.47
Eastern	AAA	.66
Eastern	CCC	.56
Eastern	EEE	.47
London	AAA	.66
London	CCC	.56
London	EEE	.46
South East	AAA	.66
South East	CCC	.56
South East	EEE	.46
South West	AAA	.64
South West	CCC	.54
South West	EEE	.44

1. These probabilities are computed for young people with 5+ GCSE passes, who attended a state school in Year 11, are white, whose parents own their home and who have non-graduate parents.

2. This category includes the North East, The North West, Merseyside, York and Humber, East Midlands and Wales.

Regional effects are also significant. The young people living in the selected regions (i.e. the West Midlands, Eastern region, London, the South East and the South West) all have lower probabilities of entering higher education, all other things being equal (see Table 7). The YCS does not contain detailed geographical information. The regional areas are based on Government Offices and are generally large geographical areas. Therefore we do not place too much emphasis on these particular results but are aware that there are differential rates of entry to higher education at the level of these

broad geographical areas. Parental education is also significant. Young people with graduate parents (i.e. either parent) have increased chances of entering higher education (see Table 8).

Table 8 A'Level Route Pupils Probability Of Entry To Degree Level Education - Parents' Education

Parents' Education	A'Level Grades	Probability ¹
Non-Graduate Parents	AAA	.74
Non-Graduate Parents	CCC	.66
Non-Graduate Parents	EEE	.56
Graduate Parents	AAA	.78
Graduate Parents	CCC	.71
Graduate Parents	EEE	.62

1. These probabilities are computed for young people with 5+ GCSE passes, who attended a state school in Year 11, are white, whose parents own their home and who live in a non-selected region.

Illustrative Examples

* Consider, a young person called Scott. Scott obtained three A'Levels (all at grade A), obtained 5+ GCSE passes in year 11 and attended a state school (in Year 11).

Scott is white and his parents own their own home. He lives in the North East Region (i.e. a non-selected region) and neither of his parents are graduates. Scott has a probability of 74% of studying for a degree.

* His neighbour Charlene shares similar characteristics to Scott but only achieved three grade C A'Levels. Charlene has a 66% chance of studying for a degree.

* Another neighbour Henry shares similar characteristics to Charlene and Scott. However, Henry did not obtain 5+ GCSE passes in year 11 and only passed two A'Levels at grade C. Henry's has only a 14% chance of studying for a degree.

Models Of Entry To Degree Level Higher Education All Pupils

The next model that we fitted was Model A1, which is a model of entry into degree level higher education for all pupils. This model does not take into account the A'Level route, and uses a similar strategy to the one adopted in our previous research. The model of all pupils (Model A1) is largely equivalent to the model of the A'Level Route pupils (Model A). It might be argued that the model of all pupils is conceptually less sophisticated because it includes all pupils and we are aware that only a small proportion of non-A'Level Route pupils enter higher education. To use the transportation metaphor deployed by Furlong and Cartmel (1997) the A'Level Route is the main highway to degree level higher education.

Model A (A'Level Route pupils) and Model A1 (all pupils) analyse different groups of young people. Comparing Table 107 with Table 108 we can conclude that, with the exception of marital status, the same variables are significant and their associated signs are in the same direction. Marital status at Sweep 3 is significant in the all pupils model. This is because only a small number of those in couples enter degree level courses (5% as opposed to 23% of single young people) and a smaller proportion of this group (18%) entered the A'Level Route (compared with 41% of young people who were single in Sweep 3). As we might expect the all pupils model (Model A1) places greater emphasis on the importance of Year 11 GCSE attainment. This is because some pupils that are not on the A'Level Route, by definition, have no A'Level performance. As we have noted this group have an extremely low level of entry to degree level higher education (see page 34).

In Gayle, Berridge and Davies (2002) we modelled entry to degree level higher education for all pupils using YCS Cohort 3 data. The analysis of YCS Cohort 9 is not directly comparable to the earlier analysis of YCS Cohort 3. This current analysis takes advantage of the new and also the improved measures available in Cohort 9. Whilst these differences do not facilitate direct comparisons it is possible however, to make some general comparisons.

Year 11 attainment is significant in both analyses. Pupils with poorer attainment have lower odds of entering higher education. In both analyses pupils of Indian origin, pupils with graduate parents, pupils whose parents owned their own home and pupils who attended Independent schools had increased odds of entering higher education. In both analyses early marriage (or couple formation) reduced the young person's odds of entering higher education.

In the analysis of YCS Cohort 3 gender was significant; females had lower odds of entry to higher education. However, gender was not significant in this analysis of YCS Cohort 9. Social Class effects were also significant in the analysis of YCS Cohort 3 but not significant in the analysis of YCS Cohort 9. Regional effects were significant in the YCS Cohort 9 analysis but not in the analysis of YCS Cohort 3 whereas, family size was significant in the YCS Cohort 3 analysis but not in the analysis of YCS Cohort 9. There was also a significant interaction between parental education and attending an Independent school in the analysis of YCS Cohort 3. However, this effect was not significant in YCS Cohort 9.

Model A1 was fitted for exploratory purposes and provides a useful illustration especially for comparison with our earlier research. Model A and Model A1 lead us to draw the same substantive conclusions. Overall, Model A is more appropriate for the investigation of young people's demand and take-up of higher education because the A'Level Route is the main highway to degree level education.

Chapter 6 Additional Analysis

Alternative Models Of Entry To Higher Education A'Level Route Pupils

To further explore entry into degree level higher education in addition to Model A we estimated six further models (B to G) in which GCSE and A'Level attainment are conceptualised and operationalised in a number of ways. The motivation here is to better represent individual young people's attainment, and to further explore the link between qualifications and entry to higher education.

Alternative Models

Model A is the model presented above (see Table 107). In this model GCSE attainment in Year 11 is represented by a simplified variable that denotes pupils with five or more GCSE passes (Grades A*-C) and those with less than five passes.

A'Level attainment is represented by A'Level Score and a variable that denotes pupils with three A'Level passes and those with less than three A'Level passes.

Model B includes a (continuous) measure of the number of GCSE passes in Year 11¹⁵. A'Level attainment is represented in the same fashion as in Model A.

Model C includes a measure of the number of GCSE passes by Sweep 1 rather than in Year 11. This model was simply a diagnostic check to explore what would happen if we used an alternative measure, which includes additional GCSE winter exams.

Under 4% of A'Level Route pupils had improved upon the number of GCSEs that they obtained in Year 11 by Sweep 1. Therefore the results for Model C are almost identical to Model B.

¹⁵ The continuous measure of Year 11 GCSE attainment; min 0; max 13; mode 9; median 9; mean 8.49; s.d. 1.814. As you might expect this variable is negatively skewed (-1.310).

Model D includes the simplified binary measure of GCSE attainment and a (categorical) measure of A'Levels that distinguishes between 3+, 2 and 1 or zero. This is similar to the routine way that the DfES conceptualise A'Level attainment.

Model E includes the simplified binary measure of GCSE attainment and includes a (continuous) measure of the number of A'Levels.

Model F includes a (continuous) measure of the number of GCSE passes in Year 11 and a (categorical) measure of A'Levels that distinguishes between 3+, 2 and 1 or zero. This is similar to the routine way that the DfES conceptualise A'Level attainment.

Model G includes a (continuous) measure of the number of GCSE passes in Year 11 and a (continuous) measure of the number of A'Levels. Attainment is generally represented in a more comprehensive fashion in this model. And, a measure of the number of A'Levels maps easily onto the way the DfES routinely conceptualise A'Level attainment.

It is difficult to assess how much is explained by the different models. This is because in contrast to standard linear regression models it is difficult to compare the 'goodness-of-fit' of logistic regression models (see Menard 1995). This is especially the case when the models under consideration are not nested within a common structure. To assess the how well models A-G explain the data we have undertaken some diagnostic analysis (see Table 109)¹⁶. We have chosen to progress the analysis with Model G. This model is an improvement on Model A and provides the most

¹⁶ We have fitted models that operationalise the three attainment explanatory variables (i.e. Year 11 GCSE attainment; Number of A'Levels; A'Level Point Score) as they are in Models A-G. We fitted these variables to the null (or grand mean) model. This is a model with no explanatory variables. We also fitted the three attainment variables to a (full) model including the other twelve explanatory variables. Model A is a significant improvement upon the null model. Model B and Model C both improve upon Model A and are substantively equivalent. Neither Model D or Model E is a significant improvement upon Model A. Model F and Model G both improve upon Model A.

empirical flexibility, because all three measures of attainment (i.e. Year 11 GCSE attainment; Number of A'Levels; A'Level Point Score) are operationalised as continuous variables (rather than factors). Therefore probabilities for various combinations of GCSE and A'Level results can readily be computed and compared. This benefits substantive interpretation.

Table 110 reports a summary of the parameter estimates for each of the models. In all of these models A'Level Score, which is a powerful explanatory variable, is included to represent A'Level attainment. The most striking thing about Models A – G is that the direction of the signs and the magnitude of the estimates for explanatory variables (factors) remain largely equivalent. However, being from the Other Asian minority ethnic group and attending an Independent school in Year 11 are not significant in Models B, C, F and G (see Table 110)

This is because these Models (B, C, F and G) include the number of Year 11 GCSE passes. Pupils in the Other Asian minority ethnic group and pupils who attended Independent schools have increased odds of entering higher education in Model A (Other Asian $p=.03$; Independent School $p=.01$). Comparatively, these groups have better Year 11 GCSE attainment. Therefore the effect of being in either of these two groups is absorbed in the more comprehensive explanatory variable representing attainment in Models B, C, F and G. In Model G both of these variables are insignificant (Other Asian $p=.06$; Independent School $p=.08$).

Further Analysis

In this section we will focus on Model G, which extends the analysis beyond that of Model A because it provides improved resolution in terms of the representation of

Year 11 and A'Level attainment. The results for Model G are reported in Table 111. In summary GCSE and A'Level attainment are highly influential. Net of attainment, a number of other factors including ethnicity, housing tenure, region and parental education are significant.

In the next stage of the analysis we tested all possible two-way interaction effects. The significance of these interactions is reported in Table 112. Four interaction effects remained significant when included in the full model, these were Number of GCSE Passes Year 11 * Number of A'Level Passes; Number of GCSE Passes Year 11 * Graduate Parents; Council Housing * London; West Midlands * Graduate Parents.

The results for Model G with the significant two-way interaction effects included are reported in Table 113). Logistic regression models with interaction effects are not always easy to interpret. Therefore we will present a number of summaries of the analysis (as above, see for example Table 3). The results in Table 9 are broadly equivalent to those presented in Table 3; however Model G has improved resolution in terms of Year 11 and A'Level attainment.

Table 9 (Model G) A'Level Route Pupils Probability Of Entry To Degree Level Education - Attainment

Year 11 Attainment (No. Of GCSE Passes)	A'Level Grades	Model G Probability ¹
9	AAA	.76
8	AAA	.74
7	AAA	.71
6	AAA	.68
9	CCC	.65
8	CCC	.62
7	CCC	.59
6	CCC	.56
9	EEE	.52
8	EEE	.49
7	EEE	.46
6	EEE	.43

1. These probabilities are for young people who are white, whose parents own their own home, who do not live in a selected region and have non-graduate parents.

Table 9 illustrates the effects of Year 11 attainment and A'Level attainment on entry to degree level higher education. For example an A'Level Route pupil who attains nine GCSE passes (Grade A*-C) and three A'Level passes at grade A, has a 76% chance of entering higher education. A counterpart with the same A'Level attainment but lower attainment in Year 11 has a slightly lower probability of entering higher education.

Table 9 also illustrates the dramatic effects of A'Level attainment on entry to degree level higher education. Consider a young person who attains nine GCSE passes in Year 11. If they pass three A'Levels at grade A they have a 76% chance of entering higher education. However, all other things being equal, if they pass three A'Levels at grade C they have a 65% chance of entering higher education, and if they only attain three passes at grade E then their chances of entering higher education fall to 52%.

Table 10 (Model G) A'Level Route Pupils Probability Of Entry To Degree Level Education - Lower Attainment

Year 11 Attainment (No. Of GCSE Passes)	A'Level Grades	Model G Probability ¹
8	AA	.61
8	DD	.48
8	A	.46
7	A	.37
4	A	.17
8	D	.40
7	D	.31
4	D	.13

1. These probabilities are for young people who are white, whose parents own their own home, who do not live in a selected region and who have non-graduate parents.

Table 10 illustrates the effects of Year 11 attainment and lower A'Level performance.

The median number of GCSE passes for pupils with only two A'Levels is eight. The best A'Level performance for this group in YCS Cohort 9 was two grade A passes.

Model G estimates that a pupil with 8 passes (i.e. the median level of GCSE attainment for pupils that pass two A'levels) and two grade A A'Levels, would have a 61% chance of entering higher education.

The median A'Level Score for pupils with only two A'Levels was 8.0; this is equivalent to two A'Level passes at grade D. Model G estimates that a pupil with the median level of GCSE attainment for pupils that pass two A'levels and two grade D A'Levels (the median A'Level Score) has a 48% chance of entering higher education. Having only one A'Level dramatically reduces a young person's chances of entering higher education.

Table 11 (Model G) A'Level Route Pupils Probability Of Entry To Degree Level Education - Ethnicity

Ethnicity	A'Level Probability ¹	
	Grades	
Whites & All Other Ethnic Groups ²	AAA	.76
Indian Origin	AAA	.86
Chinese Origin	AAA	.91

1. These probabilities are calculated for young people with 9 GCSE passes, whose parents own their own home, who are not from one of the selected regions and who do not have graduate parents.

2. This group includes whites, Caribbeans, Africans, other blacks, other Asian, mixed groups and other minority ethnic groups.

The positive effect of being of Indian or Chinese origin is illustrated in Table 11. All other things being equal, pupils from these two minority ethnic groups have an increased chance of entering higher education.

The effects of housing tenure are illustrated in Table 12 . Pupils whose parents don't own their own home have lower chances of entering higher education, all other things being equal. This is important because the YCS does not have a direct measure of family wealth or income and housing tenure can be regarded as a proxy measure.

Table 12 (Model G) A'Level Route Pupils Probability Of Entry To Degree Level Education - Housing

	A'Level Grades	Probability ¹
Housing		
Council Housing	AAA	.64
Housing Association	AAA	.53
All Other Accommodation ²	AAA	.76

1. These probabilities are computed for young people with 9 GCSE passes, who are white, do not live in one of the selected regions and who have non-graduate parents.

2. This category includes young people whose parents either, own their own home, rent from a private landlord or have job related accommodation, and young people in 'other' accommodation.

There are regional differences in entry to higher education, the lowest level of participation being from the South West and the highest from Merseyside (see Table 57). There is an interaction between parental education and living in the West Midlands. Expressed simply, pupils from the West Midlands with graduate parents do not suffer the negative effects of living in the West Midlands; their chance of entering higher education is similar to pupils in non-selected regions.

There is also an interaction between living in London and living in a council property. We will not place too much emphasis on this finding as the interaction is only marginally significant ($p=.050$). In short, pupils who live in council homes in London do not experience the negative effects of these factors; rather they have approximately the same chance of entering higher education as counterparts in the non-selected regions whose parents own their own homes.

Table 13 (Model G) A'Level Route Pupils Probability Of Entry To Degree Level Education - Regions

Regions	A'Level Grades	Probability ¹
All Other Regions ²	AAA	.76
West Midlands	AAA	.65
Eastern	AAA	.69
London	AAA	.68
South East	AAA	.68
South West	AAA	.66

1. These probabilities are computed for young people with 9 GCSE passes, who are white, whose parents own their home and who have non-graduate parents.

2. This category includes the North East, The North West, Merseyside, York and Humber, East Midlands and Wales.

Table 14 (Model G) A'Level Route Pupils Probability Of Entry To Degree Level Education - Parents' Education

Parents' Education	A'Level Grades	Probability ¹
Non-Graduate Parents	AAA	.76
Graduate Parents	AAA	.77

1. These probabilities are computed for young people with 9 GCSE passes, who are white, whose parents own their home and who live in a non-selected region.

Parental education is significant although the effect is quite small (see Table 14). In Model G the effects of parental education are interwoven with Year 11 GCSE attainment. As we have commented above there is also an interaction between parental education and living in the West Midlands.

Finally, we shall consider the young people on the A'Level Route who do not enter higher education. Overall, these data paint a healthy picture for these young people. Forty one percent of young people who were on the A'Level Route but who did not pass any A'Levels were still in full-time education in Sweep 3. Forty six percent of

these young people were employed, the majority in full-time work (31%). Only 5% of these young people were unemployed.

A similar pattern existed for those young people on the A'Level Route who passed only one A'Level. Forty six percent were still in education in Sweep 3 and 43% had found employment. Approximately 5% of young people who had entered the A'Level Route and did not enter higher education were unemployed. This looks like a generally healthy picture for this group of young people. However it would be interesting to analyse this issue further and possibly examine the nature and conditions of employment for these young workers.

Chapter 7 Modelling Entry To The A'Level Route

The main focus of this project is the identification of which factors, net of attainment, influence individual young people's demand or entry to higher education. In this next section we turn our attention to entry into the A'Level Route. We have argued above that for young people this is still the main highway to higher education. In our earlier analysis (Gayle, Berridge and Davies 2000) we demonstrated that it is potentially important to understand this stage in the educational process if we are to better understand entry to higher education.

Table 15 reports the factors that significantly affect individual pupil's entry to the A'Level Route. As we would expect, Year 11 attainment is highly significant. Family social class, ethnicity, housing tenure, region of residence, Year 11 school type and parental education (graduate parents) are all significant. The results of the statistical Model H are summarised in Table 16 and reported fully in Table 114¹⁷.

Pupils who attain less than five GCSE passes in Year 11 have dramatically lower odds of entering the A'Level Route. We observe a decline in entry to the A'Level Route as we move down the family social class categories. Pupils from other non-manual families are not significantly different from counterparts in the professional and managerial social class. Sixty four percent of the pupils from professional and managerial families enter the A'Level Route compared with only 14% from unskilled families.

¹⁷ The focus of this study is entry to higher education. We have only undertaken a cursory analysis of entry to the A'Level Route and only report a main effects model.

Overall, ethnicity is not significant but pupils of Indian origin have greater odds of entering the A'Level Route. Housing tenure is significant and as we would expect, pupils whose parents do not own their own home have lower odds of entering the A'Level Route. Having graduate parents increases a pupil's odds of entering the A'Level Route. The type of school that the pupil attended in Year 11 is also significant. As we would expect pupils from selective schools have greater odds of entering the A'Level Route as do pupils from Independent schools. Pupils that attended Secondary Modern schools in Year 11 had much lower odds of entering the A'Level Route. Young people from London had increased odds of entering the A'Level Route. London is a wide geographical area made up of a large number of Local Education Authorities. These authorities are often very different in composition and their policies can vary. This finding is interesting but would be enhanced if more detailed geographical information were available.

Table 15 Entry To A'Level Route – Significant Factors

VARIABLE	SIGNIFICANT
Year 11 Attainment	√
Gender	X
Family Social Class	√
Ethnicity	√
Disability (sweep 1)	X
Housing Tenure (sweep 1)	√
Region of Resident (Government Offices)	√
Lives With Father (sweep 1)	X
Lives With Mother (sweep 1)	X
Year 11 School Type (from sample file)	√
Father's Education (A'Levels)	X
Father's Education (graduate)	√
Mother's Education (A'Levels)	X
Mother's Education (graduate)	√
Father Employed Full-Time (sweep1)	X
Either Parent Graduate	√
Father Self-Employed (sweep 1)	X
Mother Employed Full-Time (sweep1)	X
Mother Self-Employed (sweep 1)	X

**Table 16 (Model H) Logistic Regression Entry To A'Level Route (sweep 1),
All Pupils**

Factor	Odds
Constant	
5+ GCSE Year 11	1.00
<5 GCSE Year 11	0.02
Professional / Managers	1.00
Other Non-Manual	0.83
Skilled Manual	0.55
Semi-skilled	0.66
Unskilled	0.43
Non-Indian Origin	1.00
Indian Origin	2.64
Own Home	1.00
Council	0.54
Housing Association	0.54
Privately Rented	0.45
Other	0.46
Job Related Housing	0.40
Non-Graduate Parents	1.00
Graduate Parents	2.02
LEA & GM Comprehensives (to age 18)	1.00
LEA Comprehensive (to age 16)	0.65
GM Comprehensive (to age 16)	0.60
LEA Selective	4.62
GM Selective	2.49
Modern	0.22
Independent	4.02
All Other Regions	1.00
London	1.27

Table 17 Entry To A'Level Route And Staying On – Significant Factors

VARIABLE	SIGNIFICANT YCS Cohort 9	SIGNIFICANT YCS Cohort 3
Year 11 Attainment	√	√
Gender	X	√
Family Social Class	√	√
Ethnicity	√	√
Disability (sweep 1)	X	X
Housing Tenure (sweep 1)	√	√
Region of Resident	√	X
Lives With Father (sweep 1)	X	-
Lives With Mother (sweep 1)	X	-
Lone Parent Family	-	X
Year 11 School Type	√	√
Father's Education (A'Levels)	X	-
Father's Education (graduate)	√	-
Mother's Education (A'Levels)	X	-
Mother's Education (graduate)	√	-
Either Parent Graduate	√	√
Father Employed Full-Time (sweep1)	X	X
Father Self-Employed (sweep 1)	X	X
Mother Employed Full-Time (sweep1)	X	X
Mother Self-Employed (sweep 1)	X	X

The analysis of YCS Cohort 9 is not directly comparable to the earlier analysis of YCS Cohort 3. The young people in YCS Cohort 3 were eligible to leave school in 1987 and the young people in YCS Cohort 9 were eligible to leave school in 1997. The present analysis takes advantage of the new and also the improved measures available in Cohort 9. In Gayle, Berridge and Davies (2000), we modelled staying on in education rather than entry to the A'Level Route. The young people in YCS Cohort 3 also sat GCE O'Level exams rather than GCSE exams in Year 11. Whilst these differences do not facilitate direct comparisons it is possible however, to make some general comparisons.

Year 11 attainment is still extremely important and in both cohorts pupils with poorer educational attainment have lower odds of either staying on or entering the A'Level Route. In both analyses we observe a clear family social class effect. Pupils from higher status social classes have greater odds of either staying on (in the YCS Cohort 3 analysis) or entering the A'Level Route (in the YCS Cohort 9 analysis). Although, we are keen to point out that a slightly different measure of family social class is employed in the two YCS Cohorts. A salient finding is that gender is not significant in the YCS Cohort 9 analysis. Thirty seven of male pupils enter the A'Level Route and 42% of female pupils enter the A'Level Route. In the analysis of YCS Cohort 3 'one of the most striking results from fitting repeated cross-sectional models is that the gender effect changes direction between Sweep 1 and Sweep 3' (Gayle, Berridge and Davies, p.57). In this analysis gender did not significantly affect entry to the A'Level Route or entry to degree level higher education.

Ethnicity is not significant overall in either analysis but pupils of Indian origin have increased odds of both staying on (in YCS Cohort 3) and entering the A'Level Route (in YCS Cohort 9). The negative effects of housing tenure (i.e. a pupil's parents not owning their own home) are observed in both analyses. And, the positive effects of having graduate parents and attending an Independent school are also observed in both analyses. Family size, or number of siblings was not significant in the analysis of YCS Cohort 9.

These two YCS cohort span a decade. Overall, this comparison suggests that there has been some general social stability. In general, the same factors influence entry to higher education for both Cohorts of young people. The increased proportion of

young people entering degree level higher education in the more recent cohort is striking. A salient feature of this comparison is that the gender gap in participation has been closed over this period.

Chapter 8 Future Research

More Complex Exploratory Analysis

In the next section of the analysis we explore modelling entry into the A'Level Route and then entry to higher education simultaneously. In this analysis we fitted a bivariate probit model with sample selection (see Greene 2003). In our analysis we have data for all pupils and can observe their behaviour at the end of Year 11. We can record this as an outcome variable (i.e. whether or not they enter the A'Level Route); this can be represented as y_1 . We have a second observation and outcome variable (i.e. whether or not the pupil enters degree level higher education); this can be represented as y_2 . There is obvious sample selection as the pupils that do not enter the A'Level Route do not have an observation for y_2 . A model that explicitly accounts for sample selection is therefore required.

The appeal of the bivariate probit approach is that it fits a model for two binary outcome variables and appropriately accounts for sample selection. An additional attraction of the bivariate probit approach is that it can be fitted in standard advanced statistical software (i.e. STATA¹⁸). This analysis is exploratory so we have restricted it to developing Model A rather than the more comprehensive Model G with interaction effects. We refitted Model A and Model H as probit models with relevant dummy explanatory variables. Model I is a probit model of entry into the A'Level Route and Model J is a probit model of entry into higher education. Model I is largely equivalent to the logistics regression Model H and Model J is equivalent to logistic regression Model A. Probit and logit models are generally equivalent and lead to identical

¹⁸ See www.stata.com .

substantive conclusions (Liao 1994). It is possible to move between logit and probit parameter estimates with a straightforward transformation (Amemiya 1981).

Figure 10 Bivariate Probit With Selection

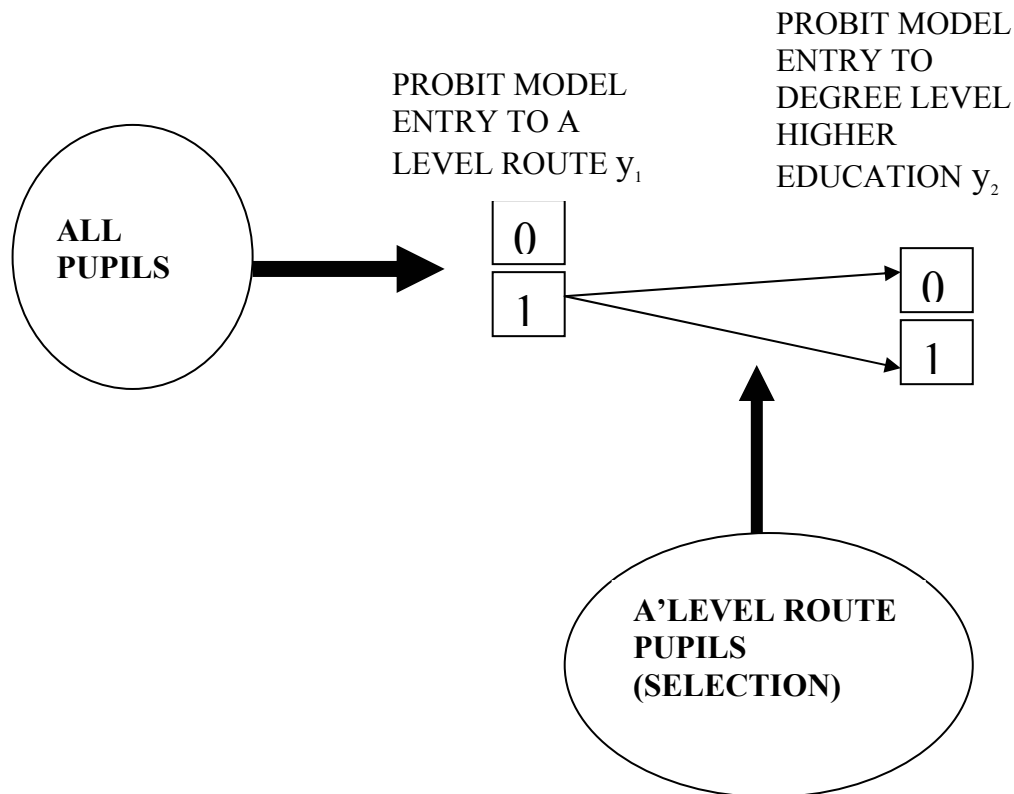


Table 115 reports the significant factors for Model I and Model J. Model K is a bivariate probit with sample selection. The first equation is identified by the social class factor. The A'Level attainment variables are included in the second equation but cannot be included in the first. Here we use the panel element of the YCS to help to achieve identification in the second equation. The significant factors in both stages of the model (y_1 entry to the A'Level Route; y_2 entry to higher education – given that a pupil is on the A'Level Route) are also reported in Table 115.

In summary, in the bivariate probit model with selection, attainment is still highly significant. Ethnicity is also significant; pupils of Indian origin have a higher probability of entering the A'Level Route and entering higher education compared with white young people. Pupils of Chinese and other Asian origin have a higher probability of entering higher education compared with white pupils.

Housing tenure and having graduate parents both significantly affect entry into the A'Level Route in Model K but not entry into higher education. Year 11 school effects are more complicated. Overall, Year 11 school type affects entry to the A'Level Route. Pupils from selective LEA schools have increased chances of entry to higher education whereas pupils from Secondary Modern schools have decreased chances of entry to higher education. There were significant regional differences in entry to higher education but not in entry to the A'Level Route. The exploratory analysis revealed that there was significant sample selection¹⁹.

We are aware that this analysis is largely exploratory but it is indicative of how a more thorough and complex analysis of the social processes that underpin individual young people's entry into higher education could be undertaken. We are also aware that developing appropriate control for sample selection is non-trivial. A central problem related to the approach that we have explored is the issue of developing clear instruments for identification in the equation systems. Attention has been drawn to this problem in econometrics (see Heckman 1978) but is generally not appreciated in sociology and education research. We propose that in future research further effort be directed to the problem of simultaneously modelling entry to the A'Level Route and

¹⁹ rho=-.77 (s.e. =.08); p<.01.

then to higher education. This will not be a trivial task and will involve quite sophisticated statistical modelling techniques.

Chapter 9 YCS Data: Scope And Limitations

The YCS is a major programme of longitudinal research. It is designed to monitor the behaviour and decisions of young people as they reach minimum school leaving age and either stay on in education or enter the labour market. It is probably the best nationally representative source of data on young people in England and Wales. The longitudinal design facilitates analyses at the individual level, this greatly extends the scope and scale of the research questions that it can be used to address.

In this section we will outline some of the problems and issues associated with the analysis of this cohort of YCS data. We will also suggest some possible strategies for future research with YCS data. The design of the study, timing of data collection and content of the questionnaire have altered over the lifetime of the YCS. Therefore there are both major and minor differences between YCS cohorts. We are cautious to point out that some of the problems highlighted will be unique to YCS Cohort 9 and others will be more generic.

We are aware that many of the limitations of the Youth Cohort Study of England and Wales will be directly addressed and improved by the design, structure and content of the proposed Longitudinal Study of Young People of England (LSYPE). We are also aware that there is a plan to augment the proposed study with qualitative data. This new data source will make a major and significant contribution. It will expand possibilities and will broaden the scope and scale of youth research.

A weakness of the YCS Cohort 9 data (and other YCS cohorts) is that there is no measure of attainment prior to Year 11. It is at least plausible that young people are beginning to be sifted, or filtered into either more or less academic routes earlier in their secondary school careers. Also, there is qualitative information in the sociology of youth that suggests that young people from different social groups locate within either 'pro-school' or 'anti-school' cultures earlier on. The YCS data could be improved by the inclusion of SATs data for example. However, we are aware that this would be a major undertaking.

A further limitation is that there is no information on the type of educational establishment that the young person attends after Year 11. It is substantively plausible that different types of establishment provide different educational experiences. It would be possible to collect this information from the survey although it would be less reliable than the information on Year 11 school type, which can be crosschecked with the sample file information.

A further limitation of the data is that there is no measure of parental income or family wealth. Housing tenure is a weak proxy measure of family wealth and has been shown to be important. There is no obvious, and clearly reliable, method of collecting family wealth or parental income data within the existing YCS framework. The parental survey/interviews that have been proposed as part of the LSYPE would be a possible vehicle for collecting such data. This would greatly expand the scope of analyse on entry to higher education. It would then be possible to investigate a range of issues associated with social inclusion. For example it would be possible to assess the extent to which pupils from poorer families were being underrepresented in higher

education. This would be highly informative and resonate within the government's current concerns.

The parental education and employment measures contained in YCS Cohort 9 are proxy measures because they are collected from the young people and not their parents. We are acutely aware that there is a lot of missing data for these measures and large proportions of young people report that they are unsure of the answers. A limitation of most of the YCS Cohorts, including YCS Cohort 9, is that they contain a relatively short run of data. The general message from the sociology of youth is that youth transitions are becoming increasingly protracted and the 'youth phase' is becoming extended. Commentators have argued that there is an increasing number of options available to young people and the timing of the choices that they make are now more difficult to observe. These issues, combined with the increasing popularity of the 'gap year' (i.e. time out of education between A'Levels and higher education), indicate to us that a longer run of data would be beneficial when studying young people and the demand and take-up of higher education.

A clear benefit of the YCS design is that it facilitates comparisons between cohorts. In this present research we have only exploited this minimally and in future research we would hope to exploit this feature of the YCS more fully. However, combining YCS cohorts will be major data management activity because the design, timing and content of the study have changed over its lifecycle. The questionnaires have been designed to be broadly comparable, but external changes and shifts in policy interest have brought about both minor and fundamental changes. These problems of

comparability are not insurmountable, however they do provide obstacles to cross-cohort research.

The effects of neighbourhood on entry to higher education have been highlighted in England and Wales (see Batey and Brown 1997) and also in Scotland (see Raab 1998). The YCS does not provide detailed geographical information. The YCS is a postal survey and it would be feasible to append local geographical information (e.g. postcode level information). Detailed geographical information would facilitate the analysis of local area effects such as information on unemployment. Using YCS data Bradley and Taylor have indicated that local unemployment is implicated in young people's decisions to stay in education²⁰. Adding local information to existing YCS data would be a substantial task and would have to be undertaken in a manner that secured survey respondent's confidentiality. However it would allow more formal investigation of the relationship between individual and family factors and local area effects.

Bradley and Taylor have also attempted to utilize information from the Schools Census to augment YCS cohorts for the early 1990s²¹. Additional information on the performance of schools allows better representation of the effects of education and the relationship between individuals, peer groups and families. In the current climate where there is much concern about school effectiveness and pupils' performance this would be a useful extension to existing YCS data.

²⁰ Personal communications with Professor Steve Bradley and Professor Jim Taylor, Department of Economics, Lancaster University.

²¹ Personal communications with Professor Steve Bradley and Professor Jim Taylor, Department of Economics, Lancaster University.

In conclusion we consider that analysis could be extended with local area and schools information. These additional pieces of the jigsaw would potentially offer greater insights into young peoples' demand and entry to higher education against the backdrop of the resources and options that are available to them. They would also facilitate the investigation of a range of other research hypotheses in the area of youth transitions.

Chapter 10 Conclusions

In Britain there has been an explosion in undergraduate student numbers. More young people are staying on in education and increasing numbers are studying for A'Levels. We consider that the individual young person's demand for, and entry to, higher education will be located within the spectrum of choices available to them as they reach the end of compulsory education. We believe that changes in the labour market in general and the youth labour market in particular, coupled with changes in training, the benefits system and education more generally all help to paint the backdrop against which young people make choices. We consider that an awareness of the wider context in which young people make choices and transitions is important when investigating young people's demand and take-up of higher education.

In this project we have updated our earlier research by using a more recent cohort of YCS data. We can report, unequivocally, that educational attainment in Year 11 and at A'Level are both central to young people's entry to higher education. We have demonstrated that a number of additional factors affect entry to degree level higher education. This illustrates that a statistical modelling approach is required and simpler approaches would be inadequate.

There are a number of ways to conceptualise attainment and operationalise it within a statistical modelling framework. Our research has demonstrated that these various methods of representing attainment lead to largely the same substantive conclusions. In the closing decades of the twentieth century there have been widespread changes in the secondary school curriculum. New qualifications have been introduced in both

schools and in further education. Despite these changes the A'Level Route is still the main highway to degree level higher education.

The overall focus of this research has been to identify which factors, net of educational attainment, influence young people's entry to higher education. We have exploited the improved measures now included in the YCS in an endeavour to better represent educational attainment. We can report that net of attainment, ethnicity, housing tenure, region and parental education all significantly effect individual young people's entry to higher education.

The YCS is an important data source for researching young peoples' entry to higher education. Despite changes in the overall level of participation in higher education and the changes in the backdrop against which young people make choices, individual as well as family and school characteristics influence individual young people's entry to degree level higher education. Having a source of data such as the YCS which collects a wealth of individual level variables and which is nationally representative is therefore essential.

The Department for Education and Skills is committed to working towards wider participation in higher education and expanding provision in order to create opportunities.²² This research can speak directly to some of the issues raised in the recent White Paper, *The Future of Higher Education*. In particular this research offers some empirical insights into issues related to the expansion of higher education and

²² See *Widening participation in Higher Education in England*, Report by the Controller and Auditor General, HC485 Session 2001-2002: 18th January 2002.

increasing participation,²³ and to fair access²⁴. We are keen to re-assert that this present research is limited to the analysis of a single YCS Cohort. We are also keen to remind the reader that a number of caveats regarding the data and the analysis have been issued and they should be borne in mind when thinking about policy formulation.

Gender, Social Class and Ethnicity

Halsey (1993) argued that class, gender and ethnicity are now the three giants in the path of aspirations toward equality of access within education. One of these giants, namely gender, has been successfully tackled. A slightly higher proportion of young women than men in YCS Cohort 9 entered higher education. This is important because traditionally female participation has been lower than male participation.

Gender not being significant in this analysis of the YCS Cohort 9 is a salient finding. Thirty seven of male pupils enter the A'Level Route and 42% of female pupils enter the A'Level Route. This is in sharp contrast to our earlier research. In our analysis of YCS Cohort 3 one of the most striking results from fitting repeated cross-sectional models was that the gender effect changes direction between Sweep 1 and Sweep 3²⁵. In this present analysis gender did not significantly affect entry to the A'Level Route or entry to degree level higher education.

Therefore we can conclude that attempts to close the gender gap have been successful, however, we warn against complacency. So far we have not compared the subject areas that young men and young women enter and we suspect that young women

²³ See Chapter 5 of the White Paper.

²⁴ See Chapter 6 of the White Paper.

²⁵ See Gayle, Berridge and Davies (2000) p.57.

might still be under-represented in certain areas such as science and engineering. This is an area that we intend to explore in the very near future. Also, using YCS Cohort 9 data it is not possible to make a detailed examination of the type of higher education institution that the young person entered. Such analysis would provide further illumination about the closure of the gender gap.

As we have repeatedly asserted, closing the social class gap has been identified as a priority. Despite the expansion in higher education young people from lower social class backgrounds continue to be under represented. Recent research has highlighted that a number of issues affect young people's decisions but cost is a major factor that dissuades and even prevents young people from lower social classes entering higher (see Connor *et al* 2001).

As we would expect more young people from advantaged social class backgrounds enter degree level higher education. Thirty eight percent of the sons and daughters of professionals and managers entered higher education. This is compared to only 16% of pupils from skilled manual families and 7% of pupils from unskilled families.

Young people from 'other non-manual' families have increased their level of participation and are now not significantly different from their counterparts with professional and managerial parents. Unfortunately, young people from manual families are still trailing behind.

Part of the difference in participation by young people from different social class backgrounds can be understood in terms of their educational attainment. The mean number of GCSE passes (A*-C Grade) for young people from the professional and

managerial social class was six compared with only two, from unskilled families. In practical terms four more GCSE passes is a relatively large gap. A wide gap also exists at A'Level where young people from professional and managerial families on average have an A'Level score that is seven points higher.

Our analysis has highlighted that social class effects are significant in terms of entry into the A'Level Route. The A'Level Route is the main highway to degree level education. Young people from lower status social classes are less likely to get onto the highway. An important point to note is that statistical modelling is essential and understanding the effects of social class on entry to higher education can not be achieved through simple analysis that compares rates of participation.

In policy terms resources are probably better directed towards earlier stages in the educational process to close the social class gap. On the evidence from YCS Cohort 9 the policy message is that to close the social class gap more young people from currently disadvantaged class groups must have their Year 11 attainment raised and they must be encouraged stay on in education (i.e. enter the A'Level Route).

There is a wide variation in the levels of participation in higher education across the minority ethnic groups. Twenty two percent of white young people entered higher education. There were lower rates of participation by young people from Caribbean, other black, Pakistani, Bangladeshi, mixed and other minority ethnic groups.

Participation in higher education was higher for minority ethnic young people who identified themselves as African, Indian, Chinese or other Asian than it was white young people.

Young people from minority ethnic groups have generally ‘caught up’ and now have levels of Year 11 GCSE passes that are similar to their white counterparts. Young people from minority ethnic groups are staying on in education and entering the A’Level Route. These findings are encouraging and indicate that a gap between white and minority ethnic young people is being closed at this stage in the educational process.

The mean A’Level points score (on the A’Level Route) for white young people was 15 points compared with only 10 points for young people of Caribbean origin, 9 points for young people of African origin, 10 points for young people of Bangladeshi origin, and 10 points for young people of Pakistani origin. The gap in A’Level attainment must be closed in order to achieve greater participation in degree level higher education by young people from currently under-represented groups.

After controlling for educational attainment in Year 11 and A’Level attainment, young people of Indian and Chinese origins were the only groups different from white young people. These two groups had very high levels of participation in degree level higher education. We are mindful that Biggart and Furlong (1996) suggested that some young people shelter from discrimination in the labour market by staying in education as long as possible.

Overall, these are important findings because the government wish to expand higher education and raise the level of participation of young people from currently under-represented minority ethnic groups.²⁶ We have noted that the ethnicity measures in the

²⁶ As mentioned recent evidence tentatively (given uncertainty over the reliability of population estimates) suggests that no minority ethnic group is under-represented in higher education. (Connor et al 2003).

YCS have limitations that should be taken into consideration. Sample size is a further issue that the reader should be aware of. By their very nature, minority ethnic groups are small in number. The YCS is a nationally representative dataset and therefore there are often small numbers of young people from specific minority ethnic groups in YCS samples.

Other Factors

There is not a direct measure of family wealth in the YCS. Housing tenure is indirectly related to family wealth and, to some extent, it is a proxy measure. Our analysis has shown that young people from poorer families (i.e. those that do not own their own homes) have lower chances of entering higher education, all other things being equal.

This is an important finding because the government are particularly concerned about the low level of participation by the young people from financially less advantaged families. Forsyth and Furlong (2003) have recently highlighted that cost is a barrier to some young people entering higher education. In terms of the concerns raised in the White Paper regarding fair access and the possibility of changes to student funding policy this is clearly an area for future research.

Regional effects are also significant. The young people living in the selected regions (i.e. the West Midlands, Eastern region, London, the South East and the South West) all have lower probabilities of entering higher education, all other things being equal. The YCS does not contain detailed geographical information. The regional areas are based on Government Offices and are generally large geographical areas. Therefore

we do not place too much emphasis on these particular results but are aware that there are differential rates of entry to higher education at the level of these broad geographical areas.

Parental education is also significant. Young people with graduate parents (i.e. either parent) have increased chances of entering higher education. The sons and daughters of graduates were also much more likely to enter the A'Level Route. In more sophisticated modelling when the effects of attainment were more comprehensively represented we found that the effects of parental education were relatively small in terms of entry to higher education.

General

In conclusion through detailed analysis of YCS Cohort 9 data we have shown that the choices that young people make are not made in isolation and that the young person is subject to a range of individual, school and family influences. Through statistical modelling we have been able to highlight the effects of educational attainment and identify which factors, in addition, influence entry to degree level higher education. These results could not have been obtained without large-scale data or in the absence of a statistical modelling approach. We have indicated that additional more advanced modelling could be beneficial in terms of exploring the social processes behind young people and entry to higher education.

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Appendices

Annex 1

YCS COHORT 9 CHARACTERISTICS OF SAMPLE (weighted in parenthesis²⁷)

Present in sweeps 1-3 (n=6304, weighted n=6304)

General Characteristics

Table 18 Gender

Males	2600	(3122)	41.2%	(49.5%)
Females	3704	(3182)	58.8%	(50.5%)

Table 19 Family Social Class

Professional / Managers ¹	1747	(1349)	27.7%	(21.4%)
Other Non-Manual	1462	(1238)	23.2%	(19.6%)
Skilled Manual	1878	(2054)	29.8%	(32.6%)
Semi-skilled	607	(761)	9.6%	(12.1%)
Unskilled	192	(293)	3.0%	(4.7%)
Unclassified	418	(609)	6.6%	(9.7%)

1. Derived from variables (pseg1 – pseg7) included in the YCS 9. This approximates to the Registrar General's Classification

Table 20 Ethnicity

White	5652	(5604)	89.7%	(88.9%)
Caribbean	36	(40)	.6%	(.6%)
African	29	(31)	.5%	(.5%)
Other Black	24	(28)	.4%	(.4%)
Indian	206	(200)	3.3%	(3.2%)
Pakistani	85	(97)	1.3%	(1.5%)
Bangladeshi	44	(56)	.7%	(.9%)
Chinese	40	(40)	.6%	(.6%)
Other Asian	40	(38)	.6%	(.6%)
Mixed	52	(61)	.8%	(1.0%)
Any Other	40	(34)	.6%	(.5%)
Unclassified	56	(76)	.9%	(1.2%)

²⁷ Weights provided by the DfES are used here.

Table 21 Disability (sweep 1)

Yes	222	(297)	3.5%	(4.7%)
No	6082	(6007)	96.5%	(95.3%)

Table 22 Health Problems / Disability (sweep 2)

Yes	205	(276)	3.3%	(4.4%)
No	6026	(5920)	95.6%	(93.9%)
Not Answered	73	(108)	1.2%	(1.7%)

Table 23 Housing Tenure (sweep 1)

Own Home	5446	(5032)	86.4%	(79.8%)
Rented				
Council	508	(811)	8.1%	(12.9%)
Housing Association	105	(145)	1.7%	(2.3%)
Privately	100	(129)	1.6%	(2.0%)
Job Related ¹	33	(37)	.5%	(.6%)
Other ²	112	(150)	1.8%	(2.4%)

1. Housing or accommodation comes with the job (includes Police and Armed Forces)

2. Including hostel

Table 24 Region Of Resident (Government Offices)

North East	383	(388)	6.1%	(6.1%)
North West	640	(710)	10.2%	(11.3%)
Merseyside	191	(196)	3.0%	(3.1%)
York & Humber	521	(598)	8.3%	(9.5%)
East Midlands	503	(506)	8.0%	(8.0%)
West Midlands	664	(651)	10.5%	(10.3%)
Eastern	718	(685)	11.4%	(10.9%)
London	633	(702)	10.0%	(11.1%)
South East	1043	(921)	16.5%	(14.6%)
South West	652	(621)	10.3%	(9.9%)
Wales	356	(326)	5.6%	(5.2%)

Table 25 Number Of Siblings In Household (sweep 1)

Minimum	0			
Maximum	6+			
Mode	1	(1)		
Median	1.00	(1.00)		
Mean	1.28	(1.31)	Standard Deviation	1.14 (1.23)

Table 26 Lives With Father (sweep 1)

Yes	5507	(5391)	87.4%	(85.5%)
No	797	(913)	12.6%	(14.5%)

Table 27 Lives With Mother (sweep 1)

Yes	6075	(5986)	96.4%	(95.0%)
No	229	(318)	3.6%	(5.0%)

Table 28 Lives At Home With Parents (sweep 2)

No	155	(241)	2.5%	(3.8%)
Both Parents ¹	5248	(5014)	83.2%	(79.5%)
Mother	714	(778)	11.3%	(12.3%)
Father	144	(201)	2.3%	(3.2%)
Not Answered	43	(71)	.7%	(1.1)

1. Parents or step-parents

Table 29 Marital Status (sweep 2)

Single	6134	(6046)	97.3%	(95.9%)
Couple ¹	104	(160)	1.6%	(2.5%)
Not Answered	66	(98)	1.0%	(1.6%)

1. Living with partner, wife or husband.

Table 30 Marital Status (sweep 3)

Single	5978	(5890)	94.8%	(93.4%)
Couple ¹	215	(282)	3.4%	(4.5%)
Not Answered	111	(132)	1.8%	(2.1%)

1. Living with partner, wife or husband.

Table 31 Children In Household (sweep 2)

No	4137	(4096)	65.6%	(65.0%)
Siblings	2044	(1990)	32.4%	(31.6%)
Own Children	52	(103)	.8%	(1.6%)
Not Answered	71	(115)	1.1%	(1.8%)

Table 32 Own Children (sweep 3)

Yes	101	(174)	1.6%	(2.8%)
No	6203	(6130)	98.4%	(97.2%)

School Information and Qualifications

Table 33 Year 11 School Type (from sample file)

State School (GM)	1118	(1006)	17.7%	(16.0%)
State School (other)	4624	(4847)	73.4%	(76.9%)
Independent School	562	(450)	8.9%	(7.1%)

Table 34 Year 11 School Type

LEA

Comprehensive to 16yrs	1636	(1855)	26.0%	(29.5%)
Comprehensive to 18yrs	2645	(2664)	42.0%	(42.3%)
Selective	163	(104)	2.6%	(1.6%)

Grant Maintained

Comprehensive to 16yrs	240	(247)	3.8%	(3.9%)
Comprehensive to 18yrs	690	(641)	10.9%	(10.2%)
Selective	188	(119)	3.0%	(1.9%)

Others

Modern	180	(224)	2.9%	(3.6%)
Independent	562	(450)	8.9%	(7.1%)

Table 35 Year 11 Attainment

5+ GCSE (grades A*-C)	4476	(2951)	71.0%	(46.8%)
1-4 GCSE (grades A*-C)	1216	(1651)	19.3%	(26.2%)
5+ GCSE (grades D-G)	420	(1126)	6.7%	(17.9%)
1-4 GCSE (grades D-G)	56	(230)	.9%	(3.6%)
None Reported	136	(347)	2.2%	(5.5%)

Table 36 Mean Year 11 GCSE Attainment By School Type

	Mean	S.D.	Max
Year 11 School Type			
<i>LEA</i>			
Comprehensive to 16yrs	5.79	3.60	12
Comprehensive to 18yrs	6.18	3.47	12
Selective	8.93	1.72	12
<i>Grant Maintained</i>			
Comprehensive to 16yrs	5.95	3.55	11
Comprehensive to 18yrs	6.46	3.31	12
Selective	9.13	1.34	12
<i>Others</i>			
Modern	4.92	3.36	11
Independent	8.66	2.17	13

Table 37 Mean Year 11 GCSE Attainment By Groups (all individuals)

	Mean	S.D.	Max
Gender			
Males	6.11 (4.08)	3.57 (3.85)	13
Females	6.68 (4.92)	3.37 (3.87)	12
Family Social Class			
Professional / Managers	7.72 (6.46)	2.84 (3.65)	12
Other Non-Manual	7.18 (5.73)	3.12 (3.73)	13
Skilled Manual	5.86 (3.95)	3.50 (3.70)	12
Semi-skilled	5.02 (3.02)	3.61 (3.48)	11
Unskilled	3.94 (2.13)	3.52 (3.00)	11
Ethnicity			
White	6.52 (4.55)	3.45 (3.90)	13
Caribbean	5.03 (3.51)	3.27 (3.28)	10
African	5.17 (3.86)	3.38 (3.46)	10
Other Black	5.92 (3.88)	3.40 (3.60)	10
Indian	6.33 (4.83)	3.43 (3.90)	11
Pakistani	4.98 (3.74)	3.26 (3.30)	11
Bangladeshi	4.98 (3.55)	3.83 (3.67)	12
Chinese	6.15 (4.62)	3.28 (3.72)	11
Other Asian	7.55 (5.81)	3.43 (4.20)	11
Mixed	5.90 (3.68)	3.60 (3.94)	11
Any Other	6.07 (4.87)	3.39 (3.62)	12
Disability (sweep 1)			
Yes	4.95 (2.78)	3.71 (3.46)	12
No	6.50 (4.59)	3.44 (3.88)	13
Health Problems / Disability (sweep 2)			
Yes	4.74 (2.69)	3.80 (3.42)	11
No	6.52 (4.62)	3.43 (3.88)	13
Housing Tenure (sweep 1)			
Own Home	6.79 (5.00)	3.32 (3.88)	13
Rented Council	3.69 (2.14)	3.37 (2.91)	12
Housing Association	4.63 (3.06)	3.64 (3.49)	12
Rented Privately	5.80 (3.80)	3.77 (3.93)	12
Job Related ¹	6.76 (5.11)	3.13 (3.67)	11
Other ²	4.52 (2.73)	3.78 (3.35)	11

	Mean		S.D.		Max
Region of Resident (Government Offices)					
North East	5.67	(3.66)	3.78	(3.84)	13
North West	6.40	(4.28)	3.53	(3.88)	11
Merseyside	6.32	(3.94)	3.59	(3.88)	11
York & Humber	6.33	(4.26)	3.48	(3.89)	12
East Midlands	6.51	(4.66)	3.35	(3.77)	12
West Midlands	6.22	(4.35)	3.44	(3.85)	12
Eastern	6.45	(4.55)	3.42	(3.86)	12
London	6.38	(4.53)	3.55	(3.94)	12
South East	6.95	(5.17)	3.29	(3.87)	12
South West	6.58	(4.75)	3.37	(3.83)	12
Wales	6.32	(4.37)	3.56	(3.88)	12
Lives With Father (sweep 1)					
Yes	6.54	(4.62)	3.44	(3.90)	13
No	5.75	(3.81)	3.55	(3.70)	12
Lives With Mother (sweep 1)					
Yes	6.50	(4.59)	3.44	(3.88)	13
No	5.02	(2.96)	3.74	(3.51)	11
Lives At Home With Parents³ (sweep 2)					
No	4.01	(2.48)	3.45	(3.05)	11
Both Parents	6.62	(4.76)	3.41	(3.90)	13
Mother	6.06	(4.09)	3.49	(3.76)	12
Father	5.05	(2.84)	3.68	(3.45)	11
Marital Status (sweep 2)					
Single	6.51	(4.59)	3.44	(3.89)	13
Couple ⁴	3.73	(2.35)	3.35	(2.92)	11
Marital Status (sweep 3)					
Single	6.52	(4.61)	3.44	(3.89)	13
Couple ⁵	4.65	(2.84)	3.59	(3.31)	11
Children In Household (sweep 2)					
No	6.49	(4.57)	3.43	(3.87)	13
Siblings	6.51	(4.65)	3.46	(3.90)	12
Own Children	2.88	(1.52)	3.37	(2.59)	11
Own Children (sweep 3)					
No	6.50	(4.58)	3.44	(3.88)	13
Yes	3.00	(1.69)	3.14	(2.53)	11
Father's Education (A'Levels)					
Yes	7.93	(6.70)	2.78	(3.63)	13
No	6.34	(4.45)	3.42	(3.82)	12
Not Sure	5.07	(3.31)	3.59	(3.45)	12
Father's Education (graduate)					
Yes	8.05	(6.80)	2.75	(3.65)	13
No	6.44	(4.59)	3.38	(3.82)	12
Not Sure	4.90	(3.11)	3.61	(3.40)	12

	Mean		S.D.		Max
Mother's Education (A'Levels)					
Yes	8.01	(6.80)	2.71	(3.59)	13
No	6.24	(4.34)	3.44	(3.80)	12
Not Sure	5.09	(3.33)	3.61	(3.50)	12
Mother's Education (graduate)					
Yes	8.12	(6.97)	2.73	(3.63)	13
No	6.48	(4.62)	3.39	(3.84)	12
Not Sure	4.96	(3.15)	3.62	(3.40)	12
Graduate Parents (Either)					
No	5.90	(3.95)	3.52	(3.73)	12
Yes	7.90	(6.58)	2.84	(3.72)	13
Father Employed Full-Time (sweep1)					
Yes	6.69	(4.85)	3.35	(3.87)	12
No	5.51	(3.48)	3.77	(3.75)	13
Not Answered	5.00	(2.93)	3.69	(3.49)	11
Father Self-Employed (sweep 1)					
Yes	6.79	(4.99)	3.35	(3.90)	12
No	6.52	(4.62)	3.77	(3.87)	13
Not Answered	4.92	(2.87)	3.69	(3.51)	11
Mother Employed Full-Time (sweep1)					
Yes	6.67	(4.87)	3.34	(3.85)	12
No	6.27	(4.25)	3.55	(3.88)	13
Not Answered	4.97	(2.81)	3.80	(3.57)	11
Mother Self-Employed (sweep 1)					
Yes	6.79	(5.09)	3.36	(3.88)	12
No	6.54	(4.63)	3.42	(3.88)	13
Not Answered	5.09	(3.09)	3.72	(3.56)	12
Number Of Siblings					
0	6.36	(4.21)	3.55	(3.93)	12
1	6.67	(4.83)	3.36	(3.86)	12
2	6.32	(4.42)	3.49	(3.86)	13
3	5.99	(3.90)	3.67	(3.89)	12
4	6.08	(4.42)	3.39	(3.68)	11
5	4.57	(3.09)	3.56	(3.44)	12
6+	4.83	(3.17)	3.77	(3.48)	11

1. Housing or accommodation comes with the job (includes Police and Armed Forces)
2. Including hostel
3. Parents or step-parents
4. Living with partner, wife or husband
5. Living with partner, wife or husband.

Table 38 Obtained Any Academic Qualifications Since Year 11 (Sweep 2)

Yes	1252	(1079)	19.9%	(17.1%)
No	4752	(4860)	75.4%	(77.1%)
Not Stated	300	(365)	4.8%	(5.8%)

Table 39 Obtained GCSEs, A/S Levels, A'Levels Or Other Academic Qualification Since End Of Year 11 (Sweep 3)

Yes	3775	(2720)	59.9%	(43.1%)
No	2352	(3334)	37.3%	(52.9%)
Missing	177	(250)	2.8%	(4.0%)

Table 40 A'Levels Achieved By Sweep 3 (all individuals)

Yes ¹	3234	(2073)	51.3%	(32.9%)
No	3070	(4231)	48.7%	(67.1%)

1. Calculated from variable s3alnum in the YCS 9

Table 41 Number Of A'Levels Achieved By Sweep 3 (all individuals)

Minimum	0			
Maximum	6			
Mode	0			
Median	1			
Mean	1.54	(.97)	Standard Deviation	1.67 (1.51)

Table 42 A'Level Points Score Sweep 3 (all individuals)

Minimum	0			
Maximum	60			
Mode	0			
Median	0			
Mean	9.78	(6.07)	Standard Deviation	12.37 (10.77)

Table 43 Individual Average A'Level Point Score Sweep 3 (all individuals)

Minimum	0			
Maximum	10			
Mode	0			
Median	0			
Mean	3.11	(1.96)	Standard Deviation	3.49 (3.13)

Table 44 Number Of Grade A A'Levels Achieved By Sweep 3 (all individuals)

Minimum	0		
Maximum	6		
Mode	0		
Median	0		
Mean	0.34 (.21)	Standard Deviation	0.87 (.70)

Table 45 Studying For A'Levels (sweep 1)

Yes	3861 (2494)	61.2% (39.6%)
No	2443 (3810)	38.8% (60.4%)

Annex 2

STUDYING FOR A DEGREE IN SWEEP 3 (weighted in parenthesis²⁸)

Present in sweeps 1-3 (n=6304, weighted n=6304)

Studying for a degree 2,186, 34.7% (1378, 21.9%)

*** significant at $p \leq .05$*

Qualifications

Table 46 Year 11 Attainment And Studying For A Degree – A’Level Route Pupils

Year 11 Attainment	Studying For A Degree (sweep 3)	
5+ GCSE (grades A*-C)	47.7%	(44.6%)
1-4 GCSE (grades A*-C)	3.4%	(2.8%)
5+ GCSE (grades D-G)	1.2%	(0.9%)
1-4 GCSE (grades D-G)	0%	(0%)
None Reported	2.9%	(1.7%)

²⁸ Weights provided by the DfES are used here.

Table 47 A'Level Attainment And Studying For A Degree (sweep 3) – A'Level Route Pupils

	A'Level Results (sweep 3)			
	Number Of A'Levels	A'Level Points Score	A'Level Average Point Score	No. Of Grade A A'Levels Achieved
Yes				
Mean	2.93 (2.91)	19.75 (19.58)	5.86 (5.82)	0.75 (0.74)
S.D.	1.34 (1.35)	12.11 (12.19)	2.98 (3.00)	1.19 (1.20)
Min.	0 (0)	0 (0)	0 (0)	0 (0)
Max	6 (6)	60.0 (60)	10.0 (10.0)	6.0 (6.0)
Med.	3.0 (3.0)	20.0 (20)	6.0 (6.0)	0 (0)
No				
Mean	1.96 (1.83)	11.22 (10.31)	3.94 (3.70)	0.32 (0.29)
S.D.	1.49 (1.49)	11.13 (10.88)	3.16 (3.16)	0.80 (0.77)
Min.	0 (0)	0 (0)	0 (0)	0 (0)
Max	6 (6)	58.0 (58.0)	10.0 (10.0)	5.0 (5.0)
Med.	2.0 (2.0)	8.0 (8.0)	4.0 (4.0)	0 (0)
Total				
Mean	2.48 (2.38)	15.75 (14.99)	4.96 (4.77)	0.55 (0.52)
S.D.	1.49 (1.52)	12.41 (12.45)	3.21 (3.26)	1.05 (1.03)
Min.	0 (0)	0 (0)	0 (0)	0 (0)
Max	6.0 (6.0)	60.0 (60.0)	10.0 (10.0)	6.0 (6.0)
Med.	3.0 (3.0)	16.0 (14.0)	5.3 (5.0)	0 (0)
p	<.001	<.001	<.001	<.001
eta ²	.105	.118	.089	.042

Table 48 Correlations A'Level Results (sweep 3)

	A'Level Results (sweep 3)¹		
	A'Level Points Score	A'Level Average Point Score	Number Of Grade A A'Levels Achieved
Number Of A'Levels	.88** (.88**)	.80** (.81**)	.46** (.47**)
A'Level Points Score		.91** (.91**)	.75** (.75**)
A'Level Average Point Score			.66** (.65**)

1. Sweep 1 A'Level route pupils.

** p<.05.

Schools

Table 49 Year 11 School Type (from sample file)

State School (GM)	36.4% (25.0%)
State School (other)	31.4% (18.4%)
Independent School	58.2% (52.3%)

**

Table 50 Year 11 School Type

LEA

Comprehensive to 16yrs	28.5% (16.1%)
Comprehensive to 18yrs	33.2% (19.9%)
Selective	49.7% (44.2%)

Grant Maintained

Comprehensive to 16yrs	25.4% (15.8%)
Comprehensive to 18yrs	34.6% (23.1%)
Selective	56.9% (54.6%)

Others

Modern	15.6% (7.1%)
Independent	58.2% (52.3%)

**

Gender, Social Class And Ethnicity

Table 51 Gender

Males	33.0% (20.1%)
Females	35.9% (23.6%)

Table 52 Family Social Class

Professional / Managers ¹	47.7% (37.8%)
Other Non-Manual	40.3% (29.6%)
Skilled Manual	26.8% (15.8%)
Semi-skilled	23.7% (12.6%)
Unskilled	16.1% (7.1%)
Unclassified	20.3% (9.9%)

**

1. Derived from variables (pseg1 – pseg7) included in the YCS 9. This approximates to the Registrar General's Classification

Table 53 Ethnicity

White	34.5% (21.6%)
Caribbean	16.7% (10.0%)
African	31.0% (22.6%)
Other Black	29.2% (14.3%)
Indian	46.6% (33.5%)
Pakistani	29.4% (19.6%)
Bangladeshi	20.5% (12.5%)
Chinese	52.5% (35.0%)
Other Asian	55.0% (41.0%)
Mixed	28.8% (21.3%)
Any Other	27.5% (20.6%)

**

Other Factors

Table 54 Disability (sweep 1)

Yes	21.2% (9.8%)
No	35.2% (22.5%)

**

Table 55 Health Problems / Disability (sweep 2)

Yes	21.0% (10.5%)
No	35.3% (22.6%)

**

Table 56 Housing Tenure (sweep 1)

Own Home	37.8% (25.5%)
Rented Council	11.2% (5.3%)
Housing Association	10.5% (6.8%)
Rented Privately	24.0% (14.7%)
Job Related ¹	36.4% (24.3%)
Other ²	19.6% (10.0%)

**

1. Housing or accommodation comes with the job (includes Police and Armed Forces)

2. Including hostel

Table 57 Region of Resident (Government Offices)

North East	31.3% (18.1%)
North West	38.8% (22.5%)
Merseyside	41.4% (22.4%)
York & Humber	36.7% (22.7%)
East Midlands	36.6% (23.3%)
West Midlands	32.8% (21.0%)
Eastern	34.1% (21.6%)
London	34.3% (22.6%)
South East	35.1% (23.7%)
South West	30.1% (19.2%)
Wales	34.3% (21.1%)

Table 58 Lives With Father (sweep 1)

Yes	35.9% (23.0%)
No	26.5% (14.9%)

**

Table 59 Lives With Mother (sweep 1)

Yes	35.0% (22.4%)
No	24.9% (11.9%)

**

Table 60 Lives At Home With Parents (sweep 2)

No	9.0% (4.1%)
Both Parents ¹	36.8% (24.2%)
Mother	28.2% (16.3%)
Father	25.7% (11.5%)

**

1. Parents or step-parents

Table 61 Marital Status (sweep 2)

Single	35.4% (22.6%)
Couple ¹	4.8% (1.9%)

**

1. Living with partner, wife or husband.

Table 62 Marital Status (sweep 3)

Single	35.8% (22.9%)
Couple ¹	8.8% (4.6%)

**

1. Living with partner, wife or husband.

Table 63 Children In Household (sweep 2)

No	35.2% (22.3%)
Siblings	35.1% (23.0%)
Own Children	3.8% (1.0%)

**

Table 64 Own Children (sweep 3)

No	35.2% (22.4%)
Yes	4.0% (1.7%)

**

Table 65 Father's Education (A'Levels)

Yes	50.0% (40.3%)
No	32.1% (20.3%)
Not Sure	23.3% (12.8%)

**

Table 66 Father's Education (graduate)

Yes	53.5% (43.5%)
No	35.0% (21.2%)
Not Sure	20.8% (10.6%)

**

Table 67 Mother's Education (A'Levels)

Yes	49.0% (39.1%)
No	32.5% (20.5%)
Not Sure	23.1% (12.4%)

**

Table 68 Mother's Education (graduate)

Yes	51.2% (42.1%)
No	34.6% (22.3%)
Not Sure	21.5% (10.4%)

**

Table 69 Father Employed Full-Time (sweep 1)

Yes	36.6% (24.1%)
No	28.2% (16.0%)
Not Answered	21.4% (10.3%)

**

Table 70 Father Self-Employed (sweep 1)

Yes	36.5% (24.6%)
No	35.4% (22.6%)
Not Answered	23.8% (12.1%)

**

Table 71 Mother Employed Full-Time (sweep 1)

Yes	36.7% (24.3%)
No	33.0% (20.1%)
Not Answered	23.4% (11.7%)

**

Table 72 Mother Self-Employed (sweep 1)

Yes	35.3% (24.3%)
No	35.6% (22.8%)
Not Answered	24.9% (13.0%)

**

Annex 3

STUDYING AT UNIVERSITY IN SWEEP 3

In this annex we turn our attention to entry to University based higher education more generally rather than entry to degree level higher education.

Qualifications

As we would expect better Year 11 attainment is associated with entry to University (see Table 73).

Schools

A significantly higher proportion of pupils who attended Independent schools entered university by Sweep 3 of the survey (see Table 74). As we would expect the lowest proportion of pupils entering university were from Secondary Modern schools. A larger proportion of pupils from Selective schools entered university (see Table 75).

Gender, Social Class And Ethnicity

A slightly higher proportion of young women entered university. Once again this is important because traditionally female participation has been lower than male participation. There is a significant relationship between family social class and entry to university. Table 77 reports the percentages of young people from each social class group entering university. Again the measure of family social class is derived from the YCS and equates to the highest social class of either parent²⁹. As we would expect more young people from advantaged social class backgrounds enter degree level higher education. Forty one percent of pupils with professional and managerial parents entered university, compared with only 17% of pupils from skilled manual families and 13% of pupils from semi-skilled families. There is a dramatic gap in participation between those pupils from professional and managerial parents and those

²⁹ The development of a combined family's occupational social class measure was informed by earlier sociological work (see Erikson 1984).

from unskilled families. Over six times as many young people from the more advantaged social class group entered university.

There is a wide variation in the levels of participation in higher education across the minority ethnic groups (see Table 78). Twenty three percent of white young people entered higher education. There were lower rates of participation by young people from Caribbean, other black, Pakistani and Bangladeshi ethnic groups. Entry to university was higher for minority ethnic young people who identified themselves as African, Indian, Chinese, other Asian, mixed and other minorities than it was for white young people. Again, these are important findings because the government wishes to expand higher education and raise the level of participation of young people from under-represented minority ethnic groups.

Other Factors

A number of other factors were significant. Disability and health problems were significant; a higher proportion of young people who reported that they were not disabled nor suffered ill health entered university (see Table 79 and Table 80).

Housing tenure was also important. As we would expect the highest level of entry to university was from young people whose parents owned their own homes. There were much lower levels of university entry from those young people whose parents rented their home from the (Council) Local Authority or from Housing Associations (see Table 81).

Geographic Region overall was not significant, however London had the highest level of entry to university and the North East the lowest (see Table 82). The composition

of the household in which the young person lived was significant. Twenty five percent of young people who lived with their father in Sweep 1 entered university compared with only 17% who did not live with their father (see Table 83). Twenty six percent of young people who lived with both parents in Sweep 2 entered university compared with 18% who lived with their mother only (see Table 85). Only 2% of young people who were couples in Sweep 2 and 5% of young people in couples in Sweep 3 entered university (see Table 86 and Table 87). As we might expect becoming parents themselves influenced individual young people's entry to university. Only a minority of those young people with children of their own entered university (see Table 88 and Table 89).

Parental education was also significant. Higher proportions of young people with better educated parents entered university (see Table 90; Table 91; Table 92; Table 93). Parents' employment was also significant (see Table 94; Table 95; Table 96; Table 97). Twenty six percent of young people with fathers in full-time employment entered university compared with only 18% of young people whose fathers were not in full-time work.

(weighted in parenthesis³⁰)

Present in sweeps 1-3 (n=6304, weighted n=6304)

Studying at university 2,342, 37.2% (1491, 23.7%)

**** significant at $p \leq .05$**

Qualifications

Table 73 Year 11 Attainment

5+ GCSE (grades A*-C)	50.9% (47.8%)
1-4 GCSE (grades A*-C)	4.4% (3.8%)
5+ GCSE (grades D-G)	0.7% (0.5%)
1-4 GCSE (grades D-G)	-
None Reported	5.1% (3.2%)

**

Schools

Table 74 Year 11 School Type (from sample file)

State School (GM)	39.1% (26.8%)
State School (other)	33.8% (20.0%)
Independent School	61.0% (55.3%)

**

Table 75 Year 11 School Type

LEA

Comprehensive to 16yrs	30.8% (17.6%)
Comprehensive to 18yrs	35.7% (21.7%)
Selective	53.4% (50.0%)

Grant Maintained

Comprehensive to 16yrs	27.1% (16.6%)
Comprehensive to 18yrs	37.7% (25.3%)
Selective	59.6% (56.3%)

Others

Modern	15.6% (7.1%)
Independent	61.0% (55.3%)

**

Gender, Social Class And Ethnicity

Table 76 Gender

Males	35.8% (22.0%)
Females	38.1% (25.3%)

³⁰ Weights provided by the DfES are used here.

Table 77 Family Social Class

Professional / Managers ¹	51.0% (40.9%)
Other Non-Manual	43.2% (32.1%)
Skilled Manual	29.1% (17.3%)
Semi-skilled	24.4% (12.7%)
Unskilled	16.1% (6.8%)
Unclassified	22.5% (11.2%)

**

1. Derived from variables (pseg1 – pseg7) included in the YCS 9. This approximates to the Registrar General's Classification

Table 78 Ethnicity

White	36.9% (23.3%)
Caribbean	19.4% (12.5%)
African	44.8% (32.3%)
Other Black	29.2% (14.3%)
Indian	51.5% (37.5%)
Pakistani	32.9% (22.7%)
Bangladeshi	18.2% (10.7%)
Chinese	52.5% (35.0%)
Other Asian	60.0% (47.4%)
Mixed	32.7% (24.2%)
Any Other	35.0% (26.5%)

**

Other Factors**Table 79 Disability (sweep 1)**

Yes	24.8% (11.8%)
No	37.6% (24.2%)

**

Table 80 Health Problems / Disability (sweep 2)

Yes	22.9% (11.2%)
No	37.8% (24.5%)

**

Table 81 Housing Tenure (sweep 1)

Own Home	40.5% (27.5%)
Rented Council	12.8% (6.0%)
Housing Association	14.3% (9.6%)
Rented Privately	25.0% (15.5%)
Job Related ¹	39.4% (24.3%)
Other ²	18.8% (9.3%)

**

1. Housing or accommodation comes with the job (includes Police and Armed Forces)

2. Including hostel

Table 82 Region of Resident (Government Offices)

North East	35.0% (20.6%)
North West	40.8% (24.1%)
Merseyside	43.5% (24.0%)
York & Humber	37.8% (23.4%)
East Midlands	39.6% (25.7%)
West Midlands	35.4% (22.7%)
Eastern	35.5% (22.5%)
London	38.5% (25.9%)
South East	36.9% (25.0%)
South West	33.1% (21.4%)
Wales	37.4% (23.2%)

Table 83 Lives With Father (sweep 1)

Yes	38.4% (24.9%)
No	28.5% (16.5%)

**

Table 84 Lives With Mother (sweep 1)

Yes	37.5% (24.2%)
No	27.9% (14.5%)

**

Table 85 Lives At Home With Parents (sweep 2)

No	10.3% (5.0%)
Both Parents ¹	39.3% (26.1%)
Mother	30.3% (18.0%)
Father	27.1% (12.5%)

**

1. Parents or step-parents

Table 86 Marital Status (sweep 2)

Single	37.9% (24.4%)
Couple ¹	4.8% (1.9%)

**

1. Living with partner, wife or husband.

Table 87 Marital Status (sweep 3)

Single	38.4% (24.8%)
Couple ¹	9.8% (5.0%)

**

1. Living with partner, wife or husband.

Table 88 Children In Household (sweep 2)

No	37.7% (24.2%)
Siblings	37.5% (24.7%)
Own Children	3.8% (1.0%)

**

Table 89 Own Children (sweep 3)

No	37.7% (24.3%)
Yes	3.0% (1.1%)

**

Table 90 Father's Education (A'Levels)

Yes	53.2% (43.4%)
No	34.3% (21.8%)
Not Sure	25.9% (13.5%)

**

Table 91 Father's Education (graduate)

Yes	56.9% (46.6%)
No	35.5% (22.8%)
Not Sure	22.9% (12.2%)

**

Table 92 Mother's Education (A'Levels)

Yes	52.1% (42.0%)
No	34.8% (22.1%)
Not Sure	25.3% (13.8%)

**

Table 93 Mother's Education (graduate)

Yes	54.2% (45.0%)
No	37.0% (24.0%)
Not Sure	23.8% (12.0%)

**

Table 94 Father Employed Full-Time (sweep 1)

Yes	39.2% (26.1%)
No	30.9% (17.6%)
Not Answered	22.2% (11.1%)

**

Table 95 Father Self-Employed (sweep 1)

Yes	39.2% (26.5%)
No	37.9% (24.5%)
Not Answered	25.0% (12.8%)

**

Table 96 Mother Employed Full-Time (sweep 1)

Yes	39.4% (26.3%)
No	35.1% (21.6%)
Not Answered	25.8% (13.5%)

**

Table 97 Mother Self-Employed (sweep 1)

Yes	39.1% (27.1%)
No	38.0% (24.5%)
Not Answered	26.4% (14.1%)

**

Annex 4

YCS COHORT 9 A'LEVEL ROUTE PUPILS

(weighted in parenthesis)

A'Level Pupils Sweep 1 (n= 3861; weighted n=2494)

Qualifications

Table 98 Obtained Any Academic Qualifications Since Year 11 [Sweep 2] (sweep 1 A'Level pupils)

Yes	856	(569)	22.2%	(22.8%)
No	2862	(1829)	74.1%	(73.3%)
Not Stated	143	(97)	3.7%	(3.9%)

Table 99 Obtained GCSEs, A/S Levels, A'Levels Or Other Academic Qualification Since End Of Year 11 [Sweep 3] (sweep 1 A'Level pupils)

Yes	3257	(2061)	84.4%	(82.6%)
No	552	(397)	14.3%	(15.9%)
Missing	52	(36)	1.3%	(1.4%)

Table 100 A'Levels Achieved By Sweep 3 (sweep 1 A'Level pupils)

Yes ¹	3138	(1973)	81.3%	(79.1%)
No	723	(521)	18.7%	(20.9%)

1. Calculated from variable s3alnum in the YCS 9

Table 101 Number Of A'Levels Achieved By Sweep 3 (sweep 1 A'Level pupils)

Minimum	0			
Maximum	6			
Mode	0			
Median	3			
Mean	2.48	(2.38)	Standard Deviation	1.49 (1.52)

Table 102 General A'Level Results – Number of Passes (sweep 1 A'Level pupils)

3+	2339	(1432)	60.5%	(57.4%)
2	474	(317)	12.3%	(12.7%)
1	288	(201)	7.5%	(8.1%)
0	760	(545)	19.7%	(21.9%)

Table 103 A'Level Points Score Sweep 3 (sweep 1 A'Level pupils)

Minimum	0
Maximum	60
Mode	0
Median	16.00
Mean	15.75 (15.0) Standard Deviation 12.41 (12.45)

Table 104 A'Level Average Point Score Sweep 3 (sweep 1 A'Level pupils)

Minimum	0
Maximum	10
Mode	0
Median	5.30
Mean	4.96 (4.77) Standard Deviation 3.21 (3.26)

Table 105 Number Of Grade A A'Levels Achieved By Sweep 3 (sweep 1 A'Level pupils)

Minimum	0
Maximum	6
Mode	0
Median	0
Mean	.55 (.52) Standard Deviation 1.05 (1.03)

Annex 5

STATISTICAL MODELLING RESULTS STUDYING FOR A DEGREE

Initial Modelling

Table 106 Entry To Degree Level Higher Education – Significant Factors Net Of Year 11 And A’Level Attainment

FACTOR ¹	SIGNIFICANT
Gender	X
Family Social Class	X
Ethnicity	√
Disability (sweep 1)	X
Health Problems / Disability (sweep 2)	X
Housing Tenure (sweep 1)	√
Region of Resident (Government Offices)	√
Lives With Father (sweep 1)	X
Lives With Mother (sweep 1)	X
Lives At Home With Parents (sweep 2)	X
Marital Status (sweep 2)	X
Marital Status (sweep 3)	X
Children In Household (sweep 2)	X
Own Children (sweep 3)	X
Year 11 School Type	√
Father’s Education (A’Levels)	X
Father’s Education (graduate)	√
Mother’s Education (A’Levels)	X
Mother’s Education (graduate)	X
Either Parent Graduate	√
Father Employed Full-Time (sweep1)	X
Father Self-Employed (sweep 1)	X
Mother Employed Full-Time (sweep1)	X
Mother Self-Employed (sweep 1)	X

√ = *significant* $p \leq .05$

X = *not significant* $p > .05$

1. This table is also Table 1 in the main text.

**Table 107 Model A – Logistic Regression Studying For A Degree (sweep 3),
A'Level Route Pupils**

Factor	Estimate	Standard Error	Odds
Constant	0.06	0.13	-
5+ GCSE Year 11	-	-	1.00
<5 GCSE Year 11	-1.56	0.27	0.21
3 A'Levels	-	-	1.00
<3 A'Levels	-0.70	0.12	0.50
A'Level Points Score	0.03	0.01	1.03
State School Year 11	-	-	1.00
Independent School Year 11	0.26	0.11	1.29
Non-Indian Origin	-	-	1.00
Indian Origin	0.67	0.20	1.95
Non-Chinese Origin	-	-	1.00
Chinese Origin	1.27	0.47	3.54
Non-Other Asian Origin	-	-	1.00
Other Asian Origin	0.93	0.44	2.52
Housing All Other Types	-	-	1.00
Council Housing	-0.47	0.20	0.63
Housing Association	-0.91	0.41	0.40
All Other Regions	-	-	1.00
West Midlands	-0.38	0.12	0.69
Eastern	-0.39	0.12	0.68
London	-0.40	0.13	0.67
South East	-0.40	0.10	0.67
South West	-0.49	0.12	0.61
Non-Graduate Parents ¹	-	-	1.00
Graduate Parents	0.22	0.08	1.25

1. The alternative measure - either parent is a graduate is included in the model rather than a measure for each individual parent.

Table 108 Model A1 – Logistic Regression Studying For A Degree (sweep 3), All Pupils

Factor	Estimate	Standard Error	Odds
Constant	-0.18	0.13	
5+ GCSE Year 11	-	-	1.00
<5 GCSE Year 11	-2.42	0.15	0.09
3 A'Levels	-	-	1.00
<3 A'Levels	-0.81	0.12	0.45
A'Level Points Score	0.04	0.01	1.04
State School Year 11	-	-	1.00
Independent School Year 11	0.33	0.11	1.40
Non-Indian Origin	-	-	1.00
Indian Origin	0.83	0.19	2.30
Non-Chinese Origin	-	-	1.00
Chinese Origin	1.17	0.43	3.22
Non-Other Asian Origin	-	-	1.00
Other Asian Origin	1.19	0.42	3.30
Housing All Types	-	-	1.00
Council Housing	-0.61	0.17	0.55
Housing Association	-0.89	0.36	0.41
All Other Regions	-	-	1.00
West Midlands	-0.29	0.12	0.75
Eastern	-0.33	0.11	0.72
London	-0.36	0.12	0.70
South East	-0.37	0.10	0.69
South West	-0.46	0.12	0.63
Non-Graduate Parents	-	-	1.00
Graduate Parents	0.27	0.07	1.30
Single (Sweep 3)	-	-	1.00
Couple	-1.36	0.27	0.26

Alternative Models

Table 109 Comparison Of Models A – G

	MODELS						
	A	B	C	D	E	F	G
Deviance - Null Model	5337.43	5337.43	5337.43	5337.43	5337.43	5337.43	5337.43
Deviance - Null Model + Attainment Variables	4768.87	4727.90	4727.90	4768.86	4796.89	4727.40	4751.04
Change in Deviance	568.56	609.53	609.53	568.57	540.54	610.03	586.40
Deviance - Explanatory Variables Only	5200.71	5200.71	5200.71	5200.71	5200.71	5200.71	5200.71
Deviance - Explanatory Variables + Attainment Variables	4687.35	4654.48	4653.83	4687.09	4716.31	4653.10	4678.51
Change in Deviance	513.37	546.24	546.88	513.62	484.40	547.61	522.21
Change in d.f.	3	3	3	4	3	4	3

Table 110 Alternative Models Of Entry To Degree Level Higher Education**PARAMETER ESTIMATES**

FACTORS	MODELS						
	A	B	C	D	E	F	G
<5 GCSE Year 11	-1.56	-	-	-1.55	-1.59	-	-
GCSE Passes Year 11	-	0.20	-	-	-	0.21	0.21
GCSE Passes Sweep 1	-	-	0.21	-	-	-	-
<3 A'Levels	-0.70	-0.69	-0.69	-	-	-	-
Total No. A'Levels	-	-	-	-	0.14	-	0.17
2 A'Levels	-	-	-	-0.67	-	-0.62	-
Zero Or 1 A'Level	-	-	-	-0.73	-	-0.77	-
A'Level Points Score	0.03	0.03	0.03	0.03	0.04	0.02	0.03
Indian Origin	0.67	0.70	0.71	0.67	0.69	0.71	0.72
Chinese Origin	1.27	1.44	1.45	1.26	1.22	1.44	1.41
Other Asian Origin	0.93	‡ 0.81	‡ 0.80	0.94	0.93	‡ 0.83	‡ 0.81
Council Housing	-0.47	-0.43	-0.43	-0.47	-0.47	-0.43	-0.42
Housing Association	-0.91	-0.93	-0.92	-0.91	-0.96	-0.93	-0.98
Independent School	0.26	‡ 0.18	‡ 0.18	0.26	0.26	‡ 0.19	‡ 0.19
West Midlands	-0.38	-0.33	-0.33	-0.38	-0.36	-0.33	-0.32
Easter	-0.39	-0.36	-0.35	-0.39	-0.37	-0.36	-0.33
London	-0.40	-0.39	-0.39	-0.40	-0.38	-0.39	-0.37
South East	-0.40	-0.41	-0.41	-0.40	-0.38	-0.41	-0.38
South West	-0.49	-0.49	-0.49	-0.49	-0.48	-0.49	-0.47
Graduate Parents	0.22	0.17	0.17	0.22	0.21	0.17	0.16
Constant	0.06	-1.60	-1.64	0.08	-0.68	-1.57	-2.42

‡ Not significant p>.05

**Table 111 Model G – Logistic Regression Studying For A Degree (sweep 3),
A'Level Route Pupils**

Factor	Estimate	Standard Error	Odds
Constant	-2.43	0.20	
Number GCSE Passes Year 11	0.22	0.023	1.24
Number A'Level Passes	0.15	0.05	1.16
A'Level Points Score	0.03	0.01	1.03
Non-Indian Origin	-	-	1.00
Indian Origin	0.70	0.20	2.01
Non-Chinese Origin	-	-	1.00
Chinese Origin	1.40	0.47	4.04
Housing All Types	-	-	1.00
Council Housing	-0.43	0.20	0.65
Housing Association	-1.00	0.41	0.37
All Other Regions	-	-	1.00
West Midlands	-0.31	0.12	0.73
Eastern	-0.33	0.12	0.72
London	-0.31	0.13	0.73
South East	-0.38	0.10	0.69
South West	-0.46	0.12	0.63
Non-Graduate Parents	-	-	1.00
Graduate Parents	0.18	0.08	1.20

Table 112 Significant Two-Way Interaction Effects Model G – Logistic Regression Studying For A Degree (sweep 3), A’Level Route Pupils

Factor	p	
Number GCSE Passes Year 11 * Number A’Level Passes	<.001	√
Number GCSE Passes Year 11 * A’Level Points Score	.465	X
Number GCSE Passes Year 11 * Graduate Parents	.007	√
Number A’Level Passes * Graduate Parents	.511	X
A’Level Points Score * Graduate Parents	.929	X
Council Housing * London	.047	√
West Midlands * Graduate Parents	.018	√

√ = significant $p \leq .05$

X = not significant $p > .05$

Table 113 Model G With Interaction Effects – Logistic Regression Studying For A Degree (sweep 3), A’Level Route Pupils

Factor	Estimate	Standard Error	Odds
Constant	-4.63	0.39	
Number GCSE Passes Year 11	0.48	0.05	1.62
Number A’Level Passes	1.11	0.15	3.03
A’Level Points Score	0.04	0.01	1.05
Non-Indian Origin	-	-	1.00
Indian Origin	0.75	0.20	2.11
Non-Chinese Origin	-	-	1.00
Chinese Origin	1.38	0.49	3.99
Housing All Other Types	-	-	1.00
Council Housing	-0.60	0.22	0.55
Housing Association	-1.02	0.41	0.36
All Other Regions	-	-	1.00
West Midlands	-0.53	0.15	0.59
Eastern	-0.36	0.12	0.70
London	-0.41	0.13	0.66
South East	-0.39	0.10	0.68
South West	-0.49	0.12	0.61
Non-Graduate Parents	-	-	1.00
Graduate Parents	1.43	0.45	4.20
Number GCSE Passes Year 11 *			
Number A’Level Passes	-0.12	0.02	0.89
Number GCSE Passes Year 11 *			
Graduate Parents	-0.15	0.05	0.86
Council Housing * London	1.04	0.53	2.83
West Midlands * Graduate Parents	0.60	0.26	1.82

Annex 6

STATISTICAL MODELLING RESULTS A'LEVEL ROUTE

**Table 114 (Model H) Logistic Regression Entry To A'Level Route (sweep 1),
All Pupils**

Factor	Estimate	Standard Error	Odds
Constant	1.79	0.10	
5+ GCSE Year 11	-	-	1.00
<5 GCSE Year 11	-3.76	0.10	0.02
Professional / Managers	-	-	1.00
Other Non-Manual	-0.19	0.11	0.83
Skilled Manual	-0.59	0.11	0.55
Semi-skilled	-0.42	0.15	0.66
Unskilled	-0.84	0.24	0.43
Non-Indian Origin	-	-	1.00
Indian Origin	0.97	0.26	2.64
Own Home	-	-	1.00
Council	-0.61	0.16	0.54
Housing Association	-0.62	0.31	0.54
Privately Rented	-0.81	0.28	0.45
Other	-0.77	0.33	0.46
Job Related Housing	-0.93	0.46	0.40
Non-Graduate Parents	-	-	1.00
Graduate Parents	0.70	0.10	2.02
LEA & GM Comprehensives (to age 18)	-	-	1.00
LEA Comprehensive (to age 16)	-0.44	0.09	0.65
GM Comprehensive (to age 16)	-0.51	0.19	0.60
LEA Selective	1.53	0.39	4.62
GM Selective	0.91	0.31	2.49
Modern	-1.49	0.21	0.22
Independent	1.39	0.22	4.02
All Other Regions	-	-	1.00
London	0.24	0.15	1.27

Annex 7

COMPLEX EXPLORATORY ANALYSIS

Table 115 Summary Results Of Exploratory Probit Models And Probit Models With Selection

<i>Explanatory Variable</i>	<i>Model I (Probit) Entry To A'Level Route</i>	<i>Model J (Probit) Entry To Higher Education A'Level Route Pupils</i>	<i>Model K (Probit With Selection)</i>	
			<i>Entry To A'Level Route</i>	<i>Entry To Higher Education Route</i>
Attainment				
<5 GCSE Year 11	√	√	√	√
<3 A'Levels	-	√	-	√
A'Level Points Score	-	√	-	√
Ethnicity				
Indian Origin	√	√	√	√
Chinese Origin	X	√	X	√
Other Asian Origin	X	√	X	√
Social Class				
Other Non-Manual	X	X	X	-
Skilled Manual	√	X	√	-
Semi-skilled	√	X	√	-
Unskilled	√	X	√	-
Housing Tenure				
Council Housing	√	√	√	X
Housing Association	X	√	X	X
Renting (privately)	√	X	√	X
Job Related	√	X	√	X
Other	√	X	√	X
Parental Education				
Graduate Parents	√	√	√	X
Year 11 School Type				
LEA Comp (16yrs)	√	X	√	X
GM Comp (16yrs)	√	X	√	X
LEA Selective	√	√	√	√
GM Selective	√	X	√	X
Secondary Modern	√	X	√	√
Independent	√	√	√	X

Summary Results Of Exploratory Probit Models And Probit Models With Selection - Continued

<i>Explanatory Variable</i>	<i>Model I (Probit) Entry To A'Level Route</i>	<i>Model J (Probit) Entry To Higher Education A'Level Route Pupils</i>	<i>Model K (Probit With Selection)</i>	
			<i>Entry To A'Level Route</i>	<i>Entry To Higher Education</i>
Region				
West Midlands	X	√	X	√
Eastern	X	√	X	√
London	X	√	X	√
South East	X	√	X	√
South West	X	√	X	√

Annex 8

TECHNICAL

Multicollinearity

It is substantively plausible that both attainment at the end of Year 11 and A'Level attainment will influence a young person's chances of entering higher education.

Within the modelling process we have reported that attainment at both of these stages of the educational process are significant. We are aware that examination attainment at the end of Year 11 could potentially be highly related to examination performance at A'Level. This could lead to the familiar problem of multicollinearity in the regression models that we have fitted.

There is a weak (but significant) association between Year 11 GCSE attainment (number of passes Grade A*-C) and both the number of A'Levels attained ($r = .370$), and A'Level Point Score ($r = .425$). The weak associations between GCSE attainment and A'Level attainment indicate that, as we would expect substantively, there is a relationship but multicollinearity is not a serious concern. There is a stronger relationship between the number of A'Levels attained and A'Level Point Score ($r = .877$).

We explored the issue of multicollinearity more formally in the modelling process, below are the results for Model G (see Table 111).

Model G

Variable	Tolerance
Number of Year 11 GCSE Passes (Grade A*-C)	.797
Number of A'Levels Attained	.226
A'Level Points Score	.214

Menard (1995) suggests 'a tolerance of less than .20 is cause for concern; a tolerance of less than .10 almost certainly indicates a serious collinearity problem' (p.66).

Therefore we conclude that multicollinearity is not a major concern in this model.

Further exploration of the collinearity diagnostics revealed that 90% of the variance in number of Year 11 GCSE Passes was in the same dimension as only 6% of the variance in the Number of A'Levels attained, and only 14% of the variance in A'Level Points Score. This strongly indicates that there is not a major collinearity problem when both GCSE and A'Level attainment measures are included in this model. Ninety percent of the variance in the Number of A'Levels attained was in the same dimension as 75% of the variance in A'Level Points Score. This suggests to us that these two measures of A'Level attainment are related, as we would expect, but here multicollinearity is not a serious concern.

In conclusion, we have retained the measure of Year 11 GCSE attainment and the two measures of A'Level attainment. It is substantively plausible to include these measures in models of entry to higher education. We are confident that we have investigated the issue of multicollinearity and that there is sufficient justification to include these measures on technical as well as substantive grounds.

Endogeneity

In this analysis and in earlier the analysis of YCS Cohort 3 data we demonstrated that educational attainment was the most important factor influencing a young person's decision to stay on in education when aged 16 or to enter the A'Level Route. This present research suggests that net of GCSE attainment in Year 11 a number of other factors are also significant. Educational attainment was conceptualised as an explanatory variable, a common procedure within social science and education research (see Burnhill *et al.* 1990; Drew *et al.* 1992; Drew 1995).

Potentially, this raises the difficult methodological issue of endogeneity (i.e. whereby an explanatory variable is an outcome of the process being modelled and therefore is likely to be correlated with the error term in a standard regression analysis). The consequences of this problem are familiar within econometrics (see Heckman 1979; Vella 1998) and have been recognised by sociologists in the U.S. (see Winship and Mare 1992), but are largely unknown within British sociology and educational research.

Dr Gayle has undertaken some exploratory analysis (using YCS Cohort 6 data) that has demonstrated that educational attainment is correlated with other explanatory factors and that this correlation has a substantial effect on parameter estimation. This situation could have arisen in a number of ways. It is at least plausible, and arguably likely, that this is due to endogeneity.

We propose that future research should be undertaken to investigate formally the potential effects of endogeneity. One strategy would be to employ a statistical

modelling approach that deals explicitly with endogeneity. This would allow the estimation of the ‘direct’ effect of educational attainment rather than the effect compounded with unmeasured and possible unmeasurable factors that could be expected to influence both educational attainment and staying on in education (or entry to the A’Level Route).

A statistical modelling solution that explicitly models endogeneity is not straightforward. The main problem is that it is not simply the case that the structure of the model can be worked out empirically in the model fitting process. In econometrics there is an established tradition of drawing upon economic theory to inform model formulation, for example in the estimation of wage equations in labour economics. What would be required, in our view, is the development of a theoretical structure that is informed by sociological and educational theory. We envisage that this is where close collaboration between quantitative social scientists and social statisticians would be critical.

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