

Succeeding in higher education: a widening participation issue

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1. Introduction

Reducing inequalities in access to higher education (HE) has been one of the persistent themes in British government policy since the mid 1990s (Dearing, 1997; Fryer, 1997; Kennedy, 1997). Concerns about *who* is accessing HE have been prompted by empirical findings that, despite the increase in the number of people participating in HE since the 1960s, inequality in access between students of different socioeconomic backgrounds has actually widened, at least in the mid and late 1990s (Blanden and Machin, 2004; Machin and Vignoles, 2004; HEFCE, 2005). Concerns about who accesses HE also increased with the introduction of up front tuition fees in 1998 and the subsequent introduction of variable fees in 2006². Although the fees are means tested, there continue to be fears that fees create yet another barrier to participation by poorer students.

The debate about expansion and the impact of tuition fees has largely centred on the extent to which students from poorer socio-economic backgrounds participate in HE. However, there is increasing recognition that widening participation is not simply about increasing access but also the extent to which sub-groups of young people are differently represented across different types of HE institutions (Tonks and Farr, 2003; Connor et al. 2004) and how well they succeed in HE, in terms of completion and achievement. The nature of a student's HE experience and how well they do in higher education is important for many reasons, including the fact that the economic value of a student's degree will vary substantially according to the degree he or she acquires. We know, for example, that the financial return to a degree varies by degree subject, by institution quality and also by how well the student does in higher education, as measured by their

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² Further reforms in 2006/7 abolished up front fees and replaced them with higher (means tested) fees that can potentially vary by institution and are repaid after graduation via income contingent loans. As students' debt will be repaid after graduation on an income contingent basis, these funding arrangements may be beneficial in terms of widening participation. However, the fact that fees are higher is likely to be a barrier for some students and there are fears that fees that vary by institution may unduly influence poorer students' degree choices. More positively though, there is now increased up front support for students, via the re-introduction of maintenance grants. The impact of these funding changes on access remains to be proven, although descriptive evidence suggests that aggregate student numbers have not fallen post 1998 and that fees are not responsible for the widening of the socio-economic gap in HE participation (Galindo-Rueda et al. 2004).

degree class (Bratti et al. (2006); Chevalier and Conlon (2003); Sloane and O’Leary (2004); Walker and Zhu (2005)).

In this paper we focus particularly on the extent to which different types of students succeed in HE. ‘Drop-out’ by working-class students, and other non-traditional students, has already been identified as a major challenge facing the sector (HEFCE, 1999; Quinn, 2004). Conditional on entering HE, students who are already under-represented in HE may face further barriers to progression and achievement within higher education. This may affect both their likelihood of dropping out of HE and their degree class. We attempt to analyse the nature of non-completion and the differences in degree class achieved by different types of student. In doing this we take account of the course and institution choices made by different types of student. We acknowledge that many researchers have argued that a success driven approach to education wrongly constructs student withdrawal and non-completion as failure (McCormack, 2005). Yet even if drop out or withdrawal from HE is only a temporary phase for some students, *and* if students gain from HE regardless of whether they complete or not, we do need better evidence on whether student non completion and achievement is a problem for particular students or types of institution.

We start by reviewing the existing literature, focusing specifically on studies that have investigated the determinants of non-completion in higher education, and degree class achievement. Section 3 describes the data, and Section 4 discusses the econometric model of non-completion and degree achievement. Results are reported in Section 5, and discussion is provided in Section 6.

2. Literature

There is a large and growing literature on widening participation in HE and it is largely focused on the barriers to entry and participation experienced by non traditional students; and, the extent to which the current policy framework facilitates or deters participation in HE by historically under represented groups. The literature on the determinants of success in HE is more limited.

2.1 Conceptual confusions around non-completion

Non-completion is a major issue for non-traditional students (Dearing, 1997; McGivney, 1996; HEFCE, 1999; Quinn, 2004). In the US particularly, where drop out is high and around half of college students do not complete their degrees (Dynarksi, 2005), there has been pressure on policy-makers to shift the focus towards the issue of non-completion by disadvantaged or minority groups (Hodge and Pickron, 2004). In the UK the drop out problem has generally been viewed as less important, as the received wisdom is that the HE sector as a whole has a low level of student non-completion (Dearing, 1997). However, as the sector has expanded and the rate of non-completion has risen (Johnes and McNabb, 2004), so policy attention in the UK has shifted to this issue, and non-completion rates are now part of a range of indicators used to measure university performance. HESA data suggests that in 2003/04 7.7% of young full time first-degree

students did not remain in HE after their first year of study. This contrasts to 15.6% of mature full time first-degree students who did not continue after their first year. Such raw indicators may, however, hide differences in non-completion across different types of student, which is a key focus of this paper.

There are a number of different terms used to describe different aspects of student non-completion, including drop out, wastage, withdrawal, voluntary withdrawal, involuntary withdrawal, stop out and failure. The plethora of terms reflects in part the conceptual confusion about what one is trying to measure. One of the most pressing policy concerns about non-completion is the economic costs associated with non-completion and in particular the impact on the public purse; this notion is based on the idea that there has been a waste of resources if a student starts but does not complete a course (Yorke, 1998). Another potential concern is the impact of non-completion on the student, i.e. the sense of failure that a student may feel after dropping out of university and of course the impact of drop out on his or her potential wages.

At the same time, it needs to be recognised that for many students progression through education, and in particular HE, is not linear. Students may engage with HE, take time out and return to HE at a later date (either in the same institution or elsewhere). This is particular true of mature students (McGivney, 1996). Labelling this as academic failure or wastage would seem inappropriate: just because students withdraw from their studies does not mean that they have not received any benefit from HE (Johnes and Taylor, 1989). This is not merely a semantic debate. Higher education institutions face clear incentives to encourage student completion in the 'normal' time and non-completion whatever the cause is penalised. This may lead to a tension between the widening participation agenda and the desire by HEIs not to incur penalties from high student drop out (Palmer, 2001).

The most widely used measure of non-completion in UK research is whether the student obtained her/his degree in the 'required' or 'usual' time (see for example Johnes, 1990 or Smith and Naylor, 2001). Clearly this definition would tend to overstate the problem as many students classified as non-completers under this definition eventually go on to complete their degree (Johnes (1990) identifies these students as stop-outs). As importantly, this definition does not identify the reason for non-completion. Johnes and McNabb (2004) are unusual, in the UK literature at least, in that they model voluntary dropouts and drop outs due to academic failure separately. They found that the factors influencing students' withdrawal (perhaps because of good outside options or because they are transferring to a more appropriate course elsewhere) do differ somewhat to the factors determining drop out due to academic failure. This is consistent with some theoretical models, such as that proposed by Tinto (1975, 1993). Tinto draws a clear distinction between voluntary withdrawal and forced withdrawal, hypothesising that the causes of these two phenomena may be different³.

³ See also Brunsten et al. (2000) for a contrary view of the appropriateness of the Tinto model.

2.2 Empirical evidence on non-completion and degree class achievement in HE

There are a few recent studies that have examined non-completion in the UK, albeit on selected samples of students or for particular types of HE institutions (Johnes, 1990; Smith and Naylor, 2001; and Johnes and McNabb, 2004 are notable examples). The literature on the determinants of degree achievement is more extensive and we provide a discussion of the key references only.

Academic preparation and prior achievement has consistently been found to be an important determinant of both non-completion and degree achievement, in the UK and the US⁴. Many of the early UK studies in this field however, relied on aggregated data (Johnes and Taylor, 1989, 1990) or on data from specific institutions (Johnes, 1990) of subject areas (Smith and Naylor, 2001a).

One of the first UK studies to use individual level data was Smith and Naylor's (2001) study of student withdrawal or drop out⁵. This study used data on an entire cohort of UK undergraduate students but limited to the 'pre-92 universities'. They found that for males, an additional A level point reduced the probability of non-completion by around 1.4 percentage points; the effect was marginally smaller for females. Furthermore, they found that students who were better prepared for their degree subject, i.e. who had taken A levels in subject areas related to their choice of degree, were more likely to complete, at least in social science and science based subjects. In contrast to Johnes (1990) however, they found that students who attended private secondary school were 4 percentage points *less* likely to complete their degrees, as compared to a student who attended a state school. This rather surprising finding has been confirmed by a number of other studies (HEFCE, 2003; Johnes and McNabb, 2004). It may be that on average state school children who go to university are more able or motivated than those from more privileged backgrounds who attend private school. Smith and Naylor (2001a) also found a similar result for degree achievement, namely that attendance at a private secondary school had a negative effect on degree performance (for economics graduates).

The type of prior qualification a student has also appears to matter for success in HE. Brown et al. (1999) found that there is a higher HE drop-out rate for those with General National Vocational Qualifications (GNVQs) as compared to those who entered HE with A levels, although this relationship may not be causal. Johnes and McNabb (2004) found that students entering HE with A levels or Scottish Highers were more likely to complete as compared to students who entered with all other types of qualification. Similarly there is some evidence that students who come from schools that have historically low participation rates in HE are at greater risk of non-completion (Walker et al. 2004).

Students themselves also think that academic preparation for HE is important. Lowe and Cooke (2003) highlighted the fact that many students see their own academic preparation,

⁴ For instance, Blanchfield, 1972; Tinto, 1975; Johnes and Taylor, 1989, 1990; Johnes, 1990; McNabb, Sarmistha and Sloane, 1998; Smith and Naylor, 2001, 2001a; Rodgers and Ghosh, 2001; Johnes and McNabb, 2004; Purcell et al. 2005.

⁵ Smith and Naylor (2001) did not distinguish between drop out and withdrawal in their analysis.

or lack thereof, as a major contributory factor to failure in HE. This was particularly so for males.

The evidence on the effect of peer group is mixed. For the US, Light and Strayer (2000) found that lower ability students are more likely to be non-completers if they attend high quality institutions than if they attend lower quality institutions. Recent work by Johnes and McNabb (2004) found weaker results for the UK. Johnes and McNabb (2004) consider the effect of a student's own academic ability relative to the mean ability of students at their university on the same course. They found that by and large ability-related peer effects do not affect completion, although high ability males were more likely to drop out if the overall level of ability of their peers on the course was low. In terms of degree achievement, Smith and Naylor (2001a) found that a student's rank in their university cohort did determine (positively) the likelihood of them getting a better class of degree (in economics).

Students who drop out often cite financial difficulties as an important factor in their decision (Yorke, 1998). Certainly a consistent finding from the largely US evidence base, is that financial factors bear upon both participation and non-completion in HE (Dynarski (2005); Ishitant et al. (2003); Singell (2004)). There is very little UK evidence on this issue however.

Another factor identified as important is the quality of the student's experiences of HE and in particular their integration into academic and social life (Yorke 1998; 2000; Baker et al, 2006; Taylor and Bedford, 2004). Empirically quality has been found to impact on non-completion. Smith and Naylor (2001) and Johnes and McNabb (2004) found that students in institutions with better teaching, as measured by teaching quality assessment scores, were more likely to complete. However, Johnes and McNabb (2004) found that research quality (as measured by RAE ranking) had an ambiguous effect on non-completion.

Yorke (2000) found that students cited the wrong choice of field of study and academic subject as being important in explaining withdrawal. Certainly there is UK evidence that non-completion and degree class achievement varies by subject of degree (Smith and Naylor, 2001; Johnes and McNabb 2004; Purcell et al. 2005).

Some economists have considered the role of the labour market in influencing non-completion. On the one hand, when the student has very good outside options, i.e. can earn a good wage in the labour market, he or she may be more likely to withdraw from HE. Equally where local labour market conditions are not good, he or she may find earning money to fund HE harder, and may be more likely to drop out. Smith and Naylor (2001) found evidence to support the latter hypothesis. They concluded that in their data, an increase in the local unemployment rate of around 5 percentage points would increase drop out by 1 percentage point. Furthermore, they found the effect of the local unemployment rate varied across different types of student, the effect was much greater for males from a lower socio-economic background for example.

A number of personal characteristics have also found to be correlated with non-completion and degree achievement. Non-completion and degree achievement appears to vary by gender in the UK in a complex way. Some studies have found that women are more likely to achieve a higher class of degree than men but are less likely to get a first class degree (McNabb et al. 1998; Chapman, 1996). There is more consistent evidence that women are more likely to complete their degrees (Johnes and McNabb, 2001; Smith and Naylor 2001; Purcell et al. 2005). Evidence on the role of age on degree achievement is also mixed. There is some evidence that mature students are more likely to drop out of HE (Smith and Naylor, 2001), although equally some studies have suggested that mature students achieve a higher class of degree on average (Hoskins et al. 1997). Purcell et al. (2005) found that non-disabled students were more likely to get a higher class of degree. Ethnicity also matters for success in HE (Connor et al. 2004; Purcell et al. 2005; Broecke and Nicholls, 2006). Although participation by minority ethnic students is now higher than for white students, non-completion has been found to be higher for some ethnic minority groups and degree achievement lower. There is mixed evidence of social class effects. Johnes (1990) found social class factors to be a significant determinant of non-completion at Lancaster University specifically, although Smith and Naylor (2001) found very little social class effect for pre-1992 universities. Smith and Naylor (2001a) also found very little social class effect in terms of determining degree achievement in economics. Parental education does however, appear to positively influence degree achievement (Dearden et al. 1997; Purcell et al. 2005).

The literature therefore points to a myriad of factors that may be important in determining non-completion and achievement. It also highlights the fact that there has as yet been no comprehensive quantitative study of non-completion and degree achievement in the UK, i.e. one that is not restricted to particular institutions or types of student and is based on current data. This is the motivation for this paper.

3. Data

This paper uses data from the Higher Education Statistics Agency (HESA) student database. HESA collects information on all Higher Education students studying at Higher Education Institutions (HEIs) in the UK, including data on a range of socio-demographic indicators such as age, gender, disability, and ethnic group. It also contains information on students' higher education institution, subject studied, progression, mode of attendance, qualification aimed for, and year of programme. The weakness of the data set is that it does not include rich family background information on each student, i.e. we do not have parental occupation or family income. The strength of the data is that it includes very detailed information on the nature of the student's HE study, particularly in terms of institution and degree subject, and the fact that it is a census of HE students, rather than a sample.

HESA data were first collected during the academic year of 1994-1995; however, here we analyse the student-level data for the academic year 2003-2004. The HESA data for this period contain information on 1,135,531 students from 128 institutions. Note that the data is restricted to first degree students only and excludes non-UK students, as well

as those studying in Scottish, Welsh, and Northern Irish universities. Full descriptive statistics are provided in tables 1 to 4.

Table 1 provides a breakdown of the personal characteristics of the first degree sample. In 2003/04 data, 56% of first degree students are females and approximately 76% of all HE students are from a White ethnic background. In terms of age, the majority of students (75%) are below the age of 24 years of age. However, a significant minority are mature students, with 13% of the sample being over the age of 35. 7% of undergraduate students are classified as disabled.

It is still the case that roughly half of HE first-year undergraduates entered with A-levels in 2003/04. In recent years, the HESA data also include information on the total tariff score⁶ achieved by each student prior to entry into HE. In our data, the mean tariff score for first year students entering with A-levels in the full sample is 318.12. However, it is worth noting that the percentage of missing values for the tariff score variable is extremely high across the whole sample (54%) – 29% missing for first year students, and 67% missing for students in other years. This is because the tariff scores are only compulsory for UCAS entrants, and higher education institutions are not required to supply this information to HESA. We therefore rely on the qualification indicator variable in our analysis, rather than the tariff score.

Table 2 indicates the proportions of the student body taking degrees in different subject areas. Subjects allied to medicine, such as nursing, are taken by nearly one in ten of the sample. Likewise business administration is a very popular subject, again taken by just over one in ten of the undergraduate sample.

In this paper we are focusing on the extent to which different groups of students succeed in HE, and specifically at non-continuation and degree class. Table 3 indicates that of the sample of first degree students in the 2003-2004 academic year, 6% failed to progress and dropped out from their institution or decided to move institution in the following year. This suggests that relative to many other countries in Europe and the US, the UK has very low drop out rates. Table 4 then shows the proportions of final year students achieving different classes of degree. Roughly 11% of final year students graduated with a 1st class degree, and 4% left with no degree classification.

We merged the HESA data into additional data on the quality of institution attended. Specifically we added both 1996 and 2001 Research Assessment Exercise rankings for each higher education institution. RAE rank is of course a measure of research quality but is also potentially indicative of the esteem in which students and employers hold the various institutions. Teaching quality is equally important and is assessed periodically by the Quality Assurance Agency for Higher Education. From their assessments of teaching quality, the QAA produces published teaching quality scores and these were also merged into the main data set. Full descriptions of these variables are at appendix A.

⁶ The tariff provides a mechanism by which to equate different types of qualification in terms of a common score. Full details are provided at <http://www.ucas.ac.uk/candq/tariff/#tables>

4. Analytic Strategy

4.1. Non-continuation Model

The main statistical model of non-continuation or ‘dropout’ in HE can be written as follows:

$$\Pr(\text{Dropout} = 1 | X = x) = \Phi(x' \beta),$$
$$\Pr(\text{Dropout} = 1 | X = x)_{ij} = \beta \text{Personal}_{ij} + \gamma_j + \varepsilon_{ij},$$

where *Dropout* is a discrete variable (1 = left with no award, and 0 otherwise), and *X* contains a vector of personal variables (e.g., gender, ethnicity, age, disability status, whether the student lives at home, highest qualification completed prior to entering the university, degree subject, and mode of study). The variable γ_j represents either institutional variables (e.g., RAE 2001, QAE post 2000, and types of institution⁷) or, in some specifications, institutional fixed effects, and ε_{ij} denotes the error term. We also control for neighbourhood characteristics in the estimation, including the index of local multiple deprivation, average local levels of unemployment, qualifications, the proportion of car owners in the neighbourhood, and other local socio-economic variables such as average pay in the neighbourhood. The equation is estimated using a probit model, and marginal effects are reported in the tables. Note that we allow clustering at the institutional level in all non-continuation regressions.

It should be noted that the estimation can only provide evidence of correlations between student characteristics, such as gender and ethnicity, and the likelihood of dropping out of university. The modelling approach cannot prove causality. This is because our data is not rich enough to include measures of all the factors that influence HE choices and the likelihood of dropping out, such as ability, motivation and interest in a particular degree subject. Although we include institutional type and subject of degree as explanatory variables, these variables are themselves likely to be endogenous to the personal characteristics of the student. For example, it is likely that students sort themselves into different types of HE institution on the basis of ability, and that our indicator of qualification on entry into HE is insufficient to control for this. Another example would be if students selected themselves into certain types of institutions or subject areas, based on their own ethnic background and that of other students. Thus by controlling for institutional fixed effects and the degree subject taken by the student, we may be able to control for some of the unobserved heterogeneity at the institutional level that may influence student drop out. However, there remains the possibility of unobserved heterogeneity at the individual level that we cannot allow for. We therefore need to interpret our results with care.

⁷ The institution types consist of: Russell Group institutions, which include institutions such as the London School of Economics; the 94 Group institutions, such as Queen Mary Westfield; Old universities, which include many so called “red brick” institutions such as the University of Reading; the Rest, which are basically the former polytechnic institutions such as the University of Northumbria; and finally the Specialist institutions which are institutions that cover a limited subject range, such as the Institute of Education.

4.2 Degree class Model

We considered several different statistical models of degree class achieved. The models presented are similar to the non-continuant model described above. The dependent variable is a dummy variable with a value of 1 if the student achieved a first class degree or not, and 0 otherwise. Similar models are also estimated where the dependent variable takes a value of one if the person achieved an upper second (2i) degree or above and a model where the dependent variable equals one if the person achieved a lower second class degree (2ii) or above. The equations are estimated using a probit model. The benefit of this modelling approach is that one can focus on the determinants of a particular level of achievement and that the effects of the explanatory variables are allowed to vary across different degree classifications.

We also estimated more restrictive models of degree class, which retained the ordinal ranking of the degree class variable. For example, we estimated an ordered probit model. However, this model requires that the explanatory variables have similar effects across the different degree classifications, which was an assumption that was not supported by the data. More flexible specifications, such as a multinomial logit, were also attempted but would not converge.

In all the degree class models, similar controls to those used above in the non-continuation model are used, namely gender, ethnicity, whether the student is disabled, age, entry qualification, whether the student lives at home, degree subject and mode of study. In some specifications, RAE and QAA scores are included to allow for differences in institutional quality. We also estimate a model that controls for institution fixed effects. In addition, controls for neighbourhood characteristics are included, as discussed earlier. Note that we allow clustering at the institutional level in all degree class regressions. Similar caveats about causality apply to the model of degree class, as apply to the non-continuation model described above.

5. Results

5.1 Non-completion

Table 5 reports the marginal effects from a probit model of the probability of non-continuation⁸ in HE. The probit equation in Column 1 of Table 5 controls only for personal characteristics prior to entering HE (e.g., gender, ethnicity, age, disability status, accommodation, and highest entry qualification completed), as well as variables describing the individual's home neighbourhood (i.e. based on the home/ parental home post code). In the first column, we can see that women are 1.3 percentage points less likely to drop out; the estimated coefficient is negative and statistically significant at the 1% level. This is consistent with previous findings that women are more likely to complete HE than men (Johnes and McNabb, 2001).

⁸ For ease of writing, we use the term 'drop out' and non-completion, non-continuation interchangeably, notwithstanding our previous discussion about the fact that we would ideally like a measure of non-continuation that included the reasons for the student not continuing in HE.

Recent evidence from Connor et al. (2004) concludes that minority ethnic groups have high levels of participation in HE; they report that the minority ethnic group share of undergraduate students in England is 16% compared to 9% in the population as a whole. However, despite high levels of HE participation among minority ethnic groups, results from Column 1 of Table 5 suggest that students from some particular minority ethnic groups are more likely to not complete their degrees. Specifically, Black British students, Asian British - Pakistani students and 'other' British Asian students are significantly more likely to drop out of HE. By contrast, Asian British – Indian or Bangladeshi, and Chinese origin students are as likely to continue in HE as White students. The associations between ethnic group and non-continuation are sizeable. For example, Black British students of African origin are 1.9 percentage points more likely to be drop out of HE. The effects for other groups are as follows: students described as from an 'other' ethnic background are 1.3 percentage points more likely to not complete compared to White students, Black British - Caribbean students are 1.1 percentage points more likely, Black British – Other 1.0 percentage points more likely, Asian British – Other just under one percentage point more likely and Asian British - Pakistani 0.8 percentage points more likely. People with unknown ethnicity (or with missing data on ethnicity), are 3.4 percentage points more likely not to continue in HE.

Individuals with known disability are 0.5 percentage points significantly more likely to drop out than those without disability.

In contrast to findings from some previous studies that relied on somewhat restricted samples, Table 5 suggests that mature students are more likely to complete their higher education than younger students. Whilst very young students, below the age of 19, are 2.7 percentage points significantly more likely to drop out than those in the 19-20 year age-group, there is an almost monotonically decreasing relationship between age and the likelihood of dropping out for those aged 21 and over. For example, individuals in the 21-24 year age-group are 0.5 percentage points less likely to dropout than the 19-20 year age-group.

With regards to prior academic achievement, students without A-levels or other level 3 qualifications are significantly less likely to complete their higher education. On the other hand, compared to those who enter with A levels, students with other level 3 qualifications are actually 1.2 percentage points *less* likely to dropout. This is perhaps a surprising result, as one might have hypothesized that those entering HE with A levels have had a more academic preparation for university.

Finally, students living at home whilst at university are 1.2 percentage points more likely to drop out compared with those who live away from home. This latter result is expected as a priori we would expect students who live at home during university to come from more disadvantaged backgrounds, and more likely to be enrolled part-time (although we control independently for this and other factors as discussed below).

Column 2 of Table 5 moves on to include degree subject, mode of study, and institutional variables (e.g., RAE2001, QAA post 2000, and type of HE institution), as controls. After including these additional controls, the estimated coefficient on the female variable remains virtually unchanged; women continue to be 1.3 percentage points more likely to complete than men. However, inclusion of these HE variables does alter the coefficients on the ethnicity variables. Roughly half of the ethnic group dummy variables are now insignificantly different from zero, and almost all are reduced in size. For example, Black African students are now 1.2 percentage points (down from 1.9 percentage points) more likely to drop out, as compared to White students. One must be cautious in the interpretation of this result. It means that minority ethnic students are no more likely to drop out than White students who take similar degree subjects and attend similar institutions. To the extent that degree subject and institution choice are endogenous, it may be that ethnic minority students have unobservable characteristics that make them both more likely to enrol in certain types of institutions and subjects, and more likely to not complete. Being more likely to be in financial difficulties may be one such unobserved characteristic that could determine both choice of institution and the likelihood of non completion.

Interestingly, column 2 with controls for degree subject, mode of study and institution suggests that students who live at home (who may be more disadvantaged) continue to be significantly more likely to drop out than those who live away from home.

Other personal characteristics become insignificant once controls for degree subject and institution. For instance, disabled students are no longer significantly more likely to drop out than non-disabled students. Age no longer makes any significant difference to students' likelihood of dropping out, except that very young students (below age 19) are more likely to drop out and those age 21-24 are significantly less likely to drop out than 19-20 year olds (the coefficients on the other age variables continue to be negatively signed but become insignificant once institution and subject controls are included). Students entering HE without level 3 qualifications continue to be more likely to drop out, although the coefficient size is reduced. Students who enter HE with qualifications other than level 3 qualifications are now 0.9 percentage points more likely to drop out than those with level 3 qualifications (compared to 1.6 percentage points from the column 1 specification). Those with non-A level level 3 qualifications continue to be less likely to drop out than those with A levels, even after controlling for institution and subject of degree.

Column 2 also shows significant differences in the non-completion rate by subject of degree. With medicine as the reference group, the likelihood of non-completion is significantly higher, at least at the 5% significance level, for those studying languages (4.9 percentage points), physics (4.9 percentage points), engineering (4.8 percentage points), history (4.8 percentage points), mass communication (4.7 percentage points), mathematics (4.5 percentage points), social studies (4.3 percentage points), computer science (4.1 percentage points), biological science (3.9 percentage points), business (3.8 percentage points), arts (3.6 percentage points), and law (3.5 percentage points). The rest of the estimated coefficients on the degree subject variables (i.e. on agriculture,

architecture, education, subjects allied to medicine, and combined studies) are insignificantly different from zero. It may be that different degree subjects have different completion rates due to the nature of the courses taken. Alternatively, it may be that students of differing ability, and therefore differing likelihood of completion, also happen to take different degree subjects. Without any measure of students' IQ or other cognitive abilities, we cannot say which explanation is most likely.

In terms of mode of study, students taking sandwich courses are roughly 1.0 percentage point *less* likely to drop out than full-time students⁹. Interestingly, once we control for age and institution characteristics, part-time students are not statistically significantly more or less likely to drop out, as compared to full-time students.

The coefficients of RAE 2001 and QAE post 2000 have the expected sign (negative), although they are not statistically well-defined at the conventional levels of significance. Students studying in Old universities, Specialist institutes, and other institutions are significantly more likely to drop out than those in Russell Group institutions. Again we cannot say whether this is attributable to the nature of teaching and pastoral care in Russell Group institutions or down to the fact that more able students who are less likely to drop out of HE are also more likely to attend Russell Group institutions. The effect of institution type on the likelihood of dropping out is quite sizeable. Students in old universities (i.e., pre-1992 institutions) are 3.1 percentage points more likely to drop out than those in Russell Group institutions, whilst students studying in either the Specialist institutes or other universities are 4.8 percentage points and 4.0 percentage points more likely to dropout than those studying in Russell Group institutions. There are however, insignificant differences in the likelihood of non-completion between those studying in Russell Group institutes and those in the 94 Group institutes.

Column 3 of Table 5 estimates an institutional fixed effects model by replacing institutional variables with institutional dummies. This controls for unobserved heterogeneity at the institutional level that may confound inferences of the effects of personal characteristics on the likelihood of non-completion. Gender continues to be an important predictor of non-completion; females remain 1.2 percentage points significantly less likely to drop out than males. There is also a further drop in the coefficient size for some of the ethnicity dummies and some become insignificant. For example, controlling for institutional fixed effects, Black Caribbean students are now no more or less likely to drop out than White students; Black Africans are 1.2 percentage points more likely to drop out (down from 1.9 percentage points), Pakistani students are 0.6 percentage points more likely (from 0.8 percentage points). Chinese students are now significantly less likely to drop out (by 0.4 percentage points).

After controlling for institution fixed effects, there appear to be no drastic changes in the estimated coefficients for other independent variables (e.g., age groups, disability, accommodation, highest qualification, subject degree, and mode of study)¹⁰.

⁹ Not surprisingly, dormant students are 40 percentage points more likely to drop out.

¹⁰ For completeness we report OLS estimates in Column 3. The linear probability model offers qualitatively similar results to that obtained in the probit model, suggesting that it does not make significant

5.2 Non-completion by gender

Table 6 presents estimates by gender of the fixed effects model from Column 3 of Table 5¹¹. The most notable result seems to be that there are significant differences in the associations between ethnicity and non-completion by gender. For example, Black British - Caribbean and Black British – African men are significantly more likely to drop out as compared to White men. However, there is an insignificant relationship between ethnicity and drop out for Black British - Caribbean women and Black British – African women. Equally, whilst Indian men are 0.5 percentage points more likely to drop out than White men, Indian women are 0.8 percentage points *less* likely to drop out than White women. Chinese women are significantly less likely to dropout compared to White women, whereas Chinese men have the same non-completion probability as White men.

Some of the other variables have similar associations for men and women, such as highest qualification on entry. However, other variables, such as disability, vary by gender. Disability is positively and significantly associated with drop out for women, but not for men. The positive relationship between being under the age of 20 and dropping out is stronger for women, Women aged below 19 are 3.4 percentage points more likely to drop out than women aged 19-21 (for men, the comparable figure is 1.9 percentage points).

The likelihood of drop out by degree subject varies substantially by gender, with more substantial subject ‘effects’ for males. With medicine as the reference group, the likelihood of non-completion is significantly higher among men who are studying, for example, men taking combined subjects have a 10.1 percentage points higher probability of dropping out, as compared to men taking medicine. The associations between degree subject and drop out stronger for men. For example, men taking mathematics (8.2 percentage points) and physics (8.0 percentage points) are significantly more likely to drop out than men taking medicine. By contrast, for women taking these subjects, the likelihood of drop out is the same as for women taking medicine. For women, the likelihood of dropping out is significantly higher among those studying architecture (5.0 percentage points), combined studies (4.1 percentage points), history (4.1 percentage points), engineering (3.9 percentage points), mass communication (3.8 percentage points), social studies (3.5 percentage points), languages (3.4 percentage points), and arts (3.3 percentage points).

Finally, Table 6 shows that both men and women taking a sandwich degree are significantly more likely than those taking a full time degree to complete their higher education. The part-time coefficient continues to be insignificant for men and women.

difference whether one estimates the model using a discrete probability estimator or a linear probability estimator.

¹¹ We also carried out in separate regressions two-way interaction tests between ethnicity and age groups, as well as ethnicity and highest qualification for both men and women. However, we did not find significant interaction effects in the likelihood of non-completion in both male and female regressions.

5.3 Non-completion by institution type

Table 7 estimates the same fixed effect specification from Table 5 column 3 by type of HE institution, to explore the extent to which the association between students' personal characteristics and likelihood of non-completion varies by institution type. Women remain less likely to drop out than men albeit to a different extent across the different institution types. For example, whilst women in Russell Institutions and the 94 Group universities are only 0.3-0.4 percentage points less likely to drop out, women in the Old universities are around 1.5 percentage points less likely to drop out than males.

An important result from Table 7 is that the association between ethnicity and drop out varies very substantially by institution type. For example, Black British – African and Black British – Caribbean students are significantly more likely to drop out of the newer universities (labeled “Rest” in the model), whereas they are no more likely to drop out than White students if they are enrolled in Russell and 94 Group institutions or the other Old universities. Equally, Chinese students have the same likelihood of dropping out as White students except in Russell Group universities, where they have a lower probability of non-completion than Whites. Whilst it is difficult to attribute causality to the relationship between ethnicity, institution type and non-completion, it is clearly important for researchers to recognize that the problem of non-completion varies across different types of HE provision.

Only disabled students studying in Russell Group universities are significantly more likely to drop out than non-disabled persons. In other institutions, disability makes no significant difference.

An important finding from Table 7 is that U shaped relationship between age and drop out observed in Table 5 holds only for the newer universities (The “Rest”). Whilst very young students (aged below 19 years) are more likely to drop out across all institution types, older students are generally not more or less likely to drop out of Russell Group, 94 Group or Old universities. By contrast older students are actually less likely to drop out of the newer institutions than those aged 19-20.

The association between prior qualification and drop out is similar across institution types, as is the relationship between living at home and non continuation.

Another difference across institution type is the relationship between degree subject and non-completion. The non-completion rate of a particular subject seems to vary across institution type, although some caution is needed as sample sizes are very small for some subject and institution type combinations. Of particular note is the fact that most of the degree subject dummies are statistically insignificant in the 94 Group and Old university regressions. Thus subject differences in non-completion appear to be more similar in these institutions. Medicine also has a very low drop out rate compared to other subjects in the newer universities, as shown in the “Rest” column of Table 7.

Taken together, these results suggest that there are significant variations in the non-completion rates by personal characteristics of the student, as well as by institution type.

5.4 Degree success

We focus most of our discussion on the model presented in Table 8, which estimates the likelihood of achieving a first class degree or not¹². Table 8 shows marginal effects from a probit model of the determinants of achieving a first class of degree, for males and females separately. The first column for each gender controls for institutional characteristics, such as RAE score and teaching quality and the second column controls simply for institution fixed effects.

A pooled model¹³ suggests that women are marginally more likely to achieve a first class degree than men now (0.9 percentage points more likely), in contrast to previous literature which suggested men were more likely to achieve a first class degree. Table 4 in Appendix A also confirms that women have a higher probability than men of obtaining a higher degree classification across all grades of degree.

Table 8 shows that the association between ethnicity and obtaining a first class degree class is negative and significant across all ethnic groups and in both the male and female models. Students of any ethnic minority background and gender are significantly less likely to obtain a first class degree, as compared to their White student counterparts. The magnitudes of the associations between ethnicity and degree class are sizeable. For example, Black British-Caribbean students (males and females) are around 7 percentage points less likely to obtain a first class degree than Whites, even after controlling for their entry qualifications, institution type and degree subject. The effect is even larger for Black British – African origin male students at 7.7 percentage points. These results are striking because the analysis on drop out suggested that some ethnic minority groups (e.g. Chinese) were significantly *less* likely to drop out of HE than their White counterparts. Many other ethnic groups had similar continuation rates to White students. Yet the results of the analysis of degree class suggest that ethnic minority students achieve less in HE i.e. all ethnic minority groups are significantly less likely to get a top class of degree than Whites. Table 4 in Appendix A confirms that these findings hold across different degree classifications.

Disabled people are significantly less likely to obtain a first class degree compared with non-disabled people, although the magnitude of the effect is smaller than, for example, the effect of having Black British – Caribbean or African ethnicity. Again this result holds across all degree classifications.

There is a positive relationship between age and obtaining a first (or indeed an upper second class degree or above¹⁴), even after institutional fixed effects have been taken into account in the estimation, with older students being more likely to achieve higher classes

¹² Similar models for the probability of achieving an upper second class degree or above, and a lower second class degree or above, are shown in Table 4 of Appendix A.

¹³ See column 1 of Table 4 in Appendix A.

¹⁴ See column 2 of Table 4 in Appendix A.

of degree¹⁵. Older students are not however, significantly more likely to achieve a lower second class degree or above¹⁶. Thus it appears that older students are more likely to achieve the highest degree classes, as compared to their younger counterparts. The positive association between age and the likelihood of getting a first class degree is stronger for males. The fact that older students are more successful is broadly consistent with the analysis above which suggested that, at least in newer universities, older students were actually less likely to drop out than 19-20 year olds.

People entering HE with either A-levels or other level 3 qualifications appear to do better than those entering HE with some other kind of qualification. For women, entering HE with Scottish Higher qualifications is significantly associated with a *lower* probability of getting a first class degree. Students entering with A levels were equally as likely to achieve a first class degree as those entering with other level 3 qualifications, again consistent with the evidence on non-continuation above.

Female part-time students were less likely to obtain a first class degree than full time female students, perhaps reflecting the greater level of family responsibilities reported by many mature and part-time female students. For example, part-time female students are around 2 percentage points less likely to gain a first class degree than full time female students.

The likelihood of achieving a first class degree (and indeed any degree classification) varies substantially by degree subject. For example, males studying mathematics are around 5 percentage points more likely to achieve a first class degree as compared to those taking an arts degree. Equally males taking combined studies are nearly 6 percentage points less likely to achieve a first class degree as compared to male arts students. For women, students studying mathematics are around 7 percentage points more likely to get a first, while those taking combined studies are 5 percentage points less likely to get the top class of degree. However, once again it is not clear whether the subject matter and teaching across subjects ensures that the likelihood of getting a particular degree classification varies by subject or whether different types of students (with different propensities to get different degree classifications) take different subjects. In other words, we cannot claim causality here.

Institution characteristics are also significantly associated with degree classification achieved, although again the interpretation is not necessarily causal. Students attending institutions with higher RAE rankings are significantly more likely to achieve a first class degree on average. Teaching quality, as measured by QAA scores, is not significantly associated with degree classification achieved. Students in Russell Group institutions achieved higher degree classifications as compared to students in all other types of HE institutions, although for males the differences between Russell Group students and those from Old universities and newer, former polytechnic institutions were not significant.

¹⁵ Given the very small number of individuals completing their degree under the age of 19 we do not emphasise the coefficient on this variable.

¹⁶ See column 3 of Table 4 in Appendix A.

6. Discussion

This paper sets out to determine the extent to which success in HE, as measured in terms of the likelihood of not dropping out and the class of degree achieved, varies across different types of student, and particularly across gender, ethnicity, disability, age and prior qualification level. The research suggests that the risk of non-continuation and the degree classification achieved does indeed vary across different types of student. Whilst the analysis confirms that some non-traditional students fare poorly in terms of completion rates and degree success, a number of pre-conceptions about non-traditional students may be misplaced.

As is the case in primary and secondary education, women out perform men in HE. Women are more likely to complete their higher education than men, and more likely to achieve a higher class of degree.

Some ethnic minority groups are more likely to drop out of HE than White students. Black British male students in the newer universities appear to be particularly at risk of dropping out. By contrast, Chinese women are less likely to drop out than White women. Certainly the relationship between ethnicity and drop out is complex, and we show it varies across different types of institution. Ethnicity is also associated with degree success. Across the board male and female ethnic minority students are less likely to get higher degree classifications as compared to White students. This latter issue in particular merits further research attention as ethnic minority groups have improved their position in terms of access to HE but this does not appear to be reflected in their achievement in HE. We are somewhat limited in the extent to which we can attribute causality to these relationships as we do not have rich enough controls for family background and in particular student ability. However, given that we still find that ethnic minority groups do poorly in terms of degree achievement after controlling for prior qualification, subject of degree and institution type, this should be cause for concern.

Once one allows for institution characteristics, male disabled students are no more or less likely to drop out than those without disability, although female disabled students are somewhat more likely to not complete their studies. Focusing on particular institutions, disabled students in Russell Group institutions are significantly less likely to complete. In general however, disabled students are less likely to achieve a higher class of degree.

In contrast to previous research, we find that in the newer universities at least, mature students are actually more likely to complete their higher education, once one allows for other personal characteristics, particularly prior qualification level, gender and ethnicity. Thus although in aggregate mature students have higher drop out rates than younger students, once one controls for degree subject and institution type, as well as their personal characteristics, mature students actually have lower drop out than younger students. Furthermore, older students, particularly males, are more likely to achieve a higher grade of degree. This would seem to suggest that older students may actually have an advantage in terms of HE success.

Academic preparation for HE does matter however. A-level students and those with other level 3 qualifications are less likely to drop out of HE and are more likely to get a higher degree classification, perhaps because they are better prepared than students with lower level entry qualifications. Interestingly our notion of non-traditional students who enter HE without A levels doing badly is misplaced. Students who entered HE with other level 3 qualifications (i.e. not A level) do significantly better in terms of the likelihood of degree completion as compared to those students who entered with A levels. In terms of degree classification, students with any kind of level 3 qualification do significantly better than students who enter with other qualifications.

Our research is somewhat limited by the fact that we do not have detailed measures of the student's family background, such as parental income. We were therefore forced to rely on limited proxy measures of the student's financial background. We found some evidence to support the notion that socio-economic disadvantage may influence HE achievement. For example, students who live at home (who may be more economically disadvantaged) are more likely to drop out than those who do not.

We also found that drop out, and indeed degree class achieved, varies significantly across different institution types and particularly across degree subjects. For instance, students studying in Old universities, Specialist institutes, and other newer institutions are significantly more likely to drop out than those in Russell Group universities. Also, students in institutions with higher RAE scores are more likely to get a higher degree grade, although interestingly students in institutions with better teaching quality (as measured by QAA scores) were not. Students taking sandwich courses are less likely to drop out than full-time students and, challenging another common misconception, part-time students are not more likely to drop out, as compared to full-time students, although they do tend to achieve lower degree classifications.

The type of HE that a student participates in therefore reflects their probability of success in HE, although we cannot attribute causality. Some groups of students are particularly at risk of non-continuation and lack of success in their degree. Further work is needed to determine whether such students are at risk because they are academically ill prepared for HE, or because of institutional factors arising from their choice of higher education institution and degree subject. We conclude, quite positively, that some types of student who have been historically under-represented in HE now do very well once they get into HE. In particular women, part-time students and mature students now appear to be succeeding well in HE, although this varies across different parts of the HE sector.

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Table 1: Frequency and Percentage of Different Student Characteristics in HESA data 2003-04

	Mean	STD.	Range
Gender			
Male		(REF)	
Female	0.555	0.496	0-1
Ethnicity			
White		(REF)	
Black British – Caribbean	0.014	0.119	0-1
Black British - African	0.026	0.160	0-1
Other Black background	0.005	0.072	0-1
Asian British – Indian	0.047	0.211	0-1
Asian British – Pakistan	0.025	0.155	0-1
Asian British – Bangladesh	0.008	0.089	0-1
Chinese	0.011	0.102	0-1
Other Asian background	0.013	0.115	0-1
Other	0.027	0.163	0-1
Unknown	0.062	0.242	0-1
Age			
	%	Cu%	
Below19	13.53	13.53	
19-20	37.35	50.88	
21-24	23.88	74.76	
25-29	6.41	81.17	
30-34	5.22	86.39	
35-39	4.90	91.29	
40+	8.67	99.97	
Missing	0.03	100.00	
Disability			
None		(REF)	
Known disability	0.068	0.252	0-1
Missing	0.018	0.134	0-1
Entry Qualification			
A-level		(REF)	
Highers	0.002	0.040	0-1
Other Level 3 Qualifications	0.362	0.481	0-1
All Others	0.329	0.470	0-1

Accommodation			
Not at home		(REF)	
Living at home	0.350	0.477	0-1
Missing	0.288	0.453	0-1
Mode of study			
Full-time		(REF)	
Sandwich	0.092	0.289	0-1
Part-time	0.188	0.391	0-1
Dormant	0.026	0.159	0-1
Others	0.001	0.023	0-1
Total N		1,135,531	

Note: The sample contains only the first degree, non-UK students from English institutions.

Table 2: Distribution of Subjects Taken, HESA (2003-2004)

Subjects	N	%	Cumulative
Medicine & dentistry	27,053	2.38	2.38
Subject allied to medicine	81,959	7.22	9.60
Biological sciences	107,451	9.46	19.06
Veterinary science	2,878	0.25	19.32
Agriculture & related subjects	6,383	0.56	19.88
Physical sciences	47,009	4.14	24.02
Mathematical sciences	24,026	2.12	26.13
Computer sciences	79,511	7.00	33.14
Engineering & technology	58,284	5.13	38.27
Architecture & building & planning	19,774	1.74	40.01
Social studies	112,823	9.94	49.95
Law	50,233	4.42	54.37
Business administration	124,887	11.00	65.37
Mass communication	32,734	2.88	68.25
Languages	93,809	8.26	76.51
History & philosophy	65,993	5.81	82.32
Art & design	96,375	8.49	90.81
Education	46,611	4.10	94.92
Combined	57,738	5.08	100.00
Total	1,135,531	100	

Note: The sample contains only the first degree, non-UK students from English institutions.

Table 3: Success in HE: Non-continuation Rates

Dropout	N	%	Cum. %
Continuing at the institution	796,647	70.16	70.16
Gained intended award or higher	255,216	22.48	92.63
Gained other award	16,328	1.44	94.07
Left with no award	67,340	5.93	100
Total	1,135,531	100.00	

Note: The sample contains only the first degree, non-UK students from English institutions.

Table 4: Success in HE: Degree Classifications

Degree class	Freq.	Percent	Cum.
Unclassified	11104	4.35	4.35
Third Class Honours	17323	6.78	11.13
Lower Second	81159	31.76	42.89
Upper second	118902	46.53	89.42
1st Class	27024	10.58	100.00
Total	255,512	100	

Note: The sample contains only the first degree, non-UK graduates (final year students) from English institutions.

Table 5: Determinants of Non-Completion in HE: HESA 2003-2004

DPROBIT & OLS on Non-continuation (=1) Marginal Effects presented	DPROBIT (1)	DPROBIT (2)	DPROBIT (3)	OLS (4)
Female (=1)	-0.013 [0.002]**	-0.013 [0.001]**	-0.012 [0.001]**	-0.014 [0.002]**
White	(REF)	(REF)	(REF)	(REF)
Black British - Caribbean	0.011 [0.006]*	0.002 [0.003]	0.005 [0.003]	0.004 [0.003]
Black British - African	0.019 [0.006]**	0.012 [0.004]**	0.012 [0.004]**	0.013 [0.004]**
Other Black Background	0.010 [0.005]	0.007 [0.006]	0.011 [0.006]	0.010 [0.006]
Asian British - Indian	-0.001 [0.004]	-0.002 [0.003]	-0.002 [0.002]	-0.003 [0.002]
Asian British - Pakistani	0.008 [0.004]*	0.004 [0.003]	0.006 [0.002]**	0.006 [0.003]*
Asian British - Bangladeshi	0.004 [0.003]	0.001 [0.004]	0.002 [0.003]	0.001 [0.004]
Chinese	-0.006 [0.004]	-0.005 [0.002]	-0.004 [0.002]*	-0.005 [0.002]*
Other Asian Background	0.009 [0.003]*	0.008 [0.003]**	0.007 [0.002]**	0.007 [0.002]**
Other	0.013 [0.002]**	0.010 [0.002]**	0.010 [0.002]**	0.010 [0.002]**
Unknown	0.034 [0.005]**	0.019 [0.003]**	0.021 [0.004]**	0.025 [0.005]**
Disabled (=1)	0.005 [0.002]**	0.002 [0.001]	0.001 [0.001]	0.002 [0.001]
Disability unknown	0.229 [0.049]**	0.000 [0.008]	-0.002 [0.009]	0.057 [0.031]
Age (19-20)	(REF)	(REF)	(REF)	(REF)
Age (Below 19)	0.027 [0.003]**	0.029 [0.002]**	0.027 [0.002]**	0.028 [0.002]**
Age (21-24)	-0.005 [0.002]**	-0.006 [0.001]**	-0.006 [0.001]**	-0.007 [0.002]**
Age (25-29)	-0.003 [0.005]	0.002 [0.002]	0.003 [0.002]	0.003 [0.003]
Age (30-34)	-0.012 [0.006]*	-0.003 [0.003]	-0.001 [0.002]	-0.002 [0.003]
Age (35-39)	-0.017 [0.006]**	-0.006 [0.003]	-0.004 [0.003]	-0.007 [0.004]
Age (40+)	-0.021 [0.007]**	-0.008 [0.004]	-0.005 [0.004]	-0.008 [0.004]
Age unknown	0.054 [0.022]*	0.043 [0.016]**	0.033 [0.014]*	0.066 [0.021]**
Highest Qualification: A-level	(REF)	(REF)	(REF)	(REF)
Highest Qualification: Highers	0.020 [0.011]	0.008 [0.009]	0.003 [0.007]	0.002 [0.007]
Highest Qualification: Other level 3	-0.012 [0.002]**	-0.013 [0.002]**	-0.011 [0.001]**	-0.009 [0.002]**
Highest Qualification: Other	0.016	0.009	0.012	0.015

	[0.004]**	[0.002]**	[0.001]**	[0.003]**
Accommodation: At home	0.012	0.011	0.011	0.010
	[0.004]**	[0.003]**	[0.002]**	[0.002]**
Accommodation unknown	0.032	0.022	0.023	0.023
	[0.014]*	[0.008]**	[0.007]**	[0.008]**
Subject: Medicine		(REF)	(REF)	(REF)
Subject: Allied to medicine		0.033	0.033	0.008
		[0.017]	[0.017]	[0.005]
Subject: Biological science		0.039	0.045	0.021
		[0.018]*	[0.018]*	[0.005]**
Subject: Veterinary science		-0.017	-0.004	0.002
		[0.009]	[0.018]	[0.013]
Subject: Agriculture		0.038	0.051	0.021
		[0.021]	[0.021]*	[0.006]**
Subject: Physics		0.049	0.053	0.023
		[0.021]*	[0.022]*	[0.006]**
Subject: Mathematics		0.045	0.052	0.023
		[0.022]*	[0.023]*	[0.007]**
Subject: Computer science		0.041	0.044	0.019
		[0.018]*	[0.019]*	[0.005]**
Subject: Engineer & Technology		0.048	0.051	0.024
		[0.020]*	[0.021]*	[0.006]**
Subject: Architecture		0.038	0.044	0.016
		[0.019]	[0.020]*	[0.007]*
Subject: Social studies		0.043	0.047	0.022
		[0.018]*	[0.019]*	[0.005]**
Subject: Law		0.035	0.042	0.017
		[0.018]*	[0.019]*	[0.005]**
Subject: Business		0.038	0.042	0.017
		[0.017]*	[0.018]*	[0.005]**
Subject: Mass communication		0.047	0.048	0.021
		[0.020]*	[0.020]*	[0.007]**
Subject: Languages		0.049	0.050	0.024
		[0.020]*	[0.020]*	[0.005]**
Subject: History		0.048	0.051	0.024
		[0.020]*	[0.021]*	[0.006]**
Subject: Arts		0.036	0.042	0.018
		[0.017]*	[0.018]*	[0.005]**
Subject: Education		0.031	0.034	0.010
		[0.017]	[0.017]*	[0.005]
Subject: Combined		0.025	0.064	0.019
		[0.019]	[0.027]*	[0.009]*
Mode of study: Full-time		(REF)	(REF)	(REF)
Mode of study: Sandwich		-0.010	-0.007	-0.008
		[0.003]**	[0.002]**	[0.003]**
Mode of study: Part-time		-0.008	0.001	0.009
		[0.007]	[0.007]	[0.011]
Mode of study: Dormant		0.400	0.398	0.441
		[0.055]**	[0.059]**	[0.043]**
Mode of study: Other		0.014	0.016	0.018
		-0.010	-0.007	-0.008
Institutional variables				
RAE 2001		0.000		
		[0.005]		
Missing RAE 2001		0.005		

			[0.022]	
QAA Post 2000			0.003	
			[0.003]	
Missing QAA Post 2000			0.126	
			[0.167]	
Russell			(REF)	
94 Group			-0.008	
			[0.009]	
Old universities			0.031	
			[0.009]**	
Rest except specialists			0.040	
			[0.010]**	
Specialists			0.048	
			[0.015]**	
Constant				-0.028
				[0.014]*
<hr/>				
Census variables	Yes	Yes	Yes	Yes
Institution fixed effects	No	No	Yes	Yes
Pseudo R-squared	0.092	0.151	0.169	
R-squared				0.1400
Observations	1135531	1135531	1135531	1135531

Robust standard errors in brackets

* significant at 5%; ** significant at 1%

Note: The sample contains only the first degree, non-UK students from English institutions.

Table 6: Determinants of Non-Completion in HE by Gender: HESA 2003-2004

DPROBIT on Non-continuation (=1) Marginal Effects presented	MALE	FEMALE
White	(REF)	(REF)
Black British - Caribbean	0.009 [0.004]*	0.002 [0.002]
Black British - African	0.019 [0.005]**	0.006 [0.003]
Other Black Background	0.019 [0.012]	0.005 [0.005]
Asian British - Indian	0.005 [0.002]*	-0.008 [0.002]**
Asian British - Pakistani	0.014 [0.003]**	-0.002 [0.002]
Asian British - Bangladeshi	0.006 [0.004]	-0.003 [0.003]
Chinese	0.000 [0.003]	-0.008 [0.002]**
Other Asian Background	0.013 [0.003]**	0.002 [0.003]
Other	0.013 [0.003]**	0.008 [0.002]**
Unknown	0.029 [0.005]**	0.015 [0.004]**
Disabled (=1)	-0.001 [0.001]	0.003 [0.001]*
Disability unknown	-0.008 [0.009]	0.004 [0.009]
Age (19-20)	(REF)	(REF)
Age (Below 19)	0.019 [0.002]**	0.034 [0.002]**
Age (21-24)	-0.007 [0.002]**	-0.005 [0.001]**
Age (25-29)	0.003 [0.003]	0.004 [0.002]
Age (30-34)	-0.003 [0.003]	0.001 [0.002]
Age (35-39)	-0.006 [0.004]	-0.003 [0.002]
Age (40+)	-0.007 [0.005]	-0.005 [0.003]
Age unknown	0.065 [0.025]**	0.013 [0.011]
Highest Qualification: A-level	(REF)	(REF)
Highest Qualification: Highers	0.003 [0.012]	0.002 [0.007]

Highest Qualification: Other level 3	-0.011 [0.002]**	-0.011 [0.001]**
Highest Qualification: Other	0.012 [0.002]**	0.012 [0.001]**
Accommodation: At home	0.011 [0.002]**	0.011 [0.002]**
Accommodation unknown	0.022 [0.008]**	0.023 [0.006]**
Subject: Medicine	(REF)	(REF)
Subject: Allied to medicine	0.047 [0.020]*	0.022 [0.015]
Subject: Biological science	0.067 [0.022]**	0.030 [0.016]
Subject: Veterinary science	-0.003 [0.031]	-0.007 [0.014]
Subject: Agriculture	0.079 [0.027]**	0.034 [0.019]
Subject: Physics	0.080 [0.025]**	0.032 [0.019]
Subject: Mathematics	0.082 [0.028]**	0.029 [0.019]
Subject: Computer science	0.058 [0.020]**	0.034 [0.018]
Subject: Engineer & Technology	0.070 [0.023]**	0.039 [0.020]*
Subject: Architecture	0.056 [0.023]*	0.050 [0.022]*
Subject: Social studies	0.066 [0.022]**	0.035 [0.017]*
Subject: Law	0.062 [0.023]**	0.030 [0.017]
Subject: Business	0.060 [0.021]**	0.029 [0.016]
Subject: Mass communication	0.062 [0.023]**	0.038 [0.019]*
Subject: Languages	0.078 [0.025]**	0.034 [0.017]*
Subject: History	0.065 [0.023]**	0.041 [0.019]*
Subject: Arts	0.054 [0.021]**	0.033 [0.017]*
Subject: Education	0.058 [0.023]*	0.022 [0.015]
Subject: Combined	0.101 [0.036]**	0.041 [0.021]*
Mode of study: Full-time	(REF)	(REF)
Mode of study: Sandwich	-0.010 [0.003]**	-0.005 [0.002]*

Mode of study: Part-time	-0.003 [0.007]	0.003 [0.006]
Mode of study: Dormant	0.407 [0.060]**	0.391 [0.058]**
Mode of study: Other	-0.027 [0.014]	0.043 [0.058]
<hr/>		
Census variables	Yes	Yes
Institutional Fixed Effects	Yes	Yes
Pseudo R-squared	0.165	0.174
Observations	504611	630394

Robust standard errors in brackets

* significant at 5%; ** significant at 1%

Note: The sample contains only the first degree, non-UK students from English institutions.

**Table 7: Determinants of Non-Completion in HE by Types of Institution:
HESA 2003-2004**

DPROBIT on Non-continuation (=1) Marginal Effects presented	Russell	94 group	Old	Rest
Female (=1)	-0.003 [0.001]**	-0.004 [0.001]**	-0.015 [0.002]**	-0.022 [0.001]**
White	(REF)	(REF)	(REF)	(REF)
Black British - Caribbean	0.006 [0.004]	0.016 [0.010]	-0.004 [0.007]	0.006 [0.003]*
Black British - African	0.006 [0.004]	0.021 [0.018]	0.008 [0.004]	0.014 [0.004]**
Other Black Background	0.002 [0.010]	0.023 [0.007]**	0.008 [0.008]	0.009 [0.008]
Asian British - Indian	-0.004 [0.002]	-0.003 [0.001]*	-0.003 [0.005]	0.001 [0.004]
Asian British - Pakistani	0.000 [0.002]	0.005 [0.003]	0.005 [0.006]	0.009 [0.004]*
Asian British - Bangladeshi	0.006 [0.006]	0.003 [0.004]	-0.007 [0.004]	0.002 [0.005]
Chinese	-0.009 [0.002]**	-0.002 [0.003]	-0.003 [0.006]	-0.001 [0.004]
Other Asian Background	0.002 [0.002]	0.001 [0.003]	0.007 [0.005]	0.016 [0.005]**
Other	0.010 [0.003]**	0.008 [0.004]	0.000 [0.005]	0.015 [0.003]**
Unknown	-0.005 [0.004]	0.015 [0.001]**	0.028 [0.006]**	0.034 [0.007]**
Disabled (=1)	0.005 [0.001]**	0.001 [0.001]	-0.001 [0.003]	0.000 [0.002]
Disability unknown	0.005 [0.014]	-0.010 [0.006]	0.042 [0.023]	0.001 [0.017]
Age (19-20)	(REF)	(REF)	(REF)	(REF)
Age (Below 19)	0.013 [0.003]**	0.008 [0.003]**	0.032 [0.004]**	0.044 [0.003]**
Age (21-24)	-0.001 [0.002]	0.007 [0.003]**	0.000 [0.004]	-0.014 [0.002]**
Age (25-29)	0.005 [0.006]	0.013 [0.006]*	0.011 [0.006]	-0.004 [0.003]
Age (30-34)	0.005 [0.007]	0.005 [0.008]	0.009 [0.005]	-0.009 [0.003]**
Age (35-39)	0.000 [0.005]	-0.001 [0.006]	0.012 [0.008]	-0.011 [0.003]**
Age (40+)	0.000 [0.007]	-0.002 [0.007]	0.008 [0.006]	-0.011 [0.004]**
Age unknown	-0.003 [0.010]	0.032 [0.046]	0.237 [0.048]**	0.014 [0.017]
Highest Qualification: A-level	(REF)	(REF)	(REF)	(REF)
Highest Qualification: Highers	-0.004 [0.006]	0.011 [0.011]	0.007 [0.022]	-0.003 [0.019]
Highest Qualification: Other level 3	-0.012 [0.002]**	-0.010 [0.002]**	-0.016 [0.004]**	-0.010 [0.003]**
Highest Qualification: Other	0.010	0.004	0.013	0.020

	[0.004]**	[0.004]	[0.005]**	[0.003]**
Accommodation: At home	0.012	0.013	0.003	0.012
	[0.004]**	[0.005]**	[0.004]	[0.004]**
Accommodation unknown	0.038	0.006	0.038	0.016
	[0.024]	[0.006]	[0.010]**	[0.009]
Subject: Medicine	(REF)	(REF)	(REF)	(REF)
	0.024	0.010	0.048	0.207
Subject: Allied to medicine	[0.005]**	[0.031]	[0.064]	[0.086]*
Subject: Biological science	0.037	0.000	0.069	0.242
	[0.006]**	[0.022]	[0.070]	[0.086]**
Subject: Veterinary science	-0.006		0.209	
	[0.010]		[0.128]	
Subject: Agriculture	0.067	0.001	0.099	0.252
	[0.014]**	[0.023]	[0.091]	[0.096]**
Subject: Physics	0.043	0.009	0.094	0.251
	[0.006]**	[0.032]	[0.080]	[0.091]**
Subject: Maths	0.039	0.005	0.081	0.291
	[0.006]**	[0.030]	[0.080]	[0.097]**
Subject: Computer science	0.047	0.006	0.078	0.224
	[0.007]**	[0.027]	[0.077]	[0.084]**
Subject: Engineer & Technology	0.050	0.006	0.100	0.239
	[0.008]**	[0.028]	[0.086]	[0.089]**
Subject: Architecture	0.050	0.011	0.100	0.224
	[0.007]**	[0.035]	[0.092]	[0.090]*
Subject: Social studies	0.030	0.002	0.068	0.262
	[0.006]**	[0.024]	[0.068]	[0.088]**
Subject: Law	0.021	0.001	0.060	0.251
	[0.008]**	[0.022]	[0.070]	[0.090]**
Subject: Business	0.034	0.004	0.064	0.214
	[0.006]**	[0.025]	[0.066]	[0.077]**
Subject: Mass communication	0.049	0.007	0.073	0.245
	[0.007]**	[0.030]	[0.078]	[0.093]**
Subject: Languages	0.036	0.001	0.078	0.269
	[0.006]**	[0.023]	[0.078]	[0.092]**
Subject: History	0.043	0.000	0.072	0.280
	[0.008]**	[0.022]	[0.078]	[0.098]**
Subject: Arts	0.051	0.004	0.061	0.225
	[0.009]**	[0.027]	[0.067]	[0.081]**
Subject: Education	0.043	0.005	0.057	0.214
	[0.008]**	[0.025]	[0.066]	[0.083]*
Subject: Combined	0.054	0.000	0.091	0.351
	[0.015]**	[0.022]	[0.095]	[0.113]**
Mode of study: Full-time	(REF)	(REF)	(REF)	(REF)
	-0.008	-0.008	-0.012	-0.008
Mode of study: Sandwich	[0.005]	[0.002]**	[0.005]**	[0.004]*
Mode of study: Part-time	-0.005	0.001	-0.013	0.015
	[0.004]	[0.008]	[0.008]	[0.012]
Mode of study: Dormant	0.349	0.386	0.192	0.470
	[0.129]**	[0.098]**	[0.047]**	[0.093]**
Mode of study: Other	-0.015		0.140	-0.036
	[0.010]		[0.072]	[0.014]*
Census variables	Yes	Yes	Yes	Yes
Institutional Fixed Effects	Yes	Yes	Yes	Yes
Pseudo R-squared	0.208	0.197	0.126	0.147

Observations	228440	234092	139217	484976
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Robust standard errors in brackets

* significant at 5%; ** significant at 1%

Note: The sample contains only the first degree, non-UK students from English institutions.

**Table 8: Determinants of Achieving First Class Degree by Gender:
HESA 2003-2004**

DPROBIT on 1 st Class Degree	MALE (1)	MALE (2)	FEMALE (3)	FEMALE (4)
White	(REF)	(REF)	(REF)	(REF)
Black British - Caribbean	-0.069 [0.006]**	-0.067 [0.006]**	-0.070 [0.004]**	-0.070 [0.004]**
Black British - African	-0.077 [0.004]**	-0.077 [0.004]**	-0.067 [0.004]**	-0.067 [0.003]**
Other Black Background	-0.077 [0.006]**	-0.077 [0.005]**	-0.072 [0.005]**	-0.072 [0.004]**
Asian British - Indian	-0.032 [0.005]**	-0.035 [0.004]**	-0.041 [0.005]**	-0.043 [0.005]**
Asian British - Pakistani	-0.050 [0.005]**	-0.051 [0.005]**	-0.047 [0.004]**	-0.048 [0.004]**
Asian British - Bangladeshi	-0.053 [0.009]**	-0.054 [0.009]**	-0.048 [0.007]**	-0.047 [0.007]**
Chinese	-0.033 [0.006]**	-0.038 [0.006]**	-0.024 [0.008]**	-0.027 [0.008]**
Other Asian Background	-0.029 [0.007]**	-0.037 [0.006]**	-0.033 [0.005]**	-0.035 [0.005]**
Other	-0.017 [0.007]*	-0.021 [0.007]**	-0.026 [0.005]**	-0.029 [0.005]**
Unknown	-0.021 [0.005]**	-0.023 [0.005]**	-0.023 [0.005]**	-0.023 [0.005]**
Disabled (=1)	-0.017 [0.004]**	-0.014 [0.004]**	-0.018 [0.003]**	-0.018 [0.003]**
Disability unknown	-0.030 [0.010]**	-0.026 [0.009]**	-0.025 [0.008]**	-0.027 [0.007]**
Age (19-20)	(REF)	(REF)	(REF)	(REF)
Age (21-24)	0.008 [0.006]	0.009 [0.006]	-0.005 [0.005]	-0.006 [0.005]
Age (25-29)	0.048 [0.009]**	0.047 [0.010]**	0.047 [0.010]**	0.045 [0.010]**
Age (30-34)	0.138 [0.015]**	0.131 [0.015]**	0.093 [0.012]**	0.089 [0.012]**
Age (35-39)	0.148 [0.017]**	0.140 [0.018]**	0.108 [0.015]**	0.104 [0.015]**
Age (40+)	0.133 [0.015]**	0.125 [0.018]**	0.105 [0.013]**	0.101 [0.014]**
Age unknown	0.024 [0.091]	0.018 [0.083]	0.083 [0.101]	0.067 [0.090]
Highest Qualification: A-level	(REF)	(REF)	(REF)	(REF)
Highest Qualification: Highers	0.077 [0.059]	0.068 [0.056]	-0.056 [0.017]**	-0.057 [0.016]**
Highest Qualification: other Level 3	-0.001 [0.010]	-0.004 [0.009]	0.003 [0.010]	-0.005 [0.005]
Highest Qualification: Other	-0.016 [0.009]	-0.019 [0.008]*	-0.015 [0.009]	-0.022 [0.004]**
Accommodation: At home	0.019 [0.004]**	0.005 [0.003]	0.008 [0.004]*	0.002 [0.003]

Accommodation unknown	-0.003 [0.008]	-0.014 [0.007]*	-0.001 [0.006]	-0.006 [0.007]
Subject: Arts	(REF)	(REF)	(REF)	(REF)
Subject: Medicine	-0.085 [0.005]**	-0.085 [0.004]**	-0.077 [0.005]**	-0.076 [0.005]**
Subject: Allied to medicine	-0.022 [0.008]**	-0.026 [0.007]**	-0.010 [0.007]	-0.015 [0.006]*
Subject: Biological science	-0.045 [0.006]**	-0.044 [0.005]**	-0.015 [0.005]**	-0.014 [0.006]*
Subject: Veterinary science	-0.088 [0.007]**	-0.089 [0.005]**	-0.083 [0.003]**	-0.082 [0.002]**
Subject: Agriculture	-0.043 [0.013]**	-0.038 [0.014]**	0.003 [0.012]	0.014 [0.014]
Subject: Physics	-0.005 [0.007]	-0.007 [0.007]	0.020 [0.010]*	0.020 [0.010]*
Subject: Mathematics	0.055 [0.010]**	0.046 [0.010]**	0.069 [0.014]**	0.070 [0.014]**
Subject: Computer science	0.009 [0.007]	0.008 [0.007]	0.023 [0.008]**	0.023 [0.009]**
Subject: Engineer & Technology	0.024 [0.007]**	0.020 [0.007]**	0.051 [0.012]**	0.047 [0.012]**
Subject: Architecture	-0.024 [0.008]**	-0.024 [0.008]**	-0.004 [0.012]	-0.007 [0.012]
Subject: Social studies	-0.052 [0.005]**	-0.052 [0.005]**	-0.044 [0.005]**	-0.044 [0.005]**
Subject: Law	-0.071 [0.005]**	-0.071 [0.004]**	-0.058 [0.005]**	-0.059 [0.004]**
Subject: Business	-0.056 [0.005]**	-0.054 [0.004]**	-0.021 [0.006]**	-0.021 [0.006]**
Subject: Mass communication	-0.034 [0.010]**	-0.038 [0.007]**	-0.036 [0.006]**	-0.036 [0.006]**
Subject: Languages	-0.027 [0.006]**	-0.027 [0.005]**	-0.029 [0.004]**	-0.028 [0.005]**
Subject: History	-0.039 [0.006]**	-0.040 [0.005]**	-0.033 [0.004]**	-0.033 [0.004]**
Subject: Education	-0.050 [0.007]**	-0.044 [0.007]**	-0.036 [0.005]**	-0.031 [0.005]**
Subject: Combined	-0.059 [0.008]**	-0.064 [0.007]**	-0.051 [0.011]**	-0.055 [0.010]**
Mode of study: Full-time	(REF)	(REF)	(REF)	(REF)
Mode of study: Part-time	-0.006 [0.010]	-0.006 [0.008]	-0.024 [0.006]**	-0.020 [0.007]**
Institutional variables				
RAE 2001	0.035 [0.008]**		0.024 [0.006]**	
Missing RAE 2001	0.218 [0.092]*		0.152 [0.051]**	
QAA Post 2000	0.000 [0.004]		0.000 [0.003]	
Missing QAA Post 2000	0.012 [0.098]		0.007 [0.084]	
Russell	(REF)		(REF)	
94 Group	-0.019 [0.008]*		-0.005 [0.007]	

Old universities	-0.016		-0.018	
	[0.011]		[0.008]*	
Rest except specialists	-0.030		-0.033	
	[0.016]		[0.011]**	
Specialists	-0.038		-0.031	
	[0.015]**		[0.010]**	
Census variables	Yes	Yes	Yes	Yes
Institution fixed effects	No	Yes	No	Yes
Pseudo R-squared	0.072	0.084	0.057	0.066
Observations	109313	109249	146198	146198

Robust standard errors in brackets

* significant at 5%; ** significant at 1%

Appendix A.

Table 1: Distribution of RAE Rankings (1996 & 2001), HESA 2003-2004

RAE	N	%	Cumulative
RAE1996			
RAE equal to or more than 5	32,081	2.83	2.83
RAE ≥ 4 & RAE < 5	239,899	21.13	23.95
RAE ≥ 3 & RAE < 4	353,768	31.16	55.11
RAE ≥ 2 & RAE < 3	393,390	34.65	89.75
RAE less than 2	109,340	9.63	99.38
Missing	7,005	0.62	100
RAE2001			
RAE equal to or more than 5	101,991	8.98	8.98
RAE ≥ 4 & RAE < 5	303,131	26.7	35.68
RAE ≥ 3 & RAE < 4	604,997	53.28	88.96
RAE ≥ 2 & RAE < 3	120,498	10.61	99.57
Missing	4,866	0.43	100
Total	1,135,483	100.00	

Table 2: Summary of QAA Scores (Before and After 2000), HESA 2003-2004

QAA	Mean	STD.	Range
QAA prior to 2000			
<i>Non-missing score</i>		(REF)	
<i>Missing</i>	0.017	0.132	0-1

QAA prior to 2000	21.092	1.126	18.38-23.5
QAA post 2000			
<i>Non-missing score</i>		(REF)	
<i>Missing</i>	0.025	0.156	0-1
QAA post 2000	22.181	0.776	19.5-24
Total	1,135,483	100.00	

Table 3: Ordered Probit Model of Degree Class Achieved in HE: HESA 2003-2004

OPROBIT on Degree Class	OPROBIT (1)	OPROBIT (2)	OPROBIT (3)
Female (=1)	0.127** (0.013)	0.171** (0.012)	0.179** (0.012)
White	(REF)	(REF)	(REF)
Black British – Caribbean	-0.508** (0.033)	-0.478** (0.029)	-0.503** (0.024)
Black British – African	-0.608** (0.033)	-0.591** (0.029)	-0.614** (0.029)
Other Black Background	-0.465** (0.035)	-0.436** (0.037)	-0.459** (0.035)
Asian British – Indian	-0.366** (0.032)	-0.264** (0.027)	-0.289** (0.022)
Asian British – Pakistani	-0.486** (0.029)	-0.410** (0.024)	-0.415** (0.020)
Asian British – Bangladeshi	-0.438** (0.040)	-0.343** (0.032)	-0.347** (0.032)
Chinese	-0.264** (0.034)	-0.295** (0.029)	-0.325** (0.031)
Other Asian Background	-0.365** (0.034)	-0.288** (0.034)	-0.314** (0.033)
Other	-0.195** (0.025)	-0.178** (0.023)	-0.195** (0.024)
Unknown	-0.162** (0.030)	-0.200** (0.024)	-0.202** (0.022)
Disabled (=1)	-0.110** (0.014)	-0.129** (0.013)	-0.122** (0.012)
Disability unknown	-0.238** (0.085)	-0.312** (0.062)	-0.322** (0.063)
Age (19-20)	(REF)	(REF)	(REF)
Age (Below 19)	1.049** (0.089)	1.577** (0.084)	1.701** (0.083)

Age (21-24)	-0.050*	0.008	0.008
	(0.023)	(0.022)	(0.020)
Age (25-29)	-0.116*	0.115**	0.110**
	(0.056)	(0.038)	(0.037)
Age (30-34)	0.161**	0.361**	0.353**
	(0.047)	(0.042)	(0.042)
Age (35-39)	0.222**	0.422**	0.414**
	(0.048)	(0.042)	(0.043)
Age (40+)	0.096	0.328**	0.335**
	(0.092)	(0.048)	(0.054)
Age unknown	0.205	0.374**	0.373**
	(0.126)	(0.117)	(0.134)
Highest Qualification: A-level	(REF)	(REF)	(REF)
Highest Qualification: Highers	0.141	-0.029	-0.103
	(0.205)	(0.187)	(0.195)
Highest Qualification: other Level 3	-0.005	0.01	-0.085
	(0.062)	(0.053)	(0.061)
Highest Qualification: Other	-0.223**	-0.168**	-0.263**
	(0.054)	(0.046)	(0.055)
Accommodation: At home	0.030	0.039	-0.017
	(0.040)	(0.027)	(0.014)
Accommodation unknown	-0.216**	-0.055	-0.084*
	(0.045)	(0.040)	(0.038)
Subject: Arts		(REF)	(REF)
Subject: Medicine		-2.747**	-2.800**
		(0.261)	(0.277)
Subject: Allied to medicine		-0.124**	-0.141**
		(0.035)	(0.032)
Subject: Biological science		-0.190**	-0.179**
		(0.026)	(0.024)
Subject: Veterinary science		-3.042**	-2.903**
		(0.517)	(0.436)
Subject: Agriculture		-0.329**	-0.211**
		(0.074)	(0.070)
Subject: Physics		-0.200**	-0.202**
		(0.030)	(0.028)
Subject: Mathematics		-0.075	-0.086*
		(0.044)	(0.044)
Subject: Computer science		-0.109**	-0.099**
		(0.031)	(0.031)
Subject: Engineer & Technology		-0.047	-0.058
		(0.035)	(0.032)
Subject: Architecture		-0.167**	-0.189**
		(0.060)	(0.060)
Subject: Social studies		-0.233**	-0.229**
		(0.028)	(0.027)
Subject: Law		-0.237**	-0.253**
		(0.031)	(0.030)
Subject: Business		-0.229**	-0.219**
		(0.027)	(0.025)
Subject: Mass communication		-0.098*	-0.112**
		(0.039)	(0.033)
Subject: Languages		-0.092**	-0.090**
		(0.024)	(0.023)
Subject: History		-0.079**	-0.085**

		(0.027)	(0.026)
Subject: Education		-0.232**	-0.215**
		(0.037)	(0.037)
Subject: Combined		-0.769**	-0.744**
		(0.242)	(0.286)
Mode of study: Full-time		(REF)	(REF)
Mode of study: Part-time		-0.306**	-0.280**
		(0.050)	(0.051)
Institutional variables			
RAE 2001		0.145**	
		(0.043)	
Missing RAE 2001		0.560**	
		(0.215)	
QAA Post 2000		0.01	
		(0.019)	
Missing QAA Post 2000		0.174	
		(0.437)	
Russell		(REF)	
94 Group		-0.142**	
		(0.045)	
Old universities		-0.166*	
		(0.065)	
Rest except specialists		-0.264**	
		(0.081)	
Specialists		-0.290**	
		(0.090)	
<hr/>			
Census variables	Yes	Yes	Yes
Institution fixed effects	No	No	Yes
Pseudo R-squared	0.021	0.073	0.081
Observations	255512	255512	255512
<hr/>			

Robust standard errors in brackets

* significant at 5%; ** significant at 1%

Note: The sample contains only the first degree, non-UK graduates (final year students) from English institutions.

Table 4: Marginal Effects of Degree Class Achieved in HE by Class Category:
HESA 2003-2004

DPROBIT on Degree Class	1st class (1)	2:1 and above (2)	2:2 and above (3)
Female (=1)	0.009 [0.002]**	0.091 [0.005]**	0.039 [0.003]**
White	(REF)	(REF)	(REF)
Black British – Caribbean	-0.070 [0.003]**	-0.226 [0.012]**	-0.073 [0.008]**
Black British – African	-0.072 [0.003]**	-0.277 [0.012]**	-0.106 [0.008]**
Other Black Background	-0.074 [0.003]**	-0.206 [0.019]**	-0.056 [0.012]**
Asian British – Indian	-0.039 [0.004]**	-0.139 [0.009]**	-0.038 [0.006]**
Asian British – Pakistani	-0.050 [0.003]**	-0.187 [0.009]**	-0.071 [0.007]**
Asian British – Bangladeshi	-0.052 [0.006]**	-0.159 [0.016]**	-0.041 [0.010]**
Chinese	-0.033 [0.005]**	-0.154 [0.013]**	-0.064 [0.009]**
Other Asian Background	-0.036 [0.004]**	-0.144 [0.013]**	-0.054 [0.010]**
Other	-0.026 [0.004]**	-0.088 [0.010]**	-0.032 [0.005]**
Unknown	-0.023 [0.004]**	-0.080 [0.010]**	-0.040 [0.005]**
Disabled (=1)	-0.017 [0.003]**	-0.057 [0.006]**	-0.017 [0.003]**
Disability unknown	-0.027 [0.006]**	-0.120 [0.025]**	-0.070 [0.019]**
Age (19-20)	(REF)	(REF)	(REF)
Age (21-24)	0.000 [0.004]	0.015 [0.009]	-0.008 [0.005]
Age (25-29)	0.044 [0.007]**	0.073 [0.014]**	-0.019 [0.008]*
Age (30-34)	0.105 [0.011]**	0.153 [0.014]**	0.011 [0.008]
Age (35-39)	0.116 [0.012]**	0.176 [0.015]**	0.016 [0.006]*
Age (40+)	0.109 [0.013]**	0.154 [0.018]**	0.002 [0.009]
Age unknown	0.047 [0.060]	0.175 [0.049]**	0.033 [0.023]
Highest Qualification: A-level	(REF)	(REF)	(REF)
Highest Qualification: Highers	-0.019 [0.028]	-0.055 [0.072]	-0.022 [0.057]
Highest Qualification: other Level 3	-0.005 [0.005]	-0.029 [0.021]	-0.019 [0.014]
Highest Qualification: Other	-0.021 [0.004]**	-0.108 [0.019]**	-0.056 [0.018]**

Accommodation: At home	0.004 [0.002]	-0.017 [0.006]**	-0.003 [0.003]
Accommodation unknown	-0.009 [0.006]	-0.031 [0.018]	-0.021 [0.008]**
Subject: Arts	(REF)	(REF)	(REF)
Subject: Medicine	-0.081 [0.004]**	-0.542 [0.019]**	-0.854 [0.031]**
Subject: Allied to medicine	-0.021 [0.006]**	-0.074 [0.012]**	-0.017 [0.010]
Subject: Biological science	-0.026 [0.005]**	-0.086 [0.011]**	-0.025 [0.006]**
Subject: Veterinary science	-0.086 [0.003]**	-0.542 [0.019]**	-0.858 [0.034]**
Subject: Agriculture	-0.006 [0.012]	-0.102 [0.024]**	-0.050 [0.022]*
Subject: Physics	0.008 [0.007]	-0.132 [0.013]**	-0.077 [0.011]**
Subject: Mathematics	0.062 [0.010]**	-0.123 [0.018]**	-0.103 [0.017]**
Subject: Computer science	0.019 [0.007]**	-0.054 [0.013]**	-0.040 [0.008]**
Subject: Engineer & Technology	0.034 [0.007]**	-0.049 [0.015]**	-0.048 [0.011]**
Subject: Architecture	-0.015 [0.009]	-0.089 [0.025]**	-0.030 [0.016]
Subject: Social studies	-0.047 [0.004]**	-0.094 [0.012]**	-0.013 [0.006]*
Subject: Law	-0.064 [0.004]**	-0.100 [0.014]**	0.001 [0.008]
Subject: Business	-0.036 [0.005]**	-0.095 [0.011]**	-0.028 [0.007]**
Subject: Mass communication	-0.037 [0.005]**	-0.039 [0.016]*	0.012 [0.007]
Subject: Languages	-0.029 [0.004]**	-0.021 [0.012]	0.014 [0.005]**
Subject: History	-0.036 [0.004]**	-0.016 [0.014]	0.021 [0.005]**
Subject: Education	-0.036 [0.005]**	-0.090 [0.016]**	-0.021 [0.010]*
Subject: Combined	-0.058 [0.009]**	-0.192 [0.067]**	-0.161 [0.078]*
Mode of study: Full-time	(REF)	(REF)	(REF)
Mode of study: Part-time	-0.015 [0.007]*	-0.088 [0.020]**	-0.068 [0.013]**
Census variables	Yes	Yes	Yes
Institution fixed effects	Yes	Yes	Yes
Pseudo R-squared	0.0712	0.0965	0.2089
Observations	255511	255511	255319

Robust standard errors in brackets

* significant at 5%; ** significant at 1%