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Geography or Economics? A Micro-Level Analysis of the Determinants of Degree Choice in the Context of Regional Economic Disparities in the UK

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Abstract

The importance of human capital to the economic performance of a national, regional or local economy is now well established. Labour markets are thought to reward individuals in proportion to their marginal productivity and to encourage an efficient allocation of skilled workers. However, labour markets also provide signals to students about the return to a particular level or type of skill, which in turn affects the future supply of skilled workers. This paper explores how labour market conditions affect one aspect of this supply: through an impact on the subject an individual chooses to study for their undergraduate degree.

Using a large micro-level dataset on graduates from British universities between 2004/5 and 2006/7, this paper implements a series of linear probability models in subject choice and makes several contributions to the existing literature. Firstly, it uses a more detailed classification of subjects than has hitherto been employed. Second, it examines the impact of local economic conditions on the student‟s subject choice. Thirdly, the time dimension of the dataset is used to implement fixed effects to control for several forms of endogeneity.

The results suggest that personal and academic characteristics, such as gender, ethnicity and prior academic attainment, strongly affect degree choice and suggest that individuals endogenously select into particular areas and schools. It finds that local labour market signals do encourage individuals to take up particular degrees in preference to others, and raises several policy issues.

JEL classification: C25, I2, J24, R23
Keywords: Education, Human Capital, Skills, Regional Labour Markets

Geography or Economics? A micro-level analysis of the determinants of degree choice in the context of regional economic disparities in the UK

It is now widely accepted that human capital has an important impact on economic outcomes at the individual, local and national levels. Individuals who have more human capital are thought to have higher productivity, better health (Silles 2009) and to earn more than less educated individuals (Blundell et al 2000). Regions with strong workforce skills are thought to absorb new knowledge more easily and innovate more readily (Faggian & McCann 2006) and economies with larger human capital stocks are thought to grow more quickly (Midelfart-Knarvik, Overman &Venables 2001, Glaeser et al 1992).

Although the debate over whether qualifications enhance human capital or simply signal higher ability remains unresolved (Spence 1973, Stiglitz 1975), there is evidence that individuals with degrees in different subjects have different labour market experiences. Dolton & Makepeace (1990) and Blundell et al (2000) find that graduates who undertake degrees in economics and law earn significantly more than individuals with qualifications in other subjects. Bratti, Naylor & Smith (2005), Bratti & Mancini (2003) and Fengliang et al (2009) confirm these results. Dolton & Makepeace (1990) also find evidence that the subject studied strongly affects which industry a graduate enters, and DFES (2004) finds evidence that career paths within the chosen industry can vary significantly between disciplines.

These results will confirm many expectations, but at a more detailed level, the tie between degree subject, industry of employment and subsequent career progress presents a potential insight into how graduates perceive and respond to labour market signals. At the individual level, students choose the degree subject which maximises the expected return on their investment in higher education. But at another, more aggregated level, the choice reflects how young people respond to the skill needs of industry. Despite the importance of this link for individuals and firms, relatively few papers have explored subject choice at university level and none have related the choice to local labour market conditions.

This paper seeks to address this deficiency through a micro-level study of degree choice among graduates from British universities between 2004/05 and 2006/07 and makes several critical contributions to the existing literature. Firstly, it uses a detailed set of 19 subjects to allow a systematic examination of personal, academic and parental influences on degree choice. Secondly, it examines degree choice in the context of local labour market conditions to assess whether local patterns of employment, wages and worklessness affect students' decisions. Thirdly, it uses the time dimension of the dataset to identify the effect of individual, academic, parental and economic characteristics in a linear probability model with postcode district and school level fixed effects, controlling for several potential sources of endogeneity. The analysis shows that personal and academic characteristics, such as gender, ethnicity and prior academic attainment, strongly affect degree choice. It finds that there is evidence of a process of endogenous residential and school selection and that local labour market signals encourage individuals to take up particular degrees in preference to others. Although these effects are an order of magnitude smaller than those of personal characteristics, the results have implications for regional inequalities in the UK. Section 2 presents a review of the existing literature, Section 3 sets out the empirical framework, Sections 4 and 5 present the methodology and data respectively and Section 6 presents the results. Section 7 offers some discussion and conclusions.

2. Literature Review

The expansion of higher education in the UK and a growing interest in spatial economics has led to a number of papers exploring the effect of local economic conditions on investment in human capital (Rice 1999, 2000, Gibbons & Vignoles 2009). However, recent contributions to the subject choice literature have ignored the effect of local labour demand conditions on students' choice of degree. This section will first survey these recent contributions before examining how economic conditions can influence the decision to invest in human capital.

2.1 Choice of degree subject:

Although the literature on subject choice at university level is relatively small, several recent contributions have sought to estimate how individual, academic and parental characteristics shape students' decisions. However, the methods employed and the subject classifications used vary from paper to paper and each has a slightly different focus.

Davies & Guppy (1997) use micro-level data from the National Longitudinal Survey of Youth in the United States to examine the factors which lead to students entering relatively 'lucrative' fields. Through a series of ordinary least squares and logistic regressions they estimate the expected return to a degree subject and examine how gender, ethnicity, socio-economic background and ability (measured by a series of tests of reasoning and knowledge) affect the probability of a student choosing to study in a relatively high-return field. They conclude that male students and students with higher measures of ‘ability’ are more likely to enter lucrative fields[1], as are students from the lower socio-economic groups. Davies & Guppy (1997) find no evidence of significant ethnic group effects.

However, Simpson (2001) focuses explicitly on trends in subject choice among students from different ethnic groups. Using the ‘High School and Beyond’ national longitudinal survey in the United States, Simpson estimates a series of multinomial logistic regressions separately for Asian, African, European, Hispanic and Native Americans who choose among five broad subject areas. Conditional on gender, family background and income, prior academic training and some measures of ‘cultural capital’, Simpson finds significant differences in choice of College major between ethnic groups. Asian Americans are more likely to study Health & Life Sciences than European and Hispanic Americans, and less likely to study Business or Public Service majors than African Americans. European Americans are more likely to take a Liberal Arts major than African Americans. Simpson (2001) also finds that females are significantly less likely to take a Technical major (such as Computer Science, Engineering, Mathematics or Physics) than males and that prior academic attainment, parental income and type of school attended all influence subject choice in different ways for each ethnic group.

Van de Werfhorst et al (2003) use a similar methodology to assess subject choice among British students. Using longitudinal micro-level data from the National Child Development Study, they estimate a multinomial logistic regression in a choice of six subjects (Medicine & Law, Engineering, Science, Economics, Social Studies and Arts) conditional on family background, ability, prior academic attainment and measures of ‘economic’ and ‘cultural capital’. They conclude (1) that students choose subjects in which they have performed comparatively well, (2) that students who perform well in reading tests are more likely to take degrees in Social Studies or Arts and that (3) students who are relatively good at maths are more likely to take Engineering, Science or Economics degrees. Van de Wefhorst et al (2003) also find that although students from wealthy backgrounds are more likely to take degrees in Law & Medicine, there is little other evidence of large and significant differences by socio-economic class.

Montmarquette et al (2002) also start by estimating a series of multinomial logistic regressions in subject choice. Using Canadian micro-data from the National Longitudinal Survey of Youth, they examine the factors which determine College major among a choice of four subject areas (Business, Liberal Arts, Science and Education). To control for differences in future earnings across degree types, Montmarquette et al (2002) use reported student expectations to estimate expected income for

[1] Davies & Guppy (1997) define ‘lucrative’ fields in terms of the expected earnings of graduating students.

each student. They conclude that gender and expected income are important determinants of degree choice.

Despite the seeming suitability of multinomial logistic regressions for examining subject choice, some researchers have sought to relax the restrictive Independence of Irrelevant Alternatives assumption which this type of model imposes. Both Montmarquette et al (2002) and Bratti (2006) estimate multinomial probits in their examinations of subject choice in an attempt to model the error structure more carefully. These studies allow the probability of taking different subjects to be correlated, which is particularly useful when considering the choice from among a range of similar subject groups.

Using British micro-data from the Universities Statistical Record for each cohort entering university between 1981 and 1991, Bratti (2006) estimates a multinomial probit in three subject choices: (1) ‘Non-quantitative subjects’ (including Social Studies, Communications, Languages, Creative Arts and Education, excluding Economics), (2) ‘Quantitiative subjects’ (including Sciences, Engineering, Architecture and Economics) and (3) Law and Medicine. The primary focus of this paper is on patterns of subject choice among students from different socio-economic backgrounds, conditional on age, gender, prior academic attainment and school type. He concludes that gender and prior academic attainment are important determinants of degree choice, but finds no effect of socio-economic class.

2.2 Local economic conditions

Despite these relatively recent and sophisticated contributions to the literature on subject choice, none of the above papers incorporate spatial and local economic effects on students’ decisions. Local economic conditions are likely to affect the individual’s choice through two mechanisms. Firstly, levels of wages and unemployment help to determine the opportunity cost of a course of study. If wages are high and unemployment low, then the cost of study in terms of forgone wages is relatively high. Conversely, students whose local labour markets can be characterised by low wages and high unemployment are likely to see a course of study as less costly. As a result, a stronger local economy may actually deter investment in human capital through a steady supply of well-paid jobs (Rice 1999, 2000).

Secondly and set against this, local labour market conditions may also affect the individual’s expectations about the return to a particular degree subject. Students may respond to the expansion of a particular local industry by seeking to acquire a qualification which will allow them to access employment opportunities in that industry. Conversely, students in economically depressed areas may seek qualifications which will allow them to migrate to employment in more prosperous areas. Lower unemployment may also increase the return from any course of study by reducing uncertainty about future employment prospects and as a consequence the net effect of these influences is uncertain.

Growing interest in spatial economic issues has steadily increased the level of sophistication with which papers have approached the estimation of these effects. Pissarides (1981) includes national unemployment rates and wage ratios[2] in his aggregate analysis of the rate of 'staying-on at school' and concludes that national unemployment (for men) and wages (for men and women) affect the post-compulsory schooling participation decision. Whitfield & Wilson (1990) also find that national unemployment plays a role in determining whether students choose to remain in education after age 16, while McVicar & Rice (2000) attribute some of the increase in further education participation during the 1990s to higher national unemployment rates. In each case, better macroeconomic conditions reduce the probability of participation.

However, subsequent papers have sought to relate economic conditions at the student's point of domicile to their education decisions, attempting to capture the 'relevant market' to which a student is responding. The wide differences in economic performance within the UK are a powerful argument in favour of this shift. Rice (1999) finds that unemployment at the local authority level affects participation decisions – although it has greatest impact on relatively poorly qualified males. Rice (2000) confirms these results, but adds that poorly qualified males from ethnic minorities are less affected by local labour market signals than poorly qualified white males. Rice (1999) also concludes that a higher ratio between the earnings of managerial and manual occupations tends to increase participation in further education.

2.3 The return to a degree

There is a wealth of evidence which suggests that on average, there is a relatively large pecuniary return to holding a higher education qualification. Blundell et al (2000) report that holding a degree increases the probability that an individual is in work at age 22 and find that starting salaries among these individuals are significantly higher than for those who opted not to invest in a degree. Office for National Statistics (2003) and Dolton & Makepeace (1990) conclude similarly that in spite of the increased supply of well-qualified individuals, the return to a degree remains large and significant.

[2] Pissarides (1981) is interested in the pay-off to further education and so includes the ratio of average wages in high occupational groups (for which an FE degree is a qualifying criterion) to average wages in low occupational groups (employment in which does not require an FE qualification).

To what extent does the return to an undergraduate degree depend on the subject studied? At a more detailed level these papers also suggest that this return varies depending on the subject of the degree. Blundell et al (2000) find evidence that graduates of economics, accounting and law earn significantly more than the average for other subjects after controlling for personal characteristics. Dolton & Makepeace (1990) also find that starting salaries and subsequent earnings vary significantly across subjects. Their study of the cohort graduating in 1980 found that starting salaries ranged from £5,116 per year for law graduates to £8,518 for engineering students and that earnings six years after graduation ranged from £9,607 per year for sociology students to £16,460 for graduates in computer science. Bratti, Naylor & Smith (2005), Bratti & Mancini (2003) and Fengliang et al (2009) all find similar evidence of significant differences in the return to degrees of different subjects, both in terms of immediate starting salaries and earnings some years later.

Although there are likely to be large non-pecuniary benefits to some courses of study, such wide differences in the return to a degree raise questions about how graduates choose their subject of study. In a policy environment focussed on skills and higher education it is perhaps surprising that relatively little work has been done in the UK to examine the determinants of degree choice.

This paper seeks to help remedy this deficiency through a micro-level examination of degree choice in the context of local labour market conditions in the UK. In contrast to previous work, it uses a detailed breakdown of nineteen subject classes and examines how local economic characteristics affect the probability of taking particular degrees. In a second innovation for the field, it also seeks to control for a number of potentially confounding effects arising from residential selection and school choice, going some way towards ensuring that the effects estimated represent true values and not the impact of endogenous selection effects.

3. Empirical framework:

The empirical framework for this analysis draws on a simple, adapted model of investment in human capital (Rice 1999). The present discounted value of the expected net benefit, B, of an individual, i, taking a degree subject, d, at a university, U, is given by:

$$B_{i,d,U} = C_d - \left(E + T_d + M_{i,d,U} + P_d(\theta_i)\right) \qquad (1)$$

Where C_d captures the present discounted value of the expected lifetime consumption path where the individual acquires the degree and E captures the expected lifetime consumption benefits of entering employment, less the pecuniary and other costs of working. T_d reflects the tuition costs associated with acquiring the degree while $M_{i,d,U}$ reflects the cost of migrating to the institution at which the individual chooses to study. Finally, $P_d(\theta)$ reflects the psychic costs of acquiring the degree to the individual, which depend on the individual's personal, academic and parental characteristics, θ_i. If $B_{i,d,U} < 0$, it follows that subject d is excluded as a possible subject of study. Note that participation will only take place if, for at least one subject, $B_{i,d,U} > 0$.

Two points merit discussion here. Firstly, tuition fees for undergraduate degrees in the UK were capped by the Higher Education Act 2004. In an effort to establish a market for higher education provision, the same Act afforded universities the right to charge reduced fees where they felt appropriate. In practice all but two institutions chose to charge the maximum amount[3], which in this context means that the tuition costs of any two subjects are effectively identical, except where the lengths of the degree courses differ.

The second point concerns the opportunity cost of taking the degree, here represented as E. It is reasonable to assume that the opportunity cost of a degree in terms of forgone wages does not vary based on the subject studied. That is, if a student opts *not* to do a degree in economics, he will earn the same as if he had opted *not* to do a degree in geography. The only exception, once again, is in circumstances where the length of the degrees compared varies. Thus, medical, engineering and languages degrees, which are typically longer than three years, carry a higher opportunity cost than other, shorter degrees and cost more to undertake. Note that although (with these exceptions) the opportunity cost of a degree is constant across all degree options, it will vary across individuals depending on local labour market conditions.

In common with other models of revealed choice, the workings of this model are largely unobserved. The two elements which are observed are (1) the participation condition: individuals will choose to attend university if at least one subject offers a strictly positive return, and (2) the final choice of subject. As the data used in this paper only includes students who have chosen to participate (satisfying the first condition), the conclusions drawn here are necessarily limited to students who select into higher education. Consequently, the findings of this paper shed light on the factors determining subject choice conditional on participation, but cannot be applied to school leavers as a whole with precision.

[3] The two institutions were the University of Greenwich and Leeds Metropolitan University. Leeds Met recently announced that it will charge the maximum fee from September 2010 (Times Online 2009).

4. Estimation Issues and Strategy

The primary empirical objective of this paper is to explore the determinants of degree choice at the individual level. Building on the framework set out above, the empirical strategy uses a micro-level discrete choice model to examine the subject individuals adopt for their degree studies. However, two estimation issues complicate this approach.

4.1 Estimation Issues

The first of these two estimation issues arises out of a process of endogenous residential selection (Glaeser 1996, Dujardin, Selod & Thomas 2008). The essence of this problem can be simply stated like this: Suppose we are interested in the effect of unemployment in an individual's home town on his propensity to take a science degree. To proceed we run a regression of the binary 'science degree indicator' against the local unemployment rate and a significant coefficient is interpreted as evidence in favour of some form of a relationship.

However, suppose that the individual chose to live in his town because of some unobserved characteristic – high ability, for instance – which means he prefers to live in an area with low unemployment. In this case the coefficient we estimated would reflect both the influence of that unobserved characteristic – ability – and the local unemployment rate. In these circumstances the estimated parameter captures both the effect of the local unemployment rate and the effect of the unobserved attribute.

To some extent, of course, this problem is mitigated by the fact that in most cases it is the parents, not the individual students, who have chosen their residential location prior to university. Consequently, we are really dealing with a problem of endogenous residential selection one generation removed. However, because it is widely thought that parents pass on many of their characteristics to their children there is still a risk that parameter estimates will be influenced by residential sorting.

The second estimation issue concerns the school attended. Previous work by Simpson (2001) and Bratti (2006) suggests that school type is an important determinant of subject choice, as students from private schools are found to have a greater propensity to do some subjects than students from state schools. If private schools have more resources, better teaching or simply attract a particular type of student, it is important to control for these differences and to avoid attributing their influence to individual, parental or local economic characteristics.

However, research elsewhere suggests that there also is significant variation in higher education outcomes and behaviour within school types. Smith & Naylor (2005) find that males (females) who attended an Independent school are 6.5% (5.4%) less likely to attain a ‘good’ degree at university, but on closer inspection they find significant variation between the best and worst private schools. Relative to state school students and conditional on personal, academic and parental characteristics, males (females) who attended the best Independent schools are 7% (13.3%) more likely to achieve a good degree, while those at the worst performing independent schools are 17.8% (18.7%) less likely to achieve a good degree. More cause for concern about within school type variation is derived from recent education policy reforms which have encouraged schools to specialise in particular areas such as ‘performing arts’, ‘science’ and ‘sports’. These changes may have stimulated more applicants from particular academic fields than others at the level of the individual school, rather than from ‘state’ or ‘private’ schools. As a consequence, a simply set of ‘state’ and ‘private’ school dummies may not be sufficient to reliably identify the true school level effect.

4.2 Estimation Strategy

To mitigate these problems and to explore the determinants of degree choice systematically, this paper implements two levels of investigation. In the first stage it implements a linear probability model (Angrist & Krueger 1999, Kuhn &Weinberger 2005), for each of the 19 subject areas of the form:

$$Pr(d = D) = f(c, p, \varepsilon) \tag{2}$$

This specification, drawn from (1), states that the probability of taking a degree, d, is a function of the future benefits of the degree, c, the costs of taking the degree, p, and a random utility term, ε.

As these quantities are impossible to measure directly, several variables are used as proxies. Following prior work (Rice 1999, 2000), the return to a degree, c, is modelled as a function of local labour market conditions, including employment and earnings by industrial sector and the local unemployment rate. Note that by including labour market conditions across the range of industrial sectors, this makes no assumptions about the career path or employment choice that individuals make after completing their studies, but does allow us to estimate how labour market signals from a range of different industries affect degree choice through their impact on the expected return.

The relative psychic costs of a degree, p, are also unobserved and must be accounted for by another set of proxy variables. Individual characteristics such as gender, age and ethnicity, academic characteristics such as prior academic attainment and type of school attended, and parental characteristics such as socio-economic class are included to try to model the systematic components of this variable. This specification provides a baseline set of results.

The second stage involves a second set of linear regressions of the form:

$$Pr(d = D) = f(c, m, p, \varepsilon) \quad (3)$$

Equation (3) outlines a strategy as before, to regress the indicator for each subject against individual, academic and parental characteristics as well as local economic conditions. However, this time a full set of fixed effects are introduced for each postcode district of domicile (to control for m, the costs of migrating to university and for other, time-invariant characteristics of the domicile area) and for each school attended. This amounts to using the time-dimension of the data to allow each school and domicile postcode district to have a single, intercept shifting effect on the probability of taking a particular subject. In this specification the return to a degree, c, is captured through the local unemployment rate and the growth rates of employment and earnings by industry.

The logic of using the postcode district level for the fixed effects is based on the need to control for unobserved characteristics which cause individuals to 'self select' into particular areas. Failing to control for the influence of these characteristics leaves the parameter estimates susceptible to the confounding effects of endogenous residential selection and defining the fixed effects at the postcode district level allows us to control for characteristics which all the students from a given postcode district have in common. There are 2971 live postcodes in the UK, with an average population of 34,067 and of which 2,611 (2,646) appear in the dataset for males (females). This stage of work therefore requires the additional identifying assumption that we can treat these common characteristics of postcode district as essentially time-invariant.

Similarly to the postcode district fixed effects, school level fixed effects are used to capture the unobserved school characteristics which affect the probability of a student taking a particular degree subject. There are roughly 5,000 registered secondary schools in the UK, of which some 3,070 (3,261) appear in our dataset for males (females). Analogously to the fixed effects for domicile, this requires the identifying assumption that school level characteristics are time invariant.

The simple linear regression approach adopted for this paper represents a compromise between the desire to model subject choice in as detailed a manner as possible and the need for a consistent and computationally achievable method of estimation. As set out above, previous work in the field has used a multinomial specification to model students' choices among relatively few degree specialisms from relatively small samples. Bratti (2006) utilises the most coherent empirical framework of the work surveyed here, using a multinomial probit to relax the IIA assumption, yet limits his analysis to three broad subjects. However, because this paper seeks to model students' choices among a more detailed set of nineteen academic fields, to incorporate a large number of fixed effects and to utilise a relatively large dataset, the multinomial probit is computationally infeasible. The linear framework adopted can meet our empirical ambitions, albeit at the expense of coherent predicted probabilities and efficiency in estimation. To compensate for these failings, the linear regressions were run with both robust standard errors and with clustered standard errors based on the postcode district of domicile. To check the robustness of the analysis and to ensure the results did not arise from the nature of the model adopted, a series of logistic regressions were also run for each subject (excluding fixed effects). However, none of these measures had a significant impact on the findings.

5. Data

The data used in this paper come from a wide range of sources, linked together using the student's postcode sector of domicile.

5.1 Individual Level Data:

The student level data used in this paper are drawn from the Destination of Leavers from Higher Education (DLHE) dataset provided by the Higher Education Statistics Agency[4] (HESA 2005, 2006, 2007) which has been used and analysed extensively elsewhere (Faggian & McCann 2006, 2009, Faggian, McCann & Sheppard, 2006, 2007a, 2007b, Naylor & Smith 2004, Smith & Naylor 2005). The DHLE is a survey of graduates from universities in the UK roughly six months after they leave higher education. It includes a wealth of information on their previous schooling, their academic attainment at school and at university, as well as a range of personal characteristics such as age, gender and ethnicity. The dataset also includes geographical information at the postcode sector level which details where the student lived before university and where they studied.

[4] Data from the Higher Education Statistics Agency is available from www.hesa.ac.uk. HESA cannot accept responsibility for any inferences or conclusions derived from the data by third parties.

In addition to information about the individual student, the dataset also includes indicators provided by the University and Colleges Admissions Service (UCAS). These variables provide the socio-economic classification of the student's household prior to starting university.

As the primary aim of this paper is to assess how students make their choice of degree subject, the target population is restricted to undergraduates taking their first-degree, who studied full-time and who were domiciled, educated and attended university in Britain, graduating between 2004/05 and 2006/07. Summary statistics for the three cohorts combined are reported in Table One. Taken together, there are just over 25% more females in the sample than males and more than 80% of all students are white. A slightly higher proportion of males are educated at private schools than females, and just less than two-thirds of the students surveyed are from families in Professional and Managerial occupational groups. The distribution of prior academic attainment in the sample largely reflects the national trends. Female students are more heavily concentrated around the average A-level points score for their cohort, while a greater proportion of male students appear at the tails of the distribution.

Finally, the individual level data also provided information about the subject a student chose to study at university, broken down into the 162 subject codes of the Joint Academic Classification of Subjects (JACS). These were aggregated to the 20 JACS2 subjects, which retains sufficient detail to be interesting and sufficient sample size for inference. Table Two provides information about the number of students taking each subject. For males the most popular subjects are Business Studies, Mathematics, Social Studies and Biological Science which account for almost half of male students. The most popular subjects among female students are Biological Science, Social Studies, Art & Music and Business Studies which together account for 46.2% of female students. The greatest differences between men and women are the in the proportions taking Mathematics and Engineering (which are more popular with male students) and Biological Science and Degrees Related to Medicine (which are more popular with female students).

In many cases, students follow joint degree programmes, which complicates the analysis of 'subject choice'. As the DLHE dataset also provides information about how much of a student's degree was devoted to a particular subject, only students who spent at least half of their time on one subject area are included in this analysis to ensure that the sample only included individuals who had made a specific subject choice. As a result the sample is reduced from 469,285 individuals over the three years to 421,590.

Students who do not report which school they attended or where they were domiciled before university, or who reported an invalid domicile postcode sector are also dropped, as were students from schools with fewer than ten students in the sample. The remaining sample size was 339,095, from which we exclude those who did not report an A-Level tariff score on entry to university. This leaves us with a sample of 303,355 individuals. An analysis of the individuals who were dropped suggested that among those excluded the lower socio-economic groups are slightly over-represented, as are students with poorer than average A-level results but that the age, gender and ethnic profiles of these students are broadly similar to that of the sample as a whole.

5.2 Local Economic Data

In addition to the DLHE, a wide range of data from different sources was included to generate information about the local economy at each individual's point of domicile. Using the postcode of domicile as a spatial reference, data at the Local Authority District[5] (LAD) level was included from the Annual Population Survey (APS), the Annual Business Inquiry (ABI), the Annual Survey of Hours and Earnings, the benefits datasets provided by the Department for Work and Pensions and the Office for National Statistics' Mid-Year Population estimates (MYPE).

A number of variables were constructed using these sources, full details of which are provided in Appendix A. Two sets of unemployment rates are included in the subject choice regressions. Firstly, the number of 16-29 year olds claiming the Job-Seekers Allowance was used with the MYPE population estimates to calculate the rate of resident youth unemployment in each LAD. Second, the number of adults registered as unemployed and inactive by the Labour Force Survey measure (APS) was used with the MYPE population data to calculate rates of adult unemployment and economic inactivity measures at the LAD level. Workplace data on employment was taken from the ABI at the Standard Industrial Classification single digit level and used to calculate the proportion of employment in each industry in each LAD[6]. Finally, wage data by industrial sector is less readily available at the LAD level in the UK. As a result, average hourly wages by industry for men and

[5] There are 432 Local Authority Districts in the United Kingdom. As this analysis excludes Northern Ireland, some 408 are included here. They are defined for administrative and local government reasons, rather than as single, spatial economic units and as a result are more densely concentrated in urban areas.
[6] See Appendix A for a breakdown of Industries included

women were calculated using hours worked and gross weekly wages from ASHE at the Government Office Region level[7].

6. Results

The primary aim of this paper is to explore the determinants of degree choice at the individual level in the context of local economic conditions. To assess these empirically, two stages of investigation were carried out. First, a series of linear probability models were estimated for the probability of taking a particular subject, d, as a function of individual, academic, parental and local economic characteristics as set out in (2) above. In these regressions, a significant coefficient on a local economic variable is interpreted as evidence of some kind of relationship between labour market signals and the probability of taking a particular subject. This estimation provides a baseline set of results.

The second stage involved the estimation of a further set of linear probability models, this time including a full set of fixed effects for the student's residential location prior to university and the school which they attended, as detailed in (3). This represents a much 'harder test' for the local economic variables, as the fixed effects control for local factors which remain unchanged through time. The full results of the second stage are reported in Appendix B[8]. Each column in each table in Appendix B represents a regression for a different subject including individual, academic, parental and local economic characteristics. Results are reported separately for men and women.

Before proceeding to the full results, Table Three underlines the importance of running the analysis for males and females separately. An initial set of pooled regressions were run for each subject, conditioning on personal, academic, parental and local economic characteristics as well as a gender dummy variable and the full set of explanatory variables interacted with the gender dummy. Column One reports the coefficient on a Female dummy variable from these regressions. The estimated coefficients suggest female students are more likely to take degrees in Biological Science (+6.3%), Language, Linguistics & Classics (+5.7%), and Art & Music (+4.5%), but less likely to take degrees in Mathematics (-10.6%), Engineering (-8.5%) and Physical Science (-5.4%). These results are consistent with the summary statistics of Table One and confirm many popular impressions, but they also suggest that there are fundamental differences in how men and women choose their degree

[7] There are nine Government Office Regions in the UK, comprising the European Nomenclature of Territorial Units for Statistics (NUTS) 1 regions.
[8] Results from the first stage are available upon request from the author

subject. The third column of Table Three shows the results of Wald tests for the joint significance of all explanatory variables interacted with the female dummy. Although the coefficient on the female dummy is significant at the 1% level in all but three cases, the results of the Wald on the exclusion of a separate female effect are significant at the 1% level for all subjects. This suggests that the ‘female effect’ cannot be limited to a single, intercept shifting dummy variable. As a result, both following stages of the analysis are conducted separately for men and women.

6.1 Ethnicity & Disability

Although prior work in this area has been limited, among the strongest results from Simpson’s (2001) analysis suggested patterns of subject choice varied significantly among ethnic groups. The models estimated here confirm these results and add detail to the nature of these different choices.

Taken from Appendix B, Panel A of Figure One shows the estimated coefficient on the Asian dummy variable for men and women for all 19 subjects. The dotted lines illustrate the 95% confidence intervals (based on clustered standard errors[9]) around these coefficients and demonstrate the significance of the estimates in all but one subject (Social Studies). As the results of the baseline and fixed effects estimation were very similar, Figure One shows the results from the preferred, second stage analysis. Asian males are significantly more likely than white males to do Mathematics (+10.7%), Business Studies (+6.1%) and Degrees Related to Medicine (+5.6%) and less likely to take degrees in History (-7.1%), Art & Music (-6.0%) and Biological Science (-3.7%). Similar, significant differences between Asian females and White females are also evident, which broadly mirror the choices of Asian males. Asian females are more likely to do Business Studies (+6.9%), Law (+6.4%) and Mathematics (+5.6%) and less likely to take Art & Music (-6.8%), History (-5.0%) and Languages, Linguistics & Classics (-4.9%) than White females.

As should be clear from this discussion, conditional on family, academic and economic characteristics, being Asian appears to be associated with a particular pattern of subject choice irrespective of gender, as the same effects are evident for both men and women. Mathematics, Business Studies and Degrees related to Medicine appear to attract Asian students more than White

[9] Standard errors are clustered on the postcode district of domicile to control for the spatial aspects of the error structure and to deal with heteroscedasticity in the linear probability model.

students, while conversely, History and Art & Music both appear less attractive to Asian students. However, in some cases the difference between Asian and White females is of different magnitude to the difference between Asian and White males. Asian females, for instance, are more likely to do Law relative to White females, than Asian males relative to White males. As a result, the pattern of subject specialisation appears to be deeper than simple ethnic groups, with individuals of different gender and ethnic groups specialising in different ways.

The second stage results for Black students are similarly significant (Panel B), but suggest a different pattern of subject specialisation. Black males are more likely than white students to study Law (+5.9%), Business Studies (+4.4%) and Engineering (+3.7%) and less likely to take degrees in History (-6.1%), Art & Music (-3.9%) and Physical Science (-3.3%). Black females are more likely to take Law (+10.0%), Business Studies (+4.1%) and Degrees Related to Medicine (+3.8%) and less likely to take History (-4.7%), Language, Linguistics & Classics (-5.1%) and Education (-3.7%) than White females.

However, as with Asian students, the results also suggest that there are strong intra-ethnic group differences between men and women. The difference between Black and White males and Black and White females varies particularly strongly for Law, Engineering and Education. The size and significance of these results varies very little with the inclusion of the fixed effects and evidence of attenuation is greatest for Black students. This is likely to be because some postcode districts are overwhelmingly populated by Black families.

Figure Two shows the impact of having a disability on the probability of taking particular subjects. Once again, the first and second stage results are largely consistent[10]. Having a disability has a relatively small effect on subject choice and appears to affect men and women in largely the same way. The only exceptions to this result are the coefficients for Art & Music, Law, Business Studies and Language, Linguistics and Classics. Reporting a disability, either physical or mental, is associated with a significantly higher probability of taking an Art & Music degree for both males (+2.3%) and females (+4.7%), and a significantly lower probability of taking degrees in Law (-0.9% and -1.5% for males and females respectively) and in Business Studies (-2.7% and -2.5% for males and females respectively).

[10] This is perhaps unsurprising as the extent of school level sorting of disabled (here defined quite broadly as any disability from dyslexia or other unseen disability, through to mobility difficulties, deafness or blindness) and not-disabled is likely to be fairly low.

6.2 Parental Background & Schooling:

Beyond the individual's personal characteristics, the results indicate that parental and academic characteristics also have a bearing on degree choice, although their effect varies from subject to subject. The first stage results suggest that for men (women), coming from a wealthy background is associated with a lower probability of studying Mathematics and Education (Mathematics, Business Studies and Education), and a higher probability of studying Architecture and Social Studies (Medicine & Dentistry, Degrees Related to Medicine, History, Communications and Other Languages).

In the second stage, after controlling for domicile postcode district level fixed effects, the magnitude of these effects is reduced, but they remain significant in six cases for men and twelve cases for women. These findings broadly echo Micklewright's (1989) conclusion that women's decisions appear more affected by parental background than men's, but are not consistent with the earlier findings of Bratti (2006) and Davies & Guppy (1997). According to the second stage results, males and females from the highest socio-economic groups are significantly less likely to take degrees in Education (-0.5% and -0.9% respectively) and females from the top socio-economic groups are more likely to do Art & Music (+1.3%) and History (+0.7%), relative to individuals from the poorest socio-economic groups. However, the magnitude of these effects is clearly much smaller than the effects of ethnicity or gender.

To incorporate the effects of prior academic attainment on choice of subject, four dummy variables were used to describe the individual's A-level point score relative to the rest of their cohort. These were defined as achieving a point score (1) less than one standard deviation below the mean, (2) between one standard deviation below the mean and the mean, (3) between the mean and one standard deviation above the mean, and (4) more than one standard deviation above the mean. The reference category excluded from the regressions was a point score between one standard deviation below the mean and the mean and the coefficients on the remaining three variables are shown Appendix B. Panel A of Figure Three shows the results for males. They suggest that poor academic attainment at A-level (defined as a point score below the mean) is associated with a higher probability of taking a Business Studies, Biological Science or Art & Music degree. Male students who achieve a point score less than one standard deviation below the mean point score are 3.5% more likely to take a Business Studies or Art & Music degree than males who achieved point scores between the mean and one standard deviation below the mean.

At the other end of the spectrum, male students who achieved among the highest point scores are more likely to study Mathematics, Law, Medicine & Dentistry and Physical Science than individuals with lower point scores. Taking the coefficient estimates together, males who performed best in their cohort are 14.8% less likely to take a Business Studies degree and 4.8% less likely to take a degree in Art & Music. Conversely, the results suggest that the best performing males are 7.2% more likely to take Law and 4.0% more likely to take a degree in Medicine & Dentistry than the lowest performing male students.

Panel B of Figure Three shows the equivalent set of results for females, which mirrors many of the effects evident for males. Female students who performed relatively poorly at A-level are more likely to undertake degrees in Business Studies, Education and Art & Music, while those performing at the very highest levels are more likely to take Law, Medicine & Dentistry and Language, Linguistics & Classics.

Based on these results, high performing female students are 5.3% less likely to take an Arts & Music degree, 8.4% less likely to take an Education degree and 11.9% less likely to take a Business Studies degree than the lowest performing female students. Conversely, they are 9.8% more likely to take a Law degree, 6.2% more likely to take a Language, Linguistics & Classics degree and 4.5% more likely to take a History degree.

The first stage results also suggest that school type plays a role in determining subject choice. Relative to attending a state run school, Figure Four shows that attending a private school significantly affects the probability of taking 18 (17) of 19 subjects for males (females). Private schooling is associated with a higher probability of taking Medicine & Dentistry, Social Studies, Languages, Linguistics & Classics, European Languages and History for both males and females, and associated with a lower probability of taking a degree in Art & Music, Mathematics and Communications.

The strength of these school type effects in the baseline results are consistent with the findings of Simpson (2001) and Bratti (2006), but also support a more detailed investigation of how schools influence subject choice. This was carried out in the second stage using fixed school and domicile effect. For males, fixed effects for some 3,070 schools and some 2,611 postcode districts were estimated. For females the analysis included 3,261 schools and some 2,646 postcode district effects.

Table Four details the F-statistics associated with a test of the joint significance of the estimated postcode district (columns one and four) and school fixed effects (columns two and five). The results of a set of tests for the significance of both effects are shown in columns three and six. For males, school level characteristics appear to make a significant contribution to all but one of the possible subject choices, while unobserved residential characteristics contribute significantly to the choice of eleven of 19 subjects. Although the F-statistics are relatively small, the values calculated for the joint significance of both sets of fixed effects are significant at the 1% level for all but one subject.

The results for females are similarly strong. The F-statistics for the joint significance of all the school level fixed effects suggests that school characteristics contribute significantly to all but one subject choice and that unobserved residential characteristics contribute significantly to ten of 19 subject choices. Taken together, these results firstly provide evidence that there is significant school level variation in the subject an individual student chooses. Secondly, they suggest that individuals from the same neighbourhood – for reasons of their own characteristics or some other outside influence – make similar choices about what subject to study at degree level.

6.3 Local Economic Conditions

Alongside personal, academic and parental characteristics, a range of variables designed to capture local economic conditions were incorporated into the regressions in both stages. These variables included youth and adult unemployment rates, inactivity rates as well as the percentage of employment and wage levels in different industries at the Local Authority level. The results, as detailed in the Appendices, suggest that the importance of these variables is an order of magnitude smaller than the effect of individual level characteristics, but the marginal effects remain significant in many cases. The results from the first stage regressions suggest that women are more sensitive to youth unemployment than men. While the proportion of the population aged 16 to 29 out of work is significant for just two subjects for males, it is significant for 10 subjects for women, and for all but three subjects the size of the coefficient for females exceeds that of males.

Figure Five shows the estimated coefficients on youth unemployment from the fixed effects analysis. After controlling for time-invariant characteristics of school and residence, youth unemployment has a significant impact on just five subjects for both men and women and the magnitude of these effects is much smaller. Residing in an area with high youth unemployment is associated with a higher probability of taking a degree in Mathematics, Engineering and History for males, and a higher probability of taking a degree in Medicine & Dentistry, Veterinary or European Languages for females.

The largest absolute effect of youth unemployment is on the probability of taking a Biological Science degree: where a 1% increase in the unemployment rate is associated with a 1% fall in the probability of participation. Taken together, these results suggest that youth unemployment does have an impact on the subject choice of individual students – but that the magnitude of this effect is relatively small in most cases. As can be seen in Appendix B, the adult rate of unemployment and the inactivity rate are largely insignificant.

Assessing the importance of earnings and employment by industry to subject probabilities is more difficult, not least because of the large number of coefficients produced[11]. In the first stage, the percentage of employment and the level of wages by industry were included in the regressions. Several coefficients fit reasonable 'prior expectations'. For instance, the probability of taking a Veterinary degree is positively and significantly related to the proportion of employment accounted for by Agriculture, Hunting & Forestry for both males and females and the probability of taking a degree in Medicine & Dentistry is positively related to the proportion of employment in Health and Social Work for males. Of the 247 estimated coefficients on the composition of employment, 19 % and 27% are significant at the 5% level for males and females respectively. However, the magnitude of these effects is extremely small. In addition, for every 'explainable' association, there are other, unexplainable ones which appear to be spurious.

By contrast, the estimated coefficients in the first stage on average earnings by industrial sector suggest that students respond to wage signals quite readily. The magnitude of the wage effects is large relative to the composition of employment coefficients and for men (women), 50.2% (48.9%) of the estimated coefficients on local wages are significant: again offering several tempting 'explanations'. For males, the probability of taking a Mathematics degree appears to respond positively to wages in a range of service sectors and the probability of taking an Engineering degree responds positively to wages in Manufacturing. For females, the probability of taking a degree in Business Studies is positively associated with higher wages in Real Estate, Renting & Business

[11] A breakdown of seventeen industries is used, corresponding to the single digit level of the SIC code classification. Fishing, Wholesale & Retail, Other, Private and Extra-territorial are excluded as the base industries, resulting in thirteen estimated coefficients, for nineteen subjects, for males and females, generating 494 estimated coefficients. See Appendix A for the full breakdown of included industries

Activities, while higher wages in the Education sector are associated with a higher probability of taking degrees in Biological Science and Language, Linguistics & Classics. However, as with the composition of employment, there are many other apparently spurious results which defy explanation.

In the second stage an attempt is made to remove the potentially confounding effects of residential selection and therefore to estimate the 'true' effects of local employment and earnings patterns. In these regressions, the growth rates of employment and wages by industry were included[12] to capture the effects of changing labour demand conditions at the individual's point of domicile prior to the decision about what subject to study at university. The results suggest that both male and female students respond far less to changes in employment patterns than to changes in wages. Just 5% of the 494 estimated coefficients on employment growth are significant at conventional levels. By contrast, some 31.2% (43.7%) of the estimated wage coefficients for males (females) were significant at the 5% level.

The strength of these effects in several cases is relatively large. For males, wage growth in Manufacturing significantly affects the probability of all but three subjects. A 1% increase in manufacturing wage growth is associated with a particularly higher probability of taking a degree in Engineering (+1.9%), Mathematics (+0.7%) and Business Studies (+1.2%) and a lower probability of taking a degree in History (-1.2%), Art & Music (-1.0%) and Social Studies (-0.8%). For females the effects of Manufacturing wage growth are relatively small. However, a 1% increase in the growth rate of wages in Education is associated with a higher probability of taking a degree in Biological Science (+0.8%), Law (+0.6%) and Art & Music (+0.6%), and a lower probability of taking a degree in Medicine & Dentistry (-1.2%), Physical Science (-0.5%) and a Degree Related to Medicine (-0.4%).

To elucidate these results, a final set of fixed effects linear regressions were estimated to examine the effect of the average level of wages in the student's Local Authority District on the probability of him taking a particular subject[13]. The estimated coefficients on average wages are shown in Figure Six.

After controlling for time invariant characteristics of school and residence and conditional on a wide range of personal, academic and parental characteristics, the results suggest that average wages at the student's point of domicile have a significant impact on the probability of taking particular

[12] Annual average growth rates for wages and earnings are calculated over the three years prior to the student starting their university course.

[13] Results available on request from the author

subjects. For both males and females, an additional Pound of earnings per hour worked is associated with a higher probability of taking Social Studies (+0.9% for males, 0.4% for females), History (+0.9% and +0.5%), Art & Music (+0.7% and +0.7%), and a lower probability of taking Mathematics (-1.5% and -0.6%) and Engineering (-1.5% and -0.3%).

7. Conclusions

The primary objective of this paper is to examine the determinants of degree choice in the context of differences in local economic performance in the UK. Previous research has suggested that gender and ethnicity, prior academic attainment and parental socio-economic class all affect an individual's decision to invest in human capital and that many of these same factors also affect the subject of study.

In this analysis a more detailed breakdown of subjects has been utilised than ever before and several forms of endogeneity are controlled for through the fixed effects estimation strategy. The results suggest that there are significant differences in subject choice between men and women and between people from different ethnic groups. Prior academic attainment is also an important determinant of subject choice: strongly suggesting that students who do not perform well at the end of their school careers make different (or perhaps constrained) decisions compared to the highest performers.

This analysis also suggests that socio-economic background does contribute to the probability of taking some specific subjects. The evidence presented here is that students from particular socio-economic groups are more likely to do some subjects than others, but that the magnitude of these effects is small relative to other individual characteristics. The results support the notion that there are unobserved characteristics common to individuals within particular neighbourhoods and schools which may determine both where they choose to live and what they choose to study at university.

Taken together, the results of this study present several important conclusions for higher education policy and local economic development. Firstly, they suggest that students do respond to local labour market signals when choosing which subject to study at university. Higher wages in specific industries in particular make some subject choices more likely than others, as does the level of youth unemployment. In particular, higher wage growth in Manufacturing tends to lead to a higher probability of taking technical subjects such as Mathematics and Engineering (for males). However, the magnitude of these effects is small relative to the effects of personal characteristics such as gender, ethnicity and prior academic attainment. While local wages do play a role, it is the individual characteristics of students in a local area which make the largest and most significant contribution to student choice of subject and therefore to the supply of individuals with different skills.

Secondly, while there is no direct evidence that subject choice is generally conditioned by socio-economic class, the estimated effects strongly suggest that multiple layers of advantage tend to make particular subject choices additively more likely. Conversely, multiple layers of disadvantage tend to increase the probability of other choices. This is perhaps best exhibited by bringing together the results into several illustrative 'types': Well-qualified, white students who were educated at private schools and live in relatively wealthy areas appear more likely to take History, European Languages or Languages, Linguistics & Classics degrees than poorly qualified, ethnic minority students from state run schools and low income areas who are more likely to take Business Studies or Degrees Related to Medicine. This result suggests that simply ensuring that every student has the means to study at university is not enough. Access to common and high standards of secondary schooling is the key enabler through which students will have a fair chance to study the subject of their ambitions.

Thirdly, the results suggest that in spite of the impact of these multiple layers of advantage, groups which have hitherto been considered largely excluded from particular professions are gaining the qualifications they need to break into occupations dominated by particular genders or ethnic groups. *Ceteris paribus*, highly qualified male students from ethnic minorities are more likely to study Engineering or Mathematics than equivalently well-qualified white students, and highly qualified female students from ethnic minorities are more likely to study Medicine or Law than white female students.

Finally, the results also have implications for the evolution of economic inequalities across the UK. In a policy environment which for a decade has placed improved educational quality and choice as a means of reducing regional inequalities, the results are distinctly mixed. On one hand, they suggest that students do respond to labour market signals from around their domicile when choosing their degree subject and as a consequence, local industry may be helping to create the next generation of employees. On the other hand the weakness if significance of these effects suggests that there is a signalling failure between local employers and students. The importance of individual level characteristics and much anecdotal evidence that a university education is as much a means of 'escape' as it is of training, all suggest that local industry in many parts of the country is failing to inspire students to study for employment. Further research is needed to examine how the skills acquired are being used, where they are being used and whether local industry can more effectively attract and inspire young people in their subject and later career choices.

Table One: Summary Statistics

	Male		Female	
	Frequency	*%*	*Frequency*	*%*
Total	133,895		169,460	
Ethnicity				
White	112,180	*83.8*	142,050	*83.8*
Black	2,295	*1.7*	4,090	*2.4*
Asian	14,195	*10.6*	17,165	*10.1*
Other	3,485	*2.6*	4,580	*2.7*
Unknown	1,745	*1.3*	1,580	*0.9*
Schooling				
State	110,525	*82.5*	145,470	*85.8*
Private	22,885	*17.1*	23,335	*13.8*
Unknown	485	*0.4*	655	*0.4*
Parent's Socio-economic Class				
Top	87,750	*65.5*	109,485	*64.6*
Middle	24,250	*18.1*	32,810	*19.4*
Bottom	4,835	*3.6*	6,760	*4.0*
Unknown	17,060	*12.7*	20,405	*12.0*
Disability Classification				
Some form of Disability	9,985	*7.5*	11,115	*6.6*
None Reported	123,910	*92.5*	158,345	*93.4*
Tariff Points at A-Level				
Fewer than one s.d. below the mean	22,945	*17.1*	24,110	*14.2*
One s.d. below the mean – mean	47,640	*35.6*	59,870	*35.3*
Mean – One s.d. above the mean	41,125	*30.7*	58,625	*34.6*
More than one s.d. above the mean	22,185	*16.6*	26,860	*15.8*

Note(s):

(1) *44.1% (55.9%) of the sample are male (female). Numbers are rounded to nearest 5.*

(2) *Source: Higher Education Statistics Agency, Destination of Leavers from Higher Education Survey, 2004/5-2006/7*

Table Two: Subject Choice and Gender

Subject	*Males*	*%*	*Females*	*%*	*Total*
Other Languages	555	*0.4*	1000	*0.6*	1,550
Vet	670	*0.5*	1,730	*1.0*	2,400
European Languages	1,240	*0.9*	3,515	*2.1*	4,755
Mineral Tech.	1,300	*1.0*	630	*0.4*	1,930
Education	1,320	*1.0*	7,430	*4.4*	8,750
Medicine & Dentistry	1,590	*1.2*	2,525	*1.5*	4,115
Architecture	3,565	*2.7*	1,595	*0.9*	5,160
Medicine Related	3,780	*2.8*	13,590	*8.0*	17,375
Communications	4,305	*3.2*	6,905	*4.1*	11,210
Lang, Ling & Classics	4,635	*3.5*	13,000	*7.7*	17,640
Law	6,770	*5.1*	12,825	*7.6*	19,590
History	9,820	*7.3*	11,240	*6.6*	21,055
Art & Music	9,865	*7.4*	17,175	*10.1*	27,040
Engineering	10,275	*7.7*	1,455	*0.9*	11,730
Physical Science	10,880	*8.1*	8,090	*4.8*	18,970
Biological Science	13,400	*10.0*	26,835	*15.8*	40,235
Social Studies	15,290	*11.4*	17,355	*10.2*	32,645
Mathematics	16,875	*12.6*	5,405	*3.2*	22,280
Business Studies	17,760	*13.3*	17,175	*10.1*	34,935

Note(s):

(1) *Numbers are rounded to nearest 5.*

(2) *Source: Higher Education Statistics Agency, Destination of Leavers from Higher Education Survey, 2004/5-2006/7*

Table Three: Gender Effects

Subject	*Female*	*T-Stat*	*Wald Test*
Mathematics	-0.106	26.20***	41.40***
Engineering	-0.085	27.16***	48.52***
Physical Science	-0.054	14.40***	14.64***
Business Studies	-0.029	6.11***	10.39***
Architecture	-0.016	7.70***	10.28***
Mineral Technology	-0.006	4.21***	5.61***
Social Studies	-0.006	1.25	19.63***
Other Languages	-0.001	1.44	2.97***
Medicine & Dentistry	0.005	3.49***	14.67***
European Languages	0.007	4.25***	23.71***
Veterinary	0.009	7.55***	5.29***
History	0.009	2.53**	5.07***
Law	0.016	4.76***	8.96***
Communications	0.016	5.83***	4.23***
Education	0.027	13.25***	46.09***
Art & Music	0.045	11.16***	12.09***
Medicine Related	0.046	15.45***	11.15***
Lang, Ling & Classics	0.057	18.11***	14.10***
Biological Science	0.063	13.22***	15.65***

Note(s):

(1) *Results reported from a set of regressions of the probability of taking each subject against personal, academic, parental and local economic characteristics, where all the explanatory variables have also been interacted with a dummy variable taking a value one for female students. Column 1 shows the estimated coefficient on this female dummy variable and Column 2 shows the t-stat associated with that coefficient. Column 3 shows the result of a Wald Test on the joint significance of the interacted terms.*

(2) **, ** and *** represent significance at the 10%, 5% and 1% levels respectively*

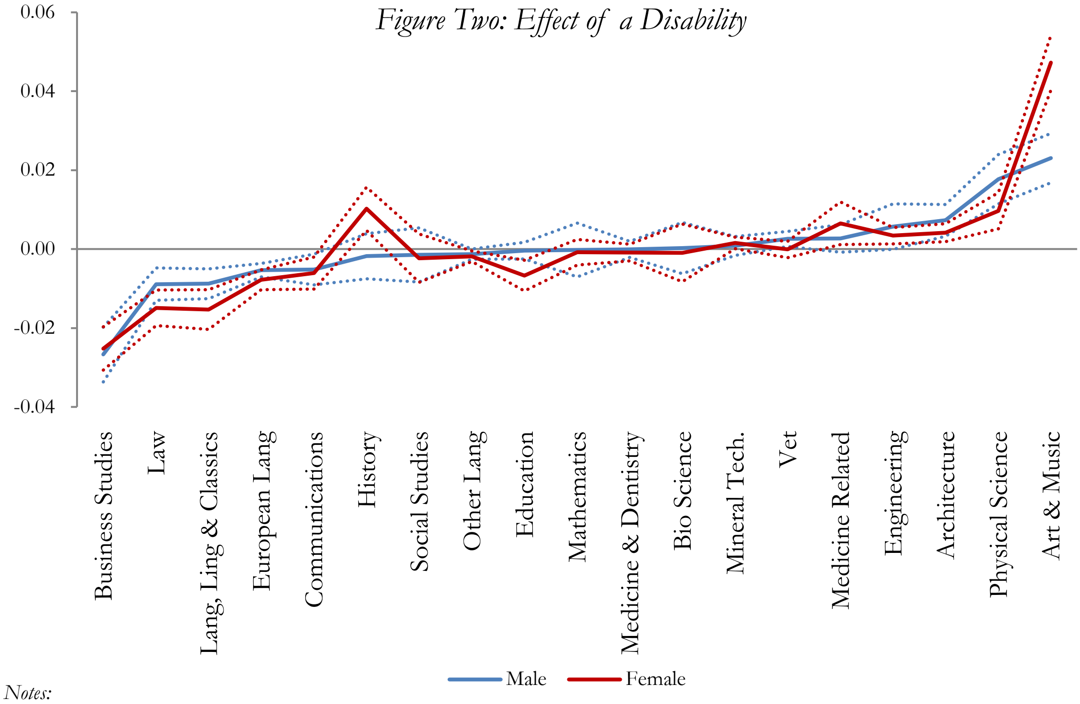
Table Four: F-Stats for the Significance of Fixed Effects

Subject	*Fixed Effects - Males*			*Fixed Effects - Females*		
	Domicile	*School*	*Combined*	*Domicile*	*School*	*Combined*
Medicine & Dentistry	1.14***	1.28***	1.2***	1.12***	1.57***	1.44***
Medicine Related	1.01	1.13***	1.11***	1.1***	1.33***	1.32***
Biological Science	1.09***	1.33***	1.28***	1.04*	1.56***	1.41***
Veterinary	2.33***	1.53***	1.81***	1.47***	1.39***	1.44***
Physical Science	1.05**	1.33***	1.28***	1.03	1.27***	1.22***
Mathematics	1.02	1.68***	1.49***	0.96	1.25***	1.21***
Engineering	1.15***	1.33***	1.37***	1.06**	1.14***	1.12***
Mineral Technology	1	1.08***	1.05***	1.04	1.09***	1.05***
Architecture	1.17***	1.26***	1.25***	1.1***	1.1***	1.1***
Social Studies	0.96	1.36***	1.28***	1.09***	1.51***	1.39***
Law	1.03	1.21***	1.17***	1.01	1.32***	1.28***
Business Studies	1.06**	1.41***	1.36***	1.03	1.53***	1.44***
Communications	1.01	1.48***	1.33***	0.96	1.43***	1.32***
Lang, Ling and Classics	1.06**	1.3***	1.25***	1.02	1.32***	1.29***
European Languages	1.09***	1.31***	1.23***	1.07***	1.29***	1.25***
Other Languages	0.87	0.94	0.91	0.86	0.98	0.96
History	1.03	1.38***	1.33***	1.1***	1.66***	1.54***
Art and Music	1.18***	5.15***	3.39***	1.26***	7.26***	4.65***
Education	1.36***	1.59***	1.6***	1.18***	1.53***	1.65***

*Note(s): *, ** and *** represent significance at the 10%, 5% and 1% levels respectively*

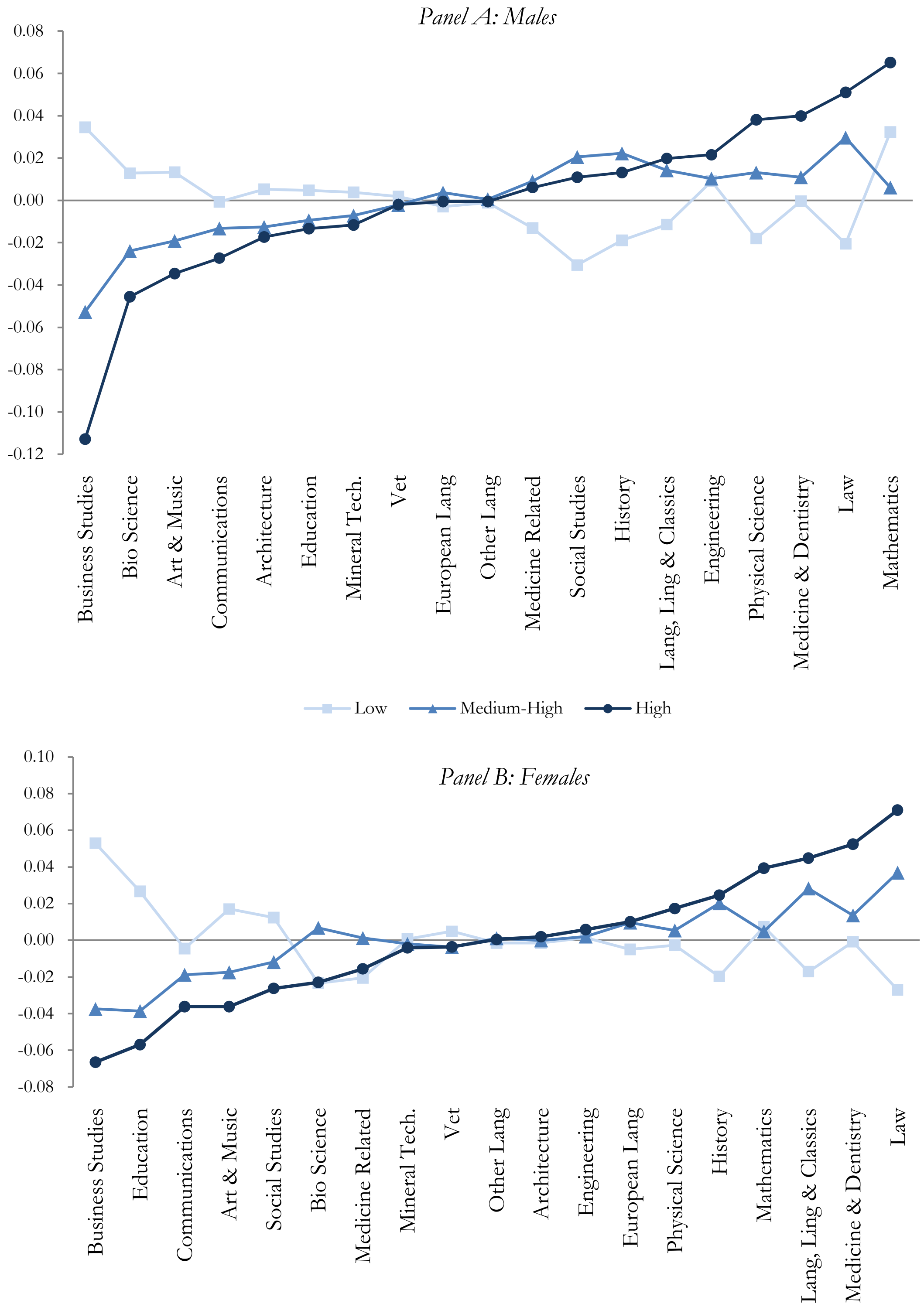
Figure One: Effects of Ethnicity on Subject Choice

Notes:
(1) *Dotted lines represent 95% confidence intervals, based on standard errors clustered on domicile postcode districts*

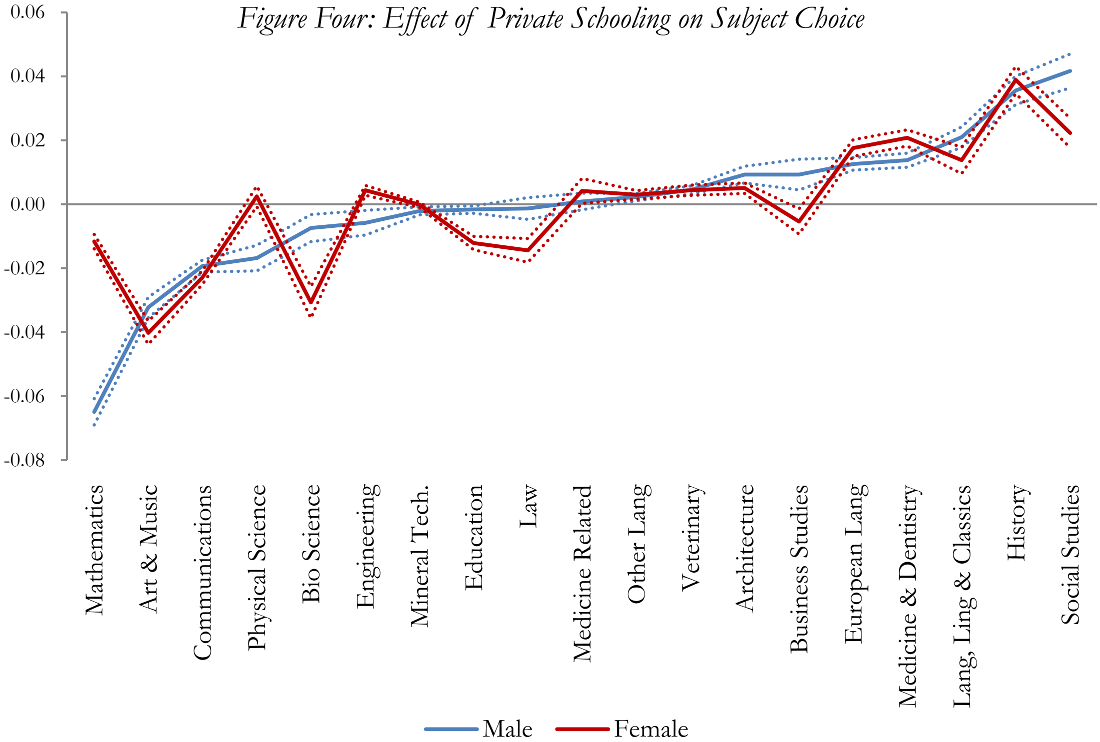


Notes:
(1) *Dotted lines represent 95% confidence intervals, based on standard errors clustered on domicile postcode districts*

Figure Three: Effect of Prior Academic Attainment: Males

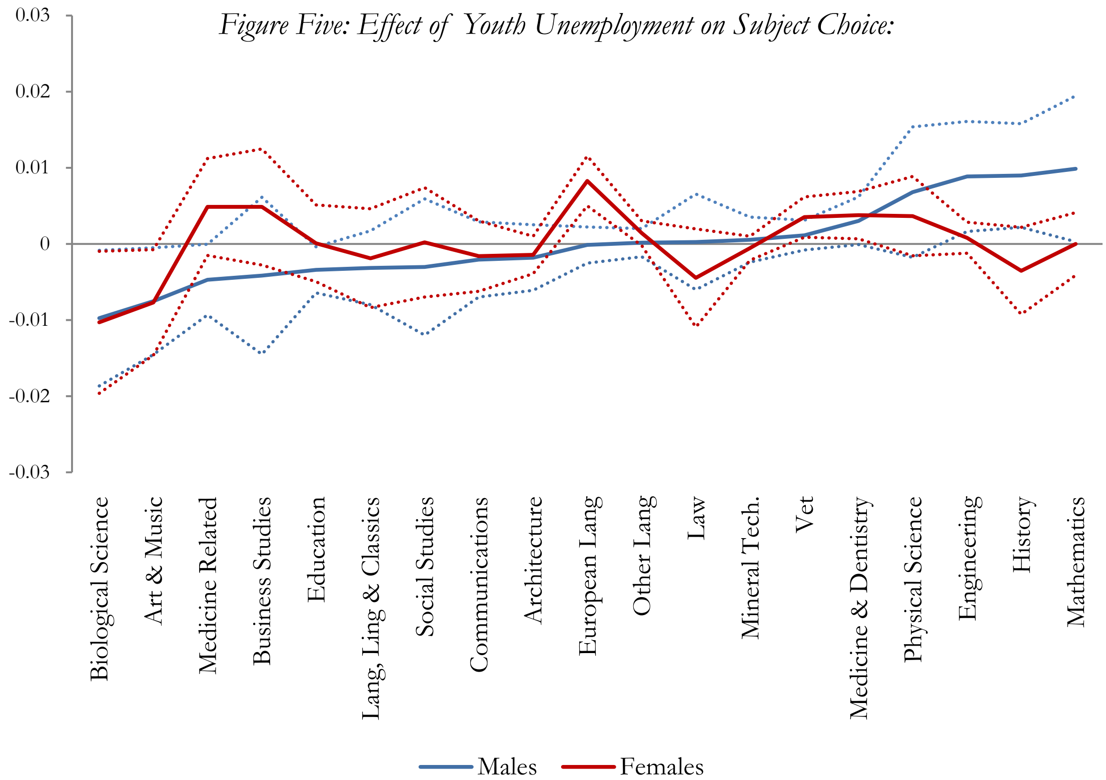


Notes:
(1) *High is here defined as having a Tariff point score more than one standard deviation (s.d.)above the mean, Low is defined as a tariff point score less than one s.d.below the mean and Medium-High is defined as being between the mean and one s.d. above the mean.*
(2) *For males, all coefficients significant at conventional levels except Engineering (High), History (Low) and Physical Science (Medium-High, High).*
(3) *For females, all coefficients significant at conventional levels except Mineral Tech. (Low), Social Studies (Low), Education (Medium-High),*

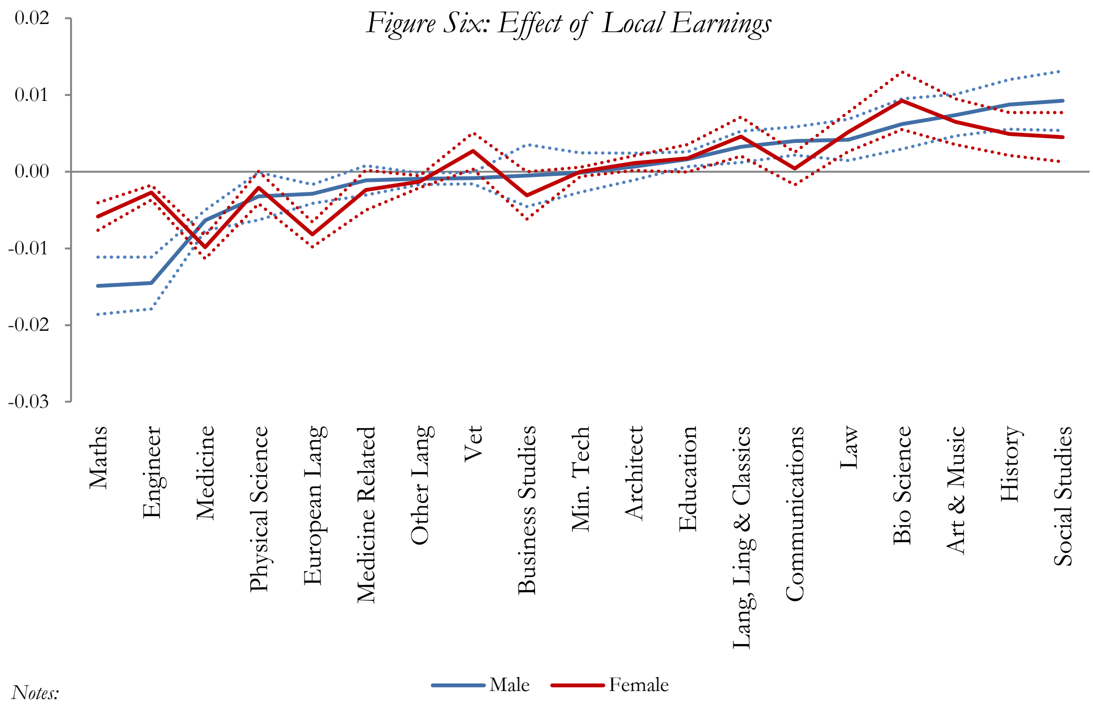


Notes:

(1) *Dotted lines represent 95% confidence intervals, based on standard errors clustered on domicile postcode districts*



Notes:
(1) *Dotted lines represent 95% confidence intervals, based on standard errors clustered on domicile postcode districts*



Notes:
(1) *Dotted lines represent 95% confidence intervals, based on standard errors clustered on domicile postcode districts*

Appendix A:

Several variables were created to capture labour markets conditions at the Local Authority level using a range of statistics from the Office for National Statistics. Included in the regressions were:

Variable	Description & Notes:
D_CCU_1629	Rate of unemployment among those aged 16-29. Calculated as the number of individuals aged 16-29 claiming the Job Seekers Allowance, divided by the number of individuals aged 16-29 residing in the area according to the Mid-Year Population Estimates.
D_UnempR	Rate of unemployment among adults Calculated as the number of individuals registered as unemployed in the Labour Force Survey, divided by the number of individuals of working age according to the Mid-Year Population Estimates
D_InactR	Rate of inactivity among adults Calculated as the number of economically inactive individuals from the Annual Population Survey, divided by the number of individuals of working age according to the Mid-Year Population Estimates
Employment Composition	The percentage of employment accounted for by the single-digit industrial classification of SIC2003 Calculated as the number of employees in Industry Y from the Annual Business Inquiry (Workplace analysis) divided by the total number of employees in all industries from the ABI.
Wage Level Variables	Gross wage per hour for each single-digit industry from the SIC2003 classification Calculated as the average weekly gross wage divided by the average number of hours worked per week by industry. Both wages and hours were taken from the Annual Survey of Hours and Earnings
Growth of Employment	The average annual growth rate of employment for each single-digit industry from the SIC2003 classification Calculated as the average annual growth rate of employment by industry (assuming a smooth growth path) over the three years before the individual commenced their course of study
Growth of Wages	The average annual growth rate of wages for each single-digit industry from the SIC2003 classification Calculated as the average annual growth rate of employment by industry (assuming a smooth growth path) over the three years before the individual commenced their course of study

Appendix A (Cont):

Classification of Industries:

SIC2003 Code	Industry
A	*Agriculture, hunting and forestry*
B	*Fishing*
C	*Mining and quarrying*
D	*Manufacturing*
E	*Electricity, gas and water supply*
F	*Construction*
G	*Wholesale and retail trade*
H	*Hotels and restaurants*
I	*Transport, storage and communication*
J	*Financial intermediation*
K	*Real estate, renting and business activities*
L	*Public administration and defence*
M	*Education*
N	*Health and social work*

Appendix B: Table One: Degree Choice: Males with Fixed Effects

	Medicine & Dentistry (1)	Medicine Related (2)	Biological Science (3)	Vet (4)	Physical Science (5)	Mathematics (6)
iETH_A	**0.033*****	**0.056*****	**-0.037*****	**-0.004*****	**-0.037*****	**0.107*****
	15.34	*18.53*	*11.31*	*7.26*	*14.22*	*22.25*
iETH_B	**0.019*****	**0.036*****	**-0.009**	**-0.002*****	**-0.033*****	**-0.002**
	7.01	*7.15*	*1.37*	*2.80*	*7.49*	*0.19*
iETH_Oth	**0.016*****	**0.019*****	**0.004**	**-0.002*****	**-0.017*****	**0.011**
	6.11	*5.26*	*0.77*	*3.28*	*3.98*	*1.89*
iETH_Unk	**0.002**	**0.005**	**-0.025*****	**-0.002**	**0.010**	**0.004**
	0.59	*1.25*	*3.72*	*1.06*	*1.35*	*0.46*
iAGE_16	**0.007**	**0.004**	**-0.010**	**-0.003**	**0.008**	**0.030*****
	1.51	*0.85*	*1.45*	*1.44*	*1.12*	*3.20*
iAGE_17	**0.001**	**-0.001**	**0.002**	**-0.001**	**0.007*****	**0.016*****
	0.81	*1.32*	*1.01*	*1.22*	*3.76*	*8.10*
iAGE_19	**0.001**	**0.003**	**-0.004**	**-0.001**	**-0.008*****	**-0.014*****
	1.24	*1.64*	*1.38*	*0.71*	*3.14*	*4.27*
iAGE_20	**0.005****	**0.008****	**-0.015*****	**0.001**	**-0.012*****	**-0.024*****
	2.37	*2.28*	*2.63*	*0.77*	*2.66*	*3.76*
iAGE_21	**0.002**	**0.009**	**-0.036**	**-0.001**	**-0.002**	**-0.007**
	0.51	*0.94*	*3.06*	*0.33*	*0.2*	*0.39*
iDIS	**0.000**	**0.003**	**0.000**	**0.003*****	**0.018*****	**0.000**
	0.03	*1.52*	*0.07*	*2.67*	*5.56*	*0.06*
iSEC_Mid	**-0.004****	**-0.005**	**-0.005**	**0.006*****	**-0.003**	**0.007**
	2.27	*1.57*	*1.01*	*5.77*	*0.71*	*1.24*
iSEC_Top	**0.001**	**-0.002**	**-0.005**	**-0.001**	**-0.001**	**-0.001**
	0.37	*0.82*	*1.01*	*1.27*	*0.14*	*0.2*
iSEC_UNK	**0.002**	**-0.007****	**-0.009**	**-0.001**	**0.001**	**-0.005**
	0.87	*2.42*	*1.71*	*1.1*	*0.17*	*0.79*
TQ1	**0.000**	**-0.013*****	**0.013*****	**0.002*****	**-0.018*****	**0.032*****
	0.94	*9.25*	*4.48*	*2.69*	*8.54*	*10.55*
TQ3	**0.011*****	**0.009*****	**-0.024*****	**-0.002*****	**0.013*****	**0.006*****
	16.12	*7.17*	*10.83*	*4.17*	*6.33*	*2.77*
TQ4	**0.040*****	**0.006*****	**-0.046*****	**-0.002*****	**0.038*****	**0.065*****
	25.66	*3.84*	*17.17*	*3.25*	*13.41*	*19.83*
D_CCU_1629	**0.003***	**-0.005****	**-0.010****	**0.001**	**0.007**	**0.010****
	1.90	*1.98*	*2.14*	*1.14*	*1.56*	*2.02*
D_UnempR	**0.000**	**0.001**	**-0.001**	**-0.001***	**-0.002***	**0.003****
	0.64	*1.05*	*0.89*	*1.95*	*1.73*	*2.55*
D_InactR	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
	1.22	*0.51*	*0.06*	*0.99*	*0.62*	*0.31*

	Medicine & Dentistry (1)	Medicine Related (2)	Biological Science (3)	Vet (4)	Physical Science (5)	Mathematics (6)
GroEmp_SIC_A	**0.002**	**0.002**	**-0.012**	**-0.001**	**0.020****	**-0.003**
	0.81	*0.65*	*1.35*	*0.52*	*2.53*	*0.33*
GroEmp _SIC_C	**0.001**	**0.000**	**-0.001**	**0.000**	**0.004*****	**-0.002**
	0.78	*0.47*	*0.32*	*1.29*	*2.87*	*0.91*
GroEmp _SIC_D	**0.021***	**0.018**	**-0.028**	**0.000**	**0.018**	**-0.019**
	1.77	*1.12*	*0.97*	*0.06*	*0.61*	*0.58*
GroEmp _SIC_E	**0.000**	**0.001**	**0.000**	**0.000**	**-0.001**	**0.002**
	0.56	*1.20*	*0.11*	*0.25*	*0.71*	*0.74*
GroEmp _SIC_F	**0.002**	**-0.006**	**0.014**	**0.002**	**0.011**	**-0.010**
	0.31	*0.84*	*0.92*	*0.41*	*0.70*	*0.60*
GroEmp _SIC_H	**-0.012****	**-0.014***	**0.024***	**-0.005**	**-0.011**	**-0.010**
	2.16	*1.67*	*1.43*	*1.17*	*-0.75*	*0.57*
GroEmp _SIC_I	**0.005**	**-0.008**	**-0.029**	**0.005**	**0.008**	**0.010**
	0.72	*0.92*	*1.62*	*1.25*	*0.55*	*0.54*
GroEmp _SIC_J	**-0.001**	**-0.003**	**-0.012**	**-0.006**	**0.006**	**0.008**
	0.14	*0.38*	*0.70*	*1.27*	*0.44*	*0.45*
GroEmp _SIC_K	**-0.002**	**-0.001**	**-0.021**	**-0.001**	**0.008**	**-0.006**
	0.29	*0.16*	*1.09*	*-0.20*	*0.52*	*0.32*
GroEmp _SIC_L	**-0.003**	**-0.008**	**-0.007**	**0.005**	**0.028**	**0.004**
	0.57	*1.07*	*0.52*	*1.56*	*2.36*	*0.25*
GroEmp _SIC_M	**-0.005**	**0.008**	**-0.033***	**-0.006**	**-0.009**	**0.002**
	0.69	*1.01*	*1.93*	*1.21*	*0.54*	*0.09*
GroEmp _SIC_N	**-0.011**	**-0.001**	**-0.042****	**-0.009**	**-0.006**	**-0.019**
	1.34	*0.07*	*2.05*	*1.40*	*0.34*	*0.84*
GroEmp _SIC_O	**0.018****	**0.007**	**0.019**	**0.000**	**0.004**	**0.032**
	2.55	*0.67*	*1.03*	*0.10*	*0.22*	*1.52*
GroWage_SIC_A	**0.070*****	**-0.028**	**-0.059**	**-0.002**	**0.091****	**0.287*****
	3.17	*0.88*	*1.03*	*0.19*	*1.98*	*4.55*
GroWage _SIC_C	**0.007**	**0.023**	**-0.006**	**0.008**	**-0.018**	**0.039**
	0.67	*1.56*	*0.20*	*1.03*	*0.67*	*1.28*
GroWage _SIC_D	**-0.101**	**-0.071**	**-0.713*****	**0.060**	**0.795*****	**0.735*****
	1.18	*0.57*	*3.22*	*1.03*	*3.91*	*2.93*
GroWage _SIC_E	**-0.040****	**-0.005**	**0.011**	**-0.006**	**-0.010**	**-0.054**
	2.56	*0.22*	*0.28*	*0.60*	*0.28*	*1.21*
GroWage _SIC_F	**0.227*****	**-0.045**	**-0.146**	**0.021**	**0.082**	**0.280****
	5.07	*0.78*	*1.20*	*0.73*	*0.70*	*2.38*
GroWage _SIC_H	**0.115*****	**0.054**	**-0.153****	**0.022**	**0.075**	**0.197*****
	5.73	*1.71*	*2.44*	*1.32*	*1.27*	*2.97*
GroWage _SIC_I	**0.331*****	**-0.093**	**0.126**	**0.119****	**-0.351****	**0.144**
	3.54	*1.02*	*0.71*	*2.26*	*2.21*	*0.77*
GroWage _SIC_J	**0.114*****	**0.037**	**-0.123**	**-0.003**	**-0.011**	**0.010**
	3.08	*0.63*	*1.13*	*0.11*	*0.12*	*0.09*
GroWage _SIC_K	**0.073****	**0.050**	**-0.230*****	**0.015**	**0.225*****	**0.538*****
	2.25	*1.16*	*2.89*	*0.78*	*3.18*	*6.07*
GroWage _SIC_L	**0.480*****	**-0.002**	**-0.152**	**0.090***	**-0.171**	**0.553****
	5.38	*0.01*	*0.74*	*1.70*	*0.90*	*2.30*
GroWage _SIC_M	**-0.229*****	**-0.090**	**0.248**	**-0.065**	**-0.324***	**0.200**
	2.80	*0.76*	*1.18*	*1.16*	*1.73*	*0.85*
GroWage _SIC_N	**-0.442*****	**-0.068**	**0.167**	**-0.085***	**0.044**	**0.185**
	5.31	*0.74*	*1.02*	*1.81*	*0.28*	*0.94*
GroWage _SIC_O	**-0.106*****	**-0.004**	**0.040**	**-0.031***	**0.024**	**0.002**
	3.50	*0.13*	*0.68*	*1.75*	*0.46*	*0.04*

*Notes: Coefficients reported with t-stats underneath. *, ** and *** correspond to significance at the 10, 5 and 1% levels respectively. Growth rates of employment defined as decimals: 0.01=1%. To calculate marginal effect of a 1% change in wages divide reported coefficient by 100. See Appendix A for the breakdown of industries included.*

Appendix B: Table Two: Degree Choice: Males with Fixed Effects

	Engineering (7)	Mineral Tech. (8)	Architecture (9)	Social Studies (10)	Law (11)	Business Studies (12)
iETH_A	**0.024*****	**-0.002****	**-0.005*****	**-0.005**	**0.021*****	**0.061*****
	7.03	*2.03*	*2.86*	*1.24*	*6.84*	*14.13*
iETH_B	**0.037*****	**-0.002**	**-0.004**	**0.006**	**0.059*****	**0.044*****
	4.39	*0.99*	*1.10*	*0.79*	*8.54*	*4.71*
iETH_Oth	**0.016*****	**0.001**	**-0.008*****	**0.005**	**0.022*****	**0.008**
	3.24	*0.30*	*2.95*	*0.79*	*4.77*	*1.37*
iETH_Unk	**-0.005**	**0.007****	**-0.005**	**0.016****	**0.002**	**-0.003**
	0.82	*2.15*	*1.19*	*1.97*	*0.36*	*0.39*
iAGE_16	**0.019***	**0.000**	**0.002**	**-0.030*****	**0.001**	**0.005**
	1.94	*0.1*	*0.45*	*4.28*	*0.17*	*0.55*
iAGE_17	**0.005*****	**0.000**	**0.000**	**-0.008*****	**0.001**	**0.000**
	2.97	*0.11*	*0.35*	*4.14*	*0.92*	*0.21*
iAGE_19	**-0.004***	**0.000**	**0.000**	**0.006**	**-0.004**	**-0.011*****
	1.65	*0.09*	*0.23*	*1.6*	*1.64*	*3.13*
iAGE_20	**-0.010****	**0.006****	**0.005**	**0.012***	**-0.005**	**-0.007**
	2.00	*2.25*	*1.26*	*1.84*	*1.36*	*0.98*
iAGE_21	**0.001**	**-0.003**	**0.005**	**0.011**	**-0.009**	**-0.004**
	0.06	*0.69*	*0.65*	*0.68*	*1.09*	*0.19*
iDIS	**0.006***	**0.001**	**0.007*****	**-0.001**	**-0.009*****	**-0.027*****
	1.93	*0.65*	*3.58*	*0.42*	*4.25*	*7.52*
iSEC_Mid	**0.014*****	**0.001**	**0.005****	**-0.010****	**0.001**	**-0.001**
	3.12	*0.75*	*2.18*	*2.14*	*0.35*	*0.15*
iSEC_Top	**-0.001**	**0.002**	**0.002**	**0.002**	**0.005**	**-0.002**
	0.19	*1.42*	*0.67*	*0.48*	*1.49*	*0.31*
iSEC_UNK	**0.006**	**0.000**	**0.003**	**-0.005**	**0.006**	**0.001**
	1.27	*0.03*	*1.27*	*0.98*	*1.59*	*0.14*
TQ1	**0.009*****	**0.004*****	**0.005*****	**-0.031*****	**-0.021*****	**0.035*****
	3.95	*3.54*	*3.28*	*12.5*	*13.93*	*9.95*
TQ3	**0.010*****	**-0.007*****	**-0.013*****	**0.021*****	**0.030*****	**-0.053*****
	5.33	*10.03*	*10.37*	*8.71*	*18.98*	*21.2*
TQ4	**0.022*****	**-0.012*****	**-0.017*****	**0.011*****	**0.051*****	**-0.113*****
	8.28	*14.87*	*12.11*	*3.55*	*22.16*	*41.24*
D_CCU_1629	**0.009****	**0.001**	**-0.002**	**-0.003**	**0.000**	**-0.004**
	2.41	*0.37*	*0.81*	*0.66*	*0.08*	*0.79*
D_UnempR	**-0.001**	**-0.001****	**0.000**	**-0.001**	**0.001**	**0.000**
	0.56	*2.13*	*0.38*	*0.54*	*0.86*	*0.06*
D_InactR	**-0.001**	**0.000**	**0.000**	**0.000**	**0.000**	**0.001**
	1.75	*0.34*	*0.63*	*0.24*	*0.79*	*1.05*

	Engineering (7)	Mineral Tech. (8)	Architecture (9)	Social Studies (10)	Law (11)	Business Studies (12)
GroEmp_SIC_A	**-0.001**	**-0.001**	**-0.005**	**0.006**	**0.005**	**-0.020***
	0.14	*0.21*	*1.53*	*0.86*	*0.83*	*1.77*
GroEmp _SIC_C	**0.001**	**-0.001***	**-0.001**	**0.000**	**-0.001**	**0.002**
	0.30	*1.90*	*0.77*	*0.01*	*0.62*	*0.94*
GroEmp _SIC_D	**0.054****	**-0.025****	**-0.002**	**0.012**	**-0.020**	**0.049**
	2.03	*2.47*	*0.14*	*0.36*	*0.92*	*1.41*
GroEmp _SIC_E	**0.003***	**-0.001**	**0.002***	**-0.001**	**0.001**	**-0.003**
	1.74	*1.90*	*1.76*	*0.38*	*0.36*	*1.52*
GroEmp _SIC_F	**-0.013**	**-0.004**	**0.011**	**-0.016**	**-0.006**	**-0.006**
	0.97	*0.75*	*1.35*	*1.03*	*0.55*	*0.37*
GroEmp _SIC_H	**0.025***	**-0.001**	**0.030*****	**-0.020**	**-0.001**	**-0.028**
	1.78	*0.24*	*3.32*	*1.13*	*0.05*	*1.48*
GroEmp _SIC_I	**-0.001**	**-0.003**	**-0.003**	**-0.010**	**0.021***	**-0.010**
	0.06	*0.45*	*0.29*	*0.59*	*1.66*	*0.52*
GroEmp _SIC_J	**0.023***	**0.006**	**-0.013***	**-0.023**	**-0.001**	**0.007**
	1.83	*1.26*	*1.89*	*1.46*	*0.11*	*0.37*
GroEmp _SIC_K	**0.005**	**-0.001**	**-0.002**	**0.022**	**0.004**	**0.017**
	0.33	*0.14*	*0.19*	*1.29*	*0.35*	*0.91*
GroEmp _SIC_L	**-0.003**	**0.002**	**-0.010**	**0.009**	**0.011**	**-0.018**
	0.22	*0.42*	*1.28*	*0.61*	*1.14*	*1.15*
GroEmp _SIC_M	**-0.010**	**0.004**	**0.009**	**-0.008**	**0.008**	**0.052*****
	0.63	*0.73*	*0.77*	*0.48*	*0.62*	*2.53*
GroEmp _SIC_N	**0.018**	**0.007**	**-0.007**	**-0.004**	**0.026**	**-0.004**
	1.01	*1.08*	*0.58*	*0.16*	*1.62*	*0.15*
GroEmp _SIC_O	**0.005**	**0.003**	**-0.006**	**-0.015**	**-0.044*****	**0.007**
	0.35	*0.54*	*0.59*	*0.80*	*3.41*	*0.36*
GroWage_SIC_A	**0.042**	**0.004**	**0.047**	**-0.088**	**-0.160*****	**-0.117***
	0.90	*0.24*	*1.48*	*1.48*	*3.50*	*1.84*
GroWage _SIC_C	**0.110*****	**-0.014**	**0.008**	**-0.034**	**0.006**	**-0.020**
	4.46	*1.59*	*0.55*	*1.22*	*0.27*	*0.63*
GroWage _SIC_D	**1.938*****	**0.030**	**0.155**	**-0.796*****	**-0.649*****	**1.179*****
	9.94	*0.41*	*1.27*	*3.34*	*3.82*	*4.45*
GroWage _SIC_E	**-0.052**	**0.027****	**-0.017**	**0.002**	**0.065****	**0.074**
	1.55	*2.16*	*0.74*	*0.05*	*2.21*	*1.60*
GroWage _SIC_F	**0.029**	**0.030**	**0.067**	**-0.101**	**-0.159***	**-0.027**
	0.30	*0.81*	*1.04*	*0.80*	*1.90*	*0.21*
GroWage _SIC_H	**0.314*****	**-0.006**	**0.027**	**-0.203*****	**-0.101****	**0.071**
	5.92	*0.31*	*0.81*	*3.11*	*2.18*	*0.99*
GroWage _SIC_I	**-0.661*****	**0.001**	**0.311*****	**0.086**	**-0.243***	**-0.190**
	4.30	*0.02*	*2.78*	*0.47*	*1.91*	*0.93*
GroWage _SIC_J	**0.242*****	**-0.006**	**-0.135****	**-0.043**	**0.111**	**0.028**
	2.90	*0.17*	*2.33*	*0.42*	*1.32*	*0.23*
GroWage _SIC_K	**0.396*****	**-0.029**	**-0.029**	**-0.166****	**-0.250*****	**-0.119**
	5.98	*1.19*	*0.68*	*2.12*	*4.16*	*1.28*
GroWage _SIC_L	**0.447****	**-0.090**	**0.116**	**-0.321**	**-0.361****	**-0.270**
	2.55	*1.37*	*0.95*	*1.54*	*2.36*	*1.04*
GroWage _SIC_M	**-1.003*****	**0.018**	**-0.175**	**0.202**	**0.206**	**-0.303**
	5.13	*0.30*	*1.50*	*0.95*	*1.33*	*1.27*
GroWage _SIC_N	**-0.249***	**0.057**	**-0.090**	**-0.200**	**0.242***	**-0.034**
	1.62	*1.18*	*0.89*	*1.22*	*1.94*	*0.17*
GroWage _SIC_O	**0.044**	**0.002**	**-0.023**	**-0.108***	**0.084***	**0.132***
	0.84	*0.11*	*0.62*	*1.78*	*1.90*	*1.88*

*Notes: Coefficients reported with t-stats underneath. *, ** and *** correspond to significance at the 10, 5 and 1% levels respectively. Growth rates of employment defined as decimals: 0.01=1%. To calculate marginal effect of a 1% change in wages divide reported coefficient by 100. See Appendix A for the breakdown of industries included.*

Appendix B: Table Three: Degree Choice: Males with Fixed Effects

	Communications (13)	Lang, Ling and Classics (14)	European Languages (15)	Other Languages (16)	History (17)	Art & Music (18)	Education (19)
iETH_A	**-0.025*****	**-0.033*****	**-0.010*****	**-0.004*****	**-0.071*****	**-0.060*****	**-0.008*****
	15.18	*20.55*	*11.38*	*7.13*	*30.71*	*23.06*	*11.34*
iETH_B	**-0.008***	**-0.023*****	**-0.008*****	**-0.004*****	**-0.061*****	**-0.039*****	**-0.006*****
	1.95	*6.40*	*4.00*	*2.91*	*14.18*	*6.25*	*4.03*
iETH_Oth	**-0.005***	**-0.012*****	**-0.003**	**0.001**	**-0.037*****	**-0.016*****	**-0.004*****
	1.73	*3.4*	*1.61*	*0.75*	*8.6*	*3.5*	*3.21*
iETH_Unk	**-0.007**	**0.002**	**-0.001**	**0.000**	**0.023*****	**-0.023*****	**0.001**
	1.58	*0.3*	*0.37*	*0.12*	*3.09*	*3.85*	*0.28*
iAGE_16	**0.004**	**-0.010*****	**-0.001**	**-0.004*****	**-0.004**	**-0.008**	**-0.008****
	0.93	*3.02*	*0.59*	*4.21*	*0.8*	*1.54*	*2.48*
iAGE_17	**-0.002****	**-0.005*****	**0.000**	**-0.001**	**-0.004****	**-0.010*****	**-0.001**
	1.97	*4.03*	*0.27*	*1.43*	*2.46*	*6.75*	*1.09*
iAGE_19	**0.002**	**0.008*****	**0.001**	**0.001**	**0.004**	**0.019*****	**0.001**
	1.14	*3.92*	*1.15*	*1.28*	*1.27*	*6.05*	*1.1*
iAGE_20	**-0.002**	**0.003**	**0.001**	**0.004****	**0.005**	**0.022*****	**0.004***
	0.37	*0.78*	*0.38*	*2.12*	*0.91*	*2.96*	*1.77*
iAGE_21	**-0.011**	**0.018***	**0.002**	**0.006**	**-0.010**	**0.013**	**0.018****
	1.22	*1.77*	*0.41*	*1.4*	*0.92*	*0.76*	*2.3*
iDIS	**-0.005*****	**-0.009*****	**-0.005*****	**-0.001****	**-0.002**	**0.023*****	**0.000**
	2.63	*4.53*	*6.12*	*1.96*	*0.61*	*7.22*	*0.35*
iSEC_Mid	**0.002**	**0.002**	**-0.002**	**0.000**	**-0.006***	**0.000**	**-0.003**
	0.61	*0.68*	*1.59*	*0.2*	*1.65*	*0.05*	*1.49*
iSEC_Top	**0.002**	**0.003**	**-0.001**	**0.001**	**0.002**	**-0.001**	**-0.005*****
	0.79	*1.16*	*0.92*	*1.11*	*0.58*	*0.2*	*2.75*
iSEC_UNK	**0.004**	**0.001**	**-0.001**	**0.001**	**-0.004**	**0.012*****	**-0.005*****
	1.44	*0.34*	*0.44*	*1.52*	*0.97*	*2.58*	*2.6*
TQ1	**-0.001**	**-0.011*****	**-0.003*****	**-0.001****	**-0.019*****	**0.013*****	**0.005*****
	0.36	*9.45*	*5.15*	*2.38*	*10.39*	*5.18*	*4.27*
TQ3	**-0.013*****	**0.014*****	**0.004*****	**0.001**	**0.022*****	**-0.019*****	**-0.009*****
	10.16	*10.52*	*4.95*	*1.14*	*11.25*	*10.78*	*13.3*
TQ4	**-0.027*****	**0.020*****	**-0.001**	**-0.001**	**0.013*****	**-0.035*****	**-0.013*****
	19.34	*10.65*	*0.64*	*0.94*	*5.27*	*17.33*	*17*
D_CCU_1629	**-0.002**	**-0.003**	**0.000**	**0.000**	**0.009*****	**-0.008****	**-0.003****
	0.82	*1.26*	*0.11*	*0.19*	*2.59*	*2.1*	*2.22*
D_UnempR	**0.001**	**0.000**	**0.000**	**0.000**	**0.000**	**0.001**	**0.000**
	1.22	*0.27*	*0.09*	*0.7*	*0.45*	*0.82*	*0.12*
D_InactR	**0.000**	**0.001****	**0.000**	**0.000**	**0.000**	**0.001**	**0.000**
	0.53	*2.12*	*0.91*	*0.18*	*1.22*	*1.45*	*0.29*

	Communications (13)	Lang, Ling and Classics (14)	European Languages (15)	Other Languages (16)	History (17)	Art & Music (18)	Education (19)
GroEmp_SIC_A	**-0.006**	**0.003**	**0.001**	**0.002**	**0.008**	**-0.006**	**0.004**
	1.29	*0.81*	*0.37*	*0.97*	*1.11*	*0.92*	*1.36*
GroEmp _SIC_C	**0.000**	**-0.002**	**0.001**	**0.000**	**-0.002**	**0.001**	**0.000**
	0.17	*1.04*	*1.21*	*0.99*	*1.44*	*0.74*	*0.77*
GroEmp _SIC_D	**-0.044****	**-0.039****	**0.011**	**-0.009**	**-0.037**	**0.042**	**-0.002**
	2.55	*2.14*	*1.20*	*1.42*	*1.42*	*1.57*	*0.15*
GroEmp _SIC_E	**0.003****	**-0.002**	**0.000**	**0.000**	**-0.003**	**0.000**	**0.000**
	2.03	*1.62*	*0.29*	*0.70*	*1.77*	*0.12*	*0.12*
GroEmp _SIC_F	**0.010**	**0.008**	**0.000**	**-0.003**	**0.020***	**-0.012**	**-0.002**
	1.16	*0.90*	*0.01*	*0.95*	*1.65*	*0.92*	*0.36*
GroEmp _SIC_H	**0.019***	**-0.006**	**0.003**	**-0.001**	**0.005**	**0.009**	**-0.007**
	1.94	*0.59*	*0.60*	*0.30*	*0.35*	*0.65*	*1.23*
GroEmp _SIC_I	**0.007**	**-0.002**	**0.006**	**0.004**	**-0.005**	**0.006**	**-0.002**
	0.74	*0.15*	*1.26*	*1.00*	*0.36*	*0.40*	*0.35*
GroEmp _SIC_J	**0.001**	**0.004**	**-0.003**	**-0.005**	**0.007**	**0.011**	**-0.006**
	0.06	*0.41*	*0.68*	*1.48*	*0.55*	*0.92*	*1.24*
GroEmp _SIC_K	**-0.004**	**0.011**	**-0.001**	**-0.002**	**0.014**	**-0.033****	**-0.008**
	0.41	*1.09*	*0.24*	*-0.50*	*0.87*	*2.24*	*1.31*
GroEmp _SIC_L	**-0.004**	**0.006**	**-0.006**	**-0.002**	**-0.006**	**0.003**	**-0.001**
	0.55	*0.78*	*1.44*	*0.50*	*0.53*	*0.27*	*0.34*
GroEmp _SIC_M	**-0.013**	**-0.004**	**0.001**	**0.003**	**-0.020**	**0.010**	**0.011**
	1.26	*0.38*	*0.28*	*0.60*	*1.42*	*0.77*	*1.50*
GroEmp _SIC_N	**0.003**	**-0.006**	**0.002**	**0.004**	**0.010**	**0.029****	**0.007**
	0.22	*0.50*	*0.36*	*0.97*	*0.54*	*1.67*	*1.12*
GroEmp _SIC_O	**-0.002**	**-0.021***	**0.004**	**-0.002**	**-0.029***	**0.012**	**0.008**
	-0.15	*1.93*	*0.61*	*0.47*	*1.84*	*0.81*	*1.35*
GroWage_SIC_A	**-0.031**	**-0.088****	**0.101*****	**0.015**	**-0.097****	**0.005**	**0.007**
	0.90	*2.50*	*6.38*	*1.46*	*2.00*	*0.10*	*0.36*
GroWage _SIC_C	**-0.023**	**-0.008**	**-0.020*****	**0.003**	**0.010**	**-0.053****	**-0.018**
	1.51	*0.49*	*2.60*	*0.54*	*0.43*	*2.32*	*1.62*
GroWage _SIC_D	**-0.671*****	**-0.484*****	**0.636*****	**0.167*****	**-1.158*****	**-0.988*****	**-0.066**
	5.16	*3.62*	*8.83*	*3.39*	*5.99*	*5.44*	*0.91*
GroWage _SIC_E	**0.002**	**0.024**	**0.013**	**-0.011**	**-0.002**	**-0.029**	**0.006**
	0.09	*1.00*	*1.11*	*1.37*	*0.07*	*0.86*	*0.43*
GroWage _SIC_F	**0.041**	**0.126***	**0.000**	**0.018**	**-0.402*****	**-0.097**	**0.055**
	0.62	*1.85*	*0.01*	*0.77*	*4.06*	*1.00*	*1.37*
GroWage _SIC_H	**-0.060***	**0.046**	**-0.013**	**0.014**	**-0.167*****	**-0.199*****	**-0.033**
	1.66	*1.24*	*0.77*	*1.23*	*3.28*	*3.80*	*1.53*
GroWage _SIC_I	**0.234****	**0.004**	**-0.199*****	**-0.058***	**0.191**	**0.141**	**0.106**
	2.18	*0.04*	*4.07*	*1.83*	*1.27*	*1.00*	*1.52*
GroWage _SIC_J	**-0.035**	**0.012**	**-0.098*****	**-0.013**	**0.155***	**-0.165***	**-0.077****
	0.57	*0.19*	*3.77*	*0.70*	*1.75*	*1.92*	*2.20*
GroWage _SIC_K	**-0.154*****	**-0.171*****	**0.205*****	**0.009**	**-0.278*****	**-0.063**	**-0.021**
	3.37	*3.75*	*9.23*	*0.67*	*4.15*	*0.96*	*0.77*
GroWage _SIC_L	**-0.055**	**-0.195**	**-0.075**	**0.110*****	**0.084**	**-0.200**	**0.010**
	0.47	*1.59*	*1.25*	*2.69*	*0.49*	*1.24*	*0.13*
GroWage _SIC_M	**0.218**	**-0.355*****	**0.059**	**0.036**	**0.441*****	**0.631*****	**0.285*****
	1.82	*2.91*	*0.98*	*0.86*	*2.49*	*3.75*	*3.77*
GroWage _SIC_N	**0.070**	**-0.091**	**0.214*****	**-0.012**	**-0.153**	**0.336*****	**0.109**
	0.74	*0.95*	*4.59*	*0.42*	*1.13*	*2.61*	*1.62*
GroWage _SIC_O	**-0.084****	**0.034**	**0.041*****	**0.018***	**-0.056**	**-0.021**	**0.012**
	2.38	*1.04*	*2.77*	*1.70*	*1.13*	*0.47*	*0.49*

*Notes: Coefficients reported with t-stats underneath. *, ** and *** correspond to significance at the 10, 5 and 1% levels respectively. Growth rates of employment defined as decimals: 0.01=1%. To calculate marginal effect of a 1% change in wages divide reported coefficient by 100. See Appendix A for the breakdown of industries included.*

Appendix B: Table Four: Degree Choice: Females with Fixed Effects

	Medicine & Dentistry (1)	Medicine Related (2)	Biological Science (3)	Vet (4)	Physical Science (5)	Mathematics (6)
iETH_A	**0.029*** **	**0.070*** **	**-0.034*** **	**-0.008*** **	**-0.016*** **	**0.056*** **
	14.9	*18.53*	*9.07*	*12.44*	*7.97*	*20.6*
iETH_B	**0.020*** **	**0.038*** **	**-0.029*** **	**-0.007*** **	**-0.020*** **	**0.008** **
	8.32	*6.97*	*4.42*	*10.1*	*7.42*	*2.17*
iETH_Oth	**0.018*** **	**0.007* **	**-0.016*** **	**-0.004*** **	**-0.016*** **	**0.006** **
	6.66	*1.69*	*2.79*	*3.48*	*5.76*	*1.97*
iETH_Unk	**0.003**	**-0.010**	**0.009**	**-0.002**	**0.004**	**0.001**
	1.14	*1.49*	*0.93*	*0.64*	*0.76*	*0.3*
iAGE_16	**0.004**	**0.003**	**0.011**	**-0.003**	**0.007**	**0.009**
	1.11	*0.41*	*1.53*	*1.31*	*1.54*	*2.2*
iAGE_17	**0.001** **	**0.002**	**0.008*** **	**0.000**	**0.004*** **	**0.002**
	1.98	*1.32*	*3.97*	*0.27*	*3.06*	*1.5*
iAGE_19	**0.001**	**0.010*** **	**-0.006**	**0.000**	**-0.006*** **	**-0.002**
	0.79	*3.77*	*1.84*	*0.07*	*3.18*	*1.1*
iAGE_20	**0.008*** **	**0.024*** **	**-0.013**	**0.000**	**-0.002**	**-0.003**
	3.6	*4.12*	*1.86*	*0.02*	*0.47*	*1.03*
iAGE_21	**0.007* **	**0.040**	**-0.018**	**-0.002**	**-0.006**	**0.015**
	1.91	*2.5*	*1.11*	*0.44*	*0.68*	*1.53*
iDIS	**-0.001**	**0.007** **	**-0.001**	**0.000**	**0.010*** **	**-0.001**
	0.8	*2.38*	*0.26*	*0.09*	*4.17*	*0.49*
iSEC_Mid	**-0.001**	**0.009** **	**-0.003**	**0.003** **	**0.005**	**-0.003**
	0.78	*2.25*	*0.64*	*2.33*	*1.62*	*1.21*
iSEC_Top	**0.002** **	**0.008** **	**-0.009**	**0.000**	**0.001**	**-0.004**
	2.04	*2.3*	*1.74*	*0.41*	*0.46*	*1.53*
iSEC_UNK	**0.004*** **	**-0.002**	**-0.014*** **	**-0.001**	**0.000**	**-0.003**
	3	*0.53*	*2.64*	*0.41*	*0.05*	*1.03*
TQ1	**-0.001** **	**-0.020*** **	**-0.023*** **	**0.005*** **	**-0.003* **	**0.007*** **
	2.15	*9.32*	*8.21*	*5.31*	*1.65*	*4.98*
TQ3	**0.014*** **	**0.001**	**0.007*** **	**-0.004*** **	**0.005*** **	**0.005*** **
	22.65	*0.68*	*3*	*5.78*	*3.9*	*4.79*
TQ4	**0.052*** **	**-0.016*** **	**-0.023*** **	**-0.004*** **	**0.017*** **	**0.039*** **
	33.62	*6.95*	*7.84*	*4.26*	*9.21*	*22.33*
D_CCU_1629	**0.004** **	**0.005**	**-0.010** **	**0.004*** **	**0.004**	**0.000**
	2.38	*1.5*	*2.16*	*2.62*	*1.37*	*0*
D_UnempR	**0.000**	**0.000**	**0.000**	**0.000**	**0.001**	**0.000**
	0.95	*0.36*	*0.32*	*1.46*	*1.19*	*0.08*
D_InactR	**0.000**	**0.000**	**0.001**	**0.000**	**0.000**	**0.000**
	0.73	*1.06*	*1.61*	*1.09*	*0.14*	*1.03*

	Medicine & Dentistry (1)	Medicine Related (2)	Biological Science (3)	Vet (4)	Physical Science (5)	Mathematics (6)
GroEmp_SIC_A	**-0.002**	**0.008**	**0.002**	**-0.003**	**-0.006**	**0.002**
	0.84	*1.36*	*0.26*	*1.46*	*1.30*	*0.59*
GroEmp _SIC_C	**0.001**	**-0.001**	**0.003**	**0.000**	**0.000**	**0.000**
	0.81	*0.85*	*1.02*	*0.42*	*0.37*	*0.06*
GroEmp _SIC_D	**-0.007**	**-0.032**	**0.054***	**0.008**	**-0.033***	**-0.015**
	0.64	*1.33*	*1.68*	*0.85*	*1.78*	*0.96*
GroEmp _SIC_E	**0.001**	**-0.001**	**-0.001**	**0.001**	**0.001**	**0.000**
	1.64	*0.41*	*0.57*	*1.37*	*0.86*	*0.20*
GroEmp _SIC_F	**-0.006**	**0.016**	**0.017**	**-0.003**	**0.001**	**-0.001**
	1.21	*1.32*	*1.11*	*0.76*	*0.08*	*0.10*
GroEmp _SIC_H	**0.004**	**-0.002**	**-0.017**	**-0.002**	**0.004**	**0.022*****
	0.69	*0.13*	*0.98*	*0.44*	*0.37*	*2.81*
GroEmp _SIC_I	**0.003**	**-0.001**	**-0.014**	**0.003**	**-0.001**	**0.018****
	0.49	*0.08*	*0.74*	*0.50*	*0.13*	*2.18*
GroEmp _SIC_J	**-0.001**	**0.002**	**-0.012**	**-0.012*****	**-0.003**	**0.002**
	0.17	*0.13*	*0.72*	*2.65*	*0.25*	*0.24*
GroEmp _SIC_K	**0.005**	**-0.014**	**-0.028**	**0.001**	**-0.006**	**0.007**
	0.80	*1.04*	*1.51*	*0.20*	*0.50*	*0.79*
GroEmp _SIC_L	**-0.005**	**0.016**	**0.001**	**-0.001**	**-0.003**	**-0.010**
	0.89	*1.50*	*0.05*	*0.24*	*0.33*	*1.62*
GroEmp _SIC_M	**0.006**	**0.006**	**-0.007**	**0.002**	**-0.002**	**-0.006**
	1.02	*0.45*	*0.38*	*0.43*	*0.20*	*0.77*
GroEmp _SIC_N	**-0.002**	**0.011**	**0.009**	**0.000**	**-0.021**	**0.005**
	0.22	*0.66*	*0.37*	*0.05*	*1.53*	*0.45*
GroEmp _SIC_O	**0.009**	**0.048*****	**-0.003**	**0.002**	**-0.016**	**-0.010**
	1.27	*3.35*	*0.16*	*0.33*	*1.34*	*1.08*
GroWage_SIC_A	**-0.122*****	**-0.060*****	**0.062****	**-0.023*****	**-0.036****	**0.006**
	11.29	*2.62*	*2.07*	*3.03*	*1.97*	*0.43*
GroWage _SIC_C	**-0.057*****	**0.038****	**-0.019**	**-0.013****	**0.017**	**0.025*****
	8.93	*2.53*	*0.97*	*2.25*	*1.56*	*2.59*
GroWage _SIC_D	**-0.708*****	**-0.265****	**0.439*****	**-0.106*****	**-0.202****	**-0.240*****
	15.82	*2.47*	*3.14*	*2.71*	*2.45*	*3.54*
GroWage _SIC_E	**0.119*****	**0.014**	**-0.031**	**0.018**	**0.020**	**0.001**
	9.62	*0.48*	*0.81*	*1.46*	*0.85*	*0.06*
GroWage _SIC_F	**0.214*****	**0.066***	**-0.114****	**0.015**	**0.112*****	**0.031**
	12.23	*1.82*	*2.22*	*0.92*	*3.71*	*1.34*
GroWage _SIC_H	**-0.361*****	**-0.244*****	**0.215****	**-0.088*****	**-0.160*****	**-0.037**
	12.55	*3.66*	*2.56*	*3.99*	*3.28*	*0.95*
GroWage _SIC_I	**0.192*****	**0.089**	**-0.067**	**0.022**	**0.057**	**0.022**
	5.47	*1.15*	*0.72*	*0.77*	*1.01*	*0.47*
GroWage _SIC_J	**0.242*****	**0.098**	**-0.224****	**0.033**	**0.063**	**0.225*****
	6.75	*1.23*	*2.12*	*1.08*	*1.02*	*4.53*
GroWage _SIC_K	**0.231*****	**0.004**	**-0.128**	**0.059***	**0.025**	**0.204*****
	8.49	*0.06*	*1.47*	*1.94*	*0.47*	*4.88*
GroWage _SIC_L	**0.105*****	**-0.032**	**0.084**	**0.030**	**-0.165*****	**0.005**
	3.99	*-0.48*	*0.94*	*1.29*	*3.17*	*0.11*
GroWage _SIC_M	**-1.194*****	**-0.354****	**0.820*****	**-0.246*****	**-0.510*****	**-0.249****
	14.37	*1.97*	*3.20*	*3.58*	*3.30*	*2.09*
GroWage _SIC_N	**0.208*****	**0.014**	**0.006**	**-0.027**	**-0.065**	**-0.019**
	3.52	*0.09*	*0.03*	*0.39*	*0.51*	*0.18*
GroWage _SIC_O	**-0.504*****	**-0.080**	**0.327*****	**-0.085*****	**-0.157*****	**-0.174*****
	16.51	*1.27*	*3.77*	*3.48*	*2.99*	*4.27*

*Notes: Coefficients reported with t-stats underneath. *, ** and *** correspond to significance at the 10, 5 and 1% levels respectively. Growth rates of employment defined as decimals: 0.01=1%. To calculate marginal effect of a 1% change in wages divide reported coefficient by 100. See Appendix A for the breakdown of industries included.*

Appendix B: Table Five: Degree Choice: Females with Fixed Effects

	Engineering (7)	Mineral Tech. (8)	Architecture (9)	Social Studies (10)	Law (11)	Business Studies (12)
iETH_A	**0.008*****	**0.002****	**0.005*****	**-0.006**	**0.064*****	**0.069*****
	6.18	*2.4*	*4.12*	*1.74*	*17.15*	*17.72*
iETH_B	**0.009*****	**0.000**	**0.004****	**0.011***	**0.100*****	**0.041*****
	3.87	*0.2*	*2.21*	*1.8*	*15.51*	*5.81*
iETH_Oth	**0.002**	**0.002**	**0.002**	**0.002**	**0.042*****	**0.005**
	1.43	*1.48*	*1.48*	*0.32*	*8.54*	*1.02*
iETH_Unk	**0.001**	**-0.001**	**-0.001**	**0.007**	**0.024*****	**-0.006**
	0.44	*0.54*	*0.61*	*0.88*	*3.41*	*0.76*
iAGE_16	**0.000**	**0.001**	**0.005****	**-0.016*****	**0.007**	**0.017****
	0.09	*0.6*	*2.25*	*2.66*	*1.13*	*2.4*
iAGE_17	**0.000**	**0.000**	**0.001**	**-0.012*****	**0.007*****	**0.005*****
	0.46	*0.1*	*1.14*	*6.82*	*4.85*	*2.9*
iAGE_19	**-0.001**	**0.000**	**-0.001**	**0.005**	**-0.007*****	**-0.002**
	1.01	*0.38*	*1.27*	*1.73*	*3.16*	*0.7*
iAGE_20	**0.002**	**0.001**	**0.003**	**0.014****	**-0.021*****	**-0.022*****
	0.96	*0.82*	*1.17*	*2.16*	*4.7*	*3.56*
iAGE_21	**0.007**	**0.000**	**-0.003**	**0.012**	**-0.014**	**-0.037****
	1.24	*0.04*	*0.97*	*0.75*	*1.2*	*2.47*
iDIS	**0.003*****	**0.002****	**0.004*****	**-0.002**	**-0.015*****	**-0.025*****
	3.21	*2.15*	*3.57*	*0.74*	*6.48*	*9.04*
iSEC_Mid	**0.000**	**-0.001**	**0.001**	**-0.005**	**-0.002**	**-0.008***
	0.29	*0.59*	*0.79*	*1.28*	*0.57*	*1.66*
iSEC_Top	**-0.001**	**0.000**	**0.001**	**0.000**	**-0.001**	**-0.018*****
	0.58	*0.02*	*0.75*	*0.09*	*0.35*	*4.11*
iSEC_UNK	**0.000**	**-0.001**	**0.001**	**-0.004**	**0.001**	**-0.008**
	0.04	*0.72*	*0.88*	*0.78*	*0.37*	*1.55*
TQ1	**0.001****	**0.001**	**-0.001****	**0.012*****	**-0.027*****	**0.053*****
	2.05	*1.1*	*2.01*	*4.75*	*14.31*	*17.27*
TQ3	**0.002*****	**-0.002*****	**0.000**	**-0.012*****	**0.037*****	**-0.037*****
	3.77	*5.05*	*0.09*	*6.18*	*22.08*	*20.39*
TQ4	**0.006*****	**-0.004*****	**0.002****	**-0.026*****	**0.071*****	**-0.066*****
	6.71	*9.13*	*2.26*	*10.86*	*28.35*	*30.19*
D_CCU_1629	**0.001**	**-0.001**	**-0.001**	**0.000**	**-0.004**	**0.005**
	0.78	*0.7*	*1.16*	*0.06*	*1.36*	*1.25*
D_UnempR	**0.000**	**0.000**	**0.000**	**-0.001**	**0.001**	**0.000**
	0.02	*0.27*	*0.36*	*0.79*	*1.48*	*0.17*
D_InactR	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
	0.6	*0.37*	*0.59*	*0.8*	*0.7*	*0.38*

	Engineering (7)	Mineral Tech. (8)	Architecture (9)	Social Studies (10)	Law (11)	Business Studies (12)
GroEmp_SIC_A	**0.000**	**-0.001**	**-0.002**	**0.013****	**0.003**	**-0.012***
	0.11	*1.15*	*1.24*	*2.34*	*0.43*	*1.71*
GroEmp _SIC_C	**0.000**	**-0.001***	**0.000**	**-0.002**	**0.000**	**0.000**
	0.13	*1.73*	*0.43*	*0.92*	*0.15*	*0.04*
GroEmp _SIC_D	**0.001**	**0.004**	**0.005**	**0.036**	**0.027**	**0.040**
	0.15	*0.82*	*0.54*	*1.32*	*1.16*	*1.51*
GroEmp _SIC_E	**0.002*****	**0.000**	**-0.001**	**-0.003**	**0.000**	**0.002**
	3.00	*0.50*	*1.60*	*1.57*	*0.24*	*1.12*
GroEmp _SIC_F	**0.001**	**0.002**	**0.002**	**-0.016**	**-0.007**	**0.006**
	0.20	*0.75*	*0.37*	*1.25*	*0.67*	*0.46*
GroEmp _SIC_H	**-0.003**	**0.000**	**-0.001**	**0.019**	**-0.015**	**-0.016**
	0.72	*0.05*	*0.14*	*1.23*	*1.19*	*1.09*
GroEmp _SIC_I	**-0.002**	**0.000**	**0.005**	**-0.013**	**0.009**	**0.014**
	0.38	*0.02*	*1.01*	*0.88*	*0.70*	*1.04*
GroEmp _SIC_J	**0.003**	**-0.002**	**0.003**	**-0.009**	**0.011**	**-0.002**
	0.96	*0.69*	*0.72*	*0.70*	*0.87*	*0.13*
GroEmp _SIC_K	**-0.003**	**-0.003**	**-0.007**	**0.011**	**0.009**	**0.006**
	0.62	*0.89*	*1.30*	*0.74*	*0.72*	*0.38*
GroEmp _SIC_L	**0.002**	**-0.002**	**-0.004**	**0.016**	**-0.007**	**0.009**
	0.47	*0.77*	*0.92*	*1.35*	*0.59*	*0.77*
GroEmp _SIC_M	**-0.007***	**0.000**	**0.004**	**-0.005**	**-0.028****	**-0.002**
	1.65	*0.12*	*0.87*	*0.35*	*2.04*	*0.10*
GroEmp _SIC_N	**-0.009**	**-0.005**	**0.008**	**-0.018**	**-0.008**	**0.015**
	1.51	*1.34*	*1.22*	*0.97*	*0.48*	*0.81*
GroEmp _SIC_O	**0.000**	**-0.004**	**0.002**	**-0.042****	**-0.017**	**0.021**
	0.06	*1.01*	*0.42*	*2.48*	*1.23*	*1.35*
GroWage_SIC_A	**-0.027*****	**0.011****	**0.009**	**0.001**	**0.062*****	**-0.048***
	3.49	*2.10*	*1.21*	*0.06*	*2.77*	*1.88*
GroWage _SIC_C	**0.003**	**0.006***	**0.000**	**-0.021**	**0.012**	**0.005**
	0.71	*1.88*	*0.08*	*1.24*	*0.94*	*0.28*
GroWage _SIC_D	**-0.120*****	**0.030**	**0.031**	**0.202***	**0.402*****	**-0.307*****
	3.51	*1.45*	*0.83*	*1.81*	*3.99*	*2.77*
GroWage _SIC_E	**0.005**	**-0.011**	**-0.017***	**-0.030**	**-0.015**	**-0.034**
	0.55	*1.61*	*1.77*	*0.92*	*0.55*	*1.07*
GroWage _SIC_F	**0.040*****	**-0.012**	**-0.016**	**-0.072***	**-0.081****	**0.043**
	3.15	*1.37*	*1.16*	*1.76*	*2.31*	*1.05*
GroWage _SIC_H	**-0.146*****	**0.001**	**0.009**	**0.140****	**0.161*****	**-0.395*****
	6.64	*0.10*	*0.39*	*1.96*	*2.64*	*5.44*
GroWage _SIC_I	**0.066****	**-0.006**	**-0.007**	**-0.008**	**-0.100**	**0.035**
	2.46	*0.44*	*0.29*	*0.09*	*1.46*	*0.44*
GroWage _SIC_J	**0.094*****	**-0.015**	**-0.036**	**0.000**	**-0.142***	**0.116**
	3.46	*0.88*	*1.27*	*0.00*	*1.92*	*1.40*
GroWage _SIC_K	**0.030**	**-0.006**	**-0.027**	**-0.172****	**-0.226*****	**0.102**
	1.38	*0.40*	*1.08*	*2.45*	*3.40*	*1.39*
GroWage _SIC_L	**-0.001**	**0.003**	**0.037**	**0.162****	**-0.001**	**-0.105**
	0.05	*0.18*	*1.49*	*2.14*	*0.02*	*1.47*
GroWage _SIC_M	**-0.147****	**-0.005**	**0.030**	**0.340**	**0.599*****	**0.100**
	2.36	*0.12*	*0.42*	*1.64*	*3.31*	*0.49*
GroWage _SIC_N	**-0.092***	**-0.076****	**0.064**	**-0.170**	**0.103**	**-0.607*****
	1.67	*2.09*	*1.05*	*0.94*	*0.62*	*3.32*
GroWage _SIC_O	**-0.092*****	**0.032****	**0.019**	**0.219*****	**0.312*****	**-0.166****
	4.21	*2.33*	*0.83*	*3.14*	*4.98*	*2.32*

*Notes: Coefficients reported with t-stats underneath. *, ** and *** correspond to significance at the 10, 5 and 1% levels respectively. Growth rates of employment defined as decimals: 0.01=1%. To calculate marginal effect of a 1% change in wages divide reported coefficient by 100. See Appendix A for the breakdown of industries included.*

Appendix B: Table Six: Degree Choice: Females with Fixed Effects

	Communications (13)	Lang, Ling and Classics (14)	European Languages (15)	Other Languages (16)	History (17)	Art & Music (18)	Education (19)
iETH_A	**-0.021*** **	**-0.049*** **	**-0.015*** **	**-0.003*** **	**-0.050*** **	**-0.068*** **	**-0.032*** **
	10.13	*19.56*	*12.34*	*4.42*	*22.69*	*27.01*	*19.23*
iETH_B	**0.009** **	**-0.051*** **	**-0.010*** **	**-0.003** **	**-0.047*** **	**-0.036*** **	**-0.037*** **
	2.05	*11.93*	*4.54*	*2.19*	*12.85*	*6.82*	*14.64*
iETH_Oth	**0.003**	**-0.001**	**0.003**	**0.004*** **	**-0.021*** **	**-0.012** **	**-0.025*** **
	0.95	*0.18*	*1.31*	*2.58*	*5.69*	*2.52*	*12.15*
iETH_Unk	**-0.003**	**-0.006**	**0.002**	**0.006** **	**0.006**	**-0.023*** **	**-0.014*** **
	0.47	*0.91*	*0.6*	*2.11*	*0.85*	*3.19*	*2.78*
iAGE_16	**-0.005**	**-0.009** **	**-0.002**	**0.000**	**-0.019*** **	**0.000**	**-0.009**
	1.62	*2.18*	*0.57*	*0.12*	*4.01*	*0.08*	*1.47*
iAGE_17	**0.002**	**-0.004*** **	**0.001**	**0.000**	**-0.002**	**-0.015*** **	**0.002**
	1.33	*2.88*	*1.16*	*0.66*	*1.49*	*9.3*	*1.5*
iAGE_19	**-0.004* **	**0.002**	**0.000**	**0.000**	**-0.002**	**0.012*** **	**0.001**
	1.71	*0.91*	*0.37*	*0.39*	*0.88*	*3.82*	*0.45*
iAGE_20	**-0.005**	**0.010* **	**0.001**	**0.002**	**-0.009** **	**-0.006**	**0.016*** **
	1.22	*1.9*	*0.55*	*1.13*	*2.16*	*0.8*	*3.18*
iAGE_21	**-0.001**	**0.016**	**0.002**	**0.003**	**-0.009**	**-0.040** **	**0.028** **
	0.11	*1.18*	*0.48*	*0.76*	*1.01*	*2.36*	*2.02*
iDIS	**-0.006*** **	**-0.015*** **	**-0.008*** **	**-0.002** **	**0.010*** **	**0.047*** **	**-0.007*** **
	2.94	*5.96*	*6.1*	*2.62*	*3.66*	*13.29*	*3.38*
iSEC_Mid	**0.006** **	**-0.002**	**-0.003** **	**0.000**	**0.001**	**0.007** **	**-0.002**
	2.13	*0.7*	*2.01*	*0.25*	*0.47*	*2.04*	*0.67*
iSEC_Top	**0.008*** **	**0.002**	**-0.002**	**0.001* **	**0.007** **	**0.013*** **	**-0.009*** **
	2.95	*0.46*	*1.19*	*1.78*	*2.55*	*3.65*	*2.81*
iSEC_UNK	**0.011*** **	**-0.005**	**0.002**	**0.001**	**-0.003**	**0.031*** **	**-0.012*** **
	3.71	*1.25*	*1.08*	*1.23*	*0.93*	*7.39*	*3.49*
TQ1	**-0.005** **	**-0.017*** **	**-0.005*** **	**-0.001*** **	**-0.020*** **	**0.017*** **	**0.027*** **
	2.38	*9.53*	*6.39*	*2.75*	*12.92*	*6.33*	*11.92*
TQ3	**-0.019*** **	**0.028*** **	**0.010*** **	**0.001** **	**0.020*** **	**-0.017*** **	**-0.039*** **
	14.48	*16.8*	*10.96*	*2.3*	*12.89*	*9.79*	*29.03*
TQ4	**-0.036*** **	**0.045*** **	**0.010*** **	**0.000**	**0.025*** **	**-0.036*** **	**-0.057*** **
	25.35	*18.66*	*7.91*	*0.68*	*11.27*	*15.84*	*38.12*
D_CCU_1629	**-0.002**	**-0.002**	**0.008*** **	**0.001** **	**-0.004**	**-0.008** **	**0.000**
	0.67	*0.57*	*4.93*	*1.72*	*1.21*	*2.17*	*0.03*
D_UnempR	**-0.001* **	**0.002* **	**0.000**	**-0.001*** **	**0.001**	**0.000**	**0.000**
	1.9	*1.85*	*0.54*	*2.93*	*1.43*	*0.14*	*0.26*
D_InactR	**0.000**	**0.000**	**-0.001*** **	**0.000**	**0.000**	**0.000**	**0.000**
	0.39	*0.75*	*3.26*	*3*	*1.08*	*0.71*	*0.94*

	Communications (13)	Lang, Ling and Classics (14)	European Languages (15)	Other Languages (16)	History (17)	Art & Music (18)	Education (19)
GroEmp_SIC_A	**0.000**	**-0.013****	**0.000**	**0.002**	**0.000**	**-0.005**	**0.013****
	0.00	*2.48*	*0.10*	*1.07*	*0.06*	*0.52*	*2.12*
GroEmp _SIC_C	**0.000**	**-0.003**	**0.000**	**0.000**	**0.002**	**0.000**	**0.001**
	0.02	*1.51*	*0.58*	*0.52*	*0.81*	*0.27*	*1.30*
GroEmp _SIC_D	**-0.011**	**-0.036**	**0.014**	**0.012****	**-0.019**	**-0.023**	**-0.025**
	0.60	*1.57*	*1.10*	*2.02*	*0.80*	*0.90*	*1.33*
GroEmp _SIC_E	**-0.001**	**0.001**	**0.003*****	**-0.001***	**-0.003****	**0.001**	**-0.001**
	1.09	*0.57*	*2.86*	*1.72*	*1.99*	*0.57*	*1.18*
GroEmp _SIC_F	**0.007**	**-0.006**	**0.006**	**0.003**	**0.004**	**-0.008**	**-0.017***
	0.79	*0.54*	*1.08*	*0.90*	*0.41*	*0.64*	*1.78*
GroEmp _SIC_H	**0.010**	**0.010**	**0.008**	**-0.005**	**-0.009**	**0.005**	**-0.012**
	0.96	*0.73*	*1.13*	*1.27*	*0.70*	*0.34*	*1.15*
GroEmp _SIC_I	**-0.003**	**-0.009**	**0.010**	**-0.001**	**-0.010**	**0.005**	**-0.014**
	0.24	*0.74*	*1.44*	*0.22*	*0.78*	*0.39*	*1.46*
GroEmp _SIC_J	**-0.003**	**0.004**	**0.009**	**0.000**	**0.009**	**0.008**	**-0.006**
	0.38	*0.38*	*1.42*	*0.00*	*0.86*	*0.59*	*0.71*
GroEmp _SIC_K	**-0.004**	**0.023***	**-0.003**	**0.001**	**0.005**	**-0.005**	**0.003**
	0.35	*1.72*	*0.37*	*0.20*	*0.41*	*0.34*	*0.29*
GroEmp _SIC_L	**-0.012**	**0.004**	**-0.005**	**-0.001**	**-0.004**	**0.009**	**-0.004**
	1.49	*0.37*	*0.90*	*0.20*	*0.43*	*0.70*	*0.49*
GroEmp _SIC_M	**0.004**	**0.003**	**0.009**	**-0.004**	**0.014**	**0.013**	**-0.003**
	0.40	*0.27*	*1.36*	*1.08*	*1.23*	*0.97*	*0.24*
GroEmp _SIC_N	**-0.005**	**0.010**	**-0.021****	**0.006**	**0.023**	**0.014**	**-0.015**
	0.38	*0.65*	*2.26*	*1.25*	*1.40*	*0.79*	*1.21*
GroEmp _SIC_O	**-0.015**	**-0.005**	**0.013***	**0.003**	**-0.004**	**0.022**	**-0.004**
	1.30	*0.39*	*1.78*	*0.79*	*0.32*	*1.48*	*0.38*
GroWage_SIC_A	**0.012**	**0.037***	**-0.051*****	**-0.014****	**0.030**	**0.103*****	**0.047*****
	0.82	*1.80*	*4.70*	*2.31*	*1.47*	*4.57*	*2.63*
GroWage _SIC_C	**-0.001**	**-0.037*****	**0.030*****	**0.008****	**-0.022***	**0.003**	**0.025****
	0.06	*2.80*	*4.01*	*2.12*	*1.78*	*0.17*	*2.08*
GroWage _SIC_D	**0.171****	**0.058**	**-0.274*****	**-0.052***	**0.228****	**0.511*****	**0.201*****
	2.25	*0.59*	*4.98*	*1.83*	*2.39*	*4.47*	*2.63*
GroWage _SIC_E	**0.018**	**-0.044**	**0.015**	**0.011**	**-0.029**	**0.020**	**-0.030**
	0.86	*1.64*	*1.06*	*1.53*	*1.10*	*0.68*	*1.34*
GroWage _SIC_F	**-0.020**	**-0.036**	**0.055*****	**0.013**	**-0.070****	**-0.147*****	**-0.024**
	0.78	*1.05*	*3.00*	*1.33*	*2.08*	*3.80*	*0.80*
GroWage _SIC_H	**0.079***	**0.236*****	**-0.428*****	**-0.077*****	**0.294*****	**0.509*****	**0.292*****
	1.74	*4.02*	*13.57*	*4.94*	*4.99*	*7.74*	*5.37*
GroWage _SIC_I	**0.016**	**-0.063**	**-0.047**	**0.005**	**-0.038**	**-0.171****	**0.003**
	0.31	*0.98*	*1.11*	*0.24*	*0.58*	*2.19*	*0.04*
GroWage _SIC_J	**-0.100***	**-0.121**	**0.234*****	**0.052****	**-0.052**	**-0.355*****	**-0.112***
	1.67	*1.56*	*5.47*	*2.35*	*0.72*	*4.29*	*1.87*
GroWage _SIC_K	**-0.038**	**-0.151****	**0.285*****	**0.045*****	**-0.116***	**-0.045**	**-0.078**
	0.83	*2.46*	*8.78*	*2.62*	*1.92*	*0.66*	*1.44*
GroWage _SIC_L	**0.084***	**0.069**	**-0.175*****	**-0.052*****	**0.036**	**0.106**	**-0.189*****
	1.66	*1.08*	*6.10*	*3.21*	*0.58*	*1.54*	*4.05*
GroWage _SIC_M	**0.132**	**0.039**	**-0.201****	**0.025**	**0.314***	**0.559*****	**-0.054**
	0.92	*0.21*	*2.20*	*0.48*	*1.76*	*2.76*	*0.38*
GroWage _SIC_N	**0.169**	**-0.026**	**-0.129***	**-0.065**	**0.280***	**0.465*****	**-0.032**
	1.40	*0.16*	*1.65*	*1.39*	*1.76*	*2.75*	*0.27*
GroWage _SIC_O	**0.076**	**0.109***	**-0.240*****	**-0.058*****	**0.164*****	**0.278*****	**0.021**
	1.64	*1.82*	*7.37*	*3.14*	*2.65*	*4.12*	*0.43*

*Notes: Coefficients reported with t-stats underneath. *, ** and *** correspond to significance at the 10, 5 and 1% levels respectively. Growth rates of employment defined as decimals: 0.01=1%. To calculate marginal effect of a 1% change in wages divide reported coefficient by 100. See Appendix A for the breakdown of industries included.*

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