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ABSTRACT

The expansion of higher education in the UK has led to an increase in the number of postgraduate as well as undergraduate students. This paper investigates the wage return to postgraduate degrees, differentiating between traditional Masters degrees, vocational postgraduate degrees and PhDs, over the period 1993-2014. We additionally, differentiate between the area of study for Masters degrees. Results show that wage returns to both undergraduate and all postgraduate degrees have increased over time. The subject undertaken at Masters level is more important in determining wages for males. Females holding a Masters degree in any subject earn a significant wage premium. There is also evidence of growth in the wage returns to other, vocational, non-Masters degrees. The findings of this paper imply that not only are postgraduates highly skilled individuals but that the provision of postgraduate courses, and thence postgraduate degree holders within the UK labour market should be increased.

JEL: I26; J24.

KEYWORDS: Human Capital; Postgraduate Education; Wage returns.

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I. INTRODUCTION

The increase in the number of students entering higher education in recent years has in turn led to a dramatic increase in postgraduate student numbers.[1] Indeed, the demand for postgraduate study in 2004 was claimed to be increasing at a faster rate than that of undergraduate study (Barber *et al* 2004) and nearly half of all postgraduate students in 2003 were reported to be on a taught masters programme (HEPI 2004). Over the past decade there has been a heightened interest in postgraduate course options and an increase in the number of students applying for master's courses, apparently undeterred by the additional fees faced by those without bursaries and the additional cost of their living expenses for a further period of study. It is valuable to understand the reasons underlying this rapid growth. One factor which may help to explain this growth is the expectations of increased productivity and hence higher earnings in the labour market, as per Becker's theory of human capital (Becker 1964). Alternatively, following the Spence (1974) model of signalling and Arrow's (1973) model of employer screening, graduates may believe that the gaining of a master's degree will positively distinguish them on their job application forms from the ever growing number of successful graduates entering the labour market each year, increasing the likelihood of them obtaining 'the best paid job'. Indeed, I have witnessed a growing number of enquiries about postgraduate courses from graduates unhappy with their final degree classification and who believe that the gaining of a postgraduate qualification will somehow leap-frog them above their peers who have a higher first degree classification in the jobs market.

Whatever the reason for considering this route each year many graduates, and their sponsors, have an interest in knowing whether the further investment in

[1] HEFCE 2001; Barber *et al* 2004; HEPI 2004.

postgraduate study is worth the investment. In this paper we seek an answer to this question. Although the literature on higher education has expanded into areas such as the increase in student numbers, the cost of provision, effects on demand from higher fees, dropout, the returns to qualifications gained, the literature on the wage return to higher education qualifications typically focuses on the returns to different types of bachelor's degree. Postgraduate courses; if considered at all are conflated into a single variable making comparative analysis of different options impossible. This was primarily due to the lack of student numbers in each course-type which previously made analysis difficult. However, the increased proportion of workers who possess a postgraduate qualification over the past two decades has enabled us to investigate the wage return to each postgraduate qualification in more detail.

The questions we specifically wish to address in this paper are: What are the average wage returns to a master's degree, other postgraduate qualifications and a PhD? Also, is the subject of study a major influence in the return to each higher education qualification and finally, have the average returns to each type of qualification remained stable over time? The paper is organised as follows. In the next section, section II we outline the theoretical framework underlying the costs and wage return to a master's degree and review the existing literature. In section III we discuss our data and econometric methods. In section IV we present and discuss our findings. Section V concludes.

II. THEORETICAL FRAMEWORK AND LITERATURE.

We assume, following the approach of human capital theory (Becker 1964) that individuals invest in more education; in this paper a postgraduate degree, because they expect to be more productive and thence expect to receive a wage premium to

their higher degree over and above the wages paid to individuals who have a first degree only. We acknowledge that it is possible that some graduates seek to signal their higher worth to potential employers by gaining a master's qualification, especially when many graduates now enter the labour market with good degrees. We assume that the increased cost of attending a master's degree programme above the cost of a first degree and the entrance requirements onto these programmes, typically a good first degree, implies that rationally master's graduates would expect a higher wage return, given that their direct and indirect costs (foregone earnings) are greater than those of a first degree holder. It is not our purpose here to ignore the presence of signalling and screening; indeed we note that the current literature supports the weak screening hypothesis (Brown and Sessions 1998; 2006) thus supporting both the role of signalling and screening in the labour market as well as the claim of the human capital model (Becker 1964) that education is an investment which will increase the productivity of the investor.[2] We follow much of the existing literature on returns to education in that we estimate a Mincerian earnings function, crucially differentiated, as noted above, between different types of postgraduate programmes. Given the small proportion of graduates who enrolled on postgraduate courses in the past it is hardly surprising that the UK literature on the wage returns to specific higher degree qualifications is sparse. Much of the existing UK literature focuses on the wage returns to a first degree and a postgraduate qualification, with the latter consisting of all types of course leading to a single wage return coefficient to capture masters degrees, doctorates and professional postgraduate qualifications.

An early study by Dolton and Makepeace (1990) uses the Survey of 1980 Graduates and Diplomates to investigate possible differences in the rates of return to

[2] Barber *et al* (2004) conducted qualitative research on around 200 UK and 100 overseas postgraduates who graduated from Sussex in 1999 and 2001, their findings are highly indicative of students investing in their postgraduate programme because it increased their productivity.

postgraduates and undergraduates in economics. The paper highlights the importance of accounting for current earnings by subject of degree and the influence of occupational choice on the level of earnings. For men it estimates a rate of return to earning a master's degree of 5%, but for women it is unable to identify a significant impact of earning a master's degree, a problem probably due to the shortage of data on master's degree holders in the 1980s when the survey was carried out. Other studies that include a single postgraduate variable include Blackaby *et al* (1999) who use Labour Force Survey data, covering the period 1993 to 1995, to estimate the returns to all qualifications with having no qualifications as the base category. They find that possessing a higher degree provides a greater wage return than those holding a first degree. Blundell *et al* (2000) using the National Child Development Study (NCDS) - a cohort of individuals born within a week in 1958 - find that returns to a higher degree are smaller than those to a first degree but include all postgraduate courses in their classification of a higher degree. Bratti *et al* (2006) use the British Cohort Study (BCS70), which is a cohort of individuals born within a week in 1970, to examine the hourly wage return to a first degree, when individuals are aged 30, taking into account the classification of the degree, and comparing to individuals with A levels as their highest qualification. Similar to Blundell *et al* (2000) their results show a positive return to a postgraduate qualification compared to individuals with A levels as their highest qualification but a with a smaller return than to a first degree (by around ten percentage points) and statistically significant for females only. To investigate whether wage returns have changed over time they compare their results to the earlier study of Blundell *et al* (2000) and find that for males the average wage return to a degree is unchanged but for women declines significantly. However, it is not possible to compare directly across these studies, firstly because as discussed the

'higher degree' variable measured by each of the studies may consist of different mixes of postgraduate qualifications and secondly because the findings, being taken at different points in time, derive from different cohorts of postgraduate students, facing different labour market conditions. Naylor et al (2007) consider degree class and subject taken by graduates and find that returns to first degrees had increased over time. Kelly et al (2010) consider field of study in their study of graduates using a graduate follow-up survey in Ireland in 2004 and find that the highest returns are to medicine, education and engineering subjects, however, they do not include postgraduates in the analysis. Conlon (2001) examined the returns to qualifications measured by national vocational qualification (NVQ)[3] level for both academic and vocational qualifications and found that possessing a vocational qualification brought a lower return when compared to an academic of the same level. He was able to distinguish postgraduates from graduates in this study but not the type i.e. not Masters from other postgraduates or PhD. Dearden et al (2002) in their analysis of the returns to vocational and academic qualifications use the quarterly Labour Force Survey and estimate both OLS and IV models. They find that the return to holding a Masters degree is similar to that of A'levels; that is less than the return to holding a first degree only. However, the average return to a Masters qualification over the period 1996-2009 was found to be higher than that of a first degree by around 8.9% and 10.3% for males and females, respectively (Department for Business Innovation and Skills 2011). Devereux and Fan (2011) find that despite the expansion of higher education in the UK, which led to a much larger supply of graduates than that demanded by employers, there were no negative effects on graduate wage returns and even a rise in the wage return for females. Walker and Zhu (2011) using OLS

[3] The NVQ framework has since been replaced by the Regulated Qualifications Framework (RQF).

distinguish between groups of subjects in their study of undergraduate degrees. They find a large premium to postgraduate study compared to degree only regardless of degree class, however, the types of postgraduates are not distinguished between and the data does not record the first degree classification of the postgraduate degree holder. More recently Machin and Lindley (2013) in their study of wage inequality have concluded that the rising post-college wage premium found in both the US and in the UK is due partly to the higher skills set possessed by post-college individuals. They state that more research is required to distinguish why there is an apparent increase in the number of postgraduates and the differences between the genders.

In the light of these studies, the contribution of this paper is firstly to estimate the average hourly wage returns to each postgraduate qualification, distinguishing between subject of study and gender and taking into account the occupation in which respondents have selected work, thereby answering the question 'is it worth me staying on at 21?' Secondly, we investigate whether the return to both undergraduate and postgraduate degrees have varied through time from 1993 through to 2014.

III. DATA AND METHODS

III.1 Data

To address the question of what are the wage returns to different postgraduate programmes in the UK labour market we use data from the Quarterly Labour Force Survey (LFS) which is conducted by the Office for National Statistics (ONS) and pooled over the period 1993 through 2014, thereby providing us with a sample that allows us to analyse the impact of the change in size of the proportion of postgraduate degree holders within the UK labour force over time. The data set is rich in information on the educational information we require at the individual level such as,

the qualification gained, the subject area and in particular for our requirements, the type of postgraduate qualification gained. In addition the data set also contains information on labour market status, earnings and employment characteristics along with the usual demographic characteristics of individuals. We separate qualifications into 5 categories; RQF[4] level 3 which includes A levels and their equivalent vocational qualifications; a first degree; a traditional Masters degree (MA or MSc); other postgraduate degree, which includes professional postgraduate qualifications (which may be undertaken whilst in employment) or teaching qualifications such as the Post Graduate Certificate of Education (PGCE); and finally a Doctorate (PhD).

It is evident from the proportions reported in table 1 that for both genders the proportion of individuals in the labour force who possess a higher education qualification has increased considerably over the past two decades. For males (females) this proportion increased form around twelve percent (eight percent) of the total labour force in 1993 to thirty percent (thirty one percent) in 2014. Along with the expansion of higher education which witnessed many more young people taking first degrees, we can see that for both genders there has been an increase in the proportion of postgraduate qualification holders: an increase that is especially acute for females who hold other postgraduate qualifications. The growth of female postgraduates, especially in the subject area of education, has been noted by Universities UK (2014). It is noted from table 1 that the proportion of workers who hold a PhD in our data has also increased.

In table 2 we provide summary statistics for our data, which includes only those respondents who possess a qualification equivalent to RQF level 3 or above.

[4] RQF is the acronym for the Regulated Qualifications Framework in the UK which in 2015 replaced the Qualifications and Credit Framework. Information on the RQF can be obtained at https://www.gov.uk/what-different-qualification-levels-mean/compare-different-qualification-levels

Within the labour market over the period 1993-2014 the average proportion of workers who possess a higher education qualification is around fifty percent for both male and females. Although, as noted above, the proportion of individuals present in the labour market and possessing a higher education qualification has increased significantly, thus reflecting the expansion in higher education over this period. Males are significantly more prevalent than females in the subjects of mathematics and computing, agricultural sciences and engineering whereas we see a significant prevalence of females over males in the subjects of medicine-related and education. The unconditional data reveals that males are twice as likely compared to females to be in a managerial occupation although equal proportions are seen in professional occupations. A higher proportion of females than males are seen in administrative occupations and males are more likely to report being in self-employment.

III.II Methods

We begin our analysis by estimating a standard multinomial logit model of the probability of being found in a category of employment or unemployment:

$$E_{ij} = \alpha_{ij} + \beta_1 \mathbf{X}_{ij} + \beta_2 educ_{ij} + \beta_3 subject_{ij} + \beta_4 lnu_{ij} + \beta_5 year_i + \varepsilon_{ij} \quad (1)$$

where i is the subject and j the employment choice. Our employment status includes 5 different categories: managerial or professional employment; skilled non-manual employment; other employment; self-employment and finally unemployed. Explanatory variables include X_{ij} which is a vector of personal characteristics for each individual in each cohort; education which consists of dummy variables to capture the highest qualification level of each individual as detailed above; the main subject area

recorded for each individual[5]; the logged regional unemployment rate and finally year dummy variables.

For the analysis of wage outcomes, where individuals selected into paid employment, we estimate a Roy type model where an individual makes the choice of occupation in which to work based on their level of education, for example individuals working in professional careers are more likely to possess higher education qualifications. We shall assume that individuals have already made their decision about their career and occupation as information about career opportunities was available to them when making their decisions about the level of higher education in which to invest. The salary of a worker, i, is a function of both his individual characteristics and the job characteristics of the occupation he has entered, o, and given by:

$$y_{io} = \alpha_o + \beta_0 z_{io} + \beta_1 educ_{io} + u_{io} \tag{2}$$

where y_{io} is log earnings, α_o is an occupation specific constant, z_{io} is a vector of personal characteristics, $educ_{io}$ captures the highest qualification level of schooling attained and u_{io} is an error term.

We assume that individuals possess the information about their choice of occupation before completion of their studies so that they select their level of education within their subject which will maximise their chance of obtaining employment in that occupation. Individuals then choose their level of education in order to maximise their utility by selecting the education required to maximising their perceived chances of obtaining employment in their chosen occupation. However, there may be more than

[5] The subject of the highest qualification level is recorded. Where a dual subject was undertaken we take the primary recorded subject.

one occupation that some individuals could enter given their level of qualification and we can only observe their wage in their current occupation. The selection of occupation, Oc_{ij} takes values 1-4. There is a strong possibility of correlation between the error terms of each selection category which implies that a Heckman type model of selection would produce inconsistent and biased estimates. Therefore to overcome the selection problem we utilise the flexible semiparametric correction for polychotomous selection which controls for non-linearity in selection and proposed by Dahl (2003) which estimates the wage equation after a first stage selection using a multinomial logit model. We assume that each individual chooses which occupation will provide them with maximum utility.

By selecting this method we control for ability, as some occupations are more likely than others to require a higher degree for entry and individuals who are more able are most likely to choose to enter higher education and into postgraduate education.[6] The Labour Force Survey is not a panel and it does not contain information on family background, however we have mapped onto our data the male and female regional unemployment rates and the national unemployment rates when the individual is aged 18 to capture the labour market conditions they faced at that time. Additionally we include cohort year, education dummy variables, children and ethnicity. Therefore the selection equation into occupation *j* for individual *i* is estimated for each gender and contains the following explanatory variables:

$$Oc_{ij} = \alpha_i + \beta_0 u18_i + \beta_1 educ_i + \beta_2\, region_i + \beta_3\, ethnic_i + \beta_4\, children_i \qquad (3)$$

[6] Dearden *et al* (2002) point out that LFS data as well as panel data provides reasonable estimates of the true coefficients once ability bias is taken into account.

The Dahl (2003) method incorporates random draws which calculate the probability of being found in an occupation category, along with a polynomial to capture any non-linearity in the choice which are then inserted into the wage equation:

$$lnw_{ij} = \alpha_{ij} + \beta_0 \mathbf{X}_{ij} + \beta_1 W_{ij} + \beta_2 region_{ij} + \beta_3 m1 + \beta_4 m2 + \beta_5 year*masters_{ij} + \varepsilon_i \qquad (4)$$

where lnw^{7}_{ij} is the log of weekly wages for person i in occupation j; X_{ij} is a vector of personal characteristics for person i in occupation j, which includes age, married, education, subject area, year entered labour market; W_{ij} is a vector of workplace variables which include industry, size of firm, tenure and the yearly unemployment rate; m1 and m2 are the probability and its polynomial of being found in the occupation category from the first stage multinomial logit; year*masters is an interaction term and ε_i an error term, assumed normal.

The education dummy variables include RQF level 3 (the base), undergraduate, and 3 postgraduate qualification dummies, PhD, masters and professional qualification; and subject area of study. We classify 16 subject areas[8]; medicine, medicine-related, biological sciences, agricultural sciences, environmental sciences, mathematics and computing, engineering, technology, architecture, social sciences, law, business and finance, languages, humanities, education and the arts[9].

Additionally, we wondered if the wage return to a master's degree has been influenced over time by the increased number of good graduates and postgraduates who have entered the labour market, in which case wage returns may be depressed. On the other hand if the argument for skill based technical change holds then we may

[7] The wage variable is deflated to take account of inflation.
[8] 16 subject areas were the maximum consistent subjects we were able to produce over the surveys.
[9] Subject of study variables take positive values for some of our RQF level 3 reference group, especially where they have obtained vocation specific qualifications.

find the wage return to a master's increasing as employers seek to hire the better qualified graduates. In order to investigate whether returns to postgraduate degree type have changed over time we combine our years into 5 year periods and interact with each higher education qualification. Equation (3) is re-estimated without the Masters and subject interaction and with our higher education and time period interactions.

IV. RESULTS

We firstly discuss the results from the multinomial logit of labour market status, the marginal effects of which are reported in tables 3 and 4 for males and females, respectively. For both genders marriage is associated with the probability of being found in management or professional employment. The education dummy variables are well behaved as expected with all higher education holders most likely to be in a managerial or professional occupation compared to the base (individuals who hold an RQF level 3 equivalent qualification), with the marginal effects larger for females. All postgraduate qualifications have larger marginal effects compared to first degree holders. However, over the period we find a lower probability of being in a managerial or professional occupation compared to the base year which we believe reflects tightness in this section of the labour market over time. The year dummy variables show that workers of both genders are more likely to be in skilled non-manual occupations and most in other employment (including skilled and unskilled manual occupations) over the period. Interestingly the marginal effects show that females who possess a first degree only or a Masters qualification have a lower probability of being found in self-employment compared to the base group, however holding these qualifications have a positive effect for males and are significant, possibly suggesting that these males are more entrepreneurial than their female

counterparts. The subject dummy variables reveal a similar pattern for the genders in the managerial and professional category with large positive effects for education, engineering and mathematics and computing in that order. Interestingly we find males with a medical qualification most likely to be in self-employment yet this has a negative marginal effect for females. For both genders, those with qualifications in social sciences, business, languages and humanities are more likely to be found in skilled non-manual employment.

V.I The wage-return to higher education levels

The Dahl (2003) model provides estimates of the wage model accounting for selection into occupation. The probability term and its square are both highly significant in each of our estimations for the genders, which is an indication that our choice of a non-linear model for the selection into occupation is correct[10]. The wage returns to each higher education level after selection into occupation are shown in tables 5 and 6 for males and females, respectively. Our educational base category consists of individuals who hold an RQF level 3 or equivalent as their highest qualification and took an arts course and in an 'other' occupation[11]. The top 4 occupation categories are reported as this is where our workers who possess higher education are most likely to be found. The return to each level of higher education for females in the managerial and professional categories is always higher than that for males which is consistent with the existing literature. The largest marginal returns to educational qualifications for all occupation categories are from holding a PhD and are considerable and statistically significant. For the managerial category the results

[10] We also estimated using selectivity models proposed by Lee (1983) which produced remarkably similar results.
[11] 'Other' occupation defined in methodology section as skilled and unskilled manual occupations.

imply a much higher premium to holding a PhD than holding at best a Masters for both genders. In the professional, assistant professional and administrative categories the marginal effects on PhD compared to Masters show even greater difference. We consider that this is because the supply of PhDs, who are highly qualified individuals, is small and that following Machin and Lindley (2013), their high ability allows them to perform tasks which are non-substitutable within the labour market. The marginal effects show that for both genders, the returns from holding a Masters degree are higher than those for a first degree and imply a highly significant premium to all Masters compared to holding a first degree only in all occupations. The return to 'other' vocational postgraduate courses are always higher than the return to a first degree for all occupations for females, however for males in an assistant technical or administrative occupation the marginal effects show that the reverse is true. Additionally, the returns to holding a Masters are usually higher than those to a vocational 'other' postgraduate qualification, except, we note that the return to an 'other' postgraduate qualification for males in a professional occupation is 2 percentage points higher than that for a Masters degree. Hence, females appear to benefit from a premium to holding any form of postgraduate qualification compared to a first degree, whereas for males holding a Masters or other postgraduate qualification does not always guarantee a premium greater than that of their first degree. We note that the marginal effects on the deflated year dummy variables for both genders show that wage returns have increased each year from the base year, which is consistent with the literature that the expansion of higher education in the UK did not reduce graduate wage returns (Devereux and Fan 2011). Thus it would appear that the question 'should I stay on for a Masters?' is yes if the graduate wishes to receive a wage premium over and above their first degree - although we

acknowledge here that our results do not take into account the additional costs associated with obtaining a postgraduate qualification.

As highlighted in the undergraduate literature, the subject studied has a large influence on wage returns with most of our estimates on subject by themselves being highly significant. Our base category is arts. For both genders, all medical postgraduate degrees produce large and significant positive returns for our first three categories, although this turns negative for administrative occupations, which makes sense if an individual is not in an occupation matched with their area of expertise. Subjects eliciting positive returns for females in management include medical-related fields, maths and computing, engineering, law and business. Similar results are found for males who also have a positive wage effect from social sciences. We note that the subject of education is significantly negative for both genders in managerial occupations. For both genders in all occupation categories business and finance produces a significantly positive return.

We now consider the results of our interactions of subject with holding a Masters degree. For males we see large wage benefits in the managerial category for certain subjects, such as medical, maths and computing, engineering, law, business and social sciences, for example, a Masters degree in social sciences would earn him a further 6 percentage point wage premium over a Masters in arts, therefore the wage gap is greater than males with a first degree only. However, these gains have disappeared when we examine the professional and assistant professional and technical occupations, and in fact, we now see a negative coefficient on social sciences and humanities. Therefore for males, whilst there is always a premium to holding a Masters degree, the interaction term indicates that the extra premium across subjects compared to a Masters in Arts appears only if they reach management level.

For females, the added premium of Masters with subject appears in the professional occupation where there is a further 6 percentage wage premium and also in the assistant professional and administrative occupations where a Masters in business and finance produces large premiums. However, a Masters in humanities has the effect of reducing the wage premium for females. Thus for females, apart from those subjects highlighted, it appears holding any Masters degree brings a wage premium. A result we believe that echoes Blackaby *et al* (1999) in their findings for undergraduates, that the choice of subject is more important for males than females.

Differences in the wage returns to postgraduate qualifications from 1993 to 2014

The estimation of interaction effects across both undergraduate and postgraduate degrees and year will show if there are any deviations from the average wage return estimated in our previous specification. The coefficients are reported in table 7. Our base period used for comparison is 1993-1998. Firstly we can see that for managerial and professional occupations there has been a steady increase in the wage return to all our qualifications of interest over time which supports the claim that the expansion of higher education is associated with increased wage returns (Devereux and Fan 2011). Females appear to have had larger wage growth with respect to first degree and Masters in the managerial occupation category and in all education types in the professional category. However, in the assistant professional occupations only holding a PhD in 2010-14 show a significant wage premium, whilst there are large premiums to holding either, a first degree, a Masters degree or other postgraduate qualification for males. Overall, both genders have seen an increase in wage returns over time.

V. CONCLUSIONS

The question asked by first degree holders of whether they will benefit from a wage premium over a first degree if they stay-on in higher education is clearly yes. Using the Quarterly Labour Force Survey from 1993-2014 and a Roy type methodology developed by Dahl(2003) we take the occupation in which the individual is found into account when estimating wage returns. There are wage returns to all forms of postgraduate education, including evidence of a slightly higher return to other non-Masters postgraduate qualifications for males in professional occupations. This latter point is interesting as it lends support to the idea of the provision of more vocational type postgraduate courses. The subject of study of a Masters degree affects the size of the wage premium for males but is not important for females, who benefit from holding a Masters in any subject. We find this an interesting result and suggest that the reason for this difference between the genders should be investigated further. The wage returns to all types of postgraduate degree have increased over the time period analysed which implies that not only are these highly skilled individuals but that the provision of postgraduate courses should be increased, thence increasing the number of postgraduate degree holders within the UK labour market.

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Table 1. The Proportion of graduates in employment by year.

	Males				Females			
Year	1st Degree only	PG not MA	Masters	PhD	1st Degree only	PG not MA	Masters	PhD
1993	8.99	0.60	1.64	0.96	6.49	0.34	0.73	0.22
1994	9.28	0.56	1.74	0.94	6.74	0.41	0.77	0.24
1995	9.86	0.55	1.90	0.93	7.18	0.50	0.84	0.22
1996	11.39	1.21	1.95	0.94	7.70	1.26	1.02	0.25
1997	11.25	1.12	2.16	0.96	8.09	1.36	1.13	0.24
1998	11.62	1.11	2.32	1.09	8.36	1.54	1.28	0.34
1999	11.90	1.27	2.58	1.12	8.89	1.58	1.47	0.35
2000	12.31	1.24	2.66	1.12	9.51	1.66	1.46	0.40
2001	12.54	1.36	2.73	0.98	9.99	1.74	1.59	0.37
2002	12.12	1.37	2.95	1.04	9.94	1.87	1.76	0.38
2003	12.51	1.63	3.08	1.09	10.35	2.15	1.96	0.41
2004	13.05	1.75	3.23	1.22	11.06	2.45	2.13	0.50
2005	12.82	1.91	3.65	1.31	10.73	2.56	2.41	0.55
2006	13.05	1.90	3.84	1.30	12.45	2.78	2.72	0.57
2007	15.36	1.96	3.97	1.35	15.73	2.98	2.88	0.63
2008	14.45	1.99	4.35	1.41	15.58	3.11	3.16	0.62
2009	15.39	2.18	4.58	1.64	16.05	3.28	3.46	0.66
2010	16.97	2.30	4.63	1.63	17.67	3.59	3.65	0.78
2011	18.34	2.25	4.76	1.49	18.53	3.69	3.60	0.72
2012	19.74	2.31	4.91	1.54	19.79	3.90	3.97	0.79
2013	20.22	2.49	4.99	1.47	20.68	4.11	4.11	0.85
2014	20.94	2.48	4.96	1.53	21.33	4.03	4.31	0.85

Proportion of total employed aged 18 to 65(includes individuals with RQF3 and below).
Source: Quarterly Labour Force Survey

Table 2. Descriptive statistics: Individuals with RQF level 3 or above.

	Male			Female		
Variable	mean	std dev	N	mean	std dev	N
Ln deflated weekly wage	5.888	0.660	216604	5.459	0.755	222370
age	40.301	11.897	386907	38.499	11.448	366412
PhD	0.030	0.170	386907	0.014	0.117	366412
PG not masters	0.040	0.195	386907	0.063	0.243	366412
Masters	0.082	0.275	386907	0.064	0.244	366412
First degree	0.354	0.478	386907	0.338	0.473	366412
RQF3	0.494	0.499	386907	0.522	0.500	366412
Medicine	0.041	0.132	386907	0.042	0.143	366412
Medicine related	0.042	0.142	386907	0.189	0.321	366412
Biological sciences	0.044	0.148	386907	0.066	0.165	366412
Agricultural sciences	0.016	0.064	386907	0.006	0.055	366412
Environmental sciences	0.076	0.191	386907	0.054	0.130	366412
Maths and computer sciences	0.076	0.190	386907	0.032	0.126	366412
Engineering	0.126	0.243	386907	0.038	0.065	366412
Technology	0.018	0.082	386907	0.003	0.053	366412
Architecture	0.039	0.136	386907	0.030	0.067	366412
Social sciences	0.094	0.204	386907	0.086	0.227	366412
Law	0.054	0.163	386907	0.038	0.138	366412
Business and Finance	0.088	0.206	386907	0.062	0.176	366412
Languages	0.028	0.118	386907	0.025	0.157	366412
Humanities	0.030	0.122	386907	0.034	0.127	366412
Arts	0.194	0.145	386907	0.197	0.188	366412
Education	0.034	0.128	386907	0.098	0.216	366412
Managerial occupation	0.200	0.400	386907	0.104	0.305	366412
Professional	0.239	0.426	386907	0.247	0.431	366412
Associate professional	0.141	0.348	386907	0.199	0.399	366412
Administrative	0.051	0.221	386907	0.152	0.359	366412
Other occupation	0.186	0.389	386907	0.196	0.397	366412
Self employed	0.149	0.356	386907	0.081	0.272	366412
Unemployed	0.034	0.180	386907	0.022	0.146	366412
Ln unemployment rate	1.522	0.465	386907	1.518	0.459	366412
Year 1993	0.040	0.197	386907	0.037	0.188	366412
Year 1994	0.041	0.198	386907	0.038	0.190	366412
Year 1995	0.042	0.200	386907	0.038	0.192	366412
Year 1996	0.046	0.210	386907	0.043	0.202	366412
Year 1997	0.046	0.210	386907	0.043	0.204	366412
Year 1998	0.046	0.210	386907	0.044	0.205	366412
Year 1999	0.045	0.208	386907	0.044	0.205	366412
Year 2000	0.045	0.207	386907	0.044	0.205	366412
Year 2001	0.044	0.205	386907	0.044	0.204	366412
Year 2002	0.043	0.203	386907	0.043	0.203	366412
Year 2003	0.043	0.202	386907	0.043	0.202	366412
Year 2004	0.041	0.198	386907	0.042	0.201	366412
Year 2005	0.037	0.189	386907	0.040	0.195	366412
Year 2006	0.041	0.198	386907	0.044	0.205	366412
Year 2007	0.049	0.215	386907	0.051	0.221	366412
Year 2008	0.040	0.196	386907	0.045	0.207	366412
Year 2009	0.040	0.195	386907	0.044	0.206	366412
Year 2010	0.040	0.195	386907	0.044	0.206	366412
Year 2011	0.058	0.234	386907	0.055	0.227	366412
Year 2012	0.058	0.234	386907	0.058	0.233	366412
Year 2013	0.058	0.233	386907	0.057	0.232	366412
Year 2014	0.058	0.234	386907	0.059	0.235	366412

Table 3. Multinomial logit labour market status – marginal effects: Males

N=386907	Manager /Professional employment		Skilled non-manual employment		Other employment		Self-employment		Unemployed	
	M.E	Std err	M.E	Std err	M.E	Std err	M.E	Std err	M.E	Std err
Age	0.003***	0.000	-0.003***	0.000	-0.004***	0.000	0.004***	0.000	-0.000***	0.000
Married	0.122***	0.003	-0.028***	0.002	-0.053***	0.002	-0.006***	0.002	-0.036***	0.001
Separated/divorced/widowed	0.059***	0.004	-0.041***	0.003	-0.020***	0.002	0.006***	0.002	-0.005***	0.001
PhD	0.409***	0.003	-0.166***	0.002	-0.155***	0.001	-0.071***	0.002	-0.018***	0.001
PG not masters	0.330***	0.003	-0.131***	0.002	-0.142***	0.001	-0.040***	0.002	-0.018***	0.001
Masters	0.303***	0.003	-0.101***	0.002	-0.150***	0.001	-0.037***	0.002	-0.014***	0.001
First degree only	0.215***	0.003	-0.050***	0.002	-0.157***	0.002	-0.003**	0.002	-0.011***	0.001
Year 1994	-0.007	0.006	-0.002	0.005	0.008*	0.004	0.001	0.004	0.001	0.001
Year 1999	-0.098***	0.006	0.022***	0.006	0.109***	0.007	-0.016***	0.004	-0.016***	0.001
Year 2004	-0.120***	0.007	0.056***	0.007	0.100***	0.008	-0.023***	0.004	-0.013***	0.001
Year 2009	-0.109***	0.006	0.054***	0.006	0.076***	0.006	-0.021***	0.004	-0.001	0.002
Year 2012	-0.198***	0.005	0.025***	0.005	0.185***	0.006	-0.007*	0.004	-0.005***	0.001
Year 2013	-0.211***	0.005	0.021***	0.005	0.205***	0.007	-0.011***	0.004	-0.004***	0.001
Year 2014	-0.230***	0.005	0.025***	0.006	0.225***	0.007	-0.013***	0.004	-0.008***	0.001
Ln unemployment rate	-0.063***	0.003	0.013***	0.002	0.043***	0.002	-0.004*	0.002	0.011***	0.001
Medical	0.066***	0.007	-0.120***	0.005	-0.124***	0.003	0.199***	0.006	-0.022***	0.001
Medical related	-0.107***	0.006	0.204***	0.006	-0.081***	0.003	-0.006*	0.004	-0.013***	0.001
Biological Sciences	0.002	0.006	0.039***	0.006	-0.003	0.005	-0.036***	0.003	-0.003	0.002
Agricultural Sciences	-0.044***	0.012	-0.037***	0.011	0.022**	0.011	0.064***	0.010	-0.005	0.004
Environmental Sciences	0.053***	0.005	0.028***	0.005	-0.025***	0.004	-0.056***	0.002	0.001	0.002
Mathematics and Computing	0.092***	0.005	0.024***	0.004	-0.063***	0.003	-0.049***	0.003	-0.003**	0.001
Engineering	0.129***	0.004	-0.065***	0.003	-0.017***	0.003	-0.043***	0.002	-0.003***	0.001
Technology	0.060***	0.011	-0.012	0.009	-0.007	0.009	-0.038***	0.006	-0.003	0.003
Architecture	0.071***	0.006	-0.014***	0.005	-0.097***	0.004	0.048***	0.005	-0.008***	0.002
Social Sciences	-0.008*	0.005	0.054***	0.004	-0.036***	0.003	-0.009***	0.003	-0.001	0.001
Law	0.023***	0.006	-0.026***	0.005	-0.051***	0.004	0.062***	0.004	-0.008***	0.002
Business and Finance	0.061***	0.005	0.034***	0.004	-0.067***	0.003	-0.021***	0.003	-0.007***	0.000
Languages	-0.020***	0.007	0.044***	0.007	-0.013**	0.006	-0.012***	0.005	0.001	0.002
Humanities	-0.056***	0.007	0.032***	0.006	-0.003	0.006	0.022***	0.005	0.005**	0.002
Education	0.222***	0.008	-0.069***	0.006	-0.060***	0.006	-0.088***	0.003	-0.005**	0.002
Log Likelihood = -477025.8	Prob > chi2 = 0.0000		Pseudo R2 = 0.1038							

Base group consists of single individuals who have an A level or RQF level 3 as their highest qualification, reported studying arts, of white ethnicity, and reported in the survey of 1993. Not all years are reported here and the ethnicity dummies are not presented for brevity. Results are available from author on request. ***;** and * denote significance at the 1%, 5% and 10% levels, respectively.

Table 4. Multinomial logit labour market status – marginal effects: Females

N=366412	Manager /Professional employment		Skilled non-manual employment		Other employment		Self-employment		Unemployed	
	M.E	Std err	M.E	Std err	M.E	Std err	M.E	Std err	M.E	Std err
Age	0.007***	0.000	-0.002***	0.000	-0.005***	0.000	0.001***	0.000	-0.001***	0.000
Married	0.057***	0.002	-0.012***	0.002	-0.047***	0.002	-0.007***	0.001	-0.014***	0.001
Separated/divorced/widowed	0.015***	0.003	-0.001	0.003	-0.011***	0.002	0.002*	0.001	-0.001	0.001
PhD	0.536***	0.004	-0.343***	0.003	-0.180***	0.001	-0.004*	0.002	-0.008***	0.001
PG not masters	0.503***	0.003	-0.309***	0.002	-0.181***	0.001	-0.004***	0.001	-0.010***	0.001
Masters	0.439***	0.003	-0.263***	0.002	-0.179***	0.001	0.010***	0.002	-0.007***	0.001
First degree only	0.332***	0.002	-0.170***	0.002	-0.171***	0.002	0.014***	0.001	-0.005***	0.000
Year 1994	-0.001	0.006	-0.003	0.006	0.006	0.006	-0.001	0.002	-0.002**	0.001
Year 1999	-0.064***	0.006	0.034***	0.007	0.058***	0.007	-0.015***	0.002	-0.012***	0.001
Year 2004	-0.123***	0.006	0.080***	0.008	0.070***	0.008	-0.017***	0.002	-0.010***	0.001
Year 2009	-0.151***	0.005	0.046***	0.007	0.124***	0.007	-0.015***	0.002	-0.005***	0.001
Year 2012	-0.175***	0.004	-0.042***	0.006	0.234***	0.007	-0.013***	0.002	-0.004***	0.001
Year 2013	-0.170***	0.005	0.034***	0.006	0.222***	0.008	-0.015***	0.002	-0.004***	0.001
Year 2014	-0.169***	0.005	0.043***	0.007	0.231***	0.008	-0.013***	0.002	-0.005***	0.001
Ln unemployment rate	-0.003	0.003	0.011***	0.003	-0.006**	0.003	-0.006***	0.001	0.003***	0.001
Medical	0.038***	0.006	0.033***	0.007	-0.111***	0.004	-0.049***	0.003	-0.009***	0.001
Medical related	-0.178***	0.002	0.285***	0.003	-0.075***	0.002	-0.019***	0.001	-0.013***	0.000
Biological Sciences	-0.030***	0.005	0.059***	0.006	-0.009*	0.005	0.009	0.006	-0.004***	0.001
Agricultural Sciences	-0.042***	0.014	0.002	0.017	0.032**	0.014	-0.020***	0.002	-0.000	0.004
Environmental Sciences	0.013**	0.006	0.048***	0.007	-0.017***	0.006	-0.056***	0.002	0.001	0.002
Mathematics and Computing	0.061***	0.007	0.030***	0.008	-0.068***	0.006	-0.019***	0.002	-0.004***	0.001
Engineering	0.110***	0.014	-0.042***	0.015	-0.057***	0.011	-0.011***	0.004	-0.001	0.003
Technology	-0.052***	0.014	0.052***	0.017	-0.017	0.014	0.015**	0.006	-0.003	0.004
Architecture	0.013	0.012	0.021	0.014	-0.055***	0.010	0.017***	0.005	-0.004	0.003
Social Sciences	-0.053***	0.004	0.083***	0.005	-0.016***	0.004	-0.012***	0.001	-0.002**	0.001
Law	0.010*	0.006	-0.036***	0.007	-0.062***	0.005	0.016***	0.003	-0.001	0.001
Business and Finance	-0.035***	0.005	0.121***	0.005	-0.070***	0.004	-0.013***	0.001	-0.003***	0.001
Languages	-0.076***	0.008	0.056***	0.006	-0.006	0.005	-0.012***	0.002	0.001	0.001
Humanities	-0.084***	0.006	0.059***	0.008	-0.016**	0.007	0.008***	0.003	0.000	0.002
Education	0.253***	0.005	-0.195***	0.005	-0.029***	0.004	-0.024***	0.001	-0.005***	0.001
Log Likelihood = -408067.87	Prob > chi2 = 0.0000		Pseudo R2 = 0.1271							

Base group consists of single individuals who have an A level or RQF level 3 as their highest qualification, reported studying arts, of white ethnicity, and reported in the survey of 1993. Not all years are reported here and the ethnicity dummies are not presented for brevity. Results are available from author on request.
***;** and * denote significance at the 1%, 5% and 10% levels, respectively.

Table 5: Wage Returns to HE; Masters and subject with selection into occupation; Males.

	Managerial		Professional		Assistant Prof/Technical		Administrative	
	Coef	Std err	Coef	Std err	Coef	Std err	Coef	Std err
Married	0.110***	0.007	0.095***	0.005	0.120***	0.007	0.127***	0.010
Children	0.094***	0.005	0.081***	0.004	0.072***	0.006	0.058***	0.013
Work Tenure	0.005***	0.000	0.008***	0.000	0.009***	0.000	0.019***	0.001
PhD	0.366***	0.018	0.405***	0.011	0.292***	0.022	0.205***	0.073
Master's degree	0.266***	0.016	0.233***	0.013	0.215***	0.022	0.067***	0.035
PG not Masters	0.183***	0.016	0.255***	0.009	0.089***	0.016	0.081**	0.040
First degree only	0.152***	0.009	0.164***	0.008	0.092***	0.007	0.119***	0.019
Medical	0.135***	0.039	0.412***	0.011	0.041*	0.024	-0.017	0.133
Medical related	-0.034	0.023	0.085***	0.014	-0.031***	0.011	0.017	0.058
Biological Sciences	0.001	0.018	-0.014	0.010	-0.042***	0.014	0.002	0.048
Agricultural Sciences	-0.085***	0.031	-0.062	0.041	0.011	0.032	0.046	0.101
Environmental Sciences	0.024**	0.011	-0.024***	0.009	0.033***	0.013	-0.041	0.037
Maths & Computing	0.105***	0.017	0.055***	0.009	0.074***	0.015	0.002	0.036
Engineering	0.046***	0.011	0.038***	0.007	0.139***	0.013	0.044	0.036
Technology	-0.013	0.028	-0.024	0.018	-0.056	0.036	-0.164***	0.066
Architecture	0.022	0.015	-0.009	0.013	0.011	0.017	0.111**	0.053
Social Sciences	0.060***	0.012	0.028***	0.010	0.060***	0.011	0.043*	0.023
Law	0.102***	0.014	0.146***	0.014	0.103***	0.020	0.070***	0.031
Business Finance	0.107***	0.010	0.062***	0.012	0.128***	0.015	0.084***	0.024
Languages	0.011	0.026	-0.099***	0.015	0.000	0.020	-0.017	0.040
Humanities	-0.049**	0.025	-0.165***	0.017	-0.027	0.023	-0.031	0.038
Education	-0.122***	0.034	-0.010	0.010	-0.142***	0.042	-0.174*	0.093
Year 1994	0.008	0.020	0.027	0.017	-0.003	0.025	0.051	0.042
Year 1999	0.304***	0.017	0.293***	0.015	0.286***	0.027	0.227***	0.034
Year 2004	0.582***	0.019	0.543***	0.015	0.514***	0.023	0.511***	0.042
Year 2009	0.869***	0.018	0.828***	0.017	0.770***	0.022	0.727***	0.037
Year 2012	1.008***	0.019	0.996***	0.017	0.988***	0.022	0.891***	0.036
Year 2013	1.057***	0.024	1.046***	0.016	1.038***	0.021	0.981***	0.039
Year 2014	1.104***	0.019	1.093***	0.016	1.056***	0.021	1.016***	0.033
Labour Market Entrance								
1945-54	-0.265***	0.048	-0.387***	0.046	-0.277***	0.056	-0.357***	0.091
1955-64	-0.021**	0.010	-0.117***	0.012	-0.082***	0.017	-0.223***	0.028
1975-84	0.011**	0.006	0.043***	0.006	0.096***	0.010	0.148***	0.017
1985-94	-0.072***	0.006	0.008	0.007	0.049***	0.011	0.119***	0.017
1995-2004	-0.256***	0.011	-0.095***	0.009	-0.070***	0.011	0.051***	0.018
2005-2014	-0.565***	0.023	-0.313***	0.014	-0.300***	0.017	-0.089***	0.024
Interactions Masters with subject								
Medical	0.138***	0.051	-0.069**	0.029	-0.247**	0.122	0.739**	0.364
Medical related	-0.017	0.020	-0.012	0.036	-0.052	0.044	-0.269	0.303
Biological Sciences	0.003	0.021	-0.035	0.031	-0.089**	0.046	0.021	0.185
Agricultural Sciences	-0.062*	0.036	-0.051	0.065	0.017	0.107	0.368*	0.204
Environmental Sciences	0.024**	0.012	-0.028	0.022	-0.076*	0.046	0.166	0.117
Maths and Computing	0.099***	0.017	-0.006	0.018	-0.019	0.041	-0.014	0.117
Engineering	0.037***	0.010	-0.029	0.020	-0.061	0.041	0.089	0.149
Technology	-0.013	0.029	-0.040	0.043	0.046	0.079	0.351	0.263
Architecture	0.010	0.017	-0.050*	0.027	-0.010	0.056	0.208	0.254
Social Sciences	0.059***	0.013	-0.046**	0.022	-0.134***	0.045	0.019	0.102
Law	0.104***	0.014	0.045	0.037	-0.041	0.045	0.194**	0.085
Business Finance	0.108***	0.011	0.043	0.028	0.005	0.034	-0.005	0.096
Languages	0.014	0.022	-0.062	0.047	0.009	0.081	-0.123	0.139
Humanities	-0.043	0.031	-0.090***	0.035	-0.137***	0.065	-0.153	0.126
Education	-0.104**	0.045	0.091***	0.028	-0.138	0.165	-0.002	0.337
m1	2.811***	0.165	0.046***	0.006	2.563***	0.300	-1.133***	0.440
m2	-4.067***	0.298	-0.297***	0.032	-5.952***	0.740	6.286***	1.943
Constant	4.801***	0.028	5.189***	0.015	4.751***	0.033	4.641***	0.034

Not all years are reported here for brevity. Also included in the modelling but not reported here is region, industry and firm size. ***;** and * denote significance at the 1%, 5% and 10% levels, respectively.

Table 6: Wage Return to HE; Masters and subject with selection into occupation; Females.

	Managerial		Professional		Assistant Prof/Technical		Administrative	
	Coef	Std err	Coef	Std err	Coef	Std err	Coef	Std err
Married	-0.010	0.007	-0.029***	0.005	-0.064***	0.005	-0.096***	0.006
Children	-0.127***	0.006	-0.157***	0.004	-0.205***	0.005	-0.253***	0.006
Work Tenure	0.011***	0.001	0.015***	0.000	0.013***	0.000	0.013***	0.001
PhD	0.498***	0.028	0.492***	0.017	0.339***	0.036	0.275***	0.099
Master's degree	0.377***	0.025	0.318***	0.014	0.151***	0.017	0.225***	0.043
PG not Masters	0.257***	0.019	0.286***	0.012	0.113***	0.013	0.215***	0.031
First degree only	0.195***	0.013	0.204***	0.008	0.106***	0.007	0.153***	0.012
Medical	0.113**	0.047	0.309***	0.014	0.105***	0.010	-0.186***	0.050
Medical related	0.081***	0.015	0.085***	0.009	0.124***	0.007	-0.163***	0.022
Biological Sciences	-0.017	0.026	-0.008	0.011	0.000	0.012	-0.029	0.027
Agricultural Sciences	-0.162**	0.075	-0.001	0.037	0.088**	0.043	-0.133	0.088
Environment Sciences	0.030	0.023	0.006	0.015	0.016	0.018	-0.085**	0.035
Maths & Computing	0.147***	0.026	0.064***	0.014	0.164***	0.024	0.019	0.035
Engineering	0.247***	0.040	0.057**	0.026	0.093*	0.057	-0.036	0.088
Technology	-0.188***	0.061	-0.007	0.037	-0.026	0.049	-0.106*	0.066
Architecture	0.013	0.050	-0.040*	0.024	0.003	0.035	-0.102	0.074
Social Sciences	0.014	0.014	-0.000	0.010	0.007	0.011	-0.001	0.014
Law	0.098***	0.015	0.175***	0.017	0.048**	0.022	0.030	0.029
Business Finance	0.100***	0.016	0.063***	0.013	0.122***	0.014	0.097***	0.015
Languages	-0.043*	0.025	-0.028**	0.013	0.021	0.020	-0.058**	0.025
Humanities	-0.035	0.035	-0.078***	0.018	-0.020	0.027	-0.051***	0.020
Education	-0.179***	0.040	0.030***	0.006	-0.013***	0.022	-0.214***	0.037
Year 1994	0.050	0.032	0.059***	0.022	0.031*	0.017	0.020	0.024
Year 1999	0.356***	0.026	0.269***	0.020	0.250***	0.015	0.245***	0.025
Year 2004	0.683***	0.026	0.496**	0.018	0.517***	0.014	0.515***	0.022
Year 2009	0.928***	0.027	0.712***	0.020	0.777***	0.015	0.766***	0.024
Year 2012	1.085***	0.030	0.859***	0.018	0.919***	0.016	0.947***	0.018
Year 2013	1.157***	0.034	0.905***	0.020	0.980***	0.019	0.987***	0.020
Year 2014	1.181***	0.030	0.935**	0.019	1.021***	0.017	1.038***	0.018
Labour Market Entrance								
1945-54	-0.669***	0.108	-0.631***	0.060	-0.383***	0.047	-0.430***	0.074
1955-64	-0.161***	0.025	-0.221***	0.014	-0.181***	0.012	-0.197***	0.023
1975-84	0.117***	0.013	0.045***	0.008	0.093***	0.007	0.140***	0.010
1985-94	0.062***	0.012	0.072***	0.009	0.117***	0.007	0.174***	0.011
1995-2004	-0.111***	0.015	0.038***	0.010	0.051***	0.010	0.111***	0.011
2005-2014	-0.392***	0.028	-0.068***	0.015	-0.175***	0.014	0.011	0.018
Interactions Masters with subject								
Medical	-0.014	0.087	-0.023	0.033	0.081	0.056	0.107	0.148
Medical related	-0.071*	0.044	0.057**	0.025	-0.028	0.029	0.264***	0.104
Biological Sciences	-0.101	0.076	-0.035	0.023	0.009	0.042	0.014	0.088
Agricultural Sciences	-0.150	0.181	-0.166	0.127	-0.030	0.120	-0.228	0.191
Environment Sciences	-0.169**	0.077	-0.007	0.035	0.048	0.049	0.020	0.105
Maths and Computing	-0.062	0.075	-0.016	0.039	0.080	0.074	-0.125	0.125
Engineering	-0.248**	0.124	-0.005	0.041	0.121	0.082	-0.315	0.268
Technology	0.248*	0.130	-0.058	0.063	0.192	0.138	-0.015	0.072
Architecture	0.007	0.079	-0.085**	0.038	0.217***	0.069	-0.020	0.030
Social Sciences	-0.082***	0.030	-0.033	0.021	0.018	0.031	0.096	0.092
Law	-0.073	0.049	0.036	0.039	0.126**	0.054	0.130	0.098
Business Finance	0.010	0.036	0.023	0.033	0.135***	0.040	0.149**	0.072
Languages	-0.167**	0.076	-0.057	0.039	-0.094	0.060	0.029	0.077
Humanities	-0.156*	0.085	-0.186***	0.052	-0.155**	0.076	0.037	0.076
Education	0.025	0.112	0.061***	0.022	-0.023	0.083	0.229	0.145
m1	1.714***	0.181	0.083***	0.026	2.499***	0.113	1.971***	0.112
m2	-3.161***	0.549	-0.126***	0.039	-4.729***	0.200	-2.390***	0.174
Constant	4.711***	0.032	5.045***	0.019	4.646***	0.019	4.237***	0.025

Not all years are reported here for brevity. Also included in the modelling but not reported here is region, industry and firm size. ***;** and * denote significance at the 1%, 5% and 10% levels, respectively.

Table 7. Returns to higher education level over time: males and females.

	Managerial		Professional		Assistant Prof/Technical		Administrative	
	Coef	Std err	Coef	Std err	Coef	Std err	Coef	Std err
MALES								
First degree only	0.127***	0.012	0.133***	0.012	0.056***	0.015	0.059***	0.022
Masters	0.209***	0.019	0.225***	0.017	0.121***	0.027	0.047	0.090
PG not Masters	0.111***	0.039	0.210***	0.016	0.003	0.031	-0.065	0.113
PhD	0.340***	0.036	0.348***	0.021	0.261***	0.039	0.646***	0.158
First degree 1999-2004	0.139	0.123	0.033**	0.013	0.033**	0.016	0.021	0.026
First degree 2005-2009	0.023*	0.013	0.034**	0.014	0.040**	0.019	0.075***	0.029
First degree 2010-2014	0.094***	0.016	0.067***	0.013	0.065***	0.017	0.100***	0.030
Masters 1999-2004	0.009	0.020	0.006	0.017	0.037	0.034	-0.081	0.114
Masters 2005-2009	0.037**	0.016	0.027**	0.013	0.090***	0.037	0.078	0.114
Masters 2010-2014	0.110***	0.025	0.032***	0.006	0.064**	0.031	0.114	0.116
PG not Masters1999-04	0.071	0.045	0.066***	0.020	0.121***	0.042	0.144	0.145
PG not Masters 2005-09	0.075*	0.043	0.060***	0.021	0.104**	0.046	0.206*	0.114
PG not Masters 2010-14	0.152***	0.056	0.043**	0.021	0.104**	0.049	0.120	0.144
PhD 1999-2004	0.004	0.043	0.059***	0.023	0.044	0.050	-0.628**	0.291
PhD 2005-2009	0.057	0.046	0.073***	0.028	0.012	0.068	-0.520***	0.201
PhD 2010-2014	0.065**	0.064	0.112***	0.026	0.075	0.065	-0.413**	0.192
FEMALES								
First degree only	0.124***	0.016	0.133***	0.013	0.055***	0.013	0.096***	0.018
Masters	0.250***	0.029	0.227***	0.022	0.163***	0.034	0.042	0.109
PG not Masters	0.157***	0.046	0.190***	0.021	0.091**	0.041	0.102*	0.058
PhD	0.370***	0.086	0.384***	0.035	0.248***	0.076	0.089	0.169
First degree 1999-2004	0.059***	0.018	0.065***	0.015	0.012	0.014	0.022	0.019
First degree 2005-2009	0.100***	0.021	0.098***	0.021	0.076***	0.014	0.068***	0.019
First degree 2010-2014	0.147***	0.020	0.164***	0.018	0.097***	0.017	0.090***	0.016
Masters 1999-2004	0.033	0.032	0.055**	0.029	0.022	0.042	0.168	0.123
Masters 2005-2009	0.125***	0.039	0.130***	0.028	0.002	0.038	0.292***	0.103
Masters 2010-2014	0.152***	0.037	0.181***	0.025	0.060	0.039	0.262**	0.115
PG not Masters1999-04	0.055	0.052	0.058**	0.025	0.004	0.050	0.102	0.066
PG not Masters 2005-09	0.184***	0.045	0.129***	0.026	0.026	0.046	0.127	0.085
PG not Masters 2010-14	0.139***	0.059	0.200***	0.021	0.058	0.048	0.123*	0.073
PhD 1999-2004	0.170*	0.100	0.037	0.043	0.014	0.112	-0.089	0.196
PhD 2005-2009	0.168*	0.101	0.154***	0.041	0.054	0.085	0.292	0.197
PhD 2010-2014	0.146	0.091	0.247***	0.038	0.259***	0.090	0.409*	0.235