

# Higher Education and Occupational Returns: do returns vary according to students' social origins?

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## Executive Summary

A wide evidence base has charted the social class gradient in the background of students going on to participate in UK higher education, and has shown that having a degree elicits substantial economic returns in terms of both occupational level and earnings. Recent evidence has also shown the wide variation in the social backgrounds of students enrolling on specific courses and that differential returns are attached to studying specific subjects at specific universities.

But how do these returns vary according to students' social background? A report by The Sutton Trust took into account both subject area and institution and encouragingly found that having a university degree tended to act as a 'social leveller' and that graduates from different social backgrounds tended to do equally well in the first few years following graduation (de Vries, 2014).

Here we use data from the longitudinal 1970 British Cohort Study (BCS70) to learn more about how this picture evolves in the longer-term. Although this cohort experienced university under a different set of circumstances from those facing today's students, we can usefully study the lasting influences of social origins and participation in higher education. The effects are increasingly important to understand given the ever-greater numbers that have been participating in higher education since the 1960s and the substantial debts now accrued by graduates. In 2013-14 the participation rate among 17 to 30 year olds stood at 46.6%<sup>1</sup>, and in 2015 UK graduates can expect to have debts in excess of £30,000 (The UK Graduate Careers Survey, 2015).

As BCS70 cohort members have now entered their forties, a time when career trajectories will have become well established for most, we are able to look at the role social origins and degree status has on occupation and earnings some twenty years after graduation. In turn, this has improved our understanding of higher education's influence on social mobility, in particular *upward* social mobility, and thereby its role in increasing the long-term life chances and opportunities of those from more disadvantaged backgrounds. We carried out this research for men and women separately and answered the following questions:

Compared to students from working class origins,

- Do students from middle class backgrounds hold higher status occupations and gain a higher economic return at age 42 from their degree?
- Do students from middle class backgrounds hold higher status occupations and gain a higher economic return at age 42 from their degree, after controlling for the type of university attended?
- Do students from middle class backgrounds hold higher status occupations and gain a higher economic return at age 42 from their degree, after controlling for university status *and* subject area?
- How much does this relationship vary by gender?

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<sup>1</sup> For current participation rates see: <https://www.gov.uk/government/statistics/participation-rates-in-higher-education-2006-to-2014>

## Key findings

- Gaining a degree has a positive long-term impact (20-years on from graduation) on access to high status occupations and higher earnings. This was evident for both men and women, from whatever their social origins. To that extent a university education does 'level the playing field' for students from working class backgrounds. Nevertheless, students from middle class origins were more likely to attend university, particularly those regarded as having a high status, and to choose to study economically rewarding subjects such as STEM and/or LEM<sup>2</sup>.
- Graduates who attended highly selective universities compared to less selective universities typically had higher earnings and were more likely to enter high status occupations. These returns were particularly associated with studying STEM and LEM subjects in select universities. This finding broadly supports recent research by de Vries (2014) who concluded that the occupation and earnings of recent graduates varied widely by both the university attended and degree subject studied.

## Gender differences

Important gender differences emerged from our analysis.

- For men, we found some support for the notion that those least likely to attend university - men from working class origins – benefit the most, in terms of accessing high status occupations, but the earnings premium attached to a degree was consistently higher for men from middle class origins and most notably for those who had studied their degree at a highly selective university.
- For women, by contrast, graduates' social origins did not influence the chance of having a high status occupation or their earnings power. Once other characteristics had been taken into account, their degree was equally as beneficial for women whatever their social origins and we conclude that women's trajectories appear more meritocratic than they do for men – particularly so when looking at pay.

## Policy implications

- Policies aimed at widening access to university among more disadvantaged groups are important. A more detailed understanding of what exactly are the barriers to entry to select universities and take up of certain subjects by social origin is likely to inform policy makers as to how to improve access for all of those qualified to enter.

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<sup>2</sup>Following Walker and Zhu (2011), we grouped degree subjects into: STEM (Science, Technology, Engineering and Mathematics), LEM (Law, Economics and Management) and OSSAH (other social sciences, arts and humanities, including languages).

## Introduction

In 1980 Halsey, Heath and Ridge presented their seminal work, *Origins and destinations*, which examined socio-economic inequalities in educational outcomes for a sample of men living in England and Wales in 1972. In doing so they took on one of the fundamental questions in the sociology of education: to what extent and why do social origins matter in the educational system? Most recently, Sullivan et al (2014) have revisited this work and asked the same essential question using data on men and women born in 1970 (the 1970 British Cohort Study). They found that although an individual's cognitive and academic attainment through childhood and adolescence was very important for accessing higher education, advantaged social origins and attendance at a private secondary school raised the chances of getting a degree and especially a degree from an elite, highly selective university. Given the domination of Britain's ruling class by graduates of elite universities, these non-meritocratic processes have important repercussions.

A wide evidence base has charted the social class gradient in the background of students going on to participate in UK higher education and gain a degree (e.g. Blanden & Gregg, 2004; Gayle et al, 2003; Feinstein & Vignoles, 2004;), and in particular, attainment of a degree from a highly selective university (Sullivan et al, 2014). However, research has also suggested that it is poor attainment in secondary schools that is more important in explaining relatively low higher education participation rates amongst students from disadvantaged backgrounds than barriers arising at the point of entry into higher education (Chowdry et al, 2010).

Back in 1963, The Robbins Report<sup>3</sup> showed how the proportion of university<sup>4</sup> students coming from manual backgrounds remained remarkably unchanged at around 25% from the late 1920s to the early 1960s, with much more recent data from University and Colleges Admission Service (UCAS) showing the stability of this figure with students from manual backgrounds making up just 27% of students accepted on to higher education degree courses in 2001. There is also wide variation in the social backgrounds of students enrolling on specific courses. For example, in 2008 20% of all students had a parent in a higher managerial or professional occupation and 23% in a Semi-Routine or Routine manual occupation, however the commensurate rates among students enrolled on Medicine or Dentistry courses was 43% and 12% respectively. (For further details see Bolton, 2010.)

The relationship between an individual's social origin and their destination, in terms of occupation or economic returns, is a measure of the social mobility that exists within a society. The extensive literature on social mobility in the UK – both between and within generations – shows that it is both relatively low by international standards and that it has been relatively stable over the past few decades (e.g. Blanden et al, 2004; Goldthorpe & Mills, 2004; Bukodi et al, 2015).

We know that the social backgrounds of students in higher education remains slanted towards those with advantaged origins, and while widening access rightly

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<sup>3</sup> Committee on Higher Education: Cm 2154 II-I

<sup>4</sup> Does not include polytechnics.



remains a key policy concern, it is also important to better understand higher education's influence on social mobility, and in particular *upward* social mobility, thereby its role in increasing the life chances and opportunities of those from more disadvantaged backgrounds.

Research has established that having a degree elicits substantial economic returns, in terms of both level of occupation and earnings. The recent report by The Sutton Trust used data from the Destinations of Leavers of Higher Education Survey and found this was evident in the first few years following graduation (de Vries, 2014), whereas others have importantly found that the economic returns to a degree extend to mid-career and beyond (Dearden, McGranahan & Sianesi, 2004; Walker & Zhu, 2005).

We also know that family background is a strong determinant of later success in the labour market even after controlling for educational achievements (Gregg & Machin, 1999; Blanden et al, 2007). The benefits of higher education are therefore inextricably entwined with the benefits associated with early socio-economic advantage, but we still need to know more about whether or not the mid-career economic benefits of higher education vary among graduates from different social backgrounds.

The Sutton Trust report unusually examined the relationship between university degrees (including university type and subject area) and social background on occupation *and* earnings at six months and three and a half years after graduation. This showed that having a university degree tended to act as a 'social leveller' and that graduates from different social backgrounds tended to do equally well after graduation. The exception to this was if students had attended private schools, where a 'pay premium' remained in evidence (de Vries, 2014). Most recently, by linking administrative data from the Student Loan company, pay data from HMRC's records, and university level data from the Higher Education Statistics Agency, thus generating impressive sample sizes, Britton et al (2016) have been able to look at graduate earnings some 10 years into the labour market by both institution and subject area. Here we see confirmation that medicine and economics graduates earn the most, while creative arts graduates occupy the bottom of the earnings distribution. However, the study also finds a remarkable spread in how much graduates earn, even among those doing the same subject at the same institution and that those from advantaged backgrounds – using a simple measure of parental income – earn significantly more than those from lower income backgrounds.

There is also some evidence from the UK that suggests students (male) from lower socioeconomic groups actually earn a slightly higher rate of return from participation in higher education (Dearden et al, 2004), and that the 'wage gap' between men and women who did and did not receive higher education was wider among those forecast least likely to attend university compared with those who were forecast most likely to attend (Feinstein & Vignoles, 2004). Both of these studies use the longitudinal 1970 British Cohort Study data (BCS70), but support for the finding that those least likely to attend university (or college) benefit the most, the 'negative selection hypothesis', comes from Brand and Xie (2010) who used data from two US longitudinal studies. At every observed stage of the life course, they found the wage gap between those that did and did not go to college to be greatest among men and women from more disadvantaged backgrounds.

According to the theory of maximally maintained inequality (Lucas, 2001), as higher education systems expand inequalities will be maintained via status distinctions between institutions and courses. The research by de Vries (2014) provides the most relevant and up to date evidence on the returns to different degrees whilst also considering social background, but it is limited by only being able to look at outcomes a few years following graduation. It is important to learn more about the longer-term disparities in the returns of a degree, in terms of the type of institution attended and subject area, perhaps increasingly so given the ever greater numbers that have been participating in higher education since the 1960s (Finegold, 2006; Chowdry, et al 2010) and the substantial debts now accrued by graduates. In 2013-14 the participation rate among 17 to 30 year olds stood at 46.6%<sup>5</sup>, and in 2015 UK graduates can expect to have debts in excess of £30,000 (The UK Graduate Careers Survey, 2015).

The increased personal cost of attending university, in England in particular, has indeed been accompanied by an increasing interest in the differential returns to both type of university attended and subject area studied. Websites comparing entrance requirements for studying a particular degree course and how a course and specific university is 'ranked' along a number of different criteria, also have information on 'graduate prospects' which includes the employment rates and average wages of recent graduates<sup>6</sup>. To date, differentiation of the value of qualifications within a given level (also known as 'horizontal stratification'), is widely acknowledged (Gerber & Cheung, 2008), although relatively few studies have so far assessed the specific occupational and earning returns to degrees from highly selective universities compared to the majority of other mainstream universities (Brewer, Eide & Ehrenberg, 1999; Chevalier & Conlon, 2003; de Vries, 2014; Sullivan et al, in press). There is, however, more evidence for the status differentials between degrees in different subject areas (Croxford & Raffe, 2014; O Leary & Sloane, 2005; Patrignani & Conlon, 2011; Walker & Zhu, 2011; Walker & Zhu, 2013).

In this report we use longitudinal data collected from members of the 1970 British Cohort Study (BCS70) to examine the role social origins and degree status has on both occupation and earnings when careers have largely been established in mid-life. Although this cohort experienced university under a very different set of circumstances than today's students, we can learn much from this rich data source on the lasting influences of family background and participation in higher education.

To set the context, the majority of BCS70 members going on to higher education would have done so between 1988 and 1991, just before the 1992 Higher Education Act, which led to a dramatic expansion of student numbers and abolished the divide between polytechnics and universities. As such, the BCS70 cohort did not directly benefit from an increase in the number of higher education places available, but unlike today's students who pay high tuition fees and take out loans to cover living expenses, they did have access to free higher education and means-tested maintenance grants. The status differential between British universities was very much in evidence at this time, and indeed, despite the abolition of the

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<sup>5</sup> For current participation rates see: <https://www.gov.uk/government/statistics/participation-rates-in-higher-education-2006-to-2014>

<sup>6</sup> For example, see [www.thecompleteuniversityguide.co.uk](http://www.thecompleteuniversityguide.co.uk)

university/polytechnic divide status differentials between the traditionally established and later 'red-brick' and post-92 universities remain very apparent today. De Vries (2014), has already shown that the occupation and earnings of recent graduates varied widely by both university attended and degree subject studied.

As BCS70 cohort members have now entered their forties, a time when career trajectories have become well established for most, we are able to look at the role family background and degree status has on occupation and earnings some twenty years after graduation. Given the different relationship that men and women can have with the labour market, in terms of time spent in full-time or part-time employment or in a full-time family caring role, separate analyses are also conducted for men and women to assess any evidence for gender differences in occupational status and earnings. By exploiting the longitudinal nature of the data, we are also able to take account of a much richer set of personal and family background characteristics. The specific research questions we address therefore are:

Compared to students from working class origins

- Do students from middle class backgrounds hold higher status occupations and gain a higher economic return at age 42 from their degree?
- Do students from middle class backgrounds hold higher status occupations and gain a higher economic return at age 42 from their degree, after controlling for the type of university attended?
- Do students from middle class backgrounds hold higher status occupations and gain a higher economic return at age 42 from their degree, after controlling for university status *and* subject area?
- How much does this relationship vary by gender?

## Data and Methods

### 1970 British Cohort Study

The 1970 British Cohort Study (BCS70) follows the lives of more than 17,000 people born in England, Scotland and Wales in a single week of 1970 (Elliott & Shepherd, 2006). Since the birth survey in 1970, there have been eight surveys (or 'waves') at ages 5, 10, 16, 26, 30, 34, 38 and most recently at age 42 when 9,841 cohort members were interviewed. Information has been collected on health, physical, educational and social development, and economic circumstances among other factors<sup>7</sup>. The next round of interviewing will take place in 2016.

### Sample

Our sample includes all cohort members resident in England and Wales in 1986 with a full set of birth characteristics, who participated in the age 42 survey, were in employment and provided information on their occupation and earnings. For those who had a degree, we also asked about the subject, university and grade awarded. Cohort members resident in Scotland in 1986 were excluded because of Scotland's distinct system of qualifications.

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<sup>7</sup> For further details see: [www.cls.ioe.ac.uk/bcs70](http://www.cls.ioe.ac.uk/bcs70)

## Analytic strategy

We employ a combination of descriptive analysis and predictive modelling. The fundamental relationship to examine is between occupation and earnings at age 42. Our key predictor measures are socio-economic advantage in childhood and degree attainment. Separate analyses are also conducted for men and women to assess any evidence for gender differences in occupational status and earnings.

We exploit the rich longitudinal nature of the data and take into account a range of additional controls: personal characteristics, educational attainment and cognitive performance in childhood. Given that we use information from all of the childhood surveys, we used multiple imputation to 'fill-in' values of any missing items in the variables selected for our analysis adopting Schafer's algorithm (Schafer, 1997) under the assumption of 'missing at random' (MAR). In order to strengthen the MAR assumption and to protect against departures from multivariate normality we included a set of auxiliary variables in our imputation model (Mood, 2010). All reported analyses are averaged across 20 replicates based upon Rubin's Rule for the efficiency of estimation under a reported degree of missingness across the whole data of around 0.20 (Gelman & Hill, 2007). There were 19 separate elements of the 1986 survey, many of which were to be completed by cohort members at school. However, industrial action by teachers at the time of the survey had a big impact on response rates. As such, missingness in variables used in this analysis was overwhelmingly associated with information collected at age 16: newspaper readership (54%) and cognition (79%).

What follows is a detailed description of all of the variables used in our analysis.

## Measures

### Labour Market Outcomes

Cohort members have been asked a wide range of questions about their employment, occupation and earnings. From these answers we can derive a range of measures for use in analysis. The two measures we use are:

### NS-SEC

The NS-SEC is an occupational schema that determines class position in terms of employment relations. It reflects not just earnings, but longer-term economic security, stability and prospects, as reflected in a person's labour market position. It also reflects power in terms of relationships of authority, control and autonomy within the workplace (Goldthorpe & McKnight, 2006). There are eight broad analytic categories. We examine access to the top NS-SEC class, class 1 which includes two sub-categories: Class 1.1 consisting of large employers and higher managerial and administrative occupations such as chief executives, production managers and senior police officers, and Class 1.2 consisting of higher professional occupations, such as lawyers and doctors, as adopted by others in recent studies concerned with social position (Goodman et al, 2015; McKnight, 2015; Green et al, 2015; Sullivan et al, in press).

## Gross hourly earnings

We look at gross hourly earnings for all those in paid employment, including the self-employed. We use hourly earnings rather than weekly or monthly pay to gain a more direct measure of the value an individual has in the labour market, regardless of the number of hours they may work. In the regression analyses we use (log of) gross hourly earnings, in order to assist in the interpretation of results<sup>8</sup>.

## Family Background

Family background was operationalised from the Registrar General's classification (RGSC), which classified parent(s) occupation in 1970 when the cohort members were born. In the overwhelming majority of two parent families, the higher status occupation was used if both parents were employed (the 'dominance' approach). In the minority of single-parent households, their occupation was used. Using this classification,

- 6.0% professional occupations
- 18.4% managerial/technical, and
- 30.9% skilled non-manual work (III<sub>nm</sub>),
- 29.9% skilled manual occupations (III<sub>m</sub>),
- 14.8% unskilled or partly-skilled manual occupations (V or IV)<sup>9</sup>,

A 'middle class' background combined parents in professional and managerial/technical occupations: almost a quarter of our sample (24.4%). All other occupations (III<sub>nm</sub> to V) were grouped as 'working class'. We also tried a three-group classification, splitting the working class into traditional non-manual and manual occupations, but the results were not distinguishable between these two groups and so the more straightforward two-group classification was preferred.

## Degree status

Our definition of a highly selective university is based on the Russell Group<sup>10</sup> universities, which promotes itself as representing the leading UK universities (Boliver, 2013). We acknowledge that there is an element of arbitrariness in this measure and as a result added another two universities. We label this group as 'highly selective'. We considered a more restrictive definition of elite higher education, as evidence suggests that 'top jobs' are particularly strongly dominated by graduates of the 'Golden Triangle', consisting of Oxbridge and certain London colleges (Boliver, 2015; Wakeling & Savage, 2015). However, such a classification would have led to sparseness in our chosen outcome variable and insufficient

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<sup>8</sup> The logarithm of income is usually more normally distributed and when log of income is the dependent variable, regression coefficients are semi-elasticities, i.e. they show you the approximate percentage change in income for a one-unit increase in your explanatory variable.

<sup>9</sup> Includes 1.7% in 'other' occupations or not in paid work.

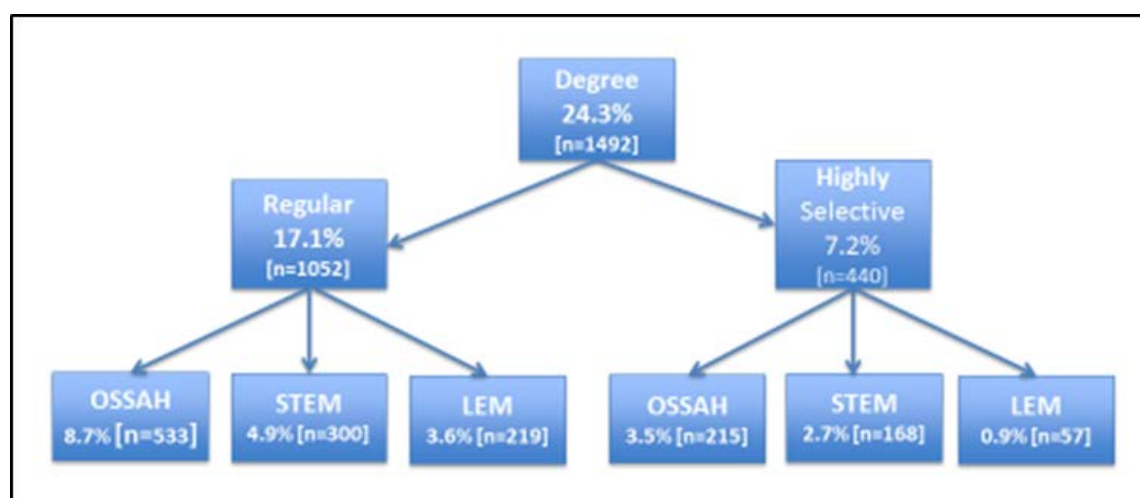
<sup>10</sup> The Russell Group was established in 1994. Its current members are the universities of: Birmingham, Bristol, Cambridge, Cardiff, Durham, Edinburgh, Exeter, Glasgow, Imperial College London, King's College London, Leeds, Liverpool, LSE, Manchester, Newcastle, Nottingham, Oxford, Queen Mary University of London, Queen's Belfast, Sheffield, Southampton, University College London, Warwick, and York. We also consulted data on university points entry from 1989-90 and 2011, and included two additional universities that have consistently featured in the top 30 most selective institutions: University of Bath and St Andrews.

numbers for robust analysis. Following Walker and Zhu (2011)<sup>11</sup>, we group degree subjects into: STEM (Science, Technology, Engineering and Mathematics), LEM (Law, Economics and Management) and OSSAH (other social sciences, arts and humanities, including languages).

Anyone gaining a degree awarded by a polytechnic is included within the ‘all other’ or ‘regular’ degree category. Overall 24.3% of our sample (n=1492) had a degree. This was very similar for men, 23.7% (n=736) and women, 24.9% (n=756). In terms of type of university, 7.2% of cohort members were awarded their degree from ‘highly selective’ universities and 17.1% from ‘regular’ universities. This was again very similar for men (16.6% and 7.1%) and women (17.7% and 7.3%). Breaking this down by subject area, 12.2% studied OSSAH subjects, 7.6% STEM subjects and 4.5% LEM subjects.

Fewer men than women held an OSSAH degree (9.5% to 15.0%), more men than women had a STEM degree (9.7% to 5.5%) and identical proportions had a LEM degree (4.5%). Figure 1 gives the breakdown of subject area of degree by type of university: regular or highly selective, among the general population, Figure 4 among those with a degree.

**Figure 1: % with a degree by subject and institution**



Note: OSSAH (other social sciences, arts and humanities, including languages), STEM (Science, Technology, Engineering and Mathematics), LEM (Law, Economics and Management).

### Additional controls

The following is a list of the additional personal and family background characteristics included in the regression models. The measures are known to have an association

<sup>11</sup> Walker and Zhu used data from the Labour Force Survey and initially categorised undergraduate degrees into 12 subject areas, which were collapsed into four broad groups due to sample size restrictions: STEM, LEM, OSSAH and COMB. COMB stood for combined subject degrees. We did not include COMB as very few of our sample reported studying for a combined subject degree, but adopted the same classification as it's rational was sound and provided both continuity and comparability in the literature.

with the outcome measures (occupation and earnings) and/or key explanatory measures (degree status and family background).

- Birth weight (1970): Low birth weight is considered to be an indicator of prenatal disadvantage (Karlson, Holm & Breen, 2010).
- Position in birth order (1970): Parity is a well-established predictor of educational chances, with an advantage for children higher up the birth order (Nisbet, 1953).
- Age of mother at first birth (1970): Young motherhood is linked to disadvantaged maternal social origins (Aspinall, 2007). The children of older mothers typically have an advantage in cognitive development (Hawkes & Joshi, 2012; Hoffmeyer-Zlotnik, 2003).
- Parents' highest qualification (1975): coded as mothers or fathers whichever was highest.
- Frequency of reading to the child (1975): mothers were asked on how many days amongst the last seven the child had been read to.
- Newspapers in the home (1986) classified as: a tabloid/ broadsheet/ both/ no national newspapers. The prose style of tabloids was simpler and geared towards a lower reading age and smaller vocabulary than the broadsheets. During the 1980s, newspaper readership was high, and the type of newspaper read was a strong cultural identifier (Chan & Goldthorpe, 2007). Although this variable was captured when the cohort member was age 16, we consider that tabloid or broadsheet readership is a stable characteristic and would be unlikely to be subject to significant change during the preceding years of the cohort member's life.
- Home ownership (1975): Home ownership is an important indicator of wealth (Tunstall et al, 2013).
- Overcrowding (1975): The ratio of people in the household per room (excluding kitchens and bathrooms). More than one person per room is indicative of living in overcrowded conditions.
- Family income (1980): Information on total household income was collected for the first time in 1980. It was 'banded' into seven categories ranging from <£35 to £250+.
- Cognition at ages five (1975) and ten (1980): derived from a range of tests taken by the cohort members (Parsons, 2014).
- School type (1986) classified as: Comprehensive, grammar, secondary modern, private or special needs. We have combined data from three sources: the 1986 Head teacher's Questionnaire (28%); the 1986 Schools Census (29%) and a retrospective question asked in 2012 (43%). Where the head teacher variable was missing we used the 1986 schools census variable, and where both sources were missing we used the retrospective 2012 variable. (Within our sample, 28% of information came from the Head teacher, 29% Schools Census, 43% retrospectively in 2012.)
- Cognition at age 16 (1986): cohort members took nine cognitive tests, but, due to lack of funds, only two, spelling and vocabulary, were initially deposited, with the arithmetic test being deposited more recently (Closs & Hutchings, 1976; Dodgeon, 2008). As part of a current ESRC project, we have now inputted the data from the six remaining cognitive tests, and the analysis presented here is among the first to derive a score from all nine cognitive tests.
- Examination results at age 16 (1986): We derive a total points score from all O level and CSE examinations. An O Level grade A is awarded 7-points, grade B 6-points, continuing to a grade E being awarded 3 points. A CSE grade 1 is equivalent to an O Level grade C and is awarded 5-points, a grade 2 4-points, etc. The lowest CSE grade is grade 6, which is awarded 1-point. We also

include separate binary variables to indicate whether a cohort member had a maths or English O Level grade A-C or a CSE grade 1.

- A level qualifications by age 20 (2000, 2004): A levels were the main qualification for university entry for this cohort. They were typically taken at age 18, but we include qualifications up to age 20 to allow for re-takes. We compare those with no A levels to those with three or more A-C grades, one or two A-C grades, or lower grades only. Note that British qualifications have been subject to substantial grade inflation since the abolition of norm-referenced marking in the 1990s, but for this cohort, it was still possible to get a place at a Russell Group university with C and D grades at A level (O' Leary & Cannon, 1993)<sup>12</sup>.

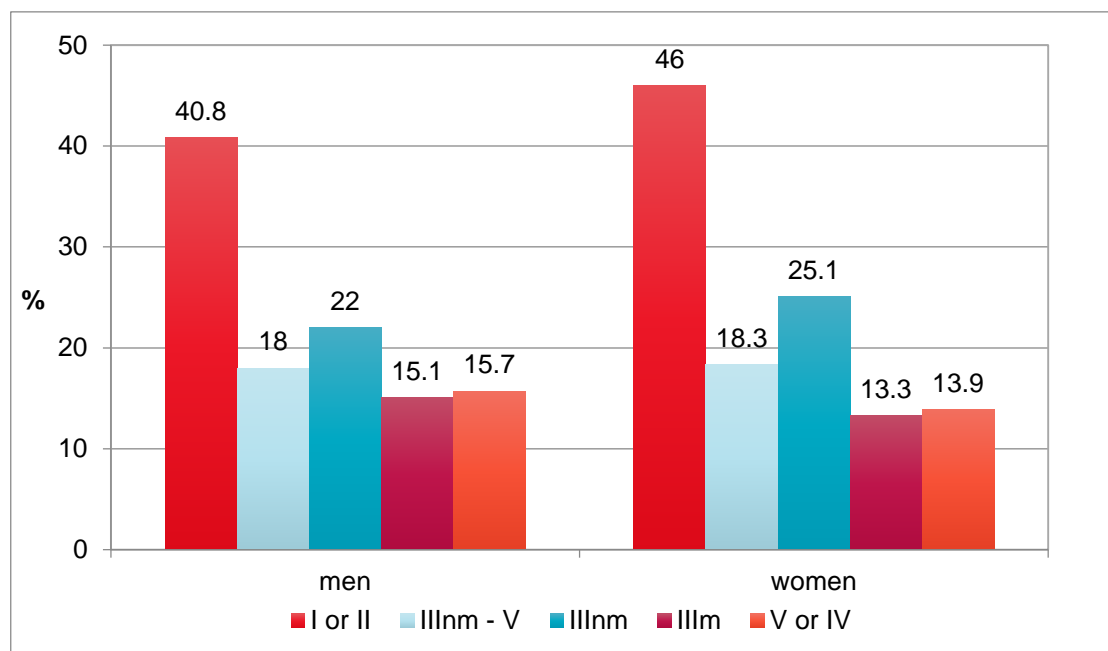
We next present our analytical results.

## Descriptive Relationships

### Family background and degree status

The well-established relationship between family background and going to university is observed in our data, for both men and women. Whereas nearly half of those with parents who had held managerial or professional occupations (middle class) had gained a degree, this fell to less than 1 in 5 for those with parents who had held other (working class) occupations. Figure 2 shows this relationship by gender.

**Figure 2: proportion with a degree by family social class of origin (%)**



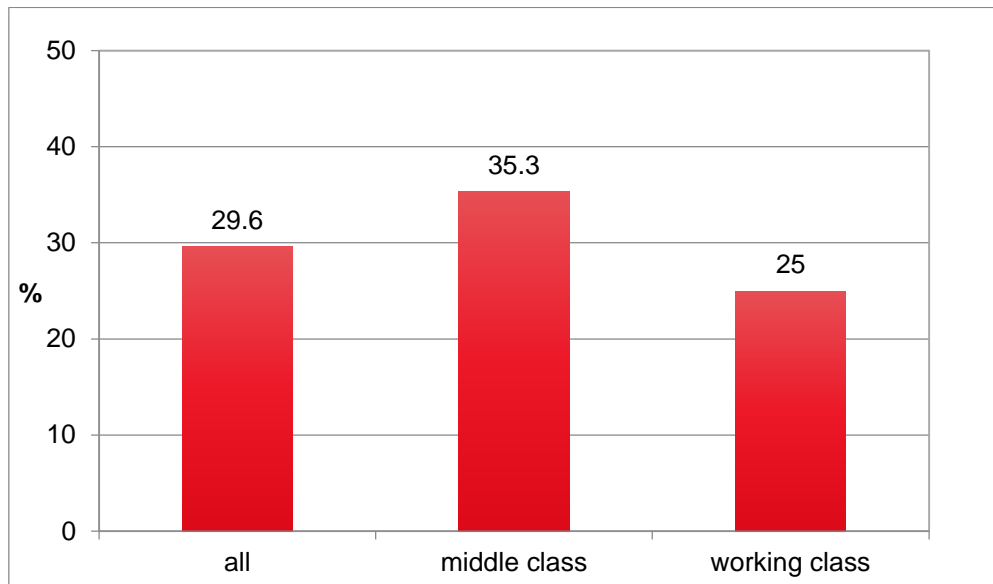
Amongst the 24.3% of cohort members with a degree, Figure 3 shows that 29.6% of all degrees were awarded from highly selective universities, with this being higher for those from a middle class background: 36.5% men, 33.9% women compared to 25%

<sup>12</sup> The Times Good Universities Guide (1993) comments of Durham University that 'Chemistry (CCD), geography (BBC), music and physics (both BCC) are among the top departments. Only Oxford and Cambridge have higher entry standards.' (p.110)



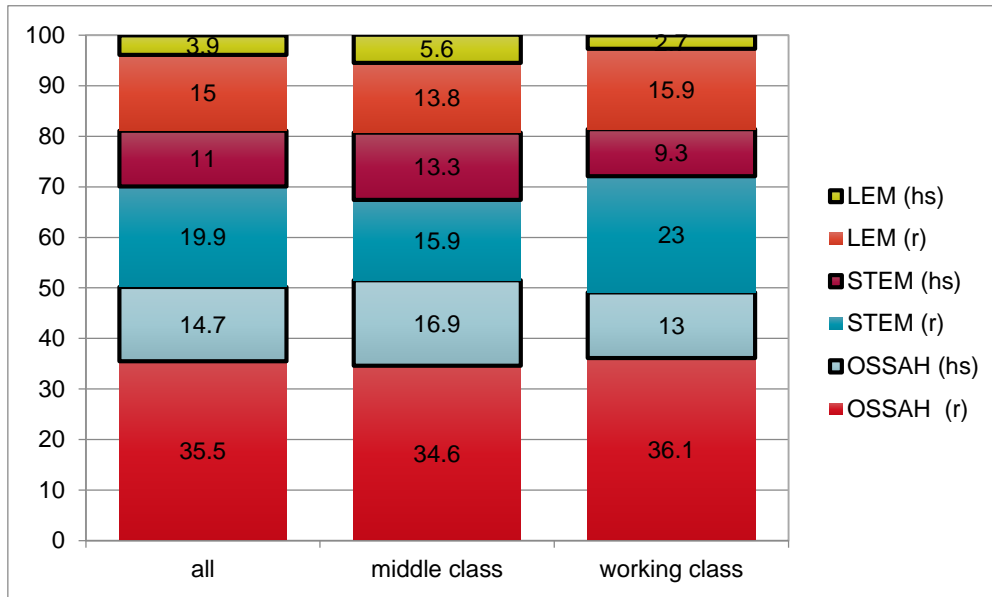
of those from working class origins. We therefore see how a middle class background is associated with gaining a degree and gaining a degree from a highly selective university.

**Figure 3: % attending highly selective universities by family social class of origin**



Half (50.2%) of all degrees were in OSSAH subjects, 30.9% STEM subjects and 18.9% LEM related subjects. Figure 4 shows there was little difference in subject choice studied by parental social class, although slightly more of those from middle class backgrounds studied OSSAH, STEM or LEM subjects at highly selective universities.

**Figure 4: where and what subject studied. CMs with a degree by family social class of origin**



Note: r=regular, hs=highly selective; OSSAH (other social sciences, arts and humanities, inc. languages), STEM (Science, Technology, Engineering and Mathematics), LEM (Law, Economics and Management).

## Family background, occupation and earnings

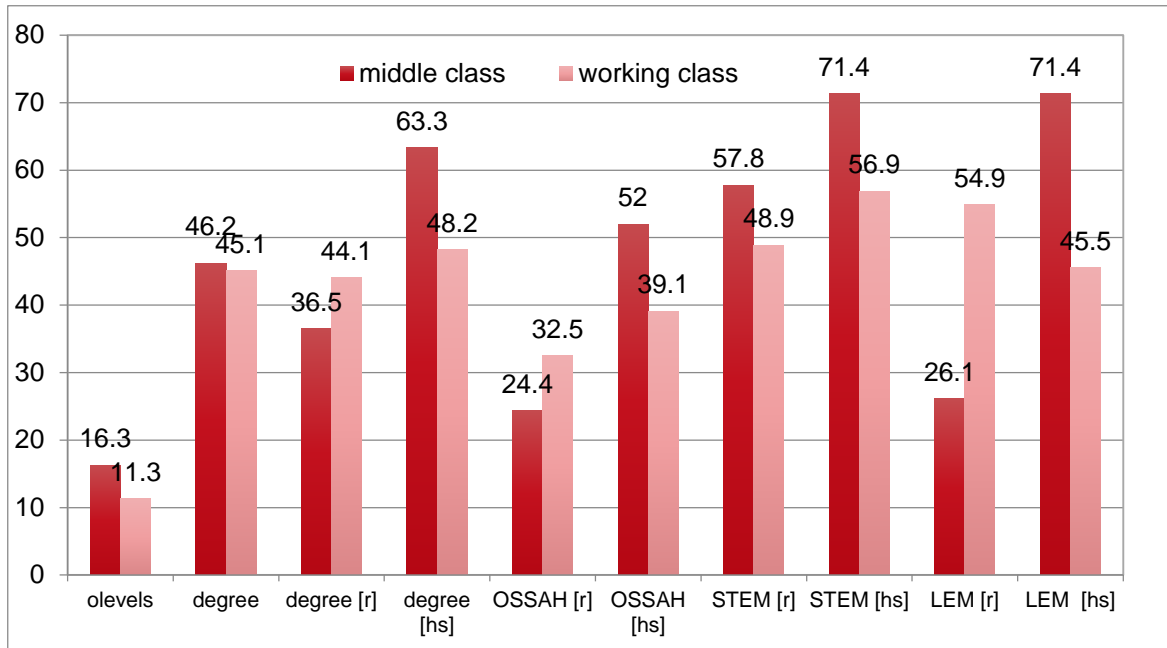
### Occupation

Men are more likely to have a high status job if they have a degree, with very little difference by family background. Figure 5a shows that more of those who attended a highly selective university have a high status occupation and this is particularly so for those from a middle class background (63.3% compared to 48.2%).

Conversely, more of those at a regular university whose parents were working class now achieved a high status occupation compared to those from a middle class background (44.1% to 36.5%). Looking at the relationship by subject area, we see that STEM and LEM degrees from highly selective universities have the strongest association with high status occupations, particularly for those from middle class backgrounds. So, overall, more men from a middle class background had a high status job, but there are a few exceptions: more men with working class origins who went to a regular university were in high status occupations, particularly if they studied OSSAH (32.5% to 24.4%) or LEM (54.9% to 26.1%) subjects.

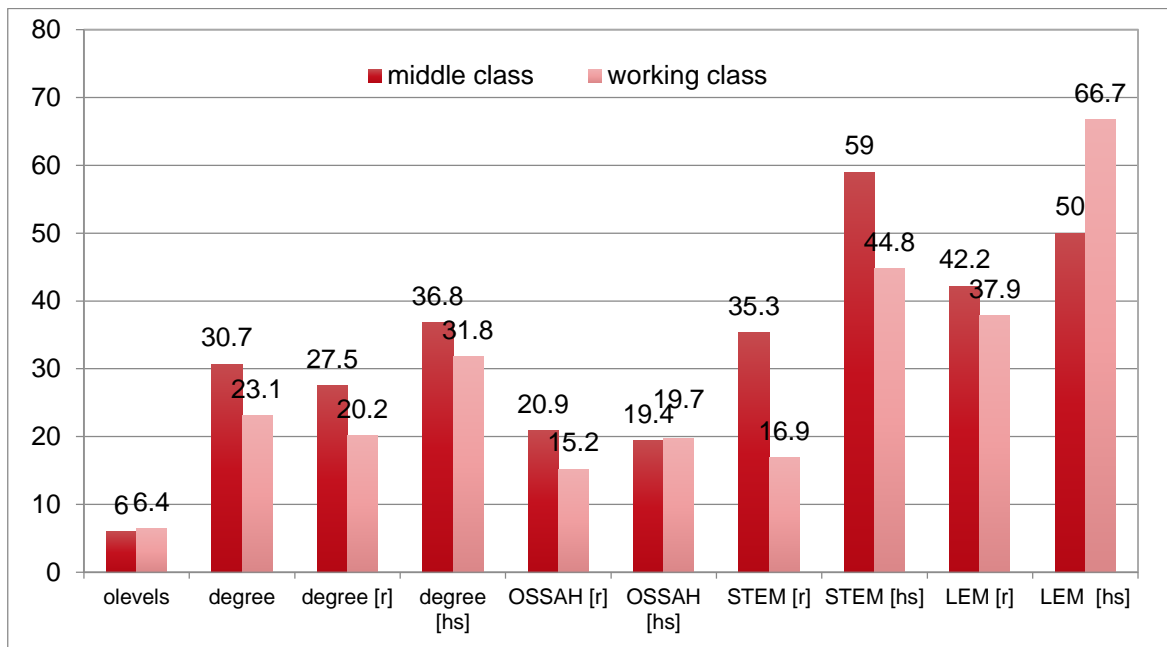
Turning to women, Figure 5b shows a very similar pattern as for men, although more women from middle class origins have a high status occupation whether they studied at a regular (27.5% to 20.2%) or highly selective (36.8% to 31.8%) university. We also see the higher reward attached to gaining a degree from a highly selective university and for studying STEM or LEM subjects.

**Figure 5a: % men in a high status job: by family social class of origin, degree status, type of university attended and degree subject**



Note: r=regular, hs=highly selective; OSSAH (other social sciences, arts and humanities, inc. languages), STEM (Science, Technology, Engineering and Mathematics), LEM (Law, Economics and Management).

**Figure 5b: % women in a high status job: by family social class of origin, degree status, type of university attended and degree subject**

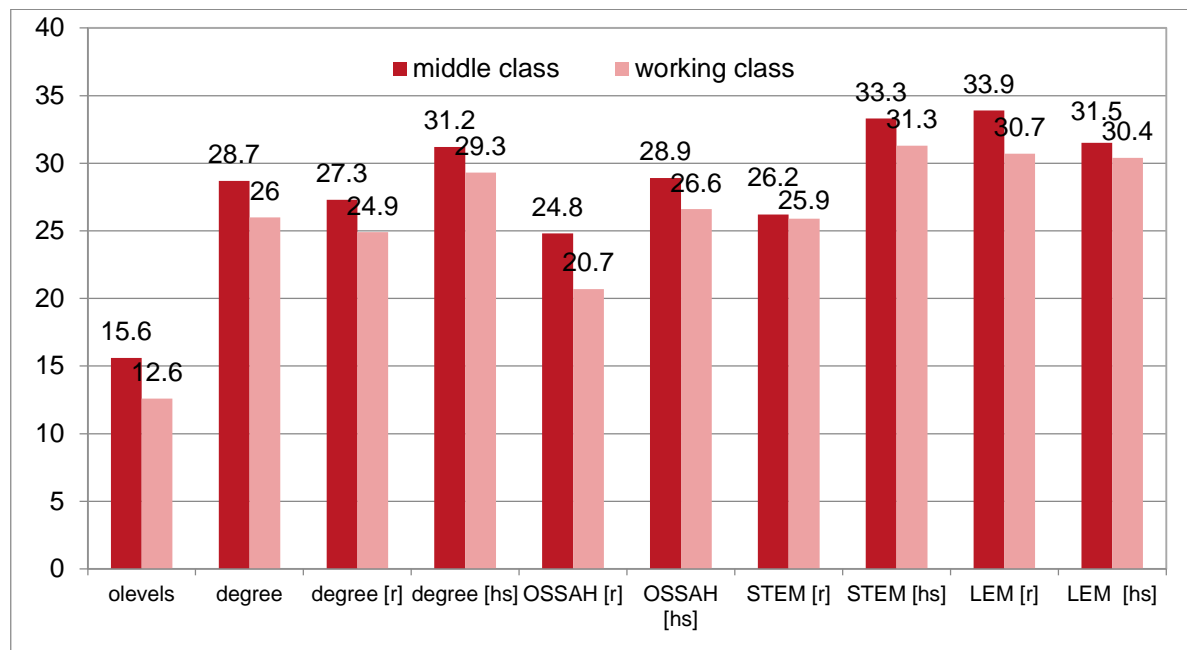


Note: r=regular, hs=highly selective; OSSAH (other social sciences, arts and humanities, inc. languages), STEM (Science, Technology, Engineering and Mathematics), LEM (Law, Economics and Management).

## Earnings

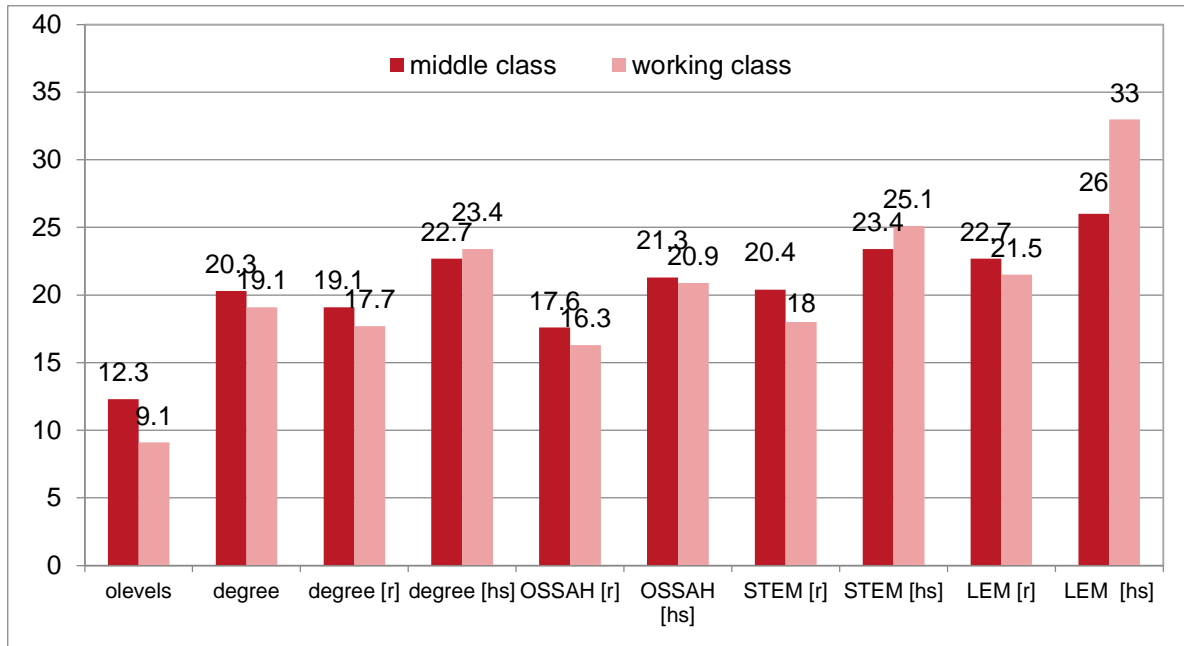
Compared to the cohort members with O Level as their highest academic qualification, having a degree significantly increased the gross hourly earnings for both men (figure 6a) and women (figure 6b). For men and women with a degree, gaining a degree from a highly selective university increased hourly earnings further, as did gaining a STEM degree from a highly selective university compared to gaining a STEM degree from a regular university. For women, gaining an OSSAH subject degree from a highly selective university also increased hourly earnings.

**Figure 6a: mean gross hourly earnings (£): men by family social class of origin, degree status, type of university attended and degree subject**



Note: r=regular, hs=highly selective; OSSAH (other social sciences, arts and humanities, inc. languages), STEM (Science, Technology, Engineering and Mathematics), LEM (Law, Economics and Management).

**Figure 6b: mean gross hourly earnings (£): women by family social class of origin, degree status, type of university attended and degree subject**



Note: r=regular, hs=highly selective; OSSAH (other social sciences, arts and humanities, inc. languages), STEM (Science, Technology, Engineering and Mathematics), LEM (Law, Economics and Management).

## Regression results

We compare the returns to having a degree against the majority of respondents whose highest academic qualifications were achieved when they left education at age 16: O-Levels grade A-C or CSEs grade 1. Importantly, we compare this relationship among those from a middle class background – parent(s) in a professional or managerial occupation – and then among those from a working class background – parents in all other occupations. All regressions were carried out for men and women separately.

For both occupation and earnings we ran three analyses, comparing the economic benefit of

- a degree,
- a degree from a regular or highly selective university
- a degree from a regular or highly selective university and by subject area

We first looked at the raw relationship between degree and occupation or earnings at age 42 and then how the relationship stood up once we controlled for the wide range of other personal and family characteristics previously detailed. After running the above models, we then ran models interacting family background with the degree measures and all other control variables. This allowed us to test whether the ‘gap’ in the occupation status or earnings between men and women with O Levels as their highest qualification and men or women with a degree in a particular subject area from a regular or highly selective university differed significantly by family background. Figures 7 and 8 summarise the results from the models controlling for

all personal and family background characteristics. Tables with the full set of results from all models are included in the Appendix (Table A1 to A12). We now provide a summary of our findings.

### Summary of findings

We used linear regression to model being in the top social class category (NS-SEC class 1) and (log of) gross hourly earnings at age 42. The initial results from the analyses are presented as coefficients. To make the interpretation of regression coefficients easier, we convert the coefficients (in Appendix Tables A1 to A12) into percentage gains<sup>13</sup>. So, compared to men and women whose highest qualification is at O-Level standard, how many more of those with a degree are in a high status occupation, and how much higher are their gross hourly earnings?

### High Status Occupation

In terms of access to higher status occupations, compared to those with O Levels from a similar background, a higher percentage of men (figure 7a) and women (figure 7b) with a degree – of whatever kind – were in a high status occupation. In the case of men, but not women, we find some evidence that attaining a degree has particular benefits for those from working class backgrounds, or at the very least that there is no significant advantage attached to accessing such high status occupations for those whose parents had held a similar occupation. For example, whereas 17% more men with a degree from middle class background have a high status occupation at age 42, this increased to 32% for men from working class family backgrounds.

### Interactions

Once all personal and family background characteristics had been included in the models, a statistically significantly higher percentage of men with a degree from working class backgrounds had a high status occupation at age 42 than those from a middle class background, particularly so if the degree was awarded from a regular university (32% more to 9% more) and they had studied OSSAH (25% more to 17% more) or LEM subjects (46% more to 3% less).

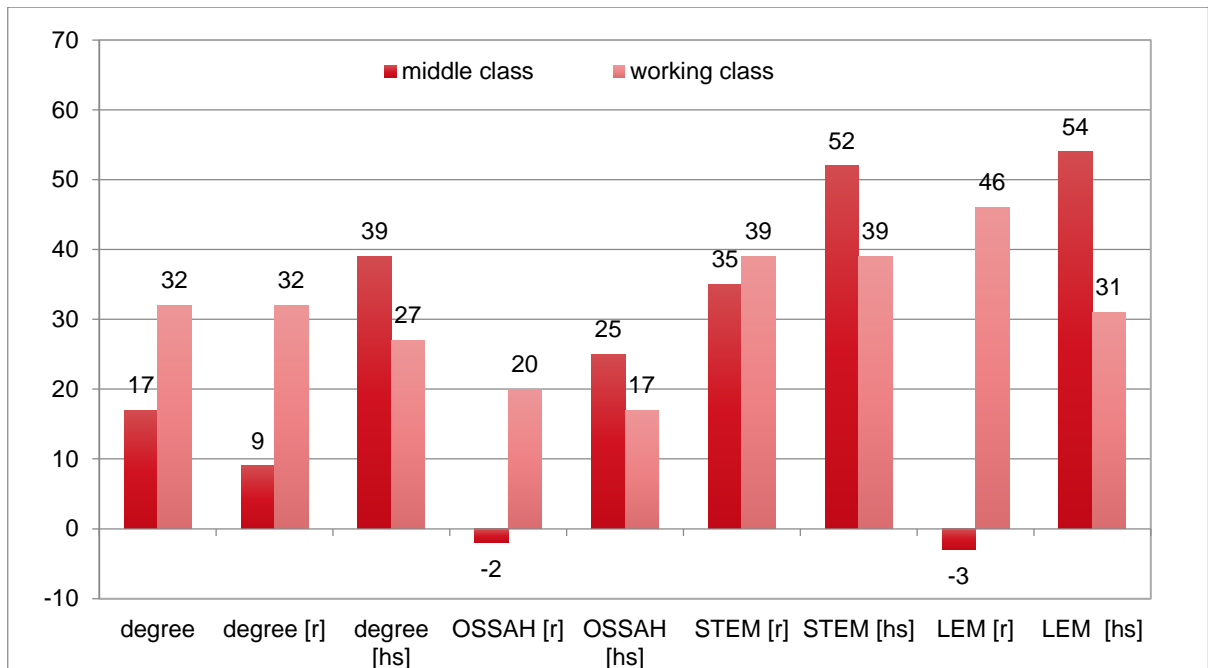
Women from a middle class background with a degree were significantly more likely to have a high status occupation, particularly if they were studying at a regular university or a STEM subject at either kind of university. Once personal and family background controls had been included the percentage in high status occupations did not differ significantly by family background, although there was some suggestion of an advantage to accessing such occupations if they had middle class origins. The one significant finding was for women from a middle class background studying STEM subjects at a regular university (28% more, to 7% more).

Table A13 and A14 in the appendix details which interactions between family background and degree status were significant for men and women respectively.

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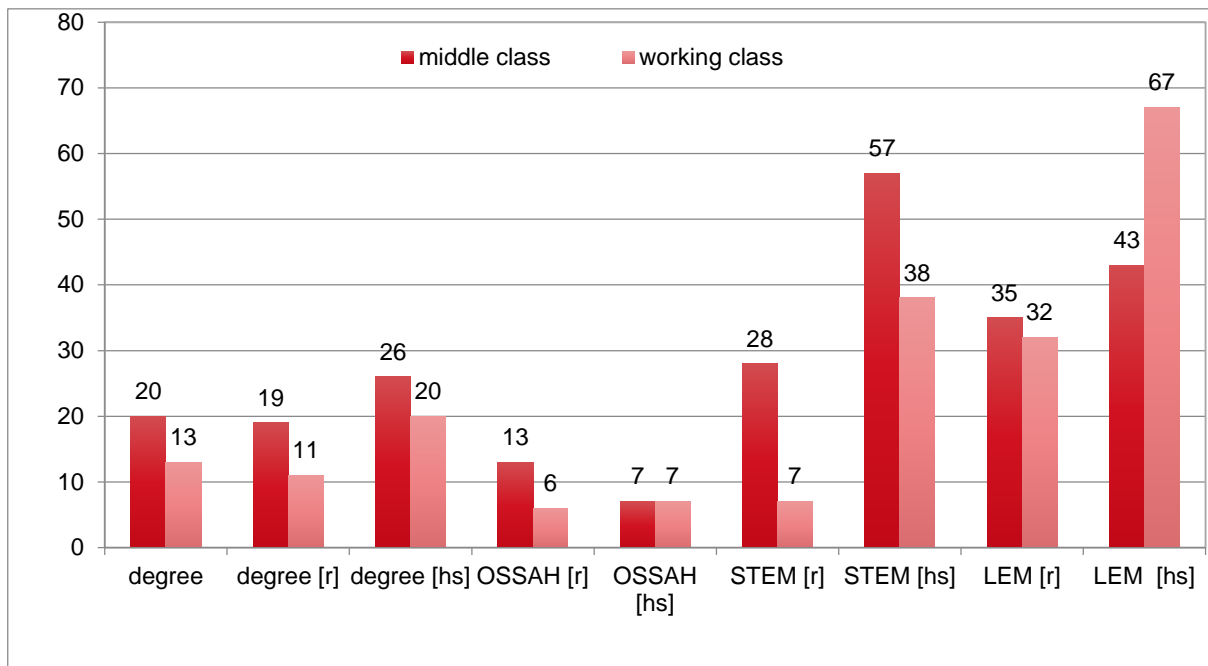
<sup>13</sup> For example a coefficient of 0.48 log points equates to 62% higher pay using the following formula  $[=EXP(.48)-1]$

**Figure 7a: % of men in a high status job by degree and family social class of origin [controlling for all personal and family background characteristics]**



Note: r=regular, hs=highly selective; OSSAH (other social sciences, arts and humanities, inc. languages), STEM (Science, Technology, Engineering and Mathematics), LEM (Law, Economics and Management).

**Figure 7b: % of women in a high status job by degree and family social class of origin [controlling for all personal and family background characteristics]**



Note: r=regular, hs=highly selective; OSSAH (other social sciences, arts and humanities, inc. languages), STEM (Science, Technology, Engineering and Mathematics), LEM (Law, Economics and Management).

### Gross Hourly Earnings

We found the 'earnings premium' between cohort members whose highest academic qualification was at O Level and those with a degree, was very much in evidence. Having a degree, from whatever type of university and in whatever subject, is a very good thing in terms of significantly increasing earnings. This 'earnings premium' remained even when the range of personal and family characteristics had been controlled for, particularly so for men (figure 8a) than for women (figure 8b). For example, for men attending a regular university, those from a middle class background earned 65% higher than those with O Level standard qualifications from a similar background, compared to 46% higher among those from a working class background.

### Interactions

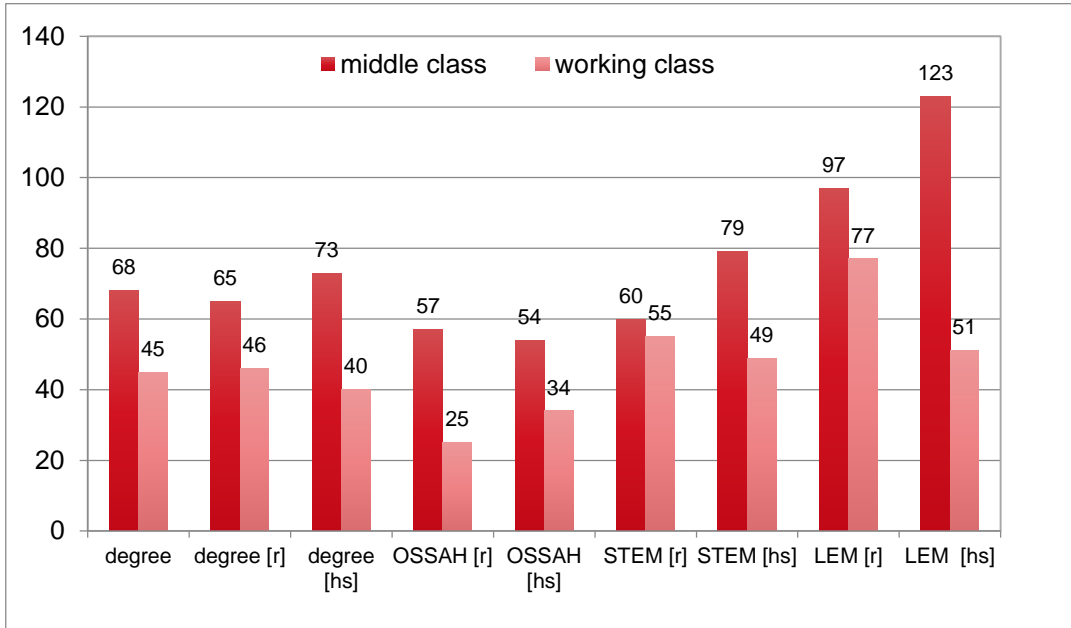
Once all personal and family background characteristics had been included in the modelling, the earnings premium was significantly higher for men with a degree from a middle class background (68% to 45%), with this premium being particularly associated with studying OSSAH subjects from a regular university (57% to 25%) and attending highly selective universities (73% to 40%), particularly when studying LEM subjects (123% to 51%). The premium looks most rewarding for men studying LEM subjects in highly selective universities. Although not statistically significant, the same higher earnings premium was consistently observed between men from middle class and working class backgrounds in all other degree categories.

For women, as (largely) for high status occupations, we see that the earnings premium linked to a degree did not differ significantly by family background, although the pattern of results across degree categories is suggestive of some advantage to middle class origins.

Table A15 and A16 in the appendix details which interactions between family background and degree status were significant for men and women respectively.

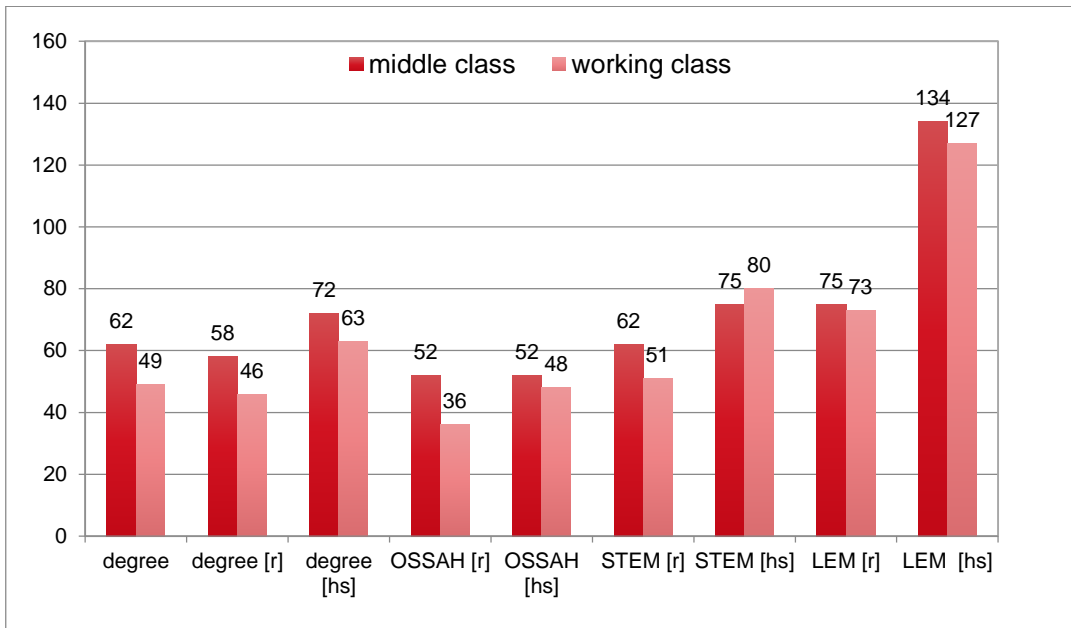


**Figure 8a: % higher earnings at age 42 for men by degree and family social class of origin [controlling for all personal and family background characteristics]**



Note: r=regular, hs=highly selective; OSSAH (other social sciences, arts and humanities, inc. languages), STEM (Science, Technology, Engineering and Mathematics), LEM (Law, Economics and Management).

**Figure 8b: % higher earnings at age 42 for women by degree and family social class of origin [controlling for all personal and family background characteristics]**



Note: r=regular, hs=highly selective; OSSAH (other social sciences, arts and humanities, inc. languages), STEM (Science, Technology, Engineering and Mathematics), LEM (Law, Economics and Management).

## Concluding remarks

Using data from the longitudinal 1970 British Cohort Study (BCS70), this report is part of a wider research programme looking at the role social origins, private schooling and elite higher education have on a range of outcomes in mid-adulthood, specifically at age 42, when cohort members were last interviewed (see Sullivan et al, 2014; Green et al, 2015; Sullivan et al, in press)<sup>14</sup>.

The over-riding message from our research evidence is that having a degree has a very positive long-term impact on access to high status occupations and higher earnings. This was evident for both men and women, from whatever their social origins. So, to a certain extent university goes some way towards 'levelling the playing field' for students from working class family backgrounds. For example, once all personal and family background characteristics had been included in the models a significantly higher percentage of men with a degree from working class backgrounds had a high status occupation at age 42 than those from a middle class background, whereas for women differences were not significant by social class origins. However, when looking at earnings, the earnings premium for men with a degree from a middle class background remained very much in evidence although this was not the case for women.

The costs of attending university were low for the 1970 cohort, as there were no tuition fees, and students from modest backgrounds received maintenance grants. Given the increasing costs of attending university today, particularly in England, both students and parents demand more information about the long term occupational and earning returns to the *type* of degree studied and the standing of the university attended.

Here we have looked at returns some twenty years after graduation and found particular benefits in terms of both occupation and earnings associated with degrees in STEM and LEM subjects and to being awarded a degree from a highly selective university, particularly so for pay. This lends support to recent research by de Vries (2014) and Britton et al (2016) who concluded that the occupation and earnings of recent graduates varied widely by both university attended and degree subject studied.

The findings here are potentially relevant in policy terms, with regard to the push to widen access to highly selective universities to promote social mobility and to the debate on differential university fees. Although differences between graduates of highly selective and regular universities in terms of high status occupations and an earnings premium was in evidence, these returns were particularly associated with studying STEM and LEM subjects. Perhaps there should be a stronger focus on access to particular degree disciplines rather than the type of institution and in terms of fees, how course fees could or should be shaped by the social and economic returns experienced by the course alumni.

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<sup>14</sup> The ESRC funded the three-year project on 'Schooling and unequal outcomes in youth and adulthood'. The UUK and Newcastle University funded this specific piece of work.

Unlike de Vries (2014), but in support of Britton et al (2016), our results do show some difference in the relationship between a degree, occupation and earnings by social origins – and also by gender. For men, there was some support for the notion that those least likely to attend university - men from working class origins – benefit the most, in terms of accessing high status occupations, but the earnings premium attached to a degree was consistently higher for men from middle class social origins and most notably for those who had studied their degree at a highly selective university.

For women, the story was very much that their social origins did not *directly* influence the chance of having a high status occupation or their earnings power. Once other characteristics had been taken into account, their degree was equally as beneficial for women whatever their social origins. The only exception to this was that more women from middle class backgrounds accessed high status occupations if they had studied STEM subjects at a regular university. However, we conclude that women's trajectories appear more meritocratic than they do for men – particularly so when looking at earnings.

One set of results worthy of additional comment is the 'mirror-image' to the benefits of having an OSSAH degree from a regular university by social origins for men. Namely that there were significant advantages for men from working class origins studying these subjects in terms of access to high status occupations, but men with middle class origins had a significant advantage in terms of higher earnings. It might be argued that without the clear lines of career advancement attached to occupations that follow (certain) STEM and LEM degrees, e.g. medicine and Law, the other advantages associated with a middle class upbringing, in terms of cultural and social capital, come into play when accessing employment opportunities with higher economic returns with an OSSAH degree. This highlights just how much more still needs to be understood about the routes into certain occupations and in particular just why advantaged social origins continue to confer an additional earnings premium to men who have a degree some 20 years after graduation.

There is much anecdotal evidence on the benefits advantaged social origins can have on an individual in terms of (e.g.) having higher aspirations and self-confidence or on a range of unmeritocratic factors such as family and friendship connections or networks. The recent paper by Green et al (2015) on the same BCS70 cohort members has shown that although children educated in private schools, who in turn are more likely to go to university and particularly highly selective universities (Sullivan et al, 2014), perceived that they had increased access to high-value networks, these were not linked to increased earning power later in life. This supported other research on the 1970 cohort by Marcenaro-Guierrez et al (2014) and similarly, research by Macmillan et al (2015) who found no relationship between networks and access to high status occupations for recent graduates.

Green et al (2015) have shown, however, that having a higher locus of control and higher occupational aspirations in the teenage years are both modestly linked to both middle class origins, specifically private schooling, and higher earnings at age 42 for men, although these associations did not account for the earnings premium attached to attendance at a private school. As we have found here, men from middle class origins continue to receive an unexplained earnings premium, even when an

extensive range of cognitive skills and academic experiences and achievements have been taken into account. Why this is and what might explain it, demands further discussion, as does whether such subtleties can ever be successfully captured in a large-scale quantitative social survey.

To summarise, students from middle class origins remain far more likely to attend university, particularly to attend high status universities and to study more prestigious and economically rewarding subjects. Policies aimed at widening access to university among more disadvantaged groups remain very relevant, but further attention is needed to increase understanding and access to the full range of universities and subjects on offer. Once at university, our results suggest that university does operate as a social leveller, particularly in accessing high status occupations and particularly so for women. However, an earnings premium remained some 20 years after graduation for men from middle class origins.

The younger Next Steps<sup>15</sup> cohort will be interviewed during 2015-16 when they will be around 25 years of age. It will be of great interest to see whether this relationship between social origins, degree status and occupation outcomes is replicated or been eradicated as this generation moves into their 30s and 40s.

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<sup>15</sup> For further details see [http://www.cls.ioe.ac.uk/page.aspx?&sitesectionid=1246&sitesectiontitle=Welcome+to+Next+Steps+\(LSYPE\)](http://www.cls.ioe.ac.uk/page.aspx?&sitesectionid=1246&sitesectiontitle=Welcome+to+Next+Steps+(LSYPE))

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## Appendix

### Regression analysis tables: high status occupation

**Table A1: predicting high status occupation for men by family social class of origin and degree status**

	Degree		Degree + controls	
	Working class	Middle class	Working class	Middle class
<b>Highest-qual (ref: O Level)</b>				
No/low quals	-0.04** [-0.08,-0.01]	0.01 [-0.08,0.11]	0.00 [-0.04,0.04]	0.03 [-0.07,0.13]
A Levels/dip	0.12**** [0.07,0.16]	0.08 [-0.02,0.18]	0.11**** [0.06,0.16]	0.03 [-0.08,0.13]
<b>Degree +</b>	<b>0.34****</b> <b>[0.29,0.38]</b>	<b>0.30****</b> <b>[0.22,0.39]</b>	<b>0.28****</b> <b>[0.23,0.33]</b>	<b>0.16***</b> <b>[0.06,0.26]</b>
<i>R</i> <sup>2</sup>	.14	.09	.17	.12
<i>N</i>	2377	788	2377	788

95% confidence intervals in brackets

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*\*\*\*  $p < 0.001$

**Table A2: predicting high status occupation for women by family social class of origin and degree status**

	Degree		Degree + controls	
	Working class	Middle class	Working class	Middle class
<b>Highest-qual (ref: O Level)</b>				
No/low quals	-0.03** [-0.06,-0.00]	0.04 [-0.05,0.13]	-0.01 [-0.04,0.02]	0.08 [-0.02,0.17]
A Levels/dip	0.04** [0.00,0.07]	0.01 [-0.07,0.10]	0.03* [-0.00,0.07]	-0.00 [-0.09,0.09]
<b>Degree +</b>	<b>0.17****</b> <b>[0.13,0.20]</b>	<b>0.25****</b> <b>[0.18,0.32]</b>	<b>0.12****</b> <b>[0.08,0.16]</b>	<b>0.18****</b> <b>[0.09,0.28]</b>
<i>R</i> <sup>2</sup>	.06	.09	.07	.10
<i>N</i>	2342	738	2342	738

95% confidence intervals in brackets

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*\*\*\*  $p < 0.001$

**Table A3: predicting high status occupation for men by by family social class of origin and degree status (type of university)**

	Degree		Degree + controls	
	Working class	Middle class	Working class	Middle class
<b>Highest-qual (ref: O Level)</b>				
No/low quals	-0.04** [-0.08,-0.01]	0.01 [-0.08,0.10]	0.00 [-0.04,0.04]	0.02 [-0.08,0.12]
A Levels/dip	0.12**** [0.07,0.16]	0.08 [-0.02,0.18]	0.11**** [0.06,0.16]	0.02 [-0.08,0.13]
<b>Degree (regular)</b>	<b>0.33****</b> <b>[0.28,0.38]</b>	<b>0.20****</b> <b>[0.11,0.29]</b>	<b>0.28****</b> <b>[0.23,0.34]</b>	<b>0.09*</b> <b>[-0.02,0.20]</b>
<b>Degree (highly selective)</b>	<b>0.37****</b> <b>[0.30,0.44]</b>	<b>0.47****</b> <b>[0.37,0.57]</b>	<b>0.24****</b> <b>[0.16,0.33]</b>	<b>0.33****</b> <b>[0.21,0.46]</b>
$R^2$	.14	.12	.17	.14
$N$	2377	788	2377	788

95% confidence intervals in brackets

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*\*\*\*  $p < 0.001$

**Table A4: predicting high status occupation for women by family social class of origin and degree status (type of university)**

	Degree		Degree + controls	
	Working class	Middle class	Working class	Middle class
<b>Highest-qual (ref: O Level)</b>				
No/low quals	-0.03** [-0.06,-0.00]	0.04 [-0.05,0.13]	-0.01 [-0.04,0.02]	0.08 [-0.02,0.17]
A Levels/dip	0.04** [0.00,0.07]	0.01 [-0.07,0.10]	0.03* [-0.00,0.07]	-0.00 [-0.09,0.09]
<b>Degree (regular)</b>	<b>0.14****</b> <b>[0.10,0.17]</b>	<b>0.22****</b> <b>[0.14,0.29]</b>	<b>0.10****</b> <b>[0.06,0.15]</b>	<b>0.17****</b> <b>[0.08,0.27]</b>
<b>Degree (highly selective)</b>	<b>0.25****</b> <b>[0.20,0.31]</b>	<b>0.31****</b> <b>[0.22,0.40]</b>	<b>0.18****</b> <b>[0.12,0.25]</b>	<b>0.23****</b> <b>[0.12,0.35]</b>
	$R^2$	.06	.09	.08
	$N$	2342	738	2342
				.10
				738

95% confidence intervals in brackets

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*\*\*\*  $p < 0.001$

**Table A5: predicting high status occupation for men by family social class of origin and degree status (type of university and subject)**

	Degree		Degree + controls	
	Working class	Middle class	Working class	Middle class
<b>Highest-qual (ref: O Level)</b>				
No/low quals	-0.04** [-0.08,-0.01]	0.01 [-0.08,0.10]	0.00 [-0.04,0.04]	0.03 [-0.07,0.12]
A Levels/dip	0.12**** [0.07,0.16]	0.08 [-0.02,0.18]	0.11**** [0.06,0.16]	0.02 [-0.08,0.12]
<b>OSSAH degree (regular)</b>	<b>0.21****</b> <b>[0.14,0.28]</b>	<b>0.08</b> <b>[-0.03,0.19]</b>	<b>0.18****</b> <b>[0.11,0.26]</b>	<b>-0.02</b> <b>[-0.14,0.10]</b>
<b>OSSAH degree (highly selective)</b>	<b>0.28****</b> <b>[0.17,0.38]</b>	<b>0.36****</b> <b>[0.22,0.49]</b>	<b>0.16***</b> <b>[0.05,0.27]</b>	<b>0.22***</b> <b>[0.07,0.38]</b>
<b>STEM degree (regular)</b>	<b>0.38****</b> <b>[0.31,0.44]</b>	<b>0.41****</b> <b>[0.30,0.53]</b>	<b>0.33****</b> <b>[0.26,0.40]</b>	<b>0.30****</b> <b>[0.16,0.43]</b>
<b>STEM degree (highly selective)</b>	<b>0.46****</b> <b>[0.36,0.56]</b>	<b>0.55****</b> <b>[0.42,0.69]</b>	<b>0.33****</b> <b>[0.22,0.44]</b>	<b>0.42****</b> <b>[0.26,0.57]</b>
<b>LEM degree (regular)</b>	<b>0.44****</b> <b>[0.35,0.52]</b>	<b>0.10</b> <b>[-0.04,0.24]</b>	<b>0.38****</b> <b>[0.29,0.47]</b>	<b>-0.03</b> <b>[-0.18,0.13]</b>
<b>LEM degree (highly selective)</b>	<b>0.34***</b> <b>[0.13,0.55]</b>	<b>0.55****</b> <b>[0.36,0.74]</b>	<b>0.25**</b> <b>[0.04,0.46]</b>	<b>0.43****</b> <b>[0.22,0.63]</b>
	$R^2$	.15	.15	.17
	$N$	2377	788	788

95% confidence intervals in brackets

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*\*\*\*  $p < 0.001$

**Table A6: predicting high status occupation for women by family social class of origin and degree status (type of university and subject)**

	Degree		Degree + controls	
	Working class	Middle class	Working class	Middle class
<b>Highest-qual (ref: O Level)</b>				
No/low quals	-0.03** [-0.06,-0.00]	0.04 [-0.05,0.13]	-0.01 [-0.04,0.02]	0.07 [-0.02,0.17]
A Levels/dip	0.04** [0.00,0.07]	0.01 [-0.07,0.10]	0.03* [-0.00,0.07]	0.00 [-0.09,0.09]
<b>OSSAH degree (regular)</b>	<b>0.09****</b> <b>[0.04,0.13]</b>	<b>0.15****</b> <b>[0.07,0.23]</b>	<b>0.06**</b> <b>[0.01,0.10]</b>	<b>0.12**</b> <b>[0.02,0.21]</b>
<b>OSSAH degree (highly selective)</b>	<b>0.13****</b> <b>[0.06,0.20]</b>	<b>0.13**</b> <b>[0.03,0.24]</b>	<b>0.07*</b> <b>[-0.00,0.15]</b>	<b>0.07</b> <b>[-0.06,0.20]</b>
<b>STEM degree (regular)</b>	<b>0.11***</b> <b>[0.04,0.18]</b>	<b>0.29****</b> <b>[0.16,0.43]</b>	<b>0.07**</b> <b>[0.00,0.14]</b>	<b>0.25****</b> <b>[0.10,0.40]</b>
<b>STEM degree (highly selective)</b>	<b>0.38****</b> <b>[0.28,0.49]</b>	<b>0.53****</b> <b>[0.40,0.66]</b>	<b>0.32****</b> <b>[0.22,0.43]</b>	<b>0.45****</b> <b>[0.30,0.60]</b>
<b>LEM degree (regular)</b>	<b>0.31****</b> <b>[0.25,0.38]</b>	<b>0.36****</b> <b>[0.24,0.48]</b>	<b>0.28****</b> <b>[0.21,0.35]</b>	<b>0.30****</b> <b>[0.16,0.43]</b>
<b>LEM degree (highly selective)</b>	<b>0.60****</b> <b>[0.45,0.76]</b>	<b>0.44****</b> <b>[0.26,0.62]</b>	<b>0.51****</b> <b>[0.35,0.67]</b>	<b>0.36****</b> <b>[0.17,0.56]</b>
	$R^2$	.09	.14	
	$N$	2342	738	
			.10	.14
			2342	738

95% confidence intervals in brackets

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*\*\*\*  $p < 0.001$

Regression analysis tables: gross hourly earnings

**Table A7: predicting (log of) gross hourly earnings for men by family social class of origin and degree status**

	Degree		Degree + controls	
	Working class	Middle class	Working class	Middle class
<b>Highest-qual (ref: O Level)</b>				
No/low quals	-0.17**** [-0.23,-0.12]	0.04 [-0.11,0.18]	-0.06* [-0.12,0.00]	0.12 [-0.02,0.27]
A Levels/dip	0.22**** [0.15,0.29]	0.37**** [0.21,0.52]	0.17**** [0.10,0.25]	0.34**** [0.19,0.50]
<b>Degree +</b>	<b>0.53****</b> <b>[0.46,0.60]</b>	<b>0.71****</b> <b>[0.59,0.84]</b>	<b>0.37****</b> <b>[0.30,0.45]</b>	<b>0.52****</b> <b>[0.37,0.67]</b>
$R^2$	.18	.19	.24	.25
$N$	2349	778	2349	778

95% confidence intervals in brackets

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*\*\*\*  $p < 0.001$

**Table A8: predicting (log of) gross hourly earnings for women by family social class of origin and degree status**

	Degree		Degree + controls	
	Working class	Middle class	Working class	Middle class
<b>Highest-qual (ref: O Level)</b>				
No/low quals	-0.17**** [-0.22,-0.12]	0.07 [-0.07,0.22]	-0.10**** [-0.16,-0.04]	0.15* [-0.00,0.30]
A Levels/dip	0.17**** [0.11,0.23]	0.23*** [0.09,0.36]	0.13**** [0.07,0.20]	0.20*** [0.05,0.34]
<b>Degree +</b>	<b>0.55****</b> <b>[0.49,0.61]</b>	<b>0.61****</b> <b>[0.50,0.73]</b>	<b>0.40****</b> <b>[0.33,0.47]</b>	<b>0.48****</b> <b>[0.33,0.63]</b>
$R^2$	.20	.17	.24	.21
$N$	2310	730	2310	730

95% confidence intervals in brackets

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*\*\*\*  $p < 0.001$

**Table A9: predicting (log of) gross hourly earnings for men by family social class of origin and degree status (type of university)**

	Degree		Degree + controls	
	Working class	Middle class	Working class	Middle class
<b>Highest-qual (ref: O Level)</b>				
No/low quals	-0.17**** [-0.23,-0.12]	0.04 [-0.11,0.18]	-0.06* [-0.12,0.00]	0.12 [-0.03,0.27]
A Levels/dip	0.22**** [0.15,0.29]	0.37**** [0.21,0.52]	0.17**** [0.10,0.25]	0.34**** [0.19,0.50]
<b>Degree (regular)</b>	<b>0.51****</b> <b>[0.43,0.58]</b>	<b>0.64****</b> <b>[0.50,0.77]</b>	<b>0.34****</b> <b>[0.30,0.46]</b>	<b>0.55****</b> <b>[0.34,0.66]</b>
<b>Degree (highly selective)</b>	<b>0.61****</b> <b>[0.49,0.72]</b>	<b>0.84****</b> <b>[0.68,0.99]</b>	<b>0.34****</b> <b>[0.22,0.47]</b>	<b>0.55****</b> <b>[0.36,0.74]</b>
	<i>R</i> <sup>2</sup>	.18	.19	.24
	<i>N</i>	2349	778	2349
				778

95% confidence intervals in brackets

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*\*\*\*  $p < 0.001$

**Table A10: predicting (log of) gross hourly earnings for women by family social class of origin and degree status (type of university)**

	Degree		Degree + controls	
	Working class	Middle class	Working class	Middle class
<b>Highest-qual (ref: O Level)</b>				
No/low quals	-0.17**** [-0.22,-0.12]	0.07 [-0.07,0.21]	-0.10**** [-0.16,-0.04]	0.15* [-0.00,0.29]
A Levels/dip	0.17**** [0.11,0.23]	0.23*** [0.09,0.36]	0.14**** [0.07,0.20]	0.20*** [0.05,0.34]
<b>Degree + (regular)</b>	<b>0.50****</b> <b>[0.43,0.57]</b>	<b>0.55****</b> <b>[0.43,0.68]</b>	<b>0.38****</b> <b>[0.30,0.45]</b>	<b>0.46****</b> <b>[0.31,0.61]</b>
<b>Degree + (highly selective)</b>	<b>0.71****</b> <b>[0.60,0.81]</b>	<b>0.73****</b> <b>[0.59,0.87]</b>	<b>0.49****</b> <b>[0.37,0.61]</b>	<b>0.54****</b> <b>[0.35,0.72]</b>
	<i>R</i> <sup>2</sup>	.21	.18	.24
	<i>N</i>	2310	730	2310

95% confidence intervals in brackets

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*\*\*\*  $p < 0.001$



**Table A11: predicting (log of) gross hourly earnings for men by family social class of origin and degree status (type of university and subject)**

	Degree		Degree + controls	
	Working class	Middle class	Working class	Middle class
<b>Highest-qual (ref: O Level)</b>				
No/low quals	-0.17 <sup>****</sup> [-0.23,-0.12]	0.04 [-0.11,0.18]	-0.06 <sup>**</sup> [-0.12,-0.00]	0.13 <sup>*</sup> [-0.02,0.27]
A Levels/dip	0.22 <sup>****</sup> [0.15,0.29]	0.37 <sup>****</sup> [0.21,0.52]	0.18 <sup>****</sup> [0.10,0.25]	0.35 <sup>****</sup> [0.19,0.50]
<b>OSSAH degree (regular)</b>	<b>0.31<sup>****</sup></b> <b>[0.20,0.41]</b>	<b>0.54<sup>****</sup></b> <b>[0.37,0.71]</b>	<b>0.22<sup>****</sup></b> <b>[0.11,0.33]</b>	<b>0.45<sup>****</sup></b> <b>[0.26,0.63]</b>
<b>OSSAH degree (highly selective)</b>	<b>0.53<sup>****</sup></b> <b>[0.36,0.70]</b>	<b>0.73<sup>****</sup></b> <b>[0.52,0.94]</b>	<b>0.29<sup>****</sup></b> <b>[0.12,0.46]</b>	<b>0.43<sup>****</sup></b> <b>[0.19,0.66]</b>
<b>STEM degree (regular)</b>	<b>0.57<sup>****</sup></b> <b>[0.47,0.67]</b>	<b>0.62<sup>****</sup></b> <b>[0.44,0.80]</b>	<b>0.44<sup>****</sup></b> <b>[0.33,0.54]</b>	<b>0.47<sup>****</sup></b> <b>[0.28,0.67]</b>
<b>STEM degree (highly selective)</b>	<b>0.67<sup>****</sup></b> <b>[0.52,0.83]</b>	<b>0.86<sup>****</sup></b> <b>[0.65,1.07]</b>	<b>0.40<sup>****</sup></b> <b>[0.23,0.57]</b>	<b>0.58<sup>****</sup></b> <b>[0.34,0.82]</b>
<b>LEM degree (regular)</b>	<b>0.73<sup>****</sup></b> <b>[0.60,0.87]</b>	<b>0.85<sup>****</sup></b> <b>[0.63,1.06]</b>	<b>0.57<sup>****</sup></b> <b>[0.43,0.71]</b>	<b>0.67<sup>****</sup></b> <b>[0.44,0.91]</b>
<b>LEM degree (highly selective)</b>	<b>0.63<sup>****</sup></b> <b>[0.30,0.96]</b>	<b>1.05<sup>****</sup></b> <b>[0.75,1.34]</b>	<b>0.41<sup>**</sup></b> <b>[0.08,0.73]</b>	<b>0.80<sup>****</sup></b> <b>[0.49,1.11]</b>
	$R^2$	.19	.20	.25
	$N$	2349	778	2349

95% confidence intervals in brackets

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*\*\*\*  $p < 0.001$

**Table A12: predicting (log of) gross hourly earnings for women by family social class of origin and degree status (type of university and subject)**

	Degree		Degree + controls	
	Working class	Middle class	Working class	Middle class
<b>Highest-qual (ref: O Level)</b>				
No/low quals	-0.17**** [-0.22,-0.12]	0.07 [-0.07,0.21]	-0.10**** [-0.15,-0.04]	0.14* [-0.00,0.29]
A Levels/dip	0.17**** [0.11,0.23]	0.23*** [0.09,0.36]	0.14**** [0.07,0.20]	0.20*** [0.05,0.34]
<b>OSSAH degree (regular)</b>	<b>0.43****</b> <b>[0.35,0.51]</b>	<b>0.50****</b> <b>[0.37,0.63]</b>	<b>0.31****</b> <b>[0.22,0.40]</b>	<b>0.42****</b> <b>[0.26,0.58]</b>
<b>OSSAH degree (highly selective)</b>	<b>0.60****</b> <b>[0.47,0.73]</b>	<b>0.62****</b> <b>[0.45,0.79]</b>	<b>0.39****</b> <b>[0.25,0.53]</b>	<b>0.42****</b> <b>[0.21,0.63]</b>
<b>STEM degree (regular)</b>	<b>0.52****</b> <b>[0.39,0.64]</b>	<b>0.58****</b> <b>[0.36,0.80]</b>	<b>0.41****</b> <b>[0.28,0.54]</b>	<b>0.48****</b> <b>[0.25,0.72]</b>
<b>STEM degree (highly selective)</b>	<b>0.79****</b> <b>[0.60,0.97]</b>	<b>0.78****</b> <b>[0.58,0.99]</b>	<b>0.59****</b> <b>[0.40,0.79]</b>	<b>0.56****</b> <b>[0.33,0.80]</b>
<b>LEM degree (regular)</b>	<b>0.69****</b> <b>[0.56,0.82]</b>	<b>0.71****</b> <b>[0.51,0.90]</b>	<b>0.55****</b> <b>[0.41,0.68]</b>	<b>0.56****</b> <b>[0.35,0.78]</b>
<b>LEM degree (highly selective)</b>	<b>1.10****</b> <b>[0.81,1.39]</b>	<b>1.01****</b> <b>[0.71,1.31]</b>	<b>0.82****</b> <b>[0.52,1.11]</b>	<b>0.85****</b> <b>[0.54,1.17]</b>
	$R^2$	.21	.19	.24
	$N$	2310	730	2310

95% confidence intervals in brackets

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ , \*\*\*\*  $p < 0.001$

### Interactions: summary tables

The stars in the tables indicate which interactions between degree status and family background are significantly different, meaning that the percentage increase (or decrease) in a high status occupation or in the earnings of men and women with a degree differ depending on their family background. Only one interaction was significant for women once all other personal and family background characteristics had been controlled for.

### High status occupation

**Table A13: Interactions between degree status and family background on high status occupations for men from regression analysis: beta coefficients**

Highest Qualification Ref category: O Level	Degree		Degree + controls	
	Working class	Middle class	Working class	Middle class
Degree	0.34	0.30	.28	<b>.16**</b>
Degree [Regular]	0.33	.20***	.28	<b>.09***</b>
Degree [Highly Selective]	0.37	<b>.47*</b>	.24	.33
OSSAH [Regular]	.21	<b>.08**</b>	.18	<b>-.02***</b>
OSSAH [Highly Selective]	.28	.36	.16	.22
STEM [Regular]	.38	.41	.33	.30
STEM [Highly Selective]	.46	.55	.33	.42
LEM [Regular]	.44	<b>.10****</b>	.38	<b>-.03****</b>
LEM [Highly Selective]	.34	.55	.25	.43
<i>N</i>	2377	788	2377	788

\* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01, \*\*\*\* p < 0.001

**Table A14: Interactions between degree status and family background on high status occupations for women from regression analysis: beta coefficients**

Highest Qualification Ref category: O Level	Degree		Degree + controls	
	Working class	Middle class	Working class	Middle class
Degree	.17	<b>.25**</b>	.12	.18
Degree [Regular]	.14	<b>.22**</b>	.10	.17
Degree [Highly Selective]	.25	.31	.18	.23
OSSAH [Regular]	.09	.15	.06	.12
OSSAH [Highly Selective]	.13	.13	.07	.07
STEM [Regular]	.11	<b>.29**</b>	.07	<b>.25**</b>
STEM [Highly Selective]	.38	<b>.53*</b>	.32	.45
LEM [Regular]	.31	.36	.28	.30
LEM [Highly Selective]	.60	.44	.51	.36
<i>N</i>	2342	738	2342	738

\* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01, \*\*\*\* p < 0.001

Gross hourly earnings

**Table A15: Interactions between degree status and family background on gross hourly earnings for men from regression analysis: beta coefficients**

Highest Qualification Ref category: O Level	Degree		Degree + controls	
	Working class	Middle class	Working class	Middle class
Degree	.53	<b>.71***</b>	.37	<b>.52**</b>
Degree [Regular]	.51	<b>.64*</b>	.38	.50
Degree [Highly Selective]	.61	<b>.84**</b>	.34	.55*
OSSAH [Regular]	.31	<b>.54**</b>	.22	<b>.45**</b>
OSSAH [Highly Selective]	.53	.73	.29	.43
STEM [Regular]	.57	.62	.44	.47
STEM [Highly Selective]	.67	.86	.40	.58
LEM [Regular]	.73	.85	.57	.67
LEM [Highly Selective]	.63	<b>1.05*</b>	.41	<b>.80*</b>
<i>N</i>	2349	778	2349	778

\* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01, \*\*\*\* p < 0.001

**Table A16: Interactions between degree status and family background on gross hourly earnings for women from regression analysis: beta coefficients**

Highest Qualification Ref category: O Level	Degree		Degree + controls	
	Working class	Middle class	Working class	Middle class
Degree	.55	.61	.40	.48
Degree [Regular]	.50	.55	.38	.46
Degree [Highly Selective]	.77	.73	.49	.54
OSSAH [Regular]	.43	.50	.31	.41
OSSAH [Highly Selective]	.60	.62	.39	.42
STEM [Regular]	.52	.58	.41	.48
STEM [Highly Selective]	.79	.78	.59	.56
LEM [Regular]	.69	.71	.55	.56
LEM [Highly Selective]	1.10	1.01	.82	.85
<i>N</i>	2310	730	2310	730

\* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01, \*\*\*\* p < 0.001