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DOES SOCIOECONOMIC BACKGROUND AFFECT PAY GROWTH AMONG EARLY ENTRANTS TO HIGH-STATUS JOBS?

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NIESR Discussion Paper No. 453

Date: 6 August 2015

National Institute of Economic and Social Research

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This paper was first published in August 2015

Does socioeconomic background affect pay growth among early entrants to high-status jobs?

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Abstract

Young people from less advantaged backgrounds are less likely to enter a "professional" job on leaving university (Macmillan et al., 2013). However, this does not tell us about the performance of those who do. This paper considers the relative salary growth of graduates that secure a high-status job by both parental occupational status and school type, using data from a recent survey of English graduates. Using non-parametric techniques and regression modelling, I estimate the relationship between these measures of socio-economic status and pay progression in a "professional" job. I find no evidence of a pay growth differential by parents' occupational status but do find faster pay growth among those that attended a private school, even once I control for a range of background characteristics. Conversely, I find that individuals from state school backgrounds are just as likely to remain in high-status jobs at this early stage of their careers.

Acknowledgements

I gratefully acknowledge funding from The Sutton Trust and upReach to conduct this analysis and for the purchase of the dataset. I am grateful to Lindsey Macmillan, Claire Tyler, and Anna Vignoles who provided helpful advice on their previous use of the Long-DeLHE; also to Manuel Souto-Otero who carried out a literature review for the project that informs this work.

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1 Introduction

It has been established in previous work that young people from less advantaged backgrounds are not as likely to enter a 'professional' job on leaving university as their advantaged peers. This differential persists even once we focus on individuals with similar levels of academic achievement up to this point (Macmillan et al., 2013). Such work builds on a growing literature regarding the differences that people from different social backgrounds experience in the transition from higher education to employment (Bukodi and Goldthorpe, 2011b; Crawford, 2014), and on the relationship between the occupations of parents and their children more generally (Black and Devereux, 2011; Corak, 2013; Corak and Piraino, 2010; Pérez-González, 2006; Iannelli, 2002). In general, such studies find that social background matters, especially in the UK, where the importance for graduates of social advantage to entering the professions appears stronger than in other European countries, such as Germany (Iannelli, 2014).

Much of the literature has been concerned with the extent to which the effect of class of origin on class of destination operates through educational attainment (Breen, 2004; Hout and DiPrete, 2006). While there may be a weaker impact of social origin on occupational status among those that obtain higher education, it has been questioned how much of a role education can play in ultimately breaking the link between background and outcomes (Goldthorpe, 2013), particularly given the persistence of inequality even among those with high levels of education (Crawford, 2014; Naylor et al., 2007).

However, social mobility is not just about entry to these 'high status' jobs (Laurison and Friedman, 2015). Analysis of entry alone does not tell us about the relative performance of young people who do enter positions of this kind and, hence, whether individuals from less advantaged backgrounds are just as well placed to build on this starting point or whether there are still factors holding them back. Previous analysis has highlighted that there are differences in graduate salaries by socio-economic background (Crawford, 2014), but we do not know whether this is compounded or diluted once individuals enter the labour market. This paper builds on these previous findings and provides new evidence about the important question of what happens after graduates enter the labour market.[1]

This paper considers at the salary growth of graduates who secure a 'high-status' (i.e. higher managerial, administrative or professional) job immediately after completing their first degree. There is further detail below on the exact definition used. I focus on comparing individuals based on their parents' occupational status, which previous work has found plays a role in entering high-status jobs (Macmillan et al., 2013), and by whether, prior to entering higher education (HE), they attended state (publicly-funded) or private (fee-paying) schools, which has previously been linked to differences in graduate salaries (Machin et al., 2009).

While success in a job is measured by more than just pay growth, increases in salary are likely to be corre-

[1]Further background is available in the accompanying literature review by Souto-Otero (2015).

lated with graduates' performance in their jobs, although it should not be overlooked that this is only part of occupational success (Bukodi and Goldthorpe, 2011a; Erikson and Goldthorpe, 2010). As such, differential pay growth between these relatively advantaged and disadvantaged groups is informative about whether individuals' educational advantage continues to pay a role once graduates enter the labour market. As an additional contribution, this paper also considers the socioeconomic gradient in whether individuals remain in a 'professional' job and if this plays any role in explaining the patterns of pay growth that we observe.

To conduct this analysis I make use of data from the Higher Education Statistics Agency's (HESA) Longitudinal Destinations of Leavers of Higher Education (Long-DeLHE) survey. This follows up recent leavers of British HE institutions with questions about their current activities and is linked to data on their performance at university and some information on their family background. I restrict my attention to UK-domiciled students, in the interests of focusing on a comparable sample.

This paper proceeds as follows. In Section 2, I provide further information on the LongDeLHE and the sample analysed in this work. This is followed, in Section 3, by an initial exploration of salary growth between 6 months after graduation and 3 years later among individuals in "professional" occupations and how this varies by their socioeconomic background, finding differences based on school type but not based on parental occupational status. In order to explore the school-type inequalities further, Section 4 lays out regression models to analyse the extent to which the descriptive patterns are driven by observable differences between private and state school entrants to professional occupations. The results of this analysis are reported in Section 5, without finding evidence that this gap is explained by observable characteristics. In addition, Section 6 explores whether individuals remain in a professional job during the period of analysis and whether this has a role in explaining the school type inequalities found. Finally, Section 7 concludes by summarising and discussing the implications of these findings.

2 Data

In this paper I analyse a linked dataset made up of Higher Education Statistics Agency (HESA) administrative data, along with survey data from HESA's Destinations of Leavers of Higher Education (DeLHE) (conducted 6 months after graduation) and its follow up the Longitudinal Destinations of Leavers of Higher Education (Long-DeLHE) surveys (conducted 3 years later). These datasets provide information on UK- and EU- domiciled students and their activities in the first few years after they graduate from Higher Education, along with some information about their social and academic background. Specifically, I use data from the 2008/09 survey of leavers. We should recognise the particular circumstances of this cohort, who entered the labour market during the particularly challenging circumstances of a large recession when high-status jobs may have been particularly scarce and competitive.

For the purposes of this paper I define early entry into 'high-status' employment as being in a job that is in

the top National Statistics Socio-Economic Classification (NS-SEC) category, described as 'higher managerial, administrative and professional occupations', by the time of the DeLHE survey 6 months after graduation.[2] A selection of jobs in this group include accountants, economists, solicitors, pharmacists, psychologists, higher education teachers and researchers, engineers, scientists, probation officers, and aircraft pilots. The NS-SEC system was based on sociological principles to capture differences in employment relations that have implications for economic life chances and security (Rose et al., 2005, pp.14-20); those that enter high status jobs of this kind are likely to have better life outcomes across a number of dimensions. The top NS-SEC category makes up around a fifth of this dataset (approximately 2,200 individuals),[3] which is of course already advantaged due to being focused on higher education leavers. Average characteristics of the whole Long-DeLHE sample are reported in Table 1 and compared to those of individuals in this top NS-SEC group.

Table 1: Average characteristics of sample by whether participants are in a top NS-SEC job by 6 months post-graduation

	Whole sample		Top NS-SEC	
	Mean	SD	Mean	SD
Top NS-SEC category	0.22	0.41	1.00	0.00
Top 2 NS-SEC categories	0.61	0.49	1.00	0.00
Top 2 SOC categories	0.39	0.49	0.97	0.17
Salary at 6 months	18,801	6,029	22,863	6,063
Salary at 3.5 years	25,744	9,663	32,213	11,080
Parent Top NS-SEC	0.25	0.43	0.29	0.45
Parent 2nd NS-SEC	0.31	0.46	0.33	0.47
Lived in Low Participation Neighbourhood	0.10	0.30	0.07	0.26
Attended Private School	0.10	0.30	0.16	0.37
1st Class Degree	0.19	0.39	0.30	0.46
2.i Class Degree	0.53	0.50	0.48	0.50
Attended Oxford/Cambridge Uni.	0.02	0.15	0.05	0.21
Attended Russell Group Uni.	0.28	0.45	0.46	0.50
Attended 1994 Group Uni.	0.05	0.23	0.06	0.24
Ethnicity: White	0.88	0.32	0.85	0.36
Ethnicity: Black	0.02	0.15	0.02	0.15
Ethnicity: Asian	0.06	0.23	0.08	0.27
Ethnicity: Other	0.02	0.13	0.02	0.13
Age	22.52	5.11	21.95	3.61
HE Entry Tariff (New)	279.07	103.25	287.64	114.56
HE Entry Tariff (Old)	353.92	118.67	395.16	120.34
N	9,211		2,243	

Notes. Weighted using HESA-provided design and non-response weights for the Long-DeLHE. Sample: Long-DeLHE survey respondents in a top NS-SEC job at 6 months after graduation.

There are disadvantages inherent in using such an early measure of entry to the professions to define the analysis group. It seems perfectly possible that graduates take somewhat longer to get the first job they intend

[2]The NS-SEC categories are derived from the five digit Standard Occupational Classification 2000 (SOC2000) code available for the the six month survey using the method detailed in Rose et al. (2005).

[3]I also conduct the analysis on those who enter a job that is in the top 2 NS-SEC category by 6 months after graduation (approximately 60% of the dataset, 5,800 individuals) and those who enter a job that is in the top 2 SOC2000 categories by 6 months after graduation (approximately two fifths of the dataset, 3,753 individuals).

as a starting point for a career. Indeed, for this reason Macmillan et al. (2013) defined entry to 'top jobs' using the survey 3 and a half years after graduation, on the grounds that "[s]ome may take temporary jobs or indeed no job at all" (Macmillan et al., 2013) before their first serious position. This is potentially more of a concern if graduates that enter high-status jobs within 6 months are not representative of those that enter within 3.5 years, as suggested by Iannelli (2014). In order to explore this I model entry to a job in the top 2 SOC2000 categories at both 6 months and 3.5 years post-graduation.[4] This suggests that measuring at 6 months post-graduation will mean the analysis sample will be more advantaged than if we had defined it using those in high-status jobs 3 years later.

In order to concentrate on a comparable sample, I focus on UK-domiciled survey participants who have graduated from an undergraduate first degree and have not gone on to further full-time study. In addition, although medicine is considered a high-status job I exclude those who studied medicine (and hence those in medical jobs) from the analysis sample. This is primarily because the early career path of medics is highly regulated and, as such, there is unlikely to be any significant variation in the pay progression of graduates on this track at this early stage in their careers. However, in addition, medical degrees tend not to be awarded a degree classification; since I am planning to use this as one of the observable measures of difference between graduates that may explain differences in their salary growth this would group all medics in with low performing graduates, potentially confounding the influence of this factor.

The Long-DeLHE is a deliberate sub-sample of those who participate in the DeLHE[5] with oversampling for certain sub-groups to ensure there are enough individuals within such groups for analysis of these individuals. In addition, as 47% of those invited to take part in the Long-DeLHE responded (Shury and Vivian, 2013, p.20) non-random sample attrition also likely to have occurred between the 6 month and 3.5 year surveys. As such, I use the inverse probability weights provided by HESA with the dataset in order to at least partially account for both deliberate and modelled sample selection (HESA, 2013).

Table 2: Gross annual earnings 6 months after graduation (£) - entered top NS-SEC by 6 months after graduation

	Mean	Median	SD	N
Salary at 6 months	22,510	22,000	6,160	9,849
Salary reported at 6 months and individual in 3.5 year sample	22,726	22,000	5,953	2,627
Salary reported at 6 months and salary reported at 3.5 years	22,900	23,000	5,825	2,243

Notes. Weighted using HESA-provided design and non-response weights for the Long-DeLHE. Sample: Long-DeLHE survey respondents in a top NS-SEC job at 6 months after graduation.

[4] I use the SOC2000 grouping for this purpose, rather than NS-SEC, since, as noted above, the details needed to construct this were not provided at the 3.5 years post-graduation time point in the dataset obtained from HESA. Further details on the SOC2000 classification is provided in Section 6.

[5] The 2008/09 DeLHE itself achieved an 81.4% response rate among full-time UK-domiciled former-students, above their target rate of 80%.

The income data available in the DeLHE and Long-DeLHE is based on a single question self-report at each time point. Participants are asked to report their current salary to the nearest £1,000. Obviously this significantly reduces the amount of variation in our salary estimates. In addition, the low quality of salary reports based on a single question have been previously highlighted in the literature (Micklewright and Schnepf, 2010). There may also be concerns about issues of non-response to income questions reducing the representativeness of the sample. Table 2 demonstrates that there is a significant sample loss associated with restricting it to those with available salary data 3.5 years after graduation. Much of this is to do with a general attrition between the two time points, but in addition there is some further exclusion due to item non-response. Nevertheless, it is reassuring to see that there is not a particularly large change in the mean salary at 6 months depending on whether or not salary data is observed at 3.5 years.

This paper considers the difference in pay growth between graduates by whether they attended a state (publicly-funded) or private (fee-paying) school, and between graduates whose parents have 'high' levels of occupational status and those below this. While these two aspects of socioeconomic status (SES) are correlated, they will capture distinct aspects of advantage that may have affected graduates abilities to prosper in the labour market.

Data on school type attended is available for all individuals in the sample. However, there are some disadvantages to using state/private school attendance as a measure of SES, one of which being that it is a rather blunt instrument, providing only a binary indicator between a relatively small advantaged group (only about 7% of the secondary school population attend private schools) and the rest of the population. In addition, there are situations when advantaged individuals attend state schools, for example in the presence of selective 'grammar' schools, and, conversely, less advantaged individuals attend private schools, for example supported by bursaries. Nevertheless, it has been shown in other work that there is a high correlation between private school attendance and other measures of SES, such as family income. Analysis using the Longitudinal Study of Young People in England estimates that those who attend state schools have a median equivalised family income of £14,800, while the same figure for those who attend private schools is £31,000.

Data on parental occupational status is also available, grouped using the National Statistics Social Economic Classification (NS-SEC). For the purposes of this analysis, I dichotomise the full NS-SEC into 'high' (categories 1 and 2, i.e. professional and managerial jobs) and 'low' (anything below this), following the example of Macmillan et al. (2013). The parental NS-SEC reported is based on individuals' self-reports of the occupation of their highest-earning parent, recorded using a free text field as part of the UCAS (Universities and Colleges Admissions Service) online application form. This variable suffers from a high-level of missingness, with parents' NS-SEC not available in 13.1% of cases. This may have several causes: non-response due to individuals not knowing; individuals choosing not to report their parent's job if they believe it may affect their chances of securing a university place (although it is stated at time of submission that it will not be used in this way); and

where the response given is too vague to be reliably translated into an occupational classification. Despite all such issues, previous validation studies (albeit with younger children and in differing contexts) have suggested a reasonably strong correlation between children's and parents' reports (Engzell and Jonsson, 2015; Lien, 2001; West et al., 2001), although it may be somewhat biased by other aspects of background such as financial stress (Pu et al., 2011).

In addition to measurement of income and SES, we also wish to control for graduates' other background characteristics that may also be relevant in explaining differences in their job performance and hence salary growth during this period. In the data we observe graduates' degree classification, the subject they studied at university, the institution from which they received their degree, and their HE entry tariff. I discuss these in turn.

The HE entry tariff provides information on the academic qualifications held by graduates at the point of their admission to university. A particular challenge for the cohort included in this dataset is that the method of constructing the tariff changed for some of those applying in the later academic year. HESA documentation states that there is no way of converting between the old and new measures. In order to take account of the new-style tariff information in the regression models when that is all that is available I make use of a missing variable dummy strategy. When only the new-style tariff is available I set the old-style measure to its average value[6] and include a dummy variable indicating that the old-style measure is not available.[7]

Studying different subjects in HE is differentially rewarded in the labour market (Bratti et al., 2008; de Vries, 2014). Whatever the explanation for this, it will be important to recognise this in the analysis of pay growth, especially as it is plausible that individuals from different socioeconomic backgrounds have different probabilities of studying different subjects. As there are a large number of possible subjects of study across the UK HE sector I group these together using the Joint Academic Coding System (JACS) of Higher Education subjects of study into Biological Sciences, Subjects allied to Medicine,[8] Veterinary Sciences, Physical Sciences, Maths and Computing, Engineering, Technology, Architecture, Social Studies, Law, Business, Communications, Linguistics, European Languages, Non-European Languages, History/Philosophy, Arts, Education, or a combination of these.

Degree classification seems likely to be an important indicator of graduates' academic attainment and, hence, their labour market potential. We observe whether participants are awarded a first class, upper second class (2.i), lower second class (2.ii), third class, or unclassified degree, in descending order of merit. Achieving a first class degree is particularly associated with early entry into a top NS-SEC job: while 19% of the whole sample are awarded first class degrees, among those in top NS-SEC jobs 6 months after graduation 30% achieved at

[6]Similarly when the old-style tariff is available I set the new-style measure to be at its average value.

[7]Additionally, I test the robustness of these results to restricting the sample to the 94% for whom the old-style tariff score is available. This does not make any substantive difference to the results.

[8]As noted above, those studying Medicine itself, or who enter the medical profession on leaving HE, are excluded from this analysis due to the highly structured early career progression path.

this level. 53% of the sample receive a upper second class degree, while a lower proportion of those in top NS-SEC jobs did so (48%).

It has been shown in previous work that attending different universities is associated with differing labour market returns (de Vries, 2014; Chevalier, 2014), although the extent to which this is causal and the extent to which it is driven by selection by students of different abilities into institutions is less clear. Universities are often grouped into self-selected 'mission groups'. The most prestigious of these is the Russell Group which, during the period of analysis, consisted of twenty of the most research intensive institutions.[9] Graduates from the Russell Group are clearly over-represented in top NS-SEC jobs: 28% of the whole sample attended a Russell Group institution, while 46% of those in these top NS-SEC jobs did so. The other mission groups are the 1994 Group,[10] University Alliance, Guild HE, and Million+. In addition, I split graduates from the universities of Oxford and Cambridge (colloquially referred to as Oxbridge) into a separate group from the rest of the Russell Group.

3 Growth in high-status graduates' salaries

It is unsurprising that the salaries of graduates in high status jobs increase in the period between 6 months after graduation and 3 years later (Table 3). The mean annual salary rises from £22,954 to £32,319, which is an increase of over 40%.

Table 3: Growth in mean gross annual earnings between 6 months and 3.5 years after graduation - entered top NS-SEC by 6 months post-graduation

	6 Months	3.5 Years	Absolute Difference	Percentage Increase
Full sample	22,954	32,319	9,365	44%
State school	22,735	31,586	8,851	42%
Private school	24,066	36,036	11,970	53%
Difference	1,331	4,450	3,119	11ppt.
Low parental NS-SEC	22,446	31,899	9,452	45%
High parental NS-SEC	23,174	32,616	9,442	44%
Difference	728	718	-10	-1ppt.

Notes. The difference in percentage increases is the percentage point difference. Weighted using HESA-provided design and non-response weights for the Long-DeLHE. Sample: Long-DeLHE survey respondents in a top NS-SEC job at 6 months after graduation. High parental NS-SEC indicates that an individual reports at least one of their parents has a professional or managerial job. Low parental NS-SEC denotes anything below this.

However, splitting the sample by whether respondents attended state or private schools reveals a significant

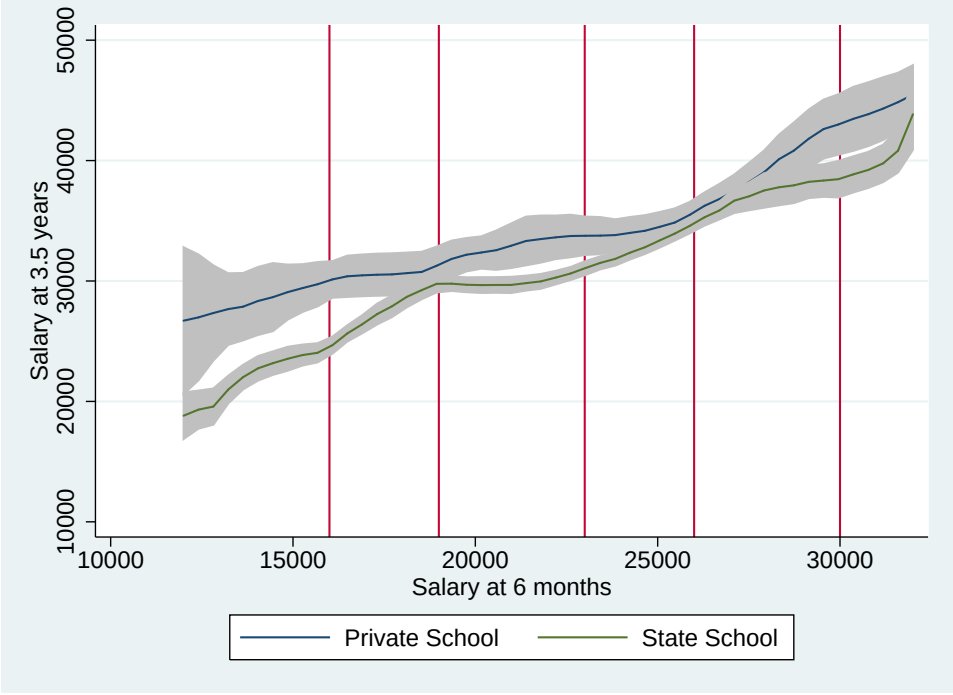
[9]For the purposes of this paper I include: Queen's University, Belfast; University of Birmingham; University of Bristol; University of Cambridge; University of Cardiff; University of Durham; University of Edinburgh; University of Exeter; University of Glasgow; Imperial College; King's College London; University of Leeds; University of Liverpool; London School of Economics; University of Manchester; University of Newcastle-upon-Tyne; University of Nottingham; University of Oxford; Queen Mary, University of London; University of Sheffield; University of Southampton; University College London; University of Warwick; and University of York.

[10]The 1994 Group has since disbanded, but continues to be a useful grouping for universities at this time. For the purposes of this paper I include: Birkbeck, University of London; University of East Anglia; University of Essex; Goldsmiths, University of London; Institute of Education, University of London; University of Lancaster; University of Leicester; Loughborough University; Royal Holloway, University of London; School of Oriental and African Studies, University of London; and University of Sussex.

difference in both the salaries at each time point, but also how much these grow. Those who attended state schools have a mean annual salary at 6 months after graduation of £22,735, while those who attended private schools already have a mean annual salary of £24,066. By 3 years later this has grown to £31,586 per year for those who attended state schools and to £36,036 per year for those who were at private schools, representing an increase for those at state schools of just under £9,000 and for those from private schools of almost £12,000 over the three year period.

Conversely, splitting the sample by whether respondents reported high parental NS-SEC, although we find some difference in starting salary (£22,446 vs. £23,117) there is no evidence of difference in the growth of these salaries. We see an increase for those with parents with high occupational status jobs of £9,442 and for those with parents whose occupational status is below this of £9,452.

Figure 1: Gross earnings of graduates at 6 months and 3.5 years post-graduation, by attendance at state or private school

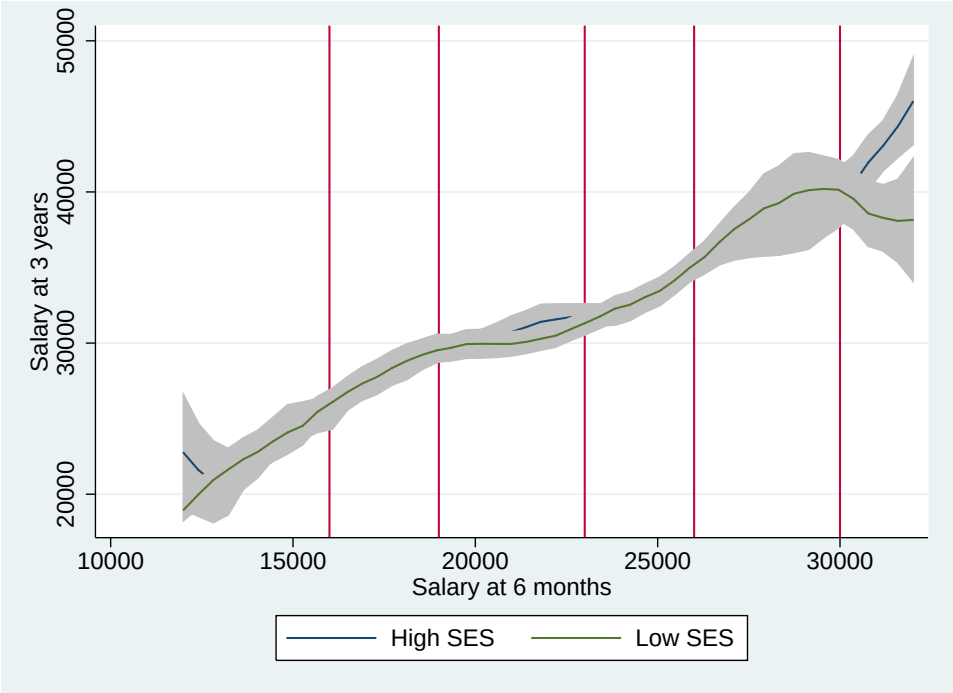


Notes: Weighted using HESA-provided design and non-response weights for the Long-DeLHE. Local polynomial smoothing using Epanechnikov kernel and Silverman's optimal bandwidth (1325.6936 for private school, 755.67157 for state school). 90% confidence intervals shown as grey area around point estimates. Sample: Long-DeLHE survey respondents in a top NS-SEC job at 6 months after graduation. Sample size: 2,113. Truncated at gross earnings below £12,000 or above £32,000. Vertical lines show 10th, 25th, 50th, 75th and 90th percentiles of income at 6 months post-graduation.

In order to assess growth over time in more detail, I estimate local polynomial smoothed estimates of the association between salary at 6 months post-graduation and salary 3 years later. The results are shown in Figure 1 by school type attended and in Figure 2 by parental occupational status. Given the small numbers with earnings outside this range, the graphs are restricted to those earning between £12,000 and £32,000 6 months after graduation. The upward gradients in the two graphs demonstrates that, unsurprisingly, individuals with higher salaries at 6 months are associated with higher salaries 3 years subsequently.

However, by plotting this line separately for graduates by whether they attended a state or private school

Figure 2: Gross earnings of graduates at 6 months and 3.5 years post-graduation, by parental occupational status



Notes: Weighted using HESA-provided design and non-response weights for the Long-DeLHE. Local polynomial smoothing using Epanechnikov kernel and Silverman's optimal bandwidth (832.20624 for high parental NS-SEC, 1265.7615 for low parental NS-SEC). 90% confidence intervals shown as grey area around point estimates. Sample: Long-DeLHE survey respondents in a top NS-SEC job at 6 months after graduation. Sample size: 1,777. Truncated at gross earnings below £12,000 or above £32,000. Vertical lines show 10th, 25th, 50th, 75th and 90th percentiles of income at 6 months post-graduation.

(Figure 1) we see that for any given level of salary at 6 months, graduates who attended a private school earn more, on average, 3 years later than do graduates who attended state schools. As with the changes in means discussed above, this is not the pattern when the lines are plotted by parental occupational status (Figure 2), instead the two lines track one another very closely across the range plotted suggesting no difference in pay growth.

Given the lack of difference in pay growth by graduates' parental occupational status for the rest of the paper I concentrate my attention on the difference associated with school type attended. I have subjected the former's results to the full regression analysis I describe in the next section, without this making any difference to the descriptive findings. This is an important finding in its own right; not reporting the regression results just reflects the fact that no additional insights emerge from these models.

Turning back to the results by school type, we cannot conclude from this initial analysis that it is necessarily the fact that young people attended independent or state schools that are driving the differential pay growth observed. There are a range of potentially confounding factors that may partially, or wholly, explain these differences. In order to explore I now turn to regression modelling in order to estimate differences in pay growth holding such other factors constant.

4 Regression modelling

In this section, I lay out the linear regression modelling approach that I use to explore individuals' pay growth further. Rather than just looking at the raw difference in average salary growth between individuals in state and private schools, this technique allows me to look at the difference conditional on a range of potentially confounding factors, using the background data available in the linked dataset.

One challenge when modelling changes in salary is whether we should be considering absolute changes or relative changes. The relatively linear relationship demonstrated in Figure 1 suggests that it is sensible to consider absolute changes in salary. In addition, estimates from these model are easier to interpret. Nevertheless, I have also re-estimated all models considering the relative change in salary size by using log wages at 3.5 years post-graduation as the outcome variable and wages at 6 months post-graduation as an additional explanatory variable. I also estimate a linear 'unrestricted' model, in which I simply include salary at 6 months as an additional regressor in models of salary 3 years later. Both of these 'unrestricted' models are reported in Appendix B. Reassuringly, these alternative approaches do not alter the substantive findings of this regression analysis.

In order to take account of graduates' other background characteristics in estimating any remaining SES gradient in pay progression during this period, I estimate linear regression models with the difference in the graduates' salaries between 6 months and 3.5 years post-graduation as the dependent variable. The linear regression model takes the following form:

$$y_{i,t=3.5} = \alpha + \beta_1 \text{SES}_i + \beta' \mathbf{X}_i + \varepsilon_i \quad (1)$$

where y =change in salary, SES is a dummy variable indicating an individual's background as measured by school type, **X** is a vector of controls discussed below, and ε is an error term.

I take a sequential approach to building up the regression model, adding more regressors that seem likely to explain an increasing proportion of the observed variation in young people's pay progression. There are several ways one might choose to group the additional variables; I take a broadly chronological approach, starting with those fixed at those at the earliest point in time and moving towards the snapshot at 6 months after graduation.

In my baseline model (M0) I place the descriptive estimates from the previous section into a regression framework. This verifies that the regression modelling is building on the descriptive statistics and also provides a baseline against which to judge the models that follow. As such, this model only includes a dummy variable indicating whether a graduate attended a state school, estimating the simple bivariate association; there are no additional independent variables.

A factor that is clearly likely to be associated with graduates' success in professional jobs is their academic ability. It is not possible to measure this trait directly, so I include prior academic attainment as a control in the first substantive model (M1), specifically graduates' HE entry tariff. Of course, we should note that school type and other SES measures may well have an influence on these levels of academic attainment in the first place, meaning that the estimate from this model focuses only on any continued influence after the point of measurement i.e. entry to HE. In addition, I add group of subject studied at HE at this point, along with demographic characteristics including ethnicity and age to ensure these do not act as confounders in the analysis.[11]

In the next model (M2) I bring the measures up to the end of university by adding academic performance in graduates' degrees, as measured by the degree classification that they are awarded. The aim of this model is to compare the salary growth of individuals with the same academic profile on entry to, and on leaving, university. Since many competitive graduate recruitment processes sift applications that they receive on the basis of degree classification, it is quite possible that only individuals with strong performance here will have been able to enter jobs in which there are strong salary growth opportunities.

In the final two models I also take into account the difference in labour market outcomes associated with attending different HE institutions. I use two approaches: first (M3), I include dummy variables indicating the 'mission group' of which graduates' universities were a member. Specifically, I leave non-Oxbridge Russell Group institutions as the baseline category and add dummy variables for attendance at Oxford/Cambridge universities, a 1994 group institution, a Guild HE institution, a University Alliance institution, a Million+ institution, and, finally, any remaining institutions as a group. Second (M4), instead of dummy variables for groups of institutions, I estimate a model that includes institutional fixed effects. This approach aims to remove all variation in salary growth associated with attending different universities. However, in doing so it is likely significantly to reduce the variation in the model and, hence, potentially the power to detect differences associated with our characteristic of interest.

It is important to highlight that, despite including all the controls described above, there are still likely to be differences between graduates that attended state schools and those that attended private schools in terms of unobserved and potentially unobservable characteristics. Particularly important examples of these are individuals' non-cognitive skills, which have been shown to be important for individuals academic and labour market outcomes (Heckman et al., 2006; Gutman and Schoon, 2013). I discuss the potential implications of this for the results of this paper in the conclusions (Section 7).

[11]Another natural demographic characteristic to include at this point would be gender. Unfortunately, this was not included in the dataset provided by HESA. However, previous studies have not found a gender pay gap at this point in graduate careers (Manning and Swaffield, 2008), nor did Macmillan et al. (2013) find a gender difference in entry to high-status jobs. Nevertheless, I am grateful to Anna Vignoles and Sonia Ilie who kindly tested separate models by gender in a previous cohort of DeLHE data and did not find significant gender differences.

5 Results

In reporting the results of the regression analysis, I concentrate on the coefficient on whether graduates attended a state school. This reports the remaining differential in pay growth between 6 months after graduation and 3 years later between those that attended state, rather than private, schools, holding the other characteristics included in the model fixed. These results are reported in Table 4, while a full regression table is provided in Appendix A.

Table 4: Linear regression models of the salary increase between 6 months and 3.5 years post-graduation, reporting the estimated difference associated with attending a state school

	M0: OLS	M1: OLS	M2: OLS	M3: OLS	M4: Inst. FE
State School	-3119	-2639	-2855	-2734	-1528
	(-3.40)***	(-2.92)***	(-3.15)***	(-2.99)***	(-2.03)**
Demographics	-	√	√	√	√
Attainment	-	√	√	√	√
Subject	-	√	√	√	√
Degree Classification	-	-	√	√	√
Institution Groups	-	-	-	√	-
Observations	2070	2070	2070	2070	2070
R^2	0.015	0.084	0.090	0.101	0.207

Notes. Weighted using HESA-provided design and non-response weights for the Long-DeLHE. Sample: Long-DeLHE survey respondents in a top NS-SEC job at 6 months after graduation. Omitted (comparison) group are private school attendees. t-statistics reported in parentheses. * $= p < 0.10$, ** $= p < 0.05$, and *** $= p < 0.01$

In the first column (M0) the results replicate those reported in Section 3. Those who attended private schools see their gross earnings increase by £3,119 more than those who attended state schools do. As reported above, this further increases the disparity that already exists in salary levels at 6 months after graduation. However, also as noted above, this may reflect differences between individuals at these different school types that is explained by observable differences between them at point of entry to the labour market. The remainder of this section describes how the differential changes as additional covariates are added to the model.

Adding in demographic characteristics, graduates' prior attainment (as measured by HE entry tariff scores) on university entry, and subject studied at university (M1) reduces the difference in pay growth by approximately fifteen percent, with the difference remaining large and significant at £2,639. Several of the coefficients associated with subject groups are large and significant with, for example, those who studied Maths and Computing or Business seeing particularly large increases in their salaries between 6 months and 3.5 years after graduation. Tariff score is not statistically significant, but perhaps this is not surprising given that we are looking at such a selective sample, with high performance on entry to university being a likely pre-requisite for gaining a high-status job in the first place.

Next, in M2, covariates reflecting performance at university are added, specifically degree classification awarded. Given that we might expect significantly different returns to holding a degree depending on classification it is perhaps surprising that the inclusion of this factor actually increases the pay growth differential by school type,

increasing it to £2,855. However, this increase in influence of attending a private school when we take into account degree classification is consistent with the findings of Crawford (2014) that HE entrants from state schools do better in their degrees that those from private schools with comparable prior attainment on entry.

Finally, we consider how much of the difference in pay growth is explained by university attended. First, in M3, this is done by including dummy variables for different groups of institutions. This reduces the size of the difference in pay growth between those who attended state and private schools a relatively small amount, to £2,734, which is still statistically significant at the 5% level. Only two of the coefficients associated with institutional groups are statistically significant, suggesting lower salary growth among those who attended a member of Guild HE or the University Alliance.

An alternative method for taking into account variation due to institution is adding institutional fixed effects to the model (M4). This makes a much larger difference to the association between school type and pay progression,[12] with the pay growth gap between those from state and private schools almost halved (compared to M2) to £1,528. While this is a large reduction compared to the raw difference (M0), this is still a substantial difference in the pay growth of individuals depending upon their background.

6 Remaining in a professional job

An alternative measure of graduates' success in a professional job is remaining in a job of this type between the two points in time at which we observe them. Unfortunately, it is not possible to observe individuals' NS-SEC category 3.5 years after graduation in the dataset obtained from HESA, so for the purposes of this section I instead consider whether individuals have jobs in the top 2 Standard Occupational Classification (SOC2000) categories at each time point.[13] In addition to being a measure of success, if there are differences in remaining in 'professional' jobs, this may explain part of the difference in salary growth. In order to assess this, I re-estimate the models of pay growth adding a variable that indicates whether individuals remained in a 'professional' job during this period.

Given the results in Section 5, that those in private schools are more likely to see greater salary growth, and the observation that graduates in top 2 SOC2000 jobs who remain in jobs of this type see on average £600 more salary growth than those who move into jobs not in this category, we might expect that they are also more likely to remain in a 'professional' job. In Table 5 I find that 71.0% of those in top 2 SOC2000 jobs 6 months after leaving university are still in such a job two and a half years later. However, those from state schools in top 2 SOC2000 jobs 6 months post-graduation are more likely (71.1% vs. 65.4%) than their private school

[12]The difference with the institutional groups model suggests that this way of categorising universities does not capture potential for pay growth particularly well.

[13]The SOC2000 categories are not as focused on occupational status as NS-SEC, but the top two categories are still designated 'managers and senior officials' and 'professional occupations'; cross-classifying the groups suggests the top 2 SOC2000 categories include a number of additional, presumably somewhat lower status, jobs when compared to the top NS-SEC category.

peers to be in top 2 SOC2000 jobs 3.5 years later. Given the higher rate of pay growth we have observed for those in private schools, and the faster salary growth for those in these higher-status jobs, this seems perhaps surprising.

Table 5: Proportion of those in top 2 SOC2000 jobs at 6 months post-graduation still in such a job 3.5 years post-graduation, by school type attended

	Top 2 SOC2000 job 3.5 years post-graduation		
School type	**Yes**	**No**	**Total**
State School	71.0	29.0	100
Private School	65.4	34.6	100
Total	71.1	28.9	100

Notes. Weighted using HESA-provided design and non-response weights for the Long-DeLHE. Long-DeLHE survey respondents in a top 2 SOC job at 6 months after graduation.

In order to verify that this finding is not driven by observable characteristics, I use linear probability regression models[14] on the sample in a top 2 SOC2000 job at 6 months post-graduation, with the outcome variable whether individuals remain in this group by 3 years subsequently. These models take the following form:

$$\text{Top2SOC}_{i,t=3.5} = \alpha + \beta_1 \text{State School}_i + \beta' \mathbf{X}_i + \varepsilon_i \tag{2}$$

where Top2SOC is a dummy variable indicating whether an individual has a job in the top 2 SOC2000 categories, **X** is a vector of characteristics described below, and ε is an error term.

In all models the primary coefficient of interest is β_1, which recovers the estimated difference in probability of remaining in such a job between otherwise similar graduates but who attended a state, rather than an independent, school. Additional covariates (the same as those described in Section 4) that will be added to the model are added to the vector of controls **X**.

Table 6: Linear probability models of remaining in the top 2 SOC2000 job between 6 months and 3.5 years post-graduation, reporting the estimated difference associated with attending a state school

	M0: OLS	M1: OLS	M2: OLS	M3: OLS	M4: Inst. FE
Private School	-0.06	-0.04	-0.04	-0.03	-0.03
	(-1.78)*	(-1.23)	(-1.09)	(-0.85)	(-0.81)
Demographics	-	√	√	√	√
Attainment	-	√	√	√	√
Subject	-	√	√	√	√
Degree Classification	-	-	√	√	√
Institution Groups	-	-	-	√	-
Observations	3383	3383	3383	3383	3383
R^2	0.002	0.132	0.135	0.139	0.206

Notes. Weighted using HESA-provided design and non-response weights for the Long-DeLHE. Sample: Long-DeLHE survey respondents in a top 2 SOC2000 job at 6 months after graduation. Omitted (comparison) group are private school attendees. t-statistics reported in parentheses. * $= p < 0.10$, ** $= p < 0.05$, and *** $= p < 0.01$

[14] I use linear probability models in order to ensure comparability across models (Mood, 2009) and, in particular, with models including institutional fixed effects, where estimates in non-linear models would be biased by the incidental parameters problem. I have also estimated models M1-M3 using probit regression, without this affecting the qualitative results.

The results of these models are reported in Table 6. They do not overturn the qualitative finding that those from state schools are more likely to remain in top 2 SOC2000 jobs than their peers who attended private schools, although this analysis reveals that the relationship is only marginally significant and loses statistical significance entirely when other observable characteristics are added.

Given the change in sample used in this section, before examining the role of remaining in a high-status job, I first replicate the analysis in Section 4 for the top 2 SOC2000 group. This is in order to check the patterns are broadly similar and unlikely to affect the overall narrative of the results. In the top panel of Table 7 I report the results from models on the same basis as in Section 5, but using the sample in top 2 SOC2000 jobs 6 months after graduation to assess any differences due to the change in sample. Next, turning to the question of whether remaining in a high-status job plays a role in explaining the pay differential, I add to these models dummy variables reporting whether individuals are still in a top 2 SOC2000 job by 3.5 years after graduation. These results are reported in the lower panel of Table 7.

Table 7: Linear regression models of the salary increase between 6 months and 3.5 years post-graduation, reporting the estimated difference associated with attending a state school

	M0: OLS	M1: OLS	M2: OLS	M3: OLS	M4: Inst. FE
Private School	3560	2417	2566	2330	1537
	(4.87)***	(3.35)***	(3.56)***	(3.16)***	(2.50)**
Demographics	-	√	√	√	√
Attainment	-	√	√	√	√
Subject	-	√	√	√	√
Degree Classification	-	-	√	√	√
Institution Groups	-	-	-	√	-
Observations	3383	3383	3383	3383	3383
R^2	0.018	0.109	0.117	0.123	0.201
	M0S: OLS	M1S: OLS	M2S: OLS	M3S: OLS	M4S: Inst. FE
Private School	3579	2443	2588	2348	1549
	(4.89)***	(3.38)***	(3.59)***	(3.18)***	(2.51)**
Remain in Top 2 SOC	327	668	598	635	470
	(0.67)	(1.36)	(1.23)	(1.30)	(1.07)
Demographics	-	√	√	√	√
Attainment	-	√	√	√	√
Subject	-	√	√	√	√
Degree Classification	-	-	√	√	√
Institution Groups	-	-	-	√	-
Observations	3383	3383	3383	3383	3383
R^2	0.019	0.110	0.117	0.123	0.202

Notes. Weighted using HESA-provided design and non-response weights for the Long-DeLHE. Sample: Long-DeLHE survey respondents in a top 2 SOC job at 6 months after graduation. Omitted (comparison) group are private school attendees and those who are no longer in a top 2 SOC job 3.5 years after graduation. t-statistics reported in parentheses. * $= p < 0.10$, ** $= p < 0.05$, and *** $= p < 0.01$

The results in the top panel confirm that the results from Section 5 also hold when we consider those in top 2 SOC2000 jobs, rather than those in top NS-SEC jobs, although the magnitude of the difference in pay growth is somewhat larger for this group of individual, particularly before the addition of additional covariates. Turning to the lower panel, adding an indicator for remaining in a top 2 SOC2000 job to the models makes no statistically significant difference to any other coefficients in the model, including the differential between those who

attend state and private schools. In addition, in no models are the coefficients associated with remaining in a top 2 SOC2000 job statistically significant themselves. We must conclude that this is not a relevant factor in explaining the socioeconomic gradient in pay growth among this group of recent graduates.

7 Conclusions

In this paper I have provided new evidence about inequalities in the early labour market outcomes of recent UK graduates. In order to do this I analysed the pay progression of graduates who are early entrants to 'high-status' jobs. My findings differ depending upon the measure of socioeconomic advantage used: while there appears to be a particular advantage among those who attend private (rather than state) schools this is not present when comparing those whose parents have high occupational status jobs with those who do not.

Specifically, I find that graduates who attended state schools before going to university see significantly smaller pay growth than their peers who attended private schools in the following 3 years. This increases the pre-existing difference in annual salaries between individuals in these groups by over £3,000. Approximately half of this difference is explained by the following observable differences in the characteristics of these two groups of graduates: prior attainment, subject of study, degree classification, and university attended. However, a sizeable difference of approximately £1,500 does remain.

One possible explanation for this growing inequality is that individuals from state schools are less likely settle into jobs of this kind well and to leave them for less well paying occupations before our second point of measurement. However, I find no evidence to support this hypothesis. On the contrary, young people who attended state schools are slightly more likely to remain in relatively high status jobs, although this is not statistically significant. In any event, taking into account whether individuals have moved to a lower status job plays no significant role in explaining salary growth.

This paper does not support the conclusion that graduates who attended state schools are 'worse' at professional jobs. Indeed, the fact that such individuals are, if anything, a little more likely to remain in jobs of this type over this period may point in the opposite direction. Instead there may be other explanations for this growth in pay inequality, even after controlling for observable characteristics. For example, young people who attended private schools might be more willing to push for a pay rise or promotion. This would be consistent with the findings of Boston Consulting Group (2014), in finding a lack of self-confidence by applicants to high-status jobs from less privileged backgrounds.

However, given the absence of such measures from the data used in this analysis, it is not possible to conclude this firmly on the basis of this work. Further research, using data that include indicators of non-cognitive skills such as assertiveness, is needed to explore to what extent this is the case. In addition, further analysis building on this paper would benefit from considering salary growth over a more extended period and measuring entry to high-status jobs at a later point in time, which has not been possible in this case.

These findings have key messages for policy makers and those involved in the recruitment into and management of graduates in high-status/professional careers. On one hand the lack of any difference in pay growth depending on graduates' parents' occupational status suggests that graduates can succeed in this kind of job no matter the family background they have. On the other, the differences associated with school type suggest that it will not be enough simply to ensure fair access to professions and assume that those who enter will go on to achieve similar levels of financial success from this, something that has also been highlighted in previous work (The Sutton Trust, 2009a,b; Social Mobility and Child Poverty Commission, 2014). Those who have not had the advantages of attending a private school appear need to be equipped with the non-cognitive skills that they need to thrive in this kind of environment.

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A Full results table

Table 8: Linear regression models of the salary increase between 6 months and 3.5 years post-graduation

	M0: OLS	M1: OLS	M2: OLS	M3: OLS	M4: OLS
Constant	11970	9880	10719	11196	9882
	(13.79)***	(6.65)***	(6.36)***	(6.26)***	(6.32)***
State School	-3119	-2639	-2855	-2734	-1528
	(-3.40)***	(-2.92)***	(-3.15)***	(-2.99)***	(-2.03)**
Subject: Subjects allied to Medicine		4038	4034	4103	3926
		(2.52)**	(2.52)**	(2.58)***	(2.37)**
Subject: Vetinary sciences		-115	-880	16	-742
		(-0.07)	(-0.52)	(0.01)	(-0.37)
Subject: Physical sciences		2285	2362	2123	1312
		(1.39)	(1.46)	(1.31)	(0.78)
Subject: Maths and Computing		3894	3850	3772	3641
		(2.70)***	(2.67)***	(2.61)***	(2.26)**
Subject: Engineering		705	588	358	-255
		(0.53)	(0.45)	(0.27)	(-0.17)
Subject: Technology		5764	5838	5642	6103
		(1.79)*	(1.80)*	(1.76)*	(2.01)**
Subject: Architechture		300	195	373	462
		(0.17)	(0.11)	(0.22)	(0.25)
Subject: Social studies		3573	3629	3541	2509
		(2.30)**	(2.36)**	(2.28)**	(1.70)*
Subject: Law		-4013	-3592	-2896	-1244
		(-1.26)	(-1.19)	(-1.09)	(-0.50)
Subject: Business		4115	4107	4204	3924
		(2.78)***	(2.81)***	(2.96)***	(2.67)***
Subject: Communications		709	996	2330	1337
		(0.32)	(0.46)	(1.20)	(0.62)
Subject: Linguistics		1398	1480	1251	1490
		(0.51)	(0.54)	(0.44)	(0.54)
Subject: European Languages		1476	1608	1484	1526
		(0.80)	(0.90)	(0.81)	(0.77)
Subject: Non-European Languages		5042	5767	5114	4114
		(1.76)*	(2.14)**	(1.77)*	(1.12)
Subject: History/Philosophy		1112	1184	749	509
		(0.62)	(0.68)	(0.42)	(0.27)
Subject: Arts		-3550	-3054	-1748	17
		(-1.40)	(-1.25)	(-0.74)	(0.01)
Subject: Education		5259	5122	4591	4304
		(1.33)	(1.31)	(1.17)	(1.04)
Subject: Combination		-455	-1265	-1342	-2198
		(-0.22)	(-0.60)	(-0.62)	(-0.96)
Degree Classification: 2.i			-646	-803	-692
			(-0.96)	(-1.19)	(-1.10)
Degree Classification: 2.ii			-1743	-1541	-1337
			(-1.92)*	(-1.74)*	(-1.51)
Degree Classification: 3			-3826	-4314	-3418
			(-1.47)	(-1.66)*	(-1.06)
Degree Classification: Unclassified			821	186	120
			(0.82)	(0.17)	(0.10)
Institution: Oxford/Cambridge				482	
				(0.46)	
Institution: 1994 Group				706	
				(0.47)	
Institution: Guild HE				-3888	
				(-2.65)***	
Institution: Alliance				-2079	
				(-2.58)***	
Institution: Million Plus				-3640	
				(-1.64)	
Institution: Other				30	
				(0.04)	
Demographics	-	√	√	√	√
Prior attainment	-	√	√	√	√
Observations	2070	2070	2070	2070	2070
R^2	0.015	0.084	0.090	0.101	0.207

Notes. Weighted using HESA-provided design and non-response weights for the Long-DeLHE. t-statistics reported in parentheses. * $= p < 0.10$, ** $= p < 0.05$, and *** $= p < 0.01$

B Results for unrestricted salary growth models

Table 9: Log linear regression models of the salary increase between 6 months and 3.5 years post-graduation

	M0: OLS	M1: OLS	M2: OLS	M3: OLS	M4: OLS
Constant	3.59	3.77	3.95	4.07	4.43
	(7.75)***	(8.10)***	(8.54)***	(9.09)***	(10.48)***
State School	-0.09	-0.07	-0.08	-0.08	-0.04
	(-3.60)***	(-2.91)***	(-3.28)***	(-3.10)***	(-2.00)**
Subject: Subjects allied to Medicine		0.15	0.15	0.15	0.14
		(3.13)***	(3.07)***	(3.15)***	(3.10)***
Subject: Vetinary sciences		0.03	-0.01	0.03	-0.00
		(0.56)	(-0.11)	(0.55)	(-0.05)
Subject: Physical sciences		0.11	0.11	0.10	0.07
		(2.37)**	(2.51)**	(2.33)**	(1.71)*
Subject: Maths and Computing		0.16	0.16	0.15	0.15
		(4.17)***	(4.20)***	(4.21)***	(3.95)***
Subject: Engineering		0.07	0.07	0.06	0.04
		(1.90)*	(1.82)*	(1.64)	(1.03)
Subject: Technology		0.20	0.21	0.20	0.21
		(2.28)**	(2.29)**	(2.21)**	(2.48)**
Subject: Architechture		0.04	0.04	0.04	0.04
		(0.83)	(0.72)	(0.80)	(0.73)
Subject: Social studies		0.15	0.15	0.15	0.11
		(3.66)***	(3.71)***	(3.66)***	(2.95)***
Subject: Law		-0.14	-0.13	-0.09	-0.02
		(-1.22)	(-1.14)	(-0.99)	(-0.29)
Subject: Business		0.15	0.15	0.16	0.15
		(3.91)***	(3.93)***	(4.20)***	(3.97)***
Subject: Communications		0.04	0.06	0.11	0.05
		(0.55)	(0.75)	(1.60)	(0.80)
Subject: Linguistics		0.03	0.03	0.02	0.01
		(0.30)	(0.31)	(0.18)	(0.13)
Subject: European Languages		0.06	0.07	0.06	0.06
		(1.04)	(1.10)	(0.96)	(0.88)
Subject: Non-European Languages		0.19	0.22	0.19	0.15
		(2.73)***	(3.37)***	(2.73)***	(1.47)
Subject: History/Philosophy		0.04	0.04	0.02	0.01
		(0.68)	(0.71)	(0.39)	(0.18)
Subject: Arts		-0.18	-0.17	-0.12	0.02
		(-1.45)	(-1.35)	(-1.07)	(0.22)
Subject: Education		0.18	0.18	0.15	0.12
		(1.30)	(1.24)	(1.06)	(0.83)
Subject: Combination		0.02	-0.01	-0.02	-0.06
		(0.31)	(-0.18)	(-0.24)	(-0.78)
Degree Classification: 2.i			-0.02	-0.02	-0.02
			(-0.93)	(-1.35)	(-1.31)
Degree Classification: 2.ii			-0.06	-0.06	-0.04
			(-2.11)**	(-1.99)**	(-1.72)*
Degree Classification: 3			-0.16	-0.19	-0.17
			(-1.96)**	(-2.24)**	(-1.76)*
Degree Classification: Unclassified			0.04	0.01	0.01
			(1.42)	(0.45)	(0.32)
Institution: Oxford/Cambridge				0.03	
				(0.81)	
Institution: 1994 Group				0.02	
				(0.45)	
Institution: Guild HE				-0.16	
				(-2.38)**	
Institution: Alliance				-0.07	
				(-2.70)***	
Institution: Million Plus				-0.18	
				(-2.17)**	
Institution: Other				-0.00	
				(-0.01)	
Demographics	-	√	√	√	√
Prior attainment	-	√	√	√	√
Observations	2070	2070	2070	2070	2070
R^2	0.277	0.342	0.349	0.361	0.459

Notes. Weighted using HESA-provided design and non-response weights for the Long-DeLHE. t-statistics reported in parentheses. * $= p < 0.10$, ** $= p < 0.05$, and *** $= p < 0.01$

Table 10: Linear regression models of the salary increase between 6 months and 3.5 years post-graduation

	M0: OLS	M1: OLS	M2: OLS	M3: OLS	M4: OLS
Constant	12061	9753	10924	11680	11645
	(5.29)***	(5.16)***	(5.82)***	(6.18)***	(6.27)***
State School	-3124	-2633	-2865	-2755	-1577
	(-3.37)***	(-2.89)***	(-3.14)***	(-2.98)***	(-2.05)**
Subject: Subjects allied to Medicine		4046	4022	4076	3835
		(2.63)***	(2.61)***	(2.65)***	(2.35)**
Subject: Vetinary sciences		-113	-893	-11	-752
		(-0.07)	(-0.55)	(-0.01)	(-0.37)
Subject: Physical sciences		2277	2375	2146	1353
		(1.33)	(1.41)	(1.27)	(0.77)
Subject: Maths and Computing		3884	3864	3803	3713
		(2.51)**	(2.49)**	(2.46)**	(2.16)**
Subject: Engineering		693	604	391	-178
		(0.47)	(0.42)	(0.27)	(-0.11)
Subject: Technology		5755	5852	5667	6143
		(1.76)*	(1.78)*	(1.74)*	(2.00)**
Subject: Architechture		304	189	357	401
		(0.18)	(0.11)	(0.21)	(0.22)
Subject: Social studies		3565	3642	3568	2528
		(2.20)**	(2.25)**	(2.18)**	(1.65)*
Subject: Law		-4025	-3570	-2838	-1061
		(-1.25)	(-1.16)	(-1.04)	(-0.41)
Subject: Business		4112	4112	4216	3947
		(2.73)***	(2.74)***	(2.87)***	(2.57)**
Subject: Communications		720	978	2291	1065
		(0.33)	(0.46)	(1.22)	(0.53)
Subject: Linguistics		1412	1460	1198	1263
		(0.53)	(0.54)	(0.43)	(0.46)
Subject: European Languages		1479	1607	1476	1490
		(0.81)	(0.90)	(0.81)	(0.75)
Subject: Non-European Languages		5054	5753	5071	3942
		(1.80)*	(2.16)**	(1.78)*	(1.06)
Subject: History/Philosophy		1112	1185	742	427
		(0.63)	(0.68)	(0.42)	(0.23)
Subject: Arts		-3532	-3081	-1802	5
		(-1.43)	(-1.29)	(-0.78)	(0.00)
Subject: Education		5278	5092	4504	3939
		(1.36)	(1.32)	(1.16)	(0.94)
Subject: Combination		-443	-1294	-1411	-2428
		(-0.23)	(-0.64)	(-0.68)	(-1.10)
Degree Classification: 2.i			-659	-835	-809
			(-1.06)	(-1.35)	(-1.37)
Degree Classification: 2.ii			-1759	-1578	-1477
			(-2.03)**	(-1.87)*	(-1.74)*
Degree Classification: 3			-3843	-4354	-3496
			(-1.47)	(-1.67)*	(-1.10)
Degree Classification: Unclassified			832	209	131
			(0.80)	(0.19)	(0.11)
Institution: Oxford/Cambridge				507	
				(0.47)	
Institution: 1994 Group				706	
				(0.47)	
Institution: Guild HE				-3913	
				(-2.69)***	
Institution: Alliance				-2104	
				(-2.70)***	
Institution: Million Plus				-3688	
				(-1.69)*	
Institution: Other				9	
				(0.01)	
Demographics	-	√	√	√	√
Prior attainment	-	√	√	√	√
Observations	2070	2070	2070	2070	2070
R^2	0.308	0.356	0.360	0.368	0.444

Notes. Weighted using HESA-provided design and non-response weights for the Long-DeLHE. t-statistics reported in parentheses. * $= p < 0.10$, ** $= p < 0.05$, and *** $= p < 0.01$