Higher Education Academic Salaries in the UK

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It is widely believed that higher education academic salaries are too low, and that this may lead to a 'brain drain' and also lower quality in higher education, as universities fail to attract the 'brightest and the best'. We compare the salaries of Higher Education teaching professionals in the UK with those of other comparable professionals. We compare academic salaries to a range of occupational groupings that one might view as similar, in terms of unobserved characteristics, to academics. We conclude that HE teaching professionals earn lower earnings than most public sector graduates and do particularly poorly compared to most other comparable professionals. In particular, academic earnings compare poorly to those in the legal professions, consultant physicians and dental practitioners (across both the public and private sectors). On the other hand, some public sector workers do worse than HE academics, e.g. FE teachers.

JEL classifications: I20 I23 I28

1. Introduction

In recent years industrial action taken by the Association of University Teachers (AUT) has given the issue of academic pay high prominence in the UK press.[1] Although agreement was reached between the unions and employers, the debate is set to continue since, despite a pay settlement, there still remains the issue of an apparently widening gap between academic and non-academic salaries.

There is a remarkable consensus amongst policy-makers and the media that higher education academic salaries are too low, both in international terms and relative to other groups of professional workers in the UK. The UK government White Paper on Higher Education (DfES, 2003a 2003b) cited pay as one of the major issues facing the HE sector and

[1] See for example *The Guardian* 'Lecturers 'Barred' from Pay Talks Until Marking Ban Ends', March 28th, 2006 or *The Telegraph* 'Pay Row Could Leave Final Exams Unmarked', 3rd April 2006.

explicitly acknowledged the relative decline in academic salaries in recent years. Furthermore, many of the arguments made in support of the higher education financial reform package that has recently been implemented in England, are underpinned by the notion that more resources need to be brought into the HE sector (via increased student contributions and other means) to fund HE salaries at a competitive level. Certainly the media generally report that academic pay has been outstripped by earnings growth in other public sector occupations[2]. The evidence base for this view remains controversial however. (*The Independent*, 'Academics are not so badly paid', 6th April, 2006) and further research is sorely needed.

So why does the pay of HE academics matter, from a policy perspective? Firstly, academic pay impacts directly on the quality of the higher education sector. The argument is that if policy makers do not address the problem of relative pay in academia, it may not be possible to maintain the high quality of the HE sector in the UK, with its strong international reputation. There is certainly empirical evidence to support this view of a positive relationship between relative pay and the quality of workers, in academia and in the public sector more generally (Nickell and Quintini, 2002; Boyle, 2006). A lower quality HE matters because the sector is an important one for the UK economy. It produces the education and skills that many argue are essential for continued economic growth and prosperity (Leitch, 2006). Even more directly, Universities UK (2006) report that the HE sector is worth £45billion to the UK economy and Higher Education export earnings are approximately £3.6billion. There is clearly therefore a business case that can be made for ensuring that academic pay is sufficiently high to maintain an internationally competitive high quality academe. This argument has been made in a number of influential government reports and White Papers (e.g. Bett Review, 1999; DfES, 2003a, House of Commons Education and Skills Committee, 2003). Academic pay also matters because staff pay is the major cost of HE provision. So any increase in academic pay has substantial cost implications for HE as a whole, and of course for students and H M Treasury. As we widen access to higher education and there is further growth in the demand for HE academics, the cost implications of any changes in relative academic pay may be substantial.

[2] *Times Higher Education Supplement, '*Academic pay rises lag behind teachers', 15th October, 2004; *The Guardian*, 'MPs back academics as strike looms', March 6th, 2006.

One particular potential consequence of relatively low academic pay is the much talked about 'brain drain'. The Department for Education and Skills presented evidence that the relatively low pay for academics in the UK has negatively impacted on the ability of HEIs to recruit, retain and reward the best researchers (DfES, 2003a, Chapter 4). Indeed the DfES (2003a) highlighted a worrying trend increase in the number of unfilled vacancies in the HE sector, particularly in certain subject areas such as IT/computing, business and medicine. However, the UCEA has suggested that there is not a general recruitment and retention crisis, so pay rates must, it has argued, be competitive. Evidence from the Higher Education Policy Institute indicates that the UK is, in fact, a net importer of academics.[3] For every 10 academics exported, UK academic institutions appear to have received 14 from overseas over the period 1995/6-2002/3. This does not of course disprove the 'brain drain' argument. Academics from overseas may be replacing UK academics precisely because of a brain drain of talent to the US. Other countries, such as the US, are significant importers of foreign recruits into HE. If one imagines a global market for high quality academics, then one might expect that the most able go to jobs in countries where relative academic pay is highest (e.g. the US), and lower quality recruits go to countries where relative academic pay is lower.

Of course the so-called 'brain drain' problem could apply to any profession that is relatively better rewarded in other countries. However, the issue may be particularly important for HE. Firstly, academic skills are arguably more transferable across countries. Many professions, such as engineers, doctors and lawyers, have restrictions on their right to practice in some countries. Secondly, much of the literature makes the case for education and skills as a key driver of economic productivity, growth, innovation and future competitiveness. Since HE is an important producer of education and skills, a brain drain in this sector may be of even greater concern to policy-makers.

To rise above the rhetoric, there is a pressing need for robust empirical evidence on a range of issues around both academic salaries and the overall level of resourcing of the HE sector. In this paper, we compare the salaries of Higher Education teaching professionals in the United Kingdom with those of other comparable professionals, to investigate the extent to which academics earn more or less than other similarly qualified individuals in the UK. We

[3] THES, 'UK Brain Drain Myth Exposed', 7th October, 2005.

add to the existing literature in a number of ways. Firstly, we offer evidence on relative salaries in HE academia over a long time period, namely the last decade or so. Secondly, we go beyond comparing HE academic salaries with average wages. Instead we compare academic salaries to a range of different comparator groups, focusing on specific occupational groupings that one might view as similar, in terms of unobserved characteristics, to academics. Thirdly, we consider the extent to which the gap between the earnings of HE academics and that of other occupations is attributable to differences in the characteristics of academics, for example the fact that they are more highly educated on average, or to differences in the price paid for a given set of characteristics. This paper therefore also provides evidence, for a select range of occupations, on the extent to which some groups of workers are able to secure a higher price for their endowments.

2. Background Literature

Whilst the literature on school teachers' pay is considerable, both in the UK and in the US (e.g. Allegretto *et al.,* 2004; Chevalier *et al.*, 2007, Stoddard, 2005; and Taylor, 2005 to cite but a few), the literature on academic pay in higher education is relatively limited. There is in fact a large literature on intra-industry earnings differentials, i.e. differences in pay between different types of HE academic, and the link between academic pay and productivity. For example, there is a literature on academic wage differences by gender, ethnicity, age and subject area (Barbezat, 1987; Bayer and Astin, 1968; Blackaby and Frank, 2000; Blackaby *et al*., 2005; Ginther and Hayes 1999; Moore *et al.* 1998; Ward, 2001). There are also a few cross-country papers that compare academic pay across different countries (e.g. Metcalf *et al.*, 2005*;* Ong and Mitchell, 2000 and Stevens, 2004). With the notable exceptions of Stevens and Metcalf *et al.*, we were unable to find any published UK research that examined differences between HE academic pay and other similar professions.

Stevens (2004) examines the recruitment and retention problem in UK Higher Education Institutions (HEIs). He compares the salaries of academics in the UK relative to their US counterparts in order to help explain why the US is the most favoured destination of migrating academics. In addition, he compares UK academic salaries with other graduate professionals in the UK, to demonstrate why an academic career is a less attractive option to 'potential' academics. Stevens uses the quarterly data from the Labour Force Survey (LFS)

from Spring to Winter 2001 for the UK and the Current Population Survey 2001 for the US. Stevens found that academic salaries start at a lower level for graduates in the UK, relative to non-academic UK salaries, and that the predicted lifetime earnings of UK academics are lower than their non-academic counterparts. He concludes that both UK and US academics are paid less than their non-academic counterparts and that relative UK academic pay rates are below those of their US counterparts at all ages, which contributes to the current recruitment and retention problems being experienced by the sector.

Metcalf *et al.* (2005) studied the reasons for individuals entering and leaving academic employment in HE institutions (HEIs) in England using data from the Higher Education Statistics Agency (2001/02), as well as data collected specifically for their study. By matching samples on a range of characteristics, they compared the pay of UK academics with similarly qualified professionals in the UK and with other academics in the USA, Canada, Sweden, France, Australia and Japan. In each country they used the relevant national labour force survey data. The data are quite problematic, for example the destination details of 60% of those leaving the profession were not available. However, it is the most comprehensive study of its type in the UK. Metcalf *et al*. found that, in comparison to other highly qualified workers, academics fared relatively worse. They argued that this could deter new entrants into the profession. Relatively lower pay would however, have a lesser impact on incumbents who are less likely to exit the profession as their skills become more highly specialised and, perhaps, less transferable over time. Metcalf *et al*. concluded that academic pay in England is relatively higher in real terms when compared to academic pay in Australia, New Zealand, Japan and Sweden, though broadly similar to pay levels in Denmark, France and Canada. US academics, they suggest, receive relatively more and this could be a significant factor in attracting UK academics to US HEIs. Although the authors did not identify acute recruitment and retention problems in UK universities, they did report that some vacancies went unfilled and that there was a perceived deterioration in the quality of candidates for vacant positions. The study found that 40% of recruits into the sector were non-UK nationals.

3. Data, Methodological Issues and Descriptive Statistics

For this study, we use pooled UK Labour Force Survey data for the years 1993 to

2005. These data are held at individual level and include information on each individual's annual earnings, hours of work, age, qualification level, ethnicity, gender, occupation and region of residence.[4] We construct hourly earnings for all individuals in the sample (including part-time workers) and we exclude from our sample individuals who are younger than 20 and older than 65. The dependent variable used in regressions is the log of net wages per hour, where net wages per hour are the sum of primary (*netwk*) and secondary (*netwk2*) occupations net wages divided by actual hours worked (*acthr* and *acthr2*). The sample includes 260,484 individuals with wage information, of which just over 50,000 are university graduates.

We estimate earnings equations to compare HE academic pay to the pay of other selected groups, whilst controlling for observable characteristics that determine earnings and which may vary across the occupational groupings. Specifically we are able to control for ethnicity, age, gender, residential location, qualification level and degree subject. By including these personal characteristics in the model, we are able to assess the extent to which differences in hourly earnings between academics and other professional groupings are due largely to the personal characteristics of academics rather than their choice of occupation. Comparator groups of interest include secondary school teachers, medical professionals, accountants, engineers, lawyers and other professionals, split into public and private sector wherever possible. The vector of occupation dummy variables includes different occupations according to the particular specification in use but always includes a dummy variable equal to the value of one if the person is an HE academic. The coefficient on the HE academic variable therefore measure the wage premium earned by HE academics compared to the base comparator group, once one takes account of both schooling levels and other personal characteristics.

There are a number of potentially important methodological problems. Firstly, it may be that academics are more able (or less able) on average than other workers. This may mean that they would earn more (or less) in the labour market; regardless of what profession they chose to work in. We do not have a measure of IQ or ability in our data. However, we attempt to address this issue at least in part by comparing HE academics with other workers that *a priori* one might argue would have similar ability. Thus we emphasize the results that

[4] The analysis excludes individuals who are self-employed for whom data on net earnings were only collected in the Labour Force Survey from 1993 onwards.

compare HE academics with physicians and lawyers, who have similar status and training requirements, as compared to the results based on a much more diverse group of graduates. Another more general issue is that workers tend to choose occupations that they will do well in and we cannot take this occupational choice into account in our model. A further potential methodological concern is that we need to take account of selectivity generated by individual's labor market participation decisions. To address these selection issues we employ a Heckman selection model (Heckman , 1976).

Within the sample we have 1,437 HE academics. We define HE academics as those individuals who state that they are teaching professionals working in the HE sector, which unambiguously includes only those at the professional level in HE. One would also like to identify researchers in Higher Education, some of whom may not have been categorized as academics (this might particularly be the case for part-time researchers early on in their careers). However, investigation of the LFS data suggested that selecting individuals who classified themselves as researchers and then identifying those working in the HE sector was not satisfactory and less than 100 individuals in our sample classified themselves in this way. We therefore focus exclusively on HE teaching professionals, a group that henceforth we describe as HE academics.

Table 1 compares the mean log hourly earnings of various occupational groups. As can be seen, HE teaching professionals with real hourly wages of £8.92, rank below accountants (£9.63), consultants (£10.75), lawyers (£10.23), physicians (£10.56), pharmacists (£9.19) and dentists (£12.88) but above other academics (i.e. FE employees: £8.38), secondary school teachers (£7.91), engineers (£8.25) and graduates as a group (£8.68). In terms of hourly pay, then, HE teaching professionals do poorly compared with many other occupational groupings but still do better than the average graduate in terms of net hourly wages.

<INSERT TABLE 1 ABOUT HERE>

The average hours worked for 11 occupational groups is given in Table 2. Whilst the focus of the paper is on the relative pay of HE academics, ideally we would want to consider other pecuniary and non-pecuniary rewards to being an academic. Unfortunately we have no

data on some potentially important pecuniary benefits, such as pensions. However, we do have information on the hours worked by HE academics, which may be a potential non-pecuniary benefit if academics work fewer hours than other similar workers. Of course simply measuring hours worked is not enough to fully capture differences in work effort and intensity across different occupations.[5] Whilst we do not have data on the intensity of work by HE academics (nor are there any UK information sources on this to our knowledge), we nonetheless argue that average hours worked per week is an important dimension on which we can judge the attractiveness (or otherwise) of being an HE academic.

The average hours worked by all graduates in their primary job (excluding unpaid overtime) is 34.2 hours. HE teaching professionals work only slightly more hours than the average and less than physicians, engineers and consultants. Even when second jobs are included, the picture changes little in terms of occupational rankings by hours worked. However, once overtime (paid and unpaid) is included, HE teaching professionals record the second highest number of hours worked on average, behind physicians. In other words, HE professionals appear to be working large numbers of over time hours, which by and large will be unpaid, as compared to other occupational groups.

<INSERT TABLE 2 ABOUT HERE>

Table 3 tracks changes in average hours worked over time. Although HE teaching professionals have generally worked longer hours than secondary school teachers, the position began to reverse by 2004. From a peak of 49 hours in 2000/2001 and 2002/03, HE academics have experienced a slight fall in the number of hours worked. Physicians have seen a 15.1% fall in their average hours over time though they still worked the greatest number of hours in total compared to the other groups in 2004. The final two columns of the table show the differences in average hours worked between HE academics and all graduates as well as those graduates employed specifically in the public sector. Average hours worked by graduates has remained stable over time but the gap between HE teaching professionals and average graduate hours widened throughout the nineties, as HE academics worked longer

[5] We are grateful to an anonymous referee for raising this point. Although we were unable to find data on work intensity within academia, the various metrics that are used (particularly in the RAE) to measure academic output suggest some potential for research into this issue.

hours. However, the gap reduced somewhat in 2004. Public sector graduates, on the other hand, have tended to work longer hours and therefore the gap between them and HE teaching professionals is not as great. Once again the gap narrowed in 2004.

<INSERT TABLE 3 ABOUT HERE>

It therefore appears that, in terms of hourly wages, HE academics do relatively poorly compared to many other professional groupings, although better than the average graduate. Of course we do not know whether this is because HE academics have other characteristics, such as fewer years of work experience, that mean that they earn lower wages than many other types of professional. This is explored in the regression analysis below. It is worth noting however, that HE academics' total hours worked per week is relatively high. We allow for this in the regressions below by using log hourly wages.

4. Regression results

The main regression estimates are presented in Table 4. The results come from a standard Mincer model of earnings (Mincer, 1974).[6] The regression includes a range of controls, such as gender, age, ethnicity, education, region of residence and a set of time (year) dummies included to capture factors that are idiosyncratic to any given year. The first column of results compares the hourly wages of HE academics and a number of other specific occupations, to the hourly wages of all wage earners omitting educational attainment. Some of the coefficients in the first column of results are unsurprising. For example, the regression suggests that older workers earn more than younger workers, women earn less than men, and some ethnic minority groups earn less than whites. We introduce educational and degree subject variables in the second specification. The coefficients on degree subjects are interesting in that the wage premium from certain degree subjects is considerably above the average for all other graduates. In particular science, and social science attract a higher wage premium. As one might also expect, more educated individuals by and large have higher

[6] Throughout the analysis we use hourly wages that incorporate primary and secondary earnings. We have examined the data excluding part time employees under alternative definitions of full-time employment (working more then twenty-five and thirty-five hours per week) and the findings of the paper do not change qualitatively. We also examine primary wage earners in isolation. Again there was no qualitative change to the key findings.

earnings. The wage premium for a Doctorate is approximately 44% and the premium for a Masters degree around 42%, for example, as compared to an unqualified worker.[7]

<INSERT TABLE 4 ABOUT HERE>

The coefficients of greatest interest, however, are on the specific occupations listed. These suggest that HE academics earn about 25% more than all other workers. This premium is reduced to just 2.5% when education attainment is controlled for in the equation (column 2). However, we identified a major methodological issue in this research, namely the potential for ability bias. It is possible that HE academics are of higher (lower) ability than other groups of workers and that since we do not have any measure of this ability in our model, we have biased estimates of the wage premium associated with being an HE academic. As has already been said, we are unable to include measures of ability in our model due to data limitations. However, we are able to make comparisons with groups that are arguably more similar to HE academics, in terms of their expected unobserved characteristics. We thus compare the wage premium for HE academics to the premium earned by physicians, dentists, secondary school teachers, FE teachers and a number of other occupations that we argue are more comparable than the heterogenous group of all graduates. Whilst this does not overcome the problem of endogenous occupational choice, such comparisons are more meaningful than comparing academics to all other occupational groupings.

Focusing now on these more comparable groups, the first column of Table 4 suggests that HE academics earn a more favorable wage premium as compared to secondary school teachers and FE academics. However, accountants, those in the legal profession, consultants, physicians, pharmacists and dental practitioners all attract considerably higher wage premiums than do HE academics. Once one controls for education in the model however, HE academics earn a similar wage to FE academics and secondary school teachers, and a considerably lower premium than other professional groups. Thus for example, consultants earn 28% more than the average worker, whilst academics earn just under 3% more than the

[7] We experimented with subject interaction terms in order to try to assess whether there were systematic differences between academics in different subject area. For example, whether academics in the social sciences were better remunerated then those in the arts and humanities. The results were not robustly determined. This reflects the sample size difficulties arising from the relatively small number of academics contained in the sample.

average worker.

Another consideration when choosing a comparator group is the fact that HE academics are almost universally highly educated, as are individuals in the comparator occupations of interest, such as doctors and lawyers. That education is a crucial factor across all the professions examined is highlighted by the substantial decline in wage premiums for specific occupations when educational attainment and degree subject are introduced in column 2. Thus for columns 3 and 4 we restrict the sample to graduates only, i.e. all individuals who have a first degree or above. Almost all HE academics are employed in the public sector, so we start by analyzing a sample of all public sector graduates as a natural comparator group. The third column of results in Table 4 shows the coefficients from a model where the base case is all public sector graduates. Many of the coefficients change, reflecting differences in pay practices in the public sector. For example, the wage premiums associated with age are higher in the public sector graduate regression, reflecting the importance of seniority in determining pay in the public sector. However, we focus most of our commentary on the occupational coefficients, which are our prime interest. HE academics earn around the average rate for a public sector graduate employee. Again this compares favorably to FE academics and similarly to secondary school teachers. However, HE academics are rewarded poorly when compared to all the other comparator groups. The ranking of the professions is actually quite similar across the different specifications. Thus HE academics still compare relatively poorly to those in the legal profession, accountants, physicians, pharmacists and dental practitioners. HE academics do earn significantly less than engineers too, although the gap is not so large.

In column 4, HE academics are compared to all graduates regardless of sector of work. Again, we are most interested in the coefficients on the occupation variables. HE academics earn around 3% less than all graduates. The ranking of the different professions does not change substantially as compared to the previous regressions. The only other professional groupings that earn less then the average graduate are secondary school teachers and FE academics, the latter being particularly poorly paid relative to the average graduate. Secondary school teachers and HE academics are similarly rewarded after controlling for education and other characteristics. All other professions listed earn significantly more than HE academics, with dental practitioners being most highly rewarded.

The results in Table 4 come from a Mincer earnings equation that does not take account of employment participation decisions. We therefore re-estimated the models using a Heckman's selection model. The model is identified by a number of variables that predict employment but should have not direct impact on wages, namely individuals' marriage status interacted with gender and whether the individual has children under the age of five years old living in the household. The resulting coefficients from this selection model are extremely similar to those obtained via straightforward OLS estimation thus allowing us to feel secure that labour market participation decisions are not unduly impacting on the analysis.[8]

One can conclude from Table 4 therefore that whilst HE academics do relatively well compared to the average worker, and somewhat better than the average worker with a similar level of education (see column 2), they do earn considerably less per hour than most other comparator professions. Since these comparator professions have been selected for their long training period, one could argue that they should include individuals that are more similar to HE academics. If low relative pay affects the quality of those entering the HE academic profession, it may be of concern that we observe that HE academics earn consistently less per hour than accountants, those in the legal profession, consultants, engineers, physicians, pharmacists and dental practitioners, even once one controls for the characteristics of the individuals concerned.

Thus far we have focused on the simple shifts in the intercept associated with particular occupations. There may also be interaction effects between the occupation dummy variables and other controls in the model. Some of these interaction effects, such as by gender, age and public/private sector are indeed explored in the paper. Ideally we would have liked to examine further interactions, such as between degree subject and occupation. For instance, we may hypothesise that the relative wage gap between HE academics and some other occupations may vary by degree subject. However, small cell sizes precluded us from undertaking this kind of analysis, although of course by focusing on specific occupations such as medics and dentists, we take account of subject specialization to some extent.

We were however, able to focus on interactions by gender. It is evident from Table 4 that female workers earn considerably less (up to 15% less) than male professionals, even when one takes account of individuals' characteristics, such as age and education. One might

[8] These findings are available on request, but will also be posted electronically at the authors web addresses, for the interested reader.

also expect that the relative position of women varies by type of occupation and certainly there is evidence that this is so for academia (McNabb and Wass, 1997 and Ward, 2001, to cite but a few). We therefore estimate our preferred model (column 4 of Table 4) separately for men and women and the results are shown in Table 5. The base case for this regression is therefore all graduate workers. Many of the coefficients on the explanatory variables vary by gender. For example, the wage premium from age (seniority) is higher for male graduates than for women. However, again we focus our commentary on the occupation coefficients. The coefficients on the occupational variables suggest that male HE academics earn around 6% less than the average male graduate, even after controlling for education and other characteristics. This compares favorably to FE academics and to a lesser extent secondary school teachers. However, male accountants, consultants, engineers, pharmacists, dental practitioners, physicians, and those in the legal profession all earn a higher wage premium than male HE academics. Female HE academics earn a similar wage to the average female graduate, as do female FE academics and secondary school teachers. The occupational ranking for females is, however, similar to the ranking for men. Female HE academic wages compare poorly against all the other occupations listed.

<INSERT TABLE 5 ABOUT HERE>

Another issue that needs to be considered is the relative position of academics throughout their careers. Much of the public debate on academic salaries has suggested that academia is particularly unattractive later on in a person's career *(The Economist*, 'Its Own Reward', May 16th 2002). Yet Stevens (2004) found that UK academics' salaries declined in later life at a slower rate than for other graduates. We address this issue directly by estimating our preferred model separately for different age groups; specifically we estimate three models for age ranges 30-39, 40-49 and 50 plus. Whilst somewhat arbitrary, these age groupings reflect the fact that most academics have finished their training by the age of 30, and also the decade groupings provide sufficient sample sizes to determine differences across the lifecourse.[9] These are shown in Table 6. Again some of the explanatory variables have

[9] An alternative approach suggested by a referee would be to analyse age-occupational interactions to trace out the evolution over time. Unfortunately, severe multicollinearity between the direct effects and interaction terms generated dramatic and unpredictable shifts in the coefficients. We should note that modelling age as a continuous variable, rather then by cohorts, had no significant impact on the findings of the paper.

very different effects on hourly earnings at different ages. So, for example, young women (age 30-39) earn around 6% less than males. By contrast, older women (50 plus) earn approximately 17% less than their male counterparts, even after controlling for other characteristics such as ethnicity and education level.

Our primary interest in Table 6 is however, with the occupation variables. HE academics earn around 8% less than other graduates up to the age of 40. However, above the age of 40, the relative wage of HE academics rises to around the mean for all other graduates (the coefficient on the HE academics coefficient is insignificant in columns 2 and 3). This may suggest, contrary to the public perception of the problem, that older academics actually do relatively better than younger academics, at least compared to all other graduates. However, the coefficients are negative if not significant so we would not want to overly stress this result and in any case, in every age group, HE academics earn considerably less than most of the other occupational groupings listed, particularly physicians, dental practitioners, those in the legal profession and consultants. By contrast, FE academics and secondary school teachers do relatively poorly even compared to HE academics, particularly after the age of 40. There are substantial differences in the magnitude of the wage premium associated with each occupation across different ages. At the age of 30-39, the wage premium for those in the legal profession is around 18%, which is a 26% premium on HE academics. However, by age 40-49, the premium from being in a legal occupation has risen to 30%, compared to HE academics (and other graduates). Therefore the potential attractiveness of working in HE will vary according to both the specific occupation that one is making comparisons with, as well as the age range under consideration. Relative to many similar professions HE academics do not experience a major relative decline in their wages later in their careers, in contrast to the results from Stevens (2004).

<INSERT TABLE 6 ABOUT HERE>

The regressions described above give a clear indication of the ranking of different occupations and the wage premium associated with being an HE academic, both by gender and age. However, we are also interested in the extent to which we can explain gaps in pay between different occupations. To what extent is the relatively low pay experienced by a particular group down to the characteristics of that group or the fact that the same set of

characteristics is rewarded less highly in that occupation. To answer this question we turn to the Oaxaca-Blinder decompositions (Blinder, 1973; Oaxaca, 1973). From the simplified standard regression below, where the wages of two groups *j* (HE academics and another group) are determined by various explanatory variables *X*, with the usual error term.

$$w_j = X_j \beta_j + \varepsilon_j,$$
$$E(\varepsilon_j) = 0$$
$$j \in \{1,2\}$$

The conditional mean difference in the wages between the two groups *R* can be shown to consist of an explained difference (the first term in the model below), attributable to differences in the characteristics of the two groups, and an unexplained difference (the term in square brackets), attributable to different rewards to the two groups for the same characteristics. In this way we can measure the extent to which the relative pay position of HE academics is attributable to their different characteristics, as compared to other occupational groups, or due to the fact that they are rewarded differently for the attributes they possess. However, it is clearly the case that differences in pay that are apparently unexplained by individuals' characteristics may reflect genuine differences in characteristics that are unmeasured in our data. This needs to be born in mind in the interpretation of results.

$$R = \overline{w}_1 - \overline{w}_2 = (\overline{x}_1 - \overline{x}_2)'\beta^* + [\overline{x}_1'(\hat{\beta}_1 - \beta^*) + \overline{x}_2'(\beta^* - \hat{\beta}_2)]$$
$$\beta^* = \hat{\beta}_1, \hat{\beta}_2$$

Given our findings above (Table 5) that suggest that HE academic relative pay varies by gender, we also estimate the decompositions by gender. Table 7 shows results for the full sample, Table 8 for women only. The first decomposition in Table 7 compares all graduates with HE academics specifically. As Table 4 shows, graduates earn marginally more than HE academics after controlling for individual characteristics. When the difference in pay between these two groups is decomposed, the results indicate that HE academics have better endowments or characteristics than the average graduate. Thus HE academics should earn

more than the average graduate, on the basis of their endowments (214.9% of the gap in pay between HE academics and all other graduates is attributable to differences in endowments between the two groups). In other words, the gap between HE academics and other graduates is largely down to an unexplained component (labeled discrimination in table 7). Thus HE academics would earn more as a result of their different (better) characteristics (they are older and more educated) but this is offset due to unexplained factors that reduce their wages. It is of course possible that this latter difference may be accounted for by unobserved ability and other characteristic differences between the groups that exist but are unmeasured in our data.

<INSERT TABLE 7 ABOUT HERE>

Table 7 also shows Oaxaca-Blinder decompositions for other specific occupations, particularly secondary school teachers and doctors. In the case of comparisons between graduates and secondary school teachers, nearly 80% of the higher pay earned by graduates, as compared to secondary school teachers, is attributable to differences in the characteristics of the two groups. Only 20% of the pay gap is unexplained. Comparing graduates to physicians, around 17% of the pay gap between physicians and other graduates is down to differences in characteristics (physicians are more educated, for example). 83% of the difference is unexplained or down to the fact that physicians receive a higher price for the same set of characteristics as other graduates. Again it is possible that the unexplained gap is actually due to differences in unobserved abilities that mean that physicians would have earned higher wages anyway.

The final column in Table 7 compares the pay of doctors and HE academics directly. There is a considerable wage gap, with physicians much more highly paid than HE academics. 43.5% of this gap is attributable to differences in the characteristics between physicians and academics. Thus 56.5% of the pay gap between doctors and HE academics is unexplained or down to the fact that doctors earn a considerably higher premium for their endowments. This means physicians earn more than HE academics not only because they have superior endowments but also because they earn a higher price for the endowments that they do have. It is of course still possible however, that some of the unexplained wage differential is actually attributable to unobservable differences between doctors and HE

academics.

Table 8 then shows the results for women specifically. The first column indicates that, as for males, female academics have more endowments than the average female graduate and that a large proportion of the wage gap (124%) is attributable to their better endowments. However, this is partially offset by the unexplained component i.e. the fact that female academics earn a lower return to those endowments. Moving to the final column, again female doctors earn more than female academics. Only a very small proportion of this pay gap is attributable to endowments (5.8%) and 94% of the difference is attributable to the fact that female doctors earn a higher return to their endowments than do female academics.

Tables 7 and 8 therefore suggests that a substantial proportion (57-94%) of the wage gap between doctors and HE academics is unexplained and also attributable to the fact that doctors appear to earn more for a given set of characteristics. This evidence is consistent with our main finding, namely that HE academics do relatively badly compared to the average graduate and they compare unfavourably to other, arguably more comparable, public sector workers who have a superior position *vis-à-vis* their ability to secure a higher price for their characteristics.

5. Conclusions

This paper provides a descriptive analysis of the relative earnings of HE teaching professionals and concludes that HE teaching professionals earn higher than average hourly earnings, as compared to all other workers, although they also work longer hours than most. However, once one compares HE teaching professionals with graduates or other more similar occupations that require a substantial amount of postgraduate training, the wages of HE academics do not compare favourably. In particular, the earnings of HE teaching professionals compare very poorly to accountants, those in the legal professions, consultants, engineers, physicians, pharmacists and dental practitioners (across both the public and private sectors). In our study, there were only two groups of workers that did worse than HE academics in terms of pay, namely FE teachers and, to a lesser extent, secondary school teachers.

We investigated the sources of the overall gap in pay between different groups of workers. An interesting story emerges. Some predominantly public sector groups, such as

physicians, have been particularly effective in securing higher pay overall and a higher price for their endowments. Thus, much of the gap between doctors and other graduates (and indeed between doctors and HE academics) is down to the fact that physicians earn a higher price to their observed characteristics. This may be because physicians have unobserved characteristics that tend to mean that their productivity and pay is higher, and that we have not been able to account for this in the model. However, it could also indicate that physicians have greater political and economic power and have therefore been able to negotiate a higher price for their endowments. Clearly in the case of doctors this may rightly reflect the higher value that society places on their skills. However, we found HE academics compared poorly not just to doctors but to a range of other professions, including lawyers, consultants and engineers. This may be cause for concern if the UK aspires to maintain the quality of its world class HE sector by attracting the best individuals into the profession.

We also found that the economic position of HE academics varied over the life course, in terms of their relative wages. We found no evidence to support the conventional wisdom of a widening gap in pay between academics and other graduates as workers age. However, it is also apparent that the pay-gap between HE academics and some other specific groups, such as doctors, does widen over the life course. Again, one's view of the evidence depends substantially on the comparator group under consideration. It is also worth noting that we were not able to take account of pension earnings associated with being an HE academic, which may or may not reduce the lifetime earnings gap between HE academics and other professionals.

This paper provides evidence on the long run position of HE academics. Specifically, we investigated relative pay for HE academics over the previous decade. Whilst trends over time are accounted for in the regressions, we do not consider the changing nature of the gap over time. This is because small sample sizes preclude estimating an HE academic wage premium on an annual basis. Thus it is possible that within the decade considered in this paper, the relative position of HE academics improved (or deteriorated). In any case, this paper cannot address the question of whether the relative earnings position of HE academics has worsened over the last thirty or forty years or so, as has been argued by many commentators. This would obviously be central to any consideration of whether the quality of HE academics is likely to have declined over a longer time frame, due to falling relative

wages.

Our findings are of great policy importance. A high quality higher education sector requires high quality academics. Higher relative pay will attract better quality individuals into academe. Furthermore, the issue of relative pay (and in general the attractiveness of an academic occupation) will tend to affect postgraduate study as well as recruitment. Enrollments onto PhD programmes are likely to be affected if the short-term costs of postgraduate study are high and the long-term benefits, in terms of relative pay, are low. Pay is therefore a quality issue and the relatively disadvantageous position of HE academics should be of some concern to policy-makers. Given the good international reputation of many of the UK's universities (and the size of the sector in terms of contribution to the UK economy), we would argue that at the very least, the relative pay of HE academics needs to be monitored closely over the next few years. In particular, as the HE sector continues to expand, it is essential to recognize the risk that achieving the government's target of 50% of young people participating in HE may further reduce relative academic pay (and increase hours of work) with a potentially negative impact on quality. Of course it is important to recognize that any change to academic pay also has significant implications for the costs of higher education (which in turn has implications for access). Whilst relatively low academic pay may cause universities to have difficulty in attracting high quality candidates into academe (at least in certain subjects), it also helps keep the cost base down. Any reconsideration of academic pay would have implications for costs, tuition fees and ultimately widening access. Again this is an important reason to continue to monitor relative HE pay, as well as differences in pay and resourcing levels within higher education.

Some caveats to the research are necessary. Firstly, the paper focuses on a specific group of HE workers, namely teaching professionals. Other workers in the HE sector, such as librarians, are not considered. Secondly, it was not possible to estimate the wage premium for HE teaching professionals by degree subject and by gender. Other descriptive evidence suggests that the relative position of academics in certain subjects, such as science and IT, may be much worse than described here. Unfortunately, given data limitations, there is no solution to this latter problem. There are also two additional questions that need to be addressed in future research. There may be substantial non-pecuniary benefits associated with being an HE academic and, in particular, greater flexibility in working patterns and

higher job satisfaction. This study does not take account of these potential benefits. One cannot assume however that being an HE academic is necessarily a 'good' job, in terms of the non-pecuniary benefits: this is an empirical question. We note in this study, for example, that HE academics work longer hours than many other professional groups (but not doctors), which may be considered a substantial disbenefit of the job. Further research is also needed to provide evidence on the relative pay of academics in the UK, as compared to the relative position of academics in other countries. Certainly the market for top academics is international. To understand further the potential for a UK brain drain, as successful academics flock to the US for example, we need more evidence on relative academic salaries across a range of countries.

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Appendix: Technical Information

This appendix details the derivation of the LFS variables listed below, with variable names given in brackets.

The dependent variable, net wages per hour, is the sum of primary (*netwk*) and secondary (*netwk2*) occupations net wages divided by actual hours worked (*acthr* and *acthr2*).

Degree subject classifications (*sngdeg*) are consistently defined in to the aggregated groups to account for definitional changes that occurred in 2004. The variable is referenced against those without degree subjects. In the models where the sample contains academics or graduates it is referenced against those individuals who do not specify subject areas.

Educational qualification groups represent the 'highest qualification' obtained by each individual in the sample. These qualifications are, with the exception of vocational training, self-explanatory. High Vocational includes RSA High, Candg hghi, ONDBTEC, NVQ3; Mid Vocational includes Apprenticeship, Candg med, BTECdice, NVQ2; Vocational includes Candg (low), RSA (low), NVQ1, other vocational qualification. "Higher qualification" includes nursing, hediplom, otherhe and teaching unless degree. Graduates include all those with undergraduate or postgraduate tertiary qualifications. The educational variable classifications are consistently defined over time to account for changes in classifications that occurred over the sample period examined. The code used in generating these definitions is available from the authors on request.

Occupation groups are derived from the more general SOC1 variable (*sc2kmmj*) that sub-divides occupations into nine occupational groups. Specific occupational groups are derived from the SOC2 variable (*soc2km*). Academics working in Higher Education [higher education teaching professionals (*soc2km==2311*)], and those in further education [further education teaching professionals (*soc2km*==2312)], are analysed separately with the relevant classifications codes being give in brackets. All of the individual groups are contained with the 'Professional Occupations' classification (*sc2kmmj* for the value 2). Engineers are classified as civil engineers (*soc2km*==2121); mechanical engineers (*soc2km==2122*); mechanical engineers (*soc2km*==2123); electronics engineers (*soc2km==2124*).

Regional dummies are determined by geographical groupings of administrative regions where residents usually reside (*ureg*). The specific regions being: Northern;

Yorkshire & Humberside; East Midlands; London; East Anglia (excluding Greater London); South West; West Midlands; North West; Wales; Scotland and N Ireland.

Table 1:

Mean (log) wages 1994-2004 by occupation

	mean(log) wages	Std dev
Graduates	2.161	0.493
Academics (HE)	2.188	0.444
Academics (FE)	2.126	0.449
Secondary School Teachers	2.068	0.402
Dentists	2.556	0.463
Doctors	2.357	0.519
Pharmacists & Pharmacologists	2.218	0.424
Lawyers	2.326	0.510
Accountants	2.265	0.469
Consultants	2.375	0.546
Engineers	2.110	0.421

Source: LFS 1994-2004

Table 2:

Average hours of work 1994-2004 by occupation

	Primary job (excl. unpaid overtime)	Secondary (excl. unpaid overtime)	Primary and Secondary (excl unpaid overtime)	Primary and Secondary (incl. overtime paid and unpaid)
Graduates	34.2	0.7	34.9	42.2
Academics (HE)	34.3	2.6	36.8	44.0
Academics (FE)	30.0	1.9	31.9	38.5
Secondary School Teachers	31.5	0.9	32.4	43.7
Dentists	31.0	0.6	31.6	35.6
Doctors	39.2	1.9	41.1	52.3
Pharmacists & Pharmacologists	34.0	1.7	35.8	38.0
Lawyers	34.2	0.3	34.5	41.7
Accountants	34.7	0.5	35.1	41.3
Consultants	34.2	0.3	34.5	40.8
Engineers	36.1	0.2	36.4	42.3

Source: LFS 1994-2004

Table 3

Average hours of work, over time, by occupation, 1994-2004

	Academics (HE)	Teachers (Secondary)	Doctors	Graduates	Public Sector Graduates	Graduates v HE Academics	Public Sector Graduates v HE Academics
1994-95	46.85	45.11	59.41	44.28	44.54	2.57	2.31
1996-97	46.63	46.08	58.94	44.66	44.84	1.97	1.79
1998-99	48.74	46.59	58.99	44.57	45.38	4.17	3.36
2000-01	49.13	47.73	56.81	44.62	45.46	4.51	3.67
2002-03	49.29	47.85	53.09	44.39	44.99	4.90	4.30
2004	47.38	47.12	51.62	44.32	44.76	3.06	2.62

Source: LFS 1994-2004; *Note:* Sample working in excess of 25 hours per week i.e. excluding part-time workers

Table 4:

The wage premium associated with HE academic and other professions

Dependent variable: ln(wages per hour)		(i) All Occupations (Excl. Education)		(ii) All Occupations (Incl. Education)		(iii) Public Sector (Graduates)		(iv) Graduates		(v) Graduates (Heckman)	
		Coeff	tstat	Coeff	tstat	Coeff	tstat	Coeff	tstat	Coeff	tstat
Demographics											
Age	Age: 30-39	0.1843	(78.16)	0.2048	(90.31)	0.2112	(29.37)	0.2831	(56.94)	0.2882	(53.87)
Ref 20-29 years of age	Age 40-49	0.1787	(71.14)	0.2312	(94.68)	0.2609	(35.89)	0.3221	(57.98)	0.3301	(52.46)
	Age 50+	0.1054	(39.59)	0.2015	(74.79)	0.2943	(34.43)	0.3217	(45.32)	0.3342	(41.91)
Sex	Female	-0.1106	(59.40)	-0.1280	(71.39)	-0.0718	(12.34)	-0.0948	(21.99)	-0.0950	(22.12)
Ethnicity	Mixed Race	-0.0963	(11.54)	-0.0755	-(9.50)	-0.0608	(2.73)	-0.1383	(7.19)	-0.1367	(7.33)
Ref: white	Asian or Asian British	-0.0983	(14.03)	-0.0899	(13.92)	-0.0904	(4.60)	-0.0880	(6.91)	-0.0845	(6.14)
	Chinese	0.0083	(0.37)	-0.0436	-(2.04)	-0.1671	(4.25)	-0.1029	(3.35)	-0.1009	(2.95)
	Black of Black British	-0.0463	-(4.39)	-0.0309	-(3.04)	-0.0583	(1.98)	-0.0788	(3.93)	-0.0756	(4.05)
	Other Ethnic Group	-0.2342	(16.00)	-0.2024	(14.39)	-0.0761	(1.20)	-0.1692	(4.14)	-0.1689	(5.15)
Degree	Medicine			0.1409	(20.45)	0.0404	(3.61)	0.0519	(4.05)	0.0522	(5.06)
Subject	Biology-Agriculture-Physics			0.1030	(23.45)	-0.0020	(1.15)	0.0114	(1.60)	0.0121	(1.66)
Ref: is non-graduate	Maths-Engineering-Architecture			0.1483	(26.95)	0.0613	(3.61)	0.0791	(11.71)	0.0768	(11.41)
except in graduate only	Social Sciences			0.1431	(28.11)	0.0391	(3.83)	0.0332	(5.19)	0.0226	(2.07)
regressions where	Humanities & Arts			0.0014	(1.56)	-0.0348	(3.33)	-0.0665	(8.68)	-0.0528	(8.27)
unclassifed degrees	Education			0.0209	(2.80)	-0.0202	(1.91)	-0.0439	(5.32)	-0.0406	(4.92)
are the reference group	Other Subjects			0.0323	(7.87)						
Education	Doctorate			0.4424	(44.39)						
Ref is unqualified	Masters			0.4210	(70.56)	0.0071	(0.52)	-0.0094	(0.89)	-0.0088	(0.82)
except in graduate only	Other Postgraduate			0.3233	(38.09)	-0.1073	(7.13)	-0.1247	(10.16)	-0.1233	(9.71)

regressions where	Degree			0.3855	(94.03)	-0.0654	(5.05)	-0.0778	(8.01)	-0.0773	(7.77)
doctorate is the	High Qualification			0.3397	(70.34)						
reference group.	Higher Vocational			0.2946	(74.24)						
	Mid Vocational			0.1041	(22.59)						
	Vocational			0.0527	(11.48)						
	A level(s)			0.3205	(84.14)						
	GCSE(s)			0.1580	(65.17)						
Specific Occupations	Academics (Higher Education)	0.2503	(21.42)	0.0253	(2.36)	-0.0212	(1.61)	-0.0430	(3.18)	-0.0446	(3.24)
Ref other occupations	Academics (Further Education)	0.1668	(14.11)	0.0247	(2.57)	-0.0487	(3.16)	-0.0632	(4.33)	-0.0664	(4.55)
	Teachers (Secondary)	0.1842	(32.11)	0.0207	(3.20)	-0.0077	(1.01)	-0.0274	(2.39)	-0.0220	(2.87)
	Dental Practitioners	0.6466	(12.37)	0.3972	(7.95)	0.4875	(9.28)	0.4715	(9.58)	0.4939	(7.43)
	Doctors	0.4322	(36.46)	0.2450	(19.48)	0.2455	(14.27)	0.2161	(13.22)	0.2243	(13.55)
	Pharmacists & Pharmacologists	0.3923	(17.77)	0.1456	(6.79)	0.1776	(4.38)	0.1641	(6.75)	0.1682	(5.74)
	Solic & Lawyers, Judges & Coroners	0.4709	(33.85)	0.2379	(16.36)	0.3090	(8.27)	0.2042	(12.52)	0.2137	(12.34)
	Accountants	0.3982	(46.84)	0.2306	(26.32)	0.2258	(7.64)	0.1739	(12.27)	0.1739	(11.95)
	Consultants	0.4678	(32.59)	0.2832	(20.00)	0.1669	(4.35)	0.2407	(13.41)	0.2434	(14.61)
	Engineers	0.2697	(49.28)	0.1290	(22.67)	0.0800	(3.80)	0.0168	(1.91)	0.0129	(1.25)
Public/Private	Public	0.0734	(36.62)	0.0237	(13.75)			-0.0365	(7.81)	-0.0526	(7.53)
Constant		1.6781	(184.50)	1.4445	(153.18)	1.8689	(55.28)	1.9415	(76.17)	2.0065	(77.85)
Regional dummies		YES		YES		YES		YES		YES	
Year dummies		YES		YES		YES		YES		YES	
Quarter dummies		YES		YES		YES		YES		YES	
No. Obs		260,484		260,484		22,921		50,788		159,323	
Censored obs										108,535	
Uncensored obs										50,788	
R^2		0.165		0.261		0.181		0.208		0.2149	
P										-0.048	
Wald										12452.65	

Source: LFS (1993 Q4 -2005 Q3). *Notes:* 1. Robust t-statistics in parentheses; 2. The dependent variable is the sum of primary and secondary occupations net wages per hour. Details of the LFS variables used to construct the dependent variable as well as qualification and occupational groups and the classification of regions are detailed in Appendix I; 3. The temporal stability of the characteristic coefficients was confirmed by the use of Chow testing on adjacent years; 5. The

Heckman model employs individual's marriage status, whether or not women are married, whether there are children under the age of five years in the selection model.

Table 5:

The wage premium associated with being a HE academic and other professions by gender

		(i)		(ii)	
		Graduates **MALE**		Graduates **FEMALE**	
Dependent variable: ln(wages per hour)		Coeff	tstat	Coeff	tstat
Demographics					
Age	Age: 30-39	0.2488	(33.62)	0.2319	(30.58)
Ref 20-29 years of age	Age 40-49	0.2971	(34.69)	0.2173	(24.41)
	Age 50+	0.2978	(27.92)	0.1968	(17.72)
Ethnicity	Mixed Race	-0.1911	(6.79)	-0.0825	(3.12)
Ref: white	Asian or Asian British	-0.1079	(6.56)	-0.0880	(4.44)
	Chinese	-0.1538	(3.78)	-0.0356	(0.78)
	Black of Black British	-0.0802	(2.62)	-0.0808	(3.11)
	Other Ethnic Group	-0.1557	(2.40)	-0.2308	(5.02)
Degree	Medicine	0.0592	(2.40)	0.0177	(1.32)
Subject	Biology-Agriculture-Phisics	0.0460	(1.58)	0.0126	(1.27)
	Maths-Engineering-Architecture	0.0722	(8.72)	0.0612	(4.61)
	Social Sciences	0.0584	(4.23)	0.0262	(2.94)
	Humanities & Arts	-0.0696	(8.19)	-0.0646	(3.45)
	Education	-0.0367	(6.18)	-0.0303	(1.97)
	Other Subjects				
Education	Masters	-0.0050	(0.38)	-0.0165	(0.90)
Ref is doctorate	Other Postgraduate	-0.1211	(6.99)	-0.1365	(7.01)
	Degree	-0.0721	(6.01)	-0.0893	(5.17)
	Academics (Higher Education)	-0.0705	(3.90)	0.0054	(0.74)
	Academics (Further Education)	-0.1131	(5.15)	-0.0120	(0.61)
	Teachers (Secondary)	-0.0579	(5.05)	0.0187	(1.32)
	Dental Practitioners	0.4404	(6.64)	0.5036	(7.10)

	Doctors	0.1646	(7.15)	0.2649	(10.88)
	Pharmacists & Pharmacologists	0.0716	(1.82)	0.2269	(7.45)
	Accountants	0.1210	(7.18)	0.2615	(10.65)
	Solic & Lawyers, Judges & Coroners	0.1314	(5.85)	0.2719	(11.75)
	Consultants	0.2358	(10.47)	0.2536	(8.94)
	Engineers	-0.0031	(0.33)	0.0876	(3.32)
Public/Private	Public	-0.0479	(7.17)	-0.0332	(5.07)
Constant		1.9917	(58.43)	1.9189	(26.35)
Regional dummies		YES		YES	
Year dummies		YES		YES	
Quarter dummies		YES		YES	
No. Obs		28,325		22,463	
R^2		0.218		0.184	

Source and notes: See Table 3.

Table 6:

The wage premium associated with being a HE academic and other professions by age group

		(i)		(ii)		(iii)	
Dependent variable: ln(wages per hour)		Graduates		Graduates		Graduates	
	Cohort	30-39		40-49		50+	
Demographics							
Sex	Female	-0.0661	(8.64)	-0.1382	(15.97)	-0.1708	(14.33)
Ethnicity	Mixed Race	-0.1614	(5.36)	-0.1391	(3.70)	-0.1774	(2.29)
Ref: white	Asian or Asian British	-0.1169	(5.60)	-0.1513	(4.73)	-0.1696	(3.71)
	Chinese	-0.0979	(1.94)	-0.1604	(2.39)	-0.4176	(7.68)
	Black or Black British	-0.1019	(3.04)	-0.0953	(2.06)	-0.0827	(1.28)
	Other Ethnic Group	-0.2498	(4.89)	-0.1506	(2.14)	0.0040	(0.20)
Marital Status	Unmarried	-0.0045	(0.24)	0.0533	(5.95)	0.0551	(1.06)
Degree	Medicine	-0.0070	(0.56)	0.0531	(1.39)	0.0389	(1.03)
Subject	Biology-Agriculture-Phisics	0.0668	(0.74)	0.0295	(0.87)	0.0216	(0.39)
Ref: unclassifed	Maths-Engineering-Architecture	0.0637	(2.98)	0.0773	(2.18)	0.0687	(2.52)
degrees	Social Sciences	0.0218	(1.87)	0.0394	(1.12)	0.0512	(2.50)
	Humanities & Arts	-0.0719	(3.42)	-0.0424	(1.18)	-0.0781	(1.58)
	Education	-0.0229	(1.22)	-0.0258	(0.73)	-0.0239	(0.41)
Education	Masters	-0.0099	(0.56)	-0.0040	(0.22)	-0.0184	(0.84)
Ref: doctorate	Other Postgraduate	-0.1377	(6.56)	-0.1369	(6.47)	-0.1278	(3.63)
	Degree	-0.0728	(4.53)	-0.0786	(4.58)	-0.0929	(3.99)
	Academics (Higher Education)	-0.0828	(3.53)	-0.0268	(1.21)	-0.0527	(2.19)
	Academics (Further Education)	-0.0662	(2.41)	-0.0763	(3.43)	-0.0714	(2.38)
	Teachers (Secondary)	0.0050	(0.35)	-0.0429	(3.70)	-0.0630	(2.50)
	Accountants	0.1444	(6.73)	0.1818	(5.14)	0.1594	(2.02)
	Solic & Lawyers, Judges & Coroners	0.1826	(7.32)	0.2758	(5.88)	0.2710	(4.31)
	Consultants	0.2308	(8.30)	0.2420	(6.62)	0.2472	(2.80)
	Engineers	0.0006	(0.04)	-0.0118	(0.62)	0.0261	(0.81)

	Doctors	0.2261	(8.01)	0.3219	(11.01)	0.3186	(6.56)
	Pharmacists & Pharmacologists	0.1466	(3.40)	0.1187	(2.85)	0.1874	(2.49)
	Dental Practitioners	0.5483	(6.18)	0.5371	(4.83)	0.4363	(6.41)
Public/Private	Public	-0.0840	(8.64)	-0.0691	(7.37)	0.0146	(1.16)
Constant		2.2921	(52.55)	2.1933	(43.94)	2.3662	(29.94)
Regional dummies		YES		YES		YES	
Year dummies		YES		YES		YES	
Quarter dummies		YES		YES		YES	
No. obs		16,822		11,922		6,972	
R^2		0.157		0.175		0.147	

Source and notes: See Table 3.

Table 7
Oaxaca-Blinder decompositions for the full sample

	(i)	(ii)	(iii)	(iv)
Summary of decomposition results (as %)	**Graduates vs. HE academics**	**Graduates vs. secondary school teachers**	**Graduates vs. doctors**	**Doctors vs. HE academics**
Amount attributable:	-11.9	6.1	-48.4	36.5
due to endowments (E):	-6.6	7.5	-3.3	7.2
due to coefficients (C):	-5.2	-1.4	-45.1	29.3
Shift coefficient (U):	8.8	3.4	28.7	-19.9
Raw differential (R) {E+C+U}:	-3.1	9.5	-19.7	16.6
Adjusted differential (D) {C+U}:	3.6	2	-16.4	9.4
Endowments as % total (E/R):	214.9	79.4	17.0	43.5
Residual as % total (D/R):	-114.9	20.6	83.0	56.5

Note: These Oaxaca-Blinder decompositions are derived from regressions as shown in Table 4.

Table 8
Oaxaca-Blinder decompositions for Women

	(i)	(ii)	(iii)	(iv)
Summary of decomposition results (as %)	**Graduates vs. HE academics**	**Graduates vs. secondary school teachers**	**Graduates vs. doctors**	**Doctors vs. HE academics**
Amount attributable:	-27.5	-12.8	-49.6	22.1
due to endowments (E):	-7.7	2.6	-5.5	1.2
due to coefficients (C):	-19.8	-15.4	-44.1	20.9
Shift coefficient (U):	21.3	14.7	22.8	-1.5
Raw differential (R) {E+C+U}:	-6.2	1.9	-26.8	20.6
Adjusted differential (D) {C+U}:	1.5	-0.7	-21.3	19.4
Endowments as % total (E/R):	124.3	138	20.5	5.8
Residual as % total (D/R):	-24.3	-38	79.5	94.2

Note: These Oaxaca-Blinder decompositions are derived from regressions as shown in Table 5.