

Researching Graduate Careers Seven Years On
***A research project jointly funded by the Economic and Social Research
Council and the Higher Education Careers Services Unit***

Research paper No. 4

Higher Education and gendered career development

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March 2004

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Employment Studies Research Unit

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University of the West of England

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1. Introduction

The UK has one of the highest rates of participation and completion of higher education courses in Europe (OECD 2003) and women's participation rates, both in higher education and employment, have risen substantially in the last quarter of the 20th century. However, little is known about the complex interplay between the career aspirations of graduates, the availability of suitable jobs and the gendered choices and constraints facing men and women as they move out of higher education and into the labour market. Research findings (Joshi and Paci 2001, Rake 2000) indicate that highly qualified women have consistently been more likely than those less well qualified to remain in paid work throughout their adult lives, to work full-time and to have successful careers. However, more than quarter of a century after the implementation of equal pay legislation, gendered occupational segmentation and a significant gender pay gap remain, even among the most highly qualified.

This paper investigates these issues using a more detailed source of information than has hitherto been available. We present findings from a recent national longitudinal study of over 4,500 graduates, most in their late 20s and early 30s, all of whom completed undergraduate degrees in 1995. We examine the relationship between educational and employment experiences and gender role orientations, in determining employment decisions and career development. The impact of degree subject, achievement, occupation and sector of employment, on one hand - and of partnership and attitudes towards gender roles and the work/life balance on the other - are explored, to address some fundamental questions at the core of social and cultural structures. Do women, as argued by Hakim (2000, 2003), exercise an identifiable range of different rational choices throughout their education and early careers in the light of their lifestyle and gender-role preferences – or are career and family-building choices more often a consequence of employment opportunities and constraints?

2. The expansion of higher education in the UK

It is widely acknowledged that the UK higher education system has undergone a major transformation over the past 25 years, from a system that catered for an elite group of entrants in the late 1960s and early 1970s to one that now aims to provide tertiary education to half the

population of 18 - 30 year olds and provide 'second chance' opportunities for adult returners to higher education. An indication of the scale of this expansion can be gained from Table 1, which shows the increase in the total number of undergraduate students enrolled in higher education between 1970/71 and 2000/01. The number of male undergraduates, standing at 368 thousand in 1970/71, had increased by nearly 40 per cent by 2000/01. During the same period the number of female students participating in higher education at an undergraduate level increased by almost 100 per cent.

Table 1 Undergraduate students in higher education: by gender (UK, 1970/71 – 2000/01)

	Males				Females			
	Full time	Part time	Total	% growth	Full time	Part time	Total	% growth
1970/71	241	127	368	-	173	19	192	-
1980/81	277	176	453	23%	196	71	267	39%
1990/91	345	193	538	19%	319	148	467	75%
2000/01	511	228	739	38%	602	320	922	97%

Source: Department for Education and Skills; National Assembly for Wales; Scottish Executive; Northern Ireland Department for Employment and Learning

While these numbers give some indication of the scale of this change, they mask the fact that the population of young people was declining, especially during the 1980s and early 1990s¹. The rate of participation of young people in higher education thus rose even more rapidly than these figures suggest, with women's participation rising consistently and considerably more than men's. These changes have been driven by a number of factors, including reform of the school qualifications obtainable at age 16, the decline in employment opportunities for minimum-age school leavers and the associated fall in relative earnings for young people, the incorporation of the former polytechnics and many colleges of higher education within the university sector and the continuing labour market advantage associated with a higher education (Bynner *et al.* 2002).

As a result of this expansion, the labour market has had to absorb an increasing flow of highly qualified people moving into employment. Elsewhere (Elias and Purcell, 2003) we have examined in the implications of these changes in terms of the movement of graduates into jobs that make use of their higher education skills and knowledge. Here we turn our attention to the gendered nature of these career paths and employment outcomes.

3. Studying the graduate labour market

The national longitudinal study we use as the basis for this research commenced in 1998/99, with a postal survey of a stratified sample of approximately 10,000 graduates who had gained their first degrees in 1995. Approximately 50 per cent of all graduates were sampled from 33 randomly

selected higher education institutions in the UK². Although this survey could only reveal the early stages of graduates' careers, the findings were largely positive. While there was evidence of variations in experiences and outcomes according to the subject studied and by degree class, the general picture was encouraging, with respondents reporting above average earnings and lower than average unemployment compared to comparable non-graduates and clear evidence of continuing career development. The proportion working in what we classed as non-graduate jobs was low and falling. There was, however, a less positive set of observations. The study revealed evidence of diverging patterns of earnings for young graduate men and women (those under 30) - indicative of the emergence and persistence of a gender pay gap for these highly-qualified young people.

While these findings were interesting, outcomes three and a half years after graduation were still a fairly early stage in the evolution of graduate careers, particularly given that so few had started to form families. Subsequently, we have undertaken a further longitudinal survey of those who participated in 1998/99 (the *Graduate Careers Seven Years On* study), yielding postal responses from some 3,300 of the original respondents. To address the issues of response bias and attrition, these data were supplemented with survey responses from 1,200 1995 graduates who had graduated from one of five higher education institutions added to the sample. We also conducted 200 detailed follow-up interviews with a sub-sample of respondents from the full range of institutions and disciplines, gathering information which would enable us to throw more light upon the evolution of gender differences in career development than that which could be elicited from postal questionnaire responses.

4. The research questions

We list below a number of research questions relating to gendered differences in employment outcomes and career development. While these issues have been well-researched among the general population, the focus here is upon those who have acquired a university level education. Given the extent of the expansion of higher education noted earlier, we are concerned to measure whether or not the gender differences we could see developing some three and a half years after graduation had continued to widen.

The specific questions we pose are as follows:

- What explanations can we find for gender differences in earnings among graduates seven years after completing their undergraduate degrees? How far can the gender gap in earnings be related to differences in qualifications obtained and the type of work done by women and men?

¹ The population of 18-24 year olds fell by almost 20 per cent in ten years, from 6.2 million in 1987 to 5 million in 1997 (Bynner *et al.* 2002).

² At the time the survey was conducted (1998/99) there were approximately 192 higher education institutions in the UK. The sample was designed to collect information from 5% of all qualifying domestically domiciled HE leavers.

- How far *is* graduate employment segmented by gender seven years after graduation? On what basis do women choose, or find themselves propelled into, female-dominated occupations and gendered *niches*³ within occupations?
- What are the relative influences of prior orientations, work-related experiences and wider lifestyle choices and constraints on the career development of women and men?

In pursuing these issues we make use of both quantitative and qualitative research methods. The longitudinal survey data are both rich and detailed, in that they provide information about career paths, earnings, partnership history and, to a limited extent, measurements of attitudes and values. In-depth telephone interviews with a cross-section of male and female graduates allowed us to explore the rationale underlying the observed career paths and to collect information on the perceived opportunities and constraints surrounding the decision-making processes.

5. Gender differences in the earnings and high-level qualifications

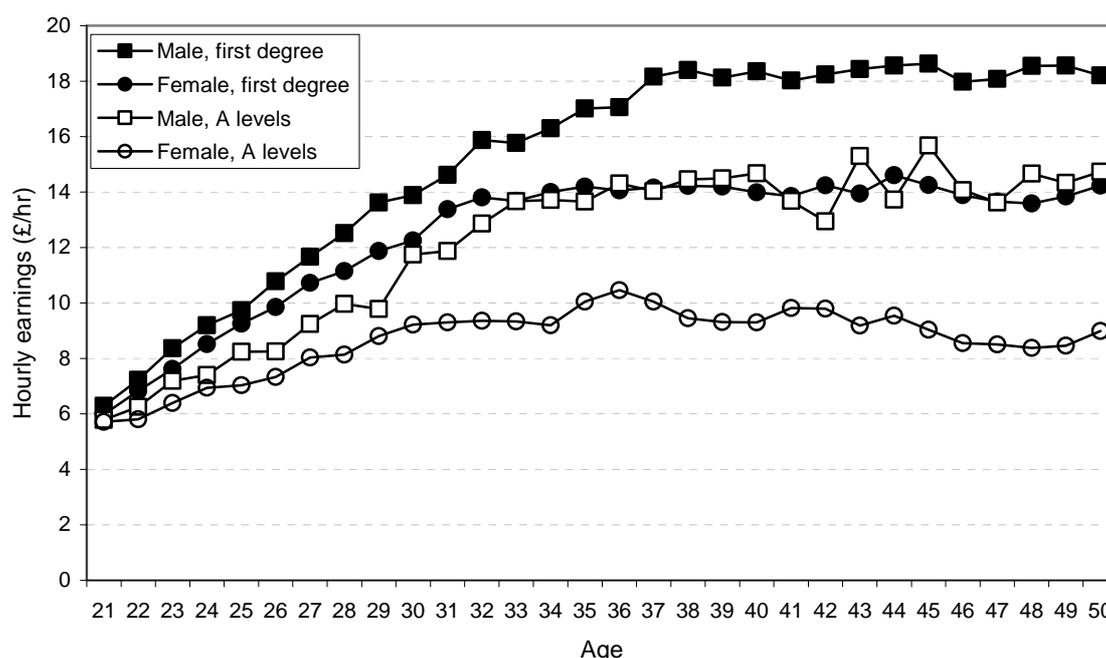
Gender differences in earnings are well researched (Borjas 1996, Sorensen 1998, Bergmann 1971), but remain elusive in terms of our understanding of the processes through which they arise and the mechanisms that perpetuate them. Human capital theory posits a relationship between expected lifetime labour market experience, education and earnings, suggesting that women will invest less in human capital if they expect to withdraw from the labour market for reasons of family formation or caring responsibilities. Related to this theory, it has also been argued that some women's preferences for paid work are different from those of men (Hakim, 2003). Segmented market theory suggests that certain areas of employment become identified as 'male' or 'female' work (Crompton and Sanderson 1990). Segmentation arises either through sex-typing of job content (where jobs are assumed to be more accessible or attractive to women and men on the basis of biologically-based differences in aptitude and orientation) or because of differential accessibility to men and women deriving from social factors (primarily gender-related occupational prerequisites or the organisation of working arrangements). While the causes of segmentation remain debatable, subsequent 'overcrowding' (an excess of labour supply over labour demand) in 'low skill' jobs in segmented markets is associated with lower earnings of women (Bergmann 1996, Macpherson and Hirsch 1995, England 1992, 1982).

An indication of the scale of the gender difference in hourly earnings across all jobs is shown in Figure 1. Using information from the Labour Force Survey for the period 2001 to 2003 and distinguishing between those who hold a first degree and those who have A-level qualifications but no degree, the figure illustrates how the gender gap in hourly earnings varies with age, beginning to

³ We are using 'gender niche' here as a shorthand for areas of specialism within occupations where women are significantly more likely to be employed than in other areas of the occupation – whether or not such jobs have been constructed as component or breadwinner jobs viz. Siltanen's (1994) distinction.

appear in the early 20s and reaching a maximum in the mid 40s. While graduates at any age earn significantly more than qualified non-graduates, the emergence of the gender pay gap arises in a similar fashion for graduates and for such non-graduates. We note also that the period covering the first ten years after graduation is critical in terms of the difference between the pay of graduates and non-graduates. A gender difference is apparent even for the youngest graduates, initially at about 10 per cent, but rising to about 25 per cent by the time graduates reach their mid 40s.

Figure 1 Age profiles of hourly earnings by gender and qualifications, 1999 - 2003



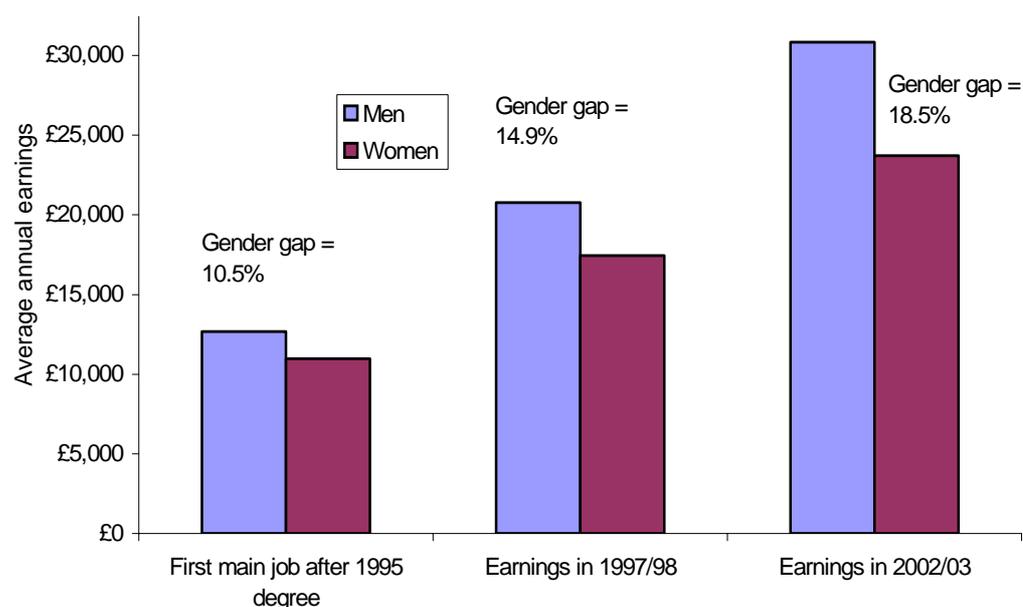
Source: Labour Force Surveys, 1999 - 2003.

We expected that a longitudinal study of the evolution of the gender gap in pay would not yield such striking evidence as is revealed in the cross-sectional data presented above. In the cross-sectional picture, most of those in their early 40s had graduated 20 years earlier and could be on a different labour market trajectory than those who graduated more recently. We assumed that women who had graduated more recently were more likely to be working in occupations which had embraced a commitment to equal opportunities in recruitment and promotion. Second, the graduates in the longitudinal survey were predominantly aged between 24 and 28 years at the time of the first survey and few had children. The impact of family formation and childcare responsibilities on career patterns was therefore likely to be less significant for women in this age range.

It was thus surprising to find a significant gender gap in earnings at that early stage in their career development. There was a 10 per cent difference between the annual earnings of men and women working full-time, after taking account of the different mix of subjects they had studied, age, social

background, differences in entry-level qualifications for higher education and the class of degree that had been obtained (Elias *et al.* 1999; 44-46). By returning to this group of graduates three years later, we have been able to improve upon our earlier estimates of the gender pay gap, by including additional information not available to us at the time of the 1998/99 enquiry. We are also in a position to observe how this gender difference has changed over the first seven years of these graduates' careers and, if so, to see whether we can better identify the main factors associated with the evolution of the gender gap in pay.

Figure 2 Average annual gross earnings of 1995 graduates by gender



Source: Seven Years On: a survey of the career paths of 1995 graduates

To commence this investigation, we present details of what we term the 'unadjusted' gender pay differential. In Figure 2 we show the average annual earnings of graduates by gender at three points in time: for their first main job after graduating in 1995 (as long as the job was started before January 1996), at the time of the first survey of this cohort (1998/99) and at the time of the second survey (2002/03)⁴. For this and all subsequent analyses, our data are restricted to those who stated that they were in full-time employment or self-employment in 2002/03 and who were aged less than 30 years at the time they graduated in 1995⁵. We can see that the unadjusted earnings gap (without taking account of gender differences in subject studied, social class background, entry level qualifications, class of degree obtained, etc.) has been increasing steadily as careers evolve over the seven and a half year period since graduation. Women graduates reported full-time

4 Sample attrition is a major problem with longitudinal surveys, and our survey is no exception. Response rates in 1998/99 were just over 30 per cent. Only 70 per cent of these respondents gave permission to be recontacted. Of these, only 50 per cent responded. However, we are able to determine whether or not the respondents at the second survey are systematically different from those who responded at the first survey. We find little evidence of such systematic differences.

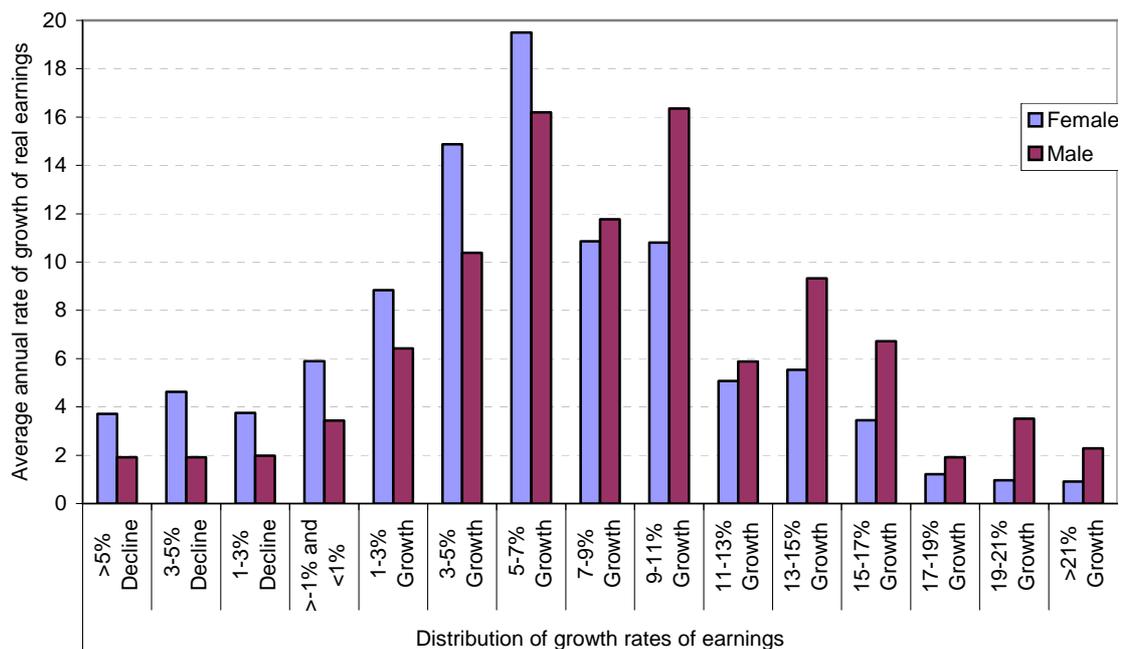
5 The exclusion of those aged over 30 years at the time of graduation removes x% of respondents, mainly those who were undertaking a degree to acquire access to the teaching profession and those who were pursuing a degree for reasons not associated with their career development.

annual gross earnings in their first job after graduation which were, on average, 11 per cent less than those of male graduates. Three and a half years later this had risen to almost 15 per cent, then to over 18 per cent by 2002/03.

The earlier multivariate analysis of the earnings of these graduates at three and a half years after graduation was limited by the nature of the information collected at this time. We are now able to improve upon our earlier analysis of the gender pay gap, by including additional information not available to us at the time of the 1998/99 enquiry. We are also in a position to observe how this gender difference has changed over the first seven years of these graduates' careers and, if so, to see whether we can better identify the main factors associated with the evolution of the gender gap in pay.

Figure 3 shows the distribution of the average annual real rates of growth of earnings of men and women in full time employment over the seven years since graduation. For women, the modal growth rate is between 5 and 7 per cent per annum in real terms. For men it is between 9 and 11 per cent per annum. The distribution of these growth rates is also significantly different between men and women. Many more men report earnings which imply rates of growth of more than 10 per cent per annum in real terms over this seven year period. Furthermore, the tails of these distributions show that significantly more women than men experience negative or negligible real growth in earnings. In other words, the gender gap in pay widens the longer these graduates have been in employment.

Figure 3 The distribution of the annual real rate of growth of earnings over the period 1995 to 2002/03, full-time employees aged under 30 at graduation in 1995, by gender



In our attempts to gain some understanding of the factors that underlie the development of this gender gap in earnings of people who appear equally highly qualified, we make use of multivariate statistical techniques. Detailed results are shown in Appendix 1. In what follows we refer to these results and discuss those factors that warrant further investigation.

From the detailed regression analysis we found that, although a number of factors show a powerful association with annual earnings, they do not necessarily contribute to a better understanding of the gender difference in pay. For example, graduates working in inner London experience a 25 per cent premium on their earnings. This highlights the fact that inner London employers pay higher wages to attract and retain employees who face higher residential costs. If significantly more men than women in our sample worked in inner London, this would help us to understand the difference in that it would cause us to question why such a geographical difference in the employment of men and women exists. Examination of the mean values of these location variables for men and women shows that there is little difference between them. Location of employment and the pay differential associated with it is not, therefore, a factor underlying the gender difference in pay.

The wide range of results shown in Appendix 1 warrant further detailed analysis elsewhere. In what follows we focus specifically upon the gender differences in earnings that are revealed in this analysis. These differences are associated with a number of factors which were measured in the longitudinal survey. Most important among these are:

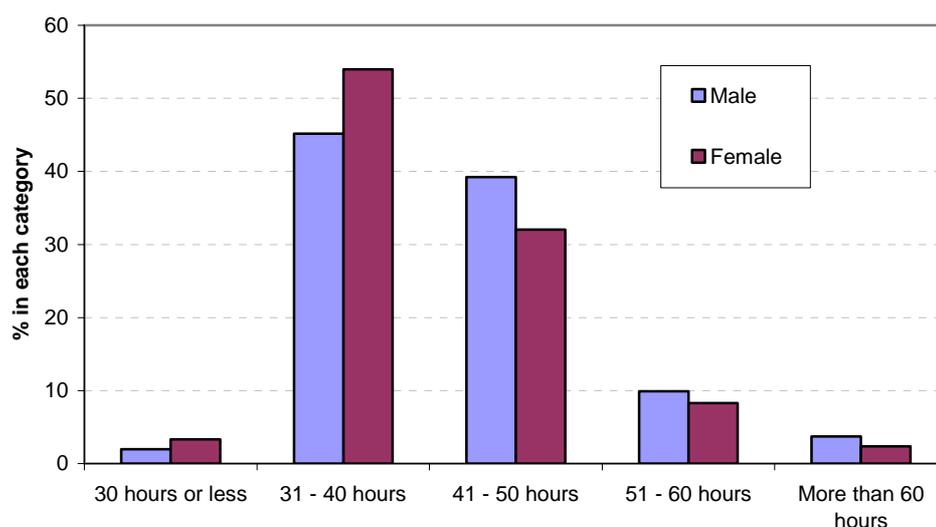
- weekly hours worked;
- the sectoral distribution of graduate jobs;
- the extent to which graduates are employed in workplaces where the type of job they do is segregated by gender;
- subject studied for their 1995 degree.

We describe each set of factors in turn.

5.1 Hours worked

The present analysis focuses exclusively upon those in full-time employment. Nevertheless, the relationship found between annual earnings and hours worked per week is, as expected, positive – as weekly hours worked increase so do annual earnings. The regression coefficient shown in Appendix A1 implies that each additional weekly hour worked contributes to a one per cent increase in annual gross earnings. This may not seem large, but the young male graduates in our sample report weekly hours that are significantly higher than for the women.

Figure 4 **Distribution of hours worked per week by gender**



Source: Seven Years On: a survey of the career paths of 1995 graduates

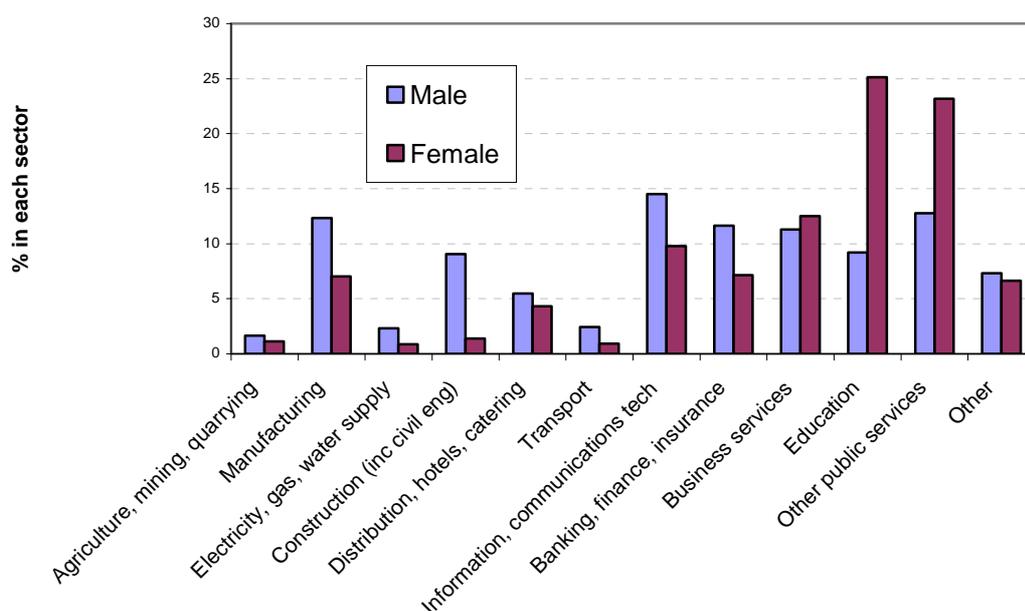
Figure 4 shows that over half of the men report working more than 40 hours per week. For women, only 43 per cent report weekly hours in excess of 40. While some may argue that this simply reflects fair compensation for longer hours of working, it raises the important question of why men work significantly longer hours and whether or not women's hours are more constrained than men's due to the gendered division of non-paid work. This is an issue we return to later in this paper.

5.2 *The sectoral distribution of graduate jobs*

Average earnings vary by industry sector and this is clearly part of the explanation for the observed gender pay gap among the graduate sample. The reasons behind this are complex and varied, and may well reflect differential access to sectors of employment by men and women. The distribution of graduate employment by sector probably reflects choices made at an early stage in the development of graduate career paths. For example, those who pursue languages and humanities at school, then take a degree in these subjects, are less likely to find employment in the engineering sector than those who pursued more quantitative subjects. Part of the explanation of sectoral pay differentials lies in the demand for and supply of particular skills. The information and communications sector is a good example of a sector where jobs have been in relatively short supply, leading to higher pay for those working in the sector. Additionally, public sector jobs typically pay less than equivalent private sector posts.

These factors combine to have a significant impact upon the pay of men and women. For example, those who work in banking, insurance, finance, the information and communications sector and business services have annual earnings which are approximately 15 per cent higher than the average.

Figure 5 Industry of current job by gender

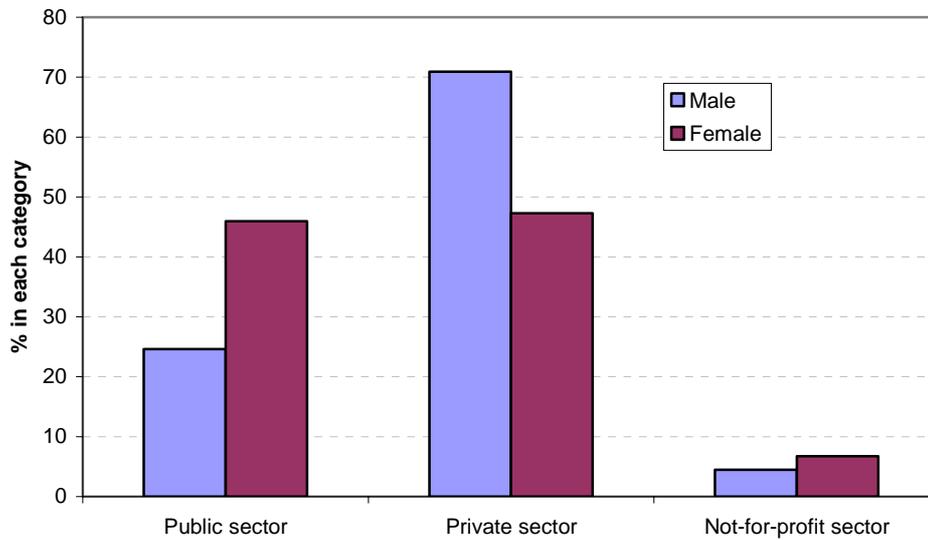


Source: Seven Years On: a survey of the career paths of 1995 graduates

Figure 5 reveals that, while 29 per cent of the female graduates work in these sectors, almost 40 per cent of men have jobs in one of these three sectors. Similarly, well over a half of the female graduates work in education, health or other public services, compared with less than 30 per cent of the male graduates. Jobs in these sectors pay less on average, for both men and women, but the effect of such a negative pay differential is more significant for women given the higher proportion of women working in public sector jobs.

The public/private sector pay differential contributes significantly to the observed gender difference in pay. In addition to requesting information about the sector in which they are currently employed, we asked respondents to indicate whether their current employment was in the public sector, the private sector or 'the not-for-profit' (e.g. charitable institutions) sector. This distinction has a major impact upon annual gross earnings. Public sector jobs have earnings which are 10 per cent lower than private sector jobs, after having taken account of the sector in which a person works. Figure 6 shows that over half of the female graduates in full-time employment seven years after graduation are employed in the public or 'not-for-profit' sector, compared with only one third of male graduates.

Figure 6 Public/private sector employment by gender



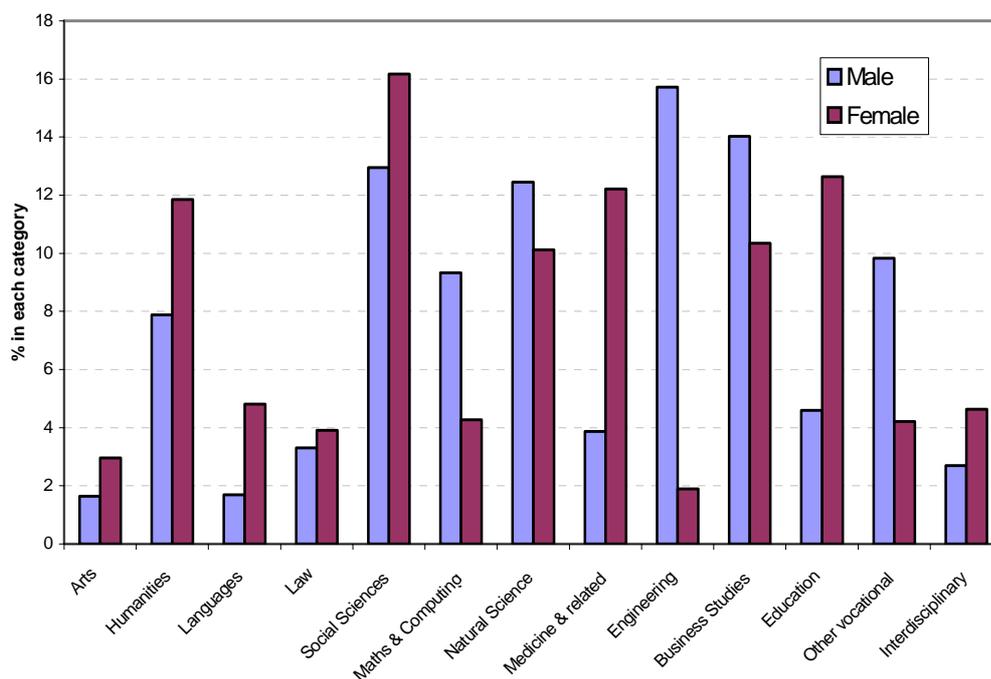
Source: Seven Years On: a survey of the career paths of 1995 graduates

5.3 Undergraduate Degree Subject

Access to occupations is clearly restricted, if not substantially determined, by subject and discipline choices made at school and in higher education and the consequent skills developed. Boys and girls' secondary education subject choices and achievements at GCSE, 'A' level and equivalent public examinations are gendered, with boys more likely to have chosen science and numeracy-based subjects than girls and more likely to have gone on to higher education courses that require such a foundation (DfES 2002, HESA 2002). There is some evidence that seven and a half years after graduation, a key factor that aids our understanding of the gender difference in earnings remains as it was revealed in the earlier analysis. The subject studied for the degree is a powerful predictor of later earnings. Those who took on arts degree earn 17 per cent less than law, social sciences, engineering, business studies or education graduates. Humanities and language graduates also continue to show a lower 'graduate premium' relative to these groups. In contrast, maths and computing graduates and those who studied engineering record annual earnings which are 10-12 per cent higher than the reference groups.

Figure 7 shows the higher proportion of male graduates who had studied the quantitative-based engineering, maths and computing, and other vocational subjects.

Figure 7 Distribution of subjects studied, 1995 graduates in employment in 2002/03, by gender



Source: Seven Years On: a survey of the career paths of 1995 graduates

It is often assumed, not unreasonably, that degree subject studied is indicative of aptitudes and skills developed and (perhaps less reasonably) that specialisation in either numeracy or literacy-based skills is likely to be correlated with low development of the other skill-set. Skills, and the market values they are accorded, are socially constructed in particular socio-economic contexts, and it is very clear in our graduate sample that possession of different types of degree is differentially rewarded. For example, employers report shortages of graduates with numerical skills (AGR 2002), the gender premium has been found to vary according to subject (Walker and Zhu 2003) and the average earnings of those with numeracy-based degrees was higher than those where the skills developed were literacy-based. Thus, subject differences clearly go some way towards explaining the gender pay gap, but differences in average earnings and the distribution of earnings of male and female graduates with similar degrees suggest that they fall short of providing a full explanation.

5.4 Workplace segregation by gender

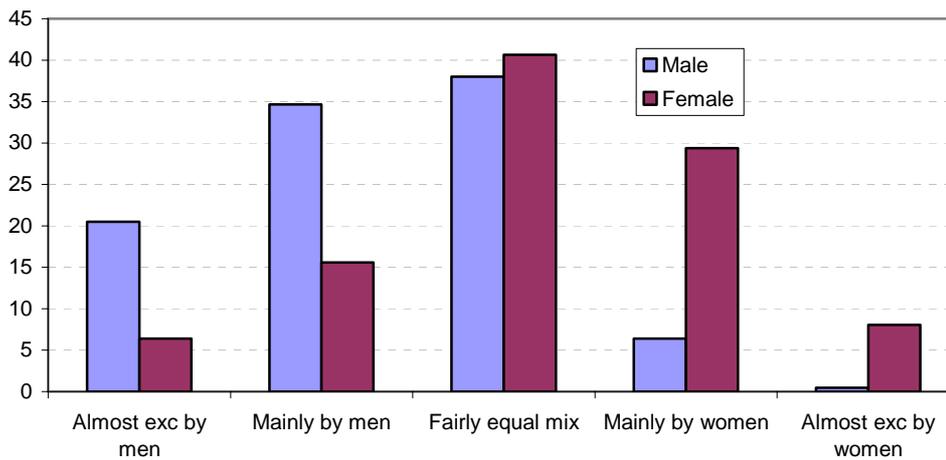
Other factors correlated with work and labour market context are clearly related to processes that link gender to earnings. A revealing finding from the results shown in Appendix 1 relates to the gender mix at the workplace. A question we included in the most recent survey asked:

In your workplace, is your type of job done ...

- ... almost exclusively by men?*
- ... mainly by men?*
- ... by a fairly equal mixture of men and women?*
- ... mainly by women?*
- ... almost exclusively by women?*

Figure 8 shows the response to this question, revealing the extent of occupational gender segregation at the workplace for all the young and 'young mature' graduates in full-time employment at the time of the survey, regardless of their occupation. While only 5 per cent of women are employed in workplaces where their type of job was undertaken almost exclusively by males, the corresponding figure for men was 20 per cent. In total, over half of the young male graduates in employment in 2002/03 were working in contexts where their jobs were exclusively or mainly done by men. Over 40 per cent of women were working in jobs exclusively or mainly done by women in their workplace.

Figure 8: Occupational workplace context by gender



Source: Seven Years On: a survey of the career paths of 1995 graduates

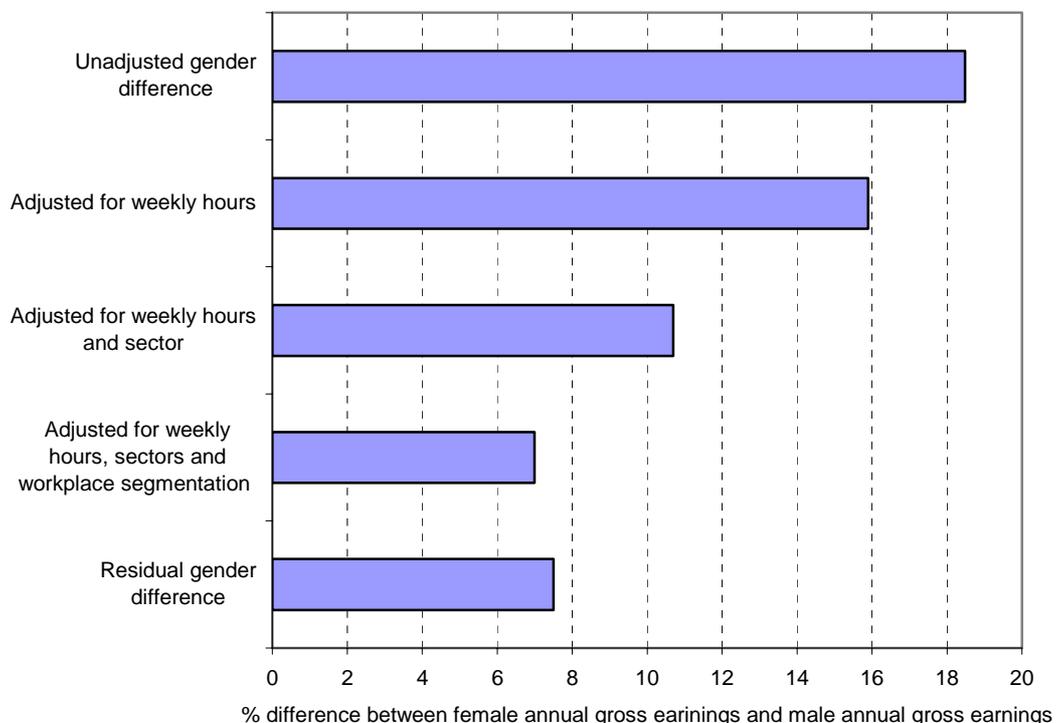
5.5 The combined effects on the gender difference in pay

The combined influence on the gender difference in pay of factors outlined above is shown in Figure 9. The uppermost bar on this chart shows the unadjusted difference in the earnings of male and female graduates in full-time employment seven years after graduation, as was shown in Figure 2. Each bar beneath this shows the effect on the gender difference in pay of introducing statistical controls for various factors. The adjustment for weekly hours alone reduces the gender differential to 15.9 per cent from 18.5 per cent. Next, adjustments are added for the sector of employment (SIC Divisions and the public/private sector distinction). This has a major impact on the gender difference in pay. Introduction of these statistical controls, together with the adjustment for hours, reduces the gender difference further to 10.7 per cent. Finally, the impact of gender

segmentation at the workplace as a major force in the gender difference in earnings is revealed by noting that statistical adjustment for this factor brings the gender difference down a further 3.7 percentage points. The lowest bar in this chart represents the gender difference remaining after all the variables shown in the regression estimates in Appendix 1 have been added. The fact that this is slightly higher than the gender difference adjusted simply for hours, sectors and workplace segmentation reflects the fact that there are a number of factors which operate in favour of women's annual gross earnings. In particular, women's better entrance qualifications for university and their better degree results means that, when account is taken of these factors, the gender difference widens slightly.

An interesting finding from the analysis described above relates to the relative effects of subject studied and sector of employment. While these two factors are clearly related, we anticipated that it would be the subject studied which would appear as the most important set of factors in helping us to understand the gender difference in pay. In fact, it turns out that the opposite is true – sector of employment and the public/private sector distinction provides a better indicator of the gender difference in earnings than does the subject of study, although, as we saw above, subject of study is significantly gendered and there is a clear relationship between subject studied and the range of occupations to which graduates have subsequent access.

Figure 9 The combined effects of various factors on the gender difference in annual earnings



In the light of the analysis above, it is of interest to enquire how the 'unadjusted' pay differential of just over 18 per cent shown in Figure 2 changes when account is taken of all other factors included

in the regression analysis. The 'adjusted' pay differential – that part of the difference in pay attributed directly to gender and not to the effect of other factors (many of which are themselves gender related) – remains at 8 per cent. While this might appear to some to be fairly small, it must be stressed that this difference is both recent (2002/03) and is located within a group of individuals for whom we expected to observe the least discrimination in pay, promotion and employment opportunities. Indeed, the women in our sample are more highly qualified, on average, in terms of academic and professional qualifications, than their male peers, having been more likely to have undertaken further job-related training and almost twice as likely to have gained postgraduate degrees and diplomas. Traditionally, a substantial part of the explanation for women's lower earnings has derived from their lower investment in human capital development, their propensity to have career breaks for family-building and their lower levels of economic activity (Joshi and Paci 2001, Anker 1997, Becker 1971), variables which do not apply to the sample being considered here. The results of the analysis so far show that subject studied, occupation and industry sector are significant variables, but controlling for these and exploring the data further, how far do differences in career outcomes derive from differences in the opportunities and constraints experienced by graduates in employment, and how far do they reflect gender differences in choices made and orientations to employment?

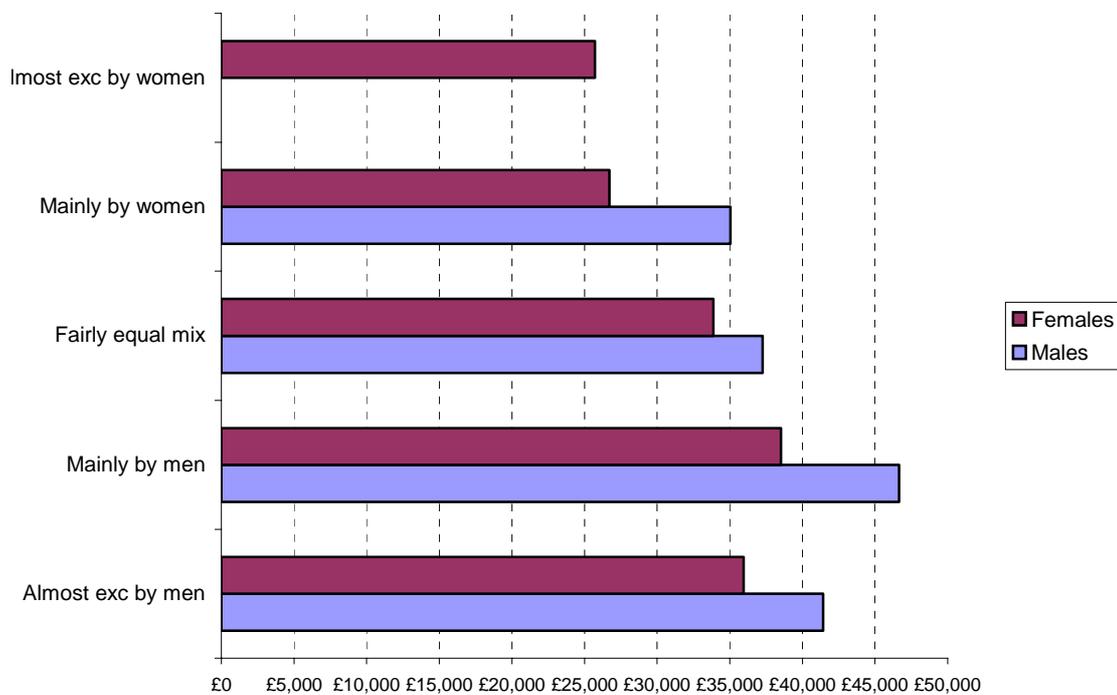
Later in this paper we explore whether or not further light can be shed on the residual gap through examination of differences in access, opportunities and performance intrinsic to employment - and how far we must look for related but essentially extrinsic explanations such as gender differences in orientation to career development, or gendered restrictions relating to wider social roles. To achieve this we move from statistical description based on survey data to the detailed accounts provided by graduates in discussions about their careers, work/life balance, current situation and future plans. Before this though, we examine in more detail the interesting findings we have relating to the links between gender segmentation and earnings and to the impact of subject studied on the gendered nature of the subsequent career paths.

6. Gender segmentation and earnings

We have shown that gender segmentation at the workplace is intimately connected with earnings. While this finding is well documented, both in the UK and the US, it has hitherto largely been examined solely on an occupational basis (e.g. Boras and Rogers 2003) rather than with reference to work context. Here we have first-hand evidence of the additional effect of gender segmentation at the workplace on earnings, in the presence of a wide variety of controls for other factors and for a cohort of people with similar educational characteristics. From the earnings regression results shown in Appendix 1, it can be seen that, where people who do similar work to the respondent at the respondents' workplace are mainly or exclusively female, earnings are lowered by 6-7 per cent. In contrast, where men work in male-segment occupational contexts, earnings are 6 per cent higher relative to mixed gender workplaces. This can be shown vividly by comparing men and women in ostensibly similar occupations and different contexts. In Figure 10, we show information for

graduates who hold jobs as managers in six sectors where the majority of managers are employed: manufacturing, distribution, hotels & catering, ICT, banking, finance and insurance, business services and other public services. We find that the gender pay gap is greatest where graduate managers work in occupationally gendered workplaces - and that salaries for both sexes are raised by being in areas of male concentration and lowered by being in areas where women predominate. It is notable that none of the male managers surveyed defined themselves as being in a job normally done almost exclusively by women, although nine per cent of the women in management jobs (- a somewhat lower proportion than the 19 per cent of all women in employment) were in jobs done almost exclusively by men. Women managers doing jobs almost exclusively or mainly done by men were most likely to be working in manufacturing, whereas men doing jobs mainly done by women were most likely to work in other public services.

Figure 10 Average earnings of women and men managers in selected sectors*, by gender balance of 'jobs like theirs' in their workplaces



* Sectors = Manufacturing, distribution, hotels & catering, ICT, Banking, finance and insurance, business services and other public services

Source: Seven Years On: a survey of the career paths of 1995 graduates

This is reminiscent of established research findings on the impact of gender balance in workplaces on equal opportunities (Reskin and Padavic 1994, Cockburn 1991, Kanter 1977), which suggested that women in female-dominated or feminised occupational areas have tended to be less well rewarded than analogous work undertaken by male or more evenly mixed workforces. A clear illustration of this was provided by Barbara, a 28 year old Natural Sciences graduate working for a government agency who believed that her choice of science specialisms and gender combined led

her work being undervalued. In response to the question 'Would you say you've experienced any particular obstacles in terms of career development since you've graduated?' she said 'I think being a woman makes it more difficult'. Asked whether she meant within the areas she had chosen to work or with her current employer in particular, she responded:

'I think it's within generally the areas that I've chosen, I think there are so many women in life science that maybe they don't get as good a deal there as they do in other areas of science. If I had not been a woman, then in [my last job] they would certainly have rewarded me more because the role I was taking was project management and [research] management. [The area] was predominantly female but it was predominantly junior administrative staff and the managing director was male, the finance director was male, the research manager was male, the production manager was male and there was nobody female on the board of directors. I certainly feel that for the salary I was getting, I had a lot of responsibility and I was given a lot of opportunities that I wouldn't have expected based on the job title and the salary that I was earning. [Interview 089]

Although cross national studies based on aggregated occupational data have revealed that the relationship between the male-female pay ratio and occupational segregation by sex is not statistically significant or uniform (Barbezat 1993, Rosenfeld and Kallenberg 1991), more recent studies within organisations, following Kanter's (1977) work on gender ratios, support the finding that organisational cultures promote or present obstacles to equal opportunities, affect commitment and career development attitudes and practices - and that these are closely related to gender ratios within occupations (Wilson 1998, Maddock and Parkin 1993, Ashburner 1991, Acker 1990). Hakim (1992) has argued that vertical segregation is a more important determinant of the male-female pay ratio than horizontal segregation, and within occupations, the gender pay gaps revealed by our analysis are likely to reflect vertical segregation and greater propensity of organisations where men are in the majority to have internal career ladders and procedures for promotion (Cassirer and Reskin 2000). Figure 10 suggests that women managers working in 'female' employment *niches* have lower than average earnings. In addition, research on gender in organisations suggests that women in gender atypical roles or working in areas where they are heavily outnumbered by men experience a range of difficulties in being valued which, although they may not be reflected in lower average earnings, might lead women to be less likely to find such work contexts to be comfortable places in which to develop careers (Marshall 1994). In the interviews, women repeatedly described how they had to face up to particular challenges as women in gender atypical roles, particularly in male-dominated environments. For example, in response to the 'obstacles' question cited above, Fiona, a 28 year old systems designer working a major international ICT consultancy said:

'I work probably 80% of the time with men. I work with women far more now because I'm in a bigger company. The company I worked for before...for three and a half years I was the only female and there were 30 men. But, I think... there's no point in going into IT if you're female and you're going to have a chip on your shoulder about being a female. If you go into it, then you have to accept that. If you want to change the world, that's up to you but I think if you have the people skills then you can get around most of the people. I've had...Different people try and intimidate you and tell you that, as a female, you can't do the job and things like that...but I wouldn't say that any of them have been an obstacle because... you probably have to maybe prove yourself a little bit more at the beginning but that's character-building... I don't see any point in crying over spilt

milk. If you don't want to deal with it, then go and get a job as a nurse or something. I've got nothing against nurses but I don't see the point in going into a male world and then complaining that everyone's a man'. (Interview 002)

This difficulty of being a woman in a man's world was mentioned by a substantial number of female respondents, particularly with reference to establishing and maintaining authority as a manager.

Sonia, a 30 year old education graduate working as an HR and Marketing Manager in manufacturing said:

'I was managing a team of people and it was definitely very difficult because I was a girl, and I was young in that kind of industry....I was dealing with people who were old school IT, maybe hardware engineers. That was quite hard to deal with. I don't think it's the case so much anymore, maybe because I've got more wrinkles, I don't know, and also because the IT world is male-dominated anyway...but there are some areas [where] there are hardly any women at all. There were two jobs I had where it was quite difficult. There was one when I worked at old hospital doing UNIX admin and I was the only girl there out of fifty guys which was weird and they were all quite old as well. And some of them sort of fathered you but some on them just saw you as some kind of young upstart threat ... I don't know whether it was just those guys but some of them definitely had chips on their shoulders that it took a long time to overcome. It was only when I left that they admitted that it wasn't me, it was just the whole idea of me. I suppose it was quite big of them really.

It's difficult to put your finger on really, but sometimes it's hard being a woman in a very male-dominated environment. Sometimes I let that get to me, but mostly not. When the company is going out to celebrate, all the senior management, apart from me, are male and they will go out and I won't. It's a very direct example, it's just out of order, but it happens. I don't like that. (Interview 068)

These findings illustrate the insidious effects of gender at the workplace. Women may find working in male-dominated workplaces to be challenging and rewarding, but the evidence points clearly to the difficulties they face rather than the rewards they stand to gain. Some women may deliberately choose careers that lead them into female-dominated work environments, but here we note that such jobs are, *ceteris paribus*, less well paid. It is difficult not to infer from this finding that the very mechanisms through which earnings are established reward men working in male-dominated working environments.

7. Gender, subject studied and career paths

The statistical analysis of gender differences in earnings shown in section 5 indicated that subject studied did not appear to play a significant part in the defining the gender pay gap, once account had been taken of a wide range of other factors, including the sector in which the graduate was currently work. We are concerned that this might give rise to the misleading interpretation that the subject studied at undergraduate level does not relate to the gender difference in earnings. In this section we further explore the relationship between qualifications, employment context and career outcomes, including earnings, by comparing the career outcomes of male and female graduates with similar qualifications and, apparently, access to similar opportunities. To do this, we focus on three degree subject areas in greater detail: *humanities*, where women predominate; *law*, studied by equal numbers of women and men in the survey sample; and *engineering*, where women are a comparative rarity. These degrees have distinctly different outcomes in terms of the labour market access and types of jobs that they lead to. Engineering is essentially (although not invariably) seen by students and employers as a vocational degree; law primarily provides access to legal careers and careers where legal knowledge is required, but is also regarded by both employers and students as a relatively 'difficult' discipline, requiring high entry grades, and therefore a proxy for both ability and rigorous academic training. The study of Humanities is generally undertaken as a more general academic degree where the skills developed provide a foundation to a wide range employment which is less likely to draw on the subject matter of the degree.

Key characteristics of the three sub-samples are given in Table 2, from which it can be seen that the gender pay gap was greatest in law - the subject to which women and men had accessed in similar numbers, where graduates were most likely to use their undergraduate knowledge and skills and which appears to have offered the highest incomes - and lowest for engineering graduates, where women were substantially less likely to have been using their undergraduate knowledge and skills than their male peers.

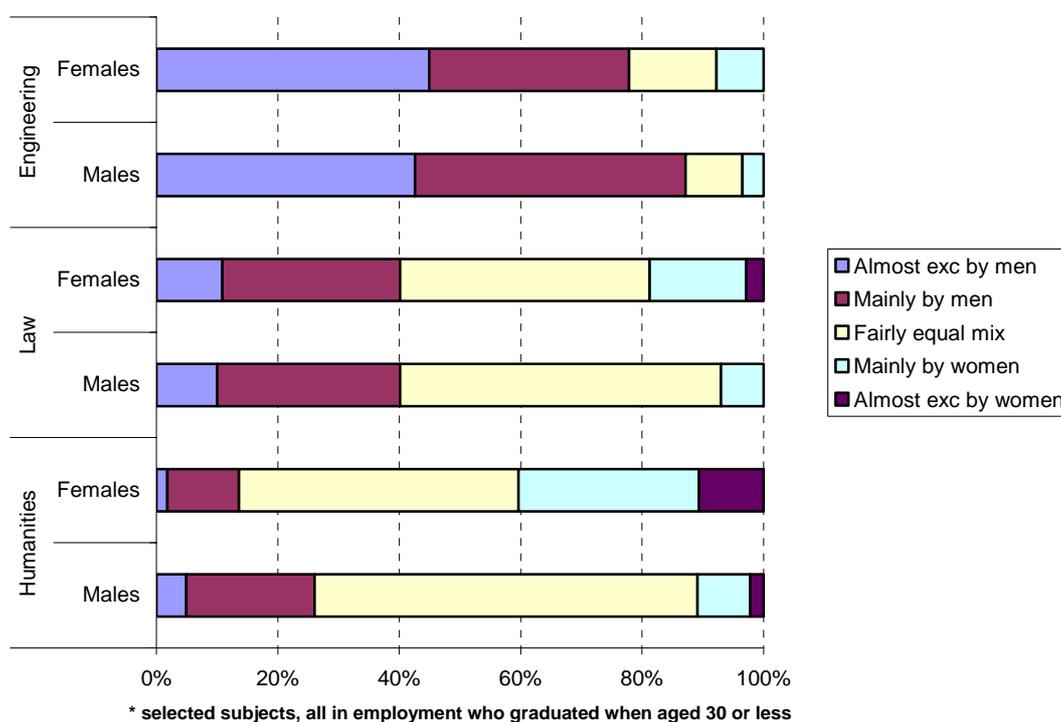
Table 2 A comparison of key career outcomes for three graduate categories

Subject studied	Humanities		Law		Engineering	
	Males	Females	Males	Females	Males	Females
Gender ratios	44:56		50:50		90:10	
Average earnings	30,033	24,114	43,458	33,824	31,837	28,789
Gender pay gap	20%		22 %		10%	
Using degree subject knowledge in current job	31%	37%	85%	79%	75%	50%
Using degree skills	69%	74%	94%	89%	86%	75%

Source: Seven Years On: a survey of the career paths of 1995 graduates

We show in Figure 11 the extent of gender segmentation at the workplace for these three groups of graduates. As one would expect, both men and women who had engineering degrees were working in workplaces in which they described 'jobs like theirs' being done exclusively or mainly by men. About two fifths of women law graduates reported that they were in mixed gender workplaces, and a similar proportion of women humanities graduates were working in workplaces which were described as mainly or exclusively female.

Figure 11 Ratios of males and females in similar occupations to respondents at current workplace*



Source: Seven Years On: a survey of the career paths of 1995 graduates

The particular questions that arise from this comparison are as follows:

- For humanities graduates: is the substantial gender pay gap related to the fact that the women were *more likely* to be using their degree subject knowledge and skills than the men?
- For law graduates: is the even more substantial gender pay gap related to the fact that the women were *less likely* to be using their undergraduate knowledge and skills?
- For the engineering graduates: what is the explanation for the fact that only half of the females were using their degree subject knowledge, compared with three quarters of the men?

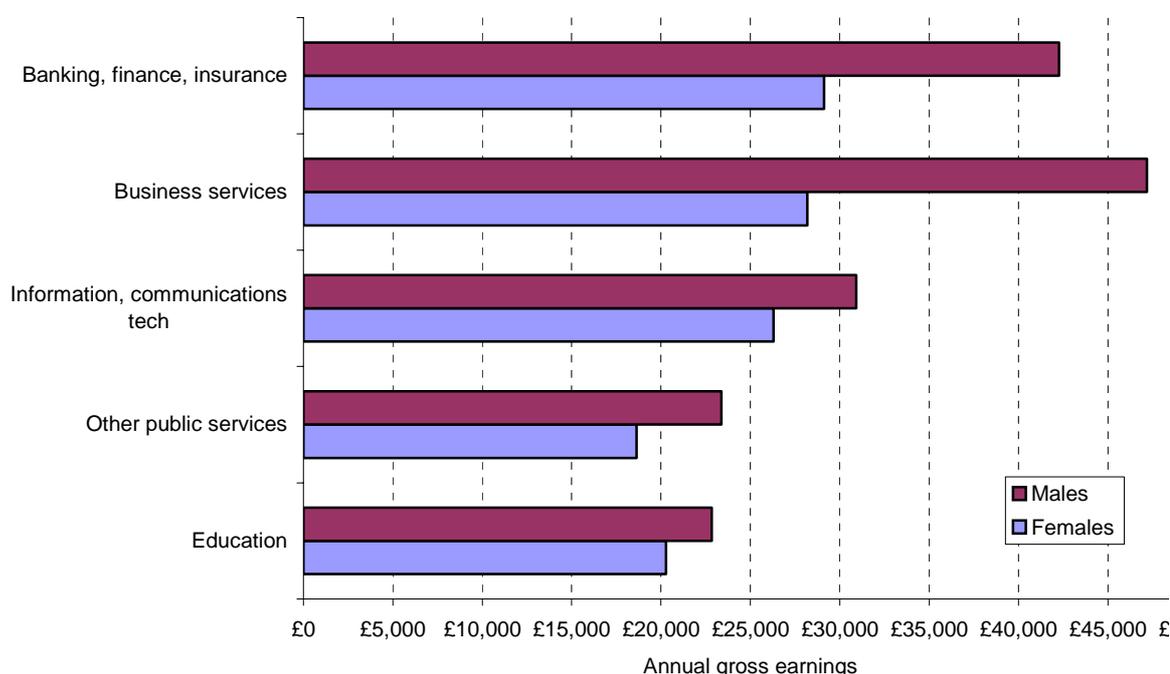
We explore these questions below, with reference to the three sub-groups.

7.1 Humanities graduates

Previous research on graduate destinations - our own and others' - indicates that humanities graduates, along with those who studied arts, tend to have greatest difficulty in accessing employment which makes use of their undergraduate degrees and among those most likely to be in jobs for which they do not receive a graduate premium. On average, both sexes earn over three thousand pounds below the respective averages for women on men as a whole.

If we look at where the male and female humanities graduate sub-samples worked, we find that both were most likely to be employed in the relatively low-paid Education or Other Public Services sectors, where just over 40 per cent of the males and nearly half of the women worked. Both sexes have a considerably higher propensity to work in public or voluntary sector employment than graduates from almost any other discipline area. Of those in the private sector, however, the males were somewhat more likely to be in higher paying industries than the women. Figure 12 clearly shows the effect of industry sector and, related to this, working in public sector employment, on gender differences in the earnings of male and female graduates.

Figure 12 Average earnings of humanities graduates employed in selected sectors, by gender



Source: Seven Years On: a survey of the career paths of 1995 graduates

Public sector employment, as discussed earlier, is associated with lower earnings than equivalent private sector employment and the interviews revealed examples of people of both sexes – but

more often, women – who were working in jobs that they felt were highly suitable in terms of their degree subject studied, expertise and interests, but where the financial returns were low. For example, Tricia, whose degree was in Classics, worked as educational administrator for an opera company – a job for which she had competed with nearly a hundred other applicants to earn a salary in the £15,000 – £17,999 range. In this job, her second paid job in arts management after a series of unpaid placements, she was required to work autonomously and creatively, working with schools and performers arranging and commissioning events, promotional activities and materials. However, she had concluded that in this competitive labour market, if she wanted to develop a successful career, she would need to return to higher education to do a specialist masters' degree – and had arranged to do that. Similar experiences were reported by graduates who chose to work in the voluntary sector or in arts or environmental management jobs where they had experienced highly competitive labour markets.

Exploring gender differences among humanities graduates further, we focus on the relationship between other job attributes and earnings: particularly, the kinds of jobs humanities graduates did, whether they were using the subject knowledge and skills developed on their courses, and whether they were satisfied with their career to date.

Both sexes had a greater likelihood than average of being in a job for which possession of a degree had not been required, but there was no significant gender difference in this likelihood. Similarly, as far as major occupational group was concerned, the distribution of humanities graduates did not differ substantially by gender. Men and women were almost equally likely to be employed in management or senior official jobs (around 17 per cent), but women were more likely to be employed in professional occupations (38 per cent of women and 34 per cent of men - mainly employed as teachers) and men more likely to be in associate professional occupations (32 per cent compared to 28 per cent). Examples of the most frequent job categories held by humanities graduates apart from teaching include editor, manager and project manager.

As shown earlier, the hours worked by men in full-time employment were longer, on average, than those of women, but a minority of women as well as men worked for very long hours: 19 per cent of the males and 13 per cent of the females claimed to work more than 50 hours per week, and a further 33 per cent of men and 30 per cent of women said they worked for between 41 and 50 hours per week. Since public sector professional jobs do not usually entitle their incumbents to payment for overtime worked, whereas those in the sectors which men more often entered were more likely to do so, the differences in hours worked are likely to be amplified by the different sectoral distributions of this group of graduates. It is not explained by differences in credentials: 60 per cent of the female humanities graduates, compared with 53 per cent of the males, had achieved first class or upper second class honours degrees and the women were more likely to have acquired higher degrees or professional qualifications subsequently. Male humanities graduates were somewhat more likely to say that they were very satisfied with their career development to date and

women to say that they were reasonably satisfied with it, but when neither had a greater propensity to express a negative response to this question.

The above average 20 per cent gender pay gap among humanities graduates remains difficult to explain on the basis of educational or occupational differences, although industry sector and differences in hours worked clearly contribute to it. It may also be significant that 40 per cent of the female humanities graduates were working in contexts where their type of job was done mainly or almost exclusively by women and they were less likely than any other discipline group apart from those with Education degrees to be working in jobs mainly or almost exclusively done by men.

Interviews with humanities graduates gave further insights into the way that graduates who had pursued non-vocational degrees sometimes moved into jobs which had little obvious relationship with subject of study. A 32 year-old female humanities graduate working as an accountant in a large accountancy firm described how she had moved 'by chance' into an occupation where some of her graduate skills, but no element of her subject knowledge, were drawn upon.

'I started off with a part-time job at an archaeological site which was quite local and I was doing three days a week there and three days with the company I work for now. But there was just no money in [archaeology so] I fell into [the accountancy traineeship] because I had been working here doing the admin side and they were saying "We haven't got anyone decent applying this year [for the traineeships] " and I said "Well, I'll apply.." and that's how I ended up doing it'. (Interview 185)

This highlights an interesting finding which, on reflection, is not surprising: humanities graduates of both sexes complained about low pay, but female humanities graduates did not complain about gender bias, except in cases where they had moved away from the subjects of their undergraduate study to a completely different area of employment: for example, when they had obtained jobs in where, although the skills they had developed were required, these were amplified by other aptitudes and subsequent skills and knowledge developed. One female graduate who had made such a move, having gained ICT experience in a previous job and been head-hunted for the next, who believed that she was appointed because she had good communication skills in addition to the technical know-how she had acquired, illustrated the impact of gender stereotyping:

'ICT [is] an extremely sexist, you know, field to work in....When I first started at [company name] I'd go round to some clients and they'd be like "well, are you sure you know what you're doing? Aren't you going to get one of the men to come round?" and if people phoned up the help line and I answered the phone, they'd say, "oh, can you put me through to an engineer then?" even though it was the ICT engineering line and obviously only engineers answer it; and I'd turn up at clients and the reception would phone up the person, the contact there, and they'd say "the engineer's in reception" and if there was me and some random bloke in reception they would just walk straight passed me and go automatically up to the bloke. Things like that...' (Interview 108)

7.2 Engineering graduates

As the above example suggests, engineering graduates are a particularly interesting category with which to explore the gender pay gap. Women in engineering have undertaken essentially

vocational undergraduate programmes to prepare them to enter occupations where, in the UK, there have been perennial complaints about skills shortages - and where successive attempts such as the Women into Science and Engineering (Wise) Campaign, initiated in 1984, have been made to attract women into these areas of study and employment, with limited success. The women who have opted to study engineering have made gender atypical choices and it might be assumed that they have given more careful consideration to this choice and to its career implications than most school-leavers.

However, there is an interesting difference in undergraduate performance. If we examine the final degree performance of the full-time employed young and 'young mature' sub-sample across the full range of subjects, women's achievement is higher: 51 per cent achieved first class or upper second class honours compared with 46 per cent of the men. If we look at the final degree performance of the men and women in the sample who studied engineering, the picture is very different: 45 per cent of men in engineering gained the two highest classes of degree whereas only 37 per cent of the women did. We see a somewhat similar pattern for men and women in mathematics and computing, the other degree subject area in which women are a distinct minority: which raises interesting questions about selection, gendered differences in aptitude and teaching and learning traditions and assessments that have been widely discussed in educational research.

The workplace gender ratios of 'people in jobs like theirs' was more similar for male and female engineers than for any other discipline group. Both sexes worked in workplaces where jobs such as theirs was done either mainly or exclusively by men: 86 per cent of the males and 77 per cent of the women. We were told of instances that clearly reflected discrimination and harassment. Joanna, asked about whether she had ever experienced obstacles in pursuing her career, described her difficulties in being taken seriously by male colleagues and, in one particular case, a line manager about whom she was forced to complain:

'Several [problems] related towards being a woman in a very male environment initially when I was a bit less confident. I came across a couple of male engineers who weren't particularly enamoured with female engineers, irrespective of who I was or what my skills were. It took me a long time to realise it wasn't personal actually. I think that came with maturity and experience and being able to deal with them after that. But it kind of knocked me for six for about a year.... It happened over quite a long period of time, over about a 6 month period. It sort of manifested itself in my reduced confidence. I became not as confident in my abilities. I was being undermined and I was being given jobs that were totally out with my remit, totally out with my experience and almost being set up to fail. I found that very, very difficult until I made a decision: "Right, I am dealing with this now!" and I took quite a lot of action to get that stopped. Actually, I ended up getting another job'.

Interviewer: 'Can you expand on that?'

'What I should have done was dealt with it much, much quicker than I did. Because it was done in such a very slow way, because I was learning so much at the time as well, it was a new job and it was a team that had just been developed. The head of the team was quite dismissive of women anyway and that came over in a sort of jokey atmosphere, but actually when it came down to allocation of

work, I tended to get all the really bad things to do, things that were totally over my head that I'd never had the experience of and really set up to fail. It's that kind of deterioration of your confidence. I had quite a lot of confidence when I went into that team and an eagerness to learn, a certain amount of ambition to really do well and to achieve things within that team. By the time I came out of that team, there were various comments...the way it came over was 'you won't be able to do this because you've never done that before'. It was just chipping away at my confidence level'.

Interviewer: How did you solve it?

'I eventually went to see our boss about it, my supervisor's boss. He didn't do anything about it and I went to see his. I gave him a certain period of time to get something sorted and he actually never spoke to the guy. It felt as though everybody was involved in it after a while. We started getting it resolved, and it was certainly on the way to being resolved and then I found about another job, the job I'm in now, and that's when I just thought I am just going to have to really, really go for this and I did, and I got the job, which was fantastic'.

Interviewer: 'So you escaped from it?'

'Yes, but the people that were responsible paid for it. They had to go through a disciplinary process. I feel as though any other woman going there, they might think the next time before doing that again. I felt as though at least I had raised an issue'. [Interview 135]

Several of the female engineering graduates made reference to the difficulties of being 'a woman in a man's world' at university as well as in the workplace. Lilian, a 27 year-old engineering graduate with a degree from an 'old' university described this graphically:

'Obviously, there weren't many females in my year. There were five of us in the year doing engineering. I was the only female doing [the specialism I chose], so you could be in a group, a tutorial group or your lab, you'd be the only female. ...guys would say, "I heard this great joke last night - Oh Lillian's in the room..." I'd say, "Go on. It doesn't matter to me" - I just spent my first couple of years at university bright red! And sometimes they'd be doing an experiment and there'd be comments made because it would have a certain look about it... [gives example]. Typical guys, you get used to it! I think that was OK when I was at university but I think when I got onto the shop floor, I didn't find it as comfortable to cope with, that side of things'. [Interview 019]

Deborah commented that she had experienced difficulty in getting work experience although she was one of the best students in her year:

'... I think when I noticed it most was... when I was a postgraduate student we had to do a year industrial placement which effectively is like doing a real job but your contract is through [the university] and it kind of funds the academic bit at the beginning... So, you're almost going for real job interviews and there were definitely some jobs there that I didn't get or didn't get on the shortlist for because I was a woman. And that kind of comment was made back through the tutors who had lined the interviews up. They just couldn't get past the fact that I was a woman and they just couldn't see me managing a team of people'. [Interview 049]

Among our respondents, women engineers were less likely than males to be in a job for which a degree was required (66% compared with 70%), substantially less likely to be using their degree subject knowledge (50% compared with 75%) and substantially less likely to be using the skills developed on their undergraduate programme (75% compared to 86%). If we look at the industry sector and occupational distributions of male and female engineering graduates we find that they

are different. Around a third were employed in manufacturing (31 per cent of men and 36 per cent of women), but men were more likely to be employed in construction, which includes civil engineering (15 per cent, as opposed to 9 per cent of the women), more likely to be employed in ICT (15 per cent compared with 12 per cent) and less likely to be employed in business services - where 13 per cent of the women, but only 5 per cent of the men worked. Some of these differences are likely to be attributable to different engineering specialisms studied.

In terms of occupational distributions, however, the difference in the extent to which the two gender categories were using their subject knowledge, discussed above, was apparent, as Table 3 shows.

Table 3 Major occupational group (2002/03) of 1995 Engineering graduates in full-time employment

Major Occupational group	Males	Females
Managers and senior officials	22%	24%
Professional occupations	51%	40%
Associate professional occupations	15%	25%
Admin and secretarial occupations	6%	2%
Skilled trades	3%	2%
Personal services	-	3%
Process, plant and machine operatives	1	-

Source: Seven Years On: a survey of the career paths of 1995 graduates

Women were somewhat more likely to be in management or senior official jobs and associate professional occupations, but less likely to be in professional occupations, or, surprisingly, administrative or clerical occupations. It is hard to avoid the conclusion that they are failing to access the highest status and best-paid engineering jobs.

Research on women in engineering has repeatedly produced findings about women being undervalued, discouraged and generally being given a hard time by male colleagues (Evetts 1998, Devine 1994), as was described by respondents cited above. Lilian, working as a buyer for a capital-intensive drinks company at the time of the interview, expressed this experience of being an outsider very clearly, describing how she had moved from engineering to management, via an administrative job in an engineering company.

'I was on the shop floor but was conscious of the "them and us" and... the politics were still quite... In some ways, I sort of felt being a female in a workshop where everybody else is male and on all the other shifts is male maybe was partly my problem as opposed to just theirs. I didn't always appreciate how "descriptive" gentlemen can be and I didn't handle it at all well. All the time... obviously they'd be getting angry or annoyed with somebody on the shop floor and they'd come into the workshop and talk about them needing a good seeing-to and stuff, and I

used to get quite upset about that but not obviously express that to them - which I probably should have and they might not have done it. I used to come home sometimes in tears. I wouldn't cry at work but I would then come home and say to my boyfriend "Is that how you guys think, is that how you talk, do you talk to your friends like that?" I just found it very difficult.... So I think part of it was me and I think if I got an office-type job in engineering then I probably wouldn't have still encountered that and I may not have been put off the same, because after that I really didn't apply for engineering. At the end of that year, I wasn't really applying for engineering positions anymore. I got the office job, within [the same engineering appliance company] but in a different division, did that for a year and a half and then moved on'. (Interview 019)

Thelma's experience also illustrated this tendency for women to be discouraged from developing practical engineering careers in manufacturing. She was employed in a car factory in the Midlands working as an engineer, but found she was encouraged to take a peripheral rather than central role and – like the manager cited earlier – expected to carry more of the administrative workload.

'Being a female engineer has been a bit of a battle in that I think it's widely acknowledged - in our organisation certainly, I don't know about elsewhere - but females have more of a kind of general skills than men do and so we'll be more likely to take on the general work and take on administrative tasks of our own accord rather than expecting someone else to do it for us, so I think we suffer from that aspect that we're more likely to keep it, and the expectation is that we will take on that type role because of the way the organisation works, and because engineers are generally men, women are seen more as administrators than as engineers. So it's a battle to keep that title and role in your head and in others heads'.

She reported that most of the women who had studied engineering with her at university were no longer working directly in engineering or, where they were, were more likely to be in related areas such as logistics, concluding

'I think most of the [women] I know who aren't using their engineering background are fairly happy in that role, they use it as a background to the job rather than the basics of the job, I think if you want to be an engineer then you can be an engineer but it can be quite difficult actually finding an engineering job where people accept you as a female engineer, so I think there are barriers to break down and in some cases it's easier to not bother'. (Interview 125)

Not all the female engineering graduates had found their gender an insurmountable obstacle to career progression, but all reported that it had presented them with challenges that they had had to surmount, as visible members of a minority in predominantly male contexts. A Production Systems Design Engineer working for an international management consultancy reported:

'I think probably the main thing being in manufacturing is the getting fusty, old men to take you seriously in an operations capacity. It's mainly a problem when you go for interview because you know when you walk into an interview and the man who's interviewing you, sees that you are a girl and it's, "she's girl, how can she possibly manage fifty shop floor workers?" Even though I've got that kind of experience it's still difficult to even get interviews for that kind of role, let alone to take you seriously, which I think is pretty pathetic. Especially as in every job I've done I've worked in a completely male-dominated environment and not had any problems at all.... Even where I was one of the only women in a plant of 2000 people, certainly the only one in a technical role, the guys on the shop floor, once they get to know you, they're absolutely fine, they're even quite protective. It's not a problem once you're there and once you've established yourself, it's just getting your foot in the door in the first place'. (Interview 049)

However, being a woman in a man's world clearly goes some way to explaining women's discouragement from remaining in mainstream engineering and, perhaps, limited presence in the higher paying management and professional jobs in engineering.

7.3 Law graduates

Law is one of the more prestigious undergraduate courses, which generally requires above-average entry qualifications and, as the figures in Table 2 demonstrated, offers the opportunity to access employment with above-average earnings. Graduate legal occupations can be accessed via other undergraduate courses plus postgraduate law degrees and professional qualifications, and the full range of graduates in these occupational groups are discussed in a later section - but here we discuss only those who completed undergraduate law degrees. These do not invariably lead to employment where the subject of their degree is required but, as far as our sample respondents were concerned, it was very much more likely to have done so than for those from most discipline areas. The majority of law graduates entered traditional graduate jobs, but this varied by gender: two-thirds of men, but only 55 per cent of women did so; a finding that echoes other research on women with legal qualifications.

The different industry sectoral distribution and occupational distributions for men and women are worth examining closely.

Table 4 Sector of employment in 2002/03 of 1995 law graduates in full-time employment

Industry sector	Males	Females
Agriculture, mining, etc	-	-
Manufacturing	1.0	3.2
Electricity, gas & water supply	0.8	-
Construction	-	-
Distribution, hotels & catering	6.5	0.7
Transport	-	-
ICT	4.6	2.5
Banking, finance & insurance	5.2	9.8
Business services	69.8	51.7
Education	3.4	3.8
Other public services	3.5	25.1
Other	5.2	3.2

Source: Seven Years On: a survey of the career paths of 1995 graduates

From Table 4 it can be seen that women were more likely to be working in the public sector and less likely, it appears from Table 5 to be in management or professional occupations: both factors that are likely to contribute to their lower average earnings.

Do women with law degrees have more difficulty in accessing the most highly paid legal employment opportunities, or do their destinations reflect choices based on non-pecuniary considerations? Do they bring different skills or qualifications to the labour market?

Table 5 Major occupational group (2002/03) of 1995 Law graduates in full-time employment)

Major Occupational group	Males	Females
Managers and senior officials	13%	8%
Professional occupations	71%	62%
Associate professional occupations	12%	22%
Admin and secretarial occupations	2%	4%
Personal services	-	2%

Source: Seven Years On: a survey of the career paths of 1995 graduates

Table 5 suggests that males are considerably more likely to have achieved employment in the top two broad occupational categories - 84 per cent of them were managers and senior officials and professionals, compared to 70 per cent of the female law graduates. Unlike the humanities graduates, the degree performance of males with Law degrees was better, on average, than that of their female peers, with men more likely to have achieved First class or Upper second class honours than women (58 per cent, compared with 52 per cent). It may also be that they specialised in different areas of law - those more calculated to provide access to higher earning jobs. Women are more likely to be employed in lower-paying public sector legal occupations, which may reflect a choice to do socially-useful work – a job-related value significantly more often given by women than men, as will be discussed. Those working in commercial law firms tended to be the most highly paid,

If we focus in on an interesting minority – the 6.2 per cent of male law graduates working full-time in *niche* graduate jobs distribution, hotels & catering - we find that *all* of them have the job title 'Operations manager'. They also have average annual earnings of £27,600, compared with the overall average male law graduate earnings of £42,300. However, the evidence from our survey is clear that female law graduates were somewhat less likely than men to be in a job related to their long-term career plans (80 per cent compared to 83 per cent) and, despite the overall greater likelihood of women to have said that they accepted their current job because it was exactly what they were looking for - and law graduates were disproportionately likely to be able to access the employment they aspired to - only 63 per cent of women with law degrees gave this reason, compared with 74 per cent of their male peers.

Tradition is very important in mainstream legal practice and legal sector employers are notoriously conservative in their recruitment practices, where credentials provide a threshold for occupational entry but connections, networks (Cook and Waters 1998) and related cultural capital (Bourdieu 1973) are associated with success and failure in impressing the generally patriarchal gatekeepers (Walby 1990, Reskin and Padavic 1994). One female law graduate who had had ambitions to be a barrister reported that, having completed a law degree and attended Bar school in London, when she went for interviews she had felt very much that her gender and social background gave her a distinct disadvantage and she was unable to obtain a pupillage. She subsequently joined the police force.

Cook and Water (*op cit.*) argue, and provide evidence from qualitative research among private practice law firms, that such legal employers tend, ironically, to be cynical and in some cases hostile to equal opportunities legislation, and although the numbers of women qualifying with degrees in law has increased substantially in recent years, women's progress to higher status and highly-paid jobs in mainstream law employment has not kept pace with this expansion (Hughes 1991, Horin 1992). We interviewed female Law graduates who were developing successful careers in company law and legal practice, but in all cases, they had done so by conforming to expectations that they would work very long hours and put their work at the centre of their lives. An example is provided by Alexandra, now a single parent, who worked as a Commercial Specialist for a global law company with a strong commitment to equal opportunities where she had developed a highly successful career:

'To say that I work an average 50 week isn't probably right, what I can say honestly is that I'm in work-mode for that time. So, for instance, I'm logged, I'm checking my e-mails, I'm replying to them, but in the middle of all of that I'm leading my life as well. It's kind of a weird concept that I'm always on-call, I've always got my mobile, I've always got my laptop. It's that type of environment...I used to feel like that to be honest. I used to be paranoid about what people thought, can they see I'm working enough, can they see I'm producing enough..... my work was a lot do with the fact that I'm getting divorced because my husband didn't like the fact that work came into our home life'. (Interview 056)

In terms of hours worked by respondents in full-time employment, law graduates, particularly those working in professional law occupations, had higher than average working hours.

8. Attitudes, values and gender roles

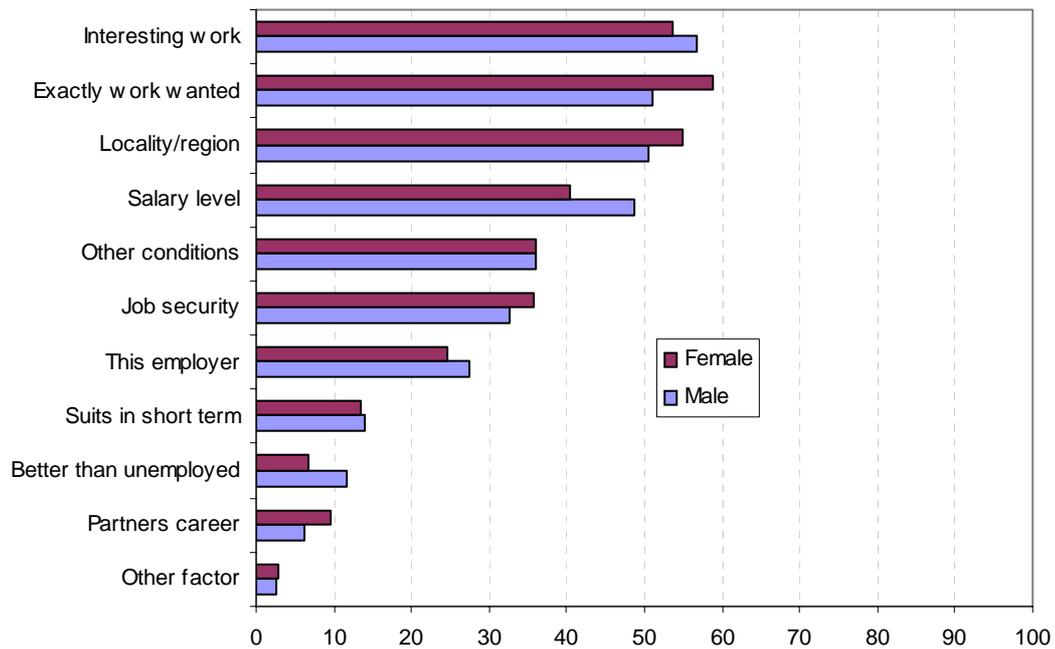
In the analysis in the three preceding sections we have shown the continued impact of the subject studied at university on earnings. We also showed the strong sectoral influences on earnings and the depressing effect of working in the public sector, both of which have a downward impact on the annual earnings of women graduates. Our survey findings indicate that there is a clear and direct impact of gender segmentation at the workplace, a finding that was previously only approximated through occupational information – and this is amplified by the interview data and exemplified most clearly by the contrast among the experiences of the three subject groups we have focused upon

for this paper. For all the sub-groups examined, women were more likely to be working in situations where the jobs they did were mainly the prerogative of women, and had lower average earnings than men in similar jobs and with similar qualifications. Thus, while a clear explanation for the gender gap in pay remains elusive, we reveal through this analysis that it remains highly significant for graduates.

Thus far we have focussed upon the gendered position of graduates in the labour force, as revealed via their earnings, occupational positions, choices of subject studied and the career paths they established in the seven-year period since graduating. These provide a clear picture of the differences and similarities in the gender profiles of sample members and also give some indication of the structural and cultural variables that contribute to the gender pay gap and gender differences in career outcomes. There was some indication from the interview data that gendered attitudes and expectations - their own and those of their employers and other with whom they came into contact - had sometimes affected work experiences and career trajectories. Do male and female graduates, then, even where they have made similar choices of higher education course or career direction, tend to have fundamentally different career aspirations that go some way towards explaining different outcomes and earnings? We turn now to a consideration of the other variables that impinge upon career options and choices - social relationships, dependencies and the attitudes and values held by respondents about career development and its relationship to their wider aspirations.

We asked a series of questions in the survey about reasons for taking current job and longer term values related to - and with implications for - work and career development. Figure 13 is revealing, in that it shows that the partner's career was considered an important factor by fewer than 10 per cent of respondents, and by a smaller proportion of women than men. The salary level was less important for women than for men, though this may simply reflect the fact that a much higher proportion of women than men work in the public sector where salary levels are generally lower than the private sector.

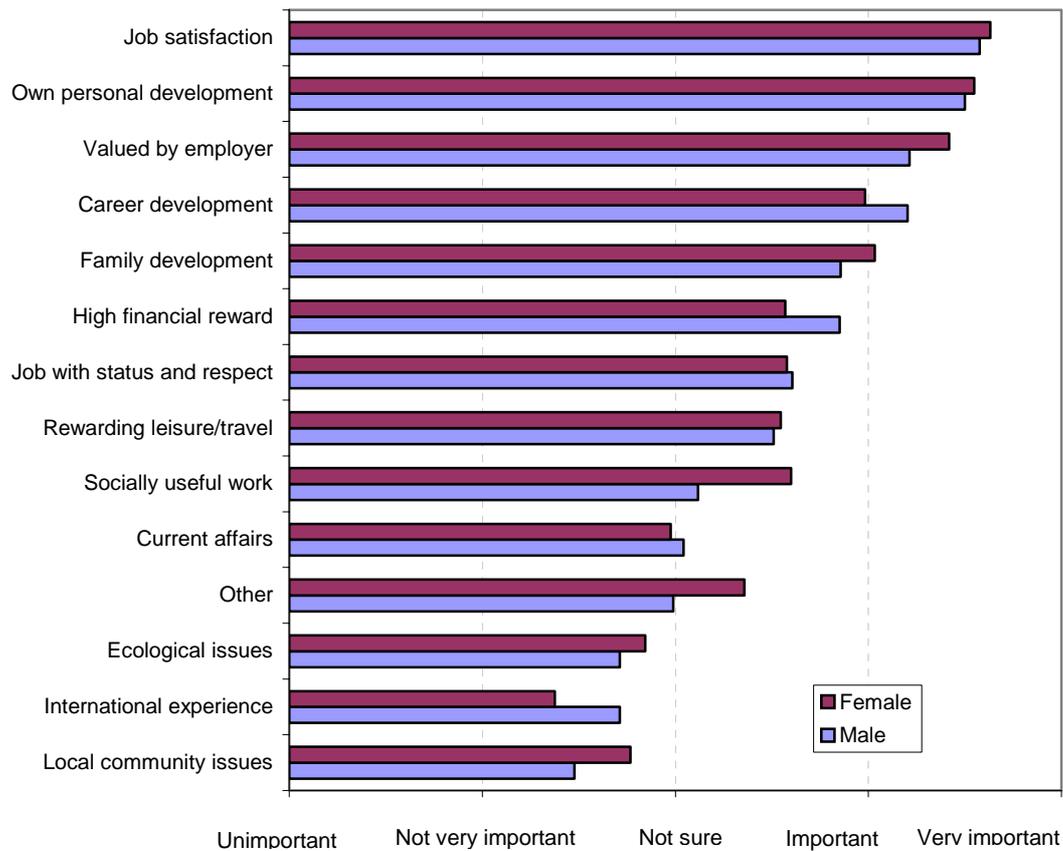
Figure 13 Relative importance of factors in decision to take current job, by gender



Source: Seven Years On: a survey of the career paths of 1995 graduates

In the survey, we presented respondents with a series of values and interests and asked them to indicate how far these were important to them, on a scale of 1 (meaning 'unimportant') to 5 (meaning 'very important'). Although the women's and men's responses were remarkably similar over most dimensions there are interesting gender differences that echo the differences revealed in responses to the related questions about career development discussed above. Career development was more important for men, on average, than for women, as was high financial reward. For women, family development, socially-useful work and community development were more likely to have been regarded as very important, as Figure 14 shows.

Figure 14 Importance of long-term values to respondents, by gender



Source: Seven Years On: a survey of the career paths of 1995 graduates

However, as the significance for both women and men of 'family development' revealed by Figure 14 shows, a substantial contributory factor to the gender pay gap across the workforce as a whole is the reproductive system; the fact that the majority of adults seek to become parents and women, on becoming mothers, are considerably more likely to take primary home-making and parenting responsibility in dual-earner households. We note with considerable interest that, at the time of the survey, the majority of those who had graduated under the age of 30 remained childless, but a minority had already become parents and we became aware from the interview sub-sample as a whole that family formation plans were becoming important considerations in the future career choices of both women and men. In this section we discuss evidence of how family-building was already impacting upon earnings in some cases and then move on to reflect upon the attitudinal evidence from the survey and interviews, where the graduates indicated how they see their careers evolving over the next few years.

9. Work/life balance, partnership and parenthood

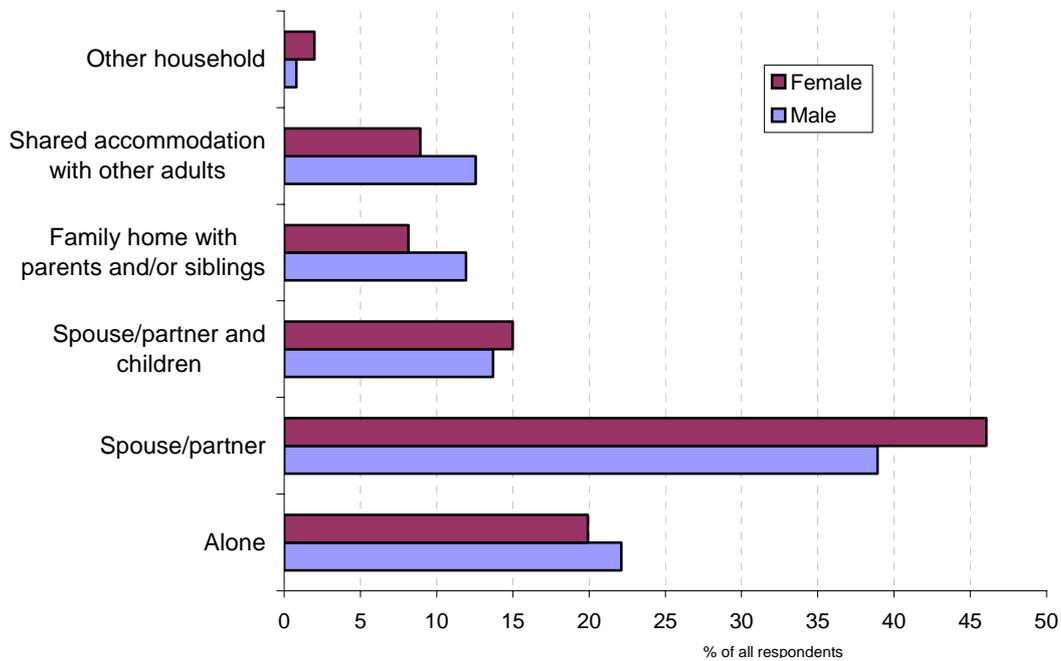
Highly qualified men and women are a particularly interesting population within which to explore the relationship between priorities for paid and non-paid work, both the impact of partners on career decisions and the impact of experience at work on decisions about work/life balance. Previous research findings indicate that highly qualified women are more likely to continue in employment throughout the family-building phase, or to have a shorter gap from paid work, than less qualified women (Davies 2004). Increasing numbers of younger women, especially those with higher education qualifications, appear to have been opting not to have children or to postpone reproduction until they have established a career (Bynner and Blackwood 2003). Their family-building, once started, may be compressed within a shorter time period although mean completed family size may be larger (Rendall and Smallwood, 2003). Other evidence suggests that, even among highly qualified, high achieving women, their career decisions and working lives are likely to be modified or challenged by becoming parents, to a greater extent than is the case for men (Brannen 1999, Hochschild 1989). Particularly in traditionally 'male' jobs such as senior management, there is evidence that women perceive themselves as having to choose between career development and family-building (Wacjman 1996), although such women are also more likely than others to have adequate economic resources to 'buy in' support services to facilitate dual career management or single parenthood. It is a well established fact that graduates tend to set up partnerships with other graduates (Brynin and Francesconi 2002)– but are they assortively selecting partners who fit with their career and family-building preferences, as Hakim (2000) has suggested?

Recent evidence suggests that the average age at which graduate women have their first child may now be well over 30⁶, so it might have been expected that a significant proportion of respondents in this large study of 1995 graduates had moved into the family-building stage. Indeed, 15 per cent of our respondents who were under 30 when they graduated had dependent children when they completed the survey at the end of 2002 or early in 2003 - and a significant sub-sample of those interviewed in the follow-up programme had subsequently embarked upon family-building or were considering doing so. We will discuss the impact of becoming parents on earnings and attitudes - but the rather more unexpected finding was the impact of partnership and the realisation - particularly as the programme of interviews proceeded - that even at the early stages of career development, the majority of respondents made career decisions not as individuals, but as members of a partnership or family. Figure 15 shows the distribution of household types at the time of the survey (2002/03) for those who under 30 years old at the time they graduated in 1995, indicating that over 60 per cent of the women and over half of the men were living with a partner and/or dependent children at the time of the survey. We also know from interviews conducted with

⁶ Rendall and Smallwood (2003) show that, for women aged 40-44 in 1998, half of those without higher educational qualifications had had their first birth at age 23. The corresponding age for women with higher educational qualifications was 28 years. In our sample of people who graduated in 1995, the proportion of 28 or 29 year old women who have had children is 11 per cent. While it could well be the case that this estimate is affected by sample attrition, we suspect that the true proportion of women with first degrees who have had their first child by age 29 years is well below 50 per cent.

a sub-sample of respondents that a further minority, although not living in a conjugal household, had partners with whom they discussed career-related decisions.

Figure 15 Living arrangements of 1995 graduates in 2002/03

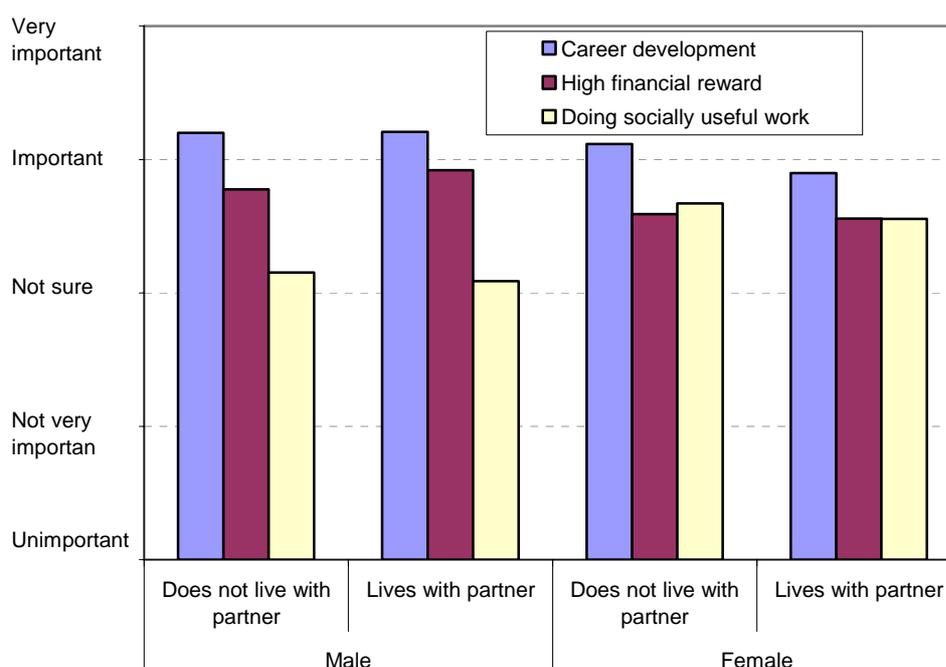


Source: Seven Years On: a survey of the career paths of 1995 graduates

The graduate sub-sample discussed in this paper are near the start of their careers and only 15 per cent of the women and a somewhat lower proportion of the men had children at the time of the survey, but as we conducted the follow-up interviews, we found others starting families and preoccupied with decisions about family-building and the timing of childbearing and careers. There is an assumption in most research on employment that workers are individuals, but employers introducing work/life balance and equal opportunities policies do so in the recognition that a significant proportion of their workforce may make career decisions on the basis of their household or partnership context. Research on dual career partnerships has mainly been relatively small-scale qualitative research, focusing on such partnerships as implicitly atypical – but *all* partnerships involve two careers, in the broader meaning of the term. As marriage becomes less popular and cohabitation has increased, when (and if) individuals move from thinking of themselves as independent operators and the smallest social unit becomes a dyad, has never – as far as we are aware – been studied in relation to employment. It is incontrovertible, though, that just as equal pay inherently challenges the notion of a family wage, so too do equal opportunities challenge not only ‘breadwinner/home-maker’ divisions of labour but also individualism.

We suspected that the pattern of responses shown in Figure 14 would vary by whether or not the graduate is planning to or has recently had children. We are not able to categorise the survey respondents in terms of their immediate family formation plans, but we wanted to test whether those living with a partner had different attitudes towards key job values, and whether gender differences were amplified by being in a partnership. Figure 16 focuses upon three of these 'long-term values', career development, high financial reward and 'doing socially useful work', analysing the different response patterns not just between men and women, but by whether or not they were living with a partner. We note that there is very little difference in the responses between those who lived with a partner and those who did not. Clear differences were in evidence between men and women, as was shown in Figure 14 above. Figure 16 suggests that women who were living with a partner were marginally less likely than men to consider their career development as important in the long term, but the difference is hardly significant.

Figure 16 Responses to the question "As far as long-term values are concerned, how important to you are the following?" by gender and whether or not living with a partner

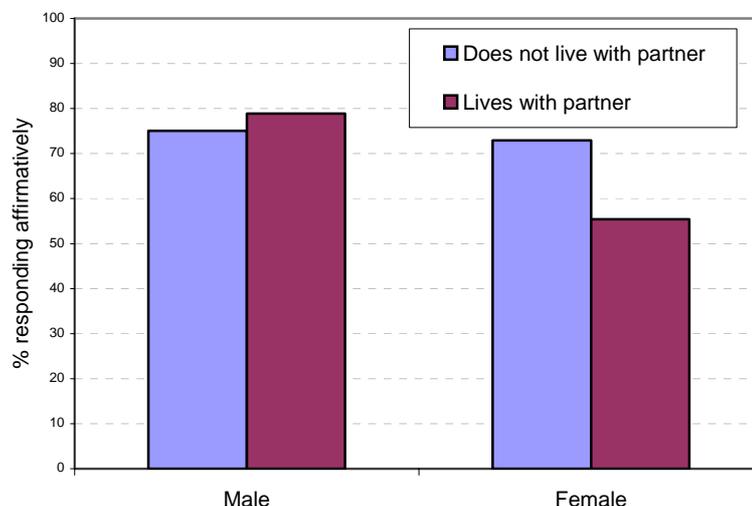


Source: Seven Years On: a survey of the career paths of 1995 graduates

One of the questions we asked in the survey related directly to the respondent's expected changes in occupation over the next five years. Most of these changes, which covered such events as changes of employer, changing to a different job, undertaking further study, becoming self employed, showed little difference between women with partners and those without. However, women who were living with a partner were significantly less likely to state that they expected to 'achieve a higher position' over the next five years than those who were not living with a partner. Figure 17 reveals that although 55 per cent of those with a partner responded positively to this

statement, the response rate for women without partners was over 70 per cent – little different from the responses from men with and without partners.

Figure 17 Whether respondents expected to achieve a higher position within the next five years, by gender and whether or not had a partner



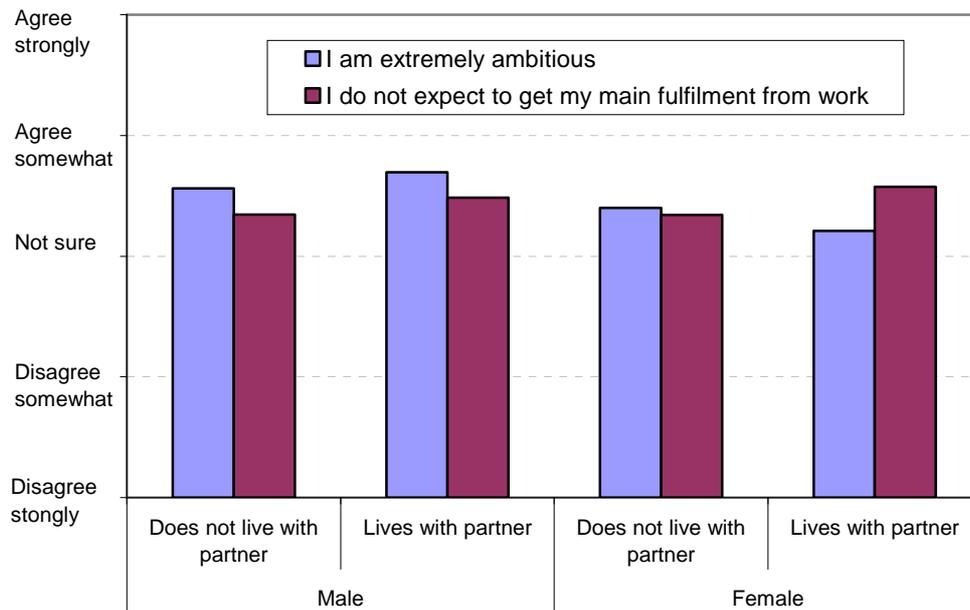
Source: Seven Years On: a survey of the career paths of 1995 graduates

To get some indication of what motivates men and women, and how motivations may differ between them, we presented them with a series of statements against which they could measure the strength of their agreement/disagreement. These included the following:

- *I am extremely ambitious*
- *I do not expect to get my main fulfilment from work*

Our expectation was that the men and women who were not living with a partner would be more likely to express agreement with the former statement, given that they were less likely to be in a situation where their ambitions conflict with those of a partner. Conversely, we expected that those men and women living in a partnership, for whom recent and planned family formation might be of more immediate concern, would be more likely to state that they did not expect to get their main fulfilment from work. Figure 18 shows the response pattern we observe, distinguishing again between young men and women and by whether they were living with a partner. There is some evidence here that men are more likely to agree with the statement that they are ambitious than are the women, and that both men and women with partners are more likely to agree with the statement that they do not expect to get their main fulfilment from work, but the differences are marginal.

Figure 18 Extent of agreement or disagreement with selected attitudinal statements, by gender and whether living with partner



Source: Seven Years On: a survey of the career paths of 1995 graduates

A languages graduate, working as self-employed tutor, who had recently married a university lecturer and resigned from a fast-track government job said:

'Well, the trouble was, the diplomatic service is very specific in that it's very demanding of you geographically, you have to be immensely flexible and mobile and that's where it gets very difficult to combine it with a husband, with marriage, because you need to be going off on postings every three years and I know a lot of girls who are in it, women who are in the diplomatic service... end up having marriages living in different countries and I just thought "I'm not prepared to do that!". It comes down to priorities, really, and you can do the dual career thing and if you are both qualified in something that you can both have good jobs in the same city, well that's great - but actually, frequently it doesn't work like that... And I had to say, ultimately, do I want a really good marriage or do I want a really good career? And if I can't have both, which ultimately has to come first? Definitely the marriage because I've got enough skills and I've got enough broad experience and I'm motivated enough and I've got enough interests that I'll keep myself busy and I can earn some money doing a variety of things; whereas finding the right man is quite a lot more difficult. He's that bit older than me and he's very good at what he does and he loves it. And so he's on a single-track, he's now very specialised in a particular area, he has a lot of experience and he's very well regarded, so if he were to change or to drop it for a while he's got far more to lose than I do. Whereas I've had a far more... the portfolio career, I think they call it, approach ... (Interview 005)

This illustrates the recognition, on the part of a high proportion of the women we interviewed who had not yet embarked upon family-building, that full-time, 'fast track' employment is not easily compatible with family-building, given that such work contexts tend to be characterised by 'smart macho' long hours cultures (Maddock and Parkin 1993) and that they will be the ones who are likely to make the more substantial compromises if they become parents. A female graduate with a

Natural Sciences degree working as a technical manager in manufacturing, currently earning between £50k and £60k who had a partner who was living separately, said:

*I think my values are going to become more centred on being settled somewhere and getting on with my personal life at the same time and really working to live as opposed to the other way around. That is one of the most fearful things, thinking of the future, if I ever do have kids then obviously. Basically, when you graduate from university you don't think of it, you think that settling down and having kids is years and decades away and it's not. I'm 28 now and I'm not saying that I'm definitely going to have kids but at some point, if I want to do it, then I'm going to have to do it and again it's a case of finding a career that can fit around that. A career where you have to get up at 6 o'clock every morning isn't exactly classed as that. I think there's so much emphasis that has been put into girl power, call it what you will, in terms of women earning their way in the world and I just think, as I'm getting into my late-20s, that you can't have it all. It's rapidly dawning on me, and I don't have kids yet, that if you want to have kids and a top and this, that and the other, it's not going to be very easy to do it. So you have to make a decision. You can do it but your lifestyle is going to suffer, mine's already suffered. So I think at some point you have to make a decision as to how best between you, you can accommodate that. I think there are ways around it. One of thoughts behind doing an MBA was that that could lead to a more consultancy or home-based position which again fits in with that forward thinking if that was the way to go. ...I would move if the move made sense for both of us because I do think that we do consider things as a couple and I think that's right. I think moving for just one person's sake or selfishness or whatever is not the way to do it. But I think he would take the same view because I earn more than he does at the moment so really at the end of the day you go with whatever makes the most sense to your situation. At the moment, we're not financially linked in any way, we've still got our own houses and everything so there's not quite the same issues. But there is going to come a point in the near future probably where we do live together or whatever... and I think the decision will be a joint one.
(Interview 029)*

10. Impact of parenthood on careers

Some of the women we interviewed had already become mothers or were pregnant when we spoke to them, and these women reveal most clearly the complexities of choices and motivations that lead to gender differences in career trajectories and rewards. There was ample evidence among the mothers that we interviewed of a wide range of attitudes towards career development, family-building and work-life balance preferences - and evidence among those who had already embarked upon family-building that both supports and challenges Hakim's suggestion that fundamental, as opposed to lifestyle preferences affect choices, as will be discussed below. In terms of the earnings gap, the responses of women who had continued in employment beyond pregnancy and motherhood throw some light on how family formation affects career opportunities, even among women for whom career development is a high priority. We give three examples to illustrate this.

An ambitious female 29 year old Business Studies graduate working as a manager for multinational retail company, earning between £40-49,000 p.a. at the time of interview, was on maternity leave expecting her first baby at the time of the interview. She told us:

'At the point I am at now, if I wasn't having a baby, I may well have looked or be looking for another job in the next 6 months, purely because I've been promoted from within and they never reward you adequately. They never give you the same salary as they would if they recruited externally. I am dissatisfied with my salary at the moment, but I can't really say anything to the people I work with because I am on maternity leave and they've known I would be going on maternity leave for quite some time. It's going to be something I am going to have to address when I get back. I am away now during both the appraisal period and the pay review period. I don't want to be stuck with a standard 2½-3% just because I am not there to stand my corner. I am going to go back in and discuss the fact that I am not particularly happy with my salary. I have seen huge increases, but retail is quite well paid and I know if I move to another company I could probably get about a £15,000 pay rise - a considerable amount of money'. (Interview 084)

A pragmatic interdisciplinary graduate working as an HR Officer for a major brewery, also on maternity leave and planning to return to work after the birth, gave a very clear account of her career plan which took account of her desire to balance employment and family:

'Before I went on maternity leave I was putting in a lot more hours, rarely taking lunch hours and working to half-six most nights...but now, I'm quite happy where I am and it suits me at the moment to stay where I am. I just know they've got the flexibility there for me for the next two or three years and to really get to grips with the job as HR advisor for rewards and pensions, to know it inside out, and then move on to the next career move when I'm ready for it. I knew that, as soon as I got to [this town - which she moved to, to be with her partner] that [this employer] was the place to work. I remember coming and thinking I'm going to get in there and I'm going to work my way up, I'm going to be permanent, I am going to have what I want out of the company. I think that's testament to the fact that I'm still there, that they've supported me, they funded my post-graduate course, the two courses I've done with them and they've really developed me as a person and helped me build my career with them. At the end of the day, I've achieved where I want to be in my job and that's why we're having the family now.... [Our careers] were equal but I think now with the change in lifestyle his is going to be more important (Interview 046)

In a similar vein, a female primary school teacher with an education degree, living with her partner and children, and earning £27,000 – £29,000 as main breadwinner, had a clear view of her priority: to balance work and her family responsibilities and relationships. She had chosen her occupation with that in mind. She said:

'Growing up in a family with both parents in education and having the school holidays together was fantastic and I wouldn't want to do a job where I didn't have that. It's a very, very intensive job but I do get those long periods of time where I don't have to be out of the house and at work and I can be with the children and that's absolutely wonderful. Career development, I am where I want to be at the moment. I could have gone for a deputy headship or something like that but I don't want to because I remember that when my dad got a deputy headship... when all the evening meetings and everything really piled on and he seemed not to be at home so much because of all of those. I certainly see that as being more the case nowadays and I don't want to do that [at the moment]. ...I do see myself going up the career path, but my youngest child, my son, has just turned two so it's going to be many years before I feel able to do that, because the children are too important to me to go off and taken on that extra responsibility'. (Interview 028)

These examples are all women who proposed to continue full-time employment, with more or less adjustment of their career development to accommodate parenthood. Others had made more radical choices, while maintaining strong career identities, in the light of the options they were faced with. Where the women were the main breadwinners and planned to continue in employment full-time, they did so largely in recognition that this would require modification to their work patterns and the pursuit of their career, as in the example above and the one that follows. The latter also provides an example of the joint and flexible way in which couples approached management of a two-person career household.

Patricia is a female humanities graduate working as management accountant working for one of the 'big 4' accountancy firms. She was earning £36-40K at the time of the interview, married to her 'childhood sweetheart' who worked in the armed services. At the time of the interview, she was just about to go on maternity leave.

'Now that I'm expecting a child, a lot of people do say that your priorities do change and I think they have, because I've just been off for a while, I've come back and I'm more relaxed now and I'm not going to take all my work home with me like I was doing before...you know...and waking up in the night, [thinking] "oh, I haven't done that, I haven't done that." I think even if I didn't want to move towards more of a work/life balance, I'd probably be forced to do that by the fact that I've got a baby in there. But I'm very lucky: I've got a very supportive partner, a very supportive family so for my own sake, I've just got to work at my work/life and just make sure it's where I want it to be. [Our careers] have been equally important. I moved to [where he was based]. I could have said, "I want to go to London, to get, you know, more salary, possibly more exposure to the bigger companies" but his career was important to him... but he's [subsequently, after one level of promotion] made the decision that...he doesn't want to go any further because of [the travel that further promotion would entail] and that's not what he wants to do... so in the last 2 years, we sat down and I said that because we wanted to start a family, I would prefer to do it nearer both our families'.
(Interview 157)

In preparation for this new phase of life, she had obtained a transfer from the town where she had been working to one within comfortable commuting distance of her family of origin, and her husband planned to leave the armed services and seek employment in their native region. Her longer term plans were more nebulous, but still included paid work as a central component.

'At this moment in time, I do want to move to senior manager level - not sure whether I want to go any higher, whether I want to be a partner in a firm. I just really want to get my work/life balance [right] and if that means that I can get promoted to senior management and do my job, I might go back part time. I would have to look at how I can manage, if I go back full time, obviously, to find the time for family as well.... Once I come back to work, given the options of flexible working that I can do here, if I can just move to the next level in the next year or so, then that would be, it's good for my career anyway, and once that's settled I'd probably start looking around, perhaps a bit closer to home because it's still quite a commute from [here] to [my home town], depending on what he ends up doing'. (Interview 157 *ibid.*)

Previous generations of women have experienced ambivalence about how to manage conflicts between career, paid work and family relationships and responsibilities. Our data suggest that the interesting difference between this generation of highly-qualified women and earlier ones, for the

majority of those we interviewed who had already had children or were imminently expecting or planning to become mothers, was that they were often clearly building management of the work-life balance into their career and family-building plans: indeed, they saw the achievement of a good work-life balance as a primary goal – a more important priority than either career success or 'living happily ever after' in the traditional fairytale relationship-centred sense. Their choices – of whether to continue in employment, work part-time or take a career break to concentrate on full-time parenthood – were made in the light of carefully-considered evaluation of the options available to them. While they constituted more or less constrained immediate lifestyle choices, these were not necessarily an indication of differences in fundamental values or preferences involving beliefs about appropriate or desirable fundamental gender roles. Achievement of fulfilling employment, use of their higher education and the capacity to earn a salary, were seen as long-term commitments and central even for those who regarded family relationships as ultimately more important than their careers. Previous research suggested that family responsibilities increased men's but not women's attachment to their careers (Marsden *et al.* 1993), but our findings suggest that 'attachment to careers' is a complex notion and although some women felt that becoming parents diluted the importance of their careers, others saw as inevitable the reduction in focus and investment that they would be able to make in careers as a temporary expedient to be managed within their partnerships - or their lesser *investment* in career as nevertheless not constituting a lesser *attachment* to their careers as a central aspect of their lives and identities.

As a final example, we quote the situation described by Monica, a 28-year-old Languages graduate currently being a full-time homemaker, married to a doctor, and expecting her second child at the time of the interview. Her account of her decision to give up teaching while her children were very young provides a clear illustration of this ambivalence in the face of the undeniable difficulties presented by combining motherhood and a career:

'I had to go back to work because of my maternity entitlement and also when I had the baby I didn't know whether I wanted to give up work or not. So, I went back for two and a half terms but then I gave up. I really enjoyed [teaching] and it was everything that I wanted in a job. I found it very fulfilling until I was pregnant and tired, and then a mother, and I couldn't do it as well as I wanted, so I found it very frustrating. Also, the school I was in was very difficult and the management weren't particularly nice towards the staff... It was becoming less fulfilling...and as I could do less than what I wanted to I found it less fulfilling as well. But, I still feel, goodness me, I've put all these years into this: do I really want to stop? And I though, well - I'll stop -and I can always come back if I find being at home unbearable'.

Interviewer: So you made a carefully-considered choice of whether you were going to carry on working...?

'Yes, it was quite a hard decision to make. I definitely made the right decision but at the time it was very difficult, yes. I can think now, well - if I was at my first school and I'd had my son, would I have been tempted to go back part-time there? Well possibly I would have done, because I know they are supportive of families and I know the Principal - it's a Catholic college so he has Christian values himself, he himself is a father, he has a family..., whereas this Head, she didn't seem to appreciate people's family commitment and concerns. I wonder whether partly because she doesn't have any of her own, she's not married and

she doesn't have any children. If I'd been really brave and gone up to her and said, "Look this is my situation, these are my circumstances..." - people said to me, "Why don't you ask her about going part-time?" Partly, I was too scared to go and ask'. (Interview 032)

11. Conclusion

Gender differences in labour market positions and rewards have been the focus of much sociological and economic research over the past fifty years, yet our knowledge of the mechanisms that create and perpetuate these differences has been constrained not simply by the sheer complexity of the factors at work but also by the partial nature of different disciplinary methods of enquiry. Economists have favoured approaches that attempt to correlate measurable factors with the gender difference in pay. The problem with this is that such correlations do little to aid our understanding of the gendered nature of the processes at work. Sociologists have investigated the relationship between employment structures and work and career processes – normally using qualitative methods which throw light on the variables related to gender inequalities in particular contexts, but beyond holistic explanations of particular cases, such work at best has generated hypotheses rather than explanatory theories that can be applied more generally.

In this paper we break new ground by combining research resources, research methods and cross-disciplinary methods of investigation. The subjects of our enquiry are recent graduates in their early careers. Our interest in this group stems from the fact that both men and women have achieved similar high levels of education and, for the majority, have yet to commence a period of family formation. Gender differences arising in the early careers of this group cannot easily be ascribed to differences in human capital. Entering the labour market some twenty years after the implementation of equal pay legislation, they are the group among whom we least expect to find a gender gap in pay. To explore the evolution of gendered career paths for this group we used information from a large-scale longitudinal survey of the early careers of 1995 graduates, together with a major qualitative study deriving from detailed interviews with over 200 of the respondents to this survey. We employed a range of research techniques, from multivariate statistical techniques to detailed analysis of transcripts of interviews both to measure the scale of the gender gap and in an attempt to understand better the reasons behind the gendered career paths we observed.

The findings we present reveal much about the complexity of the relationship between gender and the career paths of these graduates. We showed how gender relates to the choice of subject studied at undergraduate level, to the sector within which a graduate is employed, the nature of the work they perform and to the gender balance at the workplace. We discovered significant links between these career pathways, different working environments and the subsequent gender difference in the earnings of graduates seven years after graduation. We explored the ways in which jobs have been constructed in particular work contexts, and examine the relationship between the work context and gender. We also presented information that revealed the complexity of the balance that most women, and some men, are facing or will face as they move towards and through a period of family formation.

There is no simple theoretical model we can fall back on to aid our understanding of the choices and constraints that women and men face. It is not sufficient to categorise women in terms of their preferences for paid or unpaid work. Most of the women we spoke to, like most of the men, had both clear long-term career goals and aspirations to have children and satisfying lives that involved partnership. We will examine the impact of partnership on the career decisions and trajectories of women and men in this cohort in a subsequent paper, following up the finding in this analysis that partnership is a highly significant consideration for women and men in their career decisions – but not a statistically-significant variable in explaining gender differences in earnings or attitudes to career development.

Our analysis has revealed that, in terms of the gender pay gap, industry sector (particularly women's propensity to obtain public sector employment), differences in hours worked, the gender context at work and, to a lesser degree, subject studied at university go a considerable way towards 'explaining' the difference in average earnings between women and men. However, as we focused in on particular categories of graduates, controlling for these 'significant' variables, we found that the balance of explanation varies in different contexts. The explanation for the gender pay gap between male and female engineering graduates is not the same as for male and female humanities or law graduates: women and men make, and are sometimes steered into, gendered occupational and career development choices, within the contexts that they have chosen or find themselves in. As they moved into a period of family formation, some women graduates reported on actions and attitudes of their male work colleagues and their employers that border on sexual discrimination and indeed, we were told of cases of unequivocal discrimination. And we revealed differences in the distribution of attitudes between women and men about significant aspects of career choice: how ambitious they were, how important high earnings were, how important it was to them to do socially-useful work. However, these were differences in averages and many of them reflect the gendered contexts in which the choices had been made. Perhaps the more interesting findings, that we need to explore more, are the similarities between women's and men's career development and attitudes to employment and career development in this cohort, prior to the decision to embark on family-building, and the complexities of options perceived and decisions taken once that decision has been taken. The examples given in the last section show clearly that the issue of work/life balance is very important for this cohort of highly-qualified young adults and compromises and sensitivities related to having children contribute to the gender pay gap at this time and perhaps prior to it, as partners plan for this next stage of life. But these are part of a complex web of variables and have less explanatory value, in themselves, than the key variables relating to work contexts that we have identified.

Clearly, we have much more work to do to unravel this complexity. The evidence we have presented thus far is sufficient to indicate that we have a rich source of information for further planned investigations.

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Appendix 1

Table A1: Factors associated with the annual earnings of graduates in full-time employment seven years after graduation

	Coeff.	Std. Error	Sig.	Mean	
				Males	Females
Hours per week (exc. breaks but inc. o/t, unpaid)	0.009	0.000	0.000	44.2	42.3
<i>Contractual basis of current job</i>					
Permanent/open-ended	ref.			84.8%	82.1%
Fixed term contract	0.020	0.005	0.000	8.7%	9.9%
Probationary	-0.033	0.011	0.002	1.1%	1.6%
Self-employed	0.080	0.008	0.000	3.9%	3.8%
Temp (agency)	0.140	0.015	0.000	0.4%	1.0%
Other temporary or casual	-0.109	0.024	0.000	0.0%	0.5%
Other (not permanent)	-0.097	0.020	0.000	0.3%	0.5%
Degree was required to obtain current job	0.157	0.003	0.000	64.3%	69.8%
<i>Sector of current job</i>					
Agriculture, mining	-0.109	0.012	0.000	1.6%	1.1%
Manufacturing	-0.121	0.006	0.000	12.2%	6.9%
Electricity, gas, water	-0.084	0.011	0.000	2.3%	0.9%
Construction	-0.168	0.008	0.000	8.9%	1.4%
Distribution	-0.108	0.007	0.000	5.4%	4.2%
Transport	-0.142	0.011	0.000	2.4%	0.9%
Information and communications	0.005	0.005	0.384	14.3%	9.6%
Banking, finance and insurance	ref.			11.5%	7.0%
Business services	-0.027	0.006	0.000	11.2%	12.3%
Education	-0.135	0.007	0.000	9.1%	24.8%
Other public services	-0.141	0.007	0.000	12.6%	22.8%
Other	-0.151	0.007	0.000	7.2%	6.5%
Private sector	ref.			70.2%	46.8%
Public sector	-0.096	0.005	0.000	24.4%	45.6%
Not for profit sector	-0.158	0.006	0.000	4.4%	6.7%
<i>In my workplace, my type of work is done</i>					
exclusively by men	ref.			20.2%	6.3%
mainly by men	0.022	0.004	0.000	34.2%	15.4%
by equal mixture of men and women	-0.049	0.004	0.000	37.5%	40.3%
mainly by women	-0.109	0.005	0.000	6.3%	29.1%
exclusively by women	-0.126	0.008	0.000	0.5%	8.0%
<i>After first started this job, to learn to do it reasonably well took</i>					
< 1 week	-0.030	0.006	0.000	6.1%	3.4%
1 week to 1 month	-0.022	0.004	0.000	11.4%	11.5%
1 - 3 months	-0.055	0.003	0.000	24.3%	24.7%
Over 3 months	ref.			58.2%	60.4%

(contd.)

Table A1: Factors associated with the annual earnings of graduates in full-time employment seven years after graduation (contd.)

	Coeff.	Std. Error	Sig.	Mean	
				Males	Females
<i>Use of computers in current job</i>					
Do not use computers in job	ref.			1.9%	3.4%
Routine use of computers in job	0.199	0.008	0.000	51.7%	70.0%
Complex use of computers in job	0.166	0.008	0.000	28.8%	21.1%
Advanced use of computers in job	0.257	0.009	0.000	16.9%	5.1%
<i>No employed by the organisation works for</i>					
< 10 employees	ref.			5.1%	5.4%
10 - 24 employees	0.142	0.008	0.000	5.7%	6.8%
25 - 49 employees	0.145	0.008	0.000	5.7%	8.7%
50 - 199 employees	0.151	0.007	0.000	15.2%	15.2%
200 - 499 employees	0.175	0.008	0.000	9.9%	8.5%
500 - 999 employees	0.171	0.008	0.000	6.3%	8.3%
1000+ employees	0.233	0.007	0.000	51.4%	46.1%
<i>SOC(HE) classification of current job</i>					
Traditional graduate job	0.152	0.005	0.000	20.0%	26.0%
Modern graduate job	0.102	0.005	0.000	21.1%	21.1%
New graduate job	0.201	0.005	0.000	20.0%	18.5%
Niche graduate job	0.136	0.005	0.000	23.2%	20.5%
Nongraduate job	ref.			11.5%	10.8%
Not classified	0.088	0.008	0.000	4.1%	3.2%
<i>Currently employed in</i>					
Inner London	0.252	0.004	0.000	17.2%	16.8%
Outer London	0.184	0.005	0.000	7.0%	5.8%
South East	0.089	0.004	0.000	14.8%	13.1%
Male	0.075	0.003	0.000	100.0%	0.0%
Age	0.113	0.013	0.000	29.5	29.1
Age squared	-0.002	0.000	0.000	871.8	852.5
Disability	-0.089	0.010	0.000	1.7%	1.4%
Other work limiting factor	-0.105	0.008	0.000	2.1%	2.7%
Lives with partner and children	0.031	0.004	0.000	14.0%	7.9%
Lives with parents	-0.200	0.004	0.000	11.4%	7.7%
Shared accommodation	-0.100	0.004	0.000	12.1%	9.4%
Has children age 6-11	0.042	0.010	0.000	2.4%	1.2%
Fee paying school	0.039	0.004	0.000	16.2%	14.5%

(contd.)

Table A1: Factors associated with the annual earnings of graduates in full-time employment seven years after graduation (contd.)

	Coeff.	Std. Error	Sig.	Mean	
				Males	Females
<i>Class of degree obtained in 1995</i>					
First class degree				10.6%	8.0%
Upper second	-0.030	0.003	0.000	43.2%	51.0%
Lower second	-0.050	0.004	0.000	29.6%	29.3%
Third	-0.115	0.007	0.000	4.5%	2.4%
<i>Subject area of 1995 degree</i>					
Arts	-0.181	0.009	0.000	1.7%	3.2%
Humanities	-0.122	0.006	0.000	7.8%	11.8%
Languages	-0.108	0.008	0.000	1.4%	5.7%
Law	0.029	0.008	0.000	3.4%	4.1%
Social sciences	-0.037	0.005	0.000	12.9%	16.6%
Maths and computing	0.051	0.006	0.000	10.1%	4.5%
Natural sciences	-0.093	0.005	0.000	12.8%	11.1%
Medicine and related	0.057	0.007	0.000	3.9%	9.7%
Engineering	-0.018	0.006	0.002	16.8%	2.3%
Business studies	ref.			14.0%	11.3%
Education	-0.018	0.007	0.008	2.7%	10.5%
Other vocational	-0.070	0.006	0.000	9.7%	4.6%
Interdisciplinary	-0.105	0.008	0.000	2.7%	4.5%
<i>Entry qualifications for 1995 degree</i>					
24+ UCAS points	0.003	0.004	0.451	17.6%	20.7%
16-23 UCAS points	ref.			18.7%	25.1%
less than 16 UCAS points	-0.052	0.004	0.000	17.8%	18.3%
Scottish or Irish Highers	-0.002	0.005	0.753	8.8%	8.7%
Access qualifications	-0.208	0.014	0.000	1.0%	0.6%
Foundation course	0.039	0.014	0.005	0.8%	1.0%
HND/HNC	-0.026	0.005	0.000	10.6%	4.0%
GNVQ or equiv.	0.097	0.015	0.000	0.9%	0.6%
Int. baccalaureate	0.118	0.023	0.000	0.4%	0.1%
O' levels	0.153	0.026	0.000	0.3%	0.2%
BTEC, OND, ONC	-0.064	0.008	0.000	2.9%	2.4%
First degree	-0.254	0.018	0.000	0.3%	0.7%
Postgrad qual.	-0.374	0.126	0.003	0.0%	0.0%
Other qual.	-0.117	0.009	0.000	2.0%	1.7%
<i>Further education and training since 1995</i>					
Short course(s)	-0.032	0.003	0.000	24.8%	32.0%
Undergraduate degree	0.018	0.008	0.019	3.2%	2.2%
Postgraduate cert. or dip.	-0.019	0.003	0.000	16.0%	31.7%
Professional qualification	0.055	0.003	0.000	22.7%	23.5%
Master's degree	-0.040	0.003	0.000	16.1%	19.1%
Phd Programme	-0.127	0.006	0.000	5.8%	5.6%
Other	-0.020	0.005	0.000	6.9%	10.4%

(contd.)

Table A1: Factors associated with the annual earnings of graduates in full-time employment seven years after graduation (contd.)

	Coeff.	Std. Error	Sig.	Mean	
				Males	Females
Moved between regions (pre degree home and current employment)	0.014	0.003	0.000	51.9%	48.4%
<i>Parental socio-economic class:</i>					
Managerial and professional occupations	ref.			46.7%	45.6%
Intermediate occupations	-0.033	0.004	0.000	11.2%	11.3%
Small employers and own account workers	0.023	0.004	0.000	15.2%	17.6%
Lower supervisory and technical occupations	-0.016	0.006	0.004	6.0%	4.6%
Semi-routine and routine occupations	-0.027	0.004	0.000	11.4%	9.7%
Neither parent in paid employment	-0.089	0.009	0.000	1.9%	1.8%
Not determined	0.018	0.005	0.000	7.6%	9.5%
Constant	0.201				

Adjusted R squared: 0.502

Weighted N = 59,956

Unweighted N = 3,286

Note: All variables are represented by 0,1 values, except for age, age squared and weekly hours worked which are continuous. With the exception of these variables, mean values of the variables are displayed as the percentage in each category coded to the value 1

The dependent variable is the natural logarithm of annual gross earnings. The coefficients associated with each variable can be regarded as the percentage change in earnings associated with each variable, relative to the reference variable in each set (denoted by 'ref.')