Education, Occupation and Career Expectations:
Determinants of the Gender Pay Gap for UK Graduates

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Draft 3.3 – December 2006

Abstract:

Despite anti-discrimination policies, women are paid 20% less then men in the UK. A large proportion of this wage gap is usually left unexplained. In this paper, I investigate whether the unexplained component is due to misspecification. Using a sample of recent UK graduates, I examine the role of choice variables (subject of study and occupation) as well as career expectations and aspirations. The evidence indicates that women are more altruistic and less career-oriented than men. Career break expectations, for example, explain 10% of the gender wage gap in the favoured model. By omitting attitudinal variables most studies are likely to over-estimate the unexplained component of the gender wage gap. Women with a more traditional view concerning childrearing are also found to have less intensive search behaviour. Since aspirations may reflect perceived discrimination or social pressure, current legislations are unlikely to reduce the gender wage gap.

Key words: gender wage gap, attitude

JEL codes: J16, J13, J29, J70

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1. Introduction

Differences in wages between men and women have been the focus of attention of social scientists and policy-makers for decades (see Altonji and Blank, 1999, for an excellent survey). In the UK, three decades after the Equal Pay Act 1970 and Sex Discrimination Act (1975), women are still paid 80% of the men's mean wage (Harkness, 1996; Blackaby et al. 1997; Lissenburgh, 2000, Swaffield, 2000). Even after accounting for differences in observable characteristics affecting productivity, such as education, labour market experience or occupation, about half of the gap is left unexplained. This unexplained component of the gender gap is often viewed as reflecting discrimination.

Goldin and Rouse (2000) found some evidence of employer discrimination in hiring[1]. The gap is also potentially due to choice. Women follow social expectations, and choose careers reducing the likelihood of discrimination or allowing them to fulfil other commitments, such as childcare. The characteristics affecting these choices are typically not observable by the researcher, but according to panel data analysis by Polachek and Kim (1995), this unobserved heterogeneity accounts for as much as 50% of the gender wage gap. Gender heterogeneity has been traced to differences in educational choice (Chevalier, 2002, Machin and Puhani, 2003, Montmarquette et al., 2002), occupational choice (Baker and Fortin, 2001), career expectations (Swaffield, 2000, Vella, 1997), or even negotiation skills (Babcock and Laschever, 2003)[2]. Additionally, a so-called motherhood gap has been found in numerous studies where a wage penalty is observed for mothers compared to childless

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[1] Discriminatory behaviours are typically difficult to observe. Using a unique panel of applicants to jobs at 11 symphonic orchestras in the US and detailed information on the hiring process, Goldin and Rouse find that "blind" auditions, in which the gender of the candidate is not revealed to the jury, result in an increased probability of a woman obtaining the job.

[2] The experimental literature has highlighted that for the same level of ability, women choose pay schemes that are less financially rewarding than men, perhaps reflecting greater risk aversion (Niederle and Vesterlund, 2005). Babcock and Laschever (2003) also report that women dislike negotiation and settle for less advantageous deals. Blackaby, Booth and Frank (2005) also show that in a survey of academic staff in UK economics departments, women were less likely to receive outside employment offers, which adversely affects their wage.

women. Anderson et al (2002), for example, find a 10% wage penalty for the first child amongst US university graduates.

In this paper I highlight some components of this typically unobserved heterogeneity and estimate simultaneously the effects of education, career choices and character traits on the gender wage gap. I focus on gender differences in career expectations and motivations and especially the childrearing expectations. I rely on a homogenous population of UK graduates that has been on the labour market for a maximum of 42 months[3]. Although the results are obtained for a specific population, the gender wage gap for graduates is not too dissimilar to the one observed for the rest of the population (Annex 1).

The data was collected by postal survey in 1998 amongst the cohort of 1995 graduates. This unique dataset contains twenty variables to assess career expectations and character traits. The survey indicates that on average, males graduate from Engineering and Science, work in the private sector, in a male-dominated occupation, and are more career-oriented. Women graduate from Education, Languages and Art degrees, work in smaller firms and care about the usefulness of their job. However, the largest difference in job expectations is found for childrearing responsibilities: 28% of women strongly agree that they expect to take a career break for family reasons but only 2% of male graduates do[4]. This single variable is responsible for 10% of the explained wage gap in the most extensive model.

The wage gap reaches 12.6% for this young homogenous population and the favoured decomposition explains 84 % of the gender wage gap, which is considerably more than in the previous literature. Job values and life expectations are important components of the gender wage gap, accounting respectively for 21% and 12% of the explained gap, whilst subject of study and job characteristics represent another 25% each. The choice of decomposition

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[3] Focussing on younger workers has the advantage of limiting the bias due to fertility decisions which affects most of the literature on the gender wage gap.

[4] At the time of the survey, the legislation entitled women to take up to six months of maternity leave; no provision for paternal leave was available. I assume that respondents to the survey did not interpret career break as being on maternity leave.

technique is not innocuous; using identical specifications, the proportion of the gap explained ranges between 58% and 84% depending on the decomposition technique.

Whilst it has been documented that there is a substantial wage penalty for childbearing, I show that the expectation of a career break for family reasons is one of the main explanatory components of the gender wage gap even among individuals who have not had children yet. Women who expect to take a career break for childrearing reasons experience lower wages even at an early career stage. Moreover, women with a traditional childrearing view are less likely to be in a perfect match and yet they search the job market with less intensity. Hence, childrearing expectations affect female wages even before the fertility decision is taken[5].

The paper is organised as follows: the next section reviews the literature on the effects of subject of study choices, occupational choices and character traits on wages. Where possible it relates these to gender differences. Section 3 examines the four decomposition techniques used in the empirical section. The graduate survey is described in section 4 and the results of the decomposition are presented in section 5. I investigate the effect of character traits on job matching in section 6, and conclude in section 7.

2. Literature

I do not attempt to summarise the large literature on the gender wage gap (see Altonji and Blank, 1999) but instead focus solely on studies of the effect of education, occupation or character traits on the gender wage gap.

2.1 Subject effects

A large variation in the returns by subject is found in the UK, with Science majors usually obtaining the largest returns and Arts, Languages and Social Sciences offering the lowest returns (Chevalier et al., 2002, Walker and Zhu, 2005). For all subjects, the returns are

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[5] If the gender gap was due to statistical discrimination, expectations about future fertility behaviour would not matter as all women would be discriminated.

higher for women than for men and the differences are the largest for Arts and Education graduates. This does not indicate that female graduates earn more than their male counterparts, but rather indicates that higher education reduces the gender wage gap.

Differences in subject returns reflect specific supply and demand for graduates but it is also worth noting that subjects most popular with women (Humanities/Languages) are associated with lower grades (McNabb et al., 2002), higher risk of unemployment, over-education and lower average pay in general (Chevalier, 2002). Montmarquette et al. (2002) note that men choose subjects with high financial returns whilst women are more risk-averse, and tend to choose subjects with the greatest prospects of graduation and for which they have the highest affinity. Including the degree subject typically increases the explained component of the gender wage gap by 6 to 17 percentage points (see review in Chevalier, 2002). Machin and Puhani (2003) also show that the gender wage gap is sensitive to the number of subject categories[6].

2.2 Occupation effects

Women tend to work in the public sector and in a limited number of occupations generally associated with lower wages (Baker and Fortin, 2001). This segregation leads to a penalty for working in a female-dominated occupation, which is larger for women than men (Brown and Corcoran, 1997). Moreover, Swaffied (2000) shows that the wage penalty for time out of the labour market is higher for women in male-dominated occupations. This provides the rationale for the self-selection of family-motivated women in female-dominated occupations. Employer-employee data provide further evidence on the effect of segregation. Bayard et al. (2003), using US data, estimate that the proportion of females in a given

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[6] The high disaggregation of subjects may bias the results of the decomposition. For subjects with a large gender imbalance and a small number of observations, the subject estimates in the wage equation for the "minority" gender are imprecise and are multiplied by the mean gender difference in participation (which is large) in order to calculate the explained component of the differential.

occupation has a small contribution to the gender wage gap (5% in their full model) but that gender segregation at the establishment and at the job cell level contribute 15% each. Mumford and Smith (2004) find similar effects of segregation in the UK.

2.3 Character trait effects

Recently economists have investigated character traits as determinants of wages. Leadership, motivation, self-esteem, aggression, beauty and cleanliness are among the traits positively correlated with wages (see Bowles et al., 2001, for a survey). Moreover, the impact of these characteristics differs by gender; for high occupational status, Osborne (2001), using the UK National Child Development Study, estimates that a one standard deviation change in aggression increases the earnings of men by 20% but reduces those of females by 14%.

Most of the literature on the gender wage gap has stressed the importance of career interruptions and family responsibilities, but only a few studies have incorporated a measure of the attachment to the labour force. Vella (1994) uses an attitude index to divide the population of young Australians between "modern" and "traditional" in their attitude towards the role of women. Modernity increases female educational attainment: "moderns" are 10 percentage points more likely to attend university. Swaffield (2000) uses the British Household Panel Survey to construct measures of work- and home-oriented motivation (6 questions on the respective role of men and women), aspiration (proxied by maternal occupation) and household constraints (history of personal circumstances that may have prevented participation to the labour force in the past). Work motivation is a significant determinant of wages for women but not for men. Maternal occupation and work motivation have a similar effect on wages (+6%) and household constraints have a permanent negative effect even after accounting for actual labour market experience. Chevalier (2002) uses other measures of work motivation: financial motivation, wanting to do a socially useful job,

ambition and workaholism. Contrary to Swaffield (2000), he finds that these characteristics account for a substantial part of the explained wage gap (30%).

A further issue of debate concerns the origins of the gender differences in subject choice, occupational choices, and motivation. These variables are potentially endogenous as they reflect choices made by women to prevent discrimination. Moreover, the motivation variables are measured concomitantly to the wage and individuals may simply justify their own labour market situation. For example, an individual with a low wage may claim not to be financially motivated. The endogeneity of motivation, as discussed in Breen and Garcia-Penalosa (2003), biases the estimate of motivation and may lead to an overestimation of the explained component of the gender wage gap (Bertrand and Mullainathan, 2001).

For example, let us assume that, independently of their gender, low-paid individuals claim not to be financially motivated. In a society where all women are underpaid, each will claim to be unmotivated by financial rewards, and the inclusion of the motivation variable will lead to the conclusion that all of the gender wage gap can be explained.. Swaffield (2000) provides some evidence that individual motivation is not solely due to the self-justification of their current position. She demonstrates that yearly variations in motivations are not correlated with wage variation, but that the average motivation over a six-year period correlates with permanent wage. From this evidence, job market orientation appears to be mostly a fixed characteristic of an individual. I thus assume, the exogeneity of the motivation variables.

Other determinants of the gender wage gap have been suggested. Women may have a greater dislike for negotiation (Babcock and Laschever, 2003) and for competition (Niederle and Vesterlund, 2005), which would lead to lower reservation wages. Additionally, a typical search model predicts that women expecting a career break face lower returns to the search and would thus lower their reservation wage. These characteristics may explain why female

graduates are found to have lower wages in their first job even after accounting for education. This view is contradicted by empirical evidence. Orazem et al. (2003) analyse a small sample of graduates from Iowa University and report that attitudes towards the position of women in the labour market had no effect on starting salary.

III. Decomposition Methodology

As in previous work, I estimate for each gender (g) a log wage equation.

$$\ln w_{ig} = X_{ig}\beta_g + \varepsilon_{ig} \qquad\qquad g = m, f \qquad\qquad (1)$$

Individual characteristics, all assumed to be exogenous, are included in a vector X_{ig}. β_g is the vector of gender-specific returns to characteristics and ε_{ig} is an individual error term. The average gender gap in earnings can be decomposed between the mean difference in observed characteristics and the difference in the returns to these characteristics (Oaxaca-Blinder decomposition).

$$\Delta = \overline{\ln w_m} - \overline{\ln w_f} = (\overline{X_m} - \overline{X_f})\beta_g + (\beta_m - \beta_f)\overline{X_{1-g}} \qquad\qquad (2)$$

where variable means are denoted with a bar. The first term of (2) is the component of the gender pay gap that can be explained by between-group differences in observed characteristics. The second term represents the fraction of the gap originating from differences in the returns to characteristics between the two groups and is referred to as the unexplained component of the gender wage gap.

The choice of a reference group to decompose (2) is not innocuous but since neither wage function (β_g) would exist in the absence of discrimination, both choices lead to biased estimates of the explained wage gap. Rather than giving a weight of one to the wage function of one group and zero to the other, equal weights can be given so as to define the wage

function that would prevail in a post-discrimination world ($\beta^* = .5\beta_m + .5\beta_f$). Instead of this ad-hoc weighting, Cotton (1988) advocates the use of population weights ($\beta^* = {}^{n_m}\!/\!_N \beta_m + {}^{n_f}\!/\!_N \beta_f$). Neumark (1988) disagrees that the wage function in the absence of discrimination would simply be a weighted average of the current wage functions. Instead, he advocates using pooled estimates to approximate β^*. Whichever weighting scheme is chosen, the gap is decomposed into three components:

$$\Delta = \left(\overline{X_m} - \overline{X_f}\right)\beta^* + \left(\beta_m - \beta^*\right)\overline{X_m} + \left(\beta^* - \beta_f\right)\overline{X_f} \tag{3}$$

The first term in (3) is the explained wage gap, measured at the non-discrimination wage. Compared to (2), the unexplained component is divided into two parts: the advantage of men (extra returns compared to what should be observed in a non-discriminatory world) and the disadvantage of women.

When decomposing at the means, little is known of the contribution of individual variables. Starting from the first term in (2), Brown and Corcoran (1997) defined Δ_g as:

$$\Delta_g = (\overline{X}_m - \overline{X}_f)\beta_g \tag{4}$$

Δ_g reflects the increase in female wages, estimated at the price of gender g, if the endowment differential were eliminated. Δ_g is not independent of the metrics used and opposite effects would be found when changing the base category of a dummy variable. To avoid these metric problems, Brown and Corcoran (1997) advocate the use of Δ^*, defined as:

$$\Delta^* = \Delta_m - \Delta_f \tag{5}$$

Δ^* measures the change in female wages if the endowment in variable X were equalised and rewarded at the men's rather than the women's prices. Δ^* is small if either the difference in endowment is small or the differences in the returns are small; thus Δ^* provides a measure of

the contribution of a specific variable to the wage gap, incorporating differences in endowment and returns.

4. Data

The empirical evidence is based on a sample of 10,384 graduates from 33 UK higher education institutions (Elias et al., 1998). All graduated in 1995 and the survey, conducted by mail, includes a complete history of the 42 months that had elapsed since graduating. As well as the job market history, information on educational attainment, family background and expectations is available.

To limit unobserved individual heterogeneity, the analyses excludes mature students (over 28 on graduation), individuals with disabilities, and post-graduate students[7], leaving a sample of 7,510 graduates. The annual gross wage is reported in categories and category mid-points are used to define a continuous variable. On average women work fewer hours than men, thus the gender wage gap for annual wages is biased upward (see Annex 1 for evidence). To limit this bias, I only keep full-time employees (no information on hours worked is available). There is no gender difference in the proportion of full time employees[8].

Finally, individuals who did not report their current wage or occupation, who are not living in the UK, or who have missing values on subject of study or any of the variables used to define character and job expectations are dropped, creating a sample of 5,058 graduates. The sample is then re-weighted to be nationally representative of the graduate cohort of 1995.

This dataset is unique as it includes 20 questions on character traits, motivation and expectations, coded on a 5-point scale from very important (1) to unimportant (5). The

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[7] Individuals graduating in 1995 with a diploma or a postgraduate qualification were not part of the sample frame and should not have been sent the questionnaire. Graduates from 1995 who subsequently gained a postgraduate qualification are included in the analysis.
[8] 86% of men and 84% of women are full-time employees. Among individuals not in full-time employment, men are more likely to be self-employed and women more likely to be part-time employed, studying, or out of the labour force.

distributions of answers to job values and career expectations are reported separately by gender in Tables 1A and 1B.

[Tables 1A and 1B around here]

Long-term values differ significantly by gender. Men are more likely to state that career-development and financial rewards are very important long-term values, while women put forward job satisfaction, being valued by employer, and doing a socially useful job. These differences typically affect occupational choice and may explain the high feminisation of jobs such as teaching and nursing. Women are also more likely to be concerned with local issues and ecology.

Men are 10 percentage points more likely to define themselves as extremely ambitious. Despite improvements in family-friendly policies, two-thirds of women still expect to take breaks for family reasons (somewhat or strongly agree) and only 17% expect their partner to do so. Men favour this arrangement, with 40% of them expecting their partner to take a career break for family reasons and only 12% expecting to do it themselves. Furthermore, a third of women do not expect to work until retirement. On average, women have lower career expectations and long-term values that are less driven by career success than have men. The gender differences in long-term values are consistent with social stereotypes: men are less altruistic than women and care mostly about their own career (Babcock and Laschever, 2003)

[Table 2: around here]

Other relevant variables are reported in Table 2. Women have higher academic credentials both pre- and post-university. The main gender difference in educational attainment concerns the subject of graduation. The gender imbalance is the greatest in Engineering, Education, and Mathematics. There is no gender difference in the type of higher education institution attended, postgraduate qualification or labour market experience. However, women are more likely to work in the public sector, in smaller firms, in clerical

occupation, and with more female co-workers, characteristics that are usually associated with lower wages. Contrary to the job search prediction, women are found to have had more jobs since graduating (3.1) than men (2.8) and are also more likely to be in a professional occupation.

The raw wage differential for this cohort, three yeas after leaving university, is 12.6% (the mean wages are £18,300 for women and £21,100 for men). Thus, even among a young homogenous population a substantial wage gap is found[9]. The following section determines the origins of this gap and how much can be explained by differences in observable characteristics.

5. Decomposition Results

Table 3 highlights the effect of the wage equation specification on the gender wage gap decompositions. The base model is estimated with a parsimonious specification typically found in the literature, including a quadratic function in months of labour market experience, dummies for graduating after the age of 24, being white, and region of residence. Owning to the relative homogeneity of the sampled population, this base model explains only 20% of the wage gap, suggesting that in the early months of graduates' careers the gap stems from what are usually unobserved variables.

[Table 3 around here]

5.1 Subject effects

The second specification includes various measures of educational achievement such as A-level score, degree results, institution type and postgraduate achievements which are correlated with academic ability. Since there is no large gender variation in educational

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[9] This raw gap is similar to the one found in the Labour Force Survey 1998 for a population of graduates aged under thirty (Annex I), confirming the representative nature of the dataset used. Young graduates experience the lowest gender wage gap but the wage gaps for graduates (especially in hourly wage) are never too different from the one calculated for the full population.

achievement (at least for this cohort), the inclusion of these variables only marginally improves the explanatory power of the model. The additional inclusion of controls for subject of graduation (model 2') increases the explained gap to 50%, with the contribution of subject to the explained component reaching 77%. The wage gap for graduates does not originate from differences in educational attainment but mostly from subject segregation, with women graduating from subjects that have lower financial returns.

5.2 Occupation effects

To test the effect of job characteristics on the gender wage gap, the base model is enriched with characteristics of the work place (size, sector), type of contract and feminisation of the occupation [10]. These variables account for 74% of the explained wage gap, which rises to 65% of the raw gap. Specification 3' also adds dummies for occupational group (at the 1-digit level) to capture differences in occupation choice. Whilst occupation can be considered an endogenous variable, its inclusion allows for the control of occupational idiosyncrasies. The inclusion of these variables has no effect on the explained wage gap, suggesting that early on in their career there is no gender difference in the occupational attainment of graduates [11].

With specification 3'', I test the assumption that job mobility impacts on wages by including the number of jobs held since graduation. This single variable accounts for 7% of the explained wage gap but does not alter the conclusions regarding the explained gender wage gap since, as shown in Table 2, men and women have broadly similar mobility patterns.

5.3 Character trait effects

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[10] This is constructed at the 2-digit occupational code level from the 1996 Labour Force Survey, quarter 3, for all employees aged 16-59. Baker and Fortin (2001) state that results on the effect of feminisation on the gender wage gap are sensitive to the level of aggregation of the feminisation variable. Two-digit level is the greatest level of disaggregation in this graduate dataset.

[11] This result could also stem from the broad definition of occupational group used here (Kidd and Shannon, 1996).

Model 4 extends the base model by adding information on the character traits of the individuals. This model explains 66% of the raw gap. The 12 job-values account for 45% of the explained gap and career expectations for another 30%. Thus, character traits and differences in expectations between genders are important determinants of the wage gap, yet they have usually been overlooked in the literature.

Whilst it is important for comparison purposes to identify the effect of each group of variables on the gender wage gap, the final model uses all the available information. The full model explains 84% of the wage gap, with the advantage of men and disadvantage of women being almost equal at around one percentage point of the raw wage gap. Degree subject, job characteristics and job values each account for about a quarter of the explained gap[12]. The explanatory power of job characteristics is halved compared to the previous model, suggesting that degree subject and career expectations account for a large part of the differences in job characteristics. It is worth noting that the explanatory power of the character trait variables, although reduced by two thirds, does not disappear in a model including job characteristics suggesting that character traits are unlikely to solely self-justify one's labour market position.

I also isolate the explanatory power of career break expectations in the last two models. This variable is responsible for 24% of the explained gender wage gap in the model including only character traits as an additional exogenous variable, and for 10% in the full model. It is thus not solely an actual career break that leads to a reduction in wages for women but also the expectation of having a career break. Women who have a more traditional view on childrearing experience lower wages early on in their career. In section 6 I present some evidence that, women in this group search for jobs with less intensity.

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[12] A model including interactions between subject choice and degree results was also tested, but the inclusion of these interactions did not improve the share of the gender wage gap that could be explained.

Since the results could be driven mostly by gender differences in occupational choice, the full model is also estimated on a restricted sample of managers and professionals, the two typical graduate occupations. The wage gap is slightly reduced, at 10%, and 80% of it can be explained by the model. The only difference from the full population is that job characteristics are no longer a major component of the gender wage gap, highlighting the fact that in graduate occupations, women are in similar jobs to men.

5.4 Additional decompositions

The choice of post-discrimination reference group alters the explained component of the gender wage gap. Using the full model but relying on a different set of non-discriminatory prices, between 55% and 84% of the gap can be explained (Table 4). All decompositions lead to the conclusion that a large proportion of the gender wage gap can be accounted for when introducing variables on educational and occupational choices as well as character traits[13].

[Table 4: around here]

Based on the preferred specification (Model 5), the contribution of each variable to the gender wage gap can be assessed using the method proposed by Brown and Corcoran (1997). Delta (Δ^*) is the change in female earnings if women had the same characteristics as men and were rewarded at the men's rather than the women's price. A negative Δ^* indicates either that women have a greater endowment of this characteristic or that the returns to this characteristic are larger for women. Most variables have only a marginal impact on the gender wage gap since either the mean characteristics are similar between genders or the returns to these characteristics are not gender-specific.

In Table 5 I report the estimated returns (gender-specific or from pooled regression) for the group of variables that have been found to affect the gender wage gap. Additionally, Δ^* is

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[13] Depending on the decomposition method, the subject of degree, job characteristics, job value and career expectation account for 27% to 31%, 6% to 43%, 25% to 32%, and 0 to 11% of the explained gap respectively.

calculated in the final column. Law, Maths, Medics, and Engineering and Business graduates earn at least 10% more than graduates with an Arts degree. Men graduating from Law, Social Sciences, Maths, Natural Sciences and Medicine have substantially higher returns than women graduating from these subjects, whilst the converse is true for graduates in Languages. Despite these variations in returns and the difference in the feminisation of subjects, the impact of each individual subject on delta is limited.

For job characteristics, I observe the well known firm-size wage gap but the gender differences in returns and means cancel each other out, so that firm-size has no impact on the explained gap. Having a permanent contract increases wages by 7% on average. The premium is 50% larger for men but since there is no gender difference in the probability of having a permanent contract, this characteristics has a limited impact on the delta. Contrary to other empirical evidence, a premium for working in the public sector is found for this cohort of graduates, which suggests that public sector entry wages at graduate level are competitive. This premium is twice as large for men. Since women are almost three times as likely to be working in the public sector as men, an equalisation of returns and characteristics on public sector employment would substantially reduce the gender wage gap. Women have had more jobs than men, and the penalty for job change is 50% larger for women, thus impacting significantly on the gender wage gap. Job changes should in theory and are in most empirical work associated with a pay increase (Farber, 1999). For this young population of graduates, they may also reflect difficulties in finding a job-match and thus may capture unobservable characteristics of the individuals which affect wages negatively. The observed wage penalty is nonetheless small at 1% per job. As Brown and Corcoran (1997) also find, the wage penalty for being in a feminised occupation is 50% larger for women. A woman working in an occupation where she is the only female would be paid 22% more than if she was in an occupation that is 100% feminised. Since women tend to work in more feminised

occupations, an equalisation of prices and characteristics would substantially decrease the gender wage gap. To summarise three work characteristics significantly contribute to the gender wage gap: the number of jobs held since graduation, working in the public sector, and feminisation of the occupation.

Long-term values have a substantial impact on wages of both men and women. Graduates who are motivated by financial rewards, status (females only) or international experience (males only)[14] have higher wages. The wage premiums for individuals admitting that these values are important and reach up to 5% for financial reward. Graduate favouring career development (females only) or ecological concerns (males only) suffer from a pay penalty. For men, concern with ecological issues and doing a socially useful job, two typically female traits, are penalised, while these character traits have no significant effect on female wages -which suggests that men with non-traditional motivations may be discriminated against. Since women are 20 percentage points more likely to find having a socially useful job important, the small difference in the wage penalty associated with this character trait leads to a substantial delta. For the other expectation variables, an equalisation of expectations would only have a limited impact on the gender wage gap as differences in returns are not large.

Focusing on career expectations, moving up an ambition category is associated with a wage premium hovering around 4%. Other expectations affecting wages negatively are retirement decisions and career change. However, with the exception of career change, none of the expectations has a significant impact on Δ^*. Men with a traditional attitude regarding the family (expecting their partner to take a break in her career for family reasons) are paid 2% more. However, it is not possible to differentiate between a reward for being a traditionalist and reverse causality, where richer men can support their family and expect their

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[14] The expectation variables are measured on an inverse scale 1=agree strongly, 5 = disagree strongly, so that a negative sign represents a positive effect of a variable on wages.

partner to have a traditional role[15]. These results on attitudes towards family roles are in contrasts to Vella (1994) and Swaffield (2000), who report that modern attitudes affect women's wages positively and have no effect on male wages. Individuals who expect to take a career break for family reasons face a small wage penalty on the border of significance in the pool model. However, since this is an almost exclusively female trait, the small wage penalty leads to the largest single effect on delta. The penalty for career break is observed even before the fertility decision is taken, which is consistent with the view that women who have strong preferences for childrearing invest less in their human capital (training, bargaining, job search) and hence suffer from a pay penalty early on in their career.

[Table 5: around here]

To recapitulate, delta is different from zero only when gender differences in returns and in the propensity of the variable are observed. For this reason, only a few characteristics have a substantial impact on delta. These are whether an individual graduated from Math, the proportion of female in the occupation, working in the public sector, and the number of jobs held since graduation. Character traits whose returns and probability differ by gender are willingness to do a socially useful job, expectations on making a career change, taking a career break and expecting the partner to do so.

6. Further discussion

Women expecting to spend less time on the job market anticipate lower returns to search and thus may be more likely to be in jobs that are a poorer match. Alternatively, these women may remain in a poor match to build goodwill, and expect that the employer will reciprocate and accommodate their future career and childrearing role. Staying with the same

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[15] Career break expectations are unlikely to be biased by reverse causality since fertility decisions are typically taken at an older age; for this cohort, the average age of mothers at the birth of their child was 28.5. However, one could not rule out that individuals most successful with their career would also expect their partner to take a greater role in childrearing.

employer is thus an investment for better job conditions in the future. Both hypotheses imply that women with a greater preference for childrearing will be in lower quality matches even early in their career. To test whether women with more traditional views about childrearing search with less intensity, the job match quality is proxied by two variables: first, "whether the respondent is in exactly the type of job she wanted" and second whether the respondent "expects to change employer in the next five years". The answers to these questions are coded as a binary variable (yes, no).

[Table 6 around here]

The first two columns of Table 6 report the marginal effects of the estimates on the quality of the job match. The specification contains wages as well as all the covariates included in the wage regression[16]. As expected, wages are positively correlated with being in a good match. Character traits are correlated with match quality but these correlations do not appear to be gender-specific. Most traits have the expected effects on the quality of the job match[17]. For example, individuals are more likely to be in the job they want if they value job satisfaction and less likely if they do not expect fulfilment from work, and expect a career change. Career break expectations have the predicted effects but are only marginally significant. For men, being exactly in the job wanted is correlated with expecting their partner to take a career break, whilst women who expect to take a career break are less likely to be in a perfect match.

The second proxy of match quality is whether the graduate expects to change employer in the next five years. The marginal effects of the estimate of this model are reported in columns 3 and 4 of Table 6, separately by gender. As expected, higher wages are associated with a reduced desire to change employer. The career expectations and character traits that are

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[16] The specification used in these regressions is identical to the one used for Model 5, see Table 3 for details. Only wages and character traits are reported here to save space, but full results are available from the author.
[17] As in Table 5, character traits are measured on an inverted scale with 1=I agree strongly and 5 = I disagree strongly.

significant have in general the predicted effect, for example individuals who value international experience or claim to be ambitious are more likely to expect to change employer in the near future. Supporting the hypothesis, I find that women who expect to take a career break are less likely to want to change employer in the near future.

As predicted by a search model, women expecting to take a career break reduce their search, are more likely to be found in a poorer job match, and are less willing to change employer. This reduced search intensity could be the mechanism by which childrearing preferences affect wages.

Additionally, for women only, I estimate the determinants of expecting a career break for family reasons within the next five years[18]. Income has potentially an ambiguous effect as more successful women can afford a career break but the cost of being out of the labour market is higher. Overall, the income effect dominates and doubling wages increases the probability of expecting a career break by 5 percentage points. Women with a more traditional view on childrearing are 15 percentage points more likely to admit to be thinking of a break for family reasons in the next five years. As suggested previously, a higher preference for childrearing is correlated with a reduced emphasis on career development, which would also be consistent with the lower wages of these women even before the fertility decision is observed by the employer.

7 Conclusion

Despite anti-discrimination policies that have been implemented for the last three decades (Equal Pay Act, 1970 or Sex Discrimination Act, 1975), women in the UK are still paid 20% less than men. Less then 50% of this gap is usually attributed to differences in

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[18] This is the answer to a separate question from the one used to proxy character traits. The question here is "which change do you expect to make within the next five years: take a career break for family-related reasons? This regression is not reported for men due to the lack of variability in the answer, with just over 1% of men answering this question positively.

observed characteristics, the remaining being potentially a measure of discrimination. In this paper, I argue that this large unexplained component may be at least partly due to the omission of characteristics in previous research. I focus on the joint impact of three factors: education, occupation, and career expectations and motivations.

The analysis is based on a survey of UK graduates three years after leaving university for which a raw wage gap of 12.6% is found. Men and women differ in the choices made at university and in their early career. Additionally, character traits and expectations differ by gender: women are more altruistic and value their job environment while men are more selfish, career-driven and financially motivated. However, the largest difference concerns childrearing expectations.

Education, occupation and life-time aspirations impact drastically on the explained component of the gender wage gap. A base model using the controls typically found in most of the literature only explained 20% of the wage gap. The full model explains 84% of the gender wage gap, suggesting that discrimination is limited (at least for this population of recent graduates) and that studies omitting these variables under-estimate the explained component of the gender wage gap. This conclusion is robust to various assumptions made to decompose the raw wage gap.

Childrearing expectation is the main driver of the gender wage gap. Women with a stronger preference for childrearing earn less even before their fertility decision is observed, partly due to reduced job search. However, these results should not be interpreted as proof that women are not discriminated against since the choices made could themselves reflect discrimination or strategies to avoid it. Further research in the determinants of choices and how they differ by gender is needed to design policies reducing the gender wage gap. In the mean time, this research suggests that family friendly policies could play a large role in

reducing the differences in expectations by gender and could thus contribute to a substantial

reduction of the gender wage gap.

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Table 1A: As far as long-term values are concerned, how important are the following?

	Female					Male				
	Very Important	Important	Not sure	Un-important	Not important at all	Very Important	Important	Not sure	Un-important	Not important at all
Career development	43.3	48.8	5.2	2.5	0.3	51.9	41.9	4.3	1.6	0.3
Personal development	66.5	32.3	1.0	0.2	0.0	64.3	33.1	2.1	0.3	0.1
Job satisfaction	77.5	22.2	0.3	0.0	0.0	67.8	30.7	1.2	0.3	0.0
Financial reward	14.4	59.2	12.8	13.0	0.6	24.5	56.4	10.1	8.0	0.9
Status and respect	14.9	54.1	17.3	12.4	1.3	17.1	51.0	16.3	12.5	3.2
Valued by employer	55.7	41.7	2.2	0.3	0.1	43.3	50.1	4.0	1.6	1.0
Socially useful job	16.6	34.4	29.2	17.0	2.9	6.7	24.5	32.7	25.6	10.4
International experience	6.5	18.7	22.0	34.0	18.8	9.4	23.5	22.4	28.4	16.3
Rewarding leisure	22.6	35.5	17.0	17.1	7.8	19.9	37.2	17.2	17.7	8.0
Involvement in local issues	3.8	22.0	30.2	32.3	11.7	2.2	11.9	24.4	36.0	25.5
Concern with ecology	5.3	25.3	27.3	29.8	12.4	4.3	20.9	26.3	26.3	22.2
Concern with current affairs	5.8	35.8	26.8	23.1	8.7	8.4	35.9	24.2	19.3	12.1

Note: Cohort of 1995 UK graduates. Observations: Women: 2872, Men: 2186. All statistics use population weights

Table 1B: How far do you agree/disagree with the following statements?

	Female					Male				
	Agree strongly	Agree somewhat	Not sure	Disagree somewhat	Disagree strongly	Agree strongly	Agree somewhat	Not sure	Disagree somewhat	Disagree strongly
I am extremely ambitious	17.0	53.2	10.5	16.4	2.9	28.0	50.7	8.8	10.7	2.0
I do not expect to get main fulfilment from work	10.9	41.2	13.8	28.4	5.7	14.4	39.0	17.1	23.4	6.0
I live to work	1.2	10.6	8.2	42.1	37.9	1.7	14.1	10.2	38.4	35.6
I work to live	24.0	51.1	8.9	12.4	3.7	25.1	48.9	10.2	12.6	3.2
I expect to work continuously until retirement	8.7	24.4	31.0	24.7	11.3	21.8	35.7	21.6	13.8	7.1
I expect to take career breaks for family reasons	27.7	36.5	26.1	6.7	3.0	1.9	9.9	39.6	32.0	16.7
I expect my partner to take career breaks	3.0	13.9	46.9	24.2	12.0	10.0	30.4	42.3	10.8	6.6
I expect to change career several times	9.1	27.1	30.8	21.9	11.1	11.1	31.2	29.0	19.5	9.2

Note: Cohort of 1995 UK graduates. Observations: Women: 2872, Men: 2186. All statistics use population weights

Table 2: Summary statistics: mean and standard deviation

	Women	Men		All		Women	Men		All
Gross pay	18,336 (6030)	21,115 (7698)	*	19,759 (7072)					
Education characteristics					**Job characteristics**				
A level score	9.01 (3.80)	8.29 (4.30)	*	8.64 (4.08)	Experience	35.30 (8.51)	35.69 (8.92)		35.50 (8.72)
No A level	0.11	0.17	*	0.14	Size <10	0.05	0.05		0.05
First-class honours	0.07	0.07		0.07	Size 10-24	0.11	0.06	*	0.08
Upper second	0.51	0.42	*	0.47	Size 25-49	0.10	0.07	*	0.08
Second honours	0.33	0.36	*	0.35	Size 50-249	0.18	0.19		0.19
Other honours	0.09	0.14	*	0.12	Size 250-499	0.07	0.08		0.07
Arts	0.13	0.08	*	0.10	Size 500+	0.48	0.56	*	0.52
Humanities	0.09	0.06	*	0.07	Manager	0.22	0.24		0.23
Languages	0.07	0.02	*	0.04	Professional	0.37	0.33	*	0.35
Law	0.04	0.03		0.04	Associate professional	0.20	0.23		0.22
Social science	0.13	0.11	*	0.12	Clerical	0.14	0.09	*	0.12
Math & computing	0.04	0.11	*	0.08	Other occupation	0.07	0.10	*	0.08
Natural science	0.11	0.11		0.11	% female in occupation	0.50 (0.24)	0.34 (0.23)	*	0.42 (0.25)
Medicine	0.09	0.05	*	0.07	Permanent contract	0.80	0.83	*	0.81
Engineering	0.03	0.20	*	0.12	Public sector	0.27	0.11	*	0.19
Business	0.11	0.14	*	0.13	Number of jobs	3.10 (1.52)	2.77 (1.47)	*	2.96 (1.51)
Education	0.10	0.02	*	0.06	**Personal characteristics**				
Other vocational	0.05	0.06		0.06	Age 26-29	0.37	0.42	*	0.40
Interdisciplinary	0.02	0.02		0.02	White	0.95	0.92	*	0.94
Old university	0.40	0.40		0.40					
60's university	0.11	0.11		0.11	Observation	2872	2186		5058
90's university	0.39	0.46	*	0.43					
College of HE	0.09	0.04	*	0.06					
Post Grad certificate	0.21	0.12	*	0.16					
Professional qualification	0.14	0.15		0.15					
Master	0.10	0.11		0.10					
Ph.D	0.02	0.02		0.02					

Note: Cohort of 1995 UK graduates. All statistics use population weights. Standard deviation reported for continuous variables only.

* denotes a statistically significant difference between genders at the 95% confidence level.

No gender differences were found for current region of work or for occupational class of the father.

Table 3: Decomposition of wage gap

Model	(1)	(2)	(2')	(3)	(3')	(3'')	(4)	(5)	Manager Professional only
Raw gap				0.126					0.122
Explained gap	0.026	0.029	0.064	0.082	0.073	0.088	0.084	0.107	0.098
	(0.005)	(0.006)	(0.007)	(0.007)	(0.008)	(0.004)	(0.010)	(0.010)	(0.010)
	20.5%	22.8%	50.4%	64.6%	57.5%	69.5%	66.1%	84.4%	80.9%
Disadvantage of women	0.051	0.051	0.032	0.022	0.027	0.020	0.021	0.010	0.012
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.003)	(0.004)
Advantage of men	0.049	0.047	0.031	0.021	0.026	0.019	0.020	0.010	0.012
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.003)	(0.004)
% explained by education variables		2.9	-16.7					-6.3	-6.3
% explained by subject			77.3					24.1	31.25
% explained by job characteristics				74.1	70.3	69.4		24.6	6.4
% explained by occupation					-0.0			0.8	0.0
% explained by number of jobs						6.9		2.8	2.2
% explained by job value							45.0	21.1	27.0
% explained by career expectations							30.4	11.7	11.0
[% explained by career break alone]							[24.1]	[9.90]	[12.8]

Note: Cohort of 1995 UK graduates. All statistics use population weights. Neumark (1988) decomposition is used. Standard errors in parentheses
Model 1: Base model, experience, experience squared, age dummy 25-29, white, regional dummies
Model 2: Base + A-level score, type of institutions, degree grade, other qualification dummies
Model 2': As 2 + 13 subject of degree dummies
Model 3: Base + firm size, public sector, type of contract, feminisation,
Model 3': As 3 + 8 dummies for occupation   Model 3'': As 3 +number of jobs held since graduation
Model 4: Base + indices of job value and career expectation
Model 5: Model 2' + model 3' + number of jobs held + model 4'

Table 4: Decomposition of gender wage gap: various decomposition methods

	(1)	(2)	(3)	(4)	(5)
(β) used for decomposition	β_w	β_m	$.5\beta_w + .5\beta_m$	$\dfrac{N_w}{N}\beta_w + \dfrac{N_m}{N}\beta_m$	β^*
Raw gap			12.6		
Explained	7.3	10.0	8.7	8.7	10.7
Unexplained	5.3	2.6	3.9	3.9	2.2
-Women disadvantage	-	-	1.3	1.3	1.0
- Men advantage	-	-	2.6	2.6	0.9

Note: Cohort of 1995 UK graduates. All statistics use population weights.
The specification is the one used in Table 3 (Model 5)

Table 5: Wage functions estimates

	Women	Men	All	Delta *100
Subject of degree				
Humanities	0.015	0.056	0.024	0.227
	(0.68)	(1.35)	(1.26)	
Languages	0.075	-0.011	0.055	-0.298
	(3.03)	(0.16)	(2.31)	
Law	0.089	0.150	0.121	-0.030
	(3.30)	(3.27)	(4.17)	
Social sciences	0.012	0.068	0.031	-0.300
	(0.61)	(2.19)	(2.03)	
Maths & computing	0.142	0.294	0.244	0.513
	(6.03)	(9.30)	(11.68)	
Natural science	-0.000	0.075	0.037	0.003
	(0.01)	(2.65)	(2.03)	
Medicine & related	0.201	0.285	0.227	-0.091
	(7.17)	(4.25)	(6.73)	
Engineering	0.126	0.145	0.126	0.445
	(3.85)	(6.10)	(6.60)	
Business studies	0.121	0.146	0.130	-0.044
	(6.67)	(4.87)	(7.56)	
Education	0.025	0.007	0.025	-0.071
	(0.72)	(0.10)	(0.84)	
Other vocational	0.070	0.079	0.062	0.050
	(1.76)	(1.47)	(2.14)	
Interdisciplinary	0.058	0.088	0.073	-0.005
	(1.26)	(1.65)	(2.82)	
Job characteristics				
Firm size 10 - 24	-0.017	0.003	-0.009	0.067
	(0.42)	(0.05)	(0.26)	
Firm size 25 - 49	0.018	0.005	0.012	-0.112
	(0.61)	(0.11)	(0.49)	
Firm size 50 - 249	0.023	0.056	0.028	0.066
	(0.72)	(1.22)	(0.91)	
Firm size 250 - 499	0.026	0.108	0.062	0.026
	(0.63)	(2.55)	(2.01)	
Firm size 500 or more	0.067	0.141	0.103	0.006
	(2.11)	(3.93)	(3.83)	

Table 5: Continued

	Women	Men	All	Delta *100
% Female in occupation	-0.217	-0.140	-0.198	-0.680
	(5.52)	(2.62)	(5.91)	
Permanent job	0.052	0.095	0.072	0.158
	(2.60)	(2.91)	(3.82)	
Public sector	0.067	0.124	0.107	1.436
	(2.35)	(3.89)	(5.23)	
Number of Jobs	-0.012	-0.008	-0.011	1.032
	(3.25)	(1.31)	(3.14)	
Long term values				
Career development	0.026	-0.005	0.012	-0.187
	(2.90)	(0.24)	(1.19)	
Personal development	-0.011	0.004	-0.000	0.004
	(0.69)	(0.25)	(0.03)	
Job satisfaction	-0.006	-0.005	-0.007	-0.029
	(0.38)	(0.34)	(0.54)	
Financial reward	-0.049	-0.052	-0.050	-0.319
	(5.70)	(4.55)	(6.53)	
Status and respect	-0.017	-0.002	-0.009	-0.082
	(2.16)	(0.16)	(1.60)	
Valued by employer	0.016	-0.014	-0.004	0.195
	(1.42)	(1.05)	(0.48)	
Socially useful job	0.008	0.018	0.015	-1.059
	(1.07)	(1.88)	(2.31)	
International experience	-0.006	-0.026	-0.017	0.020
	(0.91)	(3.61)	(4.32)	
Rewarding leisure	-0.007	-0.008	-0.007	0.020
	(1.25)	(1.17)	(1.65)	
Concern: local issues	0.006	0.011	0.010	0.460
	(0.90)	(0.98)	(1.60)	
Concern: ecology	0.007	0.017	0.015	-0.135
	(1.34)	(2.44)	(2.98)	
Concern: current affairs	0.000	-0.002	-0.004	0.005
	(0.06)	(0.35)	(1.36)	

Table 5: Continued

	Women	Men	All	Delta *100
Career expectations				
Ambitious	-0.033	-0.047	-0.040	-0.135
	(4.41)	(5.14)	(6.71)	
Fulfilment from work	0.000	0.005	0.003	0.005
	(0.06)	(0.84)	(0.79)	
I live to work	0.000	-0.000	-0.001	-0.006
	(0.06)	(0.04)	(0.19)	
I work to live	-0.001	-0.000	-0.003	0.002
	(0.15)	(0.05)	(0.69)	
Work til retirement	0.024	0.022	0.026	0.399
	(3.54)	(2.84)	(4.88)	
Career breaks	-0.000	-0.007	0.008	-4.536
	(0.04)	(0.95)	(1.58)	
Partner take breaks	0.010	-0.024	-0.015	-0.957
	(1.64)	(2.59)	(3.34)	
Career change	0.004	0.021	0.012	1.448
	(0.88)	(2.46)	(2.10)	
Constant	7.561	7.479	7.516	
	(57.49)	(39.75)	(59.06)	
Observations	2872	2186	5058	
R-squared	0.38	0.45	0.42	

Note: Cohort of 1995 UK graduates. All statistics use population weights.
The specification also includes dummies for region of residence, a quadratic in labour market experience, dummies for age and ethnicity, as well as A-level score, type of institution, degree grade and additional qualification, and dummies for occupation. The base individual is aged less than 26, graduated in Arts from an old university with a 1st class honour degree, works as a manager in a firm of less than 10 employees.
The expectation variables are measured on an inverse scale 1=agree strongly and 6=disagree strongly, so that a negative sign represents a positive effect of a variable on wages.
t-ratios are reported in parentheses and are corrected for clustering at the institution level.
.

Table 6: Character traits and job matching

	Exactly job I wanted		Expect to change employer		Expect career break for family reason
	Female	Male	Female	Male	Female
Ln Wage	0.295	0.291	-0.106	-0.136	0.047
	(5.51)	(6.24)	(2.48)	(2.55)	(2.13)
Career development	-0.024	-0.023	-0.026	0.035	0.033
	(1.26)	(1.14)	(1.25)	(1.47)	(2.83)
Personal development	0.009	0.048	-0.027	-0.039	0.019
	(0.48)	(2.15)	(1.33)	(1.64)	(1.25)
Job satisfaction	-0.100	-0.120	0.040	0.006	0.012
	(2.85)	(3.42)	(1.91)	(0.22)	(0.83)
Financial reward	0.040	0.042	-0.020	-0.022	-0.005
	(2.33)	(2.06)	(1.44)	(0.99)	(0.53)
Status and respect	-0.044	-0.019	-0.005	-0.013	0.004
	(2.36)	(1.40)	(0.38)	(0.97)	(0.50)
Valued by employer	-0.013	0.008	-0.004	0.010	-0.005
	(0.65)	(0.26)	(0.20)	(0.55)	(0.40)
Socially useful job	-0.021	-0.019	-0.010	0.006	0.011
	(1.51)	(1.52)	(1.14)	(0.54)	(1.25)
International experience	0.009	0.007	-0.025	-0.027	0.022
	(0.77)	(0.60)	(2.20)	(2.71)	(4.16)
Rewarding leisure	-0.003	-0.025	-0.005	0.005	0.005
	(0.31)	(2.20)	(0.50)	(0.39)	(0.71)
Concern: local issues	-0.025	-0.025	0.014	0.036	-0.011
	(2.20)	(1.77)	(1.00)	(2.42)	(1.29)
Concern: ecology	0.035	0.030	0.006	-0.013	-0.008
	(2.72)	(1.97)	(0.57)	(0.97)	(1.23)
Concern: c. affairs	-0.005	0.014	0.024	0.024	-0.005
	(0.36)	(1.03)	(2.02)	(2.49)	(0.68)
Ambitious	-0.016	-0.034	-0.002	-0.035	0.018
	(0.77)	(2.26)	(0.16)	(2.85)	(1.81)
Fulfilment from work	0.027	0.041	-0.021	-0.044	-0.009
	(2.35)	(3.75)	(2.66)	(3.51)	(1.68)
I live to work	-0.040	-0.042	0.029	0.019	-0.007
	(3.70)	(2.10)	(2.21)	(2.05)	(0.98)
I work to live	0.031	0.004	-0.026	0.005	0.001
	(3.23)	(0.31)	(2.42)	(0.45)	(0.18)
Work til retirement	0.001	-0.002	0.000	0.003	0.019
	(0.08)	(0.20)	(0.05)	(0.25)	(2.33)
Career breaks	-0.022	0.014	0.039	-0.003	-0.152
	(1.74)	(1.03)	(2.97)	(0.20)	(11.18)
Partner take breaks	0.006	-0.027	-0.013	0.010	0.024
	(0.47)	(1.90)	(1.04)	(0.79)	(3.75)
Career change	0.124	0.062	-0.092	-0.081	0.006
	(10.98)	(4.66)	(5.73)	(6.39)	(1.05)
Pseudo R^2	0.236	0.161	0.094	0.098	0.252

Note: Cohort of 1995 UK graduates. All statistics use population weights.

The specification is identical to the one presented in Table 5, and adds the log of individual wage. Marginal effects from a probit model calculated at the mean value of the variables are reported.

The expectation variables are measured on an inverse scale 1=agree strongly and 6=disagree strongly, so that a negative sign represents a positive effect of a variable on wages.

t-ratios are reported in parentheses and are corrected for clustering at the institution level.

Annex I: Gender wage gap over time: Labour Force Survey 1998

Age	All education levels		Graduates only	
	Annual pay	Hourly pay	Annual pay	Hourly pay
16-19	0.077	0.011	-	-
20-24	0.111	0.036	0.101	0.063
25-29	0.166	0.066	0.133	0.080
30-34	0.226	0.106	0.191	0.123
35-39	0.315	0.188	0.235	0.164
40-44	0.376	0.243	0.274	0.204
45-49	0.381	0.255	0.286	0.211
50-54	0.396	0.268	0.294	0.214
55-59	0.329	0.199	0.307	0.243
Overall	0.300	0.184	0.278	0.214

Note: Pooled Quarterly Labour Force Survey (1998). The population includes full-time employees with positive wage only. Graduates are defined as possessing a qualification at NVQ level 4 or above. All calculations are based on log wages. All statistics are significantly different from zero with the exception of hourly pay for the age group 16-19.