Educational Segregation and the Gender Wage Gap in Greece

Ilias Livanos[1] & Konstantinos Pouliakas[2]

[1] *IER, University of Warwick &* [2] *University of Aberdeen Business School and IZA*

Abstract

Purpose

To investigate the extent to which differences in the subject of degree studied by male and female university graduates contributes to the gender pay gap in Greece, an EU country with historically large gender discrepancies in earnings and occupational segregation. In addition, to explore the reasons underlying the distinct educational choices of men and women, with particular emphasis on the role of wage uncertainty.

Design/methodology/approach

Using micro-data from the Greek Labour Force Survey (LFS), Oaxaca-Blinder decompositions are employed to detect the extent to which gender differences in the type of degree studied can explain the male-female pay gap. 'Risk-augmented earnings functions' are also used to examine the differential wage premiums offered to men and women in Greece in response to the uncertainty associated with different fields of study.

Findings

It is found that the subjects in which women are relatively over-represented (e.g. Education, Humanities) are also those with the lowest wage returns. Gender differences in the type of degree studied can therefore explain an additional 8.4% of the male-female pay gap in Greece. A potential reason for distinct gender educational choices is that women opt for less uncertain educations that consequently command lower wage premiums in the job market.

Practical Implications

The findings suggest that the promotion of gender equality in Greece should pay closer attention to removing informal barriers to entry for women in educational fields traditionally chosen by men (e.g. more effective careers advice, work-experience placements, matching of young girls with professional 'mentors').

Originality/value

The study is the first to investigate the contribution of individual's field of study to the gender wage gap in Greece. In addition, it includes the first-ever estimations of 'risk-augmented earnings equations' for that country.

Category: Research paper
Key Words: Gender wage gap, subject of degree, segregation, uncertainty, Greece
JEL- Code: J16, J24, J31, J71.

Acknowledgements

We are grateful for the helpful comments and suggestions of an anonymous referee of this journal. We also thank Evangelia Papapetrou, Daphne Nicolitsa, Heather Gibson, Panos Tsakloglou, Sally-Anne Barnes and participants at the 2nd International Conference of Educational Economics (Athens, 2008) and an internal seminar of the Bank of Greece (2009).

[1] (Corresponding author) Research Fellow, Institute for Employment Research, University of Warwick, Coventry, UK, Email: I.Livanos@warwick.ac.uk.

[2] Research Fellow, Centre for European Labour Market Research (CELMR) and Institute for the Study of Labour (IZA), University of Aberdeen Business School, Edward Wright Building, Dunbar Street, Old Aberdeen AB24 3QY, UK, Email: k.pouliakas@abdn.ac.uk, Tel. ++44 01224 272172, Fax: ++44 1224 272181.

1. Introduction

In the traditional theory of human capital (HC) the primary focus of empirical research has been on wage variation due to differences in *years* or *levels of schooling* (Becker, 1964; Mincer, 1974; Ben-Porath, 1967). In contrast, the implications that exist concerning *types* of human capital (e.g. fields of study) have been largely overlooked, primarily due to data limitations (Polachek, 1981, p. 60). By concealing most of the diversity in education, researchers have thus been constrained from making informed predictions about the occupational distribution (Blaug, 1976; Machin and McNally, 2007). Nevertheless, in recent years there has been an increasing focus on the phenomenon of female under-representation in particular degree subjects, which are generally associated with higher-paid occupations (Main, 1991; Kara, 2006). This implies that it is important to understand whether individual degree choices can account for a part of the gender wage gap that has typically been unexplained in the past.

This paper explores the extent to which gender differences in the choice of field of study have contributed to the gender pay gap in Greece. The case of Greece is examined as it is believed to provide a promising platform for research. Greece is an EU country with historically large gender wage discrepancies, while it also has one of the highest levels of occupational and sectoral gender segregation in the OECD (OECD, 2002). So far, the empirical evidence has not taken into account the issue of gender segregation. Instead, it has tended to attribute the pay gap to the existence of discriminatory practices against women (Kanellopoulos, 1982; Psacharopoulos, 1983; Kanellopoulos and Mavromaras, 2002; Papapetrou, 2004; Cholezas and Tsakloglou, 2006). However, the evidence to be presented in this paper shows that a non-trivial part of the gender wage gap in Greece arises due to the *ex ante* choices by women of less-financially rewarding academic streams (e.g. Arts, Humanities, Education). It is further detected that one of the reasons underlying these choices is that Greek women tend to seek refuge in fields with less "risky" earnings profiles, which subsequently command lower compensation in the job market.

Numerous studies in the past have utilised decomposition techniques in order to investigate the factors which give rise to gender differences in earnings (Blau and Kahn, 1997; Altonji and Blank,

1999). Nonetheless, this article contributes to the literature in several ways. First, it addresses the need for wider international evidence that examines the impact of educational choices on the wage distribution, and the gender pay gap in particular (Machin and McNally, 2007). Machin and Puhani (2003), O' Leary and Sloane (2005) and Napari (2008) are the only other studies to have examined this issue within a European labour market context. Furthermore, it examines what underlies the differences in educational choices between the sexes. Particular emphasis is given to the importance of uncertain earnings profiles for the selection of individual career paths. In this respect, this study estimates the first-ever '*risk-augmented Mincer earnings equations*' for Greece. This adds to a relatively new and growing literature on the implications of risky educational investments for earnings (Hartog, 2009). Finally, the findings of our study highlight that manipulation of the degree conferral process and the removal of career barriers may be crucial policy instruments for the reduction of earnings discrepancies between the two sexes in Greece.

Section 2 describes the available literature on the gender wage gap, focusing primarily on the case of Greece. Descriptive statistics of differences in the subject of degree and in the relative wages of men and women are then provided in Section 3. The relevant econometric methodology is outlined in section 4. Section 5 presents Oaxaca-Blinder decompositions of the gender pay gap from Mincerian earnings functions that initially exclude and subsequently include the type of degree as explanatory variable. Section 6 attempts to shed some light on the reasons for the gender disparity in educational choices in Greece. With the help of the first-ever 'risk-augmented Mincer earnings equations' (Hartog, 2009) estimated for this country, it is confirmed that Greek women tend to seek refuge in less uncertain educations that command lower compensation in the job market. Section 7 concludes with suggestions for future research and appropriate educational policies.

2. Literature Review

Following the increasing interest in the non-linearity of the returns to a university education (Heckman *et al*., 2003), a number of studies have examined the role of the field of qualification in the US context. For instance, Brown and Corcoran (1997), Eide (1994) and Loury (1997) find a sizeable

contribution of the field of major to the US gender wage gap, which in some cases explains up to 40-50% of the difference. By contrast, the lack of appropriate information in most available European datasets had previously inhibited the study of the contribution of educational gender segregation to the gender pay gap. Machin and Puhani (2003) is the first European study to have shown that women tend to select disciplines that offer lower lifetime earnings (e.g. Arts, Education and other Social Sciences), so that controlling for the subject of degree can explain a significant part (between 9 to 19%) of the gender pay gap in Britain and Germany. Napari (2008) finds a significantly larger contribution (36.8%) of gender differences in degree subject to the pay gap, using a unique panel dataset from the Confederation of Finnish Industries. Importantly, both Napari's (2008) and O'Leary and Sloane's (2005) studies corroborate that the above-mentioned effect is robust, and does not merely reflect unobserved (ability) heterogeneity between men and women that could potentially be driving their different choices of degree subject.

In Greece, a number of research papers studying the gender wage differential have shown that the ratio of female to male earnings has declined from around 35% in the 1970s to approximately 25-30% in the 1990s. It has also been argued that the largest part of the wage differential between Greek men and women cannot be explained by a discrepancy in their physical or human capital endowments. The earliest studies of Kanellopoulos (1982) and Psacharopoulos (1983) reported that discrimination accounted for around 60% and 89% of the observed pay gap in the mid-1960s and mid-1970s, respectively. Patrinos and Lambropoulos (1993) attribute the entire earnings gap of male and female workers employed in the Greek labour market in the years 1981 and 1985 to discrimination. Using samples from the 1988 and 1994 waves of the Household Budget Surveys, Kanellopoulos and Mavromaras (2002) have also credited the gender wage differential in Greece to discrimination, which takes place primarily through the adverse treatment of female labour market participation. In this study, the share of the gap that is unexplained declines substantially between 1988 and 1994 from 74% to 54%. This is believed to be the outcome of the intense legislative process promoting equality of opportunity in Greece (on the lines of the regulations and directives issued by the EU), as well as the increased labour force participation of women that has taken place in recent decades. Papapetrou

(2004) extends the analysis using the 1997 wave of the European Community Household Panel (ECHP), in order to estimate the differences in wages among the two sexes at various deciles of the wage distribution. By applying quantile regression techniques, her analysis shows that differences in employees' characteristics explain 41% of the gender wage differential in the entire sample, while the remaining 59% is due to differences in returns. She also illustrates that the largest part (37.5%) of the unexplained component is due to a female disadvantage (i.e. females receive lower wages relative to the non-discriminatory wage structure). Furthermore, the discriminatory element is found to vary along the earnings distribution, ranging from 59% in the 10^{th} percentile to 55% in the 90^{th} percentile. Cholezas and Tsakloglou (2006), using data from three Household Budget Surveys (1988, 1994, 1999) and a number of decomposition techniques, show that around three quarters of the observed gap can be attributed to discrimination in the more competitive private sector of the economy. Finally, Papapetrou (2007) investigates (using the EU-SILC database) whether the "glass-ceiling" experienced by women in the US and UK (i.e. underrepresentation in highly-paid positions) is applicable to the Greek context. She finds evidence of a widening discrepancy in the wages of higher educated Greek men and women as one move towards the upper rungs of the wage distribution.

There are plausible reasons to believe that the above studies may have overstated the "true" discrimination experienced by women in the Greek labour market. As acknowledged by Cholezas and Tsakloglou (2006, p. 14), "there is evidence that female labour force participants who were tertiary education graduates were concentrated in less rewarding disciplines, such as disciplines of Humanities and Social Sciences, while males were over-represented in the more rewarding disciplines of Science, Engineering and Medicine…It is likely that if such differences were controlled for, the earnings gap could have shrank further."

Moreover, as is evident by Figure 1, Greece shows one of the highest levels of both sectoral and occupational gender segregation amongst advanced Western economies (OECD, 2002). In particular, only 14 occupations (out of a total of 115) are found to be female dominated in this country. Karamesini and Ioakimoglou (2003) have attempted to control for this segregation by including controls for sector, occupation and tenure in their wage regressions. They argue that once the

occupational and sectoral effects are taken into account, discrimination accounts for only 27% of the observed gap in industry and for 24% in services. However, given that the concentration of women in particular sectors and occupations may well be part of the discrimination process operating within the labour market, the inclusion of such variables in the analysis is likely to make the proportion of the pay gap that is attributed to discrimination "artificially" low.

[INSERT FIGURE 1 HERE]

Importantly, occupational segregation experienced by women may be traced back to their educational choices between different types of academic degrees prior to them entering the job market. As this decision occurs *ex ante* it cannot be the outcome of discrimination, at least not in a labour market sense. It follows that controlling for the diverse distribution of types of university degrees amongst men and women may be crucial for understanding the pattern of wage differences that are observed between the two sexes. This is particularly the case once one considers that Greece has experienced a large expansion of its education sector in recent decades (Livanos, 2010a; Magoula and Psacharopoulos, 1999). Gender wage differences among individuals of higher educational attainment rates are therefore unlikely to be the outcome of 'traditional' labour market forces (e.g. lower participation of women, discrimination, marginal attachment to the labour force etc.), and are expected to reflect differences in productive characteristics instead (Papapetrou, 2007).

3. Data and Descriptive Statistics

The analysis draws on the most credibly available micro-data from the Greek Labour Force Survey (LFS) for the second quarter of the years 2000-2003. The Greek LFS is conducted by the National Statistical Service of Greece (ESYE). Since 1998, the LFS has been conducted four times per year in order to meet the standards set by Eurostat. The sample of the survey consists of 30,000 households and includes approximately 80,000 observations. The questionnaire used is comprised of approximately 100 questions and both the questions and the definitions are agreed internationally (European Communities, 2003). In this study the four cross-sections have been pooled together to create a unique dataset.

Those individuals that during the reference week worked at least one hour, or those that have a job even if they were absent in the reference period for reasons of illness/leave/strike etc, are classified as being "employed". In the sample 118,813 observations (43.6%) correspond to employed individuals, 13,185 are unemployed (4.9%) and 140,441 are inactive (51.5%). The percentage of inactivity and unemployment is considerably higher among females (62.5% and 5.7%, respectively) than males (39.5% and 3.9%, respectively). Amongst the employed, 39,383 are self-employed (33.1%) and 68,866 are in paid employment (57.9%). The remaining 10,564 (8.9%) are classified as assistants of the family business. For the purposes of this study the main sample retained and examined throughout the analysis includes *all paid employees*[3], who are aged between 16-64 years and have completed their studies, resulting in a total of 67.715 observations. 60% of the entire sample comprises male employees, while the remaining 40% are females.

Information on earnings in the Greek LFS data is collected in terms of the nominal net monthly wage (in euros) that the respondents receive from their main employment inclusive of any extraneous payments (such as Christmas and Easter bonus, annual leave remuneration and other irregular bonuses). Importantly, the database contains information on wage bands rather than precise wage levels, so the analysis has adopted the standard practice of utilizing the median wage per band as an approximation. Furthermore, it is worth noting that the available years of the survey (2000-2003) refer to a time period of relative price stability in Greece, which is associated with the strict macroeconomic preconditions required for entry into the eurozone. In particular, the European Harmonized Consumer Price Index (HPCI), which is used as the basis for collective wage agreements between the country's social partners, exhibited minor fluctuations across that period. For instance, the mean annual change in the HCPI ranged from 3.5% between the second quarter of the years 2000-2001, to 3.8% between 2001-2002 and 3.4% in 2002-2003 (Hellenic Statistical Authority, 2011). It is, therefore, evident that any small differences in average wages which might have arisen due to

[3] Self-employed individuals had to be left out of the analysis as there is no information about the income of this particular group in the LFS. Immigrants have also been excluded, given that we were unable to detect whether their university degree was obtained in Greece or in their country of origin.

price variations over the years are likely to be subsumed in the constant term and in the fixed time variables used in the empirical specification.[4]

Table 1, therefore, reports the difference between average male and female *nominal net monthly earnings* for each year of the sample (2000-2003). From the statistical data, it is clear that there is a notable gender gap in mean earnings, with women receiving on average approximately 85% of the earnings received by men.[5] Furthermore, it is important to highlight that even if the sample is restricted to include only permanent employees working full-time, which accounts for the fact that a larger proportion of women are employed in typically lower-paid temporary and/or part-time jobs, women continue to receive 87% of average male earnings.

Table 2 examines the discrepancy in wages of all paid male and female employees in Greece further, by breaking down the data according to the sector (public-private) in which the respondents are employed. The rationale for this is that in the sizeable Greek public sector the wage distribution tends to be more compressed, given that wage bargaining between the government and powerful public sector unions is the norm. In contrast, wages are more likely to reflect differences in gender productivity within the more competitive private sector of the economy. Indeed, Table 2 confirms this a priori expectation, as it is shown that the gender pay gap lies at around 20% in the private sector, as opposed to 10% in the public sector.

[INSERT TABLES 1 AND 2 HERE]

Table 3 presents descriptive statistics of some of the most important variables that may contribute to the discrepancy in pay rates observed between all male and female employees in Greece. Male workers are on average older than females. There is a 2% difference in the spread of male and female employees working in the private and public sectors, which is indicative of the positive anti-discrimination steps that the Greek state has taken in recent years in terms of hiring requirements in attractive public sector jobs. Larger gender differences are nevertheless observed in terms of the higher percentages of women who are employed in atypical contracts involving part-time or

[4] Indeed, the empirical results exhibit slight differences regardless of whether nominal or real wages are utilized in the analysis (output available upon request).

[5] This agrees with the most recent evidence of Papapetrou (2007) using the EU-SILC database for the years 2003-2004.

temporary work. Women are also found to work on average 3 hours less *per* week compared to men. Significant differences are detected with respect to the differential human capital characteristics of the two sexes, as measured by their educational attainment levels and the years of job tenure. Importantly, the percentage of tertiary education graduates appears to be higher among Greek women than men. By contrast, men enjoy (approximately three) more years of actual experience in their current jobs relative to women.[6] These patterns indicate that it is plausible that the higher earnings of male workers can be attributed to the fact that men are older, more experienced, work longer hours and are more likely to be in full-time and permanent jobs relative to women. In the first instance educational attainment does not appear to be a good indicator for the observed lower earnings of female employees.

[INSERT TABLE 3 HERE]

Crucially, Figure 2 and Table 4 illustrate that despite the fact that a larger proportion of females have matriculated from higher education institutions, there are marked differences in the degree subject studied compared to men. Women are more heavily represented in Law, Social Sciences, Humanities, Education, Librarianship and other medical-related sciences (such as speech therapy, physiotherapy, nursing etc.). In contrast, men are mostly found in the more technically-oriented academic schools, such as Polytechnics, Computer Science, Agricultural Studies, Physics and Mathematics, Medicine, Economics and Business and Physical Education. One can also calculate the so-called Duncan and Duncan Index of Dissimilarity (1955) in order to compare the extent of observed gender segregation (that arises due to preferences or discrimination) with what would pertain if the number of men and women within each field of study were equalized. This index is given as follows:

$$D = \frac{1}{2}\sum_{j=1}^{n}\left|f_j - m_j\right| \qquad (1)$$

[6] These patterns are in agreement with other studies that have used alternative Greek datasets in the past (Papapetrou, 2004; Cholezas and Tsakloglou, 2006).

where f_j and m_j refer to the frequencies of men and women within each field of study j. The computed value hence suggests that 32% of women in Greece would have to select an alternative degree if equality in the distribution of subjects between the two sexes was to be eventually achieved.

[INSERT FIGURE 2 HERE]

Given that predominantly male disciplines are characterized by higher average wage returns relative to those preferred by females, it becomes obvious that the subject of degree is a potential culprit for explaining the gender wage differential of university graduates in Greece. Indeed, it can be seen that the mean monthly wage of the '*male-dominated* (**MD**)' degrees is found to be equal to 954 euros, while that of the respective '*female-dominated* (**FD**)' subjects is significantly lower at 865 euros (H_0: $w_{MD} - w_{FD} = 0$; t-statistic = 15.17***).[7] The remainder of the paper investigates this hypothesis further using multivariate analysis.

[INSERT TABLE 4 HERE]

4. Econometric Methodology

The empirical analysis of the paper follows the standard decomposition framework of Oaxaca (1973) and Blinder (1973).[8] The procedure requires the estimation of separate earnings functions for male and female university graduates who are in paid employment. The gender wage gap is then deconstructed into a part that is attributable to differences in the mean productive characteristics (the explained part) and a part that is due to different returns to such characteristics (the unexplained part). In this manner, it becomes possible to detect the extent to which gender differences in the field of study contribute to wage differences between males and females.

Prior to estimating the earnings equations, it is necessary to correct for the potential non-randomness of the selected sub-samples of employed university graduates (Heckman, 1979). This is done by estimating a two-equation system, one for the endogenous choice into paid employment (that

[7] A predominantly female subject of degree is defined as any category where the female share exceeds 59%, the latter figure obtained by multiplying the total female share (39%) by 1.5 (a standard weighting factor).
[8] The analysis was replicated using the amended methodologies proposed by Neumark (1988) and Oaxaca and Ransom (1994), showing very similar results to the ones discussed in the paper.

is conditional on individuals having a university degree) and one for the main wage equation, using a maximum likelihood technique. Correlation between the random error terms of the two equations is then indicative of the presence of selectivity bias that will lead to biased estimates of the determinants in the wage equation.

The first-step selection equation into paid employment is based on probit estimation as follows:

$$E_i = \sum_{j=1}^{J} S_{ij}\delta_j + \mathbf{Z}_i\boldsymbol{\gamma} + u_i \qquad (2)$$

where, for each individual *i*, S_{ij} are dummy variables taking the value 1 if individual *i* graduated in a given subject *j* (*j* = 1,..., *J*) and 0 otherwise, **Z** is a vector of observable variables that includes at least one identifying exogenous variable that is orthogonal to the wage determination process, δ and $\boldsymbol{\gamma}$ are vectors of regression coefficients to be estimated and *u* is the error term. From equation (2), it is calculated that the realization of participation into paid employment, denoted by *E*, occurs with probability $\Phi(\sum_{j=1}^{J} S_{ij}\delta_j + \mathbf{Z}_i\boldsymbol{\gamma})$ whenever the latent employment variable E_i^* is positive ($E_i^* > 0$) and probability $1-\Phi(\sum_{j=1}^{J} S_{ij}\delta_j + \mathbf{Z}_i\boldsymbol{\gamma})$ when $E_i^* \leq 0$. φ and Φ are the standard normal and cumulative standard normal distribution functions, respectively.

The Mincer-type earnings functions that are subsequently estimated for each gender are defined as follows:

$$\ln W_{ij} = \sum_{j=1}^{J} S_{ij}\alpha_j + \mathbf{X}_i\boldsymbol{\beta} + \hat{\lambda}_i\delta + \varepsilon_i \qquad (3)$$

where W_{ij} are the monthly earnings of individual *i* who graduated in subject *j* (*j* = 1,…, *J*), S_{ij} are the *j* field of study dummy variables as defined above, $\boldsymbol{X}_i$ is a vector of personal and job characteristics which affect occupational earnings ($X < Z$), $\hat{\lambda}_i = \varphi(\sum_{j=1}^{J} S_{ij}\hat{\delta}_j + \mathbf{Z}_i\hat{\boldsymbol{\gamma}}) \Big/ \Phi(\sum_{j=1}^{J} S_{ij}\hat{\delta}_j + \mathbf{Z}_i\hat{\boldsymbol{\gamma}})$ is the inverse Mills ratio and ε_i is a random error term. The coefficients α_j subsequently indicate the

earnings premium that graduating from subject *j* imparts relative to the default case (usually the subject which has the lowest return). Furthermore, $\boldsymbol{\beta}$ is the vector of the marginal returns of the characteristics in $\boldsymbol{X}$ and δ is the coefficient on the selectivity correction term.[9]

The total difference in the mean wages of the two genders can then be decomposed in the conventional manner as follows:

$$\overline{W}_m - \overline{W}_f = (\overline{S}_m - \overline{S}_f)\hat{\alpha}_m + (\overline{X}_m - \overline{X}_f)\hat{\beta}_m + (\overline{\lambda}_m - \overline{\lambda}_f)\hat{\delta}_m + \\ + (\hat{\alpha}_m - \hat{\alpha}_f)\overline{S}_f + (\hat{\beta}_m - \hat{\beta}_f)\overline{X}_f + (\hat{\delta}_m - \hat{\delta}_f)\overline{\lambda}_f \quad (4)$$

The first part of equation (4) (i.e. the 'explained' part) measures the component of the average wage difference between the two genders that is attributed to differences in the means of the explanatory variables ($\overline{S}, \overline{X}, \overline{\lambda}$), which are in turn weighted by the estimated coefficients of the male equation ($\hat{\alpha}_m, \hat{\beta}_m, \hat{\delta}_m$). Therefore, the term $(\overline{S}_m - \overline{S}_f)\hat{\alpha}_m$ indicates the part of the discrepancy in wages that arises due to differences in the choice of degree subjects by men and women, $(\overline{X}_m - \overline{X}_f)\hat{\beta}_m$ refers to differences in the remaining measurable productive characteristics and $(\overline{\lambda}_m - \overline{\lambda}_f)\hat{\delta}_m$ captures the "participation penalty" term that arises due to gender differences in labour force participation. The second part (i.e. the 'unexplained' component) indicates the portion of the wage gap that is often ascribed to 'discrimination', as it measures the different manner with which the labour market rewards the mean characteristics of female employees. Thus, the terms $(\hat{\alpha}_m - \hat{\alpha}_f)\overline{S}_f$, $(\hat{\beta}_m - \hat{\beta}_f)\overline{X}_f$ and $(\hat{\delta}_m - \hat{\delta}_f)\overline{\lambda}_f$ signify whether there are dissimilar gender wage returns to an average degree subject, other characteristics and the mean participation probability of the female subsample, respectively.

[9] In addition to the estimation of equation (3), the main tables of output reported in Section 5 (Tables 5 and 6) also report estimates of an alternative specification of the earnings equation. In particular, the 16 field of study dummy variables are replaced by a binary variable, F_i, which indicates whether each individual, i = 1,..., N, is a holder of a FD degree or not i.e. $\ln W_{ij} = F_i\alpha + \mathbf{X}_i\boldsymbol{\beta} + \hat{\lambda}_i\delta + \varepsilon_i$.

5. Wage Decompositions

The output of the probit model explaining the selection of Greek university graduates into paid employment by gender is provided in Table 5. The results mirror the findings of previous studies of the determinants of labour market participation in the Greek labour market (Kanellopoulos and Mavromaras, 2002; Livanos *et al*., 2009).

In particular, it is found that the probability of employment has an inverse U-shaped relationship with age, marriage is detrimental to employment only for females, while head of households in Greece have a higher chance of being in employment. Regarding regions of residence, some strong regional disparities in the chances of employment for university graduates are observed, in accordance with the literature (Livanos, 2010b). Importantly, the regression also takes into account differences in the chances of employment that are associated with the different subjects studied. For instance, it is found that Law and Social Science male graduates have a lower chance of being in paid employment relative to the reference category (*Technical University - Agricultural Sciences*).[10] In contrast, graduation from Physics and Maths, Education, Humanities and Medical-related degrees (so-called "*female-dominated*") enhances the chances of female employment.

In order to identify this equation, an institutional feature of the Greek economy is exploited that is likely to affect the labour market participation decisions of individuals. In particular, according to Greek law families with more than four children are officially acknowledged as 'multiple child bearers'. This entails certain privileges and benefits paid by the Greek state, which are likely to manifest in an increase of the reservation wage. Therefore, an additional identifying variable is inserted into the first stage equation that separates individuals according to whether they are beneficiaries of the above subsidies or not. As expected *a priori*, this variable is found to be a significant negative predictor of the likelihood of employment in the female sub-sample only, with a calculated marginal effect that indicates a 7% reduced chance of employment for those women

[10] "*Technical University-Agricultural Sciences*" is chosen as the comparator group, given that a regression on the full sample of employees (i.e. including non-university graduates) indicates that this degree yields no significant benefit in terms of higher wages relative to secondary school graduates (Livanos and Pouliakas, 2010). Therefore, this particular group of university graduates is likely to serve as a useful anchor on which to base the wage returns of the remaining field of study variables. However, no significant changes to the results of the decomposition analysis (Section 6) are found when alternative reference groups are selected.

receiving the "multiple childbearing benefit". In addition, if this variable is used as an independent explanatory variable in the wage equation in the second stage, it is confirmed that it is a valid identifying variable in this context as it is a statistically insignificant determinant of earnings.

[INSERT TABLE 5 HERE]

Controlling for the effect of the academic degree on the probability of employment is crucial for the subsequent analysis, as the wage differentials between genders, shown in Table 6, should not reflect any participation penalties that workers of particular degree types may incur in the Greek labour market (Kanellopoulos and Mavromaras, 2002). The returns to broad types of university degrees reported in Table 6 are, therefore, robust to the fact that some of them may affect the probability of individuals entering the labour market.

The substantial diversity in the returns to particular degree programmes within the Greek labour market is discussed in detail in Livanos and Pouliakas (2010). Here it is highlighted that if one compares the earnings of holders of FD degrees (such as Education, Humanities, Librarianship and Medical-Related sciences) relative to those that have studied primarily MD subjects, it becomes clear that the former universally command lower wage returns in the job market relative to the latter. This is indicated in Panel A of Table 6 by the negative coefficients of the FD dummy variable found for *both* the male and female samples (and also by the lower wage returns of the FD fields of study in Panel B). However, an interesting finding is that the wage penalty for females (-2.6%) is smaller than for men (-4.2%) of similar characteristics who have also chosen to study FD subjects at university level (shown by the smaller size of the negative coefficient of the FD variable for the female sample). This is suggestive of a comparative advantage that female graduates of FD fields enjoy over their male counterparts. Furthermore, no significant evidence of a correlation between the error terms of the participation and wage equations is found (as shown by the insignificant LR test statistics in the last row of Table 6), so there is no indication of selectivity bias underlying the above findings.

[INSERT TABLE 6 HERE]

Table 7 explores the implications of the differential degree choices of men and women on the "explained" and "unexplained" part of the gender pay gap, along the lines of Machin and Puhani

(2003).[11] Specifically, the two columns of Table 7 compare the results of the wage decompositions with and without the subject of degree included as part of the control set. In other words, the decomposition of male and female earnings in Greece has been initially performed along the lines of equation (4), albeit without the inclusion of the "subject of degree" terms $(\bar{S}_m - \bar{S}_f)\hat{\alpha}_m$ and $(\hat{\alpha}_m - \hat{\alpha}_f)\bar{S}_f$. It is found that 71% of the discrepancy in wages can be "explained" solely on the basis of differences in the demographic and job characteristics of the two genders.[12] The analysis subsequently controls for the effect of subject of degree by incorporating the terms $(\bar{S}_m - \bar{S}_f)\hat{\alpha}_m$ and $(\hat{\alpha}_m - \hat{\alpha}_f)\bar{S}_f$ in the decomposition exercise. The increase in the proportion of the wage gap that can, therefore, be explained by the subject of degree variables is found to be quite significant. In particular, it is shown in the second column of Table 7 that an additional 8.4% of the male-female wage differential can be attributed to the differential choices of subject of degree by the two sexes. This corresponds very closely to the findings of Machin and Puhani (2003), which showed that the field of study explains around 9-19% of the gender wage gap in the UK and Germany.

The above decomposition methodology is replicated using estimates of separate earnings regressions undertaken on various subsamples of the workforce, such as private and public sector employees as well as recent entrants into the labour market.[13] Importantly, even after taking into account the type of degree only 67.8% of the gender pay gap can be explained by differences in the productive characteristics of male and female employees in the more competitive private sector. It is also interesting that a large proportion (9.8%) of the gender wage gap can be accounted for by the heterogeneity in academic disciplines in the private sector relative to the whole sample. This is

[11] Note that since we are considering a sample of university graduates only, the impact of educational qualifications is implicitly controlled for.

[12] Since the Mills ratio term was found to be an insignificant variable in the main estimation procedure (Table 6), it has not been included in the decomposition analysis since it would introduce an unnecessarily large amount of collinearity among the explanatory variables.

[13] The output of the earnings equations that were estimated separately by private or public sector and for new labour market entrants is available from the authors upon request.

reasonable, given that wages in the private sector are more likely to mirror any productivity differences that exist among male and female workers.[14]

Furthermore, Gerhart (1990) observes in a particular US firm that the contribution of university degree subject to the gender wage gap is likely to be strongest at the time of labor market entry, when workers are presumably still quite similar in terms of other individual background characteristics than education. For this reason, the importance of type of education in terms of accounting for the gender pay gap amongst new labour market entrants in Greece was explored. These are defined as individuals who have less than one year of job tenure and were university students one year before the survey. Interestingly, it is found that about 23.6% of the male-female pay differential of new entrants can be explained further after accounting for the disparity in academic degrees. This finding is similar to the respective 25% figure reported by Napari (2008) in Finland.

[INSERT TABLE 7 HERE]

6. Exploring Gender Differences in Educational Choices

The findings of this paper suggest that in an era of rising educational attainment levels, as observed in most OECD economies, attempts to establish gender wage equality should pay closer attention to the *educational degree choices* of men and women prior to entry into the job market. In particular, the promotion of gender pay equality should not only rest on a legislative process that focuses on "traditional" factors underlying the gender wage gap, such as female participation and employer discrimination. Although part of the discrepancy in choice of academic disciplines is driven by unobserved (ability) differences between men and women, academics and policymakers should focus more on measurable factors that lead to different human capital investments between the two sexes. A number of potential explanations for the gender disparity in educational choices are explored in the remainder of this section.

[14] The authors have also experimented with alternative specifications that include variables such as "tenure", "industry" and "occupation" in the earnings equation. In all cases it was found that the type of degree explains a significant and independent proportion of the gender wage differential, though the effect was somewhat muted due to the strong collinearity with the industrial and occupational variables.

Polachek (1981) illustrates how occupational variations in the cost of labour force intermittency may result in females choosing occupations that impose the smallest wage penalty given their desired participation, *ceteris paribus*. This line of reasoning has unambiguous implications for gender differences in educational-occupational choice, and, hence, wages. Moreover, the available models of occupational choice stress than an individual's choice of college subject is likely to depend on the gain in predicted future earnings (e.g. Freeman, 1971; Boskin, 1974; Berger, 1988; Montmarquette *et al*., 2002). However, in the face of recent evidence suggesting that pay is a secondary determinant of female job satisfaction (Pouliakas and Theodossiou, 2005, 2010), gender differences in choice of degree could also be explained by the comparative advantage that men and women enjoy in various jobs. For example, the estimates of Tables 5 and 6 have shown that female graduates of FD disciplines are more likely to be employed and to suffer from a smaller wage penalty relative to their male equivalents. This indicates that certain unobserved female traits might be valued more highly by employers in such female-driven occupations.

Related to the above is the well-documented higher risk aversion that typically characterizes women as compared to men (Grazier and Sloane, 2008). In this case one would expect to observe women selecting less uncertain career paths relative to men, which subsequently command lower wage premiums in the job market. In order to test this hypothesis within the Greek labour market context, the two-step methodology of McGoldrick (1995) and Hartog (2009) has been implemented, whereby the variance of earnings of a given education cell is taken as a measure of the uncertainty or "wage risk" associated with the respective human capital investment. In particular, a wage equation similar to equation (3) is estimated separately for each year of the sample, albeit with a parsimonious control set of variables that are known to the individual at the time of his/her selection of academic discipline (such as gender, age and region of residence). As suggested by Hartog (2009), dummy variables corresponding to the different degree subjects are also included as fixed effects. Measures of risk (R) and skewness (K) within the alternative field of study cells, j, are then calculated as the second and third moments of the distribution of $exp(\varepsilon_i)$, shown in equation (5), where ε_i are the estimated residuals:

$$R_j = \frac{1}{N_j}\sum_i (\varepsilon_{ij} - \bar{\varepsilon}_j)^2 \ , \ K_j = \frac{1}{N_j}\sum_i (\varepsilon_{ij} - \bar{\varepsilon}_j)^3 \qquad (5)$$

The wage risk variable, *R*, describes the variance of the residual distribution of each educational category or field of study. The measure of skewness, *K*, is also believed to capture the willingness of individuals to incur a wage loss by selecting educational degrees that are associated with only a small probability of receiving very high earnings. Following estimation of *R* and *K*, it is indeed confirmed that the so-called FD subjects are characterized by a lower mean level of risk (R_{FD} = 0.127) relative to their MD counterparts (R_{MD} = 0.166). This difference is also found to be statistically significant at conventional levels of significance (H_0: $R_{MD} - R_{FD} = 0$; t-statistic = 106.52***). Moreover, '*risk-augmented Mincer earnings functions*' are estimated by gender (Hartog, 2009). These regressions include *R* and *K* as controls in the wage equation (3) instead of the subject of degree dummies, as the latter are already included within *R* and *K*. The estimates are also adjusted for clustering at the field of study level.

The evidence in Table 8 indicates that on average women receive lower risk compensation relative to men in the Greek job market for subjects of a given degree of uncertainty. This is particularly the case in the private sector, whereby only men receive a compensating wage premium for uncertain educational degree prospects. In addition, the negative effect of skewness in the wage distribution is found to predominantly affect women. This implies that Greek women (but not men) receive significantly lower compensation if they select academic streams that offer a very small chance of ending up at the highest rungs of the earnings distribution.[15] Such conclusions are in-line with the results of a number of other cross-country studies in the literature (see Hartog and Vijverberg (2007) for the USA, Berkhout *et al*. (2010) for the Netherlands and Hartog (2009) for a

[15] For example, Papapetrou (2007) has shown that the "glass ceiling" phenomenon (i.e. fewer women succeeding in top executive positions relative to men) also permeates the Greek job market. In this case, women obtaining a Business degree (that offers them a small chance of becoming CEO in the future) might receive lower earnings *on average* relative to those who study for other degrees that have a more balanced distribution of rewards.

comprehensive survey of studies undertaken in the USA, China, Netherlands, Germany, Portugal and Spain).

[INSERT TABLE 8 HERE]

Finally, the importance of family, societal and cultural factors in determining the educational decisions of Greek students cannot be underestimated (Lianos *et al*., 2004). For instance, in the Greek LFS dataset it is found that approximately 45% of the respondents whose parents were graduates of a FD discipline also chose to study a FD subject. In contrast, only 28% followed such an academic path when their parents were graduates of MD fields instead.

7. Conclusions

This study investigates the extent to which differences in the subject of degree studied by male and female university graduates contributes to the gender pay gap. The case of Greece is used as an example given that it is an EU country with historically large gender discrepancies in earnings and occupational segregation. Using micro-data from the Greek LFS, it is found that the subjects in which women are relatively over-represented (e.g. Education, Humanities) are also those commanding the lowest wage returns. Oaxaca-Blinder decompositions subsequently indicate that controlling for such gender differences in the subject of degree can explain an additional 8.4% of the gender pay gap in Greece. As this corresponds closely to previously reported evidence from other European countries, this paper provides further confirmation that a sizeable part of the gender pay gap of university graduates in Europe can be attributed to the differential educational choices of men and women prior to entry into the job market. Recent advances that have integrated the role of uncertainty within the standard human capital earnings framework have also allowed us to estimate the first-ever 'risk-augmented Mincer earnings functions' for Greece. The results indicate that Greek women are similar to their European counterparts, in that they tend to find refuge in less risky educational types that command lower compensation in terms of pay. This is in accordance with the higher risk aversion of females that is typically presumed in the economic literature.

These findings suggest that, in addition to the traditional forces believed to contribute to the gender wage gap (e.g. participation penalty, discrimination etc.), the promotion of gender equality in Greece and in other advanced Western economies should pay closer attention to the educational choices of men and women prior to entry into the labour market. This could include measures that remove informal barriers to entry for women in occupations traditionally performed by men, or which challenge the phenomenon of gender stereotyping, similar to those used in the WISE campaign (*Women Into Science, Engineering and Construction*) in the UK (WISE campaign website, 2011).[16] For instance, such policies could manifest as work-experience placements for younger female students in typically MD occupations. Government programmes that team young girls together with successful professional female 'mentors', who are employed in non-standard roles, might also help to boost their confidence and to inform their university degree choice. Moreover, effective careers advice in Greek schools is essential, as career orientation classes have typically suffered in the past from a lack of skilled teachers, insufficient motivation among students and inadequate education-industry partnerships.

The above initiatives are likely to be particularly important in the face of the rapidly rising tertiary educational attainment levels observed in OECD economies. Indeed, in recent decades Greece has experienced considerable growth in the population share of tertiary education graduates (Psacharopoulos, 1990). Nevertheless, there is no evidence in the data to indicate that the distribution of university disciplines amongst male and female cohorts of graduates (as measured by the Duncan Index of Dissimilarity) has converged over time. It is therefore evident that future research should seek for a deeper understanding of the factors that underlie the selection of different academic degrees by men and women in Greece.

[16] The WISE campaign works with industry and education to inspire girls and attract them into Science, Technology, Engineering and Mathematics (STEM) studies and careers.

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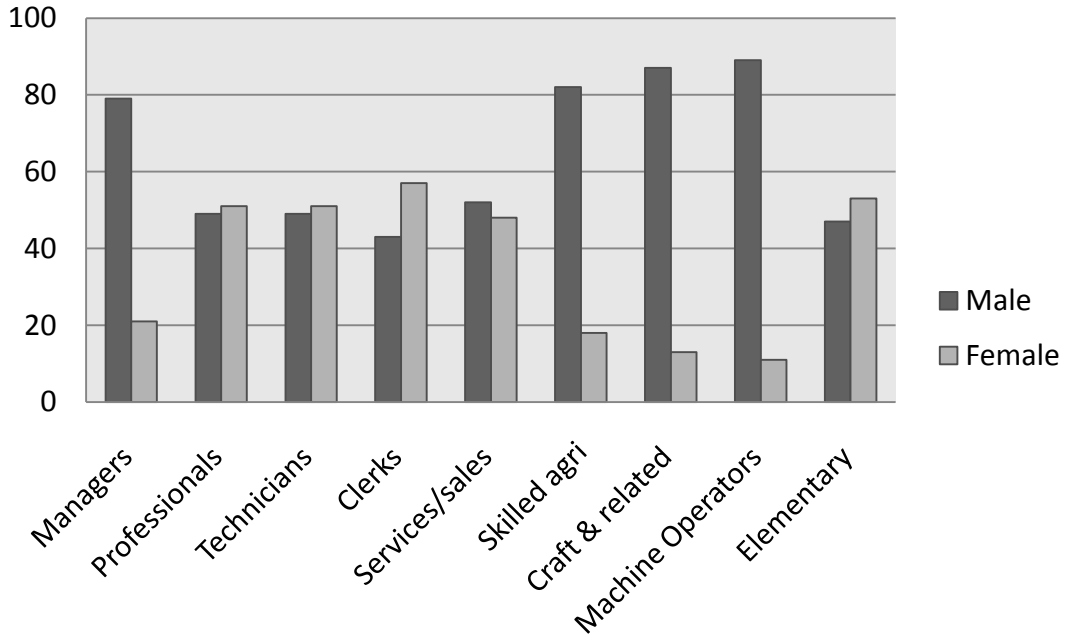
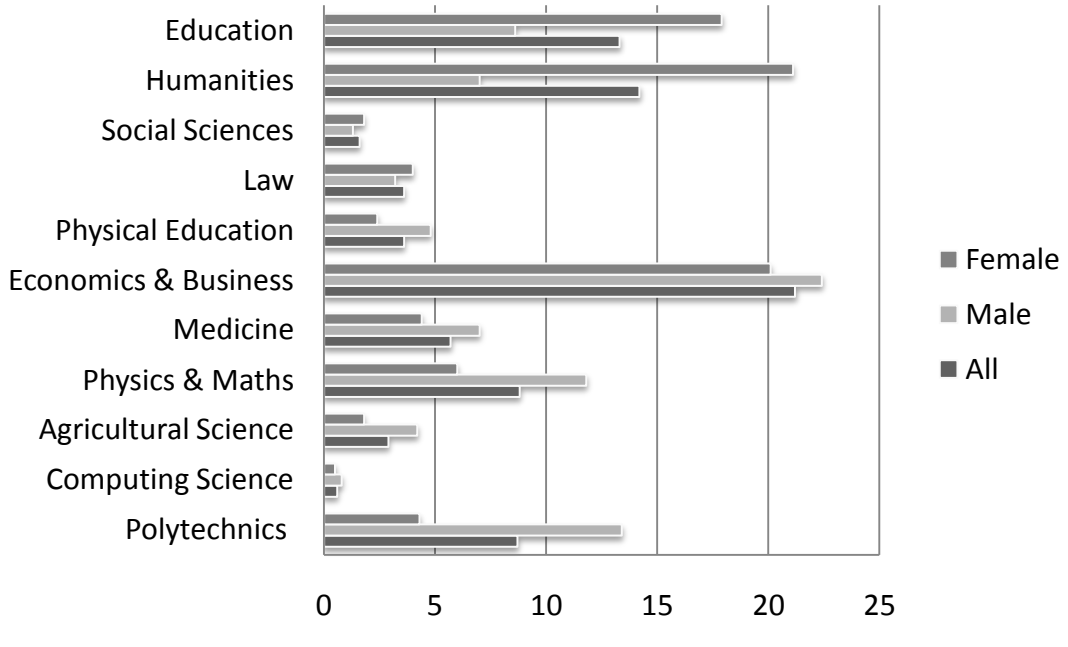
Figure 1
Distribution by Occupation and Gender, Greece



Source: Greek Labour Force Survey, 2000-2003

Figure 2
Distribution by Academic Discipline (AEI) and Gender, Greece



Source: Greek Labour Force Survey, 2000-2003; AEI stands for *Higher Education Institutes*.

Table 1 Mean net monthly earnings (€) by gender, all paid employees, Greece, 2000-2003

Year	All (W)	Male (W_m)	Female (W_f)	Wage ratio (W_f/W_m)
2000	735	783	660	0.84
2001	751	804	670	0.83
2002	775	826	700	0.85
2003	852	902	777	0.86
2000-2003	777	827	701	0.85

Table 2 Net monthly earnings (€) by gender and sector of employment, all paid employees, Greece, 2000-2003

	Public sector			Private sector		
Year	Male (W_m)	Female (W_f)	Wage ratio (W_f/W_m)	Male (W_m)	Female (W_f)	Wage ratio (W_f/W_m)
2000	903	801	0.89	712	569	0.80
2001	917	815	0.89	740	584	0.79
2002	941	842	0.90	761	614	0.81
2003	1011	918	0.91	842	694	0.82

Table 3 Descriptive statistics by characteristics and gender, all paid employees, Greece, 2000-2003

(%)	N	All	Male	Female
Male	41,034	60.60		
Married	42,770	63.16	65.64	59.36
Private	43,333	63.99	64.72	62.88
Part-time	2,294	3.39	1.63	6.09
Permanent	59,393	87.71	89.27	85.32
Occupation				
Legislators/managers	1,251	1.85	2.42	0.97
Professionals	10,193	15.05	12.13	19.55
Technicians/associates	6,306	9.31	7.54	12.04
Clerks	11,440	16.89	11.97	24.46
Services and Sales	11,040	16.30	13.86	20.06
Skilled agriculture etc.	622	0.92	1.24	0.43
Craft/trade	12,371	18.27	26.32	5.89
Plant/machine operators	6,492	9.59	14.13	2.59
Elementary	6,924	10.23	7.98	13.68
Education				
PhD	218	0.32	0.38	0.23

Masters	354	0.52	0.51	0.54
Higher Education Institutes (AEI)	12,980	19.18	15.45	24.90
Technical Education Institutes (TEI)	2,420	3.58	2.85	4.68
Tertiary non-university	6,519	9.63	7.62	12.73
Other	1,236	1.83	2.78	0.36
Secondary	30,321	44.80	47.43	40.75
Primary	13,639	20.15	22.98	15.80
Means				
Age	67715	33.14	39.99	37.87
Actual Hours	67715	40.30	41.51	38.45
Job tenure	33073	10.16	11.10	8.71
Total	67715	100.00		

Table 4 Differences in type of degree of employed university graduates, Greece, 2000-2003

	All				
	N	**%**	**Male (%)**	**Female (%)**	**Mean Wage by Subject (€)**
Higher Education Institutes (AEI)					
Polytechnic	1,338	8.69	13.36	4.25	1007
Computing Science	98	0.64	0.79	0.49	1010
Agricultural Science	455	2.95	4.22	1.75	924
Physics and Maths	1,355	8.80	11.77	5.97	944
Medicine	874	5.68	7.00	4.41	1161
Law	559	3.63	3.21	4.03	1009
Economics & Business	3,270	21.23	22.41	20.11	901
Social Sciences	240	1.56	1.33	1.77	928
Humanities	2,189	14.21	6.98	21.10	860
Physical Education	549	3.56	4.77	2.42	804
Education	2,053	13.33	8.56	17.87	905
Technical Education Institutes (TEI)					
Polytechnic	1,091	7.08	11.69	2.70	888
Agricultural Science	143	0.93	1.09	0.77	742
Food Technology	62	0.40	0.40	0.41	778
Librarianship	25	0.16	0.04	0.28	736
Medical-related	1,034	6.71	1.96	11.24	794
Applied Arts	65	0.42	0.41	0.43	797
Female-dominated (FD)	5,668	35.49	18.77	51.75	865
Male-dominated (MD)	10,304	64.51	81.23	48.25	954
Total	**15,400**	**100%**	**7,509**	**7,891**	**914**

Table 5 Participation into paid employment by gender, university graduates, Greece, 2000-2003

	Male	Female
(A) §		
Field of study		
Female-dominated (FD)	-0.017	0.110***
	(0.036)	(0.025)
(B)		
Higher Education Field		
Higher Education Institutes (AEI)		
Polytechnics	-0.091	0.068
	(0.146)	(0.137)
Computer Science	0.279	0.356
	(0.223)	(0.218)
Agricultural Science	0.110	0.359**
	(0.158)	(0.157)
Physics & Maths	0.138	0.373***
	(0.148)	(0.136)
Medicine	-0.072	0.148
	(0.150)	(0.137)
Law	-0.326**	0.056
	(0.157)	(0.139)
Economics & Business	-0.058	0.201
	(0.143)	(0.127)
Social Sciences	-0.377**	-0.029
	(0.177)	(0.150)
Humanities	0.048	0.245*
	(0.150)	(0.127)
Physical Education	-0.079	0.174
	(0.155)	(0.148)
Education	-0.071	0.364***
	(0.148)	(0.128)
Technical Education Institutes (TEI)		
Polytechnics	0.082	0.149
	(0.147)	(0.145)
Food Technology	0.350	-0.150
	(0.320)	(0.209)
Librarianship	-0.376	0.172
	(0.770)	(0.265)
Medical-related	0.106	0.450***
	(0.178)	(0.131)
Applied Arts	-0.076	0.162
	(0.268)	(0.212)
(omit: Technical Agricultural)		
(C)		
Explanatory variables		
Demographic		
Multiple child-bearer benefit	-0.027	-0.174***
	(0.058)	(0.055)
Age group		
25-34	1.926***	1.075***
	(0.059)	(0.047)
35-44	2.227***	1.419***
	(0.057)	(0.051)
45-54	2.169***	1.241***
	(0.058)	(0.054)

55-64	1.102***	-0.029
	(0.059)	(0.063)
(omit: 16-24)		
Married	0.061	-0.220***
	(0.046)	(0.033)
Head of Household	0.266***	0.140***
	(0.050)	(0.041)
Region of residence		
East Macedonia	0.158**	-0.106*
	(0.074)	(0.062)
Central Macedonia	0.224***	-0.111*
	(0.082)	(0.061)
West Macedonia	0.186**	0.061
	(0.095)	(0.079)
Ipeiros	0.065	-0.126*
	(0.073)	(0.064)
Thessaly	0.359***	0.020
	(0.081)	(0.064)
Ionian Islands	0.196	0.064
	(0.137)	(0.117)
Western Greece	-0.056	-0.132**
	(0.072)	(0.062)
Mainland Attica	-0.008	-0.060
	(0.082)	(0.079)
Rest of Attica	0.107	-0.224***
	(0.076)	(0.064)
Peloponnisos	0.087	-0.018
	(0.082)	(0.066)
North Aegean	0.014	-0.055
	(0.122)	(0.096)
South Aegean	-0.007	-0.018
	(0.111)	(0.096)
Crete	-0.015	-0.063
	(0.073)	(0.061)
Salonica	0.170***	-0.058
	(0.048)	(0.039)
(omit: Athens)		
Constant	-1.455***	-0.776***
	(0.156)	(0.135)
N	9958	11612
Wald $\chi^2(41)$	2816***	1759***
Pseudo R^2	0.35	0.13

Notes: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1; Time dummies are also included; Subjects in which the female share exceeds 59% of the total proportion are classified as "female-dominated" (FD); §The reported coefficients in panel (A) are obtained by estimating an Heckman earnings equation that replaces the multiple field of study variables in panel (B) with the binary FD variable; The estimates of the remaining control variables in panel (C) do not change when using either panel (A) or panel (B).

Table 6 Wage equations by gender, university graduates, Greece, 2000-2003

	Male	Female
(A) §		
Field of Study		
Female-dominated (FD)	-0.042***	-0.026***
	(0.010)	(0.007)
(B)		
Higher Education Fields		
Higher Education Institutes (AEI)		
Polytechnics	0.187***	0.172***
	(0.036)	(0.039)
Computer Science	0.328***	0.250***
	(0.053)	(0.059)
Agricultural Science	0.112***	0.095**
	(0.039)	(0.043)
Physics & Maths	0.151***	0.167***
	(0.036)	(0.039)
Medicine	0.290***	0.268***
	(0.038)	(0.039)
Law	0.215***	0.184***
	(0.041)	(0.039)
Economics & Business	0.168***	0.115***
	(0.035)	(0.037)
Social Sciences	0.177***	0.152***
	(0.048)	(0.043)
Humanities	0.112***	0.138***
	(0.037)	(0.037)
Physical Education	0.091**	0.055
	(0.038)	(0.042)
Education	0.136***	0.154***
	(0.037)	(0.037)
Technical Education Institutes (TEI)		
Polytechnic TEI	0.094***	0.053
	(0.036)	(0.041)
Food Technology	0.002	0.033
	(0.065)	(0.061)
Librarianship	0.216	0.005
	(0.212)	(0.070)
Medical-related	0.031	0.034
	(0.043)	(0.038)
Applied Arts	0.148**	0.066
	(0.069)	(0.060)
(omit: Technical Agricultural)		
(C)		
Explanatory Variables		
Demographic		
Age group		
25-34	-0.067	0.106***
	(0.052)	(0.027)
35-44	0.037	0.195***
	(0.056)	(0.031)

45-54	0.109*	0.258***
	(0.056)	(0.030)
55-64	0.166***	0.284***
	(0.042)	(0.025)
(omit: 16-24)		
Married	0.052***	0.064***
	(0.012)	(0.009)
Head of Household	0.074***	0.048***
	(0.013)	(0.010)
Job-related		
Usual Weekly Hours	0.002***	-0.000
	(0.001)	(0.000)
Full time	0.219***	0.378***
	(0.034)	(0.018)
Permanent contract	0.191***	0.190***
	(0.015)	(0.011)
Public sector	0.072***	0.146***
	(0.009)	(0.008)
Firm Size		
11-19	0.043***	0.074***
	(0.010)	(0.009)
20-49	0.075***	0.094***
	(0.012)	(0.010)
> 50	0.167***	0.154***
	(0.011)	(0.011)
Unknown > 10	0.070***	0.078***
	(0.013)	(0.012)
(omit: < 10)		
Constant	5.957***	5.626***
	(0.084)	(0.059)
N (uncensored)	9958 (6689)	11612 (7148)
R-squared	0.31	0.42
Wald $\chi^2(48)$	2932***	5023***
LR test ($\rho = 0$) $\chi^2(1)$	0.26	0.12

Notes: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1; Region and time dummy variables are also included as controls; Subjects in which the female share exceeds 59% of the total proportion are classified as "female-dominated" (FD); §The reported coefficients in panel (A) are found by estimating an Heckman earnings equation that replaces the multiple field of study variables in panel (B) with the binary FD variable; The estimates of the remaining control variables in panel (C) do not change when using either panel (A) or panel (B).

Table 7 Oaxaca-Blinder decompositions of gender wage differences of university graduates, Greece, 2000-2003

	Without subject of degree	With subject of degree
Whole sample		
Log(Wage Gap)	0.156	0.156
% Gap Explained	71.0	79.4
Increase in % Gap Explained		8.4
Private Sector		
Log(Wage Gap)	0.247	0.247
% Gap Explained	58.0	67.8
Increase in % Gap Explained		9.8
Public Sector		
Log(Wage Gap)	0.117	0.117
% Gap Explained	87.9	93.2
Increase in % Gap Explained		5.3
New entrants		
Log(Wage Gap)	0.295	0.295
% Gap Explained	65.9	89.5
Increase in % Gap Explained		23.6

Notes: The decomposition analysis on the whole sample including the subject of degree has been performed as in equation (4), using the estimated coefficients reported in Table 6; The output of the regression without the subject of degree dummies is not reported in the paper; The estimates of separate earnings regressions on private and public sector employees and new labour market entrants have also been used (not reported here), in order to obtain the decomposition figures shown in the table; All non-reported regressions are available from the authors upon request.

Table 8 Estimates of risk-augmented earnings functions, university graduates, Greece, 2000-2003

	Risk (R)	*t*	*Skew (K)*	*t*	*N*
Whole sample					
All	1.08**	2.44	-0.10*	-1.86	13837
Men	1.29***	3.31	-0.08	-1.64	6689
Women	1.03*	1.94	-0.14**	-2.08	7148
Private sector					
All	0.85	1.65	-0.02	-0.42	5399
Men	1.20*	2.05	-0.03	-0.47	2788
Women	0.64	1.73	-0.07	-1.59	2611
Public sector					
All	1.52**	2.67	-0.15*	-2.07	8438
Men	1.56**	2.96	-0.11*	-1.74	3901
Women	1.50**	2.19	-0.19**	-2.09	4537

Notes: The coefficients are obtained via estimation of the earnings equation (3), after replacing the field of study variables with measures of R and K (equation 5); R and K are derived as in Hartog (2009); s.e's robust and clustered by education type; ** p<0.05, * p<0.1; The remaining control variables (not reported here) are as in Table 6; The coefficients for the private and public sector are obtained via separate earnings regressions (not reported here but available upon request).