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Pouliakas, Konstantinos and Livanos, Ilias  
University of Aberdeen Business School, University of  
Warwick

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# The Gender Wage Gap as a Function of Educational Degree Choices in Greece

Pouliakas, K<sup>1</sup> & Livanos, I.<sup>2</sup>

**Key Words:** Gender wage gap, subject of degree, returns, risk, Greece  
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## Abstract

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 in Greece. The case of Greece is interesting as it is an EU country with historically large gender discrepancies in earnings and one of the highest levels of occupational gender segregation among OECD economies. Using micro-data from the most recently available waves (2000-2004) of the Greek Labour Force Survey (LFS), the returns to academic disciplines are firstly estimated by gender. It is found that the subjects in which women are relatively over-represented (e.g. Education, Humanities) are also those with the lowest amortization in terms of wage returns. Oaxaca-Ransom decompositions subsequently imply that gender differences in the type of degree studied can explain an additional 22.5% of the male-female pay gap in Greece. Risk-augmented earnings functions also indicate that Greek women seek for less risky educations that consequently command lower wage premiums in the job market. The findings of the paper suggest that the promotion of gender equality in Greece should pay attention to the educational choices of men and women prior to them entering the labour market, via efficient career counselling and educational reforms that heed to the signals of the labour market.

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<sup>1</sup> (Corresponding author) Invited Lecturer, University of Cyprus and Research Fellow, Centre for European Labour Market Research (CELMR), University of Aberdeen Business School, Edward Wright Building, Dunbar Street, Old Aberdeen AB24 3QY, UK – Tel. ++44 01224 272172, email: [k.pouliakas@abdn.ac.uk](mailto:k.pouliakas@abdn.ac.uk).

<sup>2</sup> Research Associate, Institute for Employment Research, University of Warwick, Coventry, UK.

## 1. Introduction

In the traditional theory of human capital (Becker, 1964; Mincer, 1974; Ben-Porath, 1967) the analysis has typically focussed on the amount of time devoted to the accumulation of the human capital stock that yields a given *level* of educational investment (e.g. PhD, Masters, university degree etc.). Based on this theoretical framework, much of the empirical work (as collated by Psacharopoulos, 1994) has largely focussed on estimating the rate of return to a *homogeneous* stock of human capital measured by variables such as years of schooling and/or levels of education. This assumption regards all workers as perfect substitutes in production at ratios proportional to their endowment of the time spend in the educational system and/or the associated educational qualification(s) obtained. “As such, *all* of the variation in wage rates can be attributed *only* to differences in *amounts* of human capital. *No implications exist concerning kinds of human capital*” (Polachek, 1981, p. 60).

Indeed, the standard human capital model has been criticized for its inability to yield any predictions concerning the occupational distribution (Blaug, 1976). The conventional practice of using years or levels of schooling as an explanatory variable in human capital earnings functions conceals most of the diversity of education. Yet there are plenty of reasons why considering variations in *types* of human capital may be as important as considering variations in *quantity*. For example, at the micro level interest continues to focus on the under-representation of women and minorities in many technical degree categories, which tend to lead to higher-paid occupations once the student has left school and entered the job market. Thus, by examining the kinds of human capital which people choose to invest in, one can explain important economic phenomena such as gender wage differentials, provided that the ultimate occupational distribution is a reflection of the initial spread of the fields of education.

What is clear from above is that consideration of the variation in types of educational investments may shed light into a much-researched question in the economics literature, namely why do wages differ between men and women in the labour market? Numerous studies in many developed or

developing countries have utilized standard decomposition techniques in order to investigate the factors which give rise to differences in earnings among genders (Altonji and Blank, 1999; Blau and Kahn, 1997). In Greece, in particular, an EU country which has historically seen large discrepancies in the earnings of male and female workers, the empirical evidence has tended to attribute the gender wage differential to the existence of discriminatory practices against women (Kanellopoulos, 1982; Psacharopoulos, 1983; Patrinos and Lambropoulos, 1993; Kanellopoulos and Mavromaras, 2002; Karamesini and Ioakimoglou, 2003; Papapetrou, 2004; Cholezas and Tsakloglou, 2006). Nevertheless, none of the aforementioned studies have taken into consideration the marked differences in the type of educational institutions in which men and women choose to enrol. Given the empirical evidence showing that women tend to be over-represented in less rewarding disciplines (e.g. Arts, Humanities, Education), it is therefore important to investigate the extent to which gender differences in the subject of degree contribute to the wage gap among the two sexes.

Examining this issue within the Greek labour market context assumes greater significance due to the fact that Greece is recently embarking on a major reform of its higher educational system that entails, most significantly, the relaxation of Article 16 of its constitution in which the provision of 'free' education for all Greek citizens is enshrined. This is expected to lead to the establishment of non-profit privately funded universities that will complement the existing state institutions. One of the main reasons underlying this initiative is the wide recognition that the zero opportunity cost of higher education has not only encouraged an over-supply of graduates, but has fostered their concentration into particular 'prestigious' disciplines (such as medicine and law) or those associated with a career in the influential Greek public sector (Katsanevas, 2002; OECD, 2005). This phenomenon underscores the importance of the weak labour market linkages to the degree-conferral process in Greece and brings into question the responsiveness of the higher educational system to changing national priorities, such as the desire of the Greek economy to secure competitiveness by becoming a knowledge-based hub in the South-eastern European region.

It is thus evident that for the sake of both the efficient allocation of human resources and the elimination of discriminatory barriers it is important to study the labour market implications of the

degree selection process. The focus of this paper is therefore on the effect of controlling for the type of academic degree in standard wage decompositions. Section 2 provides a brief overview of the Greek educational system, while section 3 describes the available literature on the gender wage gap in Greece. Descriptive statistics of the differences in the subject of degree and in the relative wages of Greek men and women is then provided in Section 4, while the relevant econometric methodology is outlined in section 5. Using microdata from the most recently available waves (2000-2004) of the Greek Labour Force Survey (LFS), the differential gender returns to various academic disciplines are subsequently estimated in Section 6. Section 7 presents Oaxaca-Ransom decompositions of the gender pay gap from Mincerian earnings functions that initially exclude and subsequently include the type of degree as explanatory variable. In section 8 the first-ever 'Risk-augmented Mincer earnings equations' (Hartog, 2006) are estimated for Greece, which indicate that Greek women tend to seek refuge in less risky educations rather than require higher compensation in wages. Finally section 9 concludes with suggestions for future research and appropriate educational policies.

## **2. Features of the Greek Educational System**

The tertiary education system in Greece is divided into University Education, which is provided by the Universities (AEI), and Higher Technological Education, which is provided by the Technological Educational Institutes (TEI). The University System includes the Universities, the Polytechnics, the Higher Fine Arts Institute and the Hellenic Open University. There are 20 universities in Greece located in various towns. There are also 14 Technological Education Institutes. The main distinction between AEI and TEI are that TEI courses are of shorter duration relative to those offered by AEI, are more practically oriented and the entry requirements are in general lower.

Greece has experienced a rapid increase in its student population in recent decades, stemming primarily from the higher incomes that its citizens have enjoyed, as well as the tendency of both its political leaders and citizens to view education as the main determinant of the country's future growth prospects and driver for the elimination of socio-economic disparities. The number of students that are enrolled in Greek universities has surged in the past four decades from just over 20.000 in 1960 to

over 500.000 students at the end of 2002 (Papamatthaioy, 2002). These figures exclude the large number of Greeks that are enrolled in university courses abroad (Psacharopoulos, 1990). Despite this large expansion of the educational sector in recent decades, it has been argued that the returns to a university education in Greece have been surprisingly resilient (Magoula and Psacharopoulos, 1999; Cholezas and Tsakloglou, 1999).

A cause of greater concern, in the face of the rising graduate figures, is the tendency of students to select university disciplines that are regarded as ‘prestigious’ or as acting as a passport for entry into the historically large, and superior in terms of overall working conditions, Greek public sector. For instance, in the academic year 1999/2000 it was estimated that one in two students of higher education were registered in courses that are associated with the conventional fields of law, education, or medicine. By contrast, only one in twenty students were registered in high-tech departments concerned with information technologies (Papamatthaioy, 2002).<sup>3</sup> As noted by Psacharopoulos (2003), the problem lies in the fact that the direct costs of education are zero (since higher education is free in Greece), so individuals choose their studies according to criteria of social status rather than their future employment prospects. In addition, there is little uncertainty regarding the probability of dropping out due to poor performance, since students can remain within the university system for as long as they wish. All of these facts illustrate that a large part of the significant investment of Greeks in human capital has been directed towards professions that are not necessarily linked to the needs of the labour market.<sup>4</sup> In fact, the weak link between the educational system in Greece and the labour market has been persistently highlighted by the European Commission (1996) and the OECD (2005), both of which have argued that Greek universities are

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<sup>3</sup> As noted by Katsanevas (2002), Greece has by far the largest ratio of doctors or lawyers per head in the EU. In the year 2000 one lawyer corresponded to every 338 residents, compared to the average EU ratio of 1:850, while the ratio of doctors per residents in the whole country stands at 1/185 (in Athens it is 1/150), compared to 1/350-400 in the EU (Fyntanidoy, 2001).

<sup>4</sup> These negative prospects have been confirmed by Katsanevas (2002), who studied “the balance of supply and demand of professions.” In this research the data concerning the supply and demand of 14 extended groups of professions, including therein 700 partial specialties, were considered and their future prospects predicted. Clearly, the conventional fields of medicine, law, and education were classified as having very negative prospects for the future. At the same time the fields of IT, telecommunications and of new technologies, in general, presented very promising opportunities.

merely producing ‘degree holders’ who, in the face of the shrinking public sector, have a higher probability of experiencing unemployment or underemployment.

Imbalances in the supply and demand of particular professions in Greece are expected to result mainly in higher joblessness or underemployment and not in lower wages *per se*. The reason is the relative wage rigidity that characterizes the Greek labour market, since sectoral and enterprise pay rates are usually dictated by minimum effective floors that are set by national general collective agreements. An interesting question, therefore, is the extent to which the above-mentioned supply patterns have affected the returns to various fields of study, or whether they have resulted in higher unemployment.<sup>5</sup>

### 3. Literature Review

#### 3.1 *The returns to subject of degree*

Most studies in the literature have focussed on calculating the rate of return to years of schooling or to various academic qualifications without taking into consideration the variation in the fields of study. This has also been typically the case in Greece, whereby there exist a number of papers investigating the private returns to a university education (e.g. Cholezas and Tsakloglou, 1999; Magoula and Psacharopoulos, 1999; Kanellopoulos et al., 2003; Prodromidis and Prodromidis, 2007). Of course, failure to differentiate amongst the *types* as opposed to the *level* of education in the past is likely to have been a consequence of the lack of appropriate information in most available labour force datasets.

Given the increasing interest in the non-linearity of the returns to a university education, there now exist a limited number of studies that have examined the role of the field of qualification in the US and UK context. In the US Brown and Corcoran (1997), Eide (1994) and Loury (1997) find a sizeable contribution of the field of major to the US gender gap in wages, which in some cases explains up to 40-50% of the difference. Similarly, Walker and Zhu (2001) and Blackaby, Murphy

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<sup>5</sup> The relationship between field of study and graduate employment prospects in terms of both the probability of unemployment and the time spent in unemployment whilst looking for a job is addressed in Livanos (2008).

and O'Leary (1999) show using data from the UK LFS that the rates of return to courses such as Law, Economics and Mathematics were significantly higher in the 1990s than those of Arts, Education and other Social Sciences. Significant gender differences in the rates of return are also reported, with women tending to select the latter disciplines which offer lower lifetime earnings. Recently, O'Leary and Sloane (2008) have also attempted to correct for the fact that part of the return to particular disciplines may reflect a positive quality effect. Using Leslie's (2003) index of student quality as control, they find that the inclusion of the index has a substantial yet not dramatic effect on their estimates. Overall their results demonstrate that men enjoy greater rewards from programmes which are of a more quantitative nature than women.

Finally, the study which is of most relevance for the analysis undertaken in this paper is Machin and Puhani (2003). Those authors find (using the UK and German LFS of 1996) that controlling for subject of degree explains a significant part (between 9 to 19 percent) of the gender wage gap amongst British and German graduates.

### *3.2 The gender pay gap in Greece*

There exist a relatively limited number of research papers studying gender wage differentials in Greece. These have usually shown that the ratio of female to male earnings has declined from around 35% in the 1970s to approximately 25-30% in the 1990s, and that the largest part of the wage differential between Greek men and women cannot be explained by the 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. In Patrinos and Lambropoulos (1993) the entire gender earnings gap of workers employed in the Greek labour market in the years 1981 and 1985 is attributed 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 the employees' characteristics explain 41.02% of the gender wage differential in the entire sample, while the remaining 58.98% is the component due to differences in returns. She also illustrates that the largest part of the unexplained component is due to a female disadvantage (37.5%), whereby females receive lower wages relative to the non-discriminatory wage structure, and that the discriminatory element varies along the earnings distribution (it ranges from 59% in the 10<sup>th</sup> decile to 55% in the 90<sup>th</sup> percentile). Cholezas and Tsakloglou (2006) is the most recent investigation of the gender wage differential in Greece. Using three Household Budget Surveys (1988, 1994, 1999) and a number of decomposition techniques, they show that in the more competitive private sector of the economy around three quarters of the observed gap should be attributed to discrimination.

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 (Ministry of Education, 1995; Gouvias, 1998)...It is likely that if such differences were controlled for, the earnings gap could have shrank further."

Moreover, Greece shows one of the highest levels of both sectoral and occupational gender segregation amongst the group of 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, 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.

Importantly, what may underlie the occupational segregation experienced by women are the educational choices that they make between different types of degrees whilst they are still at the schooling stage of their lives. As this decision occurs prior to entry into the job market, 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 males and females may be crucial for our understanding of the pattern of wage differences that are observed between the two sexes.

#### **4. Data and Descriptive Statistics**

The analysis draws on micro data from the Greek Labour Force Survey (LFS) for the second quarter of the years 2000-2004. The Greek LFS is conducted by the National Statistical Service of Greece (ESYE). Since 1998, the LFS is being conducted four times per year in order to meet the standards set by Eurostat. The yearly 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 based on the European LFS.

Employed are considered 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. In the years 2000-2004 the employed amounted to 150.309 observations, of which 49763 were self-employed (33.11%) and 87677 were salaried employees (58.33%). The remaining 12869 (8.56%) were classified as assistants of the family business. For the purposes of this study a sample of paid employees only who have completed their studies and who are aged 15 years and above is retained, resulting in a total of 86066 observations. 60% of the entire sample is comprised of male employees while the remaining 40% are females.

In Table 1 the difference between male and female average earnings is reported for each year of the sample (2000-2004). Earnings are calculated as the net monthly wage 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). 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. Table 2 examines this discrepancy in wages further by breaking down the data according to the sector (public-private) in which the respondents were 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 potential gender differences in productivity within the more competitive private segment of the economy. Indeed, Table 2 confirms this a priori expectation as it is shown that the pay gap between genders lies at around 20% in the private sector, as opposed to 10% in the public sector. The higher average wages received by workers in the public relative to the private sector are also confirmed, which arise perhaps due to the fact that state jobs attract a disproportionate amount of highly-skilled individuals (Kanellopoulos, 1997).

**[INSERT TABLES 1 AND 2 HERE]**

Tables 3-4 present descriptive statistics of the most important variables that may contribute to the above discrepancy in pay rates among men and women. A greater proportion of male workers is concentrated at the upper part of the age distribution relative to women, leading to a higher average age of men. There is an equiproportionate spread of male and female employees between the private and public sector, which is indicative of the positive anti-discrimination steps that the Greek state has taken in recent years in terms of hiring requirements for the attractive public sector jobs. Large gender differences are nevertheless observed in terms of the higher percentages of women that are employed in atypical contracts involving part-time or temporary work. For this reason, women are found to work on average 3 hours less per week compared to men. Significant differences are also

detected with respect to the differential human capital characteristics of 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 within their current jobs relative to women.<sup>6</sup> The above 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. At first sight educational attainment does not appear to be a good candidate for the observed lower earnings of female employees.

**[INSERT TABLES 3 AND 4 HERE]**

Crucially, Table 5 illustrates that despite the fact that a larger proportion of females have matriculated from higher education institutions, there are marked differences in the degree subject in which they have graduated from compared to men. Women are more heavily represented in Law, Social Sciences, the Humanities, Education, Librarianship and other medical-related sciences (e.g. 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. Given that the subject of degree is found to be strongly correlated with an individual's subsequent occupation<sup>7</sup>, and that the latter degrees are higher-paid disciplines than the former<sup>8</sup>, it becomes obvious that the subject of degree is a potential culprit for explaining the gender wage differential in Greece. The remaining part of the paper therefore turns to an extensive investigation of this hypothesis.

**[INSERT TABLE 5 HERE]**

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

<sup>7</sup> The Pearson correlation coefficient among the type of degree and the occupation of an individual is found to be 0.61 in the dataset, which is notably high.

<sup>8</sup> The average wage of the 'male-dominated' degrees is found to be equal to 1052.38 euros while that of the respective 'female-dominated' subjects is significantly lower (989.53 euros).

## 5. Econometric Methodology

The empirical analysis of the paper follows closely the standard decomposition framework of Neumark (1988) and Oaxaca and Ransom (1994). In order to implement this procedure, separate earnings functions for men and women are estimated on a sample of *university graduates* only, initially without controlling for the subject of degree and subsequently by including the degree dummies as controls in the regression. The Mincer-type earnings functions that are fitted are defined as follows:

$$\ln E_{ij} = \sum_{j=1}^J S_{ij} \alpha_j + X_i \beta + \varepsilon_i \quad (1)$$

where  $E_{ij}$  are the monthly earnings of individual  $i$  who graduated in subject  $j$  ( $j = 1, \dots, J$ ),  $S_{ij}$  is a dummy variable taking the value 1 if individual  $i$  graduated in that subject and 0 otherwise,  $X_i$  is a vector of personal and job characteristics which affect occupational earnings and  $\varepsilon_i$  is a random error term. The coefficient  $\alpha_j$  is subsequently the earnings premium that graduating from subject  $j$  imparts relative to the default case (usually the subject which has the lowest return), while  $\beta$  is the vector of the marginal returns of the characteristics in  $X$ .

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

$$\begin{aligned} \ln \bar{W}_m - \ln \bar{W}_f &= (\bar{S}_m - \bar{S}_f) \hat{\alpha}^* + (\bar{X}_m - \bar{X}_f) \hat{\beta}^* + \\ &+ [(\hat{\alpha}_m - \hat{\alpha}^*) \bar{S}_m + (\hat{\alpha}^* - \hat{\alpha}_f) \bar{S}_f + (\hat{\beta}_m - \hat{\beta}^*) \bar{X}_m + (\hat{\beta}^* - \hat{\beta}_f) \bar{X}_f] \end{aligned} \quad (2)$$

where the estimated  $\hat{\alpha}^*, \hat{\beta}^*$  coefficients refer to the Oaxaca-Ransom non-discriminatory wage structure that is obtained by estimated the rates of return based on the pooled sample of both the male and female demographic groups. As usual, the first part of equation (2) measures the component of the average wage difference between the two genders that is attributed to differences in the means of the explanatory variables, which are in turn weighted by the estimated coefficients of the non-

discriminating wage structure – the ‘explained’ component. The term in brackets then refers to the part of the wage gap that is ascribed to ‘discrimination’ or is ‘unexplained’, as it measures the different manner with which the labour market rewards the characteristics of male and female employees relative to the benchmark pooled wage structure.

## **6. The Returns to Subject of Degree in Greece**

### *6.1 Earnings functions and Returns to Educational Qualifications in Greece*

Prior to describing the influence of the type of university degree on the gender wage differential in Greece, Table 6 outlines the empirical estimates of Mincerian earnings equations that are computed based on the entire sample of our dataset and including the *levels* of educational attainment as controls (as is typically performed in the literature).<sup>9</sup> The findings are in agreement with previous studies confirming the positive contribution of higher education to productivity in Greece (Magoula and Psacharopoulos, 1999; Cholezas and Tsakloglou, 1999; Prodromidis and Prodromidis, 2007), as well as the fact that the private rates of return to education are higher for women than for men (Papapetrou, 2004; Cholezas and Tsakloglou, 2006). For instance, an undergraduate university degree (AEI) is associated with a monthly earnings premium of 29% relative to the omitted primary level qualification, with women experiencing a much higher earnings boost (36%) compared to comparable men (25%). An interesting observation is that the labour market seems to offer lower rewards to those degrees that are obtained by Technological Educational Institutes (TEI). This reflects the fact that entry requirements are generally lower in TEI Schools, and signifies that there is a long way to go until the degrees awarded by these institutions are of an equivalent standing to those of AEIs. In fact, the private rates of return to a TEI degree are found to be similar to those of individuals who have graduated from the so-called Institutes of Professional Orientation (IEK) and other Colleges. The latter constitute the primary candidates for being recognized as privately-run

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<sup>9</sup> In order to accurately capture the rates of return to the different types of educational investments, a relatively robust set of explanatory variables has been selected. This follows the suggestion of Pereira and Martins (2004), who argue that to obtain the full effect of education on earnings one should avoid the inclusion in the wage equation of covariates that reflect post-schooling decisions that are correlated with the level of educational attainment, such as the attributes of an individual’s job.

non-profit university institutions should the state monopoly of tertiary education be repealed. Finally, marked returns to post-graduate qualifications are also found, confirming that in an era of a rapidly expanding supply of highly educated labour, merely holding an undergraduate university degree may not serve as a sufficient distinguishing mark for students any longer.

**[INSERT TABLE 6 HERE]**

The effect of the remaining variables that are included in the wage equation conforms to the familiar patterns that have been reported in the literature, namely upward-sloping age-earnings profiles; marriage yielding an wage premium over other marital states; immigrants receiving substantially lower wages compared to natives; full-time and permanent work enjoying higher remuneration relative to part-time or temporary jobs; the average wage being higher in the public than in the private sector for both genders (Papapetrou, 2006); larger firms offering a compensating wage differential; and wage rates varying substantially among regions. The year dummies also indicate substantial wage gains over the period 2000-2004, which is not surprising given that during that time Greece was enjoying a long period of sustained economic growth as a result of the huge construction and housing boom that preceded the hosting of the Athens 2004 Olympic Games.<sup>10</sup>

Importantly, a statistically significant deficiency in the wages of women relative to men is also confirmed by the negative female dummy variable. All other things being equal, a 13% wage penalty is found to be experienced by Greek female workers relative to their male counterparts.

## *6.2 Returns to Subject of Degree in Greece*

Although there are significant rewards to a university education that are found to be greater for women rather than men, the substantial diversity in the returns to particular degree programmes is masked in Table 6. This is evident from Table 7, which displays the estimates of equation (1) for a pooled sample of *university graduates* only and disaggregated by gender. In this Table the returns to

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<sup>10</sup> Inclusion of the variables “hours of work” and “job tenure” in the regressions also illustrates a positive relationship between hours and wages and positive yet decreasing returns to tenure for both genders. However, these variables have not been used in the main analysis due to missing data for the years 2000, 2001 and 2003.

broad types of degrees at undergraduate university level are compared to the subject that yields the lowest wage premium relative to a secondary level education, namely “TEI Agricultural Sciences”.<sup>11</sup>

It is evident that the financial returns vary according to the type of academic School that individuals attend. Specifically, the estimates of the pooled sample reveal that the subject that commands the largest monetary mark-up in Greece is Medicine (27.7%), followed by Computer Science (23.7%), Law (19.9%) and Polytechnics (18.8%). Graduates of Economics and Business courses, as well as Education, Physics and Mathematics are in the middle of the discipline rankings, commanding wage premiums of around 14-18%. At the end of the spectrum are the subjects of Social Sciences (14.1%), Humanities (13.3%), Agricultural Science (12.5%) and Physical Education (6.9%), while the TEI courses also feature quite low in the rankings. It is noticeable that with the exception of TEI Polytechnics (9.7%) and Applied Arts (8.1%) the remaining Technical Education degrees do not offer superior rewards relative to the base category of TEI Agricultural Studies (and hence secondary education).

**[INSERT TABLE 7 HERE]**

The general conclusion that women have more to gain from a university education arises once again when comparing the returns to different types of degrees between the two sexes. However, although Medicine, Computer Science and Law come up first in the discipline rankings for both men and women (see Table 8), clear differences in the rankings of some subjects emerge. Specifically, Economics and Business, Social Sciences and Applied Arts degrees are found to be more lucrative for male rather than female employees. On the other hand, Education and Humanities are stronger performers in the case of women, as are Medical-Related diplomas obtained from TEIs.

**[INSERT TABLE 8 HERE]**

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<sup>11</sup> “TEI Agricultural Sciences” are chosen as the comparator group as this degree is found to yield no statistically significant benefit in terms of higher wages in comparison to secondary school graduates. The choice of using the secondary school dummy as benchmark was motivated by the desire to compare the returns to degrees with those who *could* have pursued further education but did not do so. The relevant regression output is available from the authors upon request.

From the above rankings one can therefore draw the conclusion that fears regarding the saturated job market prospects of the fields of Medicine and Law, following an “overflow” of physicians and lawyers in the Greek labour market, have not materialized in terms of lower wage returns to these occupations. Instead, once one takes into consideration the evidence of Livanos (2008), who shows that the aforementioned fields enjoy comparatively low chances of employment and high chances of unemployment duration in Greece, the logical conclusion is that these professions are characterized by a kind of dual labour market. In other words, even though the port of entry may be difficult, the prospects are quite bright in terms of earnings once the individual succeeds in getting on the job ladder.<sup>12</sup> Moreover, the bright prospects of Computer Science, in terms of both the high financial returns and low probability of unemployment (see Livanos, 2008), is evidence of the fact that the demand for skills associated with new technologies in Greece has outpaced the available supply of such graduates.<sup>13</sup> Finally, the low wage and employment prospects of graduates of Social Sciences, Humanities, Physical Education, Food Technology and Librarianship is indicative of the fact that these fields have a marginal role to play in the rising service sector of the Greek economy and in the face of a shrinking public sector which has traditionally employed this group of graduates. The low returns of Agricultural Studies is also a consequence of an expanding supply of graduates despite the fact that the share of the agricultural sector, which for many decades constituted the core activity of the Greek economy, has been contracting in the last 2-3 decades.

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<sup>12</sup> It needs to be pointed out, though, that graduates of law and medicine usually turn to self-employment as a safety net against unemployment, which is an issue that is not addressed in this study.

<sup>13</sup> Pouliakas (2003) has built a model that attempts to explain the reluctance of students to opt for courses associated with new technologies on the basis of the intensified risk and uncertainty that is associated with investments in such high-tech skills. According to his model, computer science skills face a higher probability of becoming obsolete due to the continuously changing technical infrastructure, relative to more conventional subjects whose core practices have been more insulated from the invasion of technology throughout time. He also illustrates in the spirit of ‘new growth theory’ that due to the asymmetrical effect that high-tech skills exert on technology, underinvestment in high-tech skills in Greece may have a detrimental effect on the long-run growth potential of that economy.

## 7. Wage Decompositions and the Gender Wage Gap in Greece

The analysis above has shown that the patterns of degree choice among Greek men and women differ to a considerable extent and that the subjects in which women are relatively over-represented (such as Education, Humanities, Librarianship and Medical-Related sciences) are also those with the lowest amortization in the labour market in terms of wage returns. Table 9 therefore explores the implications of these differential choices of subject of degree on the “explained” part of the gender pay gap, along the lines of Machin and Puhani (2003).<sup>14</sup> Specifically, the two columns of the Table compare the results of the wage decompositions with and without the subject of degree included as part of the control set. Using the main specification of the earnings equation as in Table 6 above, it is found that the effect of controlling for broad subject of degree is quite significant, explaining an additional 0.016 log points or 22.5% of the male-female wage differential. Importantly, once the type of degree is accounted for, almost 93% (70%) of the gender pay gap can be explained in the public (private) sector in terms of differences in the productive characteristics of male and female employees. It is also interesting that the heterogeneity in the different types of educational investments explains a larger proportion of the gender wage gap in the private rather than in the public sector. This is reasonable given that wages in the private sector are more likely to mirror any productivity differences that exist among male and female workers.<sup>15</sup>

[INSERT TABLE 9 HERE]

## 8. Gender Differences in Educational Choices

In accordance with the conclusions of Machin and Puhani (2003) for the UK and Germany, the findings of this paper suggest that the promotion of gender equality in Greece, and any associated reduction in the gender pay gap, should not only rest on a legislative process that is geared towards

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<sup>14</sup> Note that since we are considering a sample of university graduates only, the impact of educational qualifications is implicitly controlled for.

<sup>15</sup> We have also experimented with alternative specifications that include variables such as “Hours worked”, “Tenure”, “Industry” and “Occupation” in the earnings equation. In all cases the conclusion that the type of degree approximately explains an additional 20% of the gender wage differential persists.

the manipulation of the existing mechanisms of the labour market. Instead, attempts to establish gender equality should also pay attention to the educational choices of men and women between types of degrees prior to them entering the labour market. What this implies is that the focus of interest among academics and policymakers should turn to the potential differences in the determinants of human capital investments between the two sexes.

For instance, Polachek (1981) provides a simple illustration of how, given different patterns of labour force participation across men and women, occupational variations in the cost of labour force intermittency result in people choosing that occupation that imposes the smallest penalty given their desired participation, *ceteris paribus*. This line of reasoning has unambiguous implications for gender differences in occupational choice, and, hence, wages. Moreover, the available models of occupational choice (e.g. Freeman (1971), Boskin (1974), Berger (1988) and Montmarquette *et al.* (1997)) stress that an individual's choice of college major is likely to depend on the gain in predicted future earnings. However, in the face of substantial evidence from the job satisfaction literature (EPICURUS, 2007; Pouliakas and Theodossiou, 2005) that has suggested that pay is not a dominating factor in terms of the job satisfaction of women, gender differences in choice of degree could also be explained in terms of the differential 'tastes' of men and women for the various pecuniary and non-pecuniary aspects of jobs. In other words, men may be more prone to selecting those fields that are likely to lead to substantial monetary advantages in the future, while women may be choosing their careers on the basis of other intrinsic factors.

Related to the above point is the well-documented higher measured risk aversion that typically characterizes women as compared to men. In this case one would expect to observe women selecting less risky career paths (that subsequently command lower wage premiums) relative to men, or to request higher risk compensation in pay for occupations which are similar in terms of their level of uncertainty. In order to test this hypothesis within the Greek labour market context, the two-step methodology of McGoldrick (1995) and Hartog (2006) has thus been implemented, whereby the variance of earnings of a given education cell is taken as a measure of the uncertainty associated with the respective human capital investment. Risk-Augmented Mincer Earnings functions (Hartog, 2006)

that include measures of risk and skeweness as controls in a wage equation are then estimated by gender. The evidence, as shown in Table 10, indicates that on average the greater concentration of Greek women among less risky educations can, in turn, potentially account for the lower (and non-significant) compensation claimed by women relative to men in the Greek job market.<sup>16</sup> Such a conclusion is in line with the results of a number of other studies in the literature using data from other countries (e.g. Berkhout et al. (2006) for the Netherlands or see Hartog (2006) for a survey).

**[INSERT TABLE 10 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).

## **9. Conclusion**

This study has investigated 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, a country with historically large gender discrepancies in earnings and high levels of occupational gender segregation. Using micro-data from the most recently available waves (2000-2004) of the Greek LFS, it was found that the subjects in which women are relatively over-represented (e.g. Education, Humanities) are also those with the lowest wage returns. Oaxaca-Ransom decompositions subsequently indicate that controlling for such gender differences in the subject of degree can explain an additional 22.5% of the male-female pay gap in Greece. Risk-augmented Mincer earnings functions also indicate that Greek women tend to find refuge in less risky educations that consequently offer lower compensation in terms of pay.

These findings suggest that the promotion of gender equality in Greece should pay attention to the educational choices of men and women prior to them entering the labour market. Given the weak link between the education system and labour market outcomes that is observed in the Greek

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<sup>16</sup> Indeed, the mean level of risk among women is found to be statistically lower than that of men as indicated by a two-sample t-test ( $t = 7.52$ ).

economy, efficient career counselling that emphasizes the wage and employment prospects of the various disciplines as suggested in this paper is paramount. There is also a need for future educational reforms that will heed to the signals of the labour market and promote those courses that are more valued in the marketplace.

## References

- Altonji, J.G. and Blank, R.M. (1999), *Race and Gender in the Labor Market*, in O. Ashenfelter and D. Card (eds.): *Handbook of Labor Economics*, Vol. 3, Amsterdam: Elsevier, pp. 3143-3259.
- Becker, S.G. (1964), *Human Capital: A theoretical and empirical analysis with special reference to education*, 3<sup>rd</sup> ed., University of Chicago Press: Chicago.
- Ben-Porath, Y. (1967), 'The production of human capital and the life cycle of earnings', *Journal of Political Economy*, Vol. 75, pp. 352-365.
- Berger, M. C. (1988), 'Predicted Future Earnings and Choice of College Major', *Industrial and Labor Relations Review*, Vol. 41, No. 3, pp. 418-429.
- Berkout, P., Hartog, J. and Webbink, D. (2006), 'Compensation for Earnings Risk under Worker Heterogeneity', IZA Discussion Paper No. 2074.
- Blackaby, D., Murphy, P. and O'Leary, N. (1999), 'Graduate Earnings in Great Britain: A Matter of Degree?', *Applied Economics Letters*, Vol. 6, pp. 311-315.
- Blau, F.D. and Kahn, L.M. (1997), 'Swimming Upstream: trends in the Gender Wage Differential in the 1980s', *Journal of Labor Economics*, Vol. 15, pp. 1-42.
- Blaug, M. (1976), 'Human Capital Theory : A Slightly Jaundiced Survey', *Journal of Economic Literature*, Vol. 14, pp. 827-855.
- Boskin, M. (1974), 'A Conditional Logit Model of Occupational Choice', *Journal of Political Economy*, Vol. 82, No. 2, pp. 389-98.
- Brown, C. and Corcoran, M. (1997), 'Sex-Based Differences in School Content and the Male-Female Wage Gap', *Journal of Labor Economics*, Vol. 15, pp. 431-465.
- Cholezas, I. and Tsakloglou, P. (1999), 'Private returns to education in Greece: A review of the empirical literature', in R.Asplund and P.T. Pereira (eds) *Returns to human capital in Europe: A literature review*, ETLA, Helsinki.
- Cholezas, I. and Tsakloglou, P. (2006), 'Gender Earnings Differentials in the Greek Labour Market', *Economic Policy Studies*, forthcoming.
- Eide, E. (1994), 'College Major Choice and Changes in the Gender Wage Gap', *Contemporary Economic Policy*, Vol. 12, pp. 55-64.
- European Commission (1996), *Labour Market Studies: Greece*, Employment and Social Affairs, Luxembourg.

- EPICURUS (2007), 'Societal and Economic Effects on Quality of Life and Well-being: Preference Identification and Priority Setting in Response to Changes in Labour Market Status', *EU Research on Social Sciences and Humanities Report No. EUR 23133*, European Communities: Belgium.
- Freeman, R. B. (1971), *The Market for College Trained Manpower*, Harvard Uni Press: Cambridge.
- Fyntanidou, E. (2001), 'Doctor Inflation in Greece', *To Bhma (Greek newspaper)*, 17 June, No. B13289A421.
- Hartog, J. (2006), 'A Risk Augmented Mincer Earnings Equation? Taking stock', unpublished mimeo.
- Kanellopoulos, C.N. (1982), 'Male-female pay differentials in Greece', *Greek Economic Review*, Vol. 4, pp. 222-241.
- Kanellopoulos, C.N. (1997), 'Public-private wage differentials in Greece', *Applied Economics*, Vol. 29, pp. 1023-1032.
- Kanellopoulos, C.N. and Mavromaras, K.G. (2002), 'Male-female labour market participation and wage differentials in Greece', *Labour*, Vol. 16, pp. 771-801.
- Kanellopoulos, C.N., Mitrakos, T. and Mavromaras, K.G. (2003), *Education and Labour Market*, Center for Planning and Economic Research, Scientific Studies no. 50: Athens (in Greek).
- Karamesini, M. and Ioakimoglou, I. (2003), 'Determining factors of the earnings gap between men and women', KETHI, Athens (in Greek).
- Katsanevas, (2002), *Professions of the Future and the Past*, Patakis Press : Athens (in Greek).
- Leslie, D. (2003), 'Using Success to Measure Quality in British Higher Education: Which Subjects Attract the Best-Qualified Students?', *Journal of the Royal Statistical Society*, Vol. 166, pp. 329-347.
- Lianos, T.P, Asteriou, D. and Agiomirgianakis, G.M. (2004), 'Foreign university graduates in the Greek labour market: Employment, salaries and overeducation', *International Journal of Finance and Economics*, Vol. 9, pp. 151-164.
- Livanos, I. (2008), 'Exploring graduate prospects by field of study : an analysis of the Greek labour market', unpublished mimeo, University of Warwick.
- Loury, L.D. (1997), 'The Gender Earnings Gap among College-Educated Workers', *Industrial and Labor Relations Review*, Vol. 43, pp. 418-433.
- Machin, S. and Puhani, P.A. (2003), 'Subject of degree and the gender wage differential: Evidence for the UK and Germany', *Economics Letters*, Vol. 79, pp. 393-400.
- Magoula, T. and Psacharopoulos, G. (1999), 'Schooling and monetary rewards in Greece: an over-education false alarm?', *Applied Economics*, Vol. 31, pp. 1589-1597.
- McGoldrick, K. (1995), 'Do women receive compensating wages for earnings risk?', *Southern Economic Journal*, Vol. 62, pp. 210-222.
- Mincer, J. (1974), *Schooling, experience and earnings*, Columbia University Press: NY.
- Montmarquette, C., Cannings, K. and Mahseredjian, S. (2002), 'How do Young People Choose College Majors?', *Economics of Education Review*, Vol. 21, No. 6, pp. 543-556.
- Neumark, D. (1988), 'Employers' Discriminatory Behavior and the Estimation of Wage Discrimination', *The Journal of Human Resources*, Vol. 23, pp. 279-295.
- Oaxaca, R. and Ransom, M. (1994), 'On Discrimination and the Decomposition of Wage Differentials', *Journal of Econometrics*, Vol. 61, pp. 5-21.

- OECD (2002), 'Women at Work: Who are they and how are they faring?', Ch 2, *Employment Outlook*: Paris.
- OECD (2005), *Economic Surveys: Greece*, OECD: Paris.
- O'Leary, N.C. and Sloane, P.J. (2008), 'The Return to a University Education in Great Britain', mimeo, University of Swansea, UK.
- Papamathaioy, M. (2002), '500.000 students in Greek AEI', *To Bhma (Greek newspaper)*, 20 Oct, No. B13694A411.
- Papapetrou, E. (2004), 'Gender Wage Differentials in Greece', *Bank of Greece Economic Bulletin*, Vol. 23, pp. 47-64.
- Papapetrou, E. (2006), 'The unequal distribution of the public-private sector wage gap in Greece: evidence from quantile regression', *Applied Economics Letters*, Vol. 13, pp. 205-210.
- Patrinos, H.A. and Lambropoulos, H. (1993), 'Gender discrimination in the Greek labour market', *Education Economics*, Vol. 1, 153-164.
- Pereira, P. and Martins, P. (2004), 'Returns to Education and Wage Equations', *Applied Economics*, Vol. 36, pp. 525-531.
- Polachek, S. W. (1981), 'Occupational Self-Selection : A Human Capital Approach to Sex Differences in Occupational Structure', *The Review of Economics and Statistics*, Vol. 63, No. 1, pp. 60-69.
- Pouliakas (2003), *Modeling Human Capital in the Face of Uncertainty: Suboptimal Educational Choices and Implications for Development*, University of Oxford M.Phil Thesis.
- Pouliakas, K. and Theodossiou, I. (2005), 'Socio-Economic Differences in the Perceived Quality of High and Low-Paid Jobs in Greece', *Bank of Greece Economic Bulletin*, Vol. 24, January, p. 91-132.
- Prodromidis , K.P. and Prodromidis, P.I. (2007), 'Returns to education: the Greek experience, 1988-1999', *Applied Economics*, pp. 1-8, iFirst.
- Psacharopoulos, G. (1983), 'Sex discrimination in the Greek labour market', *Journal of Modern Greek Studies*, Vol. 1, pp. 339-358.
- Psacharopoulos, G. (1990), *Greek education: A modern tragedy*
- Psacharopoulos, G. (1994), 'Returns to investment in education: A global update', *World Development*, Vol. 22, pp. 1325-1343.
- Psacharopoulos, G. (2003), 'The social cost of an outdated law: Article 16 of the Greek constitution', *European Journal of Law and Economics*, Vol. 16, pp. 123-137.
- Walker, I. and Zhu, Y. (2001), *The Returns to Education: Evidence from the Labour Force Surveys*, Research Report for Dept of Education and Skills, No. RR313, November.

**Table 1**  
**Mean net monthly earnings (€) disaggregated by gender,**  
**Greece, LFS, 2000-2004**

<b>Year</b>	<b>All (W)</b>	<b>Male (W<sub>m</sub>)</b>	<b>Female (W<sub>f</sub>)</b>	<b>Wage ratio (W<sub>f</sub>/W<sub>m</sub>)</b>
2000	730	777	658	0.85
2001	774	826	693	0.84
2002	829	880	750	0.85
2003	953	1010	868	0.86
2004	1072	1147	962	0.84
2000-2004	872	927	788	0.85

**Table 2**  
**Net monthly earnings (€) by gender and sector of employment,**  
**Greece, LFS, 2000-2004**

<b>Year</b>	<b>Public sector</b>			<b>Private sector</b>		
	<b>Male (W<sub>m</sub>)</b>	<b>Female (W<sub>f</sub>)</b>	<b>Wage ratio (W<sub>f</sub>/W<sub>m</sub>)</b>	<b>Male (W<sub>m</sub>)</b>	<b>Female (W<sub>f</sub>)</b>	<b>Wage ratio (W<sub>f</sub>/W<sub>m</sub>)</b>
2000	896	798	0.89	706	568	0.80
2001	942	843	0.89	761	604	0.79
2002	1002	901	0.90	812	658	0.81
2003	1142	1030	0.90	938	772	0.82
2004	1355	1211	0.89	1022	803	0.79

**Table 3**  
**Descriptive Statistics by Groups and Gender (%),**  
**Greece, LFS, 2000-2004**

	N	All	Male	Female
<b>Gender</b>				
Male	51,974	60.39		
Female	34,092	39.61		
<b>Marital status</b>				
Married	54,739	63.6	65.83	60.2
Single	31,327	36.4	34.17	39.8
<b>Age group</b>				
15-24	6,779	8.05	7.6	8.75
25-34	25,927	30.8	29.11	33.39
35-44	24,994	29.69	27.98	32.31
45-54	19,536	23.21	24.98	20.5
>55	6,941	8.25	10.33	5.05
<b>Sector</b>				
Private	54,818	63.69	64.41	62.6
Public	31,248	36.31	35.59	37.4
<b>Hours status</b>				
Part-time	3,030	3.52	1.67	6.35
Full-time	83,036	96.48	98.33	93.65
<b>Contract status</b>				
Temporary	10,567	12.28	10.7	14.68
Permanent	75,499	87.72	89.3	85.32
<b>Occupation</b>				
Legislators/managers	916	1.83	2.4	0.98
Professionals	7,655	15.32	12.5	19.56
Technicians/associates	4,719	9.44	7.66	12.12
Clerks	8,700	17.41	12.47	24.86
Services and Sales	8,270	16.55	14.26	19.99
Skilled agriculture etc.	436	0.87	1.16	0.44
Craft/trade	9,277	18.56	26.89	6.01
Plant/machine operators	4,863	9.73	14.48	2.57
Elementary	5,141	10.29	8.18	13.47
<b>Education</b>				
PhD	331	0.41	0.46	0.32
Masters	527	0.65	0.62	0.69
AEI	15,165	18.6	15.19	23.8
TEI	3,181	3.9	3.13	5.08
Tertiary non-uni	8,435	10.35	8.22	13.59
Other	1,688	2.07	3.15	0.43
Secondary	38,451	47.17	49.94	42.96
Primary	13,736	16.85	19.29	13.13

**Table 4**  
**Sample means (s.d) of variables by gender, Greece, LFS, 2000-2004**

	All	Male	Female
Age	39.15 (10.81)	39.96 (11.21)	37.93 (10.05)
Hours	40.29 (8.22)	41.51 (7.71)	38.43 (8.62)
Job Tenure	10.13 (9.23)	11.06 (9.73)	8.72 (8.21)

**Table 5**  
**Gender Differences in Type of Degree, Greece, LFS, 2000-2004**

	All		Male (%)	Female (%)	Mean Wage by Subject (€)
	N	%			
<b>AEI</b>					
Polytechnic	1.675	9.13	13.8	4.63	1122
Computing Science	147	0.8	1	0.61	1099
Agricultural Science	507	2.76	3.91	1.66	1059
Physics and Maths	1.690	9.21	12.29	6.24	1052
Medicine	1.125	6.13	7.5	4.81	1272
Law	681	3.71	3.12	4.28	1113
Economics & Business	2.820	15.37	17.68	13.14	1076
Sociology	315	1.72	1.42	2	1029
Humanities	2.822	15.38	7.57	22.92	974
Physical Education	730	3.98	5.31	2.7	924
Education	2.652	14.46	9.32	19.41	1041
<b>TEI</b>					
Polytechnic	1.414	7.71	12.57	3.02	1011
Agricultural Science	214	1.17	1.41	0.93	852
Food Technology	83	0.45	0.47	0.44	888
Librarianship	37	0.2	0.07	0.33	840
Medical-related	1.353	7.38	2.18	12.39	911
Applied Arts	80	0.44	0.4	0.47	865
<b>Total</b>	<b>18.345</b>	<b>100%</b>	<b>9.009</b>	<b>9.336</b>	<b>1040</b>

**Table 6**  
**Wage Equations by Gender, Greece, LFS, 2000-2004**

<i>Variables</i>	(1) <b>All</b>	(2) <b>Male</b>	(3) <b>Female</b>
<b>Education</b>			
PhD	0.434*** (0.018)	0.401*** (0.021)	0.519*** (0.032)
Masters	0.383*** (0.016)	0.339*** (0.021)	0.462*** (0.023)
AEI	0.293*** (0.004)	0.247*** (0.005)	0.361*** (0.006)
TEI	0.195*** (0.006)	0.161*** (0.008)	0.248*** (0.009)
Tertiary non-uni (e.g. IEK/Colleges)	0.167*** (0.004)	0.158*** (0.006)	0.210*** (0.007)
Other (e.g. military schools)	0.235*** (0.007)	0.231*** (0.008)	0.292*** (0.026)
Secondary	0.097*** (0.003)	0.077*** (0.004)	0.152*** (0.006)
<b>Female</b>	-0.130*** (0.002)	0 (0)	0 (0)
<b>Age Dummies</b>			
25-34	0.076*** (0.004)	0.081*** (0.006)	0.067*** (0.007)
35-44	0.162*** (0.005)	0.172*** (0.007)	0.149*** (0.008)
45-54	0.216*** (0.005)	0.228*** (0.007)	0.206*** (0.008)
>55	0.209*** (0.006)	0.219*** (0.008)	0.207*** (0.011)
<b>Married</b>	0.059*** (0.002)	0.063*** (0.004)	0.051*** (0.004)
<b>Head Household</b>	0.053*** (0.003)	0.053*** (0.005)	0.052*** (0.005)
<b>Immigrant</b>	-0.093*** (0.004)	-0.096*** (0.005)	-0.088*** (0.006)
<b>Full time</b>	0.388*** (0.007)	0.344*** (0.016)	0.388*** (0.009)
<b>Permanent</b>	0.142*** (0.004)	0.136*** (0.005)	0.149*** (0.005)
<b>Public</b>	0.120*** (0.002)	0.085*** (0.003)	0.171*** (0.004)
<b>Firm Size</b>			
11-19	0.056*** (0.003)	0.050*** (0.004)	0.067*** (0.004)
20-49	0.087***	0.089***	0.087***

	(0.003)	(0.004)	(0.005)
>50	0.134***	0.138***	0.135***
	(0.003)	(0.004)	(0.005)
Unknown >10	0.076***	0.077***	0.079***
	(0.003)	(0.005)	(0.006)
Constant	5.670***	5.734***	5.485***
	(0.009)	(0.017)	(0.013)
N	70649	42609	28040
R-squared	0.47	0.42	0.50

**Notes:** Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Omitted variables include: **Education:** primary level qualification; **Age:** 15-24; **Firm Size:** <10. Regional and Yearly dummies have also been included as controls.

**Table 7**  
**Returns to University Degrees, Greece, LFS, 2000-2004**

<i>Degrees</i>	(1) <b>All</b>	(2) <b>Male</b>	(3) <b>Female</b>
<b>AEI</b>			
Polytechnic	0.188*** (0.022)	0.174*** (0.027)	0.195*** (0.040)
Computer Science	0.237*** (0.034)	0.224*** (0.043)	0.238*** (0.054)
Agricultural Science	0.125*** (0.024)	0.112*** (0.029)	0.148*** (0.042)
Physics Maths	0.144*** (0.022)	0.121*** (0.026)	0.189*** (0.038)
Medicine	0.277*** (0.023)	0.267*** (0.028)	0.300*** (0.039)
Law	0.199*** (0.025)	0.193*** (0.034)	0.221*** (0.040)
Economics & Business	0.178*** (0.021)	0.180*** (0.026)	0.180*** (0.037)
Social Sciences	0.141*** (0.028)	0.140*** (0.040)	0.158*** (0.044)
Humanities	0.133*** (0.021)	0.089*** (0.027)	0.165*** (0.037)
Physical Education	0.069*** (0.023)	0.058** (0.028)	0.085** (0.041)
Education	0.159*** (0.021)	0.119*** (0.026)	0.190*** (0.037)
<b>TEI</b>			
Polytechnic	0.097*** (0.022)	0.084*** (0.026)	0.094** (0.040)
Food Technology	0.029 (0.040)	-0.003 (0.058)	0.069 (0.059)
Librarianship	0.0004 (0.039)	-0.057 (0.11)	0.030 (0.050)
Medical-related	0.047** (0.022)	0.025 (0.032)	0.071* (0.037)
Applied Arts	0.081** (0.038)	0.096* (0.051)	0.087 (0.057)
Constant	5.674*** (0.033)	5.818*** (0.065)	5.551*** (0.046)
Observations	16304	7940	8364
R-squared	0.47	0.42	0.49

**Notes:** Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. All returns are measured relative to a “TEI Agricultural Sciences” degree. The remaining regression output is available from the authors upon request.

**Table 8**  
**Ranking of University Degrees in terms of Financial Returns,**  
**Greece, LFS, 2000-2004**

<i>Degrees</i>	<b>All</b>	<b>Male</b>	<b>Female</b>
<b>AEI</b>			
Polytechnic	4	5	4
Computer Science	2	2	2
Agricultural Science	10	9	10
Physics Maths	7	7	6
Medicine	1	1	1
Law	3	3	3
Economics & Business	5	4	7
Social Sciences	8	6	9
Humanities	9	11	8
Physical Education	13	13	13
Education	6	8	5
<b>TEI</b>			
Polytechnic	11	12	11
Food Technology	15	16	15
Librarianship	16	14	16
Medical-related	14	15	14
Applied Arts	12	10	12
Agricultural Science	17	17	17

**Table 9**  
**Oaxaca-Ransom Decompositions of Gender Wage Differences,**  
**Greece, LFS, 2000-2004**

	Without subject of degree	With subject of degree
<b>Main specification – Whole sample</b>		
Log(Wage Gap)	0.172	0.143
Explained	0.096	0.112
Unexplained	0.076	0.031
Percentage Gap Explained	55.9	78.4
Absolute Increase in Gap Explained		0.016
Increase in Percentage of Gap Explained		22.5
<b>Main specification – Public Sector</b>		
Log(Wage Gap)	0.112	0.1
Explained	0.086	0.102
Unexplained	0.026	0.008
Percentage Gap Explained	76.8	92.9
Absolute Increase in Gap Explained		0.016
Increase in Percentage of Gap Explained		16.1
<b>Main specification – Private Sector</b>		
Log(Wage Gap)	0.217	0.246
Explained	0.107	0.174
Unexplained	0.109	0.072
Percentage Gap Explained	49.6	70.6
Absolute Increase in Gap Explained		0.067
Increase in Percentage of Gap Explained		21

**Table 10**  
**Risk-augmented Earnings Functions, Greece, LFS, 2000-2004**

	<i>Risk</i>	<i>t</i>	<i>Skew</i>	<i>t</i>	<i>N</i>
<b>Whole sample</b>					
All	0.74	1.45	-0.15	-1.23	16304
Men	1.16	2.34**	-0.11	-0.90	7940
Women	0.58	1.03	-0.20	-1.58	8364
<b>Private sector</b>					
All	1.04	1.74*	-0.03	-0.30	5857
Men	1.41	1.62	-0.01	-0.13	3115
Women	0.73	1.45	-0.06	-0.66	2742
<b>Public sector</b>					
All	1.24	1.84*	-0.24	-1.64	10447
Men	1.58	2.13**	-0.19	-1.19	4825
Women	1.10	1.61	-0.29	-2.11**	5622

**Notes:** s.e.'s robust and clustered by education type; \*\* p<0.05, \* p<0.1; Regression includes controls for individual, industry, firm and job characteristics as in Table 6.