The Greek public sector wage premium before the crisis: size, selection and relative valuation of characteristics

By

Rebekka Christopoulou,

The Ohio State University, Department of Consumer Sciences,

235c Campbell Hall, 1787 Neil Avenue, Columbus, OH 43210, USA

Tel. +1 614 688-1448

Email: Christopoulou.1@osu.edu

and

Vassilis Monastiriotis (Corresponding author),

London School of Economics, Hellenic Observatory, European Institute,

J205 Cowdray House, Houghton Street, WC2A 2AE, London, UK

Tel.: +44 (0) 20 79556937

Fax: +44 (0) 20 79556497

Email: v.monastiriotis@lse.ac.uk

Acknowledgements:

We are grateful to our editor, Andrew Clark, and two anonymous referees for helpful comments.

Word count (including title, abstract, keywords, endnotes, tables, references): 9889

The Greek public sector wage premium before the crisis: size, selection and relative valuation of characteristics

Abstract

We examine the Greek public-private wage differential before the debt crisis to evaluate the prospective impact of the recent public sector pay-cuts. We find a large public premium which persists after controlling for individual and job characteristics. For men much of this is accounted for by self-selection into the sector that rewards better their characteristics, while for women it is largely driven by sectoral differences in returns. We attribute these effects to more egalitarian pay-structures in the public sector and to demand problems in the private sector. The recent policy measures only partially change this situation, as wage deflation extends to the private sector, preserving public premia for the low-paid.

Keywords: Public sector, wage differentials, austerity measures, endogenous selection
JEL codes: J31, J45, J71

1. Introduction

The issue of public sector premia and public-private differences in wage structures has recently gained prominence in Greece, albeit in a rather unfortunate conjuncture. The debt crisis has necessitated severe pay cuts in the Greek public sector, in the first instance (measures taken in 2010) to the tune of 12% (NBG, 2010), but more recently rising up to 30% for specific worker categories – following the introduction of a universal public-sector pay-scale (Law 4024/2011).

Although the need for curbing current public expenditure in the pursuit of fiscal consolidation is indisputable, it is important to stress that very little is known about the public and private pay structures in the country. Thus, it is not clear to what extent public sector wage cuts can be justified on grounds of economic efficiency (in the sense of achieving parity between wages and productivity) – besides their justification on the basis of (fiscal) need.

The existence of a sizeable public sector wage premium in Greece is of course well-known. It was reported to range between 25-40% in the 1970s and 1980s (Kioulafas *et al*, 1991), while estimates for the 1990s are nearer 50% (Papapetrou, 2006a) – although the results of these studies are not directly comparable due to their differences in data sources and measurement. However, systematic research on the topic is lacking, while all available evidence comes from studies with particularly small sample sizes and potentially important measurement problems. For example, Kioulafas *et al* (1991) used unofficial data collected by the authors for the years 1975, 1981, 1982 and 1985 with a sample size of only about 650 individuals per wave. Kanellopoulos (1997) used the 1987 Greek Budget Household Survey, which covered 3600 individuals. Both studies analysed monthly wages without controlling for hours: given that working hours are lower in the public sector, this may have caused them to underestimate the public wage premium. Two more recent studies (Papapetrou, 2006a; 2006b), which did include controls for hours, measured wages in the form of annual earnings from employment, thus introducing potential biases arising from differences across sectors in non-employment spells for different individuals – and relied on rather small sample sizes (around 2000 individuals from the Greek section of the European Community Household Panel).

Besides these issues, this evidence is now quite dated, coming from a period with markedly different employment relations and before Greece's accession to EMU in 2001. Since the late 1990s, Greece has followed an extensive privatisation programme and has taken continuous steps

towards labour market deregulation (Ioannou, 2000; Monastiriotis and Pissarides, 2012). Coupled with pressures applied to its labour market from membership in the Eurozone (Featherstone, 2003), these developments ought to have altered significantly the valuation of skills and the appropriation of rents in the private and public sectors. By implication, they are also likely to have altered the relative and absolute wage premia there – rendering the available evidence less relevant or suitable for policy analysis.

In this paper we seek to fill these gaps by examining the size and nature of public-private wage differentials in Greece using data from the 2005 spring wave of the Greek Labour Force Survey (LFS). We focus on 2005 because by that time Greece had largely completed its transition into the post-EMU era, while the first signs of the global economic crisis had not yet been manifested. We examine the differences in average wages between the private and public sectors, as well as in the structure of returns to specific employee and job characteristics, such as education, experience, marital status, type of contract, and others. Given the perceived importance of self-selection in the determination of sector of employment (Bender, 1998), we perform endogenous switching regressions that control for sector-selection and discuss the differences in the obtained results. Controlling for selection allows us to estimate the differences in the valuation of individual characteristics as if labour supplies in the two sectors were identical (i.e. as if the compositional mix of the sectors was independent of the valuations of observable or unobservable characteristics that push employees to one or the other sector). Following this, we decompose the observed wage differential to examine more closely its drivers. Using various decomposition techniques and the comparison between our simple and endogenous switching regression results, we are able to decompose the observed wage differential not only into a price and an endowment effect, as is typical in the literature, but also further, into various more detailed components (interaction and selection effects, public sector advantage, private sector disadvantage) as we explain in detail in section 3. Consistent with previous findings, we find that

the endowment effect is dominant; but unlike previous studies we are able to show that this is largely due to selection – which however operates differently for men and women. Concerning the distribution of the public sector premium, we find that the premium is significantly larger for females and for the lower-paid. By implication, the progressivity of the recent wage-cuts, while successfully reducing pay disparities within the public sector, contributes to maintaining much of the pay advantages offered there vis-à-vis the private sector.

The next section discusses briefly the context of wage-setting in the Greek public sector and the recent pay-cuts there. In section 3 we present our data and methodology. Section 4 presents the estimation of the public and private pay structures. In section 5 we examine the issue of self-selection and in section 6 we present a decomposition analysis of these results. We discuss the implications of our findings and conclude in section 7.

2. Wage-setting and the recent pay-cuts in the Greek public sector

The Greek public sector has traditionally enjoyed high employment protection and premium pay. In theory, a number of factors may be responsible for this, including the typically higher union power in the public sector (leading to rent-appropriation by insiders); incomplete information about average worker productivity (leading to wage-setting above the 'prevailing' market wage – Fogel and Lewin, 1974); or imperfect monitoring of individual workers' effort (leading to efficiency wages in the public sector). In practice, however, the reason is more political than economic: it concerns clientalistic government-voter transactions and the use of the public sector as a reserve for political favours.

Union power has of course played an important role in maintaining this political exchange. Greek unions are openly politicised (with, often, direct links between their leadership and the parties in

government), while the institutional architecture of the labour market affords much monopoly power to public sector unions (centralised representation by a top-level confederation that excludes private sector unions; union coverage effectively at 100%; union density over three times higher than in the private sector – Matsaganis, 2007). Thus, while formally public sector wages are set unilaterally by the government (Ioannou, 2000), in practice unions exert a strong influence on public sector pay.

Owing to this, governments have traditionally looked for the least costly ways to satisfy unions and maintain industrial peace. In this process, they have occasionally favoured some segments of the public sector over others, causing basic pay to become rather disparate (for example, basic pay in publicly owned utilities is over twice as high as that in central government). To contain wage costs, such disparities were often addressed by the introduction of a range of horizontal (not performance-related) pecuniary benefits specific to the disadvantaged segments. These were additional to the customary '13th salary' paid as a Christmas bonus and the '14th salary' paid for Easter and annual (summer) leave, which also apply to the private sector. By using these benefits, the government could boost public sector pay with a less-than-proportionate effect on other parts of the State budget (e.g. for pensions and unemployment benefits that are calculated as a proportion of basic pay).

Further, civil servants enjoy life-course tenure ('permanency') by constitution, a privilege that has traditionally extended to the whole of the public sector, including public utilities and state owned enterprises.[1] Although, arguably, this was intended to safeguard the independence of the public bureaucracy and prevent incoming governments from replacing existing public sector workers with members of their own political clientele, its practical implication has been to remove performance incentives and nurture a low-effort ethos into public sector culture. In the presence of this 'permanency' rule, clientelism (hiring in exchange for votes) translated into a

continuous bloating of the sector. By implication, productivity in the public sector has been low and combined with a strong resistance to modernisation. Partly to deal with this problem, successive governments started making extensive use of temporary contracts, which offer lower pay and employment security. Despite this, public sector wages have historically grown faster than in the private sector.

In the wake of an alarming sovereign debt crisis, in early 2010, the Greek government was forced to implement a radical austerity programme with unprecedented reductions in public sector pay. In March 2010 it announced a headline 20% cut in benefits in the so-called 'narrow public sector' (mainly, civil servants) and a two-year pay freeze (excluding seniority pay-rises). In May 2010 it further announced the replacement of the 13th and 14th months of salary with a flat payment of €1,000 (which was later abolished for high-wage earners). These cuts had a slightly progressive character, representing a reduction in annual pay that ranged from 8% for civil servants earning less than €14,000 pa to over 13% for those earning over €27,000 pa. For employees in the so-called 'wider public sector' (utilities and other state owned enterprises and public bodies) a horizontal 10% salary cut was implemented instead; while later the government also introduced a public sector salary cap (set at about €6,000 per month) and a cap on bonuses in the wider public sector to a maximum of 10% of basic pay. On average, these cuts represented a reduction of about 12% of total pay (NBG, 2010), but of course at the individual level their effect was highly variable (to avoid extreme cases, a 3-year adjustment period for cuts above 25% of past earnings was introduced). Some further cuts were introduced in 2011, while in the same year the government announced the introduction of a new universal pay scale in the 'narrow' public sector (extended in 2012 to the wider public sector – although neither of these has been fully implemented yet), which was to abolish most bonus categories and rationalise pay across departments/activities. Although the exact effect of these changes is yet to be measured, it is expected that they will lead to a further decline of pay-differentials *within* the sector, with pay-

cuts up to 30% at the top of the scale but also pay increases, up to 15%, at the bottom. More notable, however, is their expected effect *across* sectors (i.e., on the public-private pay differential) – even though it is intuitively possible that the cuts may also put downward pressures on private sector wages.[2] In fact, private-sector wages have also been declining, and especially so in 2012 when wage bargaining was decentralised to the sectoral and enterprise levels and minimum wages were cut by 22%.

These developments motivate an in depth analysis of the public sector premium in Greece before the crisis. We examine this in what follows. Netting out the part of the premium that can be explained by cross-sector differences in observable characteristics, our interest is with the 'unexplained' differential, which is attributable to differences in the valuation of these characteristics, as well as to unobservables that account for differences in the distribution of characteristics between the two sectors. In our analysis we examine these differences in valuation for a range of labour force characteristics; we compare them between genders and across the wage distribution; and we test whether and how they are affected by sector self-selection. We are thus able to identify the sources of public-private wage inequality and areas of relative inefficiency in the valuation of labour force characteristics. In interpreting our results, we depart from the 'market-criterion' (that market wages are necessarily efficient), since this discounts market failures linked to imperfect competition, low labour mobility, or discrimination. Instead, we argue that inefficiency may be present in both sectors, manifested sometimes as an overly advantageous valuation ('overpay') of selected characteristics in the public sector and sometimes as a disadvantageous valuation of other characteristics in the private sector. On the basis of this, we discuss whether the recent wage cuts eliminate, or even reverse, the net pay premium offered by the public sector and whether they can bring about a more efficient valuation of labour force characteristics across the two sectors.

3. Methods and Data

We start by estimating an extended Mincer wage equation, controlling both for employee and job characteristics, as follows:

$$\ln W_i = \beta X_i + \varepsilon_i \tag{1}$$

where W_i is the monthly wage of individual i, X is a vector of control variables, β the respective returns, and ε is a random error. We report estimates on the pooled sample and also separately by (public/private) sector, sex, and quantile of the wage distribution. To account for the possible endogeneity between wages and the choice of sector (which, if present, would render the OLS estimates biased) we also estimate an endogenous switching regression model (see Van der Gaag and Vijverberg, 1988). This comprises two Mincer equations (one for each sector) and a selection equation sorting individuals across sectors, with jointly dependent errors.[3] The selection equation is:

$$S_i = \gamma_1 \Delta \ln W_i + \gamma_2 Z_i + u_i \tag{2}$$

where $\Delta \ln W$ denotes the public-private sector wage differential, Z is a vector of instruments that influence the choice of sector, u is the error term, and $S=1$ if person i is in the public sector.

With the derived estimates we subject the mean public-private wage gap to three different decompositions, using both our OLS results and the results from the endogenous switching regressions. Firstly, we apply the classic Blinder-Oaxaca (1973) technique to separate the wage gap $(\Delta\overline{W} = (\ln\overline{W}_{i,publ} - \ln\overline{W}_{i,priv}))$ into endowment and price effects, as follows:

$$\Delta\overline{W} = (\overline{X}_{i,publ} - \overline{X}_{i,priv})\beta_{publ} + (\beta_{publ} - \beta_{priv})\overline{X}_{i,priv} \tag{3}$$

The first term in the right-hand side of (3) captures differences in worker characteristics valuated at public sector prices (i.e. it gives the endowment effect that would prevail if there were no

differences in the structure of returns between the two sectors, so that $\beta_{priv}=\beta_{publ}$), and the second term captures differences in the price of these characteristics expressed in terms of private sector mean values.

Secondly, we adopt the Daymont-Andrisani (1984) approach to also allow for a price-endowments interaction term:

$$\Delta\overline{W} = (\overline{X}_{i,publ} - \overline{X}_{i,priv})\beta_{priv} + (\beta_{publ} - \beta_{priv})\overline{X}_{i,priv} + (\overline{X}_{i,publ} - \overline{X}_{i,priv})(\beta_{publ} - \beta_{priv}) \qquad (4)$$

Here, the first term is similar to that of (3) but valuated at private sector prices; the second term is directly analogous to that of (3); while the third term represents the part of the endowment effect that comes as a response to existing differences in returns (that is, the amount of inequality induced by moving from private-sector characteristics and wages to public-sector ones). In essence, (4) offers a different perspective on the same decomposition as (3), by accounting for the fact that differences in endowments and prices between the two sectors exist simultaneously.

Lastly, we employ the Neumark (1988) or Oaxaca and Ransom (1994) technique that analyses the wage gap through the lens of discrimination and it is, thus, complementary to the above two methods. This technique uses the estimated coefficients from a pooled regression as a non-discriminatory weight in the determination of the endowment effect (unlike the other two, which weight the endowment differences using the coefficients from one of the sectors). We thus decompose the price-effect into positive and negative discrimination terms:

$$\Delta\overline{W} = (\overline{X}_{i,publ} - \overline{X}_{i,priv})\beta_{pooled} + (\beta_{publ} - \beta_{pooled})\overline{X}_{i,publ} + (\beta_{pooled} - \beta_{priv})\overline{X}_{i,priv} \qquad (5)$$

Now the first term represents the endowment effect valuated at 'average' prices, while the second and third terms show the public-sector advantage and private-sector disadvantage, respectively.

To explain these decompositions further, take the example of education. The standard Blinder-Oaxaca decomposition splits the public-private wage differential into one part that reflects sectoral differences in the value of education (price effect) and another which is due to differences in the education of workers between sectors (endowment effect). In this decomposition the endowment effect is valuated at public-sector prices: it shows the part of the wage advantage that is due to differences in educational endowments as priced by the public sector. Valuating instead this effect at private-sector prices with the Daymont-Andrisani decomposition, allows us to derive a third component (price-endowment interaction component), which gives the additional value generated by the educational differential as a result of the difference in prices. In other words, the original endowment effect is now decomposed into a component that is orthogonal to price-differences between the two sectors (i.e., independent of how much more the public sector values education) and one whose value is determined jointly by sectoral differences in both education and in returns to education. The Neumark decomposition allows us, instead, to valuate the educational differential at 'average' prices (captured by a pooled regression coefficient) and in this way to split the price effect into two components, one showing the public sector advantage (the public premium, relative to the average price, multiplied by the public sector's educational mix) and another showing private sector disadvantage (the private sector penalty, relative to average prices, multiplied by the private sector's educational mix). Finally, by making use of the difference in the estimates produced by the simple OLS regression and the endogenous switching regression, we can further identify, for each of these decompositions, a separate 'selection' effect which gives the part of the overall wage differential that is accounted for by the way in which different employees, owing to their observed characteristics and unobserved preferences (as captured in our selection equation), select into different sectors.

We conduct our analysis using the 2005 spring wave of the Greek LFS[4]. This is a household survey that collects information on individuals' economic activity status; total net monthly wage income from the main job; and other worker, job and employer characteristics. We note that the wage variable is not continuous. The LFS allocates individuals to nine wage bundles of a 250 euro range. We take the mean value of the wage income bands per observation[5] to create a pseudo-continuous wage variable, which we use in our analysis. Although this variable is clearly imperfect, in the next section we show that it produces results that survive several robustness tests. The number of wage-earners in the 2005 wave is 16066, which after dropping incomplete or inconsistent observations and those younger than 14 or older than 65, leaves our working sample at 15352 observations.

Table 1 provides summary statistics for the entire sample and by sector, serving as a first reflection of the public-private sector duality of the Greek labour market. Public sector employees, who make up a third of the sample, are on average older, more educated, and more experienced, while they have notably longer job-tenures. Moreover, the public sector employs more women, married people and parents, and has more professional and service-sector jobs. On the other hand, the private sector has higher shares of non-natives, part-timers, temps and middle- or low-skilled employees. Given this sectoral distribution of employee and job characteristics, the presence of a sizeable public-private wage gap comes as no surprise. The gap is on average about 32% in terms of monthly wages and 39% in terms of hourly wages. Thus, it is significantly smaller than that reported on the basis of ECHP data (Papapetrou, 2006a) and more in line with international evidence. Estimates of the public sector wage premium range from negative in countries such as Russia (Gimpelson and Lukiyanova, 2009), to slightly positive (typically around 5-10%) in countries such as Canada (Mueller, 1998) and Australia (Cai and Liu, 2011), and rise up to 20-30% in countries more similar to Greece (see Giordano et al, 2011 – esp. Table 3b – and Campos and Centeno, 2012).

[INSERT TABLE 1 HERE]

Differences across genders are also present. Figure 1 provides an illustration, plotting Kernel densities by sector for men and women separately. In terms of higher moments (standard deviation, skewness, kurtosis), the shapes of the distributions are reasonably similar across sectors and genders. A notable feature is the difference in the local peak of the monthly Kernel distributions observed at around 6 log-points (approximately €400 per month), which reflects the greater incidence of part-time employment for women, especially in the private sector. More important, however, are the differences in the relative *location* of the distributions, especially between measures of monthly and hourly pay. Whereas in terms of monthly wages sectoral differences appear dominant (the female private-sector distribution is closer to the male private-sector distribution than to the female public-sector one), in terms of hourly wages the differences are larger across *genders* than sectors (the female public-sector distribution is to the left of the male private-sector distribution). By implication, in terms of monthly wages the public sector appears to offer similar pay to males and females (see the grey-coloured curves in the left-hand panel), but in terms of hourly wages it seems to 'discriminate' against women almost as much as the private sector – suggesting also that females in the public (private) sector work significantly longer (shorter) hours than their male counterparts. All this shows how compositional differences (e.g., in terms of working hours and by implication types of jobs) interact with differences in pay – an issue to which we now turn more formally.

[INSERT FIGURE 1 HERE]

4. Pay differences and the public sector wage premium

We start by estimating a single-equation model with OLS, using the pooled data and including a public sector dummy (Table 2, column 1). All control variables carry the expected signs, with the coefficient on the public sector dummy suggesting a (much reduced in size, but statistically significant) net public sector premium of 11.3%.[6] Factors such as education and labour market experience appear to increase wages significantly. We also find the usual wage penalties for females, non-natives, temps, part-timers and employees working in small firms. When using hourly instead of monthly wages (column 2), the estimated public sector wage premium increases rather notably (to 15.2%). Other than that, the results remain generally robust across specifications, even when using the ordinal wage variable in interval regression estimation (column 3).[7]

In all cases, the estimated net public sector premium (after controlling for observable characteristics) is about 35-40% of the corresponding public-private wage differential observed in the raw data. This indicates that, over a third of the difference in mean wages between the two sectors is due to differences in the returns to characteristics between sectors. To examine these in more detail, we relax the restrictive assumption that returns are constant across sectors and estimate our wage equation separately for each sector and by sex (columns 4-7).

[INSERT TABLE 2 HERE]

A first observation in these regressions is that the public sector premium does not take the form of a blanket advantage offered to public sector employees irrespective of their characteristics: with the exception of the regression for private-sector females (who suffer a horizontal penalty), the intercepts in these regressions are not statistically different. It follows that simple notions of 'capture'/'insiders' do not sufficiently explain the observed premium. The latter is the outcome of more nuanced differences in the valuation (as well as the composition) of specific labour force characteristics. We examine the most important of these in the remainder of this section.

Starting from the returns to education, we find that public sector males, counter to much of the international evidence, are rewarded significantly more for their education (by some 60% – difference significant at 1%) than similar males in the private-sector; while the latter receive a lower return to education even compared with females[8] – for whom returns to education across sectors are identical. The size of the male education premium in the public sector suggests a degree of gender discrimination (as public-sector females receive an education premium that is 30% lower) and a possibly distortive above-market valuation of male education (potentially causing an under-supply of skills in the private sector). There is however little evidence of such distortions spilling-over to the private sector: the latter offers male education premia that are unusually low (also by international standards – see Harmon et al, 2001), lower than those offered to females, and does not appear to be supply-constrained (e.g., judging from the level of graduate unemployment in Greece). Instead, the apparent undervaluation of males' education in the sector indicates to us a problem of deficient demand: in the absence of a vibrant demand for skilled labour, males end up taking jobs for which they are relatively overqualified, or accept wages that are below par to their skill levels[9] (more so than females who, being usually secondary household earners, have perhaps a more elastic labour supply).

A public-sector premium for males is observed also in the case of labour market experience (although smaller, at 39% for 12 years of experience, and only significant at 10%). This time, however, a public-sector premium is also found for females (57% for 12 years of experience) and thus the gender differential in the public sector is not statistically significant. Males in the private sector appear now to have an advantage over private-sector females for whom returns to labour market experience are much lower (but also deflate more slowly – see the coefficient on experience squared). Although these results too may be showing problems of valuation (e.g., for private-sector females), it is more probable that the observed differences are due to the typically lower job-tenures in the private sector (so that for both genders the experience effect in the public

sector is upward biased due to an unobserved job-tenure effect) and, for females in particular, the fact that (unobserved) career interruptions are not penalised equally in the two sectors.

Valuation problems and evidence of discrimination are also evident in the case of ethnicity (with the female migrant penalty being higher in the public sector and non-significant in the private sector, in complete contrast to what is observed for the case of males) and various household characteristics (with parenthood, for example, commanding a positive return only for public sector males). Concerning job characteristics, the evidence suggests more the presence of valuation issues in the public sector (e.g., above-average returns to holding a permanent job and no premium for firm size[10]) than related problems in the private sector (e.g., non-competitive pricing of irregular contracts).

To look further at these differences in valuation and the labour market problems that they may be reflecting, we examine the size of the wage premium across the distribution of wages (Table 3). Our findings here derive from a wage variable that is reported in bundles, so we warn the reader that they should be treated with caution – although they are consistent with Greek evidence elsewhere in the literature (Papapetrou, 2006a; 2006b). The premium is higher for women than men across the board, and it is stronger, for both genders, at the lower parts of the wage distribution. For men, it ranges from 13.8% (first quintile) to 9.7% (fourth quintile), while it evaporates completely for employees in the top quintile. For women the corresponding figures are 24.6%, 14.0% and 6.5%. Studies from other countries find similar variations (e.g. Mueller, 1998 on Canada; Melly, 2005 on Germany; Lucifora and Meurs, 2006 on Italy, France, and the UK), although they also typically find that male public sector employees suffer wage penalties at the upper tail of the wage distribution ("double-imbalance") – which is not the case in our data. The absence of a private-sector premium at the upper end of the distribution reflects a clear weakness of the private sector in Greece to create distinctively high-paid jobs (a deficient

demand for skills). But it also suggests that, relative to the overall pay conditions in the labor market, the Greek public sector exhibits a wage distribution that is less compressed at the top than in other countries – although also more compressed at the bottom relative to the domestic private sector. Under this prism, the high public sector premia observed for the lower quartiles are likely a reflection of the low-pay conditions in the economy (especially for women, as discussed previously – compare also the intercept coefficients in columns 4-7 of Table2). We return to these points in our discussion later. Before that, in the next section we address another important issue, concerning the extent to which the revealed differentials in returns are driven by labour market sorting and employee self-selection.[11]

[INSERT TABLE 3 HERE]

5. Endogenous selection

As is commonly observed in the literature, differences in public-private wage structures deriving from OLS estimates may be subject to significant bias due to endogenous selection; i.e., due to the non-random way in which individuals self-select into sectors of employment. To examine this, in this section we apply an endogenous switching regression estimation, which identifies the probability of an individual working in a particular sector through a selection equation. We aid identification by explicitly modelling the exogenous factors that account for selection into the sector of interest (here, the public sector).

We considered a number of potential instruments, including a measure of household size and three dummy variables indicating: whether the individual has more than one job; has additional non-labour income; or has a spouse or parent working in, or having retired from, the public sector ('public history').[12] Invariably, the 'public-history' measure performed best in the selection

equations while the other instruments were rarely significant in a statistical sense. The performance of the 'public history' variable, which is highly significant statistically and of similar magnitude in the selection equations of both genders (see Table 4), suggests to us the presence of a 'mentality' or 'accessibility' effect on how people sort themselves across sectors. Specifically, having a close relative in the public sector may signal a familial preference towards public sector jobs (a 'family mentality' effect or wider political views that are typically shared across family). In the context of Greece, however, it most probably reflects greater access to such jobs, either through informal or clientilistic networks, or simply through information-sharing. Christofides and Pashardes (2002) use a similar measure for the case of Cyprus and interpret it largely on the same grounds.

[INSERT TABLE 4 HERE]

The other variables in the selection equations have generally the expected signs. For both genders, advantageous characteristics (such as education, experience and being born in Greece) are associated with a greater preference towards, or higher incidence of, public sector jobs. This is consistent with both a demand-side explanation (the Greek public sector creates more high-skill jobs and employs proportionately more natives than the private sector) and a supply-side explanation (employees with more competitive characteristics bump-down other employees to obtain the more lucrative public sector jobs). Some other characteristics (such as part-timing, temporary employment and firm-size) reflect directly the demand structure of the Greek public sector (larger workplaces and more extensive use of temps but less part-timing). Interestingly, marital and family conditions do not seem to affect the selection of men into a particular sector, whereas both variables are significant for women, albeit in opposite directions. The positive effect of having young children probably reflects the more generous maternity arrangements in

the public sector. Inversely, the marital status coefficient may reflect that married women, as secondary household earners, tend to obtain private sector jobs that are less secure.

Overall, evidence of endogenous selection is stronger for men than women. The Wald test for the independence of the selection and wage equations, testing essentially for endogenous versus exogenous selection (i.e., whether selection is driven by individuals' expected returns based on their characteristics or purely due to compositional differences – see De Lune and Johansson, 2008), returns a highly significant statistic in the case of males (χ^2=41.83, p-value=0.000) but a statistic significant only at 5% for females (χ^2=6.04, p=0.0487). Consistently, the coefficient 'rho' in Table 4 indicates that selection has a direct effect on private sector wages, which is higher for men than women. The negative sign suggests that unobservable characteristics responsible for public sector preference are associated with *lower* earnings in the private sector (or, alternatively, that self-selection into the private sector carries with it a wage premium). This is consistent with the common impression that the Greek public sector attracts less self-motivated employees who would normally be less competitive in the private sector. Inversely, as should be expected perhaps, individuals with a preference for private sector employment who nevertheless fall into the public sector do not experience a penalty associated to this 'mismatch' - the selection variable in the public sector wage equation is (negative but) not statistically significant. In a way, this shows that the public sector wage premium is not the result of rewarding 'public sector mentality' in the public sector but of penalising it in the private sector.

Despite our finding of a significant selection effect, the selection-corrected wage equations yield estimates which are broadly similar to the OLS results, albeit with some notable exceptions. We list here the statistically significant differences. For men, returns to education become now even lower in the private sector (by some 15%) and the sectoral gap widens further. This suggests that, in the absence of selection (i.e., if skilled supply was not biased towards the public sector), the

private sector would offer lower returns to education than it currently does. We take this as confirmation of our earlier conclusion (section 4) about the sorting of educated males into the public sector and the presence of demand deficiencies for skilled labour in the private sector. Inversely, returns to labour market experience fall in the public sector (by 9%), thus lowering the sectoral gap. This again confirms our earlier conclusion that demand deficiencies and sorting play a secondary role in the case of the public-private differential for the returns to experience. In the private sector the male part-time penalty and married premium fall by around 12% each, while in the public sector the elasticity of wages to hours worked declines by 20%. For women, controlling for selection increases the penalty associated to firm size in the public sector (by 42%); the penalty for being non-Greek in the private sector; and the penalty for temporary employment in both sectors (by about 20%). Finally, the elasticity of wages to weekly hours also changes significantly but, unlike in the case of men, for women the estimates for the two sectors converge. These results show that processes of sorting and self-selection affect significantly the estimates on the valuation of different labour force characteristics between the two sectors. To analyse this more systematically, we now turn to the decomposition analysis.

6. Decomposition analysis

The decomposition analysis allows us to identify the relative size of the constituent elements of the raw wage gap which, as we have already shown, is due not only to compositional differences (section 3) but also to differences in rewards (section 4) and to sorting across sectors (section 5). We perform this analysis for both the OLS estimates (Table 2, columns 4-7) and those of the endogenous selection model (Table 4). Table 5 presents these results, together with their associated significance levels.[13]

When we do not control for selection, the endowment effect dominates strongly, being on average around 74% (68% for males and 80% for females)[14], while the price effect appears small (first and second rows of each panel). In the third row we see that this is driven mainly by a public sector advantage than by a private sector penalty, meaning that the relative undervaluation of mean private-sector characteristics in the private sector is not as sizeable as the relative overvaluation of public sector characteristics in the public sector. Nonetheless, the dominance of the endowment effect suggests that the substantial pay-gap observed in the raw data is mainly driven by structural differences in the composition of employment between the two sectors than differences in pay structures. By implication, the gap has much less to do with inefficiencies reflected in the valuation of labour force characteristics (public overvaluation or private undervaluation) and much more with the under-representation in the private sector of characteristics that command a high market return – an observation that can be linked to the argument about private-sector deficient demand for skills that we made above.

Correcting for selection has a marked impact on the decomposition results, in most cases lowering significantly the contribution of the endowment effect. In the Daymont-Andrisani decomposition, which evaluates the endowment effect at private-sector prices, this effect drops from 74% to 10% on aggregate and becomes statistically insignificant. Instead, much of the endowment effect is now captured either by selection (which accounts for 18% of the raw differential) or by the interaction effect (which shows labour market participants' response to sectoral differences in returns) – the latter accounting for almost 60% of the raw differential. Importantly, for males both the endowment and the direct price effect become statistically insignificant, leaving only the interaction and, secondarily, the selection effect as the main components of the raw differential (59% and 17%, respectively). In contrast, for females the interaction and selection effects are smaller and not statistically significant, while the direct price effect becomes the main component (at 56%) – although only statistically significant at 10%.

[INSERT TABLE 5 HERE]

These results are consistent with the evidence of Table 4, where self-selection affected males most strongly and, while also affecting significantly the female structure of returns in the two sectors, had a less substantial *direct* impact on female wages in either sector. Importantly, they are also consistent in the case of the quantile regressions. Decomposing wage premia into price and endowment effects by wage quantile (results available upon request) shows that for males the premium is mostly due to the endowment effect, which increases with wages; while for females the endowment effect is less important and, if anything, declines with wages. Thus, although these results should be treated as highly tentative given the discrete nature of our wage variable, the essence of these results reaffirms the conclusion drawn above, that the private sector tends to attract males with less marketable observables, especially so towards the top of its distribution, and to discriminate more against females with otherwise similar endowments to their male counterparts.

7. Conclusions

This paper analysed the public-private wage gap in Greece using, for the first time, data after Greece's accession to EMU and, compared to previous studies, on a larger and more representative sample. We find that prior to the crisis public sector wages were considerably higher (by some 32%) than private sector wages. We also find that significant differences existed between the two sectors in the structure of characteristics and in their returns. Conditional on the structure of characteristics and the average returns, the public-private wage gap was significantly smaller but still large, with a net premium of over 11%. Moreover, this premium was noticeably larger for employees in the lower parts of the wage distribution and especially for females, for whom it reached a net value of almost 25%. Further exploration of the average net wage

premium, by means of an endogenous switching regression which controls for endogenous self-selection into different sectors, confirms that this took a different form for men and women.

For women, the premium manifested itself as a pure difference in the composition and returns to characteristics between the two sectors. Selection and interaction effects were small, suggesting that neither differences in returns nor unobserved traits caused significant sorting of women into the public sector. Instead, it appears that the public sector tended to employ women with more marketable characteristics more widely than the private sector (endowment effect, suggesting also an accessibility constraint for women to skilled private sector jobs) and to reward their skills more similarly to men (i.e., more generously than the private sector – price effect). For men the situation is radically different, as the net public-sector premium that they enjoyed was much more linked to self-selection than to pure differences in returns (price effect) or to exogenous sorting (pure endowment effect). Two mechanisms have been in operation. On the one hand, men with characteristics that were more on demand in the public sector received an absolute premium for these characteristics there (interaction effect). On the other hand, men with unobservable characteristics that yielded a negative return in the private sector self-selected into public sector jobs because there they were not penalised for possessing such characteristics (pure selection effect).

These findings suggest that despite offering a high premium on aggregate, the public sector has not been the sole source of labour market inefficiency in Greece. Labour market inefficiencies in the country are also evident in the private sector, concerning problems both of valuation (under-pay of women and low returns to key labour force characteristics such as education for males and experience for females) and of job quality (below-average workforce endowments and an overall low level of pay). Relative to the private, the public sector seems to over-reward some characteristics (education and parenthood for men) and to penalise others (being a female

migrant, working on irregular contracts), but its main effect, in relation to our results, is that it does not penalise unobservables that seem to command a negative return (penalty) in the private sector. This seems consistent with a view of the public-sector premium as deriving from rent-appropriation by public sector 'insiders'; although an alternative view, that sees the public sector as a shelter in an otherwise low-pay / low-productivity economy, may also be equally consistent.

There are two main messages deriving from this analysis with regard to contemporary policy issues in Greece. First, the public sector wage cuts implemented by the Greek government under its emergency austerity programme, although seemingly eliminating much of the aggregate wage advantage that existed in the public sector, maintain in fact a sizeable wage premium for the low-paid – by reducing the premium by less in the lower quartiles of the distribution, i.e. exactly where this premium has been stronger. As the private sector also now experiences sizeable downward wage adjustments, following years of recession and the recent decentralisation of wage bargaining, the public-sector advantage for entry-level and medium-skill jobs will remain, if not expand further, maintaining the existing 'waiting queues' for such public sector jobs (Monastiriotis, 2008).

Second, and following from the above, the substantial pay-cuts at the top end of the public-sector wage distribution will make the relative remuneration of high-skilled workers in the private sector more advantageous. This can potentially assist the expansion of high-skilled jobs in the private sector and bring Greece closer to international experience, where the private sector offers a pay premium at the top end of the distribution – while also narrowing the substantial compositional differences between the two sectors. Yet, in a context of liquidity constraints and weak demand, this potential for an expansion of high-skilled jobs in the private sector may not materialise – especially as the sector did not seem to generate such jobs also in the past, when demand conditions were much more conducive. Instead, the expected release of skilled labour

supply towards the private sector – which will only be enhanced with the prospective downsizing of the public sector – will simply intensify competition for average- and low-quality private sector jobs as labour market slack will encourage the expansion of low-pay within a strategy of cost-containment and cost-based competition. With job-creation remaining anaemic and wages falling, this can amplify existing bumping-down pressures in the private sector and further reduce the returns to skills there.

---

[1] This was the prevailing interpretation of the Greek Constitution until recently. In late 2011 the government did actually introduce a modest programme of compulsory dismissals (through early retirement).

[2] In this sense, the percentage reduction in public sector wages constitutes an upper bound estimate of the effective reduction of the public-private wage differential. We note however that in a climate of prolonged recession and political instability downward wage movements in the private sector can arguably be seen as independent of wage developments in the public sector.

[3] This is essentially a two-stage procedure, analogous to the Heckman model. Our estimation is by a Full Information Maximum Likelihood (FIML) method, which fits the binary and continuous regressions simultaneously and makes the appropriate error adjustments. For details see Lokshin and Sajaia (2004). A recognised disadvantage of this approach is that the standard significance test of the inverse Mills ratio is problematic when normality does not hold. Although some authors have proposed the use of semi-parametric methods to address this, in practice the improvement achieved over the Heckman-type model is often small (see Christofides et al, 2003).

[4] Results for 2006 and 2007, for which directly comparable data are available, produce largely identical results.

[5] For the highest band, which is open-ended, we set the upper limit to €2250 (calculated as the lower limit of the open interval plus two times the width of the closed intervals). See also footnote 7.

[6] We calculate this as $100*(e^{0.107}-1)$, following Halvorsen and Palmquist (1980). Our interpretation of this premium as the unexplained component ('price effect') of the public-private wage differential is consistent with Elder et al (2010), who show that in pooled regressions similar to ours (that include a membership-indicator variable and controls for other observable characteristics), the group-indicator coefficient is a weighted average of the unexplained gaps from the two standard Oaxaca/Blinder approaches.

[7] As a further robustness test, we ran a regression for full-time workers only. We have also tested the robustness of the results to alternative definitions of the upper limit of the open-ended band (3000, 5000, 10000, 20000) and to dropping workers in the highest wage-band from the sample (152 observations). In all cases, our estimate of the public wage premium changes only to the third decimal place (results available upon request).

[8] Although the difference here is marginally insignificant at 10%, it becomes statistically significant when we control for endogenous selection (Table 4 in section 5).

[9] When we replace our education variable (years of schooling) with a set of educational degree dummies, we find supportive evidence for this: the public sector advantage is high for the low- and basic-education categories (consistent with our non-market valuation interpretation), but then declines sharply for middle-education categories (college and further education) and increases again for high-education categories (graduate and post-graduate degrees), suggesting that the available private-sector jobs do not reward sufficiently the possession of a university degree.

[10] It should be noted that 'small firms' in the public sector are not directly comparable to those in the private sector. In the public sector, small firms concern mainly employees working in local and central government and public bodies (predominantly in education, health and public administration) whose salaries, in most cases, are determined by higher-level wage agreements.

[11] Because econometric techniques for validly accounting for sample selection in the context of quantile regression are at early stages of development (e.g. Arellano and Bonhomme, 2010; Huber and Melly, 2011) and given the nature of our wage variable, we restrict this analysis to regressions at the mean.

[12] Other instruments often used in the literature (union membership, estimates of risk aversion – see Bender, 1998) were not available through the Greek LFS.

[13] We alert the reader to the bias that may affect our decomposition results due to differences in the distributions of characteristics across sectors (Nopo, 2008). There are combinations of characteristics for which we observe many more employees in the public than in the private sector. What is encouraging, however, is that this problem typically tends to overestimate price-effects, while in our results price-effects are only of secondary importance.

[14] This is evaluated at public sector prices. When evaluated at private sector prices the aggregate effect drops to 67% (58% for males), while when evaluated at average prices (Neumark decomposition) it rises to 89% (90% for males).

References

Arellano, M., and Bonhomme, S. (2010). Quantile selection models. Unpublished manuscript.

Bender, K. A. (1998). The central government-private sector wage differential. *Journal of Economic Surveys,* 12(2): 177-220.

Blinder, A. S. (1973). Wage discrimination: reduced form and structural estimates. *Journal of Human Resources*, 8: 436-455.

Cai, L. and Liu, A. Y. C. (2011). Public-private sector wage gap in Australia: Variation along the distribution. *British Journal of Industrial Relations*, 49: 362–390. .

Campos, M. and Centeno, M. (2012). Public-private wage gaps in the period prior to the adoption of the euro: an application based on longitudinal data. Working Paper No1/2012, Banco de Portugal.

Christofides, L., Li Q., Liu Z. and Min I. (2003). Recent two-stage sample selection procedures with an application to the gender wage gap. *Journal of Business and Economic Statistics*, 21(3): 396-405.

Christofides, L. and Pashardes, P. (2002). Self/paid-employment, public/private sector selection, and wage differentials. *Labour Economics*, 9: 737-762.

Daymont, T. N. and Andrisani, P. J. (1984). Job preferences, college major, and the gender gap in earnings. *Journal of Human Resources*, 19: 408-428.

De Luna, X. and Johansson, P. (2008). Graphical diagnostics of endogeneity, in T. B. Fomby and R. Carter Hill (eds.) *Modelling and Evaluating Treatment Effects in Econometrics*. Oxford: Emerald Group Publishing Limited, 21: 147-166.

Elder, T., Goddeeris, J. and Haider, S. (2010). Unexplained gaps and Oaxaca-Blinder decompositions. *Labour Economics*, 17(1): 284-290.

Featherstone, K. (2003). Greece and EMU: Between external empowerment and domestic vulnerability, *Journal of Common Market Studies*, 41(5): 923-940.

Fogel, W. and Lewin, D. (1974). Wage determination in the public sector. *Industrial and Labor Relations Review*, 27: 410-431.

Gimpelson, V. and Lukiyanova, A. (2009). Are public sector workers underpaid in Russia? Estimating the public-private wage gap. IZA Discussion Paper 3941, Institute for the Study of Labour.

Giordano, R., Depalo, D, Pereira, M., Eugene, B., Papapetrou, E., Perez, J., Reiss, L. and Roter, M. (2011). The public sector pay gap in a selection of euro-area countries. ECB Working Paper No1406, European Central Bank.

Halvorsen, R. and Palmquist, R. (1980). The interpretation of dummy variables in semilogarithmic equations. *American Economic Review*, 70: 474-475.

Harmon C., Westergaard-Nielsen N. and Walker I. (2001). *Education and Earnings Across Europe*, Edward Elgar.

Huber, M. and Melly, B. (2011). Quantile regression in the presence of sample selection. Economics Working Paper Series 1109, University of St. Gallen.

Ioannou, C. (2000). Wage structures, incomes policy and decentralized bargaining: The case of Greece. *Labour*, 6 (3): 23-44.

Kanellopoulos, C. N. (1997). Public-private wage differentials in Greece. *Applied Economics*, 29: 1023-1032.

Kioulafas, K., Donatos, G. and Michailidis, G. (1991). Public and private sector wage differentials in Greece. *International Journal of Manpower*, 12 (3): 9-14.

Lokshin, M and Sajaia, Z. (2004). Maximum likelihood estimation of endogenous switching regression models. *The Stata Journal*, 4 (3): 282-289.

Lucifora, C. and Meurs, D. (2006). The public sector pay gap in France, Great Britain and Italy. *Review of Income and Wealth*, 52: 43–59.

Matsaganis, M. (2007). Union structures and pension outcomes in Greece. *British Journal of Industrial Relations*, 45(3): 537-555.

Melly, B. (2005). 'Public-private sector wage differentials in Germany: Evidence from quantile regression'. *Empirical Economics*, 30 (2): 505–20.

Monastiriotis, V. (2008). Unemployment persistence and economic duality in Greece: A regional analysis, in S. Hardy and L. Bibby-Larsen (eds.), *Working Regions*. Conference Proceedings, Regional Studies Association, Seaford.

Monastiriotis, V. and Pissarides, C. (2012). Institutional and non-institutional aspects of labour market flexibility in Greece. Mimeo, Hellenic Observatory, London School of Economics.

Mueller, R. (1998). Public-private sector wage differentials in Canada: Evidence from quantile regressions. *Economics Letters*, 60: 229–35.

NBG (2010). *Greece: Monthly macroeconomic outlook (December)*, Athens: Strategy and Economic Research Division, Bank of Greece.

Neumark, D. (1988). Employers' discriminatory behavior and the estimation of wage discrimination. *Journal of Human Resources*, 23: 279-295.

Ñopo, H. (2008). Matching as a tool to decompose wage gaps. *Review of Economics and Statistics*, 90(2): 290-299.

Oaxaca, R. (1973). Male-female wage differentials in urban labor markets. *International Economic Review*, 14: 693-709.

Oaxaca, R. and Ransom, M. (1994). On discrimination and the decomposition of wage differentials. *Journal of Econometrics*, 61: 5-21.

Papapetrou, E. (2006a). The unequal distribution of the public-private sector wage gap in Greece: evidence from quantile regression. *Applied Economics Letters*, 13 (4): 205-210.

Papapetrou, E. (2006b). The public-private sector pay differential in Greece. *Public Finance Review*, 34 (4): 450-473.

Van Der Gaag, J. and Vijverberg, W. (1988). A switching regression model for wage determinants in the public and private sectors of a developing country. *Review of Economics and Statistics,* 70**:** 244–252.

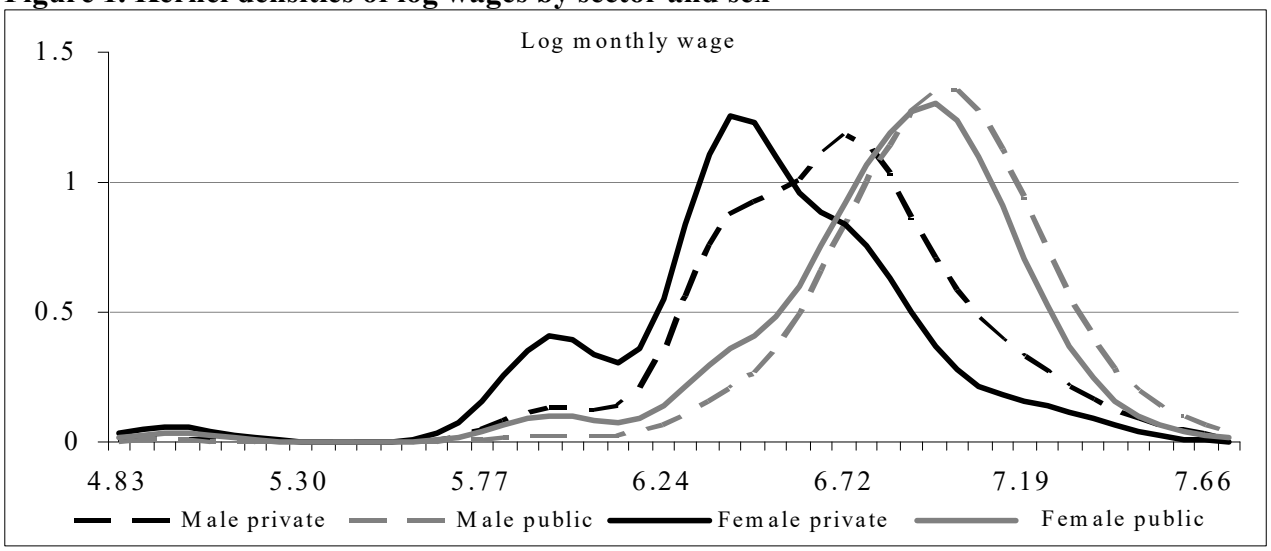
Tables and Figures

Table 1. Sample characteristics

	All		Private sector		Public sector	
	mean/%	St. dev	mean/%	St. dev	mean/%	St. dev
Employee characteristics						
Years of age	38.2	10.5	36.3	10.4	41.9	9.6
Young (age<25)	8.7		11.7		2.8	
Years of completed education	12.1	4.3	11.3	4.1	13.7	4.2
Years of general labour market experience	20.1	11.5	19.0	11.7	22.2	10.8
Years of job-specific tenure	9.7	8.8	7.5	7.7	13.8	9.3
Females	41.1		40.1		42.9	
Foreign-born	9.6		14.3		0.5	
Married/cohabiting	61.1		55.4		72.2	
Parents of child(ren) younger than 17	38.9		35.2		46.0	
Job/employer characteristics						
Unskilled blue-collar workers	9.9		11.3		7.3	
Skilled blue-collar workers	26.4		34.5		10.8	
White-collar workers	34.7		36.6		31.0	
Professionals	27.3		17.6		46.1	
Industry	25.6		35.8		5.9	
Services	72.4		61.9		92.8	
Work in firm with less than 10 employees	44.0		55.1		22.6	
Part-timers	4.4		5.5		2.3	
On a temporary contract	12.2		14.0		8.8	
Private sector workers	66.0					
Selection variable						
Have spouse/parent in the public sector	17.6		6.3		39.7	
Outcome variables						
Nominal monthly wage in euros	924.5	356.8	832.9	331.4	1102.8	336.5
Usual hours of work per week	40.1	8.3	41.7	8.2	36.9	7.6
Imputed nominal hourly wage in euros	5.8	3.5	4.9	2.8	7.6	3.9

Notes: Numbers are weighted using population weights. Standard deviations are reported for continuous variables only. For monthly wages, the continuous variable is created by using the mean value of the wage income bands per observation. Nominal hourly wages=monthly wages/(usual weekly working hours*4.2).

Figure 1. Kernel densities of log wages by sector and sex



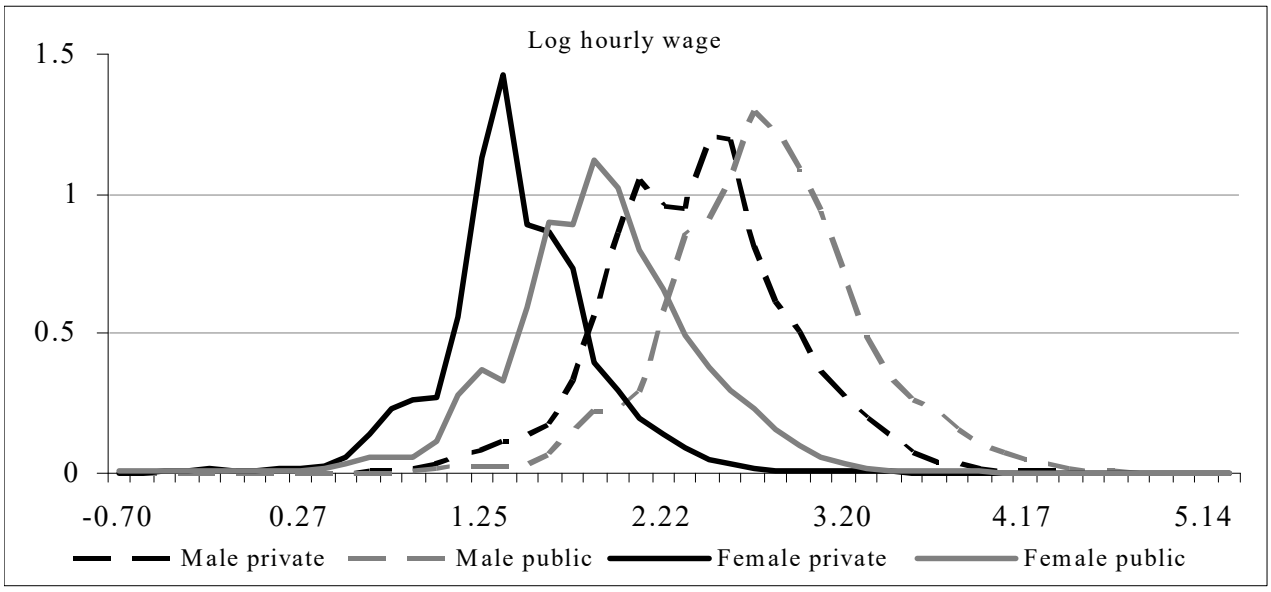


Table 2. The public sector wage premium and public-private differences in pay structures

	All			Males		Females	
	OLS	OLS hourly wages	Interval regression	OLS		OLS	
				Public	Private	Public	Private
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Public sector	0.107***	0.142***	0.107***				
	[0.011]	[0.012]	[0.013]				
Female	-0.101***	-0.085***	-0.099***				
	[0.007]	[0.007]	[0.008]				
Education	0.016***	0.015***	0.016***	0.021***	0.013***	0.016***	0.017***
	[0.001]	[0.001]	[0.001]	[0.002]	[0.002]	[0.003]	[0.002]
Experience	0.017***	0.017***	0.016***	0.023***	0.017***	0.019***	0.012***
	[0.001]	[0.001]	[0.001]	[0.003]	[0.002]	[0.003]	[0.002]
Exp. squared	-0.0002***	-0.0002***	-0.0002***	-0.0003***	-0.0002***	-0.0002***	-0.0001***
	[0.0000]	[0.0000]	[0.0000]	(0.0001)	[0.0000]	[0.0001]	[0.0001]
Married	0.048***	0.050***	0.046***	0.035**	0.065***	0.039**	0.034**
	[0.008]	[0.009]	[0.009]	[0.017]	[0.014]	[0.019]	[0.015]
Child(ren)	0.015**	0.016**	0.015*	0.026**	0.014	0.015	-0.003
	[0.007]	[0.008]	[0.008]	[0.012]	[0.012]	[0.018]	[0.015]
Non-Greek	-0.083***	-0.103***	-0.085***	-0.055	-0.110***	-0.329**	-0.043
	[0.013]	[0.013]	[0.016]	[0.118]	[0.014]	[0.164]	[0.027]
Part-time	-0.338***	0.244***	-0.288***	-0.460***	-0.275***	-0.362***	-0.296***
	[0.026]	[0.026]	[0.031]	[0.127]	[0.053]	[0.082]	[0.037]
Temporary	-0.113***	-0.106***	-0.098***	-0.207***	-0.062***	-0.200***	-0.072***
	[0.012]	[0.012]	[0.012]	[0.031]	[0.017]	[0.033]	[0.021]
Small firm	-0.052***	-0.061***	-0.050***	-0.017	-0.062***	-0.028*	-0.054***
	[0.006]	[0.007]	[0.007]	[0.013]	[0.010]	[0.017]	[0.013]
Weekly hours	0.006***	1.162***	0.006***	0.005***	0.006***	0.005***	0.008***
	[0.001]	[0.059]	[0.001]	[0.001]	[0.001]	[0.002]	[0.001]
Constant	6.158***	0.244***	6.215***	6.177***	6.187***	6.372***	5.856***
	[0.062]	[0.026]	[0.063]	[0.102]	[0.086]	[0.109]	[0.137]
Observations	15,352	15,352	15,352	3,102	5,903	2,359	3,988
R-squared	0.450	0.476		0.413	0.341	0.402	0.353

Notes: Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. All estimations use population weights. Estimations also include sector, region and occupation dummies.

Table 3. Public sector wage premia by wage quantile

	q0.05	q0.25	q0.50	q0.75	q0.95	Obs.
Males	0.129***	0.126***	0.116***	0.093***	0.035	9,005
	[0.027]	[0.014]	[0.010]	[0.014]	[0.029]	
Females	0.220***	0.200***	0.176***	0.131***	0.063*	6,347
	[0.048]	[0.014]	[0.010]	[0.015]	[0.036]	

Notes: controls and remaining information as for Table 2.

Table 4. Public-private pay structures under endogenous selection

	Males			Females		
	Public	Private	Selection	Public	Private	Selection
	(1)	(2)	(3)	(4)	(5)	(6)
Education	0.022***	0.011***	0.052***	0.016***	0.016***	0.041***
	[0.002]	[0.002]	[0.008]	[0.003]	[0.002]	[0.011]
Experience	0.021***	0.017***	0.070***	0.018***	0.012***	0.062***
	[0.002]	[0.002]	[0.009]	[0.003]	[0.002]	[0.010]
Exp. squared	-0.0003***	-0.0001***	-0.0007***	-0.0002***	-0.0001***	-0.0006***
	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
Married	0.036**	0.057***	-0.016	0.044**	0.029**	-0.151**
	[0.014]	[0.013]	[0.076]	[0.017]	[0.014]	[0.068]
Child(ren)	0.029***	0.016	0.003	0.007	-0.003	0.222***
	[0.010]	[0.011]	[0.062]	[0.015]	[0.015]	[0.065]
Non-Greek	-0.158	-0.107***	-0.840***	-0.385**	-0.061**	-0.497**
	[0.127]	[0.013]	[0.196]	[0.155]	[0.024]	[0.206]
Part-time	-0.492***	-0.238***	-1.688**	-0.348***	-0.313***	-1.018***
	[0.119]	[0.052]	[0.230]	[0.074]	[0.035]	[0.143]
Temporary	-0.225***	-0.064***	0.262***	-0.236***	-0.088***	0.179**
	[0.029]	[0.016]	[0.093]	[0.030]	[0.020]	[0.083]
Small firm	-0.022*	-0.057***	-0.482***	-0.040***	-0.053***	-0.361***
	[0.011]	[0.009]	[0.054]	[0.014]	[0.012]	[0.056]
Weekly hours	0.004***	0.006***	-0.034***	0.006***	0.007***	-0.022***
	[0.001]	[0.001]	[0.004]	[0.001]	[0.001]	[0.005]
Public history			0.456***			0.461***
			[0.066]			[0.065]
Rho	-0.044	-0.414***		-0.049	-0.192**	
	[0.067]	[0.064]		[0.060]	[0.083]	
Lamda	-0.010	-0.128		-0.015	-0.068	
Constant	6.569***	5.884***	-0.856*	6.222***	5.681***	-2.747***
	[0.060]	[0.087]	[0.517]	[0.181]	[0.079]	[0.451]

Notes: Observations are 9005 for men and 6347 for women. Rho (ρ) is the correlation coefficient between the error terms in the selection equation and the relevant wage equation. Multiplying this with the standard deviation of the errors of the wage equation (σ_u) returns the coefficient on the inverse Mills ratio (λ), which shows whether selectivity impacts directly on individuals' wages. Since $\sigma_u>0$, the sign of the coefficient on λ is determined solely by ρ. All other notes as in Table 2.

Table 5. Decomposition analysis

Method	Correction for selection	Endowment effect	Price Effect	Interaction effect#	Public sector advantage+	Private sector disadvantage+	Selection effect
			All employees				
Blinder-Oaxaca	No	0.227	0.079				
		[0.019]	[0.019]				
Daymont-Andrisani	No	0.205	0.079	0.022			
		[0.021]	[0.019]	[0.028]			
Neumark	No	0.270			0.023	0.012	
		[0.006]			[0.002]	[0.001]	
Blinder-Oaxaca	Yes	0.155	0.093				0.057
		[0.025]	[0.032]				[0.008]
Daymont-Andrisani	Yes	0.031	0.093	0.124			0.057
		[0.031]	[0.032]	[0.040]			[0.010]
Neumark	Yes	0.208			0.023	0.017	0.057
		[0.008]			[0.005]	[0.006]	[0.009]
			Males				
Blinder-Oaxaca	No	0.185	0.087				
		[0.022]	[0.022]				
Daymont-Andrisani	No	0.209	0.087	-0.025			
		[0.029]	[0.022]	[0.036]			
Neumark	No	0.245			0.018	0.009	
		[0.007]			[0.003]	[0.001]	
Blinder-Oaxaca	Yes	0.118	0.107				0.047
		[0.054]	[0.066]				[0.013]
Daymont-Andrisani	Yes	-0.042	0.107	0.160			0.047
		[0.037]	[0.066]	[0.070]			[0.013]
Neumark	Yes	0.184			0.020	0.021	0.047
		[0.011]			[0.011]	[0.006]	[0.013]
			Females				
Blinder-Oaxaca	No	0.289	0.074				
		[0.037]	[0.038]				
Daymont-Andrisani	No	0.211	0.074	0.078			
		[0.031]	[0.038]	[0.047]			
Neumark	No	0.316			0.030	0.017	
		[0.010]			[0.004]	[0.002]	
Blinder-Oaxaca	Yes	0.191	0.204				-0.032
		[0.113]	[0.143]				[0.030]
Daymont-Andrisani	Yes	0.146	0.204	0.045			-0.032
		[0.048]	[0.143]	[0.127]			[0.031]
Neumark	Yes	0.339			0.035	0.020	-0.032
		[0.023]			[0.028]	[0.010]	[0.031]

Note: The wage gap [and corresponding standard error] is 0.305 [0.006] for all employees; 0.272 [0.007] for males; and 0.363 [0.011] for females. Analytical (for the OLS-based results) and bootstrapped (using 200 repetitions – for results with correction for selection) standard errors are in brackets. #: The interaction effect (Daymont-Andrisani decomposition) measures the sectoral differences in characteristics valuated at the average premium received on these characteristics. +: Public sector advantage and private sector disadvantage (Neumark decomposition) are two components of the price effect showing, respectively, overvaluation of public sector characteristics above the sample mean of returns and undervaluation of private-sector characteristics below the same mean.