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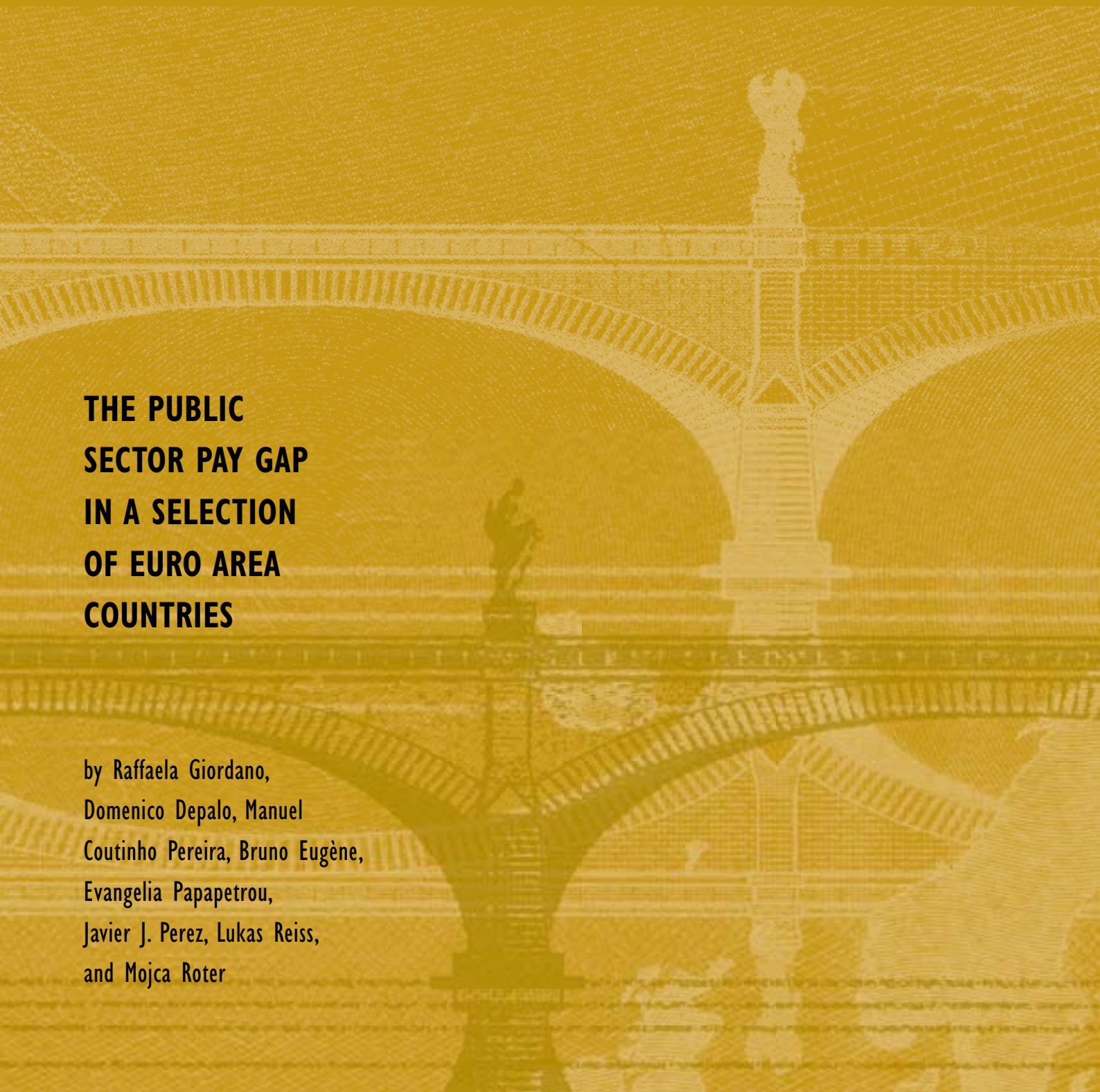

THE PUBLIC SECTOR PAY GAP IN A SELECTION OF EURO AREA COUNTRIES

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CONTENTS

Abstract

We investigate the public-private wage differentials in ten euro area countries (Austria, Belgium, France, Germany, Greece, Ireland, Italy, Portugal, Slovenia and Spain). To account for differences in employment characteristics between the two sectors, we focus on micro data taken from EU-SILC. The results point to a conditional pay differential in favour of the public sector that is generally higher for women, at the low tail of the wage distribution, in the Education and the Public administration sectors rather than in the Health sector. Notable differences emerge across countries, with Greece, Ireland, Italy, Portugal and Spain exhibiting higher public sector premia than other countries.

JEL Classification: J310, J450, O520.
Keywords: wage differentials, public/private sector.

NON TECHNICAL SUMMARY

The relationship between public and private sector wages has attracted increasing attention over recent decades reflecting the increase in public sector employment in many countries, with relevant implications for the overall macroeconomic performance and for public finances. Furthermore, amid tight government budget constraints as a consequence of the financial crisis, public sector wages have become a growing concern for taxpayers. In this paper we investigate this issue focussing on ten euro area countries (Austria, Belgium, France, Germany, Greece, Ireland, Italy, Portugal, Slovenia and Spain).

According to national account aggregate data, the wage earned by a representative public sector employee is higher than the one earned by a representative private sector employee in all the countries of this study, except Belgium, France and Germany. In particular, in the period 1995-2009 the ratio of public to private compensation per employee is found to be consistently below one in the case of France, slightly below one in the cases of Germany and Belgium, around 1.1 for Austria, around 1.2-1.3 for Italy, Spain, Greece, Ireland and Slovenia, and above 1.5 for Portugal.

However, it is well documented that public sector employees are generally older, better educated and are more likely to take managerial positions. In addition, wage dispersion is much higher in the private sector than in the public sector. Hence, controlling for individual characteristics is necessary to determine the existence of a true "premium" in the public sector, i.e. whether, *ceteris paribus*, public sector employees are better paid than employees in the private sector. Relatively high per-capita wages in the public sector, if not justified by differences in labour skills or occupational position, may produce inefficient job queues and "wait" unemployment, adverse effects in recruitment, retention and incentive policies, spillovers to the private labour market with associated competitiveness losses, as well as budgetary problems.

A large body of literature has analysed the issue using micro-data on single countries. Most of these studies find a differential in favour of public sector workers, even after taking into account some observable individual characteristics. By using data from the European Union *Statistics on Income and Living Conditions* (EU-SILC) - a harmonized survey at European level providing coherent measures and definitions - we are able to adopt a cross-national perspective.

As in the previous studies, our results, referring to the period 2004-2007, point to a conditional pay differential in favour of the public sector that is generally higher for women, for workers at the bottom of the wage distribution, in the Education and the Public administration sectors rather than in the Health sector. We also find notable differences across countries, with Greece, Ireland, Italy, Portugal and Spain exhibiting higher public sector premia than other countries. The differential generally decreases when considering monthly wages as opposed to hourly wages and if we restrict our comparison to large private firms.

Although our documentation of the institutional settings is far too simple to allow us to draw any conclusion on a possible relationship between institutions and labour market conditions in the two sectors, our results seem to provide little support to the idea that a systematic comparison between wage levels in the two sectors is actually necessary or sufficient to guarantee non divergent wage dynamics; moreover, we did not detect any specific correlation between the size of the public-private wage differential and either the unions' bargaining power or the relative bargaining power of unions in private and public sectors.

1. Introduction

The relationship between public and private sector wages has attracted increasing attention over recent decades reflecting the fact that public sector labour markets have grown in size in many countries, so that the implications of their functioning for overall macroeconomic performance as well as for the public finances has become increasingly relevant. Furthermore, amid current tight government budget constraints, public sector wages have become a growing concern for taxpayers.

Political, institutional and economic reasons can be provided to explain the determination of public and private sector wages. While the public sector is subject to political constraints, the private sector is subject to profit constraints. In most cases, the public sector wants to be a good employer and may be willing to pay higher wages to its employees, especially to its lower-skilled workers. By contrast, the government might be reluctant to award higher wages to high-skilled workers, as the public may not want to see public servants earning more than comparably trained and experienced private sector counterparts (Katz and Kruger 1993; Bender and Elliott 1999; Bender 2003).

The pursuit of these actions could have a serious impact on labour market efficiency. From an economic perspective, if the government rewards its employees with high remuneration, candidate workers may decide to queue for these relatively high-paying jobs. The outcome is that private sector employment will be 'crowded out' unless private sector wages increase. Furthermore such a policy could lead to higher budget deficits and/or higher taxes. If, instead, the public sector pays lower wages than in the private sector, it might become difficult to recruit and retain skilled employees. The result could then be public services of poor and inadequate quality, even though some other characteristics (job security, work contents or pension level, for example) could continue to be attractive enough.

Differentials in earnings can have significant effects on the wage-setting behaviour of the private sector. In cases where public sector wages 'lead' private sector wages, the closing of an earnings differential may negatively affect competitiveness via wage inflation. [1] Moreover, the existence of such wage differentials between the two sectors of employment is important in the debates over public sector pay structure reform (Elliot *et al*. 1996).

This paper investigates a particular aspect of the relationship between public and private sector wages, namely, the public-private wage gap, across a selection of euro area countries.

We analyse the public sector pay gap in Austria, Belgium, France, Germany, Greece, Ireland, Italy, Portugal, Slovenia and Spain, first by looking at its evolution over the last fifteen years using National Accounts data. Then, to account for the significant heterogeneity in employee characteristics (for example, age, gender, education and occupational level) across the public and private sectors, we estimate a wage equation using micro data covering the period 2004-2007. Unlike most of the existing studies that evaluate the differential across countries, we distinguish by gender, educational level, sub-sectors and firm size, and check the robustness of our results using different definitions of wages (hourly versus monthly, gross versus net). Furthermore, we perform our analysis not only on averages but over the entire wage distribution. Data are taken from the European Union *Statistics on Income and Living Conditions* (EU-SILC), which provides comparable cross-sectional information on income, poverty, social exclusion and living conditions in the European Union.

While aggregate data provide indication about the existence of a differential between the compensation per employee paid in the public and in the private sectors, it is necessary to control for individual characteristics to determine the existence of a true "premium" in the public sector, i.e. whether

[1] A strong positive correlation between wages per employee in the public and the private sector is found for most OECD countries (Lamo, Pérez and Schuknecht, 2008). Moreover, causality analysis using macro data (Lamo et al, 2011, Pérez and Sánchez, 2011) has shown that the determination of public wages do have some impact on the determination of private sector wages, even though this is consistent also with effects stemming from the private sector into the public sector (bi-directional links). More generally, empirical evidence on euro area countries and the euro area as a whole over the last 30 years shows pro-cyclical (with one/two-year lags) co-movements of government wage spending, compensation per employee and employment (Lamo et al., 2007). This is consistent with a political economy view of the behaviour of public wages, whereby governments find it harder in favourable economic conditions to resist pressures to raise employment, wages and thus wage expenditure. Similarly, in an economic downturn, government wage expenditure appears to be one of the tools for discretionary tightening, in order to limit deficit increases.

ceteris paribus public employees are better paid than employees in the private sector. In fact, it is well documented that public sector employees are generally older, hold higher educational degrees, are more likely to take managerial positions and (at least in some countries) are more likely to work full-time. Nevertheless, the analysis with micro data confirms the existence of a pay differential in the public sector, after controlling for the aforementioned individual characteristics.

The paper is organized as follows. Section 2 provides a brief overview of the main institutional features of wage setting in each of the countries considered; Section 3 describes the evolution of the private/public wage gap in aggregate data; in Section 4 the evidence from the existing literature and the results from our analysis on micro data are presented; Section 5 concludes.

2. The institutional settings

Despite the substantial institutional changes implemented over recent decades aimed at increasing competition and efficiency in the public sector, the set of rules that govern pay and working conditions still differ significantly across private and public sectors in most EU countries.

In this Section, we briefly summarize some of the main characteristics of wage setting in the countries included in our study. Further details together with some information about recent reforms implemented in each country are reported in the Country appendix at the end of this paper.

In all countries collective bargaining plays a major role in public wage setting, even though the outcome of the bargaining process may not be legally binding for the government (notably, in France and Portugal). One exception is Greece, where public sector pay is determined by law, according to the government's annual income policies; a law was passed in 1999 recognising the right to collective bargaining in the public sector; pay issues are however excluded from the bargaining procedure. In addition, wages in Germany for civil servants (only) are set by law. Typically, the same unions negotiate for both the private and the public sectors, albeit independently and at different points in time; the bargaining results therefore generally differ across sectors. In Portugal, different unions represent workers in each sector.

Wage determination mechanisms in the public sector that envisage a systematic comparison with the levels in the private sector – separately for different economic sectors, geographical areas and educational and professional qualifications – may be useful to guarantee wage dynamics in the public sector consistent with macroeconomic and labour market conditions.[2] Among the countries considered in this study, only Ireland has examined public sector pay vis-à-vis private sector pay; specifically in 2002 and 2007. In all other countries such an approach is typically absent and the reference is generally given by the cost of living and public budget conditions (Table 1).

With the exception of Belgium and Germany – where pay determination is decentralized by regions and communities and for the Länder, respectively – wages in the public sector are set uniformly at a country level. In several countries (namely, Austria, Belgium, Germany, Italy and Spain) negotiations are typically conducted separately for individual sectors (administration, defence, health, etc.) and/or government levels, even though *de facto* wages tend to move together. One reason for this is that in some of these countries all agreements have to satisfy common guidelines set for all sub-sectors coherently with the government programmes (e.g. the government may specify a growth rate for the average wage in the public sector according to the resources allocated by the budget to compensation of employees).

[2] To this respect the institutional setting in the UK provides an interesting example. In the UK, the pay of a large proportion of public sector employees is determined through Pay Review Bodies (PRB). PRB make recommendations to the government on pay awards for the workers they represent that are based on the need to recruit, labour market conditions, the inflation target set by the government, the competitiveness with the private sector, and any difference in terms and conditions of employment between public and private sectors; they consider the broad employment package including relative job security.

Table 1 – Some basic features of wage bargaining

	Public/private comparison	Centralized setting (1)		Union density (2)	
		Geographical area	Sector/Level of government	Total	Public
Austria	No	Yes	No	38.4	68.5
Belgium	No	No	No	55.4	n.a.
Germany	No	No	No	27.0	56.3
Spain	No	Yes	No	15.7	32.0
France	No	Yes	No	8.2	15.3
Greece	No	Yes	Yes	n.a.	n.a.
Ireland	Yes	Yes	Yes	34.0	61.0
Italy	No	Yes	No	33.7	n.a.
Portugal	No	Yes	Yes	36.0	45.0
Slovenia	No	Yes	Yes	n.a.	n.a.

Notes: (1) Geographical area: yes means that wages are set uniformly all over the country, no otherwise; Sector/level of government: yes means that basic wage is set uniformly at all government sectors/ level of government, no otherwise. (2) Source: Visser (2006), except for Ireland and Portugal; Union density is defined as the share of membership within the employed dependent labour force (i.e. excluding retired and unemployed) in total employment. Data refer to 1991-1995 for Portugal, 1997 for Germany and Spain, 1998 for Austria, 2002 for Belgium, 2003 for France and Italy, 2009 for Ireland. Union density for the public sector in Ireland refers to NACE LMN.

Available data on union membership – referring to the period 1997-2009 depending on the country - show that union density (measured by the ratio between reported membership and employed dependent labour force) is typically much higher in the public than in the private sector (in the European countries approximately twice as much). Among the countries included in this study, union density rates are relatively high in Belgium (around 50%), followed by Austria, Ireland, Italy and Portugal (in the 30-40% range) and Germany (27%); it is relatively low in France (about 8%) and Spain (16%).

3. The wage gap in aggregate data

3.1 Data sources for earnings and employment

In order to determine the wage gap, it is first necessary to compute the average wage per employee (i.e. the ratio between wages and employment) in the public and private sectors. The numerator of the wage gap, the concept of total compensation of employees (or alternatively wages and salaries) in the government sector is a well-defined statistical concept homogeneous for all the countries considered in the study; [3] this is not the case for the denominator. The number of employees in the general government sector has only been included as part of the ESA95 transmission programme quite recently. To date, coverage is limited to Germany, France, Italy, Malta, Portugal, Slovenia, Belgium and Slovakia and in some cases, only short and/ outdated employee series are available.

Within the ESA95 framework, an approximation of the public sector wage bill can be estimated by combining NACE Rev. 1.1 categories L, M and N, namely, "Public Administration and defence", "Health and social work" and "Education", respectively. There are, however, drawbacks attached to this approach given that some of the employees included in NACE sectors M and N, namely, "Health and social work" and "Education" also relate to activities classified as market/private services (e.g. private hospitals and private schools); the share of such activities varies across countries. Nevertheless, in our study we will pay special attention to this classification, as the dataset for the part on micro data follows the same definitions. In addition, an advantage of this classification is that the numerator and the denominator of the wage gap are fully homogeneous.

Some general remarks have to be made as regards the use of compensation of public employees (or wages and salaries) data, for cross–country comparisons. First, the ratio of compensation of

[3] Greece is an exception: see, in the Country appendix on Greece, the paragraph "Data on Earnings and Employment".

government employees over GDP varies substantially across the countries subject of this study. Indeed, it ranged in 2009 from 7.4% of GDP in Germany to 13.3% in France. Some of these discrepancies reflect differences in the remuneration of public employees, in the efficiency of the government services, in the cost and financing arrangements of the social security systems for government employees and, clearly, in the country-specific preferences over the weight of the government in the respective economies. However, it is important to note that the government wage bill in GDP is not necessarily correlated with government spending, i.e. countries with lowest wage bills are not those with the lowest primary expenditure ratios. This apparent paradox can be explained by resorting to the differences in the sectoral delimitation of the general government sector across countries.[4] Healthcare is the activity where these differences are most relevant. All EU governments finance a sizeable part of the healthcare costs for their citizens. However, the way these costs are recorded in their accounts differs from country to country. In countries where hospitals are owned and managed directly by the government, healthcare wage-related costs are recorded as salaries paid in the government accounts. In countries where hospitals are private or in the cases in which public hospitals are managed by private firms, the costs borne by government will be accounted for under categories other than the wage bill, such as social payments.

A second issue regards the definition of total compensation of employees. The national accounts concept includes wages and salaries and employers' social contributions. The latter is split into actual contributions and imputed contributions. In the ESA95 methodology, imputed social contributions "represent the counterpart of unfunded social benefits paid directly by employers to their employees or former employees (...) without involving an insurance enterprise or autonomous pension fund (...)". This means that where pensions are directly paid by the public employer, the concept "total compensation" includes expenditure for public sector pensioners, together with other elements, usually covered by the social security; in the other cases, it includes an actuarial imputation on current employees. To give a measure of the heterogeneity across countries, in 2009 the item "Compensation of employees" excluding "Wages and salaries" and "Employers actual social contributions" amounted to 0.3% of GDP in Italy and Slovenia, 0.9% in Spain, 1% in Germany, 1.6% in Austria, 1.9% in France, 2.3% in Belgium, 2.8% in Greece and 2.9% in Portugal.

Of course, the first previous general remark also applies to the micro data that will be used in the main part of the study. For the sake of homogeneity across the paper, in what follows we will use the concept of "public sector" as defined by the NACE classification mentioned before. Nevertheless, in an Annex we also present stylized facts computed on the basis of the general government delimitation.

3.2 Some stylized facts

As illustrated in Table 2, both compensation per employee and wages per employee in the public sector grew above that of the private sector over the period 1999-2007 in Belgium, Spain, Ireland, Italy and Greece, taking as a measure of the public sector the LMN groups of the NACE classification. In Austria, Germany, Portugal, Slovenia and France, public sector wages grew in line or below private sector wages. This behaviour is broadly consistent with the one observed using general government data (see Appendix II), and it is also in line with the grouping suggested by Holm-Hadulla et al. (2010) when analyzing euro area countries according to public wage dynamics in the post-1999 period.

The dynamic behaviour displayed in Table 2 has a parallel in the evolution of the ratio of public to private wages (or compensation) per employee since 1999. In historical terms, for the euro area aggregate and the euro area countries, Holm-Hadulla et al. (2010) document the fall in the public sector wage gap during the 1970s and 1980s, as nominal wages in the private sector consistently grew at a faster pace than in the public sector. Public wages per employee for the euro area aggregate were one-third higher than private wages in 1970, but the ratio fell to just above 1.1 by 1989. Since 1989, the downward trend in this ratio has reversed decisively and in particular since 1999.

In Figure 1 we take a relatively long historical perspective and plot the evolution of the ratio of public to private compensation per employee for the period 1995-2009. Some facts are worth highlighting. First, the moderate dynamics of the wage gap in the period 1995-1998 reflected the fiscal

[4] For a broad discussion on this issue, see WGPF (2002), "Differences in government accounts across EU countries: the public wage bill", mimeo.

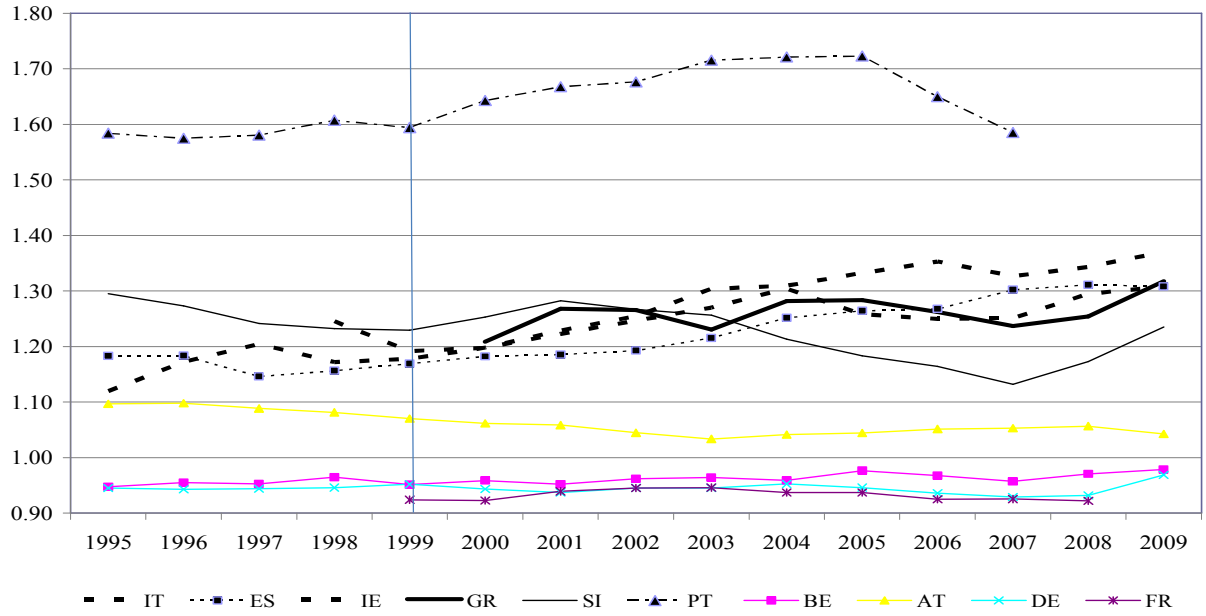
consolidation efforts undertaken by many countries to access the EMU. Second, since the inception of EMU, the gap increased steadily for Italy, Spain, Ireland and Portugal (until 2005); in the case of Slovenia it decreased until 2007 and increased thereafter. Third, as regards the level of the aggregate gap, it was consistently below 1 in the case of France, slightly below 1 in the case of Germany and Belgium, around 1.1 in Austria, around 1.2-1.3 for Italy, Spain, Greece, Ireland and Slovenia, and above 1.5 in Portugal. The picture that emerges using alternative data sources and wages instead of compensation is broadly similar (see Appendix II and Holm-Hadulla et al., 2010).[5]

Table 2 – Compensation per employee and wages and salaries per employee in the public and the private sectors. Cumulative percent growth in nominal terms over 1999-2007

	Compensation per employee			Wages and salaries		
	Public sector NACE LMN proxy	Private Sector sector	Total Economy	Public sector NACE LMN proxy	Private Sector sector	Total Economy
AT	16.9	18.8	18.2	17.9	20.5	19.8
BE	24.3	23.6	23.7	24.9	23.6	23.9
DE	6.8	9.5	9.0	7.1	10.1	9.6
ES	34.8	21.1	23.9	39.2	19.7	23.8
FR	25.8	25.7	25.8	24.7	28.5	27.6
GR	50.2	46.5	48.0	48.4	46.5	47.4
IE	64.0	56.2	59.2	59.4	55.5	57.6
IT	34.0	19.0	22.2	36.1	20.2	23.6
PT	30.2	32.2	32.0	20.9	31.4	28.5
SI	72.9	87.7	84.7	68.1	85.9	82.1

Notes: "Public sector" data for Austria refer to LMNO sectors; for Germany refer to LN sectors. The data for Greece refer to time period 2000-2007, for Ireland 1998-2008, for Portugal 1995-2007 and for France 1999-2008. Source: Eurostat.

Figure 1 – Ratio of public to private compensation per employee. Public sector proxied by the NACE LMN groups



Notes: "Public sector" data for Austria refer to LMNO sectors; for Germany refer to LN sectors. Source: Eurostat.

While from a macroeconomic perspective certain analyses that take an aggregate perspective on public-private wage interactions, like public/private sector wage leadership or the cyclical properties of

[5] As regards the period 2010 and beyond, Appendix III provides some details on public wage policies since the start-up of the crisis.

public wages (see Holm-Hadulla et al., 2010, and the reference quoted therein), can be appropriate and informative for policy-makers and academics alike, and can be rationalized within macro models,[6] the analysis of the size and determination of the wage gap deserves an additional step forward. In order to assess whether a true premium on public wages actually exist, a microeconomic analysis is needed, given that individual characteristics are key to understanding the determinants of the observed wage differential.

4. The wage gap in micro data

4.1 A review of the literature

Early research comparing the earnings of public and private sector employees has been performed by Smith (1976, 1977) using data on the United States. She found that rates of pay were higher for public sector than private-sector employees, and that the wage premium was larger for female than for male public-sector employees. Several studies have documented the fact that workers employed in the federal government earned 10% to 15% more than equally productive workers in the private sector during the 1970s (Smith 1976; Moore and Raisin 1991; Katz and Krueger 1991). However, this wage gap was eventually reduced during the 1980s. By employing quantile regression analysis, Poterba and Rueben (1994) documented a changing pattern of wage differentials between state and local government employees and their private sector counterparts for the period from 1979 to 1992 in the United States. They showed that the wage distribution was wider in the private sector and that state and local government workers enjoyed a wage premium at the lower tail of the distribution, but a wage penalty at the upper tail. They showed that the size of the public sector wage premium was sensitive to whether controls for workers' occupational classification were included in the wage regressions. Mueller (1998) used quantile regressions to estimate the size of the public sector wage premium for Canada. He found that public sector pay differentials tend to be highest for federal government employees, females and individuals at the lower tail of the wage distribution. Similar results were reported by Cai and Liw (2008) for Australia. Utilizing quantile regression analysis, they show that the public sector pay premium declines at the higher spectrum of the wage distribution and becomes negative for male workers at the top half of the conditional wage distribution.

Studies investigating the existence of a public-private wage differential in Europe have provided interesting findings. Ehrenberg and Schwarz (1986) and Gregory and Borland (1999) provide a comprehensive review of international empirical studies of the public-private wage differential. The result for the United Kingdom is that civil servants earn more than comparable workers in the private sector (Rees and Shah 1995; Elliot, Murphy and Blackaby 1996; Bender and Elliott 1999; Bender 2003). Rees and Shah (1995) find that the average wage differential ranges from 9.8% to 11.4% for males and from 22.3% to 26.3% for females from 1983 to 1987. Elliot, Murphy and Blackaby (1996) using sample selection techniques for the UK find that the wage premium for men is caused by differences in public and private characteristics. Bender and Elliott (1999) show that the differential increased from 23.2% to 29.45% for all public sector employees using data for 1991 and 1994. Bender (2003) applying decomposition analysis find that differences in wage structures of the public and private sector employees and unobservable factors that determine wages have important effects in different parts of the wage distributions of male and female workers. Chatterji et. al. (2010) report a raw public private earnings gap for full-time employees in the United Kingdom, on average, around 14 per cent. The gap for male employees is less than half that for females. Their results show that whilst much of the public private earnings gap for males can be explained by individual characteristics, occupation and workplace features, a substantial proportion of the gap for women remains unexplained.

Among the papers reporting evidence for Germany, Dustman and Van Soest (1997) use micro data for the years 1984-93 to analise developments and differences in public and private sector wage distributions for both men and women. They show that - conditional on education, marital status and age - wages are higher in the private sector for men and higher in the public sector for women. Melly (2005) reports similar results to Dustman and Van Soest (1997). He measures and decomposes the differences in earnings distributions between public and private sector employees in Germany for the years 1984-2001.

[6] See for example Fernández-de-Córdoba et al. (2011).

Results suggest that conditional wages are higher in the public sector for women but lower for men; the "premium" is highest at the lower end of the distribution and then monotonically decreases by moving up the wage distribution. His findings are stable over the '80s and the '90s. Similarly to Melly, Jürges (2002) found a pay penalty for male public sector employees and a premium for female.

Hartog and Oosterbeek (1993) analise the wage structures in both public and private sectors in the Netherlands, using an endogenous switching regression model. They find that the earnings prospects of public sector workers are better in the public sector than in the private sector, whereas for private sector workers they are better in the private sector. They conclude that workers have efficiently selected to work in the sectors in which they are employed.

Bargain and Melly (2008) estimate the public wage gap in France for the period 1990-2002 at the mean and at different quantiles of the wage distribution for both sexes. Controlling for unobserved heterogeneity by using fixed effects estimation on panel data they report that public sector premia or penalties are indeed much lower than commonly found. In particular, public wage premia for women and penalties for men are the result of the selection of the employees. Finally, only small pay differences between sectors remain over time, reflecting fluctuations due to specific public policies and the pro-cyclical movement of private sector wages. A study by Beffy (2010) based on the waves 1994 to 2001 of the French European Household Survey analyses the public-private gaps. It shows that the measure of public – private gap is very sensitive to control variables. More precisely, it varies when self-selection into the public sector is or is not taken into account. The authors introduce unobserved heterogeneity in the propensity to be employed in either job sector, and in the sector-specific productivity and find evidence of a large public-private wage premium for low public wages. This conclusion also holds for women but may be explained by a weaker discrimination in the public sector. Unlike women, most male civil servants would earn more in the private sector.

Lucifora and Meurs (2006) examine the public private pay determination for three European countries, France, Great Britain and Italy in 1998 and show that the low-skilled public sector workers are paid on average higher wages with respect to their private sector counterparts, whilst the reverse is true for high-skilled workers. They also find that the premium is greater for female public sector employees than for males. Brunello and Dustmann (1997) compare public-private wage differentials in Italy and in Germany. They find a positive wage gap in both countries, higher in Italy than in Germany (21 and 7 per cent, respectively). Moreover, by decomposing the gap into two factors, one due to observable and the other to unobservable characteristics (i.e., the premium), they conclude that, for given individual characteristics, working in the public sector is penalizing in Germany and rewarding in Italy.

Empirical research, employing microdata for Italy, has documented the existence of a positive public sector wage premium depending on the period and the specification considered. Bardasi (1996), using data from the Bank of Italy Survey of Household Income and Wealth (SHIW), which contains information about personal and occupational characteristics, wages (net of income and payroll taxes) and type of economic activity, looks at 1991 incomes and employs a two-stage econometric model to take into account the possibility that the distribution of people between sectors may not be casual, but rather result from self-selection. She finds a public-private wage differential of 9 and 35 per cent for men and women, respectively. If workers were distributed randomly across sectors, the average wage in the public sector would be 25 and 17 per cent higher for men and women, respectively. Comi et al. (2002), also using data from SHIW, analise the gap over the period 1977-1998. They find a positive wage premium for the public sector that is higher for women and for low-income workers. They observe that such premium, after having reached a peak in 1995 (20 per cent for women, after controlling for individual characteristics), started decreasing in 1998. They explain the wage moderation in the public sector observed in the last part of their sample period also by mentioning the 1993 reform. An analysis of pay differentials at regional level is provided by Dell'Aringa et al. (2007) that shows a higher premium in the South and in the Islands than in Centre or Northern Italy.

Finally, Depalo and Giordano (2011) investigate the public-private sector pay gap using Italian data for the period 1998-2008. Without controlling for possible endogeneity of the public sector choice, they report a public sector premium averaging at about 14 per cent for women and 4 per cent for men; the premium is much higher when possible sorting is considered. Their findings are in line with the results obtained by Giordano (2010), which also reveal the existence of a positive wage differential for public

sector workers, even after controlling for observable characteristics, over all in the southern regions, for women and for low skill workers.

There is a limited number of studies trying to measure the wage differential between the public and the private sectors in Greece. Kioulafas, Donatos, and Michailidis (1991) estimated the differences between the earnings of public and private sector employees for the years 1975, 1981, 1982, and 1985 and found that the earnings of the former exceed those of the latter by 20 to 25%. Kanellopoulos (1997) using data for 1997 for Greece shows that public-sector employees receive higher earnings than private-sector employees. Papapetrou (2003, 2006) using microdata from the European Community Household Panel Survey (ECHP) for Greece reports that average earnings are higher in the public sector than in the private sector and employees in the public sector at the lower end of the wage distribution earn a higher wage gap compared with their counterparts in the private sector, but this gap decreases at higher quantiles. Furthermore, quantile regression estimation reveals that earnings differentials at the lower end of the wage distribution cannot be attributed to individual characteristics whereas at the highest quantiles pay differentials reflect differences in the employee's endowment.

A number of studies have examined the public-private sector wage gap in Ireland. Boyle at. al. (2004) report wage premia for public sector workers, greater for low-paid workers and smaller for public sector workers at the top of the earnings distribution using microdata from the European Community Household Panel Survey. Another study by Foley and O'Callaghan (2009), using micro data from the 2007 National Employment Survey, also find a sizable public sector wage premium, highest at the lower ends of the earnings distribution. The authors use a variety of estimation techniques and control for work place and employee characteristics such as age, education, gender, occupation, etc. However, the authors urge caution in reaching a definitive conclusions on the average public sector premium. More recently, Kelly et. al. (2009), using data from the 2003 and 2006 National Employment Surveys, analise the public-private sector wage gap in Ireland. Their results indicate that the public sector pay premium increased considerably from 14 to 26 per cent between 2003 and 2006. Moreover, they also reported that there was significant variation across public service sub-sectors.

The empirical evidence on wage differentials between public and private sectors utilizing micro data is limited for Spain. García-Pérez and Jimeno (2005) use data from the *European Community Household Panel* and show a very high dispersion of public/private wage gaps across regions. According to this study, public sector wage differences across Spanish regions are mostly due to differences in returns, not to differences in characteristics or to selection effects, and are not constant across gender, educational levels or occupations. Furthermore, in regions with higher weight of public employment over total employment, public wage gaps are higher and public employers earn higher returns.

Campos and Pereira (2009) for Portugal show that public sector employees earn higher wages than their private sector counterparts and this premium has risen over the 1996-2005 period from almost 10% in 1996 to around 15 per cent in 2005. The premium is higher for female workers compared to male workers and decreases as one moves from the lower to the upper quantiles of the earnings distribution. International comparisons such as those provided by Strauss and Maisonneuve (2007) conclude that the Portuguese figure for this indicator is one of the highest in the euro area. By categories of employees, the premium is particularly high for women and workers in poorer regions. The same holds for employees at the bottom quantiles of the distribution; as one climbs up the wage distribution, the public-private wage premium decreases and there is evidence of a penalty at the top.

The various studies explaining labour market in Slovenia usually do not examine the public-private sector wage gap in depth. However, Vodopivec (2004) using a wage equation shows that workers in private companies are paid more than those in state-owned companies. Using micro data, he finds out that in the period 1993-2001 wages did not differ significantly across firms of different ownership types. Kajzer et. al. (2006), employing aggregate data, show that wages in public and private sectors differ in favour of the public sector, reflecting the higher educational level of employees in the public sector. However, if public sector wages are compared to private sector wages in activities which have similar education structure as the public sector, then at higher educational level the wage premium declines.

There are a limited number of studies that analise the gap between private and public wages in Austria. International studies based on micro data looking at EU-15-countries tend to find that the wage premium of Austrian public workers is lower than that of their counterparts in other countries. Ponthieux

and Meurs (2005) analise gender wage gaps for ten EU-15 countries and report for Austria an insignificant gap between public and private sector employees and for male and female employees. However, for most of the ten EU countries examined they report positive wage differentials for public sector employees. An analysis of Portugal and Centeno (2001) shows a negative premium for males in the Austrian public sector and a positive one (but below EU-15-average) for females.

There is also no recent study using either macro or micro data that analyses the gap between private and public wages in Belgium. Among international studies including Belgium, Portugal and Centeno (2001) show a positive premium for both males and females in the Belgian public sector, but rather limited compared to the same premium in other countries considered. Strauss and Maisonneuve (2007), based on data for 2001, find a negative although not significant premium for working in the public sector.

4.2. Evidence from EU-SILC

4.2.1. The data

In this work we use data from the *European Union Statistics on Income and Living Conditions* (EU-SILC), which aims at collecting timely and comparable cross-sectional and longitudinal multidimensional microdata on income, poverty, social exclusion and living conditions. For both the cross-sectional and the longitudinal components, the data are based on nationally representative probability samples of the population residing in private households aged 16 and over, irrespective of language, nationality or legal residence status. In each year considered in this study (2004, 2005, 2006 and 2007) our overall sample consists of approximately 220,000 individuals, of which 28% live in Germany, about 20% live in France, another 20% in Italy, 15% in Spain and less than 5% in the other six countries. About 60% of these individuals are at work, with 85% of them being employees and the remaining 15% self-employed.

In this survey the public sector can be defined according to the NACE (REV 1.1) classification. In particular, we consider a public sector worker if he/she is employed in one of the following sectors: "Public administration and defence, compulsory social security", "Education" or "Health and social work". Germany, for which health sector workers are excluded from the definition, is an exception. Even though this entails an approximation that in many cases overestimates the share of public sector workers in total employees, from Section 4.2.2 our sample appears to be close to the population and thus we conclude that the selection made is a fair compromise.

4.2.2. Some descriptive statistics

In our sample, obtained by pooling the observations for the years 2004-07, the share of public sector workers in overall employment varies significantly across the observed countries: it ranges from 19% in Germany and 21% in Austria to 38% in Belgium (see Table 3a).[7]

In terms of demographic and educational backgrounds of public workers, there are substantial similarities (table 3a). In all countries public sector workers are significantly older on average; the difference with respect to private sector workers ranges from about 1 year in Slovenia to about 7 years in Ireland. Public sector workers are more likely to be married in all countries. Furthermore, the share of females is substantially higher in the public sector; it is more than 10 percentage points higher than in the private sector in all countries except Germany. The share of workers with tertiary education is considerably higher in the public sector, with the difference to the private sector being above 15 percentage points in all countries.

[7] Notice that the descriptive statistics commented in this section refer to the public sector definition used in the regressions. It is the sum of Public administration, Education and Health sectors for all countries except Germany, where the Health sector is excluded.

Table 3a: Descriptive statistics on characteristics of employees and terms of the labour contract

	Share in employees (15-64) in %												Average across employees (15-64)					
	Public sector	Tertiary education			Male			Part-time work			Managerial position			Age			Working hours		
		Pr.	Pu.	Diff	Pr.	Pu.	Diff	Pr.	Pu.	Diff	Pr.	Pu.	Diff	Pr.	Pu.	Diff	Pr.	Pu.	Diff
AT	21	15	41	27	60	38	-22	15	24	9	28	36	8	37	41	4	38	36	-2
BE	38	35	58	23	65	37	-28	13	26	12	30	24	-5	39	41	2	38	34	-4
DE	19	24	49	25	55	48	-7	26	25	-1	23	26	3	40	43	3	35	36	1
ES	23	28	61	34	64	42	-22	10	11	1	23	23	0	37	41	4	40	36	-4
FR	31	23	41	18	60	34	-26	12	19	7	29	34	6	38	41	2	37	35	-2
GR	29	19	56	36	63	48	-15	7	23	16	14	18	4	37	41	4	41	35	-5
IE	29	28	51	23	59	34	-25	23	35	12	27	33	7	36	43	7	36	32	-4
IT	27	9	33	24	63	43	-21	12	23	11	22	26	4	38	44	6	39	34	-5
PT	25	9	39	30	59	34	-25	5	4	-1	18	21	4	37	41	4	41	37	-4
SI	23	13	43	30	60	30	-30	2	3	1	29	26	-3	39	40	1	41	40	-1

Pr. = private sector, Pu. = public sector, Diff = Pu. - Pr.
Rounding may cause discrepancies in differences.

When comparing the terms of employment in the respective private and public sectors, one can detect the following patterns. The differences in the shares of permanent contracts tend to be higher between countries than within countries. Only in Greece and Spain the difference between the two sectors is larger than 4 percentage points (with the share of permanent contracts in the public sector being higher by 9 and 6 percentage points, respectively), while in a few countries the difference is even negative (meaning more permanent contracts in the private sector). Furthermore, public sector workers are more likely to be in a managerial position in all countries except Belgium and Slovenia. Private sector workers have longer working hours on average (except in Germany) and are more likely to work full-time (except in Germany, Spain, Portugal and Slovenia, where the shares of part-time workers are very similar across the two sectors).[8]

Table 3b: Wage gaps based on descriptive statistics

	Hourly wage						Monthly wage			Yearly wage		
	gross (EUR)			net (EUR)			gross (1000 EUR)			net (1000 EUR)		
	Pr.	Pu.	Diff	Pr.	Pu.	Diff	Pr.	Pu.	Diff	Pr.	Pu.	Diff
AT	12	15	24%	10	12	21%	1.9	2.1	12%	18	20	12%
BE	15	17	12%	11	12	8%	2.3	2.3	-1%	20	19	-5%
DE	14	17	19%	11	13	21%	2.1	2.5	16%	19	23	18%
ES	9	13	44%	7	10	42%	1.4	1.8	28%	14	17	26%
FR	13	15	15%	10	12	22%	1.9	1.9	-1%	18	19	5%
GR	7	11	49%	6	10	55%	1.1	1.4	24%	12	15	27%
IE	17	24	42%	13	18	33%	2.4	3.0	25%	22	26	17%
IT	11	15	38%	9	12	42%	1.6	1.9	17%	16	19	22%
PT	5	9	77%	5	8	69%	0.8	1.2	47%	9	13	46%
SI	7	9	28%	5	6	24%	1.2	1.4	26%	9	12	24%

Pr. = private sector, Pu. = public sector, Diff = Pu. / Pr. – 1
Rounding may cause discrepancies in differences.

[8] It has to be noted, however, that the data on part-time work and working hours has to be treated with some caution in several countries. For example, the share of part-time workers in the private sector of Austria in this data set is lower than according to alternative data sources. Furthermore, it cannot be excluded that there is a downward measurement bias in working hours of employees of the education sector in several countries (see the analysis of subsectoral wage gaps in section 4.2.3).

Most importantly in the context of this paper, average wages are much higher in the public sector (table 3b). However, the size of the wage gap varies considerably across countries and with the selected measure for the wage gap. As private workers tend to work longer hours, it is not very surprising that the gaps in hourly wages are substantially higher than in yearly and/or monthly wages in all countries except Germany and Slovenia (the two countries, where the gap in working hours is smallest). Overall, wage gaps are smallest in Belgium and tend to be especially high in Ireland and in Southern countries, with Portugal having the largest gap according to all four measures.

4.2.3. Regression results

We estimate the public-private sector wage premium using OLS techniques, by pooling the data for both sectors and introducing a dummy variable for the public sector. In particular in this regression analysis we estimate the difference in the hourly wage rate (y) between private and public sector (pub) workers that persists after considering other relevant determinants of the earning process (X), using a Mincerian (Mincer, 1974) semi-logarithmic wage equation:

$$y = a + X'\beta + pub\gamma + u,$$

where α is the intercept term, X is a vector of regressors measuring a range of individual and job characteristics, u is the residual term and pub is a dummy variable that takes the value of one if the employee works in the public sector and zero otherwise. The complete set of independent variables includes indicators for: marital status (non-married is the reference), low and high education (medium education is the reference),[9] gender, labour market experience, a second degree polynomial in labour market experience,[10] supervising other colleagues (a dummy variable that takes the value of one if the employee has a managerial position and zero otherwise), type of work (a dummy variable that takes the value of one if employee is employed part-time and zero otherwise). When labour market experience is not available for a country, we use a polynomial of second degree in age instead. [11]

For each country, a set of dummies control for the geographical areas (NUTS2). Since we pool the observations for all the years, a set of dummies controls for a possible time trend. Furthermore, we use sample weights provided by EU-SILC to make the sample comparable to the population; all the standard errors are robust to heteroskedasticity arising from the sample design.

To avoid undue noises in the comparison between private and public sector workers we use only the sub sample of employees while self-employed are excluded.

The variable hourly wage is the natural logarithm of the average hourly earnings of each employee. It is worth emphasizing that the ideal definition of wage is the "gross monthly earnings for employees", which refers to the monthly amount of money received in the main job. We have also checked our results using the "employee cash or near cash income" variable; in this case, as the variable is the sum of earnings from all the jobs done in the reference period, we consider only individuals who have only one job, in an attempt to avoid spurious relations. The hourly wage is calculated by dividing the employees' gross monthly earnings by the hours they usually work each week (multiplied by 4). The hourly wage for "employee cash or near cash income" is calculated accordingly. We report results following the former definition, the hourly wage using the gross monthly earnings for employees.[12] The results following the hourly wage using the employee cash or near income definition are available from the authors upon request.

For an easier interpretation of the coefficients, we have normalized the intercept (α). In all the models it refers to a man, 47 years old with 29 years of labour market experience (or, equivalently, who

[9] Low education is defined as not having completed secondary education, medium education as having completed secondary education, and high education as having completed at least the first stage of tertiary education.
[10] Experience is defined as the difference between the current age and the age at first job.
[11] For Germany, Greece and Ireland experience is not available and we use age instead.
[12] As "gross monthly earnings for employees" is not available for France and Germany, for these countries we report the results obtained using "gross - employee cash or near cash income".

has started working when 18 years old), with intermediate education and not supervising any other of his colleagues. He works full time in the private sector.

Finally, we run the same regression on several sub-groups, and test a variety of null hypotheses to examine whether the wage premia differ across the selected sub-groups. The sub-groups analysed are male and female workers; employees in education, health services and public administration; low, medium and high education level employees; and various quantiles of the wage distribution.

Table 4: Results from OLS regression: coefficient of the dummy variable for public sector

Hourly gross earning for employees

	AT	BE	DE	ES	FR	GR	IE	IT	PT	SI
TOTAL										
Public	0.096 ***	0.050 ***	0.109 ***	0.250 ***	0.054 ***	0.214 ***	0.187 ***	0.190 ***	0.208 ***	0.114 ***
Obs.	20187	7567	29743	41262	33477	14487	16750	63189	15259	10160
R2	0.368	0.338	0.36	0.416	0.204	0.455	0.387	0.368	0.517	0.257
F	576.2	278.8	549.5	648.0	174.4	675.2	507.3	1035.6	924.8	219.5
MEN										
Public	0.039 ***	0.029 **	0.027 **	0.232 ***	0.039 ***	0.166 ***	0.162 ***	0.160 ***	0.190 ***	0.082 ***
Obs.	11132	4086	15028	23789	17309	8421	8379	35645	7985	5094
R2	0.373	0.353	0.431	0.4	0.221	0.439	0.38	0.373	0.459	0.262
F	308.7	166.9	363.7	356.6	92.5	409.5	344.0	626.4	422.0	119.0
WOMEN										
Public	0.136 ***	0.067 ***	0.194 ***	0.262 ***	0.065 ***	0.259 ***	0.202 ***	0.221 ***	0.221 ***	0.121 ***
Obs.	9055	3481	14715	17473	16168	6066	8371	27544	7274	5066
R2	0.322	0.317	0.251	0.423	0.177	0.477	0.395	0.362	0.567	0.267
F	235.1	143.6	170.7	312.0	87.2	337.8	244.1	508.1	616.6	150.0

Notes: *** denotes significance at 1%; ** denotes significance at 5%; * denotes significance at 10%.

In Table 4 we report the coefficients for the public sector indicator by gender and country. [13] In all cases, the joint significance of the independent variables is high (as suggested by the F test); the R^2 is greater than or equal to 30% (with the exception of the cases of France and Slovenia, for which it is lower).

When we pool all the countries (the coefficients, not reported in Table 4, are close to the averages across countries), the wage premium is on average 11.2 percentage points, larger for women (14.8 points) than for men (8.0 points).[14] Taking such averages as benchmarks, we identify three different groups of countries, depending on whether the estimated premium is smaller than, close to or larger than the benchmark. In general, in Austria, Belgium and France the conditional pay gap is smaller than the average, in Germany and Slovenia it is close to the average and in Spain, Greece, Ireland, Italy and Portugal it is higher than the average.[15,16]

The conditional pay gap also differs by gender. In most countries it is higher for women than for men by 5 percentage points or less; in Austria, Greece, Italy and Germany it is much higher.

Besides single estimation analysis a model in which each coefficient is allowed to vary across the public and the private sectors, so that the return on each characteristic affecting the earning process can differ between private and public sectors, has also been estimated. Although point estimates in some cases change across specifications, the main qualitative conclusions are confirmed.[17]

[13] The complete set of results is available upon request.

[14] The discrepancy between the two definitions is noticeable for Greece, Ireland and Italy.

[15] The relative position of the countries may slightly differ when the hourly net wage specification is estimated. The results are available from the authors upon request.

[16] As already mentioned, in these benchmark estimations the Health sector is included in the public sector in Belgium and excluded in Germany. As for these two countries the definition of the public sector is not clear-cut, we also estimated the public sector premium by considering the health sector in the private sector for Belgium and in the public sector for Germany. The results, not reported in the Table and referring to the 'cash or near cash income' definition of earnings, point to a higher premium in Belgium (3.5% in the overall sample, 1.1% for men and 5.2% for women) and a lower premium in Germany (5.3% in the overall sample, negative but not significant for men and 12.0% for women). This is coherent with the results obtained by sub-sectors that suggest lower conditional wage differentials in the health sector.

[17] The empirical results are available from the authors upon request.

Although relevant for many purposes, averages might conceal a number of key aspects that can emerge by looking at the entire conditional wage distribution. Hence, we analise whether the public-private wage differential remains the same or varies across various quantiles of income. Table 5 presents estimates of the public-private sector wage differential at the 10th, 25th, 50th ,75th and 90th percentiles of the wage distributions by gender and country. For most countries (with the exception of Spain, Ireland and Portugal) the public sector gap is higher at the lower quantiles and declines along the wage distribution. This is further evidence that the dispersion of the wages in the public sector is much smaller than in the private sector. In this context, public sector employees with low wages earn a higher wage premium relative to higher income employees. The interquartile differences remain contained at around 5 percentage points in Belgium, France, Italy and Austria, and the differences are marked in Slovenia, Greece and Germany. In the case of Germany, Belgium, France and Slovenia the differential at the highest quantile becomes negative, suggesting that high income public sector employees have a wage disadvantage compared to their private sectors counterparts. Finally, the empirical evidence suggests the existence of a different premium across genders across the wage distribution and it is higher for female workers compared to their male counterparts. Moreover, whilst the wage gap for women is flatter than that of men along the wage distribution, in the countries with more pronounced wage compression, the premium across quantiles for women is flatter than in the other group of countries.

Table 5: Results from OLS regression by income level: coefficient of the dummy variable for public sector

Hourly gross earning for employees

	AT	BE	DE	ES	FR	GR	IE	IT	PT	SI
TOTAL										
10	0.115 ***	0.078 ***	0.299 ***	0.233 ***	0.132 ***	0.249 ***	0.161 ***	0.212 ***	0.174 ***	0.204 ***
25	0.109 ***	0.062 ***	0.177 ***	0.250 ***	0.058 ***	0.272 ***	0.198 ***	0.201 ***	0.207 ***	0.176 ***
50	0.098 ***	0.050 ***	0.079 ***	0.276 ***	0.034 ***	0.235 ***	0.211 ***	0.186 ***	0.213 ***	0.135 ***
75	0.078 ***	0.013	-0.029 ***	0.254 ***	0.007	0.175 ***	0.186 ***	0.162 ***	0.195 ***	0.069 ***
90	0.034 ***	-0.027 **	-0.116 ***	0.209 ***	-0.036 ***	0.091 ***	0.119 ***	0.128 ***	0.162 ***	-0.026
Obs.	20187	7567	29743	41262	33477	14487	16750	63189	15259	10160
MEN										
10	0.054 ***	0.069 ***	0.217 ***	0.233 ***	0.103 ***	0.286 ***	0.218 ***	0.188 ***	0.227 ***	0.184 ***
25	0.055 ***	0.040 ***	0.096 ***	0.259 ***	0.037 ***	0.267 ***	0.198 ***	0.181 ***	0.206 ***	0.126 ***
50	0.056 ***	0.022 *	-0.001	0.263 ***	-0.003	0.176 ***	0.159 ***	0.158 ***	0.196 ***	0.109 ***
75	0.025 *	0.004	-0.115 ***	0.231 ***	-0.023 **	0.121 ***	0.131 ***	0.135 ***	0.171 ***	0.048 **
90	-0.041 **	-0.018	-0.191 ***	0.177 ***	-0.065 ***	0.031 *	0.063 ***	0.115 ***	0.170 ***	-0.035
Obs.	11132	4086	15028	23789	17309	8421	8379	35645	7985	5094
WOMEN										
10	0.170 ***	0.093 ***	0.447 ***	0.238 ***	0.152 ***	0.229 ***	0.140 ***	0.230 ***	0.147 ***	0.195 ***
25	0.156 ***	0.096 ***	0.322 ***	0.238 ***	0.079 ***	0.278 ***	0.192 ***	0.222 ***	0.214 ***	0.187 ***
50	0.126 ***	0.075 ***	0.163 ***	0.286 ***	0.064 ***	0.289 ***	0.253 ***	0.217 ***	0.241 ***	0.146 ***
75	0.111 ***	0.023 *	0.038 ***	0.274 ***	0.035 ***	0.252 ***	0.216 ***	0.185 ***	0.206 ***	0.065 ***
90	0.077 ***	-0.014	-0.045 ***	0.218 ***	-0.007	0.187 ***	0.153 ***	0.131 ***	0.172 ***	-0.024
Obs.	9055	3481	14715	17473	16168	6066	8371	27544	7274	5066

Notes: *** denotes significance at 1%; ** denotes significance at 5%; * denotes significance at 10%.

In an attempt to better understand the public sector wage premium, we also investigate other dimensions of the differential.

As a next step we split the public sector into sub-sectors (Table 6). On average workers in "Education" earn much higher wages with respect to workers with similar characteristics in the private sector relative to workers in the other sub-sectors, while workers in the "Health" sector are less at advantage, and as in the case of Germany even at disadvantage with respect to their private sector counterparts. This finding is confirmed on the basis of a formal statistical test that strongly rejects the null hypothesis of equality of coefficients across sub-sectors. In contrast, a closer inspection of the estimates reveals that the coefficients obtained for "Health" and "Public Administration, PA" are quite close in some countries: this is the case for Austria, Spain and Portugal in the sample of men and Greece and Slovenia in the sample of women (a statistical test would not reject the null hypothesis of the coefficient being not different at 5% confidence level). One likely reason for the larger differential in favour of

workers in the educational sector in some countries is that teachers are possibly reporting the actual time they spend in teaching, which is less than their full workload (which may be similar to that for the other public employees). Indeed, a tabulation of hours worked per week across sub-sectors reveals that workers in the education sector report 2.5 working hours less than health workers and 4.5 hours than workers in public administration. There are also noticeable differences across countries. While the issue is negligible in Austria, Germany and Slovenia, the workload for workers in the education sector is lower than in the other sub-sectors by 11 hours in Greece, 7 hours in Italy, 4 hours in Spain and 3 in Portugal.[18] As previously discussed, the size of the wage premium differs by gender and, on average, it is higher for women than for men for the sub-sectors specification examined.

Table 6: Results from OLS regression: coefficient of the dummy variable for public sector split in Public administration, Education and Health.

Hourly gross earning for employees

	AT	BE	DE	ES	FR	GR	IE	IT	PT	SI
TOTAL										
PA	0.050 ***	0.070 ***	0.106 ***	0.244 ***	0.062 ***	0.188 ***	0.194 ***	0.161 ***	0.239 ***	0.129 ***
Edu.	0.245 ***	0.064 ***	0.085 ***	0.342 ***	0.049 ***	0.348 ***	0.322 ***	0.262 ***	0.277 ***	0.145 ***
Health	0.065 ***	0.017	-0.056 ***	0.168 ***	0.046 ***	0.151 ***	0.086 ***	0.161 ***	0.108 ***	0.061 **
Obs.	20187	7567	29743	41262	33477	14487	16750	63189	15259	10160
R2	0.373	0.339	0.36	0.42	0.204	0.461	0.395	0.371	0.521	0.258
F	522.5	240.0	491.7	620.6	164.5	628.2	445.3	941.0	841.6	188.9
MEN										
PA	0.003	0.060 ***	0.025 **	0.216 ***	0.043 ***	0.157 ***	0.156 ***	0.149 ***	0.192 ***	0.137 ***
Edu.	0.180 ***	0.024	-0.025	0.313 ***	0.035	0.284 ***	0.247 ***	0.168 ***	0.187 ***	0.032
Health	0.025	-0.049 ***	-0.231 ***	0.180 ***	0.027	0.081 ***	0.063 *	0.183 ***	0.184 ***	-0.011
Obs.	11132	4086	15028	23789	17309	8421	8379	35645	7985	5094
R2	0.376	0.356	0.435	0.401	0.221	0.442	0.382	0.374	0.459	0.263
F	278.0	142.0	325.7	339.2	87.7	380.8	292.1	555.1	362.3	101.2
WOMEN										
PA	0.119 ***	0.086 ***	0.211 ***	0.283 ***	0.081 ***	0.239 ***	0.231 ***	0.187 ***	0.325 ***	0.118 ***
Edu.	0.276 ***	0.088 ***	0.188 ***	0.353 ***	0.054 ***	0.377 ***	0.357 ***	0.302 ***	0.312 ***	0.173 ***
Health	0.090 ***	0.046 ***	0.033 **	0.168 ***	0.055 ***	0.185 ***	0.107 ***	0.156 ***	0.111 ***	0.070 **
Obs.	9055	3481	14715	17473	16168	6066	8371	27544	7274	5066
R2	0.33	0.318	0.252	0.431	0.177	0.485	0.408	0.369	0.576	0.268
F	215.4	122.4	152.8	309.2	82.2	314.3	220.8	475.2	586.4	126.6

Notes: *** denotes significance at 1%; ** denotes significance at 5%; * denotes significance at 10%.

We then examine whether the size of the premium changes with the educational attainment (Table 7). In many countries the public workers with the highest educational level enjoy a larger differential than those with lower educational attainments. This finding, compared to the results obtained by quantile analysis, suggests that high educated workers are not necessarily those earning the highest wages. It can be explained by the presence in some countries of different institutional arrangements concerning careers and wage determination across sectors: while in the public sector the individual may need a minimal educational achievement to get qualified for a particular job or to reach high occupational positions, in the private sector no specific requirement usually applies.

Interestingly, when we split our sample between supervisors and non-supervisors the results (not reported here) point to a significantly higher differential in favour of those who are not supervisors, with the largest difference estimated in the sample of women, suggesting that supervisors earn more than non-supervisors and hence find themselves at the right end of the wage distribution.[19]

[18] Country specific analysis might provide more helpful insights on the data issues of the various countries examined but this analysis is beyond the scope of the present note.

[19] However, one should be cautious when comparing the results obtained using the two different definitions, as each respondent is asked about her/his supervisory activities, which brings some form of arbitrariness. The results are available upon request from the author.

Table 7: Results from OLS regression by education: coefficient of the dummy variable for public sector

Hourly gross earning for employees

	AT	BE	DE	ES	FR	GR	IE	IT	PT	SI
TOTAL										
Low edu.	0.129 ***	0.046 **	0.220 ***	0.121 ***	0.035 *	0.157 ***	0.052 **	0.155 ***	0.164 ***	0.019
Medium edu.	0.052 ***	0.050 ***	0.118 ***	0.178 ***	0.058 ***	0.193 ***	0.127 ***	0.196 ***	0.091 ***	0.175 ***
High edu.	0.214 ***	0.050 ***	0.082 ***	0.342 ***	0.061 ***	0.263 ***	0.303 ***	0.224 ***	0.412 ***	0.025
Obs.	20187	7567	29743	41262	33477	14487	16750	63189	15259	10160
R2	0.37	0.338	0.36	0.422	0.204	0.456	0.394	0.369	0.524	0.259
F	515.6	240.9	497.1	619.8	165.7	599.9	446.4	927.8	839.5	186.6
MEN										
Low edu.	0.130 ***	0.047 *	0.135	0.143 ***	0.076 ***	0.169 ***	0.033	0.154 ***	0.159 ***	-0.015
Medium edu.	0.002	0.033 **	0.031 *	0.173 ***	0.035 **	0.175 ***	0.131 ***	0.143 ***	0.203 ***	0.128 ***
High edu.	0.106 ***	0.019	0.014	0.306 ***	0.022	0.153 ***	0.257 ***	0.205 ***	0.256 ***	0.012
Obs.	11132	4086	15028	23789	17309	8421	8379	35645	7985	5094
R2	0.374	0.353	0.431	0.403	0.221	0.439	0.384	0.374	0.46	0.263
F	275.8	141.6	325.3	340	87.4	359.7	300.7	554.6	366.4	101.4
WOMEN										
Low edu.	0.120 ***	0.074 **	0.263 ***	0.125 ***	0.027	0.173 ***	0.108 ***	0.166 ***	0.181 ***	0.012
Medium edu.	0.106 ***	0.068 ***	0.189 ***	0.192 ***	0.081 ***	0.209 ***	0.127 ***	0.232 ***	0.007	0.184 ***
High edu.	0.297 ***	0.063 ***	0.189 ***	0.356 ***	0.067 ***	0.341 ***	0.314 ***	0.254 ***	0.506 ***	0.039
Obs.	9055	3481	14715	17473	16168	6066	8371	27544	7274	5066
R2	0.326	0.316	0.252	0.431	0.177	0.48	0.401	0.363	0.582	0.269
F	212.3	122.3	153.6	296.4	83.3	304.3	213.9	458.3	583.4	125.4

Notes: *** denotes significance at 1%; ** denotes significance at 5%; * denotes significance at 10%.

Finally, we examine whether the wage differential between sectors differs when we consider the firm size (Table 8).[20] On average, when we control for this job specific characteristic, the wage differential in favour of the public sector workers is generally confirmed. The differential is larger when public sector employees are compared to small firms employees than when compared to large firms employees. With respect to large firms employees, in Belgium, France and Germany public sector workers are worse off. The wage difference between smaller and larger firms is generally similar by country and gender at about 15-20 percentage points; fixing the firm dimension, the average differential between men and women tends to be wider in the larger firms, although this evidence is mixed.

Table 8: Results from OLS regression controlling for firm size: coefficient of the dummy variable for public sector as against small and large private firms

Hourly gross earning for employees

	AT	BE	DE	ES	FR	GR	IE	IT	PT	SI
TOTAL										
<50	0.159 ***	0.153 ***	0.265 ***	0.307 ***	0.144 ***	0.260 ***	0.260 ***	0.239 ***	0.274 ***	0.215 ***
>=50	0.003	-0.032 ***	-0.033 ***	0.143 ***	-0.060 ***	0.089 ***	0.103 ***	0.095 ***	0.115 ***	0.030 *
Obs.	20166	7569	29844	39678	33065	14487	16608	63189	15234	10130
R2	0.39	0.371	0.392	0.437	0.221	0.469	0.399	0.384	0.53	0.272
F	595.7	296.8	608.3	663.1	186.3	665.2	492.5	1032	879.9	214.5
MEN										
<50	0.107 ***	0.147 ***	0.196 ***	0.297 ***	0.137 ***	0.212 ***	0.255 ***	0.210 ***	0.266 ***	0.215 ***
>=50	-0.028 **	-0.041 ***	-0.082 ***	0.130 ***	-0.066 ***	0.049 ***	0.080 ***	0.078 ***	0.096 ***	-0.013
Obs.	11124	4085	15102	22645	17022	8421	8274	35645	7968	5082
R2	0.396	0.394	0.461	0.423	0.242	0.455	0.398	0.388	0.477	0.29
F	318	176.9	390.7	369	104.7	401.3	323.0	631.6	409.1	127.7
WOMEN										
<50	0.194 ***	0.153 ***	0.332 ***	0.310 ***	0.146 ***	0.304 ***	0.256 ***	0.268 ***	0.279 ***	0.195 ***
>=50	0.020	-0.020	0.022	0.153 ***	-0.055 ***	0.118 ***	0.126 ***	0.104 ***	0.131 ***	0.055 **
Obs.	9042	3484	14742	17033	16043	6066	8334	27544	7266	5048
R2	0.343	0.34	0.286	0.44	0.189	0.491	0.401	0.378	0.575	0.273
F	243.5	149.9	201.5	313.2	89.5	331.4	233.5	495.7	575.2	136.2

Notes: *** denotes significance at 1%; ** denotes significance at 5%; * denotes significance at 10%.

[20] The authors would like to thank an anonymous referee for suggesting to control for job features, such as firm size.

All the above analysis considers the hourly wage as the variable of interest. However, one might argue that, as long as the hours worked are not a choice variable of the worker, the monthly earnings better represent the remuneration actually relevant for the employee. Accordingly, in Table 9 we report the coefficients of the public sector indicator when we use the very same model specification as in Table 4, but the dependent variable is the monthly wage. It should be noticed that, if the hours worked per week is a relevant indicator for the earning process and there exists a correlation between the public sector indicator and the hours worked per week, the parameter of interest in Table 9 suffers from an omitted variable bias. For this reason we also performed an "augmented regression" analysis with the number of worked hours added to the standard set of regressors in our reference model. The results indicate that in most cases the estimated differences are trivial compared to our reference model.

Table 9: Results from OLS regression with monthly wage as dependent variable: coefficient of the dummy variable for public sector

Monthly gross earning for employees

	AT	BE	DE	ES	FR	GR	IE	IT	PT	SI
TOTAL										
Public	0.099 ***	0.035 ***	0.151 ***	0.172 ***	0.033 ***	0.162 ***	0.162 ***	0.125 ***	0.109 ***	0.102 ***
Obs.	20187	7567	29743	41262	33477	14487	16750	63189	15259	10160
R2	0.521	0.526	0.558	0.539	0.352	0.467	0.59	0.441	0.546	0.281
F	1046.1	426.5	1267.8	881.1	310.2	577.9	1007	1281.9	949.5	220.2
MEN										
Public	0.039 ***	-0.009	0.045 ***	0.136 ***	-0.014	0.114 ***	0.14 ***	0.079 ***	0.071 ***	0.064 **
Obs.	11132	4086	15028	23789	17309	8421	8379	35645	7985	5094
R2	0.422	0.449	0.577	0.438	0.312	0.424	0.537	0.41	0.463	0.272
F	356.6	192.6	565.7	379.7	137	313.7	493.1	662.2	393.1	118.5
WOMEN										
Public	0.144 ***	0.073 ***	0.264 ***	0.202 ***	0.071 ***	0.204 ***	0.176 ***	0.172 ***	0.14 ***	0.113 ***
Obs.	9055	3481	14715	17473	16168	6066	8371	27544	7274	5066
R2	0.483	0.504	0.462	0.568	0.33	0.461	0.575	0.4	0.597	0.298
F	485.1	251.8	538.2	456.1	163.1	278.4	567.6	624	631.7	153.9

Notes: *** denotes significance at 1%; ** denotes significance at 5%; * denotes significance at 10%.

On average the coefficients of the public sector indicator obtained using the monthly gross earnings specification are smaller than those using the hourly wage specification, by almost 3 percentage points and this differences is larger, in magnitude, for men than for women. In particular, for Spain and Portugal the magnitude of the differential decreases from 25 and 21 percent to 17 and 11, respectively. As with the case of the hourly wage specification, we define three sub-groups of countries where the conditional pay gap is smaller, equal or larger than the average: in Belgium and France the gap is smaller than the average, in Austria, Italy, Portugal and Slovenia it is close to the average and in Spain, Greece, Ireland and Germany it is larger. It is worth noting that in the case of Germany, the overall pay gap is larger than the average, as a result of a gap close to the average for men and much larger for women.

5. Conclusions

In this paper we investigated the public-private wage differentials in ten euro area countries (Austria, Belgium, France, Germany, Greece, Ireland, Italy, Portugal, Slovenia and Spain). To account for differences in employment characteristics between the two sectors, we focused on micro data taken from EU-SILC, a data set containing comparable information across EU countries. The results point to a conditional pay differential in favour of the public sector that is generally higher for women, for workers at the low end of the wage distribution, in the Education and the Public administration sectors rather than in the Health sector. The differential generally decreases when considering monthly wages as opposed to hourly wages and if we restrict our comparison to large private firms. Notable differences emerged across countries, with Greece, Ireland, Italy, Portugal and Spain exhibiting higher public sector premia than

other countries. Our results are broadly in line with those obtained from the existing country specific studies, outlined in the literature review section of this paper.

Although we used the term "premium" to denote the differential obtained after controlling for the observable characteristics of the workers (to distinguish it from the pay gap observable in the raw data), it must be stressed that this definition might not be entirely appropriate, as there may be other relevant characteristics that affect the differential, which, because of data limitation, cannot be controlled for even in the analysis with micro data (these include, among others, fringe benefits, which are typically higher in the private sector, or pension rights generally higher in the public sector, but also non-monetary factors, such as job security that is generally larger in the public sector). Furthermore, this study shares some of the same shortcomings as in the existing country specific studies, so some caution must be taken when drawing conclusions. The definition of public sector workers is not clear-cut and, in addition, differs across countries. Furthermore, the number of worked hours may be misreported by the individuals, and hence the hourly wage on which we based our analysis may be incorrect (this issue may be particularly relevant in the Education sector); however, performing the analysis on monthly wages instead of hourly wages, while yielding generally lower estimates for the premium, does not change significantly the overall picture. Finally, there may be a sample selection bias due to the possibility that sorting of employees between sectors is not random but occurs on the basis of unobserved characteristics. This problem has been typically addressed in the literature by adopting a two steps procedure that purges the endogeneity between sector choice and the earning process in the first step, and estimate the premium in the second. As instruments, individual characteristics of employees that are thought to influence their preferences to work in one sector or another, such as family background, risk aversion or pro-social vocation, have been used. Unfortunately, no variable suitable to instrument the sector choice is available in our data set. However, studies that control for possible endogeneity of the sector choice typically find substantially higher gaps, suggesting that additional motives, other than monetary ones, may induce people to seek employment in the public sector and that ignoring them may result in an underestimation of the overall advantage.[21]

We also briefly documented some basic features of the institutional setting governing wage determination in each country considered in our study. Although our documentation is far too simple to allow us to draw any conclusion on a possible relationship between institutions and labour market conditions in the two sectors, few remarks can be made. Indeed, our results seem to provide little support to the idea that a systematic comparison between wage levels in the two sectors is actually necessary or sufficient to guarantee non divergent wage dynamics: countries exhibiting the lowest conditional pay gaps are those where no such comparability principle has ever been applied. Moreover, we did not detect any specific correlation between the size of the public-private wage differential and either the unions' bargaining power or the relative bargaining power of unions in private and public sectors. Interestingly, however, our results do not reject the idea that decentralization of wage setting by geographical areas may have helped achieving wage dynamics in the public sector more coherent with local labour market conditions and, therefore, lower public-private wage differentials.

Two broad policy implications can be drawn from these empirical results. Firstly, the evidence for a premium may have played some role in the decisions to freeze or cut public sector wages in some of the fiscal consolidation programs undertaken in response to the increasing financial market tensions in the euro area (as in the cases of Ireland, Italy, Greece, Spain and Portugal). Secondly, an adjustment in the wage bill may also be achieved by increasing the number of hours worked per public sector employee, thereby reducing the number of workers necessary to provide a given quality of service, while leaving the monthly wage unchanged. Of course, when making these general prescriptions operational, sectoral and country-specific features as well as efficiency considerations must be taken in due account.

[21] Depalo and Giordano (2011) find that in Italy such additional motivations are particularly significant above the median of the wage distribution, precisely where other studies assuming random sampling use to find lower premia or even penalties. Similar results are obtained by Melly (2006) for Germany. Using data on France, instead, Bargain and Melly (2005) find that wages do not substantially differ across sectors after controlling for unobservable heterogeneity.

Appendix I: country details.

AUSTRIA

Institutional features

The most important wage negotiations for public employees are the ones between the federal government and the union for public employees. These negotiations have a direct effect on the wages of federal employees only, but they have a signalling effect for the negotiations for the employees of states and municipalities. While there is no automatic indexation mechanism for federal employees, past inflation is taken into account in the negotiating process. A very important additional feature in Austria is that for around 60% of public employees labour contracts are under private law (these employees are called "Vertragsbedienstete") and for the rest it is subject to public law (i.e. civil servants; these employees are called "Beamte"). While the probably most important difference between these two types of contracts concerns lay-off protection (it is harder to dismiss "Beamte"), there are also differences in wage schemes (generally higher wages for "Beamte"), social contribution rates (no upper ceiling for pension contributions of "Beamte") and pension entitlements (generally higher for "Beamte"). Furthermore there are substantial differences between wage schemes and pension entitlements of federal employees and non-federal employees.

Data on Earnings and Employment

A series on public sector 'wages and salaries' is available from the General Government accounts from 1990 onwards. A public sector employment series consistent with General Government accounts data on wages and salaries is only available from 1995 on and this series is not publicly available. Data for wages and salaries and the number of employees of the whole Austrian economy is taken from the National Accounts. Reclassifications of enterprises to the private sector (highway authority, enterprises owned by municipalities, hospitals …) induced structural breaks in these data series in 1997 and 2001.[22]

An alternative source for information on wages of public and private employees is the wage income tax statistic (where separate data on public employees are available). According to this source, when controlling for age, full time employed private sector workers earn more on average than their public sector counterparts.

BELGIUM

Institutional features

Wage bargaining for public employees is highly decentralised, involving negotiations between unions and the different governments (federal, regional and community). A Joint Committee is concerned with the minimum common rights, including the rules for automatic wage indexation, i.e. an automatic link to the health index, via a threshold mechanism that provides for increments in steps of 2%. Then, different committees negotiate for the federal services, by Region for the regional and local administration and by Community for the education sector, among others. In some cases, sectoral committees complete the decentralisation. There is no official benchmarking with the private sector. Health activities, mostly part of the private sector, are subject to separate negotiations held at national level. The proportion of public employees with civil servant status is on a downward trend and now accounts for only about half of all public employees. However, the differences between statuses concern mostly lay-off protection, career opportunities and the pension system, while the wage bargaining and remuneration scale are similar for both statuses.

Data on earnings and employment

A series on public sector 'wages and salaries' is publicly available from the general government accounts from 1970 onwards. A series on public sector employment consistent with general government accounts data on wages and salaries is only available from 1995 on and this series is not publicly accessible. Data

[22] Public employment according to ESA95 went down by 4% in 1997 and by 9% in 2001.

for wages and salaries and the number of employees for the whole economy are taken from the national accounts and publicly available from 1995 onwards.

One possible reason for the rather limited premium for the public sector compared to other countries is that the pension benefits – sometimes considered as a delayed remuneration - for similar careers are much higher in the public than in the private sector.

FRANCE

Institutional features[23]

General government (GG) employees can have very different status from short-term subsidized jobs to "*fonctionnaires*" with their specific status and total job security. Besides, the civil service is divided into three categories: the civil service of the State, civil service of public hospitals and the civil service of local governments. Yet, some GG employees (hereafter public employment), for example social security funds employees, do not belong to these three categories. Besides, within each category, employees can have different statuses.

Concerning wages, since 2008, comprehensive negotiations are set for a three-year period for the civil servants. Besides, annual negotiations can provide some adjustments. Each negotiation sets the value of the overall wage point (a wage index) and/or compensation increase of certain categories (specific measures). But public wage also automatically increases – especially those of the "*fonctionnaires*" – with seniority.

Data on Earnings and Employment

Payroll as well as the number of employees is available in national accounts data for GG, on a quarterly basis. If payroll is available for each sub-sectors of GG, that is to say, the State level, local administrations and social security funds, public employment is only available for GG as a whole. As a consequence, compensation and wages of public employment can only be analysed at the GG level in national accounts. Administrative sources are also available but they cannot easily be reconciled with national accounts data. Moreover, their scope is often civil services, more especially the State one.

Aggregate data of national accounts do not allow disentangling compositional[24] effects on average wage and *per se* wage dynamics. An alternative data source is provided by the administrative data on civil servant wages, which are more detailed both on compositional effects and on the specific factors that drive public wage evolution. This comprehensive information is nevertheless only available for the central level and hardly reconcilable with national accounts data. This data uses a specific concept: "*rémunération des personnes en place*" (RMPP) which means the average wages of an individual who is employed at two successive periods. The RMPP evolution depends on three factors: the wage point evolution, the specific measures and the automatic evolution (see above). According to available data, RMPP increased by 3.7% / year in average between 2000 and 2007. The first two factors contributed each to 0.9 pp / year while the automatic increase linked to seniority contributed to almost 2 pp /year. Moreover, according to the same administrative data, the average wage of State civil servants increased by 2.1% /year between 2000 and 2007, compared to 3.7%/year for the RMPP. Compositional effects are thus non-negligible.

GERMANY

Institutional features

Collective wage bargaining for public employees on the federal and the municipality level are between federal and local government and the union for public employees. Wages at the level of the Länder are negotiated between representatives of this government level and the same union. There is no automatic indexation mechanism for employees. An additional feature in Germany is that for about 45% of public employees, labour contracts are under private law (these employees are called "Angestellte") and for the rest it is subject to public law (these employees are called "Beamte", i.e. civil servants). The differences between these two types of contracts refer to protection form termination (it is quite hard to dismiss civil

[23] As statistical and national accounts criterions do not necessarily properly reflect economics and administrative point of views, the following presentation is simplifying the actual situation.

[24] For example, if a retiring senior civil servant is replaced by a young lower-paid civil servant, aggregate wages can decrease though no wages, at a micro level, decrease.

servants), wage schemes and pension entitlements (the latter generally higher for civil servants). Civil servants do not have to pay mandatory social security contributions, thus they are not covered by the general health insurance. Instead, they are partly supported by governmental assistance ("Beihilfe") and usually pay for additional private health insurance.

Data on Earnings and Employment

The series on public sector 'wages and salaries' and employment are available from 1991 onwards. A drawback of these series is that they are not publicly available. Data for wages and salaries and the number of employees of the whole German economy is taken from the National Accounts.

GREECE

Institutional features

The system for setting wages in Greece is different for workers in the private and the public sector. However, in 2010 there have been important changes in relation to the institutional features of collective bargaining in Greece.

In the public sector pay is determined by law, according to the government's annual income policies. Law 2738/1999 that recognises the right to collective bargaining in the public sector, but from the bargaining procedure pay issues are excluded. Employment in the public sector is secure and public servants once hired enjoy lifetime contracts and cannot be discharged, except for misconduct. In Greece, public sector wage increases were given by cost of living and budget conditions, and private sector comparability is not a standard. On October 6, 2011 the Greek government submitted a law in the Greek parliament to adopt a unified pay scale for all public servants.

Data on Earnings and Employment[25]

There is a difference between *public servants' average gross earnings* and the "*compensation per employee*". In the latter instance, the numerator also includes outlays for central government pensions, according to an accounting "convention" that reflects the fact that, in the Budget, wage and pension outlays are reported together. It should be noted that sometimes the rates of change of the two categories of outlays differ markedly (i) because of differences between the wage policy and the pension policy, and (ii) because the increase in the number of pensioners entails a more rapid rise in the "compensation per employee", since the denominator of this figure includes only the number of employees in active service.

Introductory Reports to the State Budget (IRSB) data on central government's wage bill cover almost 85% of the "general government" sector and, specifically, comprise staff costs for central administration employees, teachers, judges, law enforcement staff, public hospital staff and the administrative staff of regions and prefectures. The Armed Forces staff is not included in the number of employees, although their wages are included in the costs. The local authorities' staff is not included either, although certain wage subsidies to local authorities are included. Data refer to civil servants under both tenured and non-tenured status. The main methodological problems relate to (i) the non-coverage of certain parts of the general government sector, (ii) the fact that wage costs cover certain categories (e.g. military officers) that are not included in the published data on employment. This is why it is not possible to make correct calculations of the level of *compensation per employee*.

In certain cases, adjustments/corrections need to be made to the published figures on expenditure and employment in order to ensure comparability over time. Therefore, the relevant amount should not be taken into account for comparison over time, given that substantial amounts were paid in the previous years for wage outlays by the Special Accounts, which were not reported in the Budget.

IRELAND

Institutional features

Over recent times, wage setting in Ireland has been heavily influenced by 'Social Partnership Agreements', namely, formal wage agreements between trade unions, employers and the Government. These agreements began in 1987 as a direct response to high levels of unemployment and industrial

[25] Bank of Greece (2010), Monetary Policy, Annual Report, March 2010, pp.124-125 (in Greek).

unrest. The agreements cover a wide range of areas including pay, with agreed rates of pay increases set out covering a number of years. The coverage of these agreements in the private sector tends to be lower and furthermore employers can invoke an "inability to pay" clause. In addition to such wage agreements, two 'Benchmarking' reports were carried out, seeking to compare the public and private sectors in terms of work, pay and benefits. The 2002 Benchmarking study resulted in an 8.9 per cent average increase in public sector pay. A further Benchmarking study in 2007 found that salary levels in public services compared well with the private sector. In a limited number of cases, some pay increases were awarded.

In Ireland, there were sizable increases in public sector wages between 2000 and 2004 reflecting increases awarded under the first Benchmarking exercise and increases scheduled under national pay agreements. This resulted in a widening of the unadjusted public-private sector wage differential over this period.

Data on Earnings and Employment

A series on public sector 'wages and salaries' is not published in the National Accounts and, as a result, wage data is instead taken from the General Government accounts. In particular, data on 'wages and salaries' is derived from the broader 'compensation of employees' series which also includes the employer's social security contribution, with data available on an annual basis from 1990 onwards. A public sector employment series consistent with General Government accounts data on wages and salaries is not available. However, the Department of Finance publishes estimates provided by Government departments at the beginning of each year. The series covers the period 1992-2009. As regards whole economy data, the wages and salaries series is taken from the National Accounts. Employee data from the Quarterly National Household Survey (QNHS) published by the Central Statistics Office is used. The QNHS is a quarterly household survey designed to produce labour force estimates.

ITALY

Institutional features

The wage determination mechanism in the Italian public sector has been interested by a number of reforms until the introduction in 1993 of the current legislation, which assigned a larger role to collective bargaining and created an independent agency (Agenzia per la Rappresentanza Negoziale nella Pubblica Amministrazione - ARAN) responsible for negotiating pay levels and working conditions for most public employees. Wages are negotiated between ARAN and the more representative unions of the employees, once the budget law has set the resources devoted to collective bargaining for the central government; for the other public administrations the bargaining has to take into account the parameters set in the government official programmes. Wage contracts are renewed separately for different areas (ministries, local government, health, education, and others) and for managerial positions.

The objectives of the 1993 reform were various. In general, it aimed at a "privatization" of employment relations in the public sector, that is, at making pay and employment condition determination mechanisms in the public sector closer to those in the private sector (by envisaging a greater role for negotiation, imposing tighter constraints to wage growth, replacing the automatic component for wage increases with schemes based on merit).

Almost two decades after the introduction of the reform, many analysts agree that the reform failed to achieve its main targets. Differences between public and private sectors, regarding not only pay levels but also labour conditions, are still present and maybe widened since then. Furthermore, wage differentials vary significantly both over time and across different categories of workers and geographical areas.

Data on Earnings and Employment

Series on public sector 'wages and salaries' and employment are available from the General Government accounts from 1980 onwards. Data for wages and salaries and the number of employees for the whole economy is taken from the National Accounts.

PORTUGAL

Institutional features

Wage setting in the public and private sectors in Portugal differs substantially. Wages of public employees are defined according to the respective categories in wage scales applying nationwide.

Advancement used to be almost completely determined by seniority, but a recent reform has endeavoured to link advancement to performance evaluation. Pay raises usually apply uniformly throughout the categories of public employees and levels of government. Normally, there is bargain over the annual pay raise between government and the unions, but the final figure does not necessarily result from an agreement between the two parties. For instance, in some recent years government has imposed a freeze of the wage scales. The readiness by government to accept higher updates reflects often electoral considerations, beyond the tightness of the budget constraint.

Private wage setting is much more decentralized and private sector unions tend to be relatively weak. There is no tradition of using 'benchmarking exercises' comparing the public and private sectors in terms of work, pay and benefits, as a basis to adjust the pay of public sector workers.

Data on earnings and employment

Information about the overall personnel expenditure of government comes from the items 'compensation of employees' and 'wages and salaries' in the National Accounts of general government. A public sector employment series consistent with these national accounts data is available only with some years delay.

Banco de Portugal assesses the evolution of public wages on the basis of, among other things, the wage scale updates and a drift to account for employee advancement and special adjustments to the wage scales of specific categories of civil servants. The evolution of public employment is inferred from data on the number of retirees and an estimate of the hiring of new employees each year. Such estimates of the flows are anchored on the levels of public employment coming from the Public Administration Census to obtain a public employment series. These latter censuses (available for 1996, 1999 and 2005) are the most useful source, on the public sector side, to calculate wage gaps and premia because of their coverage and inclusion of detailed information about workers' characteristics.

As regards whole economy data, the sources include the National Accounts and, in the case of the employment, the Employment Survey which is carried out on a quarterly basis. Another source of wage data for the private sector is remunerations declared to social security for the collection of social contributions. Comprehensive backdata on earnings and workers in the private sector are available from *Quadros de Pessoal*, a yearly mandatory questionnaire for all private employers.

SPAIN

Institutional features

Public employees can be grouped into two broad classes: civil servants (*funcionarios*) and other public sector employees (*personal laboral*). The former are by far the most numerous and are regulated by administrative rules (access by public examinations and very high job security), while the latter are regulated by the general rules of the labour market. With respect to generation of pensions, most public employees follow the rules of the Social Security, while central government civil servants are an exception and pay social contributions to the Central Government itself which is also responsible for paying their pensions (the so-called "*clases pasivas*"). Recently, the government passed legislation aiming at homogenising this duality, in such a way that newly hired central government civil servants will contribute and receive pensions from the Social Security.

Although in some cases, agreements were reached between the Central Government and representatives of public employees regarding wage increases, there is no actual wage bargaining, as is the case for the private sector. In fact, the Central Government has failed in some cases these agreements.

Public employment is divided by approximately 1/3 in the Central government and 2/3 in the Regional and Local levels of governments. Despite the strong decentralization carried out in Spain, the Central Government has continued annually setting the maximum wage increase applying to all public employees in the Budget Law.

Data on employment and wages

So far the National Accounts does not provide data on employment in the general government sector. There are a couple of sources on public employment (with details about levels of government), although not entirely consistent between themselves or with the National Accounts. On the one hand, the Statistical Bulletin of Central Personnel Registry publishes data bi-annually (for the middle and the end of each

year) with a delay of more than 6 months. On the other hand, the Labour Force Survey provides quarterly data on government employment. Finally, the category employment in non-market services (National Accounts) can also be used to proxy non-published truly National Accounts data. From the three sources of data mentioned, the first one (Personnel registry) is the one favoured by the Banco de España in its analyses.

With respect to wages, data are taken from the compensation of employees of the National Accounts, although this variable includes a share of pensions (the so-called "*clases pasivas*"). With a considerable delay, the General State Comptroller (IGAE) also offers concrete details of wages and salaries of active public employees.

SLOVENIA

Institutional features

Throughout the 1990's Slovenia underwent a transition from self-management to a market oriented economy and this period was also marked by important changes in the labour market. It is estimated that by the years 2000 – 2001 the transition in the labour market was completed (Vodopivec, 2004). The major change at the end of 1980s was the right of employers to lay off workers, although this option was extremely costly for the employer, and collective bargaining was introduced at that time. Compared with other transition economies, Slovenia's regular employment protection stayed much stricter in the 1990s (Riboud, Sanchez-Paramo, and Silva-Jauregui, 2001).

The structure of collective agreements in the private sector was centralized until 2006, after which it became more decentralized. The last general collective agreement for private sector expired in 2007 and so far no new general agreement was reached, although sectoral agreements do exist for some private sub-sectors. The collective agreements structure for the public sector is centralized and the main agreement reached is Collective Agreement for the Public Sector, but also further sub-sectoral agreements in public sector are present. Collective agreements cover a wide range of areas including wages and their indexation. From the mid-1980's, when it was still a part of Yugoslavia, until several years after independence in 1991, Slovenia experienced hyperinflation. The indexation of wages both in private and public sector followed quite a complicated formula, which has been simplified over time in line with decreasing inflation rates. In the environment of hyperinflation at the beginning of 1990's, wages were indexed to a certain portion of monthly inflation growth rates and were corrected each month. The frequency of alignment was reduced from every month to every three months in the mid 1990's and to twice a year at the end of 1990's. From 2004 onwards it only occurs once a year. Monthly inflation growth rates were also replaced by annual (sometimes core) inflation rates. From 2001 onwards, expected inflation was used, although the indexation was not complete – that is, the full proportion of inflation has not always been taken into account in the indexation formula throughout the period under investigation.

As a social component of wage policy, Slovenia introduced mandatory minimum wages in 1995. They were typically indexed to inflation in the same way as other wages, and in some years to GDP growth. In relation to average wages they remained relatively constant at 40% of average monthly gross wages until March 2010, when this ratio jumped to 50% because of the increase in the minimum wage.

Data on Earnings and Employment

Aggregate data on public sector earnings and employment are published by the Statistical Office of the Republic of Slovenia (SORS) and also by the Agency of the Republic of Slovenia for Public Legal Records and Related Services (AJPES). The SORS data are available using a national accounts methodology on quarterly and annual frequency since the year 1995 and in a database of labour market statistics (which is not necessarily internationally comparable) on a monthly basis since the year 2000. However the classification used in the national accounts methodology is NACE Rev. 1.1 and in the labour market statistics database is NACE Rev. 2, so appropriate approximation of sectors must be considered when comparing the data from the two sections. For some data categories on public sector earnings and employment, breakdowns by institutional sector are also available, so data on the General Government sector (S.13) can be found. The AJPES data on average wages and number of employees in public sector have a monthly frequency and are available since September 2003. In order to be comparable with other countries being analised, the SORS data from the national accounts for activities (L) public administration, (M) education and (N) health and social work employees were used here.

One possible reason for the relatively small public sector premium as compared to other countries is the inherited socialist tradition, which was oriented towards equality of all workers.

Appendix II: macro stylized facts under alternative definition of public sector

This Appendix presents some stylised facts in relation to public and private sector pay, in particular the pay gap, on the basis of compensation data for public and private sectors and for the whole economy under both the General Government definition and the NACE 'LMN' definition of the public sector for the period 1995-2008. As employers' social security contributions can differ somewhat across countries reflecting variation in institutional features, growth in wages and salaries (i.e. compensation of employees excluding employers' social security contributions) in the public and private sector are also presented for the general government and LMN sectors. As it can be seen from Table IIa, where the public sector is defined as general government, cumulative growth in compensation per public sector employee differs substantially across countries, ranging from 21.6 per cent in Germany to 173.7 per cent in Slovenia. Furthermore, gross compensation per employee grew relatively fast in Spain and Portugal, whereas growth was more modest in Austria, Belgium, France and Italy. Cumulative growth of compensation per employee has been higher in the general government sector than in the private sector in four of the ten countries examined, namely, Belgium, Germany, Spain and Italy.

When comparing General Government data with the NACE classification of the public sector, as defined above, growth rates for total economy in the period 1995-2008 seem to be broadly in line for all countries, with the exception of Italy and, to a lesser extent, Spain, where growth is somewhat higher under the general government definition. According to the NACE classification, cumulative growth in compensation per employee was higher in the private sector than in the public sector in Austria, France, Germany and Slovenia.[26]

When comparing general government data from Table IIa with Table IIb, no substantial difference in the growth in wages and salaries per employee and compensation per employee can be found for the total economy except in the case of Italy. Some variation is however apparent when the public sector is defined as LMN sectors. Focusing on Table IIb, the growth in wages and salaries are higher in public than in private sector except for Austria, Portugal, Slovenia and France, whereas Germany is showing mixed results depending on the definition of the public sector considered.

Table IIa – Cumulative Growth in Compensation per Employee (1995-2008 % in nominal terms)

Country	Public sector defined as general government			Public sector defined as LMN sectors		
	General government	Private Sector	Total Economy	LMN sectors	Private Sector	Total Economy
AT	27.9	31.8	29.5	26.7	31.6	30.2
BE	48.4	38.3	40.5	43.5	40.1	41.0
DE	21.6	14.2	14.4	14.4	16.0	15.7
ES	n.a	n.a	n.a	63.6	47.2	50.4
FR	38.9	42.1	41.6	n.a	n.a	n.a
FR (1999 - 2008)	23.8	32.6	30.6	28.7	29.0	29.0
GR (2000 - 2008)	n.a	n.a	n.a	26.1	20.8	22.3
IE (1998 - 2008)	n.a	n.a	n.a	74.5	67.8	71.4
IT	61.6	41.9	45.6	34.6	27.5	29.2
PT	71.4	74.8	72.5	n.a	n.a	n.a
PT (1995 - 2007)	69.1	69.1	68.0	67.2	67.1	68.0
SI	173.7	205.2	200.3	174.4	203.1	198.4

Notes: Data for Austria refer to LMNO sectors. Data for Germany refer to LN sectors.

Sources: Data on compensation per employee for public sector defined as general government are taken from the national accounts statistics or, in some cases, from national central banks estimations. Data on compensation per employee in public sector defined as LMN sectors are obtained from national accounts statistics.

[26] It is important to note that average growth rates are not necessarily a good indicator of common dynamics among both sets of data.

Table IIb – Cumulative Growth in Wages and Salaries per Employee (1995-2008 % in nominal terms)

Country	Public sector defined as general government			Public sector defined as LMN sectors		
	General government	Private Sector	Total Economy	LMN sectors	Private Sector	Total Economy
AT	27.3	34.1	31.7	28.2	35.4	33.2
BE	45.2	38.4	39.9	41.4	39.4	39.9
DE	19.3	15.3	15.1	14.4	16.9	16.4
FR (1999 - 2008)	n.a.	n.a.	n.a.	27.1	31.9	30.7
GR (2000 - 2008)	n.a.	n.a.	n.a.	20.0	16.5	17.5
ES	78.1	48.2	52.7	n.a.	n.a.	49.2
ES (1995-2007)	65.8	40.3	43.8	59.7	35.2	40.2
IE (1998 - 2008)	n.a.	n.a.	n.a.	68.6	66.4	69.1
IT	64.6	49.4	52.1	62.6	40.0	44.9
PT	53.8	76.8	69.7	n.a.	n.a.	n.a.
PT (1995 - 2007)	50.9	69.8	64.0	52.7	59.9	64.0
SI	n.a.	n.a.	n.a.	179.0	213.6	207.5

Note: Data for Austria refer to LMNO sectors. Data for Germany refer to LN sectors.
Sources: Data on wages and salaries per employee for public sector defined as general government are taken from the national accounts statistics or, in some cases, from national central banks estimations. Data on wages and salaries per employee in public sector defined as LMN sectors are obtained from national accounts statistics or, in some cases, from national central bank estimations.

Furthermore, to compare the evidence from aggregate data with that obtained on the basis of micro data, in Table III we report some measures of the wage gap, as well as the share of public employees in total employment, in the period 2004-2007.

Table III – Ratio between compensation per employee in public and private sector, ratio between wages and salaries per employee in public and private sector, share of public sector workers in total employment in the period 2004 – 2007

Country	Compensation per employee		Wages and salaries per employee		Share in total employees (%)	
	Public Sector defined as general government	Public Sector defined as LMN sectors	Public Sector defined as general government	Public Sector defined as LMN sectors	General government	LMN sectors
AT	1.31	1.05	1.20	0.98	15.2	29.8
BE	1.08	0.96	1.02	0.94	22.2	32.2
DE	1.39	0.94	1.32	0.92	11.0	16.1
FR	0.92	0.93	n.a.	0.87	24.6	30.0
GR	n.a.	1.27	n.a.	1.23	n.a.	31.1
ES	1.50	1.27	1.49	1.27	15.2	22.2
IE	n.a.	1.27	n.a.	1.31	n.a.	24.3
IT	1.39	1.33	1.34	1.29	20.8	24.0
PT	1.76	1.67	1.59	1.54	16.9	22.0
SI	1.20	1.17	n.a.	1.14	19.1	20.4

Note: Data for Austria refer to LMNO sectors. Data for Germany refer to LN sectors.
Sources: Data for public sector defined as general government are taken from national accounts statistics or, in some cases, from national central banks estimations. Data on public sector defined as LMN sectors are obtained from national accounts statistics or, in some cases, from national central bank estimations.

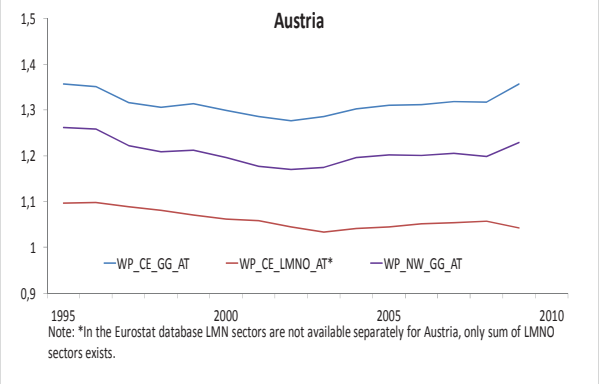
Finally, in Figure I, developments in the public-private pay gap, as measured by the public-private wage ratio, over the 1995-2010 period, under the various wage and public sector measures are presented.[27]

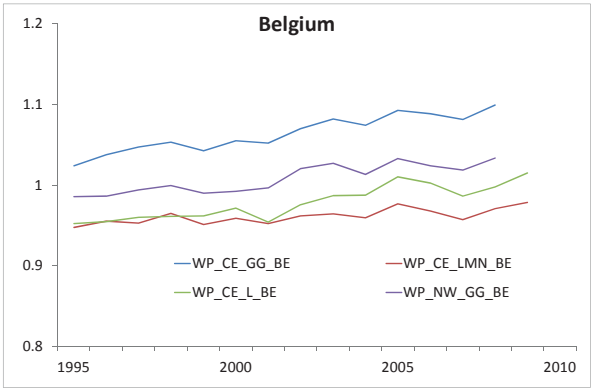
[27] The pay gap for NACE sector 'L' ("Public Administration and Defence") only is also used to proxy public sector developments in this figure.

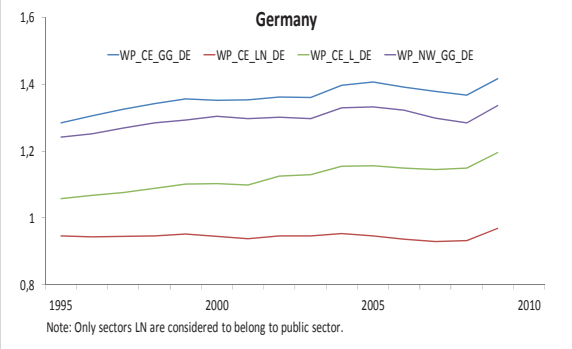
As highlighted above, the differential is generally much lower if measured in terms of wages and salaries than that calculated on the basis of compensation per employee. Due to the statistical treatment of public pension systems in some countries,[29] the wage gap calculated from wages and salaries is more appropriate to look at.

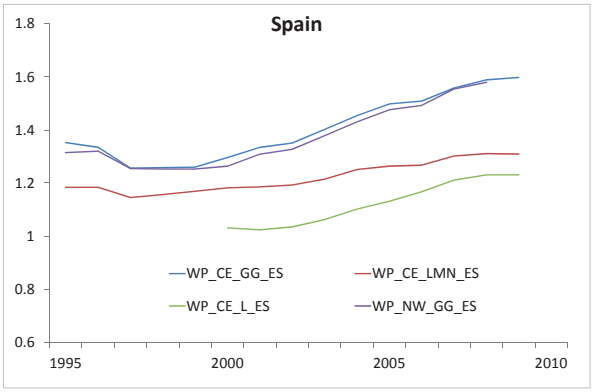
Figure I – Ratio between compensations per employee (wages and salaries) in public and private sectors

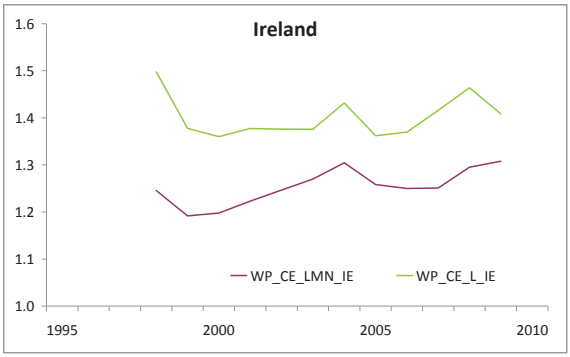
(WP_CE_GG = compensation per employee, public sector defined as general government, WP_CE_LMN = compensation per employee, public sector defined as LMN sectors, WP_CE_L = compensation per employee, public sector defined as L sector, WP_NW_GG = wages and salaries, public sector defined as general government)

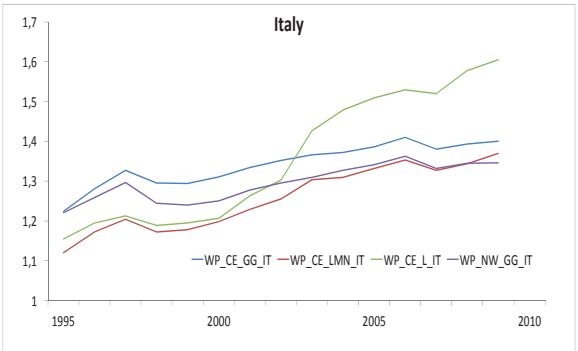




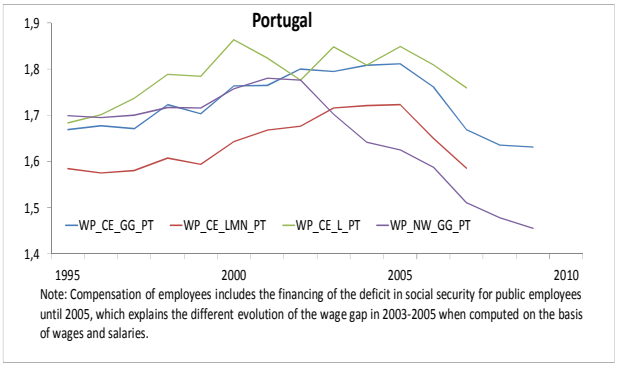




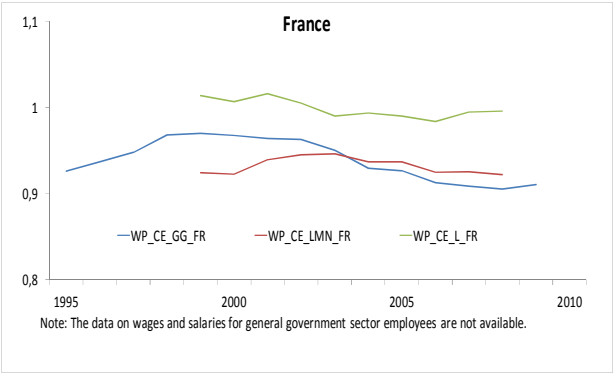




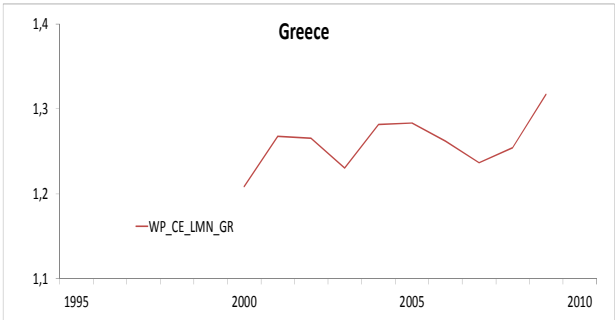
[29] In the case of Belgium and Spain, where pensions are directly paid by the public employer, compensation of employees also includes expenditure for public sector pensioners (as imputed social security contributions). Moreover, in the case of Portugal compensation of employees also include in some years amounts to finance the deficit of social security of civil servants.



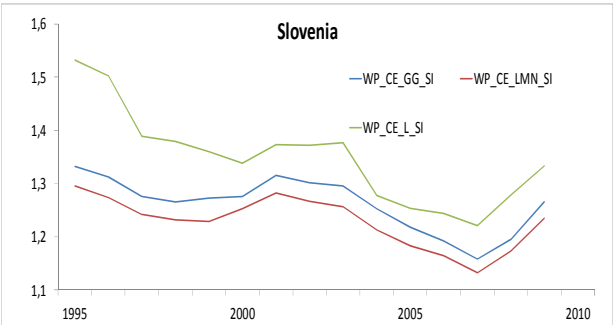
Note: Compensation of employees includes the financing of the deficit in social security for public employees until 2005, which explains the different evolution of the wage gap in 2003-2005 when computed on the basis of wages and salaries.



Note: The data on wages and salaries for general government sector employees are not available.



Note: For Greece data on compensation of employees, wages and salaries and employment in the general government sector are not available.



Note: The data on wages and salaries for general government sector employees are not available.

Analysis by country[29] shows that the wage gap as calculated for the general government sector was narrowing until 2002 in *Austria* and increasing thereafter. The reduction was stimulated by faster growth of wages in the private sector than in the public sector (also due to the consolidation packages implemented to join EMU). The widening of the wage gap post 2002 reflected the substantial increases in agreed wages in the public sector and the reduction of working time in the private sector.

In *Belgium*, the wage differential in favour of the public sector follows an upward trend from the mid-1990s, albeit with some limited periods of stabilization.

In *France,* average wages in the public sector were growing faster than in the private sector until 2000; subsequently and until the current crisis, the situation was reversed.

The wage gap was relatively stable in *Germany* from 1999 onwards due to government efforts to contain wage pressures in the public sector. For example, vacation payment and Christmas bonuses have been reduced significantly, entry wages have been lowered considerably and automatically wage increases due to growing age have been abolished. Some relaxation in the public sector wage policy took place in 2009 and as a result, the wage differential has since increased.

Comparable General Government data for *Greece* and *Ireland* were not available for this period and it is therefore difficult to draw definite conclusions on the calculation of the wage gap using macro data.

In Italy, the gap was about 20% in 1980 and, mainly owing to particularly favourable contracts renewals in the public sector at the end of the 1980s, almost reached 40% in 1990. It decreased substantially until 1995, reflecting the broad fiscal consolidation effort undertaken to fulfil the requirements for the participation to the monetary union. The public-private wage differential started increasing again at the beginning of this decade, to reach 35% in 2009. The wage differential began to increase again post-2000 as the stance of fiscal policy has loosened somewhat.

[29] More details on the development of the pay gaps of individual countries are provided in the Country Appendix.

In *Portugal,* the wage differential is relatively high, which is mainly explained by the gap in the qualifications of the workers in the public and private sectors. This differential was on an upward trend from the mid- 1990s, but has narrowed since the mid-2000s; however, when calculated on the basis of wages and salaries[31], this narrowing started around 2003 following the implementation of restraining measures on public wage growth.

The wage gap in *Spain* fell in the second part of the 1990s due to public wage bill restraint, while it increased as of the end of the decade, on the back of improved economic and fiscal conditions.

Since the mid-1990s, the public-private wage differential in *Slovenia* was on a downward trend, with some reversal due to the enhanced bargaining power of the public sector unions. The inflation criterion which was one of the preconditions for entering monetary union, contributed to the downward trend until 2007, after which, the gap increased due to the implementation of public sector wage reform.

The wage differentials calculated on the basis of Eurostat data for NACE sectors 'LMN' are generally lower than those calculated under the ESA 95 General Government classification. One possible explanation for such differences is that workers engaged in the activities of sectors 'LMN' not included under the general government classification earn relatively low wages as compared to the wages in the general government sector (or alternatively more of them are not employed on a full time basis).

We also present calculations of the wage gap when only sector L, "public administration and defence", is considered as public sector. In this case the gap is higher than for the LMN sectors, except for Spain, and lower than for the general government, except in Slovenia, France and (for most of the years) in Portugal, whereas for Italy it varies somewhat across years.

[31] As highlighted above, the evolution of the two items for Portugal differs because compensation of employees used to include the amount spent by the State to finance the deficit of the former social security system of civil servants (recorded as social contributions).

Appendix III: developments since the onset of the financial and economic crisis

Recent developments reflect the consolidation needs of most EU governments, in form of wage and employment moderation and, in some cases, even cuts in public sector wages and employment.

In Austria, after the very high increase in agreed public wages for 2009, it has been indicated several times that public employees will have to carry a part of the consolidation burden (as they did in the pre-EMU-consolidation phase in the mid-1990s); the agreed wage increases for 2010 and 2011 were indeed rather low (but still positive).

In Belgium, given the high level of spending for total compensation of employees, which reached as much as 12.6% of GDP in 2010, it is often argued that there should be consolidation in this field of expenditure, too. However, the focus is on the number of employees, rather than on their remuneration or the amount of their pensions.

As there is no rule of indexation of the public wages (neither on inflation nor on private wages), in France public wages were roughly not affected by the crisis. Public wages slightly decelerate from 2.2% in 2008 to 2.0% 2009 in nominal terms, 2010 data being not yet available. On the contrary, wages in the private firms were more severely hit by the crisis: they decelerate from 2.9% in 2008 to 1.4% in 2009 in nominal terms and yearly average. This evolution derives from several factors: low negotiated increases due to the adverse environment and short time work schemes leading to lower-than-usual pay for concerned employees.

In Germany, labour unions and employers' associations mostly agreed on comparatively long settlements with no increase in regular pay but one-off payments in the first half of the contract period and moderate increases in regular wages in the second half. In the context of the fast and strong recovery, trade unions now claim higher wage increases in the private sectors. So, while firms in the private sector are expected to gain from the economic recovery in the next two years, and negotiated wages might increase significantly in 2012, the total volume of public debt and the urgent need for fiscal consolidation will somewhat restrain wage growth in the public sector.

In the case of Ireland, the public sector pay increases scheduled under the terms of the National Wage Agreement, 'Towards 2016', due in 2009 were not paid. Furthermore, public sector pay was effectively cut in 2009 via the introduction of the public service pension levy, a pension-related deduction. There was a further formal cut in public sector pay on a tiered basis in 2010, as part of the 2010 Budget. A further development has been the successful conclusion of talks between the Government and the leadership of public sector unions, as detailed in the "Public Service Agreement". The pay policy element of the "Public Service Agreement" states that there will be no further reductions in public sector pay between 2010 and 2014.

As regards Greece, the income policy for the central government, and the various measures announced in 2010, in nominal terms are estimated to have led to a decrease in average gross earnings of civil servants by 9.5% and in the average earnings of people working in public enterprises by 5.5%. In 2010 the decrease in gross (pre-tax) earnings, in real terms reached 13.5% for civil servants and 9.0% in total economy. This was achieved by cuts in overall wage allowances (by 12% for the first 5 months and by 20% for the remaining 7 months) and cuts in Easter and Christmas bonus payments (with complete abolishment for employees earning more than 3,000 euro per month). Furthermore, there have been substantial measures cutting earnings of employees of public enterprises. Since July 1, 2011 a further cut in government sector employees' allowances of the order between 20% and 50% has been applied. Furthermore, a unified pay scale for all public servants will be applied as of November 1, 2011.

In Italy wage freezes (and cuts above a certain threshold) for public employees are envisaged in the consolidation package which was approved in summer 2010. Thus, a slight decrease is expected for public wage expenditure in relation to GDP starting in 2011.

As regards Portugal, given the sharp deterioration of general government accounts in 2009 and the need to correct the budget imbalance, the wage scale for public employees was not updated in 2010. In the framework of subsequent expenditure restraint measures, in 2011 an average wage-cut of 5% was implemented.

In the case of Spain, most recent developments show that the fiscal consolidation plans of the Spanish government rely heavily on compensation of employees' restrain. In particular, public wages per employee suffered an average 5% cut in 2010, and were frozen for 2011. As regards employment, there has been a change in past decades' trend given measures aiming at restraining new hires and at constraining the replacement rate to 10% (only 1 in 10 retirees can be replaced) implemented since late 2009 by the Central government, and since mid-2010 by all levels of the General Government sector.

Finally, in the case of Slovenia, since the condition of the general government budget deteriorated as a consequence of financial and economic crisis, public sector wages also underwent government austerity measures. The most important occurred in 2010. It caused the postponement of wage increases in public sector that were planned in accordance with the new determination of public sector wages from 2008 on (the so-called "elimination of wage disparities") to the next year in which GDP growth will reach 2.5%. Besides that, the government also lowered indexation of public sector wages in the 2010 - 2012 period (to a different extent in each of the years). The government also announced that it intends to cut the number of public sector employees by 1% per year until the year 2013, although it has not specified any details regarding how this is to be achieved.

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