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POLICY WATCH

Public employment and compensation reform: the role of social dialogue and structural measures

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Abstract This paper compiles and compares recent and past measures introduced to contain the public wage bill in a number of emerging and advanced economies to assess their effectiveness in bringing down expenditure in a sustained way. In the aftermath of the financial crisis, a number of countries have approved measures on the wage bill as part of fiscal consolidation efforts. These recent episodes are compared to past cases implemented in advanced economies over the period 1979–2009. Findings suggest that public wage bill consolidation episodes pre- and post-2009 are similar in many respects. Moreover, typically countries that were able to achieve more sustained reductions in the wage bill have implemented to larger extent structural measures, and/or these measures were accompanied with substantial social dialogue and consensus.

Keywords Public sector · Wage bill · Fiscal consolidation · Public reform

JEL Classification H1 · H5 · H6

1 Introduction

The goal of this paper is to shed light on the successes and failures of past public wage bill consolidations and offer lessons for the wage bill consolidation efforts currently

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being undertaken in many advanced and emerging economies. The paper documents episodes of wage bill consolidation during the periods 1979–2009 and 2009–present (this latter period covering recent measures triggered especially by the financial crisis) and classifies the discretionary measures taken by type (whether they included action on the average wage and/or employment; whether they were one-off or more structural in nature; the extent to which they involved consultations and consensus building). Finally, it compares the realized public wage bill reductions and correlates their size and persistence with types of measures.

Currently, many advanced and emerging economies, pressed by large consolidation needs, are introducing measure to contain the public wage bill. Particularly, countries in advanced and emerging Europe that historically have large governments and that recently recorded high deterioration in fiscal positions are acting to reduce public employment and wages. But also large advanced countries such as Japan and the USA have recently introduced measures in this direction. The paper aims at offering some lessons from past episodes by assessing which types of past measures have been associated with more persistent reductions in expenditure and which other either instead have led to minor savings or instead have been quickly reversed. We are interested especially in assessing whether one-off or more structural measures and the extent of consultations and consensus building have made a difference. As such, this analysis complements the vast literature on the determinants of fiscal adjustment success. For a nice review on the topic, see Tagkalakis (2009).

The public wage bill is typically a major target during fiscal consolidations. To a large extent, this is due to the fact that expenditure on wages and salaries of public employees represents a significant share of the budget. As a share of total government expenditures, the wage bill reaches on average about 20–25 % in advanced (AEs) and emerging (EMEs) economies, while it is almost 30 % in low-income countries (LICs; Fig. 1). As a share of GDP, it is on average about 10 % in AEs and between 5 and 10 % in EMEs and LICs. Public employees represent about 7–8 % of the total population in AEs and about 5 % of the population in EMEs and LICs.

In addition to the size of the public wage bill as a share of expenditures, there are other reasons why it has been a prominent target during fiscal consolidations.

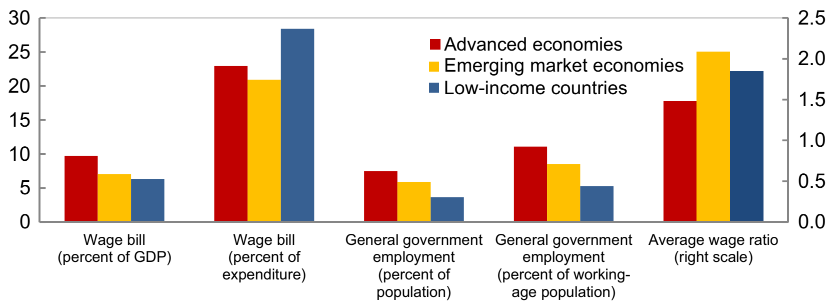

Fig. 1 General Government Wage Bill, Employment, and Average Wage, 2010. *Sources*: International Labour Organization; Eurostat; Mauro et al. (2013); and IMF staff estimates. *Note* Average wage ratio is defined as the average wage of the general government sector divided by that of the entire economy. Figures for general government employment refer to 2008 data

Especially during crises, many other expenditure items are difficult to cut quickly (e.g., interest, pension, and health expenditures), leaving public wages, together with transfers and capital expenditures, as the items that the fiscal authorities have most control over. Moreover, in many of the countries in Europe that are adjusting, the existence of a positive government wage premium relative to the private sector (see Giordano et al. 2011; and more broadly on European countries, see de Castro et al. 2013) and, in some cases, the large increase in the wage bill in the run-up to the crisis, were important contributing factors. Finally, a strand of literature (Alesina and Perotti 1995, 1997; von Hagen et al. 2002; Alesina and Ardagna 1998) has found that fiscal consolidations are more likely to succeed when they are based on expenditure cuts, in particular on the wage component of public spending, rather than tax increases.

Containing public wages can also have important non-fiscal effects on the economy. For example, public wages might affect private wages (European Commission 2014), thereby helping internal devaluation efforts and improving competitiveness. For this reason, even countries that are not pressed by immediate consolidation needs might choose to reform the public sector and contain the public wage bill.

Finally, due to demographic trends, there will be pressures to increase the provision of health and education in advanced and low-income economies, respectively. The government wage bill is a key input in the provision of health and education—currently, the government wage bill represents about 30 and 60 % of government spending in health and education, respectively, in advanced economies (IMF, 2014). This will likely increase the pressure on public finances, especially in low-income and some emerging markets.

Our main findings are as follows. First, implementation of structural measures (better defined in Sect. 4), as opposed to one-off measures such as temporary wage or hiring freezes, has been in the past associated with larger and more sustained reductions in the public wage bill as a share of potential GDP.[1] Second, prior to the financial crisis, countries that were able to create a consensus on the need for reforms and/or negotiated reductions in the public wage bill through social dialogue achieved larger and more permanent reductions. Third, historical (1979–2009) and recent (since 2009) episodes of public wage bill reduction are similar in many respects, especially the frequency with which measures targeted the average wage vs. the number of employees. The main difference is that there has been less social dialogue in the recent episodes. Finally, in the recent episodes, structural measures again seem to produce larger and more sustained reductions in the public wage bill, although it is too early to make definitive statements.

The remainder of the paper is structured as follows. Section 2 provides a brief literature review of public sector reforms, Sect. 3 explains our data collection exercise, Sect. 4 presents results, and Sect. 5 concludes.

[1] Throughout the paper, we use potential GDP to avoid distortions in the results due to cyclical movements in actual GDP. There are only four cases where potential GDP is not available (see Appendix Table 4): Canada (1991–1992), Denmark (1983–1984), Spain (1997), and Ireland (1982). For those we use actual GDP.

2 Literature review

There are a large number of studies that have addressed different aspects of public employment, although rarely looking at fiscal consolidation episodes as we do in this paper. Without the ambition of being exhaustive, we have identified three broad areas related to public employment reform: (i) civil service reforms (often with a focus on emerging and developing economies); (ii) the public wage premium (with more work done on advanced economies, likely because of data availability); and (iii) the interrelations between public and private sector labor markets.

Regarding the first point, Nunberg and Nellis (1995) and World Bank and IMF (2002) discuss civil service reform programs in many low-income countries with World Bank and IMF programs. They report that a number of emerging and developing economies initiated comprehensive civil service reforms during the 1980s and 1990s, with mixed success. Many of these reforms were initiated in response to fiscal imbalances, but they also sought to improve accountability and the quantity and quality of public services provided. Three main lessons emerge from these early reforms. First, emergency measures, such as temporary wage and hiring freezes, tend to have only short-term effects, if any. Second, long-term reforms that might yield substantial results typically are politically difficult to implement (World Bank and IMF 2002; Clements et al. 2010). Some successful reform efforts included targeting on the basis of skills and age along with compensation packages that assisted with the reallocation of the affected government workers. These reforms were accompanied by productivity gains in certain areas, including tax administration and public enterprises, but tended to be financially costly (Haltiwanger and Singh 1999). Third, reforms in the wage bill should be coordinated with reforms in other areas, especially in labor-intensive health and education. Early in the first decade of the 2000s, the use of "wage bill ceilings" in the absence of effective payroll management systems in some low-income countries may have impeded the hiring of adequate workers in these social sectors (Fedelino et al. 2006).

A second strand of literature has focused on the "public wage premium," that is the positive gap in public employees' compensations after controlling for different composition and skill levels between the public and the private sectors. European Commission (2014) presents a comprehensive review on this topic. With reference to European countries, Giordano et al. (2011) report evidence on a selection of euro area countries, while de Castro et al. (2013) present evidence for most European countries. In general, the evidence shows the existence of a significant public wage premium, usually higher at the lower levels of the pay scale and for women. There are also considerable differences across countries. For example, the premium was particularly pronounced in some smaller European countries before the crisis. Regarding EMEs and LICs, the evidence that we have reported shows that they tend to spend less on the public wage bill as a share to GDP, but they also have lower levels of public employment (Fig. 1). Together, this leads to typically higher average public wages as compared to per capita GDP. However, this is only suggestive as the comparison does not control for the different composition and skill characteristics of workers in the public and private sectors.

A number of papers have addressed the issue of the interrelations between public sector employment and wage policies and the private sector labor market. Again, European Commission (2014) provides a comprehensive literature review also on this issue. In general, there is considerable evidence that public compensations have an effect on private compensations. Recent papers on this topic include Perez and Sanchez (2011) and Lamo et al. (2012). These papers show that the link is stronger in countries where wage bargaining centralization and coordination is high and there are high levels of union membership, while it is weaker in cases of high openness to trade and in the presence of wage indexation. Hence, to the extent that countries are now more open to trade than in the past, the effect of public sector wages on private sector wages could be smaller.

Finally, macroeconomic data on public employment and compensation are scarce, as the time series are generally short and data are available on annual basis, rarely quarterly. This heavily limits the range of possible analysis and explains why the literature on public employment is rather scarce. In this paper, we present new evidence compiling data of public wage bill adjustments in order to assess the conditions that have facilitated sustained adjustments in the past. We are not going to address the effect of these measures on the efficiency of the public sector or on the provision of public services, which is an important element to consider in gauging the success of a consolidation effort. Again, this avenue of analysis is prevented by data limitations, as in many countries the real output of the government is measured from the cost side.

3 Episodes of public employment and compensation reform

We consider two sets of wage bill consolidation episodes—historical episodes that took place between 1979 and 2009 and recent episodes generally precipitated by the financial crisis. Episodes of wage bill consolidation are identified based on *discretionary* measures taken by the government with the specific aim of reducing the public wage bill.[2] We use the narrative approach as in Romer and Romer (2010) and Guajardo et al. (2011, 2014) to identify the discretionary changes in fiscal policy.[3]

The wage bill consolidation episodes we study were typically part of a broad-based fiscal consolidation effort and often lasted several years. We therefore define the episode as starting from the year the first measures were introduced and we then track the relevant variables for few years afterward, depending on data availability.[4] In doing so, we depart from the literature on fiscal adjustments that usually uses annual

[2] Hence, it is possible to observe countries that have taken measures but have not reduced their wage bill, i.e., the measures taken were ineffective. It is also possible that a country which has reduced the public wage bill as a share of GDP is not an episode we consider. This might happen, although unlikely, if the reduction in the wage bill as a share of GDP is due to high growth in GDP.

[3] Guajardo et al. (2014) take only those episodes aimed at reducing the budget deficit and not those aimed at responding to cyclical conditions. They also show that their fiscal shocks based on the narrative approach tend to be more exogenous to GDP developments as compared to changes in the CAPB and therefore better suited to assess the impact of fiscal shock on economic activity, which is the main focus of their analysis.

[4] If one country took several wage bill consolidation measures in different years, but all within a given window starting from the year of the first measure, then this is considered one episode.

(or quarterly data) to identify fiscal shocks. Recently, Alesina et al. (2012) have shown that usually fiscal shocks are correlated over time as they are part of multi annual fiscal consolidation efforts, thereby giving support to our approach.

3.1 Historical episodes

In Appendix Table 4, we present 16 historical episodes of wage bill consolidation, identified from the set of fiscal consolidation episodes in Guajardo et al. (2014). Guajardo et al. (2014) consider a set of 17 OECD economies from 1979 to 2009. The fiscal policy measures recorded in Guajardo et al. (2014) were collected from contemporaneous policy documents, such as Budget Speeches, Budgets, central bank reports, IMF Staff Reports, IMF Recent Economic Developments reports, and OECD Economic Surveys.[5]

From the full set of fiscal consolidation episodes of Guajardo et al. (2014), we identify the subset where fiscal plans included measures on the wage bill. Within this subset, we code whether countries took wage or employment measures, whether the measures were short-term or structural, and whether they included social dialogue.

The historical episodes span a long period of time. Appendix Table 4 provides a brief account of why the measures were taken. For example, measures on the wage bill have often been introduced when there was a need to rein in inflation, as in the run-up to the euro adoption in the mid-1990s (Austria, Belgium, Germany, Italy, Spain) or in response to the ERM 1992 crisis (Italy, the UK). The stagflation induced by the oil shocks in the late 1970s and early 1980s also triggered similar adjustments on the public wage bill in a number of countries (Belgium, Germany, Denmark, the Netherlands). Some episodes have been associated with country-specific imbalances, as the devaluation episodes in Ireland in the late 1980s. Interestingly, only in a few cases, such as Portugal and Ireland in the 2000s, wage bill measures, which were primarily introduced as a result of the rapidly deteriorating state of the public finances, also explicitly took account of the gap between public and private sector compensation.

3.2 Recent episodes

We identify 23 recent episodes of wage bill consolidation, presented in Appendix Table 5. We use the same methodology as previously used in Guajardo et al. (2014). Namely, we identify *discretionary* measures taken by the government with the explicit aim of reducing the public wage bill. We consult similar sources as in Guajardo et al. (2014), which include IMF Article IV and Program Staff Reports for individual countries and years and budget documents for specific countries. Second, we checked this list against wage bill measures detailed in the OECD Public Sector Compensation in Times of Austerity 2012 report (OECD 2005, 2011, 2012).

All of the recent episodes started in 2009 or after, and in that sense, they were much more homogenous than the set of historical episodes. However, in addition to an

[5] These data are then used to study the short-term effects of fiscal consolidation on economic activity (see also Romer and Romer 2010; and Guajardo et al. 2014).

unfavorable external environment and global financial pressures associated with the financial crisis, there was variation across countries in their initial size of the public sector. Also, Greece, Ireland, Italy, Portugal, and Spain entered the recession with significantly higher public wage premia than other European countries (see Giordano et al. 2011).

3.3 Classification of wage bill consolidation measures

We classify the discretionary measures in several ways, as summarized in Tables 1 and 2. First, we record whether the government introduced measures targeting the average wage or the employment level or both. The most common wage measure is a wage freeze, or occasionally, a wage cut. In addition, wage measures might include reforming the bargaining model for public wages, changing the compensation grid, changing the public wage indexation rule, or introducing pay for performance rules. Employment measures might include hiring freezes, attrition rules, or abolishing positions and/or closing down certain government agencies.

Second, we differentiate between structural measures and short-term (non-structural) measures, both of which can affect compensation and/or employment (Table 1). A standard short-term measure is a one-off wage freeze—it is designed to be temporary and address immediate needs of the government. On the other hand, structural measures tend to be longer term and are often aimed at improving the efficiency of the public sector.

Table 1 Classification of measures: structural and non-structural

	Wage measure	Employment measure
Non-structural	Wage freeze	Hiring freeze
	Wage cut	
Structural	Reform the bargaining model	Public sector layoffs
	Reform the compensation grid	Attrition rule
	Change the indexation rule	Abolish some state agencies
	Introduce pay for performance rules	Abolish specific positions
	Increase working hours	Outsource non-core functions (e.g., cleaning services)
	Reduce/eliminate overtime pay	Prohibit parallel employment in the private sector and retirement in public sector
	Reduce/eliminate bonuses (e.g., holiday bonus, 13th salary)	
	Allow government to cancel an expired collective agreement	
	Implement mandatory use of a centralized payment system to control wage payments	
	Introduce legal salary cap	

Table 2 Examples of high and low social dialogue

	Social dialogue examples
Low social dialogue	Measures taken without any reference to public discussions, negotiations, or consultations in source documents (IMF staff reports, OECD reports)
	Perfunctory discussion in Parliament before a decree is passed
High social dialogue	Organize public information campaign
	Consult with public administration staff about reform details
	Conduct comprehensive expenditure review
	Conduct direct negotiations with trade unions
	Introduce a Social Dialogue Law to foster dialogue and input from social partners
	Conduct extensive discussions with social partners on public sector reform, possibly, linked to labor reform and overall wage moderation campaign
	Use of fiscal council for public discussion of reform options

Many countries introduced structural measures to reduce the public wage bill. For example, to address changing employment needs Portugal (2009–2013) and Spain (2011) increased working hours; Greece and Ireland (2009–2012) reduced overtime; Greece (2009–2012) closed certain government agencies and reallocated positions across departments. The UK outsourced many non-core functions, such as transport, mail, and cleaning services to the private sector. Other examples of structural measures include tightening the link between pay and performance to improve efficiency and productivity (Ireland, 2011), or simplifying and decompressing the salary structure (Latvia, 2008–2010).[6]

Third, we record whether measures were taken with "high" or "low" level of social dialogue (Table 2). The extent of social dialogue depends on the extent of open negotiations with unions, communication with private sector employers/trade unions, a public communication strategy or some other explicit effort to try to achieve social consensus and justification for wage bill measures taken. Note that this is not a measure of social consensus, but rather of the existence of some action taken with the intention to reach social consensus.

For example, Canada (1991–1992) organized public information campaigns to inform public employees early on about the detailed administrative and financial aspects of the reform. Consultation within the public administration in Portugal (2013) allowed staff to be involved in the reform effort and address opposition early on. Direct negotiations with unions have been extensive in the past in Austria (1996–1997), Italy (1993–1995), the Netherlands (1984–1986), and Ireland (2010) and have

[6] In practice, many countries introduced several measures at the same time. In such cases, a country is coded as having non-structural measures if it introduced non-structural measures *only*—e.g., the country only introduced a wage freeze. Otherwise, if a country introduced one or more structural measures (possibly in addition to a non-structural measure such as a wage freeze), then this is coded as structural.

helped the government and social partners reach an agreements on comprehensive reforms.[7]

4 Results and stylized facts

4.1 How different are the historical and recent episodes?

Figure 4 shows that the historical and recent episodes of public wage bill reduction share many characteristics. In fact, despite different circumstances they are very similar in all the dimensions we consider, except the level of social dialogue.

The most common measure is a temporary wage freeze. All the recent episodes included a wage freeze, or a wage cut. However, even in historical episodes, where pressures to consolidate might have been less immediate, over 80 % of episodes included wage freezes. It should be noted that while a wage freeze is typically temporary, it can indeed have a long-term effect on the wage bill, as long as wages do not grow much faster after the wage freeze is lifted. For example, the Netherlands in the 1980s managed to achieve a substantial and sustained reduction in the wage bill (1.7 % of GDP) primarily through negotiated and renewed wage freezes. Between 50 and 60 % of episodes also included measures on the employment level. Employment measures, such as attrition rules or reduced replacement rates for workers retiring, typically take time to produce results. Perhaps due to this reason, the overall change in public employment over time tends to be rather smooth (Fig. 2).

Interestingly, the average reduction in the public wage bill is also similar for the historical and recent episodes.[8] For the historical episodes, the wage bill reduction is the cumulative reduction calculated over 5 years after the first year of measures. For the recent episodes, due to data availability, the wage bill reduction is calculated as the cumulative reduction from 2009 to 2013.[9] The fact that the average reduction in the wage bill is similar, about 1 % of potential GDP, despite the shorter time period for the recent episodes is perhaps not surprising given the unprecedented effort by some countries in the recent episodes. However, this average also indicates the general scope for public wage bill reduction and its contribution to reducing the deficit. More detail on individual episodes is reported in Appendix Tables 1 and 2.

[7] See Blanchard et al. (2013) for a discussion of the critical role of trust between the unions and the government in recent labor market reforms, and how it has affected the success of these reforms.

[8] The wage bill measure used in this study is Compensation of Employees from Eurostat, which includes social contributions paid by the employer and the employees and the gross take home pay of the employee. While compensations are the right concept when analyzing fiscal adjustments, as it represents the overall cost for the budget related to public employees, it might not capture the overall adjustment on public employees if additional levies on public employees are introduced. This, for example, happened in Ireland in 2009, when an additional levy on the gross wage of public employees of 7 % on average (called Pension Related Deduction but not included in social contributions and not counted in the computation of pension benefits) was introduced.

[9] The average reduction in the wage bill is only about 0.1 % larger for both set of episodes when the changes are computed as the maximum over the 4 years after the first year of reform (4 years is the maximum span for the recent episodes).

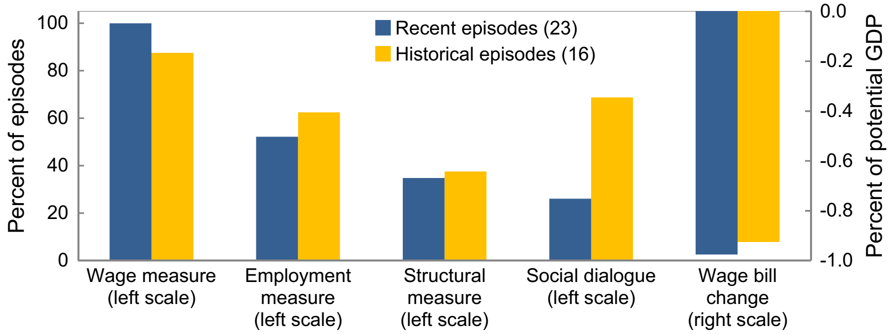

Fig. 2 Comparison of Historical and Recent Wage Bill Consolidation Episodes. *Sources*: For historical episodes, Guajardo et al. (2014); IMF Staff Reports for Article IV consultations for various countries and years. For recent episodes, Organisation for Economic Co-operation and Development (Public Sector Compensation in Times of Austerity, 2012); IMF Country teams; and IMF Staff Reports for Article IV consultations. Wage bill reduction is calculated over 5 years, following the first year of reform for the historical episodes; it is calculated as the change from 2009 to 2013 for the recent episodes. We use potential GDP whenever available, otherwise nominal GDP. Alternatively, we computed wage bill reductions using the maximum cumulative reduction over 4 years after the start of reforms. Four years is the maximum given data availability for the recent episodes. We obtain slightly large reductions in the wage bill, about 0.1 for both historical and recent episodes

Table 3 Structural measures and social dialogue across episodes

	Structural measures		
	Yes	No	Total
Social dialogue			
High	4	7	11
Low	2	3	5
Total	6	10	16

4.2 What types of measures are associated with more sustained wage bill reductions among historical episodes?

We find that countries that accomplished a sustained reduction in the wage bill tended to rely more on structural measures and/or extensive social dialogue.

Table 3 indicates that there was a lot of variation in the mix between structural wage bill measures and degree of social dialogue. Namely, it was not the case that countries with structural measures necessarily also engaged in extensive social dialogue (actually the share of episodes with structural measures is almost identical for high- and low-dialogue cases). Likewise, those with extensive social dialogue could sometimes successfully rely on repeated non-structural measures to achieve long-term wage bill reduction, without structural measures.

Figure 3 compares the wage bill reduction as a share of potential GDP for episodes with and without structural measures, as detailed in Appendix Table 4.[10] When the

[10] In the text, we focus on absolute changes, i.e., changes in the wage bill over potential GDP, and below on differences in the average public wage divided by per capita GDP and public employment over population

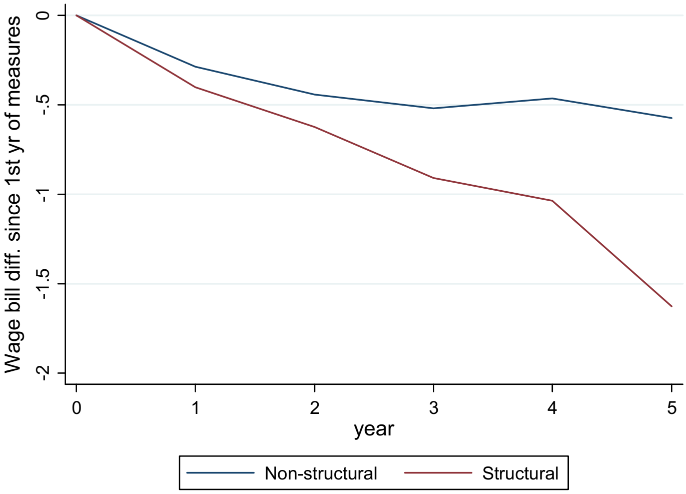

Fig. 3 Structural versus non-structural measures: cumulative change in the public wage bill 5 years after the first year of measures (percent of potential GDP)

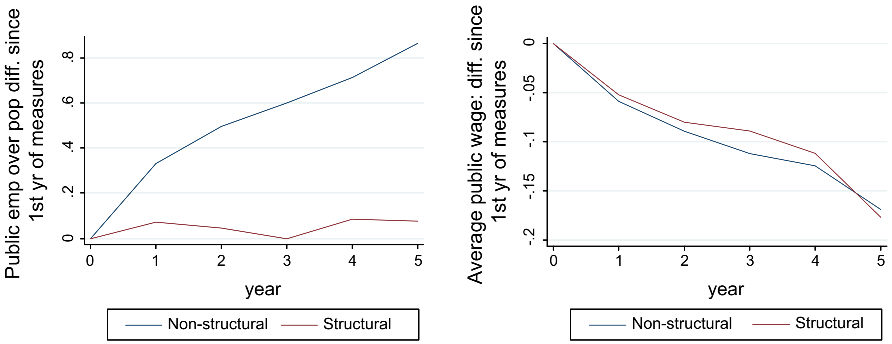

Fig. 4 Structural versus non-structural measures: cumulative change in public employment (percent of population) (*left*) and average wage (*right*) 5 years after the first year of measures

adjustment relied on structural measures, the containment of the public wage bill has been larger and more sustained. The difference in the reduction in the public wage bill as a share of GDP is already about 0.5 % of GDP after 4 years, which is substantial. Over the course of 7–10 years, the difference can be as large as about 0.7 % of GDP (not shown in the figure). These values come from simple averages of the yearly data across

Footnote 10 continued
(see Fig. 4). Results are very similar if percentage changes are considered. This implies that larger reductions in, for example, the wage bill over potential GDP are associated also with larger percentage reductions. Therefore, the analysis holds for both absolute and percentage changes. We have also replicated Fig. 3 (and Fig. 5) holding potential GDP fixed at the initial level (when measures were first introduced). While results are qualitatively similar, we observe an increase in the public wage bill as a share of the initial level of potential GDP over time. Finally, we have repeated Fig. 3 and all the subsequent analysis using actual GDP instead of potential, and we find very similar results.

the two groups of measures, and given small sample sizes, we cannot offer precise confidence intervals. Hence, these should be treated as stylized facts. Nevertheless, it seems that the size of the difference is non-negligible.

It is interesting to see the extent to which a reduction in the wage bill associated with structural measures was due to changes in average wages as opposed to changes in public employment.[11,12] To analyze this, we decompose the wage bill into two components: (1) an average public wage component (average wage divided by GDP per capita) and (2) a public employment component (public employment divided by total population).

$$\frac{wL}{Y} = \left(\frac{w}{Y/\text{Pop}}\right)\left(\frac{L}{\text{Pop}}\right) \tag{1}$$

Figure 4 shows the graphs according to this decomposition of the wage bill. We see that episodes with structural measures had a smaller increase in the public employment level as compared to episodes with non-structural measures. In contrast, the average reduction in the average wage was not very different for the episodes with and without structural measures.

We must stress, however, that the decomposition graphs shown should be interpreted with caution given problems of data availability for public employment.[13]

Figure 5 shows the comparison of reduction in the wage bill for episodes that were characterized by substantial social dialogue to those with little social dialogue. We see that in the past, larger and more sustained reductions in the wage bill typically also required broad public support and social partners' involvement. In particular, the difference in the reduction in the public wage bill as a share of potential GDP across episodes with high and little social dialogue is about 0.5 % of GDP after 5 years, similar to the difference between structural and non-structural measures. Over the course of 7–10 years, the difference can be as large as about 1 % of GDP or more (not shown in the figure).

There are some notable examples of successful social dialogue. For example, in Austria in 1996/1997 the authorities consulted social partners extensively at each stage of the process and secured a lasting agreement, in contrast to a failed attempt in 1995. Canada, after introducing measures to explicitly contain the wage bill at the beginning of the nineties, consolidated the effort with a comprehensive review of

[11] Structural measures can be targeting the average wage (i.e., tightening the link between pay and performance), the employment level (i.e., outsourcing) or both (i.e., spending review). Episodes that we code as entailing structural measures often included a combination of them. Moreover, given the limited sample we work with, splitting the episodes with structural measures depending on whether they were targeting the average wage, the employment level or both would leave us with very few observations in each group. That is why we simply look at how the average wage and employment level behaves when structural measures are introduced, regardless of whether these targeted employment or the average wage.

[12] Data on the numbers of General Government Employees are from Eurostat NACE Rev. 1.1 categories L, M and N (Public Administration and defense, Health and social work and Education, respectively). Due to data availability, for Canada and Ireland we use General Government Employment data from ILO Laborsta.

[13] While wage bill data were available for all except one (Germany 1983–1984) of our 16 episodes, data on public employment levels are available only for 9 out of the 16 episodes.

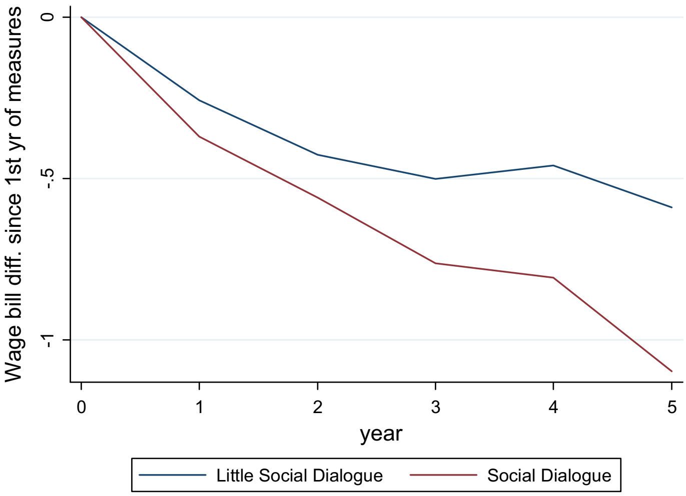

Fig. 5 Social dialogue versus little social dialogue: cumulative change in the public wage bill 5 years after the first year of measures (percent of potential GDP)

federal spending for a "long-lasting structural change in what the government does" and a "fundamental change in how the government delivers programs and services" (1995 Budget, pp. 11–20).[14] There were significant recent efforts in Portugal and Ireland to deepen the social dialogue and involve both public employees and general public in discussions and implementation of public expenditure reviews.

Decomposing the reduction in the wage bill into average wage and public employment as percent of total population, we see that episodes with social dialogue tend to have lower increases in public employment and similar reductions in the average wage.

Overall, our findings suggest that structural measures and/or social dialogue support larger and more sustained reductions in the public wage bill. However, these findings must be taken with caution. First, they should be interpreted as correlations, rather than causal relationships. In fact, although the wage bill measures that we consider were all aiming at significant budget savings as part of fiscal consolidation episodes, we do not have information on the expected savings from each measure. It might well be the case that countries that counted more on reducing the wage bill to produce budget savings are also those that implemented more structural measures or relied more on social dialogue. That is, the measures characteristics might not be completely exogenous to the size of the wage bill reduction. Second, our sample sizes are very small, insufficient for finding results with statistical significance.

However, these correlations seem to be consistent with what one would expect and therefore unlikely be spurious. For example, the fact that more social dialogue is

[14] Throughout, the Canadian government enjoyed a strong public support. However, it should be noted that the Canadian road was also long and bumpy—the first public expenditure review was initiated in the mid-1980s, but it was not until a decade later than these efforts really bore fruit. For a description of the Canadian fiscal adjustment during the 1990s, see Mauro et al. (2013).

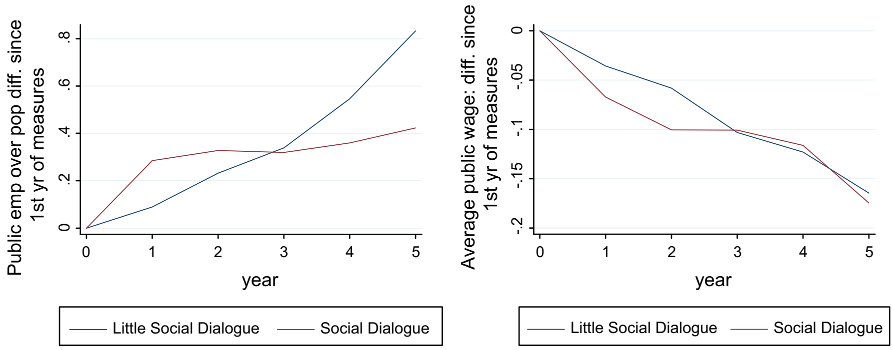

Fig. 6 Social dialogue versus little social dialogue: cumulative change in public employment (percent of population) (*left*) and average wage (*right*) 5 years after the first year of measures

associated with a larger impact of the measures might signal that a more cooperative attitude by the parties involved has been helpful in overcoming obstacles and delivering the targeted result. Similarly, structural measures are more difficult to reverse, and therefore, they should be expected to deliver more lasting effects. Moreover, there is no evidence that countries in higher need of fiscal adjustment, as those during the 2008–2009 crisis, implemented more structural measures or had more social dialogue. Our hope therefore is that these preliminary findings may open avenues for future research (Fig. 6).

4.3 Preliminary results on recent episodes

It might still be too early to analyze the recent episodes of wage bill reduction over the medium term. For countries that introduced measures in 2009 or 2010 (see Appendix Table 5), we present the graphs in Figs. 7 and 8. As in the historical episodes, we

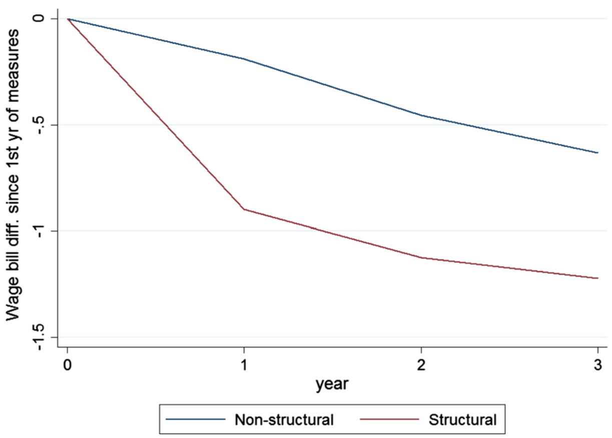

Fig. 7 Structural versus non-structural measures, recent episodes: cumulative change in the public wage bill 3 years after the first year of measures (percent of potential GDP)

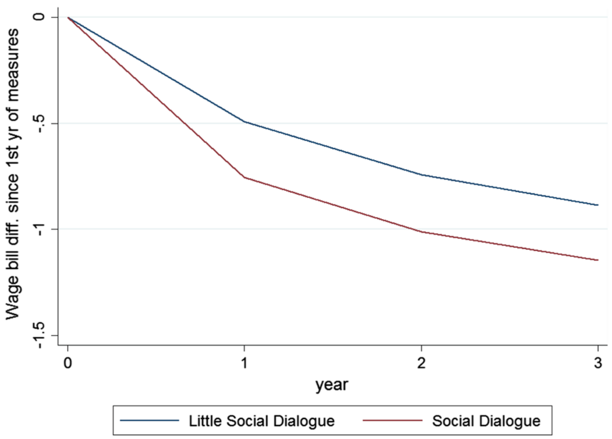

Fig. 8 Social dialogue versus little social dialogue, recent episodes: cumulative change in the public wage bill 3 years after the first year of measures (percent of potential GDP)

calculate the reduction in the public wage bill as a percent of potential GDP, since the first year in which measures were taken. Given wage bill data availability through 2013, we look at the reductions over 3 or 4 years, starting from 2009 or 2010.

Based on the preliminary results in Fig. 7, structural measures seem to be at least as effective as in the past, if not more. Structural measures used in the recent episodes are associated with reduction of close to 1 % of potential GDP already in the first year after measures were taken. While this is a quicker reduction than in past episodes, the recent crisis has likely required stronger and more urgent action.

In contrast to the historical episodes, there was less social dialogue in the recent episodes, perhaps due to the lack of time necessary to develop it. We see in Fig. 8 that the difference in wage bill reductions between countries with and without social dialogue is not large, at about 0.25 % of GDP.[15] More time will need to pass before we can make more conclusive assessment of the effectiveness of the recent wage bill measures.

5 Conclusion

The reader should bear in mind that our analysis is based on a limited number of cases and that the coding of the different episodes entailed a certain degree of judgment,

[15] However, when we eliminate from the sample the countries affected by the sovereign debt crisis in the euro area (Ireland, Portugal, Greece, Cyprus, Spain and Italy) the wage bill difference between countries with social dialogue and without widens, suggesting that these countries implemented large measures under market pressure regardless of whether the conditions allowed developing social dialogue. Moreover, in Ireland and Portugal general political election were held just before the inception of the adjustment program and might have fostered social dialogue. In the other countries with some social dialogue general political elections happened after the start of the fiscal adjustment (in 2010, 2012, 2011 and 2011, respectively, in Latvia, Romania, Slovenia and Spain). Further research would be needed to assess what role elections might have played in fostering the social dialogue during and after the 2008–2009 financial crisis.

as it happens for all event study analysis. Moreover, we assessed the effectiveness of the measures in reducing the public wage bill, as this was their main goal. We did not address the effect of these measures on the efficiency of the public sector or on the provision of public services. As noted, as in many countries the real output of the government is still measured from the cost side, this would be a very difficult task.

Overall, our results suggest that structural measures and/or social dialogue support larger and more sustained reductions in the public wage bill. At the same time across-the-board measures, such as wage freezes, may bring temporary budget relief, but they are unlikely to be effective to address longer-term consolidation needs. This was the case in historical episodes of wage bill reduction (1979–2009), and it appears to be the case also in the recent episodes.

As governments make progresses in consolidating the fiscal accounts, they will have also to accommodate important changes in the composition of public expenditures (e.g., less expenditure on education and more on health due to aging[16]). These additional challenges reinforce the need to approach public employment and compensation reform relying less on temporary and one-off measures and more on longer-term structural changes guided by careful assessments of spending needs. Bringing on board the public opinion and implementing these changes in a context of dialogue with the important stakeholders might prove essential.

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6 Appendix

See Tables 4 and 5.

[16] See Clements et al. (2012) for estimates regarding the foreseen increase in health expenditures.

Table 4 Historical episodes of wage bill reduction (1979–2009)

Country	Year	Reason for wage bill measures	Wage measure	Staff measure	Structural measure	Extent of social dialogue	Wage bill reduction (% pGDP)	Primary balance reduction (% pGDP)
Austria	1996–1997	Meet Maastricht targets; improve competitiveness	Yes	Yes	Yes	High	−2.54	−3.45
Belgium	1982	Improve competitiveness	Yes	No	Yes	High	−1.57	−5.43
Belgium	1992, 1994	Meet Maastricht targets	Yes	Yes	No	High	−0.06	−2.69
Canada	1991–1992	Reduce fiscal deficit	Yes	No	Yes	High	−2.02	−5.24
Denmark	1983–1984	Improve competitiveness	Yes	No	No	Medium	−0.80	−8.05
Germany	1983–1984	Economy wide wage moderation	Yes	No	No	Medium	−0.64	−0.71
Germany	1995, 1997, 2000	Meet Maastricht targets; increase productivity	Yes	Yes	No	Medium	−0.50	−10.34
Ireland	1982	Reduce fiscal deficit	No	Yes	No	Low	−0.65	−4.04
Ireland	1987–1988	Reduce fiscal deficit	Yes	Yes	No	Medium	−0.02	−4.00
Italy	1993, 1995	Reduce fiscal deficit; macro-adjustment after exit from ERM	Yes	Yes	Yes	High	−1.42	−2.50
Netherlands	1981, 1983, 1984–1986	Reduce fiscal deficits	Yes	No	No	High	−1.74	−2.10
Netherlands	2005	Reduce fiscal deficit; improve competitiveness	Yes	No	No	Low	0.42	5.57
Portugal	2000, 2003	Reduce deficit to SGP target; high public employment	No	Yes	No	Low	0.22	3.67

Table 4 continued

Country	Year	Reason for wage bill measures	Wage measure	Staff measure	Structural measure	Extent of social dialogue	Wage bill reduction (% pGDP)	Primary balance reduction (% pGDP)
Portugal	2005–2007	Reduce deficit to SGP's target; high pub. wage premium; high pub. employment	Yes	Yes	Yes	Low	−1.25	3.44
Spain	1997	Meet Maastricht targets	Yes	Yes	No	Medium	−0.80	−1.13
UK	1994	Macro-adjustment after exit from ERM	Yes	Yes	Yes	Low	−1.17	−7.08

SGP stands for Stability and Growth Pact. For the definition of structural measures and the extent of social dialogue, see Sect. 3 and Tables 1 and 2. The reduction in the wage bill and in the primary balance is the cumulative reduction over 5 years following the first year of measures, as a share of potential GDP, except in case of Canada, Denmark, Spain, and Ireland (1982) where it is expressed as a share of nominal GDP, because potential GDP was not available. The primary balance for Germany in year 2000 includes about 2.5 % of GDP of one-off revenues due to the sale of UMTS licenses in that year

Sources: IMF Staff Reports for Article IV consultations for various years

Table 5 Recent episodes of wage bill reduction (2009–2013)

Country	Year	Wage measure	Staff measure	Structural Measure	Extent of social dialogue	Wage bill reduction (% pGDP)	Primary balance reduction (% pGDP)
Bosnia	2012–2013	Yes	Yes	No	Low	−1.57	−0.82
Bulgaria	2010–2013	Yes	Yes	Minor	Low	−0.46	0.71
Croatia	2009–2013	Yes	No	Medium	Low	0.21	0.68
Cyprus	2013	Yes	Yes	Medium	Low	…	…
Czech Republic	2010	Yes	No	No	Low	−0.75	−4.33
France	2011–2012	Yes	Yes	No	Low	−0.34	−2.49
Greece	2010–2013	Yes	Yes	Major	Low	−3.94	−12.01
Hungary	2010–2013	Yes	Yes	Medium	Low	−1.40	−2.29
Ireland	2009–2013	Yes	Yes	Major	High	−0.93	−4.94
Italy	2009–2013	Yes	Yes	Minor	Low	−0.74	1.17
Japan	2012	Yes	No	No	Low	…	…
Latvia	2009–2012	Yes	Yes	Major	Medium	−3.67	−7.26
Macedonia	2009–2013	Yes	Yes	Minor	Low	−0.80	2.64
Netherlands	2012	Yes	No	No	Low	−0.61	−1.48
Poland	2009–2013	Yes	No	No	Low	−0.48	0.04
Portugal	2011–2013	Yes	Yes	Major	High	−2.15	−9.11
Romania	2010–2013	Yes	Yes	Major	Medium	−2.01	−5.46
Serbia	2009–2010, 2012–2013	Yes	No	No	Low	−0.53	1.60
Slovakia	2013	Yes	No	No	Low	…	…
Slovenia	2010, 2012–2013	Yes	No	Minor	Medium	−1.49	6.62
Spain	2010–2012	Yes	No	Minor	Medium	−0.76	−5.63
UK	2011–2012	Yes	No	No	Low	−0.78	−2.77
USA	2011–2012	Yes	No	No	Low	−0.92	−5.25

For the definition of structural measures and the extent of social dialogue, see Sect. 3 and Tables 1 and 2. The reduction in the wage bill and in the primary balance is the cumulative reduction from 1 year before countries started reforms up to 2013, as a share of potential GDP. For Macedonia the base year is 2009 and not 2008 due to data availability. Sources: OECD (Public Sector Compensation in Times of Austerity, 2012), IMF Country teams, IMF Staff Reports for Article IV consultations for various years

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