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MANAGING GOVERNMENT COMPENSATION AND EMPLOYMENT—INSTITUTIONS, POLICIES, AND REFORM CHALLENGES

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Informal Session to Brief: Managing Government Compensation and Employment—Institutions, Policies, and Reform Challenges

The report prepared by IMF staff and presented to the Executive Board in an informal session on May 6, 2016. Such informal sessions are used to brief Executive Directors on policy issues. No decisions are taken at these informal sessions. The views expressed in this paper are those of the IMF staff and do not necessarily represent the views of the IMF's Executive Board.

The document listed below has been separately released:

- Case Studies on Managing Government Compensation and Employment—Institutions, Policies, and Reform Challenges

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MANAGING GOVERNMENT COMPENSATION AND EMPLOYMENT—INSTITUTIONS, POLICIES, AND REFORM CHALLENGES

EXECUTIVE SUMMARY

Government compensation and employment policies are important for the efficient delivery of public services which are crucial for the functioning of economies and the general prosperity of societies. On average, spending on the wage bill absorbs around one-fifth of total spending. Cross-country variation in wage spending reflects, in part, national choices about the government's role in priority sectors, as well as variations in the level of economic development and resource constraints.

Pressures on wage spending will increase over the coming decades in many countries. Advanced economies are facing fiscal challenges associated with aging populations while also needing to reduce high public debt levels. Emerging markets and low-income countries have pressures to expand public service coverage in the context of revenue and financing constraints and the need for higher public investment.

Effective management of wage bill spending is needed to ensure that the desired public services are delivered in a cost-effective and fiscally sustainable manner. This requires adequate fiscal planning to ensure appropriate financing of the wage bill, competitive compensation to attract and retain skilled staff and incentivize performance, and the flexibility to adjust the level and composition of employment to respond efficiently to demographic and technological developments. Experience has shown that countries across all income levels have faced challenges in these areas.

Strengthening institutions is crucial for effective and sustainable wage bill management. For example, improving medium-term wage forecasting, and strengthening links between wage determination processes and fiscal frameworks, can enhance fiscal planning. Competitive compensation can be promoted through public and private sector wage comparisons. Position-based employment systems can give greater flexibility to adjust employment levels to ensure efficient service delivery.

Investing in better monitoring and information systems can greatly contribute to more effective wage bill management. The current lack of data on the level and composition of wage bill spending and employment levels reflect the precarious state of systems for monitoring and reporting wage bill spending.

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Glossary

AEs	Advanced Economies
EMs	Emerging Markets
FAD	Fiscal Affairs Department
GDP	Gross Domestic Product
GFS	Government Finance Statistics
ILO	International Labor Organization
IMF	International Monetary Fund
LIDCs	Low-Income Developing Countries
OECD	Organisation for Economic Co-operation and Development
PRP	Performance Related Pay
PISA	Programme for International Student Assessment
SOEs	State-Owned Enterprises
SPS	Single Pay Spine
TSRs	Teacher-Student Ratios
WEO	World Economic Outlook

INTRODUCTION

1. The efficient delivery of public services is crucial for the functioning of economies and the broader prosperity of societies. Governments typically play a key role in the provision of critical services such as education, health, sanitation and security. Broad access to these services promotes inclusive growth and the general well-being of populations. Government compensation and employment policies foster better compensation and employment standards, including equality of pay and employment opportunities for women, ethnic minorities, those with disabilities, the low skilled, and disadvantaged groups.

2. Reflecting the critical role of public services, government wage bill constitutes a large share of government spending in all countries.¹ On average, spending on the government wage bill varies between 10 percent of GDP in advanced economies to 7½ percent of GDP in low-income developing countries (LIDCs), with emerging market economies lying in between. However, the wage bill as a share of total government spending is higher at 27 percent in emerging markets and LIDCs compared to 24 percent in advanced economies.

3. Government compensation and employment policies have important fiscal and macroeconomic implications:

- **Wage bill spending can impact the fiscal balance and the composition of government expenditures.** If not effectively integrated into budget planning, high or increasing wage bills can undermine fiscal planning. In addition, raising government wages or boosting hiring during cyclical upturns can exacerbate output fluctuations by further stimulating demand, hindering the stabilizing role of fiscal policy and ratcheting up public debt during the downturn as compensation increases are often hard to reverse. High compensation spending can also crowd-out priority spending on public infrastructure and social protection, crucial for economic growth and poverty reduction.
- **In many countries, the government is the principal employer and thus can have an impact on private sector wages and employment.**² Government compensation policies can influence private sector wages by increasing reservation wages and crowding out private sector employment.³ Using government employment to compensate for insufficient labor market demand can lead to skill shortages in the private sector without increasing aggregate employment over the long term.

¹ The discussion in this paper focuses on general government. Because of data limitations, the wage bill in state-owned enterprises (SOEs) is not discussed; however, policy issues enumerated in the paper are also relevant for SOEs.

² Government employment ranges from 11.6 percent of the working age population in advanced to 8.3 percent in emerging markets and 3.7 percent in LIDCs.

³ For instance, Behar and Mok (2013) find that high government employment in the Middle East region has a negative impact on private employment outcomes.

4. The wide cross-country variation in government employment levels reflects in part national choices about the role of government. Among advanced economies, whereas the Nordic countries (including Denmark, Norway and Sweden) employ a relatively large proportion of their population in the provision of public services (between 20–25 percent of the working age population), countries such as Australia, New Zealand and Japan employ much smaller shares at less than 10 percent. The picture is similarly mixed among emerging markets and LIDCs. For instance, in LIDCs such as Kyrgyz Republic and Moldova government employment exceeds 4½ percent of the population, while other LIDCs have lower levels of government employment reflecting, for example, the lack of revenue capacity.

5. Emerging fiscal pressures in many countries require a renewed focus on the efficiency of government spending, including wage bill spending. Advanced economies face the dual challenge of financing high debt levels as well as rising pension and health spending due to rapidly ageing populations (Clements et al., 2015).⁴ At the same time, countries need to ensure that measures taken to contain the wage bill as part of fiscal consolidation do not unravel. Emerging market economies and LIDCs need to finance expansion in public infrastructure as well as in access to education and health care to support inclusive economic growth and poverty alleviation. Limited resource mobilization capacity in the short term and competing expenditure needs mean that these countries will require a strong focus on government spending efficiency, including the wage bill. Measures adopted by countries may also require a reallocation of employment across sectors (e.g., from education to health in advanced economies, or an increasing share of education and health in emerging markets and LIDCs) as well as enhancing the efficient delivery of public services by ensuring “value for money”.

6. Over the long run, rising incomes and to some extent technological change could raise government compensation as a share of GDP, especially in emerging markets and LIDCs. According to “Wagner’s Law” (Diamond, 1977), government spending—including the wage bill—tends to increase as a share of GDP as countries develop, reflecting increasing demand for public services such as education, health, security and regulatory services.⁵ In addition, if the government sector does not benefit from the productivity increases in the private sector induced by technological change, then this can further increase government compensation as a share of GDP as private sector wages are transmitted to the public sector to ensure government wages remain competitive—the “Baumol cost disease”.⁶ Lack of flexibility in changing the level and composition of

⁴ While migration can partially help to ease these challenges, it has implications for the level and composition of public services in both the host and origin countries.

⁵ Diamond (1977); Heller and Diamond (1990); Kraay and Van Rijckeghem (1995); Akitoby et al. (2006); IMF (2014).

⁶ Baumol and Bowen (1965); Baumol (1967); and Baumol, Blackman and Wolff (1985). Note that, by itself, the Baumol cost disease does not necessarily imply a rising expenditure share on wages in the “stagnant” sector. For this to be the case, growth of output in the stagnant sector needs to be faster than its productivity growth (e.g., possibly because of a large income effect relative to an offsetting price effect, or government subsidies to support the stagnant sector). While there is some empirical support for Baumol’s cost disease (Bates and Santerre, 2013; Colombier, 2012; Hartwig, 2008; Medeiros and Schwierz, 2013; and Nose, 2015), these studies have important limitations, including that output is often poorly measured, particularly in sectors such as health, education and personal services, for which output measures are in practice measures of inputs (Nordhaus, 2008).

the government labor force and failure to exploit the opportunities presented by new technologies and work practices can further reinforce this trend.

7. Against the above background, this paper discusses the institutions and policies needed to effectively manage government compensation and employment levels, and the reform challenges faced by policymakers. Effective management of the government wage bill requires appropriate institutions and policies to ensure that governments can efficiently provide the desired level of public services in a fiscally sustainable manner. This, in turn, requires:

- *Adequate fiscal planning:* Integration of decisions on government wage and employment levels into a medium-term budget framework can ensure that increases in the wage bill are appropriately financed. Otherwise increases in the wage bill can have unintended adverse implications for the fiscal balance requiring disruptive fiscal adjustment over the medium term to ensure fiscal sustainability.
- *Competitive government compensation:* The level, composition and structure of government compensation need to be competitive with the private sector to attract, develop and retain the required talent and to incentivize performance. If government compensation packages are uncompetitive, then governments will be unable to attract adequately skilled staff to provide quality public services.⁷ On the other hand, if government compensation is too generous then this can create upward pressure on private sector wages, and require higher taxation or lower government expenditures on items such as infrastructure or social protection which are crucial for economic growth and poverty reduction.
- *Appropriate government employment.* Both the level and skill composition of government employment needs to be consistent with the effective delivery of public services.⁸ *Efficient delivery of public services* also requires that the government has the *flexibility* to adjust, upwards or downwards, the size and composition of employment to achieve fiscal and policy objectives, including exploiting the growing opportunities created by technological innovation.

Therefore, not only does total wage bill spending need to be fiscally sustainable, but the underlying wage and employment mechanisms have to be efficient.

8. Drawing on the work of other international institutions, including the World Bank, the Fund regularly advises its member countries on managing the wage bill, in the context of surveillance, lending and technical assistance. This paper provides an up-to-date and systematic analysis of these issues to enhance the quality and consistency of advice provided by the IMF. A key contribution of this paper is the compilation of a time-series on government wage bill spending not

⁷ For example, low pay can result in poor service delivery due to absenteeism or corruption in the form of informal payments by service recipients.

⁸ This includes not only services such as education, health, water and sanitation, and law and order, but also the collection of government revenues to finance these expenditures.

previously available and a cross-section database on government employment in recent years.⁹ This is complemented by a new country-level survey of institutional approaches for managing the wage bill and 20 country case studies.

9. The structure of the paper is as follows. Based on the new database compiled by staff, Section II discusses trends in compensation and employment over time and across countries and the key drivers of these trends. The discussion of drivers distinguishes between: (i) structural factors, such as income and demographics which, in conjunction with social preferences, determine long-term trends in wage bill spending; and (ii) cyclical factors, such as economic and political cycles, which influence short-term fluctuations in the wage bill. Section III discusses the implications of wage bill policies for fiscal planning, wage competitiveness, and efficiency and flexibility in service delivery, which are important for the efficient delivery of the desired level of public services.¹⁰ Section IV draws on the institutional survey to discuss the various institutional approaches used by countries for managing the wage bill and influencing wages outcomes. Based on insights from 20 country case studies covering all regions and income groups¹¹, Section V identifies challenges facing countries in managing and reforming wage bill spending, and developing more effective institutions and policies for setting and managing compensation and employment levels. Finally, Section VI identifies key lessons for the design and implementation of needed compensation and employment reforms, and for the possible role of the Fund in supporting these reforms.

TRENDS AND DRIVERS OF THE WAGE BILL

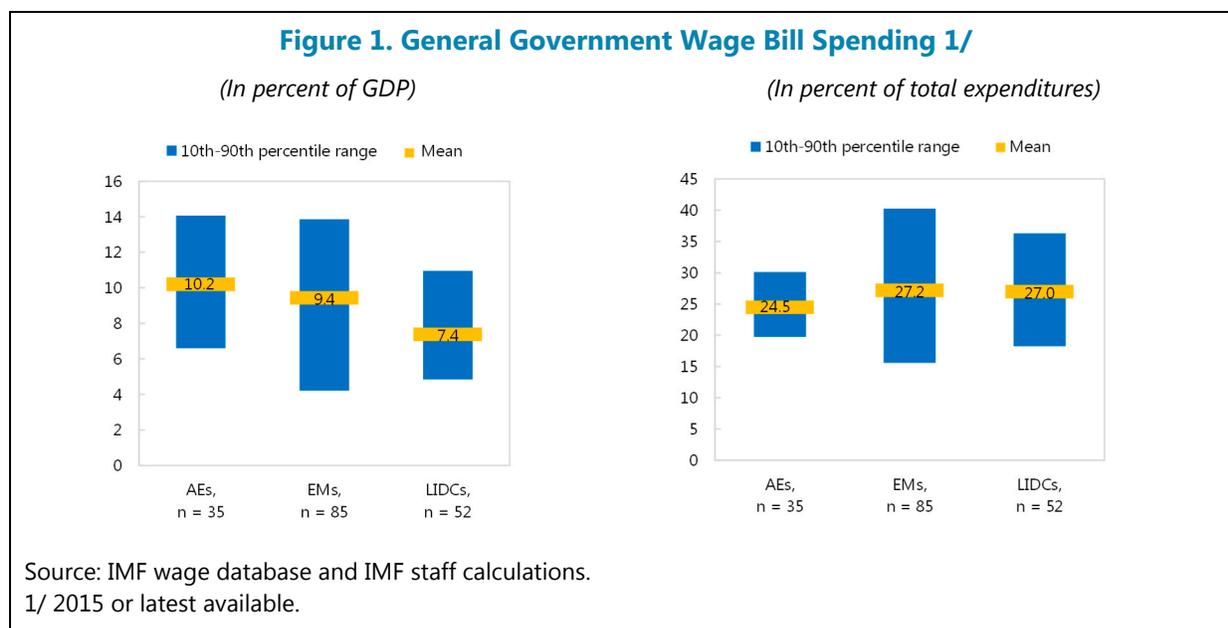
A. Trends

10. As noted above, the general government wage bill is relatively large in all countries both in relation to GDP and total spending (Figure 1). However, there is substantial variation within these groups with, for example, the share of wage bill spending in GDP in some LIDCs (including Lesotho, Namibia, Swaziland and Zimbabwe), being higher than the average for advanced economies. Box 1 discusses key data challenges when comparing wage bill spending and its components across countries.

⁹ Data on the level and composition of the government wage bill remains highly inadequate and large data gaps still remain, limiting analysis of the trends in government wage bill spending across countries and time as well as of the underlying factors. The new database builds on a recently compiled database by the World Bank (World Bank, 2016).

¹⁰ The efficient delivery of public services requires that the appropriate services are delivered to the desired quality at minimum cost, thus avoiding excessive taxation and an efficient composition of total public spending.

¹¹ These country case studies are available in a supplement accompanying this paper. The case studies include countries from all income groups: advanced economies (France, United Kingdom, Ireland, Netherlands, and Portugal); emerging markets (Kosovo, Romania, Malaysia, Philippines, Jamaica, El Salvador, Tunisia, and South Africa); and LIDCs (Moldova, Honduras, Mali, Côte d'Ivoire, Ghana, Kenya, and Zimbabwe). These studies provide important insights into the different sources of wage bill pressures as well as the reform challenges governments have faced when addressing these pressures over the short and medium term. The studies draw on analysis undertaken as part of IMF technical assistance as well as insights from external studies.

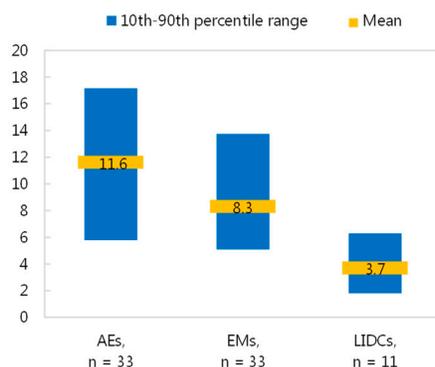


11. The cross-country variation in wage bill spending as a share of GDP reflects mainly country choices regarding the role of government in service delivery (Figure 2). For example, the share of education workers in the population is substantially lower in LIDCs at 0.7 percent compared to 1.2 percent in advanced economies. The gap is wider in health care—the share of health care workers is 1.2 percent in the advanced economies compared to 0.5 percent in the emerging markets and 0.2 percent in LIDCs. Within advanced economies, the variation also reflects different approaches to service delivery. For example, government employment in the health care sector is relatively small where private provision plays an important role (including Germany, Israel, Luxembourg, the Netherlands, and Slovak Republic), even though government finances such spending. Furthermore, countries also differ in their choices on the size of their military (Cusack, 2007).

12. While the wage bill has stabilized in advanced economies, it has been on an upward trend in low-income economies reflecting expansion in services. In the advanced economies, the average wage bill increased from 10 percent of GDP in the early 1970s to around 12 percent of GDP in the mid-1990s (Figure 3), almost entirely due to employment increases. Increasing employment has actually been accompanied by a declining ratio of average government wage to per capita GDP. In emerging market economies, the average wage bill to GDP declined until the 2009 crisis, but has rebounded in recent years, reaching the level prevailing in the early 1990s. Among LIDCs, the wage bill expanded on average by around 1 percentage point of GDP in the past decade, reflecting increases in employment, especially in education and health. For example, this was the case in Côte d’Ivoire and El Salvador (Case Studies on Managing Government Compensation and Employment—Institutions, Policies, and Reform Challenges, www.imf.org). Going forward, although the adoption of new technologies may allow for a different path for public employment in many emerging markets and LIDCs compared to the historical experience of advanced economies, pressures to increase public employment will likely continue reflecting the push to expand coverage

of government services in the context of achieving the Sustainable Development Goals (SDGs). Effective wage bill institutions and policies are therefore required to achieve the desired expansion in public services in a fiscally sustainable manner.

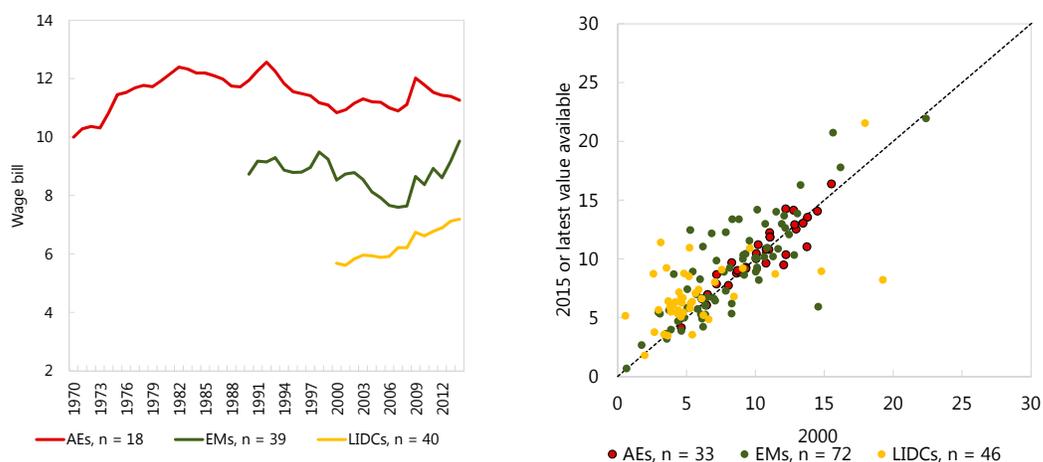
Figure 2. General Government Employment 1/
(As percent of working age population)



Source: IMF wage database and IMF staff calculations.

1/ 2014 or latest available. Countries that only have employment data before year 2005 are excluded.

Figure 3. Evolution of General Government Wage Bill
(As percent of GDP)



Source: IMF wage database and IMF staff calculations

Note: Averages are based on a balanced sample of countries.

Box 1. Government Wage Bill and Employment Data

Government wage bill data are widely available from different sources, including the IMF's World Economic Outlook (WEO) and Government Finance Statistics (GFS), OECD's General Government Accounts, and EUROSTAT's Annual Government Finance Statistics and AMECO. In addition, earlier data for a number of OECD countries are available from Cusack (2006). Altogether, 170 economies have wage bill data for 2010 or a more recent year, comprising 35 advanced, 83 emerging, and 52 LIDC. In the GFS alone, over 130 countries report comprehensive government finance statistics, including on compensation of employees. Over time, progress has been made in improving reporting, for example with the standardized terminology in GFSM2014 that facilitates cross country comparisons and aims at a comprehensive definition of government compensation (including wages, allowances, social security contributions, etc.). On average, countries have about 25 years of data—typically data starts in the 1970s for the advanced economies, in the 1990s for the emerging markets, and in the 2000s for the LIDCs.

The availability of government employment data is much more limited, with substantially less country and time coverage. Main sources include the ILO's LABORSTA data (public sector employment and employment of general government sector), ILOSTAT (employment by institutional sector), and data from individual countries. Altogether, 79 economies have public or general government data for 2010 or a more recent year, comprising 31 advanced, 35 emerging, and 13 LIDCs. On average, countries have about 12 years of data—typically data starts in the 1980s for the advanced economies, in the 2000s for the emerging, and limited years for the LIDCs.

There are important issues of comparability of these data across countries. For many countries (79 countries) data for the general government wage bill (covering units in central, state, provincial, regional, and local governments, as well as social security funds) are available. For others, the data generally corresponds to the non-financial public sector (20 countries), or the central or budgetary central government (85 countries). The base of measurement of the wage bill might also differ—in most advanced economies wage expenditure is expressed on an accrual basis (including, for example, an imputation for the difference between pensions accrued during the current period and the contributions paid for these benefits), while in other countries a cash base is more common. Furthermore, the recording of various bonuses and in-kind benefits (which sometimes is recorded as expenditure in goods and services) also varies across countries. In addition, government employment statistics might differ in the unit of measurement (i.e., number of employees vs. full time equivalents) and in the definition of employment (permanent vs. temporary employees). Also, employment data often comes from surveys, which depends on the responses of individuals in the sector and type of employer, and which are likely to be of lower quality than administrative data.

Issues of comparability go beyond coverage and definitions and reflect the different ways in which governments provide public services. For example, while France and Netherlands have a similar level of total public health expenditure (about 8 percent of GDP), wage expenditure in health care in Netherlands is only 0.3 percent of GDP compared to 2.3 in France. The difference is largely explained by the structure of health care—in France most health care professionals are government employees while in the Netherlands they are contractors whose compensation is classified under Goods and Service expenditure instead of Compensation of Employees.

All of these reasons suggest caution when drawing conclusions from cross-country comparisons. Depending on the question, it is crucial to rely on disaggregated data available from various sources, including EUROSTAT, GFS, ILO, OECD and WEO.

B. Drivers

13. Over the long term the process of economic development is typically associated with wage bill spending increasing as a share of GDP. Analysis of long-term trends in wage bill spending supports this finding, with a 10 percent increase in per capita GDP—our proxy for economic development—being associated with a 1 percent increase in wage bill spending as a share of GDP.¹² However, the relationship between income and wage bill spending weakens in advanced economies, which suggests that the share of the wage bill in GDP stabilizes at higher levels of development (Kuckuck, 2014). Changing demographics affects the demand for government services with, for example, large young populations in some countries increasing demand for education and large elderly populations increasing demand for health services in others. The link between demographics and wage bill spending is weaker in emerging markets and LIDCs, reflecting more binding revenue raising constraints. Countries with larger populations have a lower government wage bill as a share of GDP, consistent with economies of scale in the provision of public services.

14. Spending on the government wage bill is affected by short-term cyclical factors.¹³ Factors such as cyclically-induced upswings or downswings in revenues or fiscal consolidation have an impact on government wage bill.¹⁴ On average, real spending on the wage bill grows by 0.22 percentage points more as the output gap increases by 1 percentage point (Figure 4a).¹⁵ Wage bill spending appears to be more pro-cyclical in advanced economies compared to emerging markets and LIDCs. In advanced economies, wage bill spending reacts differently during upswings and downturns, with increases in the wage bill during upturns being larger than decreases during downturns. The presence of an IMF-supported program is associated with greater wage bill restraint, with average wage bill growth being lower by 1.8 percentage points (Figure 4b).¹⁶ This impact is substantially higher in advanced economies (4.5 percentage points) compared to emerging markets and LIDCs (1.5 percentage points), reflecting significant fiscal consolidation in advanced economies following the recent financial crisis and the need for internal devaluations in the context of a single currency.

¹² This increasing share occurs despite the fall in the ratio of average public wages to GDP per capita as the skill level of the private sector increases with development. The numbers reported are based on a cross-section analysis of country-panel data estimated using SURE techniques.

¹³ Borjas (1984), Matschke (2003), Lundgren (2010), Dahlberg and Mork (2011), Lamo et al. (2007), Eckardt and Mills (2014), and Gupta et al. (2015).

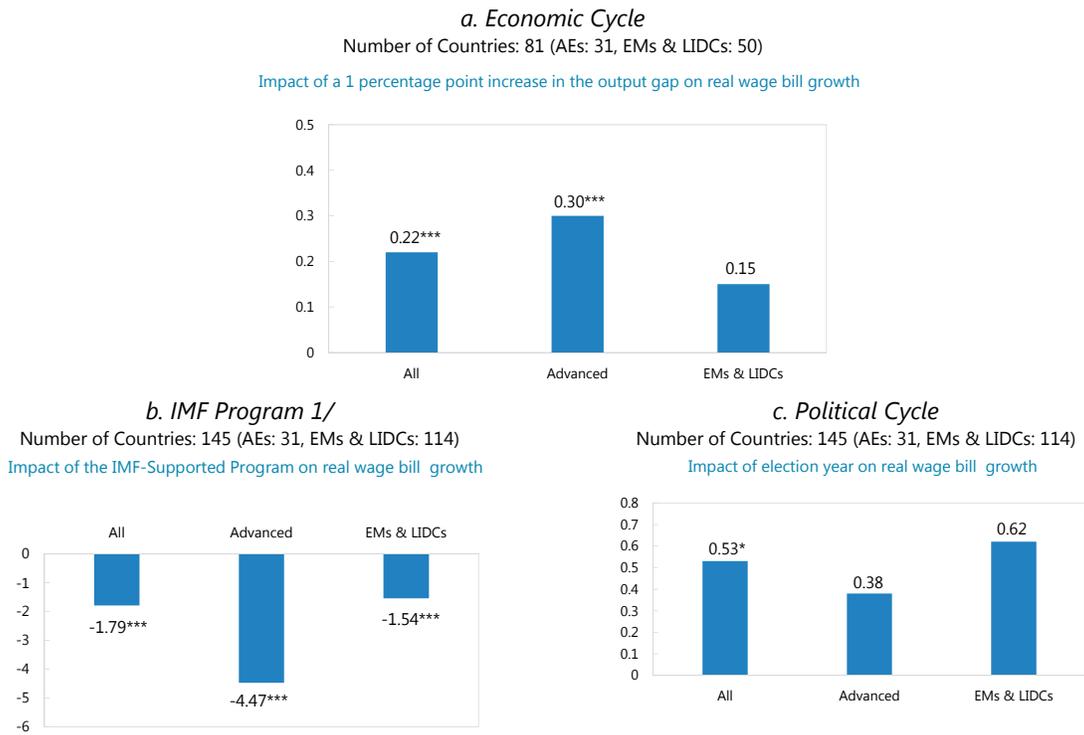
¹⁴ This was observed in some of the country case studies. For example, wage bill spending increased by around 3 percentage points of GDP in Ghana over the period 2008-2011 when economic growth exceeded 9 percent per year. In Portugal, the wage bill grew by 1.5 percent of GDP over the period 1995-2000 when the economy grew by nearly 4 percent per year.

¹⁵ The results reported in this section are qualitatively similar when wage bill spending as a share of GDP was substituted for real wage bill spending.

¹⁶ Among the country case studies, Honduras, Jamaica and Portugal decreased wage bill spending as a share of GDP from relatively high levels in the context of Fund-supported programs.

15. Wage bill spending is further influenced by the political cycle with wages or employment in the government sector rising ahead of elections. On average, the wage bill grows by 0.53 percentage points more during an election year (Figure 4c). The impact of an election year appears to be much larger in emerging markets and LIDCs compared to in advanced economies, consistent with stronger fiscal institutions in advanced economies (although neither of the coefficients were significantly different from zero). The country case studies on Kenya, Kosovo and Moldova describe large increases in wage bill spending in the run up to elections.

Figure 4. Short-term Influences on the Government Wage Bill
(In percent)



Source: IMF staff estimates.

Note: The estimated coefficients correspond to regressions where the annual growth of the real government wage bill is regressed separately on the change in the output gap, a dummy variable indicating an election year, and a dummy variable identifying the existence of the IMF program during that year. Country fixed effects are also controlled for. (*) (**) and (***) indicate significance at the 10, 5 and 1 percent levels.

1/ The estimate for LIDCs is negative though not statistically significant.

MACROECONOMIC IMPLICATIONS OF WAGE BILL SPENDING

16. As noted earlier, effective management of government wages and employment requires fiscal planning, a competitive level and structure of compensation, and the appropriate level and composition of employment. This section discusses the importance of these factors for the efficient provision of public services in a fiscally sustainable manner.

A. Fiscal Planning

17. Wage bill increases are, on average, found to be associated with a worsening fiscal balance.¹⁷ This was the case in a number of country-case studies (Honduras, Portugal and Romania) where sharp increases in wage bill spending were a major factor behind deteriorating fiscal balances. Based on an analysis of cross-country panel data, it appears that rather than crowding out other items in the budget, increases in the wage bill have on average been associated with increases in other government spending and with a deterioration of the overall balance as these spending increases are only partially compensated with additional revenues (Figure 5). After controlling for non-wage spending, the negative association between wage bill increases and the fiscal balance persists (Figure 6). On average, in the short term, higher wage outlays in advanced economies are associated with a greater deterioration of the overall fiscal balance (Figure 6a).^{18,19} For all income groups, during economic upswings, wage increases are associated with a worsening of fiscal balance of almost equal magnitude, compared to around 70 percent during economic downturns (Figure 6b).²⁰ This pattern of financing undermines the stabilization role of fiscal policy over the economic cycle (IMF, 2015).

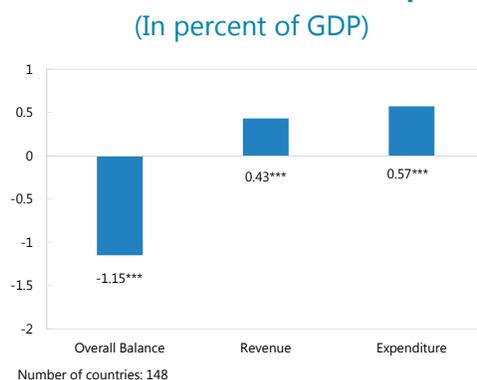
¹⁷ Given the difficulty in establishing causal relationships, the results presented in the paper should be interpreted as a description of stylized facts observed in the data.

¹⁸ Echardt and Mills (2014) find that the effect of the wage bill on overall balance is negative and statistically significant for countries in Europe and Central Asia Region but not for Western European countries. Specifically, they estimate that a one percentage point increase in the wage bill as a share of GDP increases the fiscal deficit by about half a percentage point.

¹⁹ A dynamic analysis using impulse response functions finds that it takes around 2-3 years for the relationship with the fiscal balance to disappear in advanced economies, compared to nearly around 5 years in emerging markets and LDCs.

²⁰ For OECD countries, Cahuc and Carcillo (2012) find a strong positive correlation between wage bill and fiscal deficits that is more frequent during booms. They find that the impact is less frequent when governments are more transparent, when there is more freedom of press and less union coverage, and in presidential regimes.

Figure 5. Relationship of 1 Percentage Point of GDP Increase in Government Wage Bill and the Overall Balance and its Components



Source: IMF staff calculations.

Note: Based on government wage spending from 1991-2014. The estimated coefficients correspond to fixed-effects regressions and show the relationship between a 1 percentage point change in the wage bill as share of GDP and the overall balance, total revenue and other expenditures (all as a share of GDP). The results do not change when limiting the sample to the period before the global financial crisis. (*) (**) and (***) indicate significance at the 10, 5 and 1 percent level.

18. The association between rising wage bill spending and the fiscal balance is different in heavily indebted emerging economies and LIDCs. In contrast to heavily indebted advanced economies, the association between additional wage expenditures and a declining fiscal balance is smaller among heavily indebted emerging economies and LIDCs (Figure 6c). In other words, heavily indebted emerging economies and LIDCs exhibit a larger association between additional wage expenditures and raising revenues. Wage bill increases in resource rich countries bear no association with current revenues, suggesting that these countries have tended to leverage their resource wealth for this purpose (Figure 6d).²¹

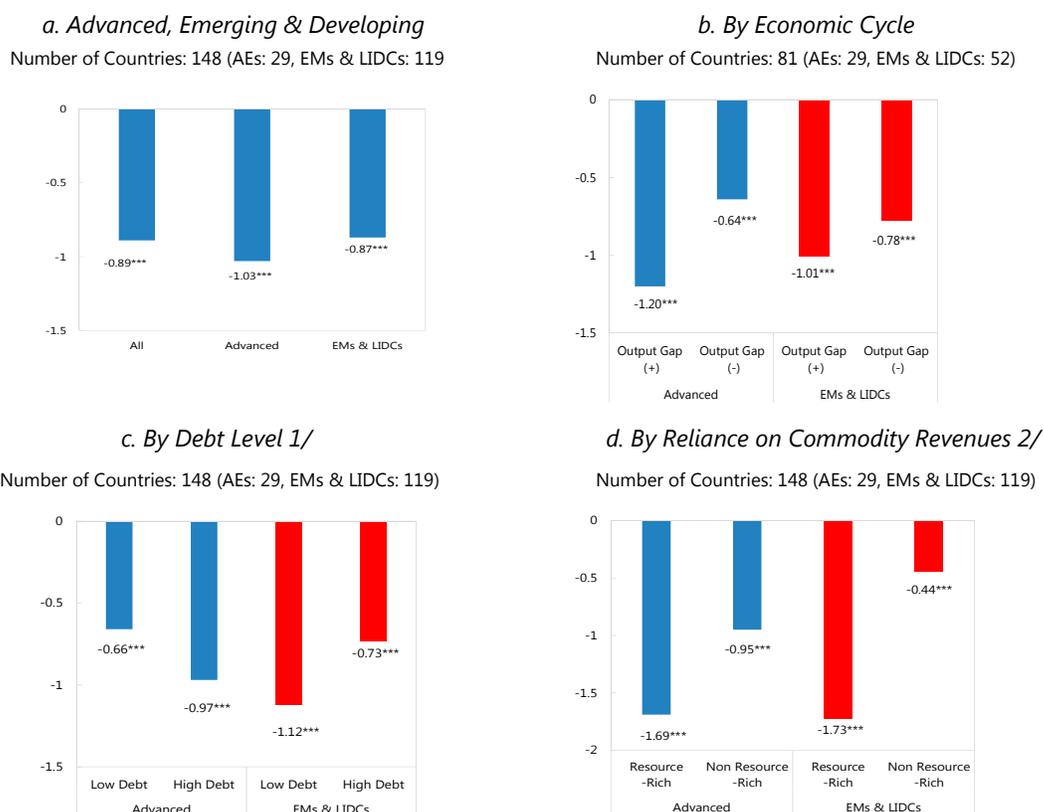
B. Competitive Compensation

19. High public sector wages can affect the private sector through various channels.²² If there is a wage premium in the government sector that is not justified by relative skill levels or job characteristics then this increases wage bill spending, which needs to be financed. The resulting higher taxation or crowding out of other public spending can increase private production costs, including wage costs, as well as result in additional “deadweight losses” associated with distortionary taxation. In addition, high public wages can directly affect private wages if the private sector wage setting process uses the public sector as a reference.

²¹ These findings are consistent with earlier studies that emphasized the availability of financing for determining the government wage bill (Kraay and Van Rijckeghem, 1995).

²² Consistent with the empirical literature in this area, this section focuses on the public-private sector wage differential, as opposed to focusing on the narrower general government wage.

Figure 6. Relationship of 1 Percentage Point of GDP Increase in Government Wage Bill and the Fiscal Balance
(In percent of GDP)



Source: IMF staff estimates.

Note: The estimated coefficients correspond to fixed-effects regressions where the overall balance is regressed on wage bill and other expenditures (both as a share of GDP). The results do not change when limiting the sample to the period before the global financial crisis. The results are also robust to controlling for the economic cycle. To the extent that other factors may independently affect both the wage bill and fiscal balance, the coefficients should be interpreted as correlations rather than strictly causal relationships. (*) (**) and (***) indicate significance at the 10, 5 and 1 percent level.

1/ A country is classified as low or high-debt depending on its debt to GDP in the period (t-1). The debt to GDP threshold for advanced and EMs & LIDCs countries is set to 72.2 and 42.8 percent, respectively (IMF, 2014).

2/ Resource-rich countries are defined as those with at least 20 percent of government revenues from natural resources.

20. In practice, the public-private sector wage differential depends on many considerations.²³ Since the public sector is likely to be motivated by factors other than profit maximization, government wages ultimately depend on public sector workers' ability to compete over the allocation and size of the public budget. Since, in practice, the degree of unionisation in the

²³ For example, Gunderson (1979; 1989), Moore and Raisian (1991), Holmlund (1993), Gregory (1990), and Mueller (1998).

public sector is often higher than in the private sector this could potentially lead to greater bargaining power and a public sector wage premium. But higher public sector wages may also reflect discriminatory wage setting practices in the private sector, e.g., against females or unskilled labor, or efforts to limit scope for corruption in certain public sector positions (e.g., regulators or revenue administrators). On the other hand, government employees may receive lower wages as they enjoy non-pecuniary benefits such as a higher degree of job security, longer holidays, and generous pension schemes. Or lower wages may result from the public sector being the main provider of certain services and thus having some monopsony power in the employment of certain occupational groups. Relative public-private wages may also fluctuate over the economic cycle, for example, being lower during upswings but higher during downswings, or reflect short-term fiscal consolidation efforts.

21. On average, public sector wages do appear to be higher than private wages for comparably skilled workers. Average public sector wage premiums are lower for high-income compared to low-income economies (Figure 7).²⁴ Over the last three decades, the average public sector wage premium is estimated at 10.1 percent, ranging from 5.4 percent in advanced economies, 11.7 percent in emerging, and 12.8 percent in developing.²⁵ While average premiums have decreased in advanced economies, they have increased in emerging and developing. Among advanced economies, negative government wage premiums are observed in many Scandinavian countries and some eastern European countries. Most countries in Latin America and the Caribbean and in sub-Saharan Africa have large premiums.

22. However, the magnitude of the premium varies according to gender and skill level.

- **Gender pay differentials appears to be less in the public sector compared to the private sector (Weichselbaumer and Winter-Ebmer, 2005; Gonzales et al., 2015).** Public sector wage premiums are typically larger for women than men, and this pattern is more pronounced in LIDCs. On average, the premium for women was 8.6 percent compared to 6.3 percent for men. The gender premium is lower in high-income compared to low-income economies.
- **Premiums are higher for low-skilled compared to high-skilled employees resulting in greater wage compression relative to the private sector.** This gap exists, on average, in all countries, but is highest in developing economies, and the gap has widened over time. The

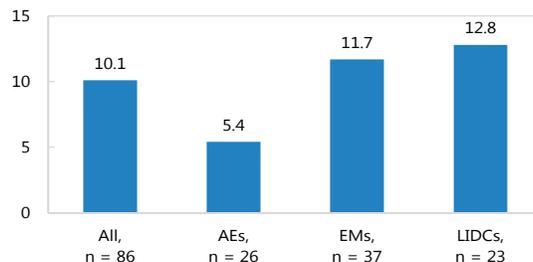
²⁴ The analysis of public sector wage premiums is based on a database of wage premiums estimated by country-level micro-studies of wage levels in the public and private sectors controlling for differences in skill mix. Typically these studies focus on monetary compensation only (net of income tax) and therefore do not allow for in-kind compensation or pension contributions (deferred wages). While under-reporting of private sector wages will result in an upward bias on the public sector wage premium, the narrow focus on monetary compensation may result in a downward bias. The database contains estimates for 86 countries (26 advanced, 37 emerging market, and 23 LIDCs) over the period 1991-2014.

²⁵ The premium typically varies across the public sector and may be negative for some groups, such as high-skilled occupations.

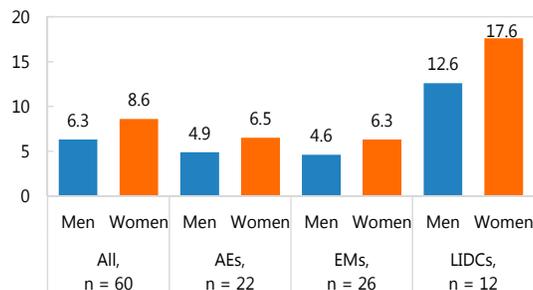
average public sector premium for high-skilled workers is 1.6 percent compared to 7.6 percent for low-skilled. This skill gap tends to be substantially higher in LIDCs.²⁶

Figure 7. Public Sector Wage Premium
(Public-private wage differential as a percent of private wage)

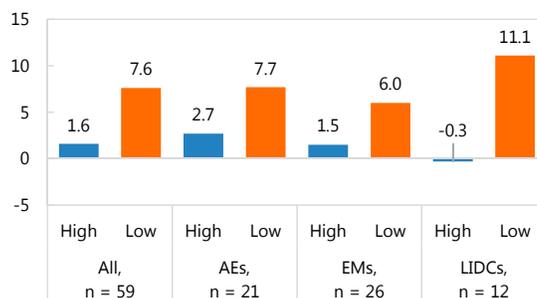
a. Average Wage Premium



b. Gender-specific Wage Premium



c. Skill-specific Wage Premium



Source: IMF staff estimates.

Note: Numbers are calculated by taking the within-country average (over time) and then calculating the cross-country summary statistics.

²⁶ The relatively lower differential in advanced economies partly reflects a decline in the high-skill premium over recent years.

23. The public sector wage premium varies across economic and political cycles.

- **The public wage premium tends to be lower during upturns and higher during downturns.** The cyclical nature of the public wage premium depends on the relative cyclical nature of public and private wages. Private sector wages are typically found to be pro-cyclical (Lane, 2003; Holm-Hadulla et al., 2012). Analysis of country-level data on average public and private wages over 1995-2015 finds that the public to private wage ratio increases significantly during downturns as public wages do not decrease with private wages, while the public to private wage ratio decreases less strongly during upturns as public wages increase along with private wages.
- **The public wage premium is influenced by the political cycle.** Large wage rate hikes are often observed ahead of or during election periods. However, LIDCs appear to be more susceptible to this phenomenon. During election years, the public to private wage ratio in LIDCs increases by nearly 3.0 percent. The absence of such a relationship on average in advanced economies is consistent with stronger checks and balances that limit the influence of electoral cycles on fiscal policies. This is consistent with the earlier finding that the wage bill in LIDCs is more sensitive to elections than in advanced economies (Figure 4c).

24. Empirical evidence confirms that public sector wage developments influence wages in the private sector. Analysis of government and private sector wage trends in advanced economies during 1995 and 2015²⁷ finds that a 1 percent increase in the average real government wage is associated with a 0.4 percent increase in private wages within three years.²⁸ The relationship is stronger where the share of government in total employment in the economy is large and in less open economies. Although increases in private wages have a feedback on to government wages, the magnitude is smaller with a 1 percent increase in private wages raising government wages by 0.2 percent.

C. Efficiency and Flexibility

25. The ability of governments to adjust employment is important for achieving spending efficiency. Achieving service delivery objectives in a cost-effective manner depends on the ability of governments to adjust not only salaries but also the size and composition of its human resources. Failure to adjust employment and wage bill spending can distort the input mix, with loss in efficiency (Clements et al., 2010; Gupta and Verhoeven, 2001; Verhoeven et al., 2007; and Joumard et al., 2004).²⁹ High employment or compensation levels can result in insufficient spending on non-wage inputs such as teaching aids and drugs; impede the hiring of new staff with different skills and the retraining of existing staff; or crowd out other key inputs such as the adoption of work practices or

²⁷ The VAR-type analysis uses quarterly data for 21 advanced economies over 1995Q1-2015Q4, and controls for economy-wide labor productivity, the consumer price index, and the real short-term interest rate.

²⁸ Similar results have been found for OECD countries (Friborg 2006; Pérez and Sánchez, 2010; Afonso and Gomes, 2014).

²⁹ Gupta and Verhoeven (2001), using data for 38 African countries during 1984-95, find that the observed inefficiency of government expenditure on education is partly due to wage cost level differentials.

new technology, important for the shift toward the digitalization of government (for example, e-government) and for reaping the significant benefits associated with this government transformation.

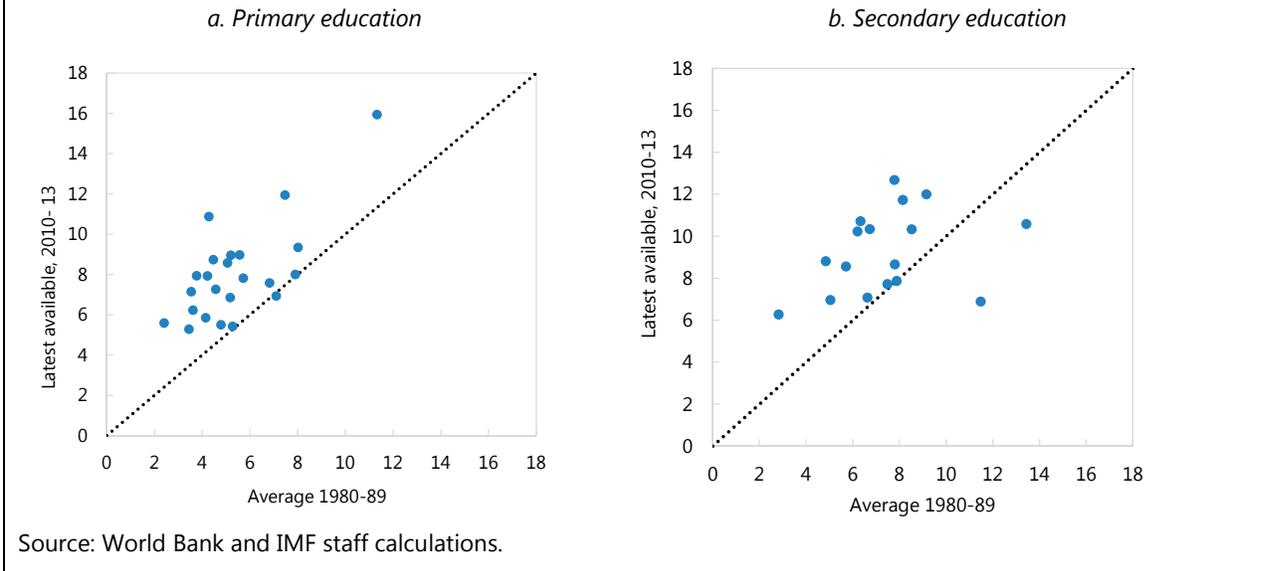
26. Advanced economies have found it difficult to adjust employment levels in response to demographic change. For instance, the sharp decline in the number of school-aged children in advanced economies over the last three decades has not been accompanied by a similar decline in the number of teachers resulting in large increases in the teacher-student ratios (TSRs) at both primary and secondary levels (Figure 8). For advanced economies, increasing TSRs is not necessarily associated with improving education outcomes (as captured for example by PISA scores), which may point to increasing spending inefficiency and excessive employment levels in education (OECD, 2010a).³⁰ Among the country case studies, Moldova began implementing a school consolidation and employment rationalization program in 2007 aimed at decreasing TSRs in response to demographic change.

27. To improve efficiency, health systems need to continuously adapt to technological and epidemiological developments. In many countries this has meant reducing reliance on large and costly hospitals and expanding and strengthening primary and preventive health care services with the double benefit of enhancing effectiveness of care and containing costs (OECD, 2010b). Meeting this challenge requires shifting the health labor force between different types of care supported by appropriate payment and compensation schemes. This is particularly the case for countries which were previously under the Soviet Union system and a number of them—including Estonia, Hungary and Latvia—have successfully made the transition with the introduction of programs to retrain specialists as general practitioners (Rechel and McKee, 2009; Clements, Coady and Gupta, 2012). Still, a sustained reallocation of resources, including doctors and nurses, towards a strengthened primary health care system is needed in many countries.

28. Resource and capacity constraints restrict the ability of developing countries to expand coverage of key services such as education and health. Increasing service delivery in these areas requires careful workforce planning to ensure the availability of adequately skilled staff. Resource constraints make it especially important that services are delivered as efficiently as possible. Countries with similar wage bills may have very different levels of public service coverage, suggesting inefficiencies due, for instance, to relatively high salaries. This is, for example, the case in the education sector in the Central America region (Dumas and Lafuente, 2016). In particular, addressing large public sector wage premiums where they exist can facilitate expansion of key public services in a fiscally sustainable manner.

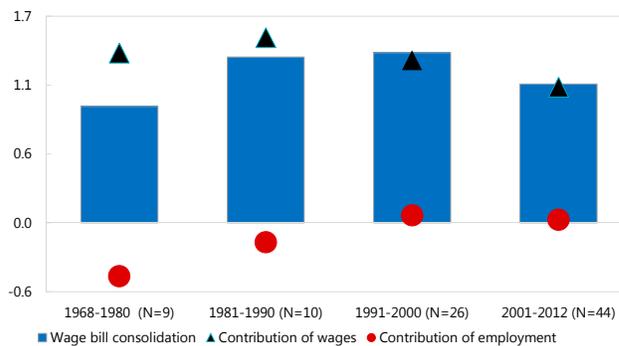
³⁰ This finding is supported by Verhoeven et al. (2007), who find that increasing TSRs are associated with reduced education spending efficiency in G7 countries and argue that this reflects increased overstaffing in the sector.

Figure 8. Teacher-Student Ratio for Advanced Economies
(Teachers per 100 Students)



29. Employment flexibility is important for sustaining reductions in the wage bill in support of fiscal consolidation efforts. While structural employment reforms—such as buyouts or reallocation of positions when government agencies merge—can more efficiently deliver durable wage bill consolidation outcomes, in practice, governments have found it difficult to gain support for such measures. Analysis of episodes of consolidation shows that fiscal adjustment has been achieved primarily through adjustment of wage levels rather than through employment reductions (Figure 9). Indeed, wage bill consolidation episodes that took place during the 1970s were associated with increases in employment levels related to expansion of education and health services.

Figure 9. Contribution of Employment and Wages to Government Wage Bill Consolidation
(In percent of GDP)



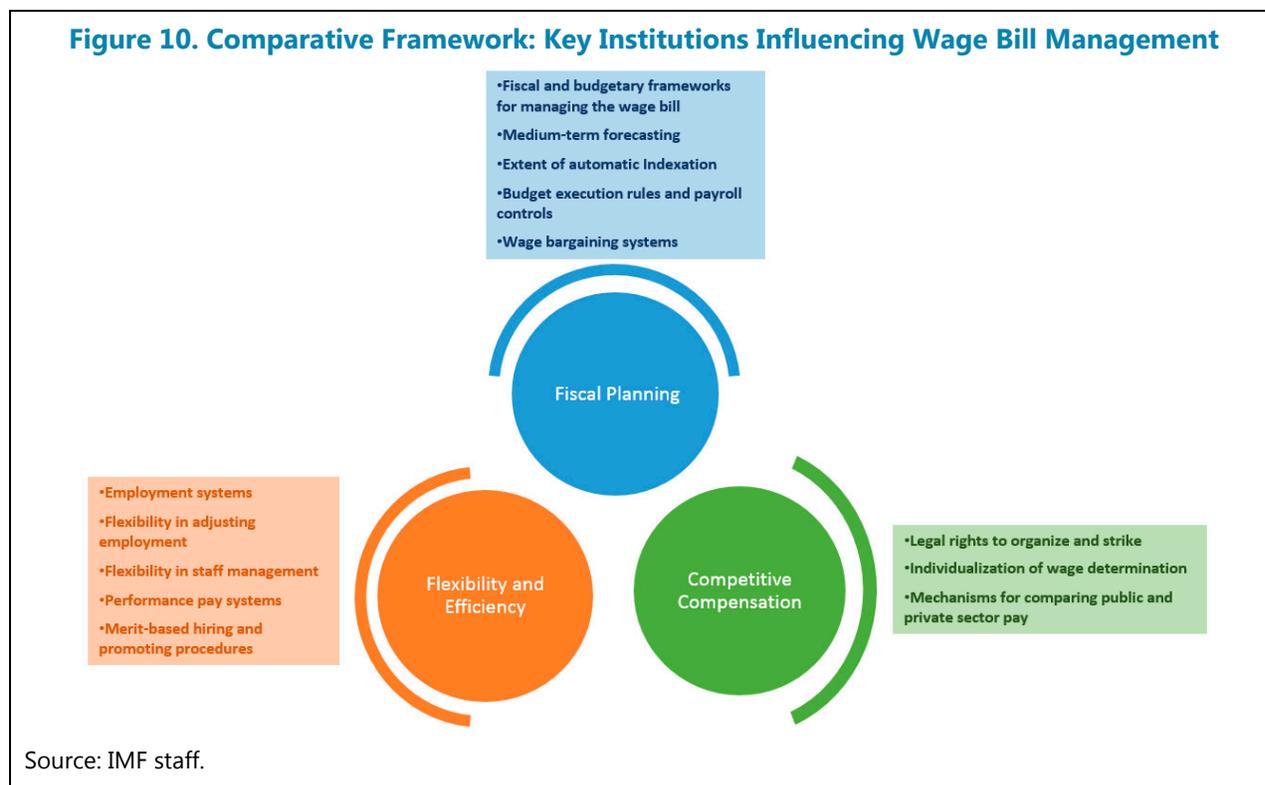
Source: IMF staff calculations.

Note: Wage bill consolidation episodes are identified as two-year periods in which the government wage-bill-to-GDP ratio decreases in each year and the cumulative decline is at least 0.5 percent of GDP.

INSTITUTIONAL APPROACHES FOR EFFECTIVELY MANAGING THE WAGE BILL

A. Institutional Framework and Features

30. Developments in wages and employment are influenced by governments' institutional arrangements for managing the wage bill. Approaches to negotiating, planning, and budgeting for wage and employment levels reflect country-specific political, administrative and legal factors. This section presents a new framework for analyzing institutional arrangements that maps institutions to the main objectives for wage bill management: fiscal planning, competitive compensation, and flexibility and efficiency (Figure 10). In practice, there can be trade-offs between fiscal planning and flexibility and efficiency. For instance, during the global financial crisis, some countries centralized control and reduced flexibility in order to achieve fiscal objectives. The framework adopts a multi-dimensional approach that incorporates institutions that have traditionally been studied separately in economic policy, public administration, and public financial management but which are in practice interlinked when countries manage their wage bill.



31. Institutional arrangements that can potentially influence each of the key objectives for managing the wage bill are elaborated upon below together with country practices. The results from a country survey are also discussed below focusing on variations by region and level of development (Box 2).

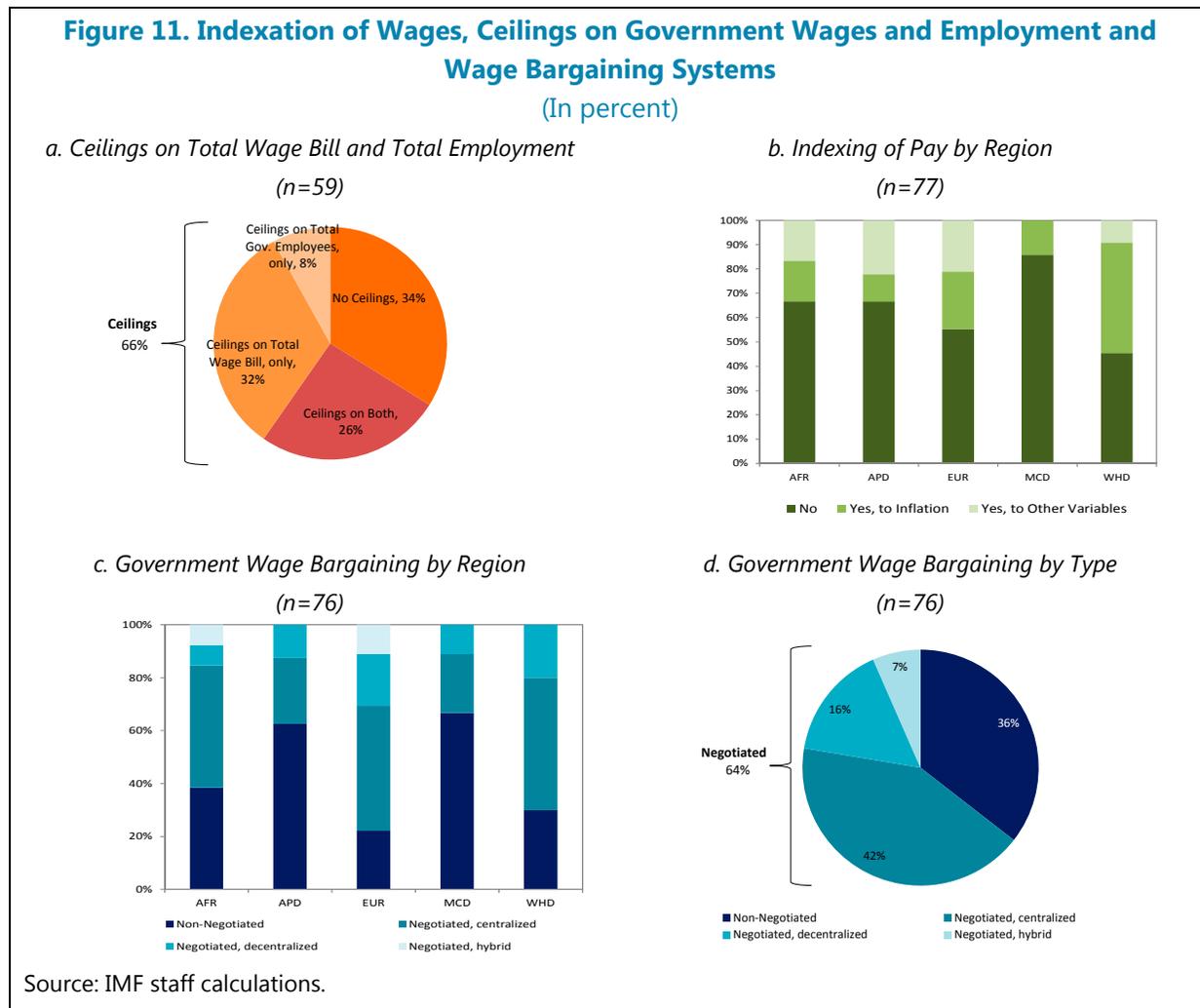
Box 2. New Database on Cross Country Institutional Arrangements for Managing the Wage Bill

FAD developed a survey of key institutional arrangements for wage bill management based on the new framework (Figure 10). The survey obtained data on individual country arrangements using a total of 44 questions. These covered the nature of wage negotiations; procedures for planning, budgeting, and executing the wage bill; payroll controls; staff management (including recruitment, promotion, performance pay, allowances and bonuses), and employment protection. The questionnaire was shared with IMF member countries selected on the basis of income and regional coverage. In total 42 countries completed the survey (17 advanced economies and 25 EM and LIDCs). While a diverse group of countries was selected, fewer responses were received from low-income countries. Efforts have been made to address this with supplementary information on key indicators provided by FAD economists for three key institutions: wage bargaining, indexation, and ceilings on the wage bill. This information and additional sources were used to create a database of institutional arrangements for managing the wage bill.

32. Wage bill management and fiscal planning can be influenced by the following institutional features:

- *Budgetary and fiscal frameworks* which integrate decision-making on wages and employment into budget planning can help ensure consistency with overall fiscal objectives. The survey shows that over half of the countries do not integrate decisions on wage increases into their budget planning process in a timely manner. Half of the advanced economies have ad hoc wage negotiations, with over a third making decisions on pay increases during the year without directly linking them to the budget.
- *Ceilings on wages and/or employment* can help promote consistency with fiscal objectives. Over sixty percent of the countries impose a ceiling on the total wage bill (Figure 11a). Advanced economies and emerging markets often combine ceilings with alternative approaches: over a third of emerging markets have specific fiscal rules limiting growth in the wage bill, while advanced economies more often use fiscal frameworks to constrain wage increases.
- *Medium-term forecasting* of the wage bill can improve predictability and planning of budget outlays and help governments to understand the medium-term implications of current wage and employment decisions. The survey results show that medium-term forecasting is more often used by advanced economies and LIDCs than emerging markets.
- *Automatic indexation* of wages to inflation or other variables outside of the governments control can potentially drive the wage bill in a manner that is inconsistent with fiscal targets (Holm-Hadulla 2010). Over 60 percent of the countries surveyed do not automatically index wages to inflation or any other variable. Such indexation is more prevalent in emerging markets with more limited use in LIDCs (Figure 11b).
- *Budget execution rules and payroll controls* can help ensure that the budget is implemented as planned. The majority of countries have rules that enforce some discipline on budget execution with over 60 percent requiring legislative approval for in-year wage increases. In over 65 percent of countries, personnel and payroll databases are directly linked. Payroll audits are conducted

annually in 40 percent of the advanced economies compared with 30 percent of emerging markets, and only 10 percent of LIDCs. The case studies highlight that for LIDCs, linking payrolls and personnel management and conducting audits is an important issue given the challenges with ghost workers and gathering data on staff numbers.



- *Wage bargaining systems* can be divided into two main types. Non-negotiated (unilateral decisions by the executive or legislative branch) and negotiated (collective bargaining with trade unions). Negotiated pay systems are the most common (Figures 11c and 11d), especially in Europe and the Western Hemisphere. Non-negotiated systems dominate in the Middle-East and Asia and Pacific regions. There is an ongoing debate about the influence of the structure of wage determination (centralized or decentralized arrangements) on fiscal deficits and competitiveness.³¹

³¹ Recent research on EU countries contends that negotiated systems have a lower public-private wage premium (EC, 2014). Others maintain that these systems, specifically in countries with high union coverage, contribute to fiscal drift

33. The competitiveness of government compensation can be influenced by the following institutional arrangements:

- *Legal rights* to organize into trade unions, to allow collective bargaining, and to strike, give government employees the capacity to negotiate wages and employment conditions. In the majority of countries, government employees have obtained these rights although the right to strike can still be restricted for essential services. In advanced economies, the last two decades have witnessed an increase in public sector union membership (Visser 2014).
- The *individualization of wage determination* allows governments to have flexibility in pay, to differentiate scales, and to provide additional allowances to attract and retain staff especially in areas with skill shortages. Allowances need to be linked to a coherent strategy for attracting needed skills and used appropriately to prevent excess growth. Nearly 60 percent of the countries have such special allowances and over 35 percent have separate pay scales for certain professions (e.g., doctors) and individual sectors.
- *Comparisons between public and private sector wages* provide governments with information to compete with the private sector and help inform wage negotiations. A third of the countries conduct comparisons on an ad hoc basis, while less than 10 percent conduct a systematic annual or biannual comparison.

34. Flexibility to manage the workforce and promote efficient, performance-oriented service delivery is influenced by:

- *Government employment systems*, which can be divided into: *clientistic* systems based on political or personal connections; *career-based* systems with open competition at the entry level only combined with life tenure and promotion from within; and *position-based* systems with fixed-term or task-based contracts, open recruitment at all levels, and promotion based on merit and performance.³²
- *Flexibility in adjusting employment* is impacted by rules and procedures for hiring, reallocating, and making staff redundant, and the degree of employment protection. Governments in around 60 percent of the surveyed countries can hire contractual employees for some or the majority of job categories and a similar percentage can make staff redundant with restrictions. Another 20 percent can do so without restrictions. In advanced economies, employment protection is

(Cahuc and Carcillo, 2012) and during boom times push wages higher (Alesina and Perotti, 1995). In theory, decentralized pay setting arrangements can improve competitiveness by aligning wages with local employment conditions. Their impact on fiscal deficits is inconclusive, with some scholars arguing it restrains pay increases (Holm-Hadulla et al., 2010) whereas others contend it undermines fiscal control leading to excessive wage demands, especially when there is collusive behavior (Rexed et al., 2007) or poor coordination between central and local governments (EC, 2014).

³² In practice, advanced countries will mostly have elements of the latter two systems. Each system has benefits and drawbacks; for a more detailed discussion (OECD 2005a).

stronger but there is greater flexibility to hire contractual staff and to create new posts. Emerging markets and LIDCs have fewer restrictions on adjusting employment levels; however, in a third of the emerging markets and LIDCs, the creation of a new position requires the approval of the legislature or the president/prime minister.

- *Flexibility in staff management* and delegating personnel management to ministries as opposed to control by central agencies can in theory promote improved performance and efficiency (Hood 1991).³³ Human resource management related to hiring, placement, and promotion decisions has to some extent been delegated to ministries/departments in advanced economies and emerging markets (over 65 percent). In LIDCs there has been less delegation in these areas.
- *Merit-based recruitment and promotion* allows governments to employ qualified staff to deliver government services. Over 80 percent of the advanced economies use open competition to recruit at all levels, supporting a trend towards more position-based employment systems. In contrast, only around 40 percent of the emerging markets and LIDCs have open competition for all positions.
- *Performance-based pay and bonus systems* that are well designed and effectively implemented can motivate employees to improve performance and service delivery.³⁴ Over 45 percent of countries have a government-wide performance-related pay system, although only a quarter apply bonuses based on performance only. Advanced economies make more use of performance bonuses than emerging markets and LIDCs.

B. Institutional Features and Wage Outcomes

35. This section presents the results of a preliminary analysis of the relationship between key institutions and wage outcomes. Based on the results of the survey and additional data, it assesses how outcomes for fiscal planning, competitiveness, and flexibility and efficiency are associated with institutional features (Table 1). The small sample size means that the associations discussed should be interpreted with caution. The analysis is complemented by country case study analysis in the next section and in the supplement to try to better understand the role of various institutions.

³³ This is a key aspect of New Public Management theory which over the last two decades has influenced many advanced economies civil service reforms with varying degrees of success; for more details, Pollitt and Bouckaert (2011).

³⁴ For a discussion on the benefits, drawbacks, and key design features of performance pay (OECD, 2005b; and Hasnain and Manning, 2014).

Table 1. Institutional Features and Wage Bill Management Outcomes

		Fiscal Planning/1				Competitive compensation /2	Flexibility/3
		All	AEs	EMs	LIDCs		
Budgeting/planning	Medium term Forecasting		X	X			
	No Automatic Indexation	X					
Wage bargaining system	Systematic Negotiations/4	X		X			
	Centralized Arrangements	X		X			
	Decentralized Arrangements		X			X	
Comparing public and private pay	Comparison with private sector wages				X		
Employment system	Position Based/5		X		X	X	
Performance pay system	Comprehensive Performance Pay	X		X			
	Performance Bonus				X		

Source: IMF staff estimates.

Notes: X denotes observed associations in the data between selected institutional features and good outcomes for fiscal planning, competitive compensation and flexibility.

1/Impact of the wage bill on the overall balance, when controlling for other expenditure.

2/ Public-private wage premium

3/ Average employment decline since 1990

4/ Significant for all countries for the period 2010–2015

5/ OECD countries.

36. Budgetary institutions that are positively associated with fiscal planning include medium-term wage forecasting and limited use of automatic indexation.

- For advanced economies and emerging markets, medium-term wage forecasting is associated with lower impacts on the fiscal deficits than annual forecasting. The IMF and the World Bank have emphasized the importance of improving wage forecasting models, especially over the medium term.
- Across all income groups, no automatic indexation to inflation or other variables is associated with better fiscal planning.³⁵

37. Certain structural features of wage determination are associated with better fiscal planning.

- Across all income groups, systematic pay negotiations (e.g. annual, biannual) are associated with a smaller short-term impact on the fiscal deficit compared to ad hoc or ongoing negotiations.

³⁵ When the sample is limited to advanced economies, however, there is an inverse association. This may be caused by the difference between de jure and de facto approaches to indexation. Countries may not have a formal rule for indexation; however, indexation to inflation or other variables often de facto form the starting point for wage determination.

This reflects case study findings where ad hoc negotiations and the lack of formal frameworks have resulted in periodic large increases in wages, reflecting built up pressures, and have made budgeting and planning for the wage bill more difficult.

- In emerging markets, more systematic and centralized arrangements for wage determination are associated with a smaller impact on the fiscal deficit.
- In advanced economies, in contrast the data indicate that decentralized arrangements are associated with a smaller short-term impact on fiscal deficits. Prior to the global financial crisis there was a movement towards decentralized pay determination to promote greater flexibility and sustainability, especially in Europe. Following the crisis, however, governments have moved towards more centralized unilateral frameworks.

38. Position-based employment and performance-oriented pay are associated with better fiscal planning, but with differences across income groups. For advanced economies, position-based employment systems are associated with better fiscal planning. This is also the case for comprehensive performance pay systems in emerging markets and LIDCs, implying that pay is linked more to performance than to other factors.

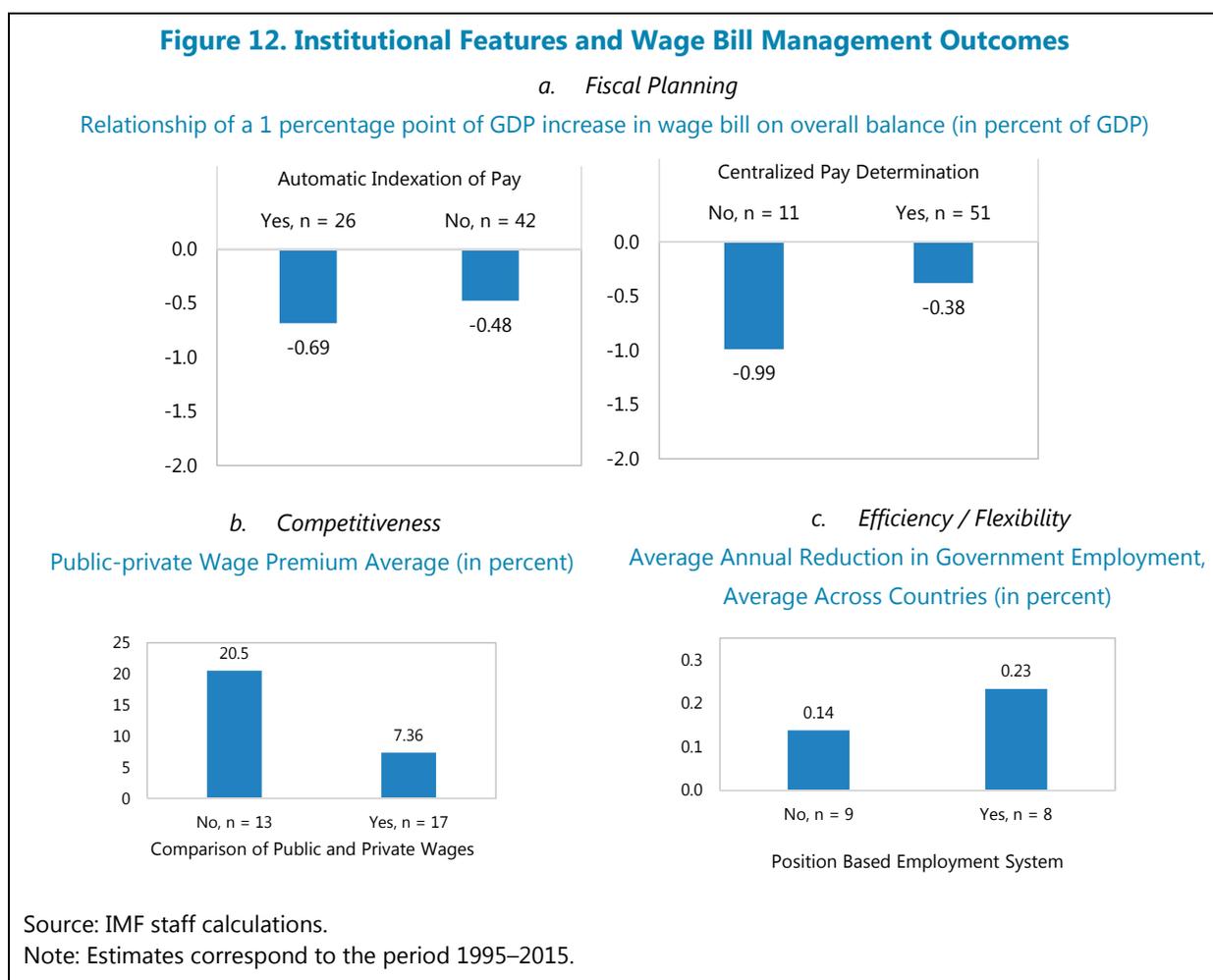
39. The relationship between wage ceilings and fiscal planning appears inconclusive. In advanced economies, ceilings on the wage bill are negatively associated with fiscal planning, possibly reflecting their use during crisis management and weak links between wage setting and budget processes. Consistent with greater use during crises, ceilings are more often adopted when countries already face issues with wage bill spending and fiscal deficits.³⁶ This reflects the wider issue that, in the majority of countries, wage determination and budget processes are not directly linked, with wage adjustments approved during the year subsequent to the budget approval. Therefore, over time wage negotiations appear to be stronger drivers of the wage bill than budgetary control mechanisms. In emerging markets, however, there is a positive association between the use of ceilings and fiscal planning. Many emerging market countries use ceilings in combination with separate fiscal rules on the wage bill or with fiscal frameworks.

40. Further analysis suggests that centralization of wage bill management may help to safeguard fiscal performance in countries with lower levels of income and administrative capacity. However, as countries develop economically and administratively, decentralization of pay-setting, wage bill budgeting, and employment decisions to line ministries can help to further improve outcomes.

41. Competitive compensation is associated with three institutions: position-based employment systems, public and private sector wage comparisons, and performance bonuses.

³⁶ In 2007, the IMF Executive Board called to limit the use of wage bill ceilings to only exceptional cases so as to allow sufficient flexibility to accommodate spending of scaled-up aid on social sectors (Fedelino, Schwartz, and Verhoeven, 2006; Gupta et al., 2008; IMF, 2012; and IMF, 2007). At present, there are only two countries with Fund-supported programs that have wage bill ceilings: Ghana has a quantitative performance criteria set on the wage bill and Honduras monitors the wage bill through an indicative target.

In countries with a position-based system, the public-private wage premium is lower than in countries with a career-based employment system (Figure 12b). This could reflect the fact that more position-based systems have open competition recruitment at all levels and thus more information on market conditions and the salaries needed to compete with the private sector. Regular comparison or benchmarking of public and private sector wages provides governments with more information on market conditions and allows more evidence-based decisions on wages. This is also associated with a lower public-private premium. Performance bonuses have a positive but weaker association with competitive compensation. If properly designed and implemented they could be used to retain and encourage high performing staff.



42. Flexibility in adjusting the workforce is associated with two institutions: the position-based employment system and decentralized pay determination arrangements. Countries that have position-based employment have a stronger capacity to adjust their workforce and have higher average employment reductions than more career-based systems (a central aspect of which tends to be life tenure). Decentralized pay arrangements could provide more flexibility to line ministries and/or sub-national governments to manage pay determination and this also tends to go hand in hand with great flexibility to manage their workforce.

COUNTRY EXPERIENCES WITH MANAGING WAGE BILL PRESSURES

43. Important lessons can be derived from the 20 country cases discussed in this paper and studies carried out by other institutions, such as the World Bank (Table 2). These studies provide insights into the source of wage pressures as well as the challenges countries faced when addressing these pressures.

44. Wage bill pressures arise from different sources. They reflect increases in salaries (Latvia, Moldova, Romania, and South Africa), expansion in government employment (El Salvador and Portugal), or a combination of the two (Kenya and Tunisia). Consistent with the findings from the cross country analysis described above, the case studies confirm that wage bills increased during economic upturns but were less responsive during downturns (Lithuania, Moldova, Netherlands, Portugal, and Romania), and that increasing wage bill pressures often arise ahead of elections (Kenya, Kosovo, and Moldova). As one would expect, expansion in services, such health care, education and security, is associated with rising wage bills (Côte d'Ivoire, El Salvador, Honduras, Lithuania, and Moldova). Poor management of the wage bill often reflect fragmented human resource and payroll management practices (Côte d'Ivoire and Jamaica). Measures to contain the wage bill are often triggered by the need to implement broader short-term fiscal consolidation (Ireland, Honduras, Jamaica, Latvia, Lithuania, the Netherland, Portugal, Moldova, and Romania) or to address rising labor costs (the Netherlands).

45. To address these pressures, countries have used a mix of wage and employment measures and institutional reforms (Table 3). Although available evidence indicates that structural measures are required to deliver deeper wage bill adjustment (IMF, 2014; Forni and Novta, 2014), countries have often found it difficult to implement such measures (Table 2). The discussion below focuses separately on wage and employment measures. These measures are, in turn, embedded in country-specific institutional frameworks that may need to be reformed to better manage wage bill spending over the medium term.

A. Wage Measures

46. While containing the growth in wage levels through ad-hoc across-the-board measures provides short-term fiscal relief, it nevertheless may undermine the government's ability to offer competitive compensation. When government wage levels are substantially above private sector wages, controlling them through nominal or real wage freezes, or limiting wage increases below real economic growth, can be effective in restraining wage pressures (Côte d'Ivoire, Honduras, Ireland, Jamaica, Kenya, Moldova, the Netherlands, Portugal, and Romania).³⁷ These measures are typically implemented across-the-board, thus affecting all government workers.

³⁷ During 2008–13, 9 out of 29 OECD countries implemented such measures as part of broader fiscal consolidation measures (OECD, 2015a).

However, prolonged use of such measures can affect morale, especially among workers where the public-private wage premium was initially small, eventually undermining the attractiveness of government employment and inducing disruptive departures of skilled government employees. Prolonged containment of wages through such measures disrupts rule-based wage adjustment mechanisms and distorts the structure of compensation—for example, in Côte d’Ivoire, Jamaica, Moldova, Netherlands, and Senegal, where base wage freezes were partly offset by rising pay supplements and bonuses. In addition, wage freezes or reductions can be reversed by courts (Portugal and Romania), often retroactively, resulting in recurring wage pressures.

47. Streamlining non-wage compensation improves transparency and fairness of government pay. In some countries, allowances are numerous (over 60 in number in Ghana) and constitute a large proportion of total compensation (25 percent in Costa Rica, 30 percent in Côte d’Ivoire, and 45 percent in Tunisia). When used appropriately, these allowances provide flexibility in varying compensation based on qualifications, location, performance, or market conditions to ensure competitive compensation. However, allowances are often used to circumvent controls on the base pay, often resulting in the proliferation of allowances and introducing costly inequities. Streamlining allowances through consolidating or phasing out allowances (Estonia, Germany, Hungary, Lithuania, the Netherlands, Portugal, Romania, and Spain) lowers costs without affecting service delivery (OECD, 2015a), especially where allowances account for a substantial share of total compensation. However, consolidating allowances into the base pay may be fiscally costly if it leads to higher future pension costs. Periodic reviews of allowances can be helpful in containing their proliferation as can aggregate institutional caps where items other than non-base pay are prominent in the compensation structure.

48. Deeper structural reforms of the compensation structure can facilitate stronger wage bill control while ensuring wages are competitive, equitable and transparent. Recent reforms in some countries (Ghana, Portugal, Romania, and Zambia) have focused on consolidating allowances and bonuses into base pay and mapping various professional categories and sectors to a common base pay schedule (or “single pay spine”, SPS).³⁸ While this can facilitate wage bill management and oversight, strengthen transparency and fairness, and potentially simplify wage bargaining, it requires adequate administrative capacity (e.g., to map current jobs into a new grid or to manage a payroll system). In addition, implementation is often gradual, can actually involve up-front wage costs (Ghana and Portugal), and it does not necessarily limit wage pressures (South Africa and Romania). But it is important to ensure that greater control on the wage bill does not come at the expense of wage flexibility and that the structure of compensation and application of the SPS is supported by institutional arrangements (such as regular comparisons between regular public and private sector wages) to ensure compensation stays competitive.

49. Compensation reforms can also enhance public service delivery. Linking pay to performance can incentivize performance and adequately reward specific skills and improve public

³⁸ Developing countries that introduced the SPS include Liberia, Sierra Leone, Rwanda, Uganda and Zambia (in Africa); Cambodia, Hong Kong, India, Indonesia, Pakistan, and the Philippines (in Asia); as well as Afghanistan, Tajikistan and Ecuador (World Bank, 2009).

service delivery. However, the effectiveness of its implementation depends on the measurability of outputs and the trust in the performance appraisal process. Performance related pay (PRP) can engender output-oriented management by encouraging organizational goal setting, progress monitoring, and teamwork. Most OECD countries have introduced PRP (OECD, 2015b). PRP tends to be more effective for jobs whose outputs are largely measurable, including teachers, health care providers, and tax administrators, although it needs to be carefully designed to avoid gaming and unintended consequences. It is important to note that when the interests of citizens are not aligned with those of government—such as tax, police, procurement and so on—performance linked incentives, if not properly designed or monitored, may lead to more corruption. In particular, performance pay can raise the official’s bargaining power over citizens resulting in higher bribes if the official and citizens collude (Finan et al., 2015, and Khan et al., 2014).

B. Employment Measures

50. While limiting new hiring can help reduce government employment in the short term, flexible frameworks are required to ensure service delivery. Since government workers typically have a high degree of job security, significant reductions in employment are rare. Instead, countries wishing to decrease employment typically rely on attrition-based employment reductions. Governments can aim to replace only a fraction of all retirements or rely on voluntary exits (Portugal, and Romania), or focus on specific sectors (Ghana, Kenya, Moldova, and South Africa). In the context of fiscal consolidation during 2008–13, 27 out of 29 OECD countries restricted hiring (OECD, 2015c).³⁹ However, attrition-based measures can threaten service delivery (Romania) and can adversely affect future capacity where training, experience, and succession plans are crucial, such as in health care. Such adverse side-effects can be mitigated through targeting overstuffed areas and allowing flexible reallocation of employees across sectors by removing legal impediments for mobility and enhancing training (OECD, 2011). To ensure savings over the medium term, attrition should also be accompanied by the elimination of positions. As part of recent fiscal consolidation efforts, Ireland relied heavily on attrition to achieve employment reductions combined with redeployment supported by opportunities for re-skilling.

51. Although separation incentives can help achieve larger reductions in government employment, they are subject to considerable risks. In theory, providing financial incentives for separation might be beneficial for both redundant workers (lower lifetime government pay in exchange for more opportunities for leisure or other productive work) and the government (lowering lifetime pay to the redundant employee without affecting service delivery). If voluntary separation targets redundant workers in order to minimize the risks of adverse selection, it can reduce the wage bill permanently with little impact on service delivery. These incentives are typically provided through enhanced severance packages or early retirement schemes. For example, over 1995-1998 Canada, following a comprehensive review of government programs, used early

³⁹ Among these countries, 15 countries implemented attrition measures frequently, out of which 9 countries frequently used hiring freezes. In Belgium (2011-2013) and Portugal (2011-2015), attrition measures reduced government employment by about 2 percent per year.

departure incentives to adjust employment, including severance pay and early retirement without penalty for younger workers identified as surplus and those between 50 and 60 years old, respectively. As a result, public employment fell by about 15 percent during this period. In Morocco, a voluntary early retirement scheme implemented in 2005 reduced government employment by 8 percent. If poorly designed, targeted employment reduction may entail significant short-run costs or increases in pension liabilities. The longer term benefits of such policies is debatable since many of those who separate voluntarily would have retired within a few years and pressures to resume hiring mount when key skilled personnel are lost—in Canada, by 2003 government employment had returned to pre-reform levels.⁴⁰

52. Strengthening human resource management can reduce the wage bill by eliminating ghost workers, while improving wage bill control. By definition, eliminating ghost workers generates savings without degrading service delivery.⁴¹ This measure is arguably more palatable and less politically challenging than other contentious reforms. Ghost workers can be identified through a census of government employees. In many countries in sub-Saharan Africa, censuses proved to be key for identifying ghost workers and paved the way for removing them in the 1990s (Lienert and Modi, 1997). Honduras implemented a census in 2014, followed by automation of payroll payments to all validated workers. More recently, new technology such as biometric monitoring of government employees has proven effective in identifying ghost workers, as implemented in Kenya and Nigeria. Such measures reinforce wage system reform—in South Africa, ineffectiveness of the wage system reform was attributed to the lack of comprehensive personnel record. Nevertheless, the process of developing effective payroll management systems can take a long time—in Jamaica, full rolling out of a centralized human resource and payroll system is expected to take 4–5 years.

53. Public sector restructuring can reduce government employment permanently while improving service delivery, but significant savings only materialize over the medium term. Restructuring involves downsizing or merger of organizations, outsourcing, or privatization, and is typically informed by a prior functional review of the public sector and involves the use of voluntary separation packages (OECD, 2011). Position-based employment systems allow greater flexibility in adjusting employment levels and composition over the medium term. A number of advanced countries embarked on public sector restructuring over the last decade.⁴² The Efficiency Program in the United Kingdom during 2004–08, preceded by a rigorous functional review, and supported by an employee reallocation program, succeeded in substantially reducing public sector employment while improving service delivery. However, effective restructuring takes time, requiring technical

⁴⁰ Haltiwanger and Singh (1999) reviewed 41 episodes of public sector retrenchment in 37 countries during the 1990s. Significant rehiring occurred in about 20 percent of the episodes with voluntary schemes. However, they also found that the rehiring risk was much lower if voluntary schemes targeted eligibility on the basis of skills and age.

⁴¹ Absenteeism is also a significant issue for education and health sectors in developing countries. According to one study, in Bangladesh, Ecuador, India, Indonesia, Peru, and Uganda, about 19 percent of teachers and 35 percent of health workers were absent during the study visit (Chaudhury et al., 2006). The study found that simply increasing the frequency and effectiveness of inspections can reduce absenteeism significantly.

⁴² Including Finland (2003), France (circa 2011), Japan (2005), Korea (2003), Mexico (2010), Netherland (2007), Portugal (2005), Spain (2010), Sweden (2010), and United Kingdom (2004) (OECD, 2011).

capacity and strong political will. For example, in the United Kingdom, concluding the Efficiency Program took 10 years after the functional review.

54. In LIDCs and many emerging economies, the key challenge is to improve service delivery and expand employment in key services in an affordable way. LIDCs and many emerging economies have large gaps in the coverage of basic services, including in education, health care, and security. In these cases, it is important to set wages to attract and motivate talent while improving spending efficiency and mobilizing additional revenues to create the needed fiscal space to accommodate a larger wage bill. In El Salvador, although a rapid growth in health care providers improved coverage, it was done prior to reviewing government compensation for the health sector resulting in substantially larger compensation costs than warranted. Employment expansions need to be supported by robust payroll and human resource systems. In Ghana and Côte d’Ivoire, new employees often failed to receive wages for several months because of poor coordination across hiring, budgeting, and payroll processes—this affects motivation and recruitment, and introduces unexpected fiscal pressures.

LESSONS LEARNED

55. Pressures on wage bill spending will continue to increase over the coming decades across all income groups. In advanced economies, ageing populations will raise demands for health care services at a time when fiscal consolidation is required to address elevated debt levels. In many emerging market economies and LIDCs, the goal of expanding service delivery in key sectors such as education and health will result in increases in the wage bill. Effective institutions and policies are required to ensure that increased spending on the wage bill is reflected in the cost-effective delivery of quality public services in a fiscally sustainable manner.

56. Effectively managing the wage bill has been a challenge, with implications for fiscal planning, competitive compensation, and efficiency of government spending.

- Increases in the wage bill have typically been associated with a deterioration of short-term fiscal balances, which can disrupt budget planning and service delivery plans. In particular, many governments have difficulty in containing wage bill spending during economic upswings and prior to elections.
- Increases in government wage levels are transmitted to private sector wages with potentially adverse implications for output and employment. A large public-private wage premium in LIDCs can act as a barrier to expanding service delivery in a fiscally sustainable manner and increase cost pressures in the private sector.

Table 2. List of Case Studies

	Country Characteristics 1/				Reform Measures					
	GDP per capita PPP\$ (in thousands)	Government wage bill (percent of GDP)	Government wage bill (percent of total spending)	Government employment (percent of working-age population) 2/	Ad hoc wage adjustment	Structural pay policy reform	Attrition-based employment reduction	Targeted employment reduction	Public sector restructuring	Strengthening payroll management
Advanced economies										
France	40.5	12.5	22.0	15.2	✓		✓	✓		
Ireland	51.3	9.7	27.2	10.8	✓		✓	✓	✓	✓
Netherlands	48.0	8.9	19.9	9.8	✓		✓	✓		
Portugal	27.1	11.0	23.1	9.8	✓	✓	✓		✓	✓
United Kingdom	39.8	9.3	23.0	13.1	✓	✓	✓	✓		
Emerging Europe										
Kosovo	9.1	9.3	31.8	6.4						✓
Moldova	5.0	9.1	22.8	6.3				✓		
Romania	19.7	7.3	21.6	11.8	✓	✓	✓			
Developing Asia										
Malaysia	25.1	5.8	22.5	7.3						✓
Philippines	7.0	5.1	26.0	4.9		✓				
Latin America and the Caribbean										
El Salvador	8.1	9.3	43.4	5.1						✓
Honduras	4.7	10.9	38.6	3.6	✓			✓	✓	
Jamaica	8.6	10.0	35.9		✓		✓	✓		
Middle East and North Africa										
Tunisia	11.3	13.5	45.6		✓					
Sub-Saharan Africa										
Côte d'Ivoire	3.1	7.4	32.6	1.8	✓					
Ghana	4.1	9.2	36.0	4.1	✓	✓	✓			
Kenya	3.1	5.2	18.3	4.1			✓			
Mali	1.7	5.5	20.8			✓				✓
South Africa	13.1	11.5	34.7	7.1		✓	✓			
Zimbabwe	2.1	16.5	56.2		✓		✓			✓

Source: IMF staff.

Notes:

1/ 2015 or most recent data.

2/ Working age population is defined as the population age 15 to 64 years.

Table 3. Measures Implemented to Rationalize the Government Wage Bill

Wage measures	
Ad hoc wage adjustment	Nominal salary is adjusted less than inflation and cut in real terms. A typical example is an across-the-board wage freeze.
Structural pay policy reform	Aims to align wages with job requirements and performance levels. Examples include rationalizing allowances and introducing single pay spine (SPS) and performance-related pay (PRP).
Employment measures	
Attrition-based employment reduction	Recruitment for vacated positions is restricted to reduce total employment. Under a typical attrition rule of X:Y, only X out of Y vacant positions are filled.
Targeted employment reduction	Public sector employment is reduced through voluntary/involuntary separation or early retirement scheme offered on a targeted basis.
Public sector restructuring	Usually begins with a functional review of the public sector, followed by mergers of government units, process re-engineering, outsourcing, or measures to cut public sector employment.
Strengthening payroll management	Centralize HR management to track all public sector workers and control their payroll. Census identifies ghost workers and double-dippers.

Source: IMF staff based on previous country analyses, including Clements et al. (2010), OECD (2011), and OECD (2012).

- The inability to flexibly adjust employment levels and composition in response to demographic and technological change has resulted in inefficiencies in service delivery. For instance, in advanced economies, failure to decrease the number of teachers in line with the decline in the school-aged population has resulted in excessive employment levels without any commensurate improvement in education outcomes. Similarly, over-reliance on hospital-based care instead of more cost-effective primary care has meant that increases in demand for health care have accelerated public health spending.

57. In their efforts to contain wage pressures, governments have often resorted to blunt measures to reduce high wage bills, which only provide temporary relief. Governments have typically relied on quick fixes such as across-the-board freezes in wage and employment levels. While these measures can be effective in reducing wage bill spending in the short term, they tend to decrease morale, distort wage and employment structures, and adversely affect service delivery. As a result, they tend to unravel over the medium term resulting in recurring wage bill pressures. Undertaking functional reviews to inform structural reforms, as well as institutional reforms that focus on weaknesses in the management of wage and employment processes, can help prevent the recurrence of wage bill pressures.

58. Strong institutions, tailored to countries' income levels and administrative capacities, are needed to effectively manage the wage bill over the medium term. Among countries with low capacity, centralization of wage bill budgeting, wage determination, and workforce management in the Ministry of Finance or another central agency is important to safeguard fiscal planning. As countries develop higher capacity and modernized governance and administrative systems, progressive decentralization of wage bill management to line ministries and agencies can

help governments better adapt their services to changing demands of citizens and to new technologies. However, decentralization needs to be guided by centrally set standards which promote decisions on hiring, promotion, and pay levels based on performance and productivity.

59. Various institutional arrangements for setting government wages and employment are associated with effective fiscal planning, competitive compensation and flexibility.

- *Medium-term forecasting of the wage bill* supports better fiscal outcomes. Incorporating wage forecasts within a medium-term budget framework can help to strengthen fiscal planning and the achievement of fiscal objectives.
- *Wage negotiations on an annual or multi-annual basis*, as opposed to ad hoc or ongoing negotiations during the year is associated with better fiscal planning.
- *Regular comparisons between public and private sector wages* are associated with lower public-private wage differentials and enhanced ability to attract staff with needed skills.
- *Position-based employment systems* facilitate greater flexibility in workforce deployment when compared with career-based systems.

60. This paper also highlights that ceilings on wage bill and employment do not appear to be effective for advanced economies in terms of fiscal planning. Ceilings on the wage bill or employment numbers appear to be put in place as a crisis management mechanism to counterbalance more fundamental institutional weaknesses. In addition, introducing ceilings without first reviewing government expenditure and activities locks in existing inefficiencies making structural reform more difficult. Advanced economies tend to use fiscal frameworks to contain their total spending, including the wage bill.

61. Structural reforms that target sectors with excessive employment and wage levels are required for more sustained wage bill adjustment while protecting service delivery. Examples of structural reforms include:

- The adoption of a unified wage scale can help ensure wage levels are competitive, equitable and transparent. However, the transition to such a system requires administrative capacity and needs to be carefully managed to avoid unintended wage increases and reduced wage flexibility.
- Strengthening human resource management, including through implementing a census of government employees, can help to identify areas of inefficiency, overstaffing or the existence of “ghost workers”. While separation incentives, such as enhanced severance packages and early retirement schemes, can help achieve larger reductions in employment they are most effective when targeted at redundant workers to prevent a deterioration of services and pressures for rehiring over the medium term.

- Public sector restructuring through downsizing, mergers of functions and organizations, outsourcing and privatization can help to lock in more efficient employment levels but need to be based on a prior functional review and therefore take time to implement.

62. It remains a concern that while figures for total compensation of employees are widely available on a timely basis for most countries, employment headcounts are not. At a minimum, governments could aim to track periodically both the number of government employees and total compensation paid to these employees. These simple data can prove helpful to policymakers in determining the source of temporary wage bill pressures—do wage bill developments reflect changes in employment or in compensation? These data can also allow for comparisons across countries to help benchmark wage bill outcomes. Furthermore, if shared publicly, these would enhance transparency by allowing constituents to better understand the magnitude of direct provision of government services, including monetary (compensation) and human (employment) resources. An example of good practices is Portugal, which publishes online quarterly reports on public employment and pay, including by entity, economic activity, and post (DGAEP, 2015).

63. Investment in developing information technology systems to monitor the wage bill and public work processes could greatly contribute to improving the management of wage bill spending and enhancing service delivery. The current poor state of information on the level and composition of wage bill spending, and in particular employment, reflects the precarious state of systems for monitoring and reporting wage bill spending within countries. This is especially the case beyond the general government. Beyond aggregate compensation and employment figures, governments could aim to monitor the composition of pay (base wages, allowances, bonuses, in-kind compensation, overtime, and social security contributions), the areas of employment (for example, by functional classification including education, health, and security), the type of employment (permanent or contractual; full time or part time), and the type of worker (clerical, service, professional or managerial). Disaggregation across these dimensions can be supported by modern information technology systems. Better information can greatly help to: enhance wage bill management through improved budget preparation and wage bill forecasting; monitor wage and employment over the medium term consistent with fiscal objectives; engage in better workforce planning; and design and evaluate wage and employment measures aimed at improving service delivery. A number of developing countries have introduced biometrics to help improve public sector performance, including eliminating double-dipping and ghost workers as well as monitoring attendance.⁴³

⁴³ Nigeria's Integrated Personnel and Payroll Information System saved N12 billion in the first phase alone and eliminated over 43,000 ghost workers. Liberia's Employee Biometric Identification & Records System (EBIRS) has thus far reduced payroll by 10-15 percent. Guinea-Bissau introduced a biometric census of civil workers and cut 4,000 duplicate recipients from the public wage bill. In India, cities and states are biometrics to reduce teacher absenteeism and to avoid paying municipal workers who fail to show up for work (Gelb and Clark, 2013).

KEY QUESTIONS

Views on the main findings of this report would be welcome. Specifically, key questions include:

- Will wage bill issues arising from demographic changes and growing fiscal pressures be major issues for countries over the medium term? Is there a need to enhance the efficiency of government wage bill spending and the flexibility of the workforce to accommodate these changing demands?
- Does increasing demand for service expansion to help achieve the Sustainable Development Goals require increased focus on the efficiency of wage bill spending as well as the need to mobilize domestic resources—an area that could benefit from IMF support in the context of the “Financing for Development” agenda—to finance increased service provision?
- Is there considerable scope to improve the availability of harmonized data on government wages and employment, which are needed to undertake a comprehensive assessment and enhanced monitoring of the wage bill? Do countries need to put greater emphasis on filling this data gap, in particular of government employment given the very limited data availability?
- Should countries’ policies be informed by institutional and structural elements, drawing on work by the World Bank, to better manage the wage bill? Should there be increased reliance on institutional and structural reforms to achieve a durable change in governments’ wages and employment?

References

- Afonso, Antonio, and Pedro Maia Gomes, 2014, "Interactions between Private and Public Sector Wages," *Journal of Macroeconomics*, Vol. 39, No. PA, pp. 97–112.
- Akitoby, Bernardin, Benedict Clements, Sanjeev Gupta, and Gabriela Inchauste, 2006, "Public Spending, Voracity, and Wagner's Law in Developing Countries," *European Journal of Political Economy*, Vol. 22, No. 4, pp. 908–24.
- Alesina, Alberto and Roberto Perotti, 1995, "Fiscal Expansions and Adjustments in OECD Countries," *Economic Policy*, Vol. 10, No. 21, pp. 205–48, <http://dx.doi.org/10.2307/1344590>.
- Bates, Laurie J., and Rexford E. Santerre, 2013, "Does the U.S. Health Care Sector Suffer from Baumol's Cost Disease? Evidence from the 50 States," *Journal of Health Economics*, Vol. 32, pp. 386–91.
- Baumol, William J., 1967, "Macroeconomics of Unbalanced Growth: The Anatomy of Urban Crisis," *The American Economic Review*, Vol. 57, No. 3, pp. 415–26.
- Baumol, William J., and William G. Bowen, 1965, "On the Performing Arts: The Anatomy of Their Economic Problems." *The American Economic Review*, Vol. 55, No. 2, pp. 495–502.
- Baumol, William J., Sue Anne Batey Blackman, and Edward N. Wolff, 1985, "Unbalanced Growth Revisited: Asymptotic Stagnancy and New Evidence," *The American Economic Review*, Vol. 75, No. 4, pp. 806–17.
- Behar, Alberto, and Junghwan Mok, 2013, "Does Public-Sector Employment Fully Crowd Out Private-Sector Employment?" IMF Working Paper No. 13/146 (Washington: International Monetary Fund).
- Borjas, George J., 1984, "Electoral Cycles and the Earnings of Federal Bureaucrats," *Economic Inquiry*, Vol. 22, No. 4, pp. 447–59.
- Cahuc, Pierre, and Stephane Carcillo, 2012, "Can Public Sector Wage Bills be Reduced?" National Bureau of Economic Research Working Paper No. 17881 (Cambridge: National Bureau of Economic Research), <http://www.nber.org/papers/w17881>.
- Chaudhury, Nazmul, Jeffrey Hammer, Michael Kremer, Karthik Muralidharan, and F. Halsey Rogers, 2006, "Missing in Action: Teacher and Health Worker Absence in Developing Countries," *Journal of Economic Perspectives*, Vol. 20, No. 1, pp. 91–116.
- Clements, Benedict, Sanjeev Gupta, Shamsuddin Tareq, and Izabela Karpowicz, 2010, "Evaluating Government Employment and Compensation," IMF Technical Notes and Manuals 10/15 (Washington: International Monetary Fund).

- Clements, Benedict, David Coady and Sanjeev Gupta, eds., 2012, "The Economics of Public Health Care Reform in Advanced and Emerging Economies," International Monetary Fund (Washington: International Monetary Fund).
- Clements, Benedict, Kamil Dybczak, Vitor Gaspar, Sanjeev Gupta, and Mauricio Soto, 2015, "The Fiscal Consequences of Shrinking Populations," IMF Staff Discussion Note No. 15/21 (Washington: International Monetary Fund), <http://www.imf.org/external/pubs/ft/sdn/2015/sdn1521.pdf>.
- Colombier, Carsten, 2012, "Drivers of Health Care Expenditure: Does Baumol's Cost Disease Loom Large," FiFo Discussion Paper No. 12-5 (Germany: University of Cologne).
- Cusack, Thomas R., 2006, "Public Finance Data for 20 OECD Countries," Berlin Social Science Center (WZB), <https://www.wzb.eu/en/persons/thomas-r-cusack?s=5662>.
- , 2007, "Sinking Budgets and Ballooning Prices: Recent Developments Connected to Military Spending," in *The Disappearing State? Retrenchment Realities in an Age of Globalisation*, ed. by Francis G. Castles, pp. 103–132 (Cheltenham: Edward Elgar Publishing).
- Dahlberg, Matz, and Eva Mork, 2011, "Is There an Election Cycle in Public Employment? Separating Time Effects from Election Year Effects," *CESifo Economic Studies*, Vol. 57, No. 3, pp. 480–98.
- Diamond, Jack, 1977, "Wagner's 'Law' and the Developing Countries," *The Developing Economies*, Vol. 15, No. 1, <http://onlinelibrary.wiley.com/doi/10.1111/j.1746-1049.1977.tb00369.x/abstract>.
- Direcção Geral da Administração e do Emprego Público (DGAEP), 2016, "Síntese Estatística do Emprego Público (SIEP): 4.º Trimestre/2015," Departamento de Estatística do Emprego Público (DEEP), http://www.dgaep.gov.pt/upload//DEEP/SIEP2015/DGAEP-DEEP_SIEP_2015T4_16022016.pdf.
- Dumas, Victor A., and Marlano Lafuente, 2016, "Mission Impossible? How to Achieve Better Results in Health and Education," in *Social Expenditure in Central America, Panama and the Dominican Republic at a Glance: 2007–2013*, ed. by Jordi Prat and Javier Beverinotti, pp. 13–66 (Washington: Inter-American Development Bank).
- Eckardt, Sebastian, and Zachary Mills, 2014, "What Goes Up Must Come Down: Cyclicity in Public Wage Bill Spending," Policy Research Working Paper No. 6760 (Washington: World Bank).
- European Commission, 2014, "Government Wages and Labour Market Outcomes," European Economy Occasional Papers 190 (Luxembourg).
- Fedelino, Annalisa, Gerd Schwartz, and Marijn Verhoeven, 2006, "Aid Scaling Up: Do Wage Bill Ceilings Stand in the Way?" IMF Working Paper 06/106 (Washington: International Monetary Fund).

- Finan, Frederico, Benjamin A. Olken, and Rohini Pande, 2015, "The Personnel Economics of the State," National Bureau of Economic Research Working Paper No. 21825 (Cambridge: National Bureau of Economic Research), www.nber.org/papers/w21825.
- Forni, Lorenzo and Natalija Novta, 2014, "Public Employment and Compensation Reform During Times of Fiscal Consolidation," IMF Working Paper No. 14/192 (International Monetary Fund: Washington), <http://www.imf.org/external/pubs/ft/wp/2014/wp14192.pdf>.
- Friberg, Kent, 2006, "Intersectoral Wage Linkages: The Case of Sweden," *Empirical Economics*, Vol. 32, No. 1, pp. 161–84.
- Gelb, Alan, and Julia Clark, 2013, "Identification for Development: The Biometrics Revolution", Working Paper 315, Center for Global Development (Washington D.C.).
- Gonzales, Christian, Sonali Jain-Chandra, Kalpana Kochar, Monique Newiak, and Tlek Zeinullayev, 2015, "Catalyst for Change: Empowering Women and Tackling Income Inequality," IMF Staff Discussion Note No. 15/20 (Washington: International Monetary Fund), <http://www.imf.org/external/pubs/ft/sdn/2015/sdn1520.pdf>.
- Gregory, Mary B., 1990, "Public-Sector Pay," in Gregory M. B. and A. W. J. Thomson, eds., "A Portrait of Pay, 1970–1982: An Analysis of the New Earnings Survey," pp. 172–205 (Oxford: Clarendon Press).
- Gunderson, Morley, 1979, "Earnings Differentials between the Public and Private Sectors," *The Canadian Journal of Economics*, Vol. 12, No. 2, pp. 228–42.
- Gunderson, Morley, 1989, "Male-Female Wage Differentials and Policy Responses," *Journal of Economic Literature*, Vol. 27, No. 1, pp. 46–72 (American Economic Association).
- Gupta, Sanjeev, and Marijn Verhoeven, 2001, "The Efficiency of Government Expenditure Experiences from Africa," *Journal of Policy Modeling*, Vol. 23, No. 4, pp. 433–67.
- Gupta, Sanjeev, Gerd Schwartz, Shamsuddin Tareq, Richard Allen, Isabell Adenauer, Kevin Fletcher, and Duncan Last, 2008, *Fiscal Management of Scaled-Up Aid* (Washington: International Monetary Fund).
- Gupta, Sanjeev, Estelle X. Liu, and Carlos Mulas-Granados, 2015, "Now or Later? The Political Economy of Public Investment in Democracies," IMF Working Paper No. 15/175 (Washington: International Monetary Fund).
- Haltiwanger, John, and Manisha Singh, 1999, "Cross-Country Evidence on Public Sector Retrenchment," *The World Bank Economic Review*, Vol. 13, No. 1, pp. 23–66.
- Hartwig, Jochen, 2008, "What Drives Health Care Expenditure? Baumol's Model of 'Unbalanced Growth' Revisited," *Journal of Health Economics*, Vol. 27 (May), pp. 603–23.

- Hasnain, Z. and N. Manning, 2014, *Pay Flexibility and Government Performance* (Washington: World Bank).
- Heller, Peter S., and Jack Diamond, 1990, "International Comparisons of Government Expenditure Revisited: The Developing Countries, 1975–86," IMF Occasional Paper No. 69 (Washington: International Monetary Fund).
- Holm-Hadulla, Frédéric, Kishore Kamath, Ana Lamo, Javier J. Pérez, and Ludger Schuknecht, 2010, "Public Wages in the Euro Area: Towards Securing Stability and Competitiveness," *Occasional Paper Series* (European Central Bank).
- Holm-Hadulla, Frédéric, Sebastian Hauptmeier, and Philipp C. Rother, 2012, "The Impact of Expenditure Rules on Budgetary Discipline over the Cycle," *Applied Economics*, Vol. 44, No. 25, pp. 3287–96.
- Holmlund, Bertil, 1993, "Wage Setting in Private and Public Sectors in a Model with Endogenous Government Behavior," *European Journal of Political Economy*, Vol. 9, No. 2, pp. 149–62.
- Hood, Christopher, 1991, "A Public Management for All Seasons' *Public Administration*, Vol. 69, pp. 3-19.
- International Monetary Fund, 2007, "IMF Executive Board Discusses Operational Implications of Aid Inflows for IMF Advice and Program Design in Low-Income Countries," Public Information Notice No. 07/83, <http://www.imf.org/external/np/sec/pn/2007/pn0783.htm>.
- , 2012, "2011 Review of Conditionality – Background Paper 1: Content and Application of Conditionality," paper prepared by the Strategy, Policy, and Review Department (Washington), <http://www.imf.org/external/np/pp/eng/2012/061812.pdf>.
- , 2014, *Fiscal Monitor—Public Expenditure Reform: Making Difficult Choices* (Washington), <http://www.imf.org/external/pubs/ft/fm/2014/01/fmindex.htm>.
- , 2015, *Fiscal Monitor—Now is the Time: Fiscal Policies for Sustainable Growth* (Washington), <http://www.imf.org/external/pubs/ft/fm/2015/01/pdf/fm1501.pdf>.
- Joumard, Isabelle, Per Mathis Kongsrud, Young-Sook Nam, and Robert Price, 2004, "Enhancing the Cost Effectiveness of Public Spending Experience in OECD Countries," *OECD Economic Studies*, Vol. 2003/2, http://www.oecd-ilibrary.org/economics/enhancing-the-cost-effectiveness-of-public-spending_eco_studies-v2003-art10-en.
- Khan, Adnan Q., Asim I. Khwaja, and Benjamin A. Olken, 2014, "Tax Farming Redux: Experimental Evidence on Performance Pay for Tax Collectors," National Bureau of Economic Research Working Paper No. 20627 (Cambridge: National Bureau of Economic Research).

- Kraay, Aart, and Caroline Van Rijckeghem, 1995, "Employment and Wages in the Public Sector—A Cross-Country Study." IMF Working Paper No. 95/70 (Washington: International Monetary Fund).
- Kuckuck, Jan, 2014, "Testing Wagner's Law at Different Stages of Economic Development," *FinanzArchiv: Public Finance Analysis*, Vol. 70, No. 1, pp. 128–68.
- Lamo, Ana, Javier Perez, and Ludger Schuknecht, 2007, "The Cyclicity of Consumption, Wages and Employment of the Public Sector in the Euro Area," ECB Working Paper, No. 757 (Frankfurt: European Central Bank).
- Lane, Philip R., 2003, "The Cyclical Behaviour of Fiscal Policy: Evidence from the OECD," *Journal of Public Economics*, Vol. 87, No. 12, pp. 2661–75.
- Lienert, Ian, and Jitendra Modi, 1997, "A Decade of Civil Service Reform in Sub-Saharan Africa," Working Paper No. 97/179 (Washington: International Monetary Fund).
- Lundgren, Charlotte, 2010, "Wage Policy and Fiscal Sustainability in Benin," International Monetary Fund, African Department No. 10/1.
- Matschke, Xenia, 2003, "Are there Election Cycles in Wage Agreements? An Analysis of German Public Employees," *Public Choice*, Vol. 114, pp. 103–135.
- Medeiros, João and Christoph Schwierz, 2013, "Estimating the Drivers and Projecting Long-Term Public Health Expenditure in the European Union: Baumol's Cost Disease Revisited," *Economic Papers 507* (European Commission).
- Moore, William J., and John Raisian, 1991, "Government Wage Differentials Revisited," *Journal of Labor Research*, Vol. 12, No. 1, pp. 13–33.
- Mueller, Richard E., 1998, "Public–Private Sector Wage Differentials in Canada: Evidence from Quantile Regressions," *Economics Letters*, Vol. 60, No. 2, pp. 229–35.
- Nordhaus, William D., 2008, "Baumol's Diseases: A Macroeconomic Perspective," *The B.E. Journal of Macroeconomics*, Vol. 8 (February), Article 9, pp. 1–39.
- Nose, Manabu, 2015, "Estimation of Drivers of Public Education Expenditure: Baumol's Effect Revisited," IMF Working Paper No. 15/178 (Washington: International Monetary Fund).
- Organisation for Economic Co-operation and Development (OECD), 2005(a), "Modernising Government: The Way Forward" (Paris: OECD Publishing).
- , 2005(b), "Performance pay policies for government employees" (Paris: OECD Publishing).

- , 2010(a), "PISA 2009 Results: What Makes a School Successful?—Resources, Policies and Practices (Volume IV)" (Paris: OECD Publishing) <http://dx.doi.org/10.1787/9789264091559-en>.
- , 2010(b), "Health Care Systems: Getting More Value for Money," *OECD Economics Department Policy Notes*, No. 2 (Paris).
- , 2011, "Public Servants as Partners for Growth: Toward a Stronger, Leaner, and More Equitable Workforce" (Paris: OECD Publishing), <http://dx.doi.org/10.1787/9789264166707-en>.
- , 2012, "Public Sector Compensation in Times of Austerity" (Paris: OECD Publishing), <http://dx.doi.org/10.1787/9789264177758-en>.
- , 2015(a), "Special Feature: Compensation Reforms Since 2015," in *Government at a Glance 2015* (Paris: OECD Publishing), http://dx.doi.org/10.1787/gov_glance-2015-31-en.
- , 2015(b), "The Impact of Budgetary Constraints on HRM: Report on Survey Results" (Paris).
- , 2015(c), "Special Feature: Employment Reforms in Central Government Since 2008," in *Government at a Glance 2015* (Paris: OECD Publishing), http://dx.doi.org/10.1787/gov_glance-2015-32-en.
- Pérez, Javier, and Antonio Jesús Sánchez Fuentes, 2010, "Is There a Signaling Role for Public Wages?" European Central Bank Working Paper No. 1148, (European Central Bank).
- Pollitt, Christopher and Geert Bouckaert, 2011, *Public Management Reform: A Comparative Analysis New Public Management, Governance, and the Neo-Weberian State* (Oxford: Oxford University Press).
- Rechel, Bernd and Martin McKee, 2009, "Health reform in central and eastern Europe and the former Soviet Union," *The Lancet*, Vol. 374 (October), pp. 1186-95.
- Rexed, Knut, Chris Moll, Nick Manning, and Jennifer Allah, 2007, "Governance of Decentralised Pay Setting in Selected OECD Countries," OECD Working Papers on Public Governance 2007/3 (Paris: OECD Publishing), <http://dx.doi.org/10.1787/210083427643>.
- Verhoeven, Marijn, Victoria Gunnarsson, and Stephane Carcillo, 2007, "Education and Health in G7 Countries: Achieving Better Outcomes with Less Spending," IMF Working Paper No. 07/263 (Washington: International Monetary Fund).
- Visser, Jelle, 2014, "ICTWSS Database, Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts in 34 countries between 1960 and 2014", *Institute for Advanced Labour Studies, AIAS*, (Amsterdam: University of Amsterdam).

Weichselbaumer, Doris, and Rudolph Winter-Ebmer, 2005, "A Meta-Analysis of the International Gender Wage Gap," *Journal of Economic Surveys*, Vol. 19, No. 3, pp. 479–511.

World Bank, 2009, "Core Guidance: Preparing Public Expenditure Reviews for Human Development" (Washington).

World Bank, 2016, "Size of the Public Sector: Government Wage Bill and Employment," <http://www.worldbank.org/en/topic/governance/brief/size-of-the-public-sector-government-wage-bill-and-employment>.