Public Disclosure Authorized

Public Disclosure Authorized

PFR Fundamentals: Public Wage Bill Analysis

June 2025

Fiscal Policy

Economic Policy Global Department

World Bank

PFR Fundamentals is a series of analytical and how-to notes prepared by the Fiscal Policy Unit (EMFTX) to assist task teams in preparing and implementing Public Finance Reviews (PFRs). The entire series is available on the PFR Resource Center, which you can access by entering "PFR/" in your browser's address bar.

This note was prepared by a core team comprising Ibrahim Chowdhury, Iryna Piontkivska and Julio Velasco. Overall guidance was provided by Emilia Skrok. Bradley Larson, Hironobu Isaka, and John Nana Darko Francois provided helpful comments and inputs during the preparation process. The peer reviewers were Cristina Savescu, Barbara Cunha, Rafael Chelles Barroso, and Desislava Enikova Nikolova.

Contents

1. Introduction 3
2. Framework for Wage Bill Analysis 4
2.1. Benchmarking of Public Sector Wage Bill to Peers 4
2.2. Benchmarking to the private sector 9
2.3. Drivers of Public Sector Wage Bill: A normative approach 11
2.4. Drivers of the Wage Bill: A Model-based Approach 14
3. Measuring the Fiscal Impact of Wage Bill Measures 16
References 19
Annex 1: Data sources 21
Annex 2: STATA code for estimating a structural wage bill model 22
Annex 3: Wage Bill Consolidation Measures - Lessons from International Experience 25

Figures

Figure 1. A Framework for Public Sector Wage Bill Analysis 4
Figure 2. Public wage bill in percent of general government revenue, 2011-2022 5
Figure 3. Public wage bill in percent of expenditures, 2011-2022 6
Figure 4. Public wage bill in percent of GDP, 2011-2022 7
Figure 5. Evolution of public wage bill spending and GDP in Serbia 2002-2012 (real index) 8
Figure 6. Public sector employment, 2011-2023 9
Figure 7. Public wage premiums by income groups (compared to all private sector employees) 10
Figure 8. Public wage premiums by occupations and by income groups 11
Figure 9. Public sector employment in Costa Rica, 2016 13
Figure 10. Decomposition of changes in the public wage bill in Honduras, 2017-19 14
Figure 11. Public wage bill and potential fiscal savings in the Western Balkans (percent of GDP) 15

Tables

Table 1. Public Sector Wage Bill Components **12**
Table 2. Common Wage Bill Adjustment Measures **16**
Table 3. Data Requirement for Wage Bill Simulator **17**

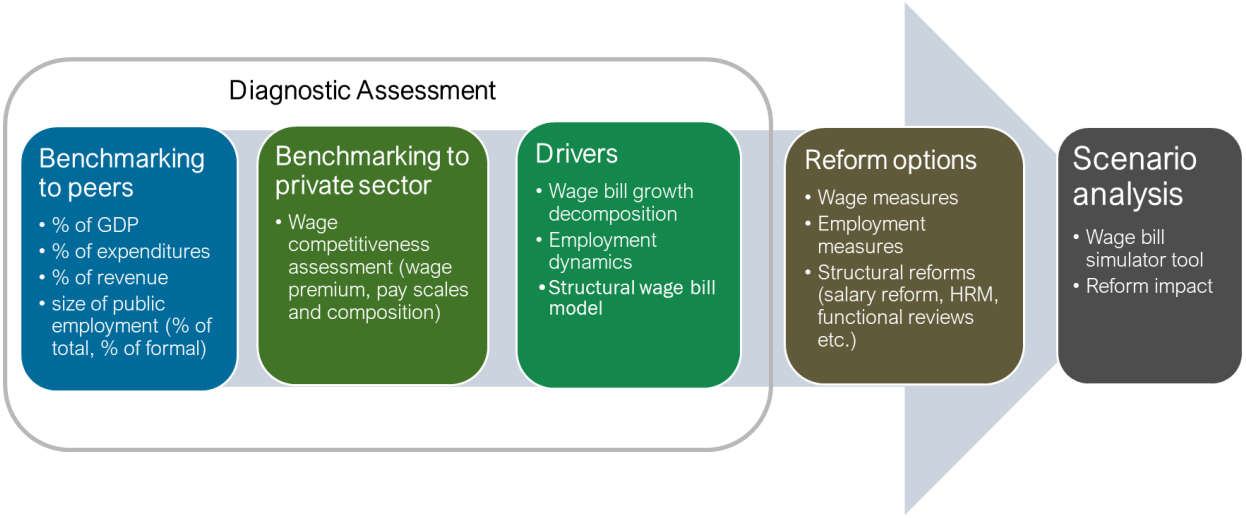
1. Introduction

Controlling the public sector wage bill is important for governments to ensure fiscal discipline, efficient resource allocation, economic stability, and long-term sustainability. High and growing public sector wages can strain government finances, leading to widening fiscal deficits, increased borrowing and higher debt. Effective control of the wage bill is essential for managing public finances and ensuring that debt remains at sustainable levels. Furthermore, excessive spending on public sector wages can crowd out resources that could be allocated to other important government functions, such as infrastructure development, healthcare, education, and social programs. Besides, overly generous public sector wages can distort labor markets and make it difficult for the private sector to attract and retain talent which can hinder economic growth and competitiveness. Lastly, a rapidly increasing public sector wage bill can contribute to inflationary pressures in the economy. Managing the wage bill helps in controlling inflation and maintaining price stability.

Public sector wage bill analysis is an important topic of interest frequently requested by governments, as shown by its regular inclusion in Public Expenditure Reviews (PERs). From 2008 to 2023, 76 PER/PFRs included an in-depth analysis of the public sector wage bill (PWB). A repository of wage bill analyses created for this guidance note shows that wage bill analyses have been more common in Sub-Saharan Africa (27 PERs) and the ECA region (20 PERs), but scarce in South Asia (3 PERs) Most PWB sections draw on macro-level analysis due to limited micro-level data. Additionally, 20 PERs included scenario analyses to assess the impact of potential policy interventions on the wage bill.

This How-to-Note provides a framework for public sector wage bill analysis, equipping economists with essential tools and methodologies to assess fiscal sustainability and policy impacts. It explores the following questions: What are the key indicators for assessing the fiscal sustainability of the wage bill over time and across countries? What are the main drivers of wage bill growth, and how do employment trends and wage levels contribute to it? What analytical tools and models can be used to estimate the determinants of the wage bill? How can scenario analysis and wage bill simulations help policymakers design effective reform strategies? A framework for wage bill analysis should start with benchmarking a country's public sector wage bill vis-a-vis peers and the private sector (Figure 1). It should next explore the underlying drivers of wage growth and employment patterns before outlining potential reform strategies. The framework also includes scenario analysis that helps policymakers visualize and assess the impact of different reform options, offering a practical roadmap for addressing public sector compensation challenges. To this end, this How-to-Note introduces the wage bill simulator—an innovative tool designed for projecting the impact of various reform scenarios on the wage bill. By integrating analytical tools and practical insights, this note aims to enhance the effectiveness of wage bill management and support evidence-based policymaking.

Figure 1. A Framework for Public Sector Wage Bill Analysis



Source: World Bank staff elaboration based on Public Sector Employment and Compensation: An Assessment Framework (World Bank, 2023).

2. Framework for Wage Bill Analysis

2.1. Benchmarking of Public Sector Wage Bill to Peers

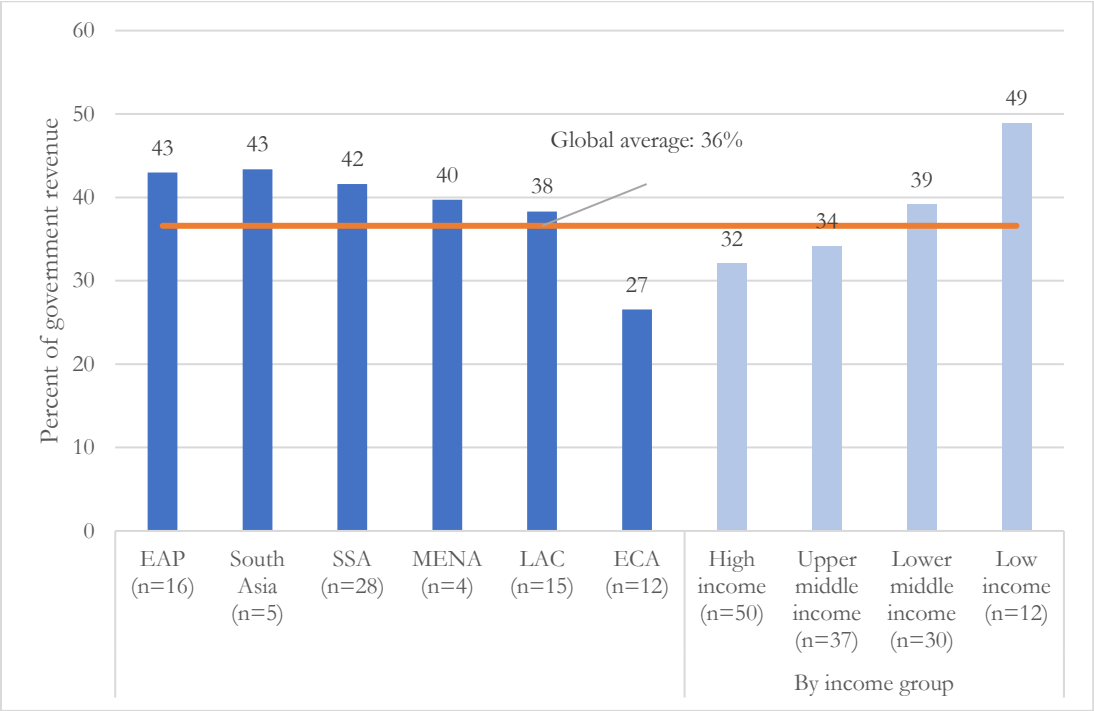
The public sector wage bill refers to the total expenditure by the general government on salaries, wages, and benefits for public sector employees. This includes payments to civil servants, teachers, healthcare workers, security personnel, and other government staff engaged in the delivery of public services. General government encompasses central and sub-national government, social security funds as well as state-owned enterprises (SOE). However, data often only pertain to a narrower scope of the public sector, with SOE data frequently excluded from public wage bill reporting or only central-level data being reported. Further details on data availability and coverage are provided in Annex 1. There is no universally "ideal" measure for the size of the public wage bill for any given country as it is influenced by many factors including the level of development, institutional characteristics including the degree of digitalization and strength of trade unions, demand for public services, geographic factors and availability of resources. Therefore, international benchmarking versus peer countries using various relative indicators of public wage bill levels is employed to evaluate the adequacy of a country's public wage bill size.

Assessing the fiscal sustainability of public sector wages involves analyzing key indicators that shed light on the relative level and dynamics of the wage bill over time and in comparison with peer countries. A critical aspect of this assessment is examining the wage bill as a share of revenue and of expenditure. Since revenues normally grow approximately in line with nominal GDP, keeping wage bill growth at or below nominal GDP growth (or equivalently, keeping the wage bill share of GDP roughly constant), is also an important indicator. Further indicators of wage bill sustainability include monitoring the growth rate of the wage bill and the number of public servants. Comparing these indicators with those of other countries and over time provides valuable insights into a country's fiscal standing compared to peers and helps identify potential fiscal issues.

The wage bill as a share of revenue

The wage bill as a percentage of government revenue assesses the "affordability" of public sector wages. If the wage bill consumes a large portion of government revenues, it may cause fiscal imbalances. A high percentage can signal challenges in covering other essential expenditures, servicing debt, or funding critical public services. Monitoring this ratio allows policymakers to maintain fiscal prudence. Globally, the public sector wage bill accounted for just above 35 percent of general government revenues (Figure 2). The EAP region exhibits a wage bill to revenue ratio of 43 percent, while the ECA region demonstrates the lowest ratio. When categorized by income group, the wage bill ratio tends to be higher in middle income countries compared to high-income countries. For countries that rely on grants, the analysis should focus on domestic revenue rather than total revenue because grants from development partners tend to be more volatile than domestic revenue and in the long run are difficult to predict (see Public Service Wage Bill Management in Pacific Island Countries, June 2020).

Figure 2. Public wage bill in percent of general government revenue, 2011-2022



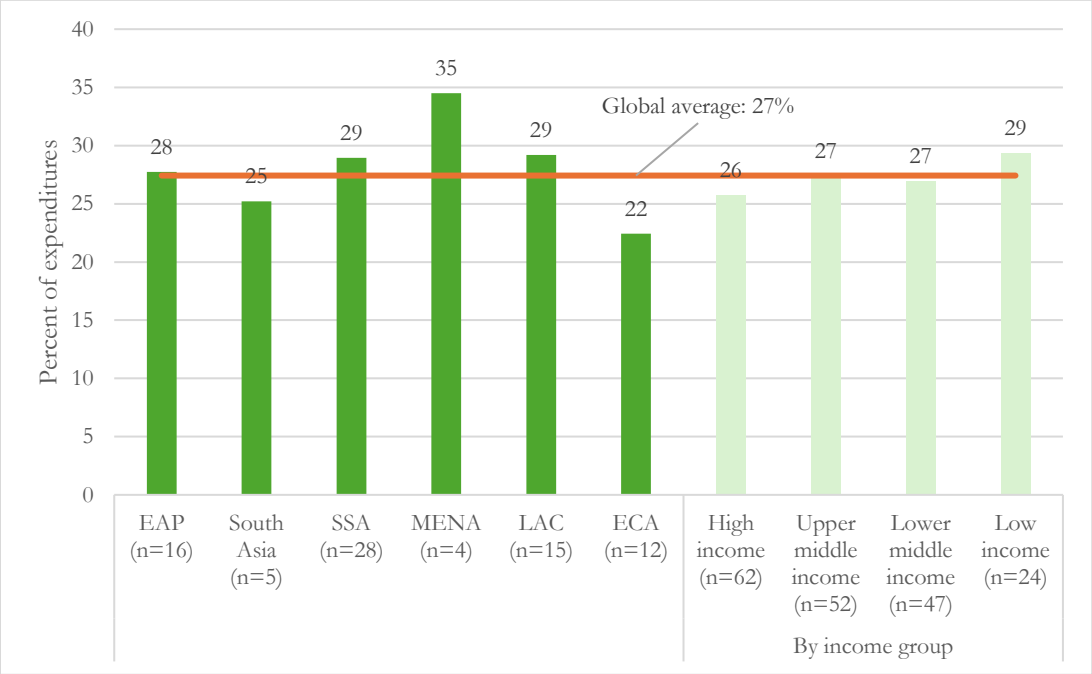
Notes: Government revenue excluding grants; regional averages exclude high income countries.
Source: IMF GFS, WWBI 3.1, WB Fiscal Databases.

The wage bill as a share of expenditure

Examining the wage bill as a percentage of government expenditure helps evaluate the proportion of public resources allocated to public sector employees within overall government spending. A high percentage may indicate potential fiscal challenges as excessive spending on wages could limit resources available for other essential services and investments. Balancing the wage bill with other expenditure priorities is vital for maintaining fiscal sustainability, ensuring effective public service delivery and supporting development needs. Globally, the wage bill accounts for slightly more than a quarter of total

expenditure on average. In the ECA region it is slightly less than a quarter, while in MENA it is significantly higher (See Figure 3).

Figure 3. Public wage bill in percent of expenditures, 2011-2022



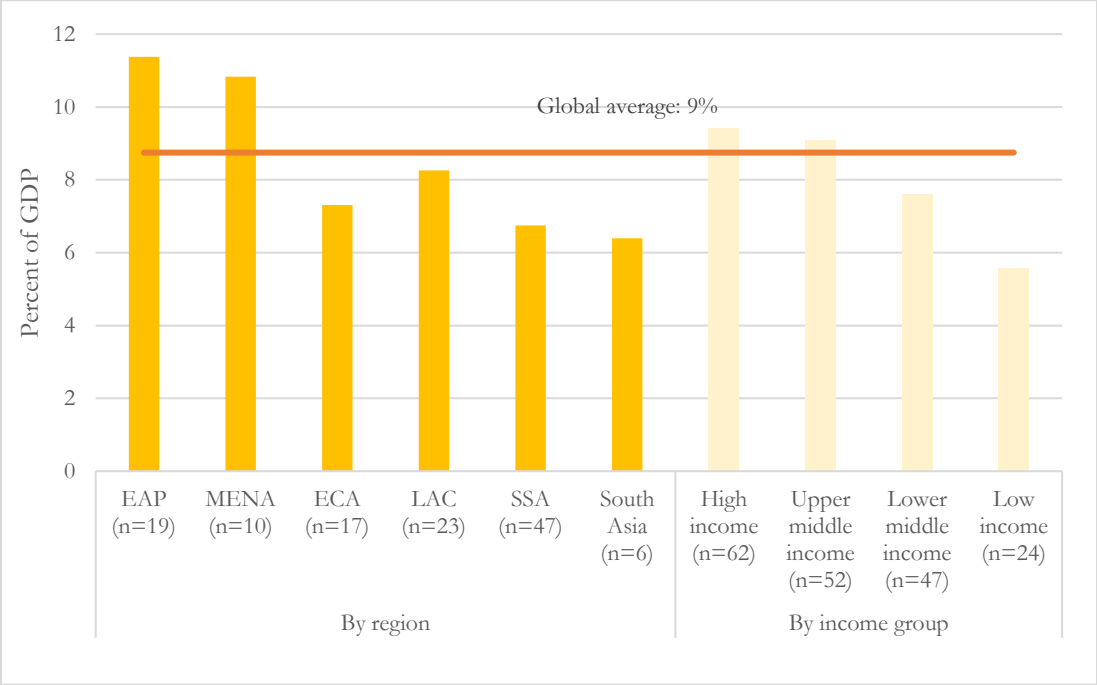
Note: Regional averages exclude high income countries.
Source: WWBI 3.1, IMF GFS, WB Fiscal Databases.

The trajectory of the wage bill as a share of GDP

Monitoring the wage bill as a share of GDP allows policymakers to ensure that public sector wage growth aligns with economic trends, preventing imbalances that could strain fiscal resources. If the wage bill grows faster than the economy, it can weigh on government budgets and lead to fiscal imbalances. Since there are circumstances in which revenue and GDP trajectories may diverge, it useful to consider the trajectory of both, the wage bill as a share of revenue and as a share or GDP[1]. Globally, the wage bill constitutes approximately 9 percent of GDP, with a slightly higher wage bill ratio in the EAP and MENA region (see **Error! Reference source not found.**).

[1] For small states that receive income from abroad, GNI offers a more consistent indication of national income than GDP.

Figure 4. Public wage bill in percent of GDP, 2011-2022



Note: Regional averages exclude high income countries.
Source: WWBI 3.1, IMF GFS, WB Fiscal Databases.

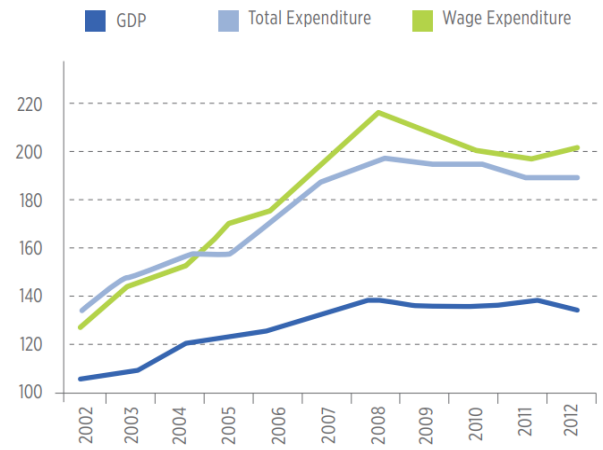
Growth of the wage bill

The growth rate of public sector wages is a critical factor influencing government expenditure and overall fiscal stability. Rapid and unsustainable wage growth can lead to deterioration in fiscal balances, as wage expenditures constitute a significant portion of public budgets. Moreover, excessive wage growth can contribute to inflationary pressures, particularly when wage increases outpace productivity growth. Empirical evidence supports this, showing that a surging wage bill can drive consumer price inflation, especially when wage growth consistently exceeds productivity gains (e.g., Alvarez et al., 2023; Mihaljek and Saxena, 2010). For instance, Figure 5 illustrates that public wage expenditures in Serbia surpassed total expenditure and GDP in real terms for several years, highlighting a potentially unsustainable trend.

Theoretical models of public sector wage bill growth provide a framework for understanding these dynamics. Wagner's Law (Wagner, 1883) suggests that as economies develop, the demand for public services—and by extension public employment and wage expenditures—naturally increases. Meanwhile, Baumol's "Cost Disease" (Baumol & Bowen, 1966) emphasizes that labor-intensive public services, such as healthcare and education, often experience wage growth without corresponding productivity gains, driving up public sector costs. From a political economy perspective, Alesina and Perotti (1996) argue that electoral cycles, union bargaining power, and political incentives can influence wage bill expansion, sometimes in ways disconnected from economic fundamentals. The Balassa-Samuelson effect can further explain wage growth in the public sector, particularly in developing economies, where rising wages in the tradable sector—driven by productivity gains—spill over into the non-tradable public sector, pushing up wages even in the absence of equivalent productivity growth (Choudhri and Khan, 2004). Additionally, public sector productivity growth can also affect public sector wages, though measuring public sector productivity presents unique challenges compared to the private sector, as outputs often lack market prices and quality metrics (World Bank, 2021). Lastly, principal-agent models (Tirole, 1994) highlight how

weak oversight and misaligned incentives within the public sector can result in wage inefficiencies and overstaffing. Given these insights, PERs often focus on the real rate of growth of the wage bill, as it offers a more accurate measure of purchasing power and helps assess whether wage increases are keeping pace with inflation.

Figure 5. Evolution of public wage bill spending and GDP in Serbia 2002-2012 (real index)



Source: Serbia PER (2015).

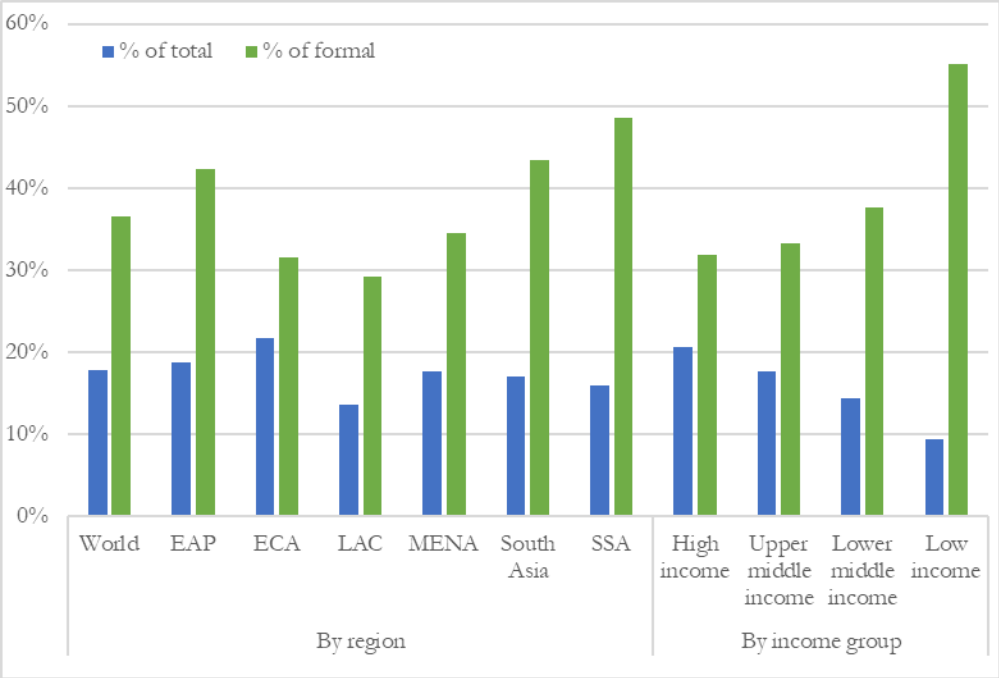
Public sector employees as a share of total employment

Determining the optimal level of public sector employment is challenging as it requires balancing economic necessity, efficiency, fiscal sustainability, labor market dynamics, and political constraints (Holm-Hadulla et al., 2010; Afonso and Schuknecht, 2006; IMF, 2016). Governments need to ensure adequate public goods provision and address market failures, while also preventing bureaucratic inefficiencies and fiscal imbalances. Since the size of the public sector workforce directly influences wage bill expenditures, prolonged increases in public employment relative to total employment can drive up fiscal costs. Conversely, sustained decreases in public employment may weaken service delivery, leading to a decline in service quality. A sustainable employment level must align with service delivery needs, productivity considerations, and long-term economic stability. To assess the relative size of public employment, one can analyze indicators such as public sector employment as a share of the total population, working-age population, labor force, and formal employment. However, obtaining accurate administrative data remains a challenge in many developing countries, making survey-based inferences a useful alternative for policy analysis.[2]

In the many developing economies with large informal sectors, the ratio of public sector employment to total employment may understate the size of the public sector (Figure 6). In South Asia and Sub-Saharan Africa, the share of public employment in total employment (around 9 percent) is notably lower than its share in formal employment (more than 45 percent). In contrast, in the ECA region and across high-income countries there is less disparity among these metrics in gauging the relative significance of the public sector as an employer in the economy.

[2] See Chapter 27 in Rogger, D. and Schuster, C. (2023). The Government Analytics Handbook: Leveraging Data to Strengthen Public Administration (English). Washington, D.C.: World Bank Group. Link

Figure 6. Public sector employment, 2011-2023



Source: ILOSTAT, WWBI 3.1, LABLAC.

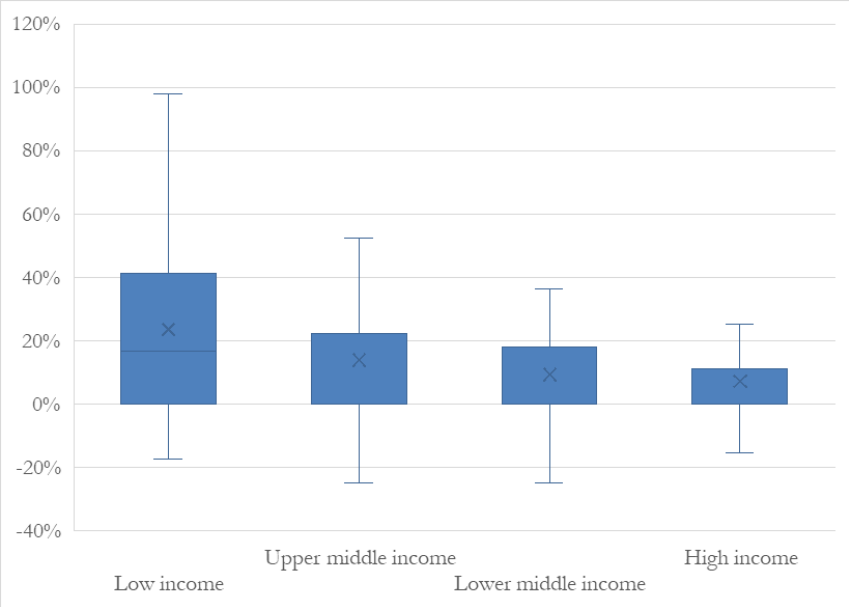
2.2. Benchmarking to the private sector

Benchmarking public sector wages to the private sector helps to assess the competitiveness of public wages, efficiency of public wage bill, and ability of the government to attract and retain qualified personnel. Depending on the relative size of public employment, public sector wages may impact the overall economic productivity as high public-private wage gaps affect labor allocation between the two sectors and public spending efficiency. If public sector pays higher wages to workers with similar characteristics and job responsibilities—also known as public wage premium—the private sector may be left with less productive human capital, while the public resources be diverted from more efficient use in favor of public employees' compensation. Contrary, public wages below private sector levels (referred to as public wage penalty) imply difficulties in attracting and retaining quality workforce as well as lack of motivation for existing workers that may affect public services delivery (Gindling et al., 2019; Thevenot and Walker, 2024).

To properly assess public-private wage gaps it is necessary to account for the differences in the pay practices, the workers' characteristics, job characteristics and responsibilities, but in practice it is difficult to find direct comparators for many public sector jobs in the private sector. Public sector earnings data may not fully account for all types of public employees' compensation and benefits (e.g. in-kind transfers, allowances, pension benefits etc.), thus creating potentially biased estimates of wage differentials. In countries with a significant informal economy, estimated public wage premiums may not be entirely attributable to conventional factors such as job security or skills, but can also reflect wage

underreporting in the private sector due to tax evasion practices. This underreporting leads to an artificially low private wage baseline, potentially overstating the public-private wage gap. Job security, status and networking opportunities provided by the public sector are difficult to quantify and hence omitted factors in public-private pay comparisons (Gindling et al., 2019). Conventional approach to evaluation of an average public wage premium is to estimate a Mincerian wage regression with a dummy variable for the public sector and a set of controls for observable workers' characteristics (age, education, location, gender, occupational group etc.) using labor force/household budget survey-based micro-level data (Abdallah et al., 2023; Gindling et al., 2019). The Worldwide Bureaucracy Indicators (WWBI 3.1) database provides public wage premium estimates for 107 countries over the period of 2010-2021.[3]

Figure 7. Public wage premiums by income groups (compared to all private sector employees)



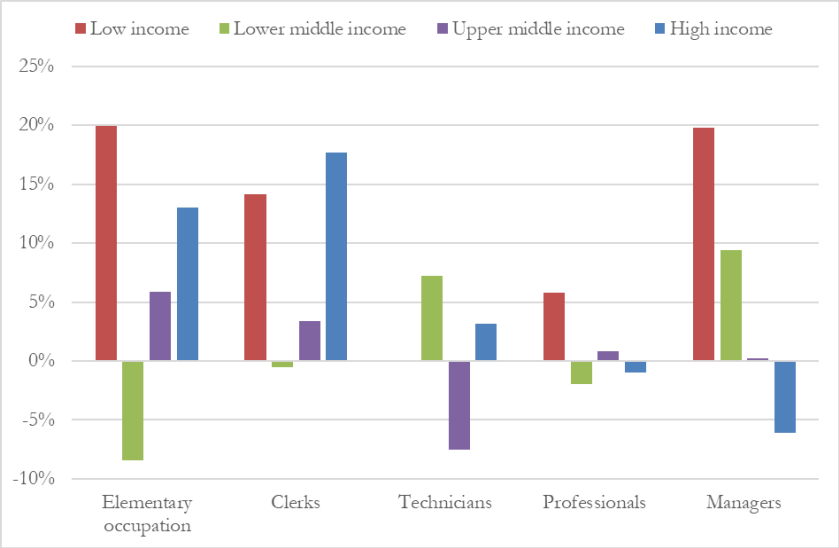
*Based on the latest available observations over 2010-2022
Source: WWBI 3.1

Public sector wages are on average higher than wages in the private sector with the size of the premium varying depending on the country-specific factors and workers' characteristics (education, skills, occupation). Based on the latest observations in the WWBI database, public wage premiums were found in 84 countries ranging from an average of 7.2 percent in high-income countries to 23 percent in low-income countries (Figure 7). Many PER/PFRs analyzed public wage premiums to highlight pay disparities with the private sector along with variations of wage premiums across different occupational groups or skill/education levels. In Costa Rica, the public wage premium was estimated at 46 percent after controlling for observable workers characteristics, standing out in cross country comparisons (Costa Rica PFR, 2016). Public wage premiums are usually higher for less qualified personnel (non-managerial and non-professional jobs), with the wage differential diminishing or turning into penalties for higher-qualified specialists and senior management (Figure 8). For example, in Croatia the estimated public wage

[3] For a comprehensive analysis of wage competitiveness, this note would refer to the Public Sector Employment and Compensation Assessment Framework developed by the Governance Global Practice.

premiums follows an-inverted U pattern across the earnings distribution with the adjusted wage gaps turning negative at around the 85th percentile and reaching more than -20 percent at the 95th percentile in 2018 (Croatia PFR, 2021). These findings underscore the importance of a nuanced approach to the wage premium analysis taking inro account the specific country context to accurately capture the factors influencing public-private wage gaps and ensure that wage policies align with each country's unique institutional settings, labor market dynamics and fiscal conditions.

Figure 8. Public wage premiums by occupations and by income groups



*Based on the latest available observations over 2010-2022.
Source: WWBI 3.1.

2.3. Drivers of Public Sector Wage Bill: A normative approach

The public wage bill is driven by changes in its two major components: remuneration and employment. The size and composition of the public sector workforce directly influence wage expenditure. Simultaneously, the remuneration structure, including base salaries, supplements and allowances contributes significantly to the financial commitment associated with the public sector workforce. Table 1 displays various components of the public sector wage bill categorized into employment and remuneration, each varying in complexity across countries. The interplay between these two elements reflects the dynamic nature of the public sector wage bill, necessitating a nuanced understanding of both the workforce composition and the compensation frameworks in order to effectively manage and analyze its drivers. For example, in Brazil, the drivers of wage bill growth varied across different government levels: while wage increases predominantly influenced the wage bill at the federal level, both rising salaries and the expansion of the workforce contributed equally to wage bill growth at the sub-national level during 2010-2015 (Brazil PER, 2017). Access to detailed public sector employment and remuneration data is essential for accurately analyzing wage bill drivers and conducting scenario assessments.

Table 1. Public Sector Wage Bill Components

Employment		Remuneration	
Sector	Public Administration Healthcare Education Judiciary Defense & Law Enforcement SOEs/Public corporations	**Base salary**	Single spine base pay scale Multiple base pay scales
Level of Government	General Government Central Government Decentralized government agencies Sub-national level: Regional Units Local/Municipal authorities	**Supplements**	Seniority Civil servant rank Overtime Performance-related pay (bonuses, rewards) Other components of pay
Type of contract	Permanent staff Term contract Temporary employees Other labor arrangements	**Allowances**	Travel allowance Housing allowance Food allowance Hardship/Special duty allowance
Occupation group	Senior managers Civil servants Support/technical staff Doctors and healthcare workers Teachers/Education specialists Judges/Armed forces/Police	**Non-monetary Benefits**	In-kind transfers Healthcare Education/training Vacation

Source: World Bank staff compilation based on literature review.

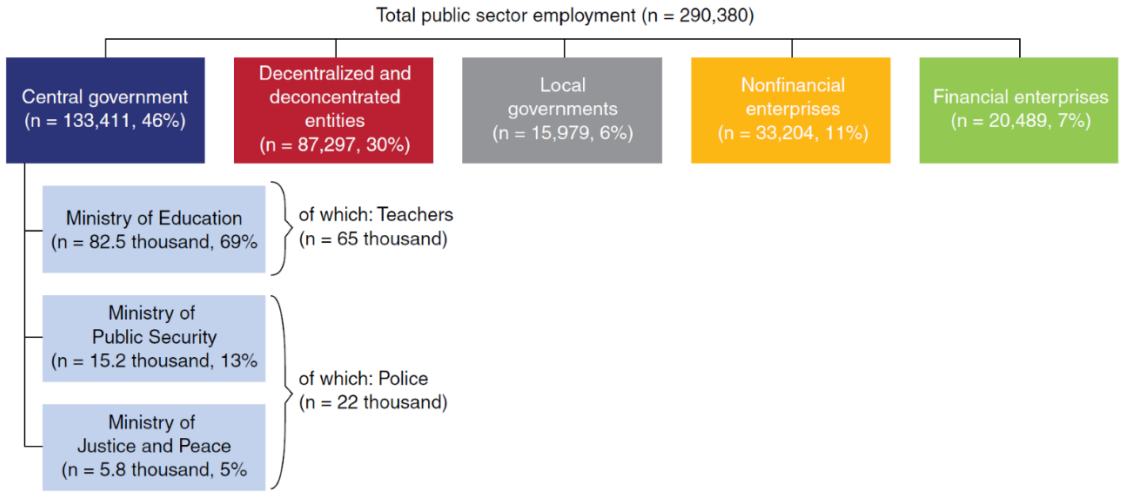
Theoretical considerations of public wage determination focus on balancing fairness, efficiency, and fiscal sustainability to achieve equitable labor market outcomes. The normative approach to public wage setting is grounded in principles of fairness, equity, public accountability, and institutional integrity, as opposed to solely market-driven productivity considerations (Strivers, 2000; Peters, 2022). The OECD Principles of Public Administration emphasize balancing normative concepts with economic and managerial aspects regarding public sector pay. The OECD prescribes that public remuneration systems should be competitive, fair, transparent ("equal pay for equal work"), performance-oriented, open to social dialogue (collective bargaining), and fiscally sustainable (OECD, 2023).

Public sector remuneration can include various components that vary across countries and make up the overall compensation package for government employees. Remuneration systems in different countries may vary across sectors, levels of government and types of contracts. As illustrated in Table 1 public sector remuneration can encompass many supplements and allowances in addition to the base salary as well as many different sector-specific wage regimes. For example, in Costa Rica the base salary only accounts for 38 percent of total public sector remuneration, while additional pay benefits make up 41 percent (Costa Rica PFR, 2019). Public sector employees may receive various types of allowances as part of their overall compensation package which can differ widely across countries. Maldives has 54 different types of allowances and supplements (Maldives PER, 2023), while in Cameroon, allowances have increased as a share of total remuneration in recent years due to additional payouts, such as per diems for attending

official meetings (Cameroon PER, 2018). In Kenya, many allowances (247 in total) significantly reduced transparency of the pay system and made it difficult to control wage bill expenditures (Kenya PER, 2020).

Similarly, the composition of public sector employment encompasses diverse elements that collectively shape the overall workforce and impact the total wage bill. Public sector employment can be examined across various government tiers extending beyond the general government aggregation to encompass central and sub-national levels, as well as employment within public entities (e.g., SOEs). An assessment at the sector level often provides useful insights into the distribution of government resources and policy priorities. For example, the Costa Rica PFR (2019) finds that the country's public employment is concentrated at the central government level, which accounts for around 46 percent of the total public employment followed by decentralized and deconcentrated entities (see ***Error! Reference source not found.***). From a sectoral perspective, the education and national security sectors emerge as the largest.

Figure 9. Public sector employment in Costa Rica, 2016



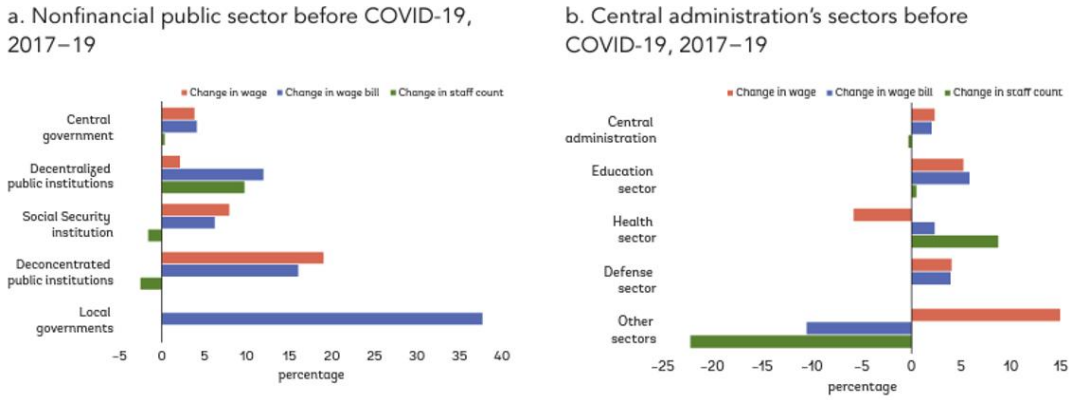
Source: Costa Rica PFR (2019).

The complex composition of the public wage bill can result in different combinations of factors driving its dynamics. In only a few instances does a single factor, such as a change in staffing levels or adjustments to base wages, exclusively determine the trajectory of the public wage bill. More commonly, multiple factors shape the path of the wage bill. Institutional arrangements—including government regulations, statutory provisions, and collective bargaining agreements—can exert significant influence on wage setting processes and employment levels. Additionally, the application of cost-of-living adjustments (COLAs) or inflation indexation mechanisms, whether applied retrospectively (backward-looking) or based on projected inflation (forward-looking), can systematically raise wage expenditures over time. Well-designed indexation frameworks emphasize transparency, alignment with macroeconomic conditions, and safeguards to ensure fiscal sustainability[4]. Illustrating this phenomenon, **Error! Reference source not found.**depicts the uneven changes in the wage bill across sectors and levels of government in Honduras (Honduras PER, 2022). While the overall public wage bill in Honduras increased primarily due to salary adjustments between 2017 and 2019, this growth was distributed unevenly among sectors and

[4] The following sources provide comparative insights on how wage indexation mechanisms can be structured to balance equity, competitiveness, and fiscal control (Balasundharam et al., 2023, Marcinkowski L. et al., 2024. IMF, 2016).

government levels. Local governments and decentralized public institutions, and at the sector level, the health sector contributed to wage bill growth through changes in staffing level.

Figure 10. Decomposition of changes in the public wage bill in Honduras, 2017-19



Source: Honduras PER (2022).

2.4. Drivers of the Wage Bill: A Model-based Approach

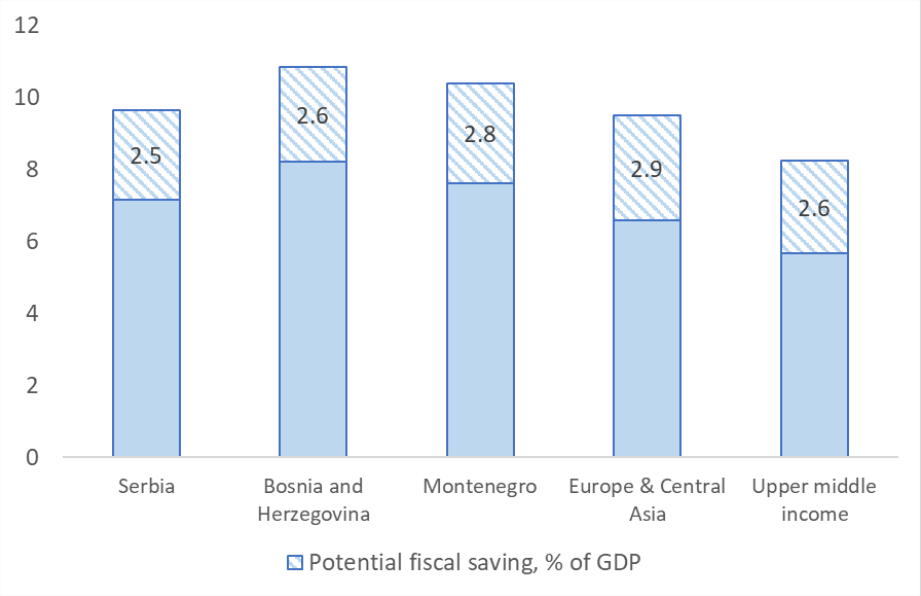
Over the longer term, the public sector wage bill is influenced by both structural and cyclical factors, each playing a distinct role in shaping its evolution. Structural factors—such as economic development, demographic trends, and institutional characteristics—determine the underlying trajectory of the wage bill. Economic development is typically associated with an increase in the wage bill as a share of GDP, with long-term analysis showing that a 10 percent increase in per capita GDP—a proxy for economic development—is linked to a 1 percent increase in wage bill spending as a share of GDP (IMF, 2016). However, in advanced economies, this relationship weakens, suggesting that the wage bill stabilizes at higher levels of development (Kuckuck, 2014). Demographic factors such as population growth, aging, and migration also shape long-term public service demands, influencing the public sector wage bill. Additionally, institutional characteristics, including public sector employment frameworks, wage-setting mechanisms, and collective bargaining structures, play a crucial role in determining how wage bills evolve over time, with stronger institutions often linked to more sustainable and predictable wage bill growth (OECD, 2019).

In contrast, cyclical factors—including economic fluctuations, political cycles, and external shocks—lead to short-term variations in the wage bill. Economic cycles influence spending, with government wages and salaries found to be rising by 0.22 percentage points for every 1 percent increase in the output gap (IMF, 2016). Political cycles also play a role, as governments tend to increase public wages ahead of elections, leading to an average wage bill growth of 0.53 percentage points more during an election year. Additionally, disasters, crises, and conflicts contribute to wage bill volatility. For instance, the COVID-19 pandemic placed additional strain on wage bills globally due to increased healthcare staffing, emergency response personnel, and additional benefits for frontline workers (Hasnain Z. et al., 2020). On average, public wage bills as a share of GDP rose by 0.95 percentage points across 169 countries in 2020, although part of this increase was due to a shrinking GDP denominator. In distinguishing structural drivers from cyclical fluctuations, policymakers can better anticipate long-term wage bill trends, while designing strategies to manage short-term fiscal pressures.

Herrera and Olaberria (2019) developed a structural model to estimate the determinants of the public sector wage bill. The model allows the wage bill to be separated into two elements: (a) a structural component that is determined by long-run economic fundamentals and (b) a non-structural component that is determined by policy decisions or short-run effects of variables associated with the business cycle. The model further allows for an estimation of the potential fiscal saving or policy space in the wage bill. The structural component is determined by long-run fundamentals beyond the policymaker's control using as explanatory variables GDP per capita and country characteristics such as the population, population density, demographic composition (youth and elderly), and the degree of openness of the economy. Annex 2 provides a description of the econometric model and the STATA code to estimate the model with an application.

The predicted wage is interpreted as the *structural* component of the public wage for each country, given its income level and other country characteristics. It provides an estimate of the "equilibrium" wage level given the structure of the economy and population. This level is determined by structural factors that are not under direct government control, and hence create rigidity in the level of spending. A proxy for the potential fiscal saving in the wage bill can be constructed by deriving the difference between the observed level and the structural component. The so-called *non-structural* component is affected by policy decisions—that is, it is under the government's control. The lower the share of the structural component, the more flexibility policy makers will have to make adjustments. A case study of the Western Balkans demonstrates that in Montenegro, 2.8 percent of GDP in the wage bill is attributed to non-structural factors, indicating the potential for significant fiscal savings (Figure 11).

Figure 11. Public wage bill and potential fiscal savings in the Western Balkans (percent of GDP)



Source: Based on Herreira S. and Ollaberria (2020) model.

3. Measuring the Fiscal Impact of Wage Bill Measures

Over the past two decades, wage bill reforms have been implemented in over 60 countries as part of fiscal consolidation efforts and broader public sector restructuring and institution-building endeavors.[5] The primary motivation behind these reforms has typically been the necessity to create fiscal space for expanding public services and addressing internal and external pay disparities, such as large public wage premiums and low compression rates, as well as excessively high levels of personnel expenditure by international standards. Table 2 below outlines the most common reform measures utilized to rationalize public wage bills across various countries. Additionally, Annex 3 provides examples of wage bill reform measures that have been deemed successful in curbing wage bills based on the experiences of different countries.

Table 2. Common Wage Bill Adjustment Measures

Wage-related	Employment-related	Other
Short-term measures		
• Wage freeze (nominal/real) • Wage growth ceiling (linked to GDP growth, inflation indexation) • Wage bill cap (% of expenditures, % of GDP) • Wage cuts (general or sector-specific) • Allowances reduction/ abolishment	• Elimination of vacancies • Employment caps (sector specific; linked to population growth) • Limit or terminate non-essential temporary or contractual positions. • Voluntary Retirement Schemes • Voluntary Redundancy Programs • Employee census/verification (to track "ghost" workers/ double dippers)	• Enhance payroll control/ oversight • Paying salaries through banking system
Long-term / structural measures		
• Salary system restructuring/unified pay system • Rationalization/Consolidation of allowances • Linking bonuses to performance (introducing performance-based pay elements)	• Introducing HRMIS (human resources management information system) • Attrition • Transition from career-based to a more flexible hybrid/position-based employment model • Enhanced employee mobility • Transfer non-core government functions to the private sector.	• Broad-based public sector restructuring/public administration reform • Modernization and digitalization of service delivery

Source: World Bank staffs elaboration based on PERs and literature review.

[5] Based on 275 identified instances of wage bill consolidation between 2002-2021 (where the wage bill as a percentage of GDP declined for two or more consecutive years with a cumulative contraction of 0.5 percentage points of GDP), and an assessment of IMF programs and World Bank projects related to public sector wage expenditures, employment, and public administration reforms.

Scenario analysis is useful to evaluate the potential impact of proposed reforms on the public sector wage bill. It provides decision-makers with valuable insights to make informed decisions and can help to evaluate the feasibility and effectiveness of different policy options before implementation. This process aids in identifying some unintended consequences and aligns reforms with broader economic and social goals. When country economists have access to detailed administrative records, they can employ microsimulation models, considered the optimal approach or gold standard for this type of analysis that could consider highly specific regulatory issues and evaluate the potential impact of specific reforms. However, challenges arise in many developing countries due to the subpar quality of administrative records and government hesitance to disclose microdata on public wage bills. In this context, country economists could opt for stylized models that, despite being less data-intensive, could allow for simulating the potential impact of some reforms. An excellent example is the analysis undertaken in the Guinea Bissau PER (2019), which, based on information on public employment and available wages by age and sectors, simulated the impact of critical reforms governing hiring and compensation.[6]

Scenario analysis to assess the impact of wage bill measures could be based on an Excel-based tool developed for this purpose. The wage bill simulator is a user-friendly and versatile tool that permits the integration of different assumptions related to government-level and sector-specific remuneration and employment to simulate the effects of common reform scenarios. The base model simulates the dynamics of public employment, basic wages, and allowances. Public employment projections by sector and age are calculated using existing data on public employment and assumptions about new hires, the probability of separation from service, and retirement rates by age. Basic wages are projected based on average sector and age-specific wages and assumptions regarding general, notch, and promotion wage increases. Additionally, allowances are estimated as a percentage of basic wages.

The model requires key micro-information, but it is not data intensive (see Table3). For the base year, the model needs information on public employment and average wages by sector and age and allowances by sector. Setting some critical assumptions requires historical information on recent (last three years) hires, separations, and retirements by age and sector. The calibration of other assumptions could be informed by historical records on hires, wage increases, and allowances or governments' plans. However, in very restrictive data environments, some of these data requirements could be replaced by ad-hoc assumptions about the age distribution of hires, the separation and retirement probabilities, the size of allowances based on the dialogue with the technical counterpart, and international knowledge.

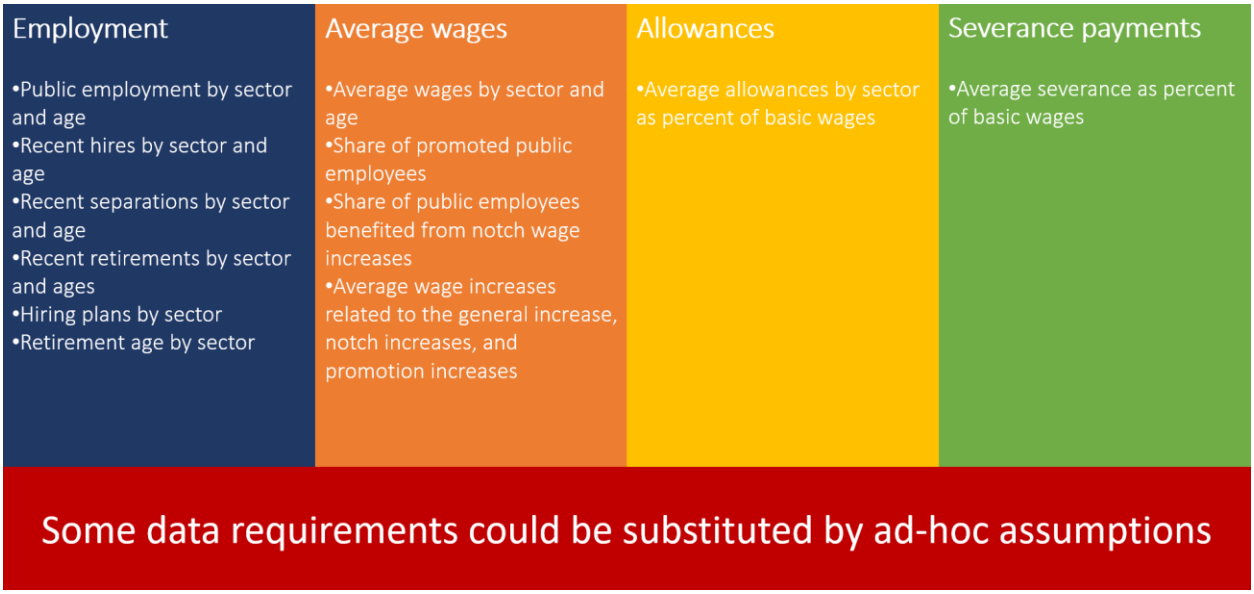
Despite some limitation[7], the tool offers significant flexibility to tailor it to different contexts and features to facilitate the analysis. The model is flexible enough to add more sectors or government levels or split some sectors by gender, type of contracts, or other categorical variables. It also allows to adjust the number of projection years to evaluate gradual and medium-term reforms. Moreover, the tool is designed to manage several scenarios and is equipped with reports to evaluate the results and compare scenarios. The user can simulate the impact of changes in (i) the number of hires, (ii) the probability of being separated by age, (iii) the retirement probability, (iv) the share of employees with notch and promotion increases, (v) wage increases (general, notch, and promotion), and (v) allowances. Additionally,

[6] The Guinea Bissau model first establishes a baseline projection to inform an understanding of the size and potential trajectory of the wage bill over the medium term. The model was then used to analyze how the wage bill might evolve under different assumptions regarding GDP growth and changes in hiring and compensation policies (i.e., to conduct a sensitivity analysis around the baseline projection) and to estimate the fiscal impact of potential options for reform.

[7] The tool has certain limitations, such as its inability to capture the effects of more advanced reforms, like assessing how the introduction of specific legislations will influence the wage bill. Additionally, the model does not consider secular changes in the age structure of public employment.

if a team can secure access to required information, EMFTX can help to modify the tool to include other labor costs such as allowances, seniority, bonuses, overtime, multiple allowances, and non-monetary benefits.

Table 3. Data Requirement for Wage Bill Simulator



References

Abdallah et al. (2023). Public-Private Wage Differentials and Interactions Across Countries and Time, IMF Working Paper 23/63. Link

Afonso, A., Schuknecht, L and V. Tanzi (2006). Public sector efficiency: Evidence for new EU member states and emerging markets. ECB, Working Paper No. 581. Link

Choudhri, E.U and Khan, Mohsin, S. (2004) Real Exchange Rates In Developing Countries: Are Balassa-Samuelson Effects Present? IMF Working Paper 04/188. Link

Baig M. F. A. et al. (2023). Worldwide Bureaucracy Indicators (WWBI) Explanatory Note and Codebook. Link

Balasundharam, V., Kayastha A., and Poplawski Ribeiro, M. (2023), Inflation Indexation in Public Finances: A Global Dataset on Current Practices. IMF Working Paper 23/264. Link.

Forni, L. and Novta N. (2014). Public Employment Compensation Reform during times of Fiscal Consolidation. IMF Working Paper WP12/192. Washington, DC: IMF. Link

Gindling T.H. et al. (2019). Are public sector workers in developing countries overpaid? Evidence from a new global dataset, Policy Research Working Paper, no. WPS 8754. Washington, D.C.: World Bank Group. Link

Hasnain Z. et al. (2020). Governance COVID-19 Response: Managing the Public Sector Wage Bill during COVID-19. Washington, D.C.: World Bank Group. Link

Herrera Aguilera, S.; Olaberria, E. (2020). Budget Rigidity in Latin America and the Caribbean: Causes, Consequences, and Policy Implications (English). International Development in Focus Washington, D.C.: World Bank Group. Link

Holm-Hadulla, F., Hauptmeier, S., and Rother, P. (2010). The impact of expenditure rules on budgetary discipline over the cycle. ECB, Working Paper No. 1169. Link

International Monetary Fund (IMF). (2016). Managing government compensation and employment - institutions, policies, and reform challenges. Washington, D.C.: International Monetary Fund. Link

Kuckuck J., (2014), Testing Wagner's Law at Different Stages of Economic Development, FinanzArchiv: Public Finance Analysis, 70, (1), 128-168 Link

Marcinkowski, L., Butnaru, A. and Rabrenović, A. (2024), "Salary systems in public administration and their reforms: Guidance for SIGMA partners", *SIGMA Papers*, No. 71, OECD Publishing, Paris, Link

OECD (2023), The Principles of Public Administration, OECD, Paris, Link

OECD (2019). Government at a Glance 2019. Paris: Organisation for Economic Co-operation and Development. Link

Rogger, D.O., and Schuster, C. (2023) Government Analytics Handbook: Leveraging Data to Strengthen Public Administration (English). Washington, D.C.: World Bank Group. Link

Strivers, C. (2001). Resisting the Ascendancy of Public Management: Normative Theory and Public Administration. Administrative Theory & Praxis, vol.22, no. 1 (2000). Link

Tamirisa, N. T., and Duenwald, C. (2017). Public wage bills in the Middle East and Central Asia, Washington, DC: International Monetary Fund, 2017 Link

Velasco, J. et al. (2018) Ecuador Public Finance Review: Phase Two (English). Washington, D.C.: World Bank Group. Link

World Bank. (2022). Honduras Public Expenditure Review: Strengthening Fiscal Resilience. Washington, D.C: World Bank Group. Link

World Bank. (2022) Liberia – Public Sector Modernization Project. Washington, D.C: World Bank Group. Link

World Bank. (2021). Croatia - Public Finance Review 2021 (English). Washington, D.C: World Bank Group. Link

World Bank. (2021). Public-Sector Productivity (Part 1) Why is it important and how can we measure it? Washington, D.C: World Bank Group Link

World Bank. (2019). Costa Rica - Public Finance Review 2021 (English). Washington, D.C: World Bank Group. Link

World Bank. (2018). A fair adjustment: efficiency and equity of public spending in Brazil: Volume 1 - Overview. Washington, D.C.: World Bank Group. Link

Kaya, D.; Hayati, F. (2023). Fiji - Public Expenditure Review: Towards Fiscal Sustainability and Improved Spending Quality - Summary Report (English). Washington, D.C.: World Bank Group. Link

Yoong, P. S. et al. (2022). Maldives Public Expenditure Review: Restoring Fiscal Health (English). Washington, D.C.: World Bank Group. Link

Annex 1: Data sources

A comprehensive analysis of the public wage bill relies on multiple data sources, with primary administrative data serving as the foundation for accurate and detailed assessments. Payroll and human resource management systems (if available) provide granular insights into employment structure, compensation levels, and workforce composition, allowing for precise measurement of wage trends and disparities. In addition to administrative records, region-specific and global databases are good sources for cross-country comparisons and benchmarking based on data from administrative records and harmonized surveys.

The Worldwide Bureaucracy Indicators (WWBI) is a unique cross-national dataset on public sector employment and wages developed by the World Bank's Bureaucracy Lab. They aim to help researchers, development practitioners, and policymakers gain a better understanding of the personnel dimensions of state capability, the footprint of the public sector within the overall labor market, and the fiscal implications of the public sector wage bill. The WWBI are derived from harmonized household surveys using a common taxonomy which enables cross-country comparisons based on similar sources and common definitions of employment and wages. The WWBI database is based on 53 million unique survey observations and consists of 112,919 estimations across 192 indicators for 202 countries and territories between 2000 and 2020.

The BOOST database is a valuable tool for in-depth public wage bill analysis on the country level. It operates in over 90 developing countries and aims to provide accessible, well-classified, and highly disaggregated budget data. BOOST data allow examining trends in different wage bill spending articles (base wages, allowances, contributions to social security funds, in-kind transfers) with high level of granularity by the level of government, administrative units, functional categories thus helping to identify potential inefficiencies, and to gain insights into the wage bill drivers and potential areas for reform.

Public sector employment data can be sourced from the ILO LABORSTA database, which serves as a comprehensive repository of public employment data across various countries derived from the national labor surveys. The ILO LABORSTA database coverage and standardized methodology may provide insights on the trends, demographics, gender, age and occupational characteristics of public sector employees. It may complement the analysis especially in cases when administrative data on public sector workforce are not comprehensive or not available.

LABLAC (Labor Database for Latin America and the Caribbean): Maintained by the Inter-American Development Bank (IDB), LABLAC compiles labor market indicators from national household surveys across Latin America and the Caribbean. It provides insights into employment trends, wage structures, and public-private sector differentials, facilitating comparative analysis within the region.

OECD Government at a Glance Series: Published by the Organization for Economic Co-operation and Development (OECD), this series presents comparative data on public administration, including government employment and wages. It offers insights into workforce composition, compensation levels, and employment trends across OECD member and some non-member countries, aiding evidence-based policymaking.

Annex 2: STATA code for estimating a structural wage bill model

Herrera and Olaberria (2019) estimate a fixed-effect model in which the logarithm of the government wage bill per capita in constant international dollars ($y_{i,j}$) depends on a set of structural independent variables ($x_{i,j}$). The set of independent variables include (1) logarithm of the GDP per capita, constant international dollars, (2) logarithm of population, (3) population density, people per sq. km of land area, (4) urban population, percent of total, (5) young age dependency ratio, percent of working-age population, (6) old age dependency ratio, percent of working-age population, (7) openness, percent of GDP. The fixed effects (u_i) absorb the time-invariant structural heterogeneity across countries, and the structural covariates capture the variation of expenditure explained by changes of structural factors over time. The residuals ($\varepsilon_{i,j}$), are the difference between the observed spending levels and the structural component and measure the magnitude of potential fiscal saving in the wage bill.

$$\ln(y_{i,j}) = Ax_{i,j} + u_i + \varepsilon_{i,j}$$

A detailed description of the estimation steps is presented in the *How-to-Note on Streamlining Budget Rigidities*. Below we present the STATA code to estimate the model and determine the potential fiscal saving:

```
clear
///***Import Panel Data - Please make sure that your data has columns of country id (i.e. isocode), year, and variables listed below before the command of panel data notification***///

import excel "C:\Users\..\..\panel_data.xlsx", sheet("Data") firstrow //**Please replace the file path and sheet name**//

///***Label variables***///
label variabe GGECE "General government expense: Compensation of employees, national currency"
label variabe NGDP "Gross domestic product, current prices in national currency"
label variabe GGX "General government total expenditure, national currency"
label variable gdpcapita_cons_ppp2017 "GDP per capita, constant international dollars"
label variable ggece_exp "Compensation of employees (% of total expenditure)"


//**Generate variables**//
gen ln_ggece_cons = log((GGECE/NGDP)*gdpcapita_cons_ppp2017)

//**Label variables used in estimation equations**//
label variable ISO "isocode"
label variable year "year"
label variable ln_GDP_per "log of the GDP per capita, constant international dollars"
label variable ln_ggece_cons "log of compensation of employees per capita, constant"
label variable Labor_participation "Labor force participation rate, percent of total population age 15+"
label variable Old_age_dependency_ratio "Old age dependency ratio, percentage of working-age population"
label variable Young_age_dependency_ratio "Young age dependency ratio, percent of working-age population"
```

```
label variable Urban_population "Urban population, percent of total"
label variable Openness "Openness, percent of GDP"

//***Panel Data Notification***//
egen code = group (ISO)
xtset code year

///***Regression***///
//**Regression for compensation of employees**//
reg ln_ggece_cons ln_GDP_per ln_pop Urban_population Young_age_dependency_ratio
Old_age_dependency_ratio Openness if year < 2022
outreg2 using "C:\Users\..\..\Regression_wages.xls", excel stats(coef se) addstat(Adj R-squared, e(r2_a),
F-stat, e(F)) dec(3) sideway replace ctitle(OLS) //**Please replace the file path with one you want to
export the estimation results to**//

reg ln_ggece_cons ln_GDP_per ln_pop Urban_population Young_age_dependency_ratio
Old_age_dependency_ratio Openness i.year if year < 2022
outreg2 using "C:\Users\..\..\Regression_wages.xls", excel stats(coef se) addstat(Adj R-squared, e(r2_a),
F-stat, e(F)) dec(3) sideway append ctitle(OLS) keep(ln_GDP_per ln_pop pop_density Urban_population
Young_age_dependency_ratio Old_age_dependency_ratio Openness) addtext(Year FE, YES)

xtreg ln_ggece_cons ln_GDP_per ln_pop Urban_population Young_age_dependency_ratio
Old_age_dependency_ratio Openness if year < 2022, fe
outreg2 using "C:\Users\..\..\Regression_wages.xls", excel stats(coef se) addstat(Adj R-squared, e(r2_a),
F-stat, e(F)) dec(3) sideway append ctitle(Fixed Effects) addtext(Country FE, YES) //**This is the main
result we look at**//

predict y_hat_fe_ggece if year < 2022, xbu
predict u_fe_ggece if year < 2022, e

/*Detect the outliers with IQR*/
histogram ln_ggece_cons, normal
egen IQR1_resid_ggece=iqr(u_fe_ggece)
gen IQR_fence_ggece = IQR1_resid_ggece*1.5
egen u_fe_25_ggece = pctile(u_fe_ggece), p(25)
egen u_fe_75_ggece = pctile(u_fe_ggece), p(75)
gen lower_fence_IQR_ggece =u_fe_25_ggece - IQR_fence_ggece
gen higher_fence_IQR_ggece = u_fe_75_ggece + IQR_fence_ggece

/*Subtract the residiauls from initial residuals if the minimum residiaul is negative to get efficiency
frontier*/
gen y_hat_ggece = y_hat_fe_ggece + lower_fence_IQR_ggece
gen ggece_structural_ratio = exp(y_hat_ggece-ln_ggece_cons)
replace ggece_structural_ratio = 1 if ggece_structural_ratio > 1 & ggece_structural_ratio !=.
egen avg_ggece_structural_ratio = mean(ggece_structural_ratio), by (ISO)
gen ggece_structural_GDP = ggece_structural_ratio*(GGECE/NGDP)
gen ggece_structural_exp = ggece_structural_GDP/(GGX/NGDP)
```

```
//**Fiscal Saving in compensation of employees**//
gen fs_ggece = (1-ggece_structural_ratio)*(GGECE/NGDP)*100


///***Label Varibales***///
//**Results**//

//*Wages*//
label variable y_hat_ggece "log of structural compensation of employees per capita, constant international dollars"
label variable ggece_structural_ratio "Structural compensation of employees (% of actual)"
label variable ggece_structural_GDP "Structural compensation of employees (% of GDP)"
label variable ggece_structural_exp "Structural compensation of employees (% of total exp)"
label fs_ggece "Potential fiscal saving in compensation of employees (% of GDP)"


///***Save the data***///
preserve
keep if year < 2022
export excel using "C:\Users\..\..\FS_pwage.xlsx", firstrow(varlabels) replace //**Please replace the file path  with one you want to export the data to**//
restore
```

Annex 3: Wage Bill Consolidation Measures - Lessons from International Experience

Public wage bill reforms have been undertaken in numerous countries, with varying degrees of success. Few have managed to significantly reduce their wage bills and maintain those reductions over a sustained period. The effectiveness of wage bill consolidation measures hinges on factors such as the country's context, the underlying motivation for the reform, institutional capacity, and stage of development. Quantifying the outcomes of these reforms proves challenging due to country-specific variables, including the model of public sector employment, mechanisms for wage setting, and the demographic profile of public employees. Economic conditions prior to and during the implementation of reforms can greatly influence their impact. For instance, while wage freezes may yield substantial savings in highly inflationary environments in the short term, prolonged freezes could result in significant wage increases once lifted. Furthermore, since wage bill reforms typically encompass a range of measures affecting both public sector salaries and employment levels, discerning the individual contribution of each measure is complex. Ireland stands out as a rare example of successful public wage bill reforms over the period of 2009-2013 resulting in sustained reduction of its wage bill from 12.2 percent of GDP in 2009 to 5.5 percent of GDP by 2022 (Box A1). Costa Rica is another example of the more recent wage bill consolidation following the launch of the comprehensive reform measures upon partial implementation of Costa Rica PFR (2019) recommendations - the country's wage bill went down from about 12.7 percent of GDP in 2014-17 to 8.3 percent of GDP in 2023 (Box A2).

Wage freeze: Wage freezes have emerged as a prevalent measure employed by nearly all countries during periods of fiscal consolidation. While offering immediate fiscal savings, wage freezes typically lack enduring efficacy unless complemented by medium-term structural reforms. The potential benefits of freezing nominal wages and wage scales depends on the magnitude of inflation. For instance, in the Netherlands, the wage-bill-to-GDP ratios diminished by less than 0.5 percentage points post-2010, owing to minimal inflation rates (Tamirisa and Duenwald (2017)). Conversely, countries with higher inflation rates stand to achieve greater potential gains from wage freezes. Nonetheless, completely halting public wage increases in highly inflationary settings may substantially diminish the purchasing power of public employees over time. Prolonged reliance on wage freezes might render public sector positions less appealing and erode morale among public workers. Additionally, wage freezes often precipitated nontransparent expansion in various supplements and allowances, further entrenching distortions in the remuneration systems. In several instances, countries—including Côte d'Ivoire, Jamaica, Moldova, Portugal, and Romania—partially or fully reversed the effects of wage freezes by rescinding these measures and reverting to previous practices.

Employment adjustments: Temporary restriction of public sector hiring can be an effective short-term measure and lead to significant reductions in the public wage bill. As part of fiscal consolidation efforts, Ireland implemented a moratorium on public sector recruitment alongside various incentivized retirement schemes. France implemented employment caps from 2006 onwards and instituted attrition targets, replacing only one of every two retiring civil servants between 2007 and 2012. Despite the phased implementation of these measures, many were later rescinded or reversed, resulting in the resurgence of wage bill growth. In Ghana, Kenya, Moldova, and South Africa, attrition rules were selectively applied in specific sectors.

Structural measures: Conducting a public employment census and establishing a comprehensive integrated payroll and human resources management information system (HRMIS) have proven pivotal in bolstering payroll oversight and transparency across many nations. In Honduras, for instance, the government undertook a public employment census to strengthen oversight and eliminate ghost workers, resulting in a notable decline of approximately 2.5 percentage points of GDP in the wage bill during the period spanning 2014 to 2015. Throughout sub-Saharan Africa, censuses have demonstrated effectiveness in uncovering ghost workers, with countries like Liberia, Kenya, and Nigeria utilizing biometric monitoring to identify such instances. In Liberia specifically, a payroll cleaning exercise focused on rebuilding employee records and implementing biometric identification led to the removal of 1,077 names from the payroll, resulting in annual savings of US$ 1.8 million in 2012 (World Bank (2022)-Liberia ICR). However, it is important to note that developing and introducing a centralized human resource management and payroll system to replace non-automated manual approaches to keeping employment and payroll records may take 5 or more years depending on the institutional capacity of the government.

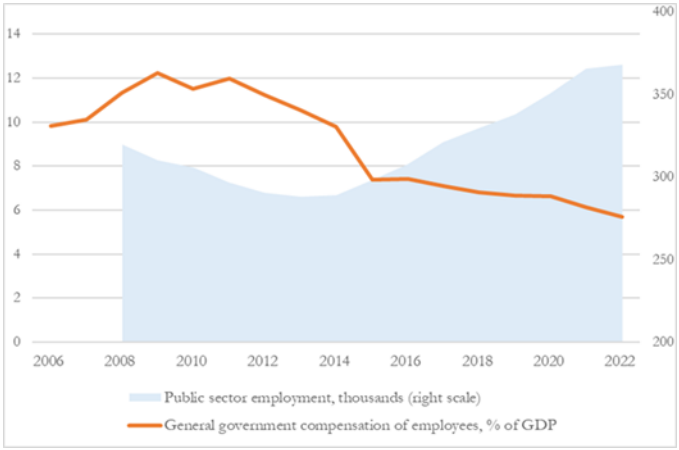
To enhance oversight of the wage bill and establish competitive, equitable, and transparent remuneration systems, many countries have undertaken reforms of government salary systems. Often, these structural measures are integral components of broader public administration reforms (for instance, among countries in Eastern and Southern Europe on their path to EU integration). Examples of remuneration restructuring include Ghana, Honduras, Romania, and Zambia, where reforms concentrated on consolidating allowances and bonuses into base pay and aligning various professional categories and sectors with a unified base pay structure. The implementation of such reforms typically proceeds gradually and necessitates sufficient institutional capacity (this may entail additional wage costs to create reform units within the government). In 2022 the government of Croatia with technical assistance of the World Bank initiated public sector remuneration system aiming at transparency, fairness and fiscal sustainability. The new public salary system has been launched in mid-2024 and its fiscal cost was estimated at around 2 percent of GDP. However, in some instances, such as in South Africa and Romania, reforms targeting compensation structures failed to yield anticipated reductions in wage pressures.

Social dialogue: Achieving substantial and enduring reductions in the wage bill calls for broad public support and engaging with social partners (public employees, unions). Notably, the disparity in the reduction of the public wage bill as a proportion of potential GDP between episodes characterized by extensive social dialogue and those lacking such engagement can be approximately 0.5 percent of GDP after a five-year period. Over a span of seven to ten years, this discrepancy may widen to encompass as much as 1 percent of GDP or more (Forni and Novta (2014). Good example of successful social dialogue is Canada's comprehensive review of federal spending following measures aimed at constraining the wage bill in the early 1990s, fostering lasting structural changes in government operations. Portugal and Ireland also undertook efforts to communicate wage bill reform objectives and to make the decision-making processes transparent and inclusive.

Box A1. Ireland's experience with public sector wage bill reform

Ireland's public sector remuneration reforms aimed to address fiscal challenges and improve efficiency in the public service. From its peak in 2009 when public wage bill reached 12.2 percent of GDP, the government of Ireland managed to reduce its general government wage bill to 7.4 percent by 2015 and further to 5.7 percent of GDP by 2022. It took a mix of employment, remuneration and structural measures to achieve fiscally sustainable results while preserving the scope of public services provided to its citizens.

Figure A1. Ireland: public sector wage bill and employment, 2006-2022



Source: IPA Public Sector Trends 2022

Some key aspects of these reforms include:

- **Pay Cuts:** Following the economic downturn, the Irish government implemented pay cuts for public sector workers as part of austerity measures to reduce public spending. In 2009 on average 13 percent cut was introduced and affected various levels of public sector employees.
- **Employment levels adjustment:** Through various measures (hiring freeze, early retirement, attrition, voluntary redundancy schemes, government agencies consolidation) the government of Ireland reduced the number of public sector employees by about 15 percent in 2009-2013. By 2022 the employment levels have returned to the pre-crisis 2008 levels, but the sectoral composition of public employment has changed (number of employees grew the most in education and healthcare sector, while defense and local authorities' units kept relatively stable number of employees after crisis-driven cutbacks)
- **Public Sector Pension Reform:** Changes to public sector pensions were introduced to make them more sustainable and cost-effective. This often involved increasing the retirement age, adjusting contribution rates, and reforming pension calculation methods.
- **Negotiations with Unions:** The government engaged in negotiations with public sector unions to implement these reforms. This involved discussions on pay cuts, pension changes, and other measures aimed at reducing costs while maintaining essential public services.
- **Performance-Based Pay:** There have been discussions about introducing performance-based pay in the public sector to reward efficiency and productivity. However, the implementation of such measures may vary across different sectors and departments.
- **Public Service Modernization:** Alongside remuneration reforms, Ireland has also focused on modernizing its public service through digitalization, process improvements, and organizational restructuring to deliver better services with fewer resources.

Ireland's public sector remuneration reforms offer valuable insights, yet the applicability of lessons from this experience to other countries depends on their specific contexts: economic conditions, institutional frameworks, and political considerations.

Source: based on IMF (2016), IPA (2022), IPA(2018)

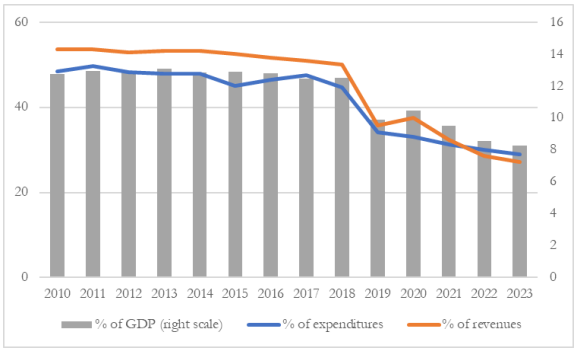
Box A2. Costa Rica's public employment and remuneration reform of 2019: preliminary results

Comprehensive diagnostic assessment of the public wage bill presented in the Costa Rica PFR (2019) revealed the major weaknesses in the public employment and remuneration framework in Costa Rica and recommended a set

of short-term and structural policy measures to strengthen efficiency and equity of public employment and pay system to facilitate wage bill consolidation.

Costa Rica's public sector wage bill was high compared to international benchmarks and stood out relative to the size of the government relative to its regional and structural peers. At around 12.7 percent of GDP on average between 2014 and 2017, the public sector wage bill in Costa Rica was among the highest in Central and South America. When compared to available revenues, expenditures on employees' compensation accounted for over 42 percent of general government revenues and over 45 percent of the general government expenditures on average between 2014 and 2017. Benchmarking analysis showed that Costa Rica's public sector employment was high relative to the government size and its regional peers (9 percent of the total employment) and a comparison with the private sector revealed high public wage premiums (around 46 percent after controlling for observable characteristics).

Figure A2. Costa Rica's public wage bill, 2010-2023



Source: IMF GFS

A wage bill analysis concluded that both high public wages and employment were driving public wage bill growth and contributed to the increasing fiscal imbalances in Costa Rica. This called for a comprehensive fiscal consolidation reform, launched by enactment of Ley de Fortalecimiento de las Finanzas Publicas (Law No. 9635) in December 2018 and Ley Marco de Empleo Publico (Law No. 10159) in March 2022 (with 12 months transition period until coming into force). Along with tax measures, the law included a number of provisions modifying the public compensation schemes and public employment regimes. The reform measures introduced by legislative amendments in 2109-2022 in many aspects aligned with the recommendations provided by the PFR and were part of structural benchmarks under the IMF EFF program.

Summary of reform measures adopted by the government is as follows:

- Freeze in base salaries and annuities (for existing workers whose salaries fall above the new pay scale)
- Hiring freeze and elimination of public sector vacancies
- Modifying design of allowances and supplements (converting incentive payments from percentages of base salary into the fixed nominal terms (as of January 2018); capping exclusive dedication supplement, introducing performance-based pay elements; suspending overtime pay)
- Limiting severance payments to 8 years after employee departure
- Freezing in pensions of public sector employees, linking pension indexation to inflation
- Streamlining public pay system (development and gradual introduction of a single salary scale to specific jobs in the central government)
- Reducing fragmentation of labor regimes
- Improving public sector HRM system to improve wage bill planning and control.

Gradual introduction of the structural changes to the public employment and salary framework provided the opportunity for government of Costa Rica to communicate the reform measures to the public and for the government agencies to get prepared to the changes. The implementation of the public employment law

provisions took longer than expected due to fragmentation of the public salary system and technical difficulties. While the reform is still ongoing, the short-term measures together with the structural reforms in the sector brought the general government public wage bill down to 8.3 percent of GDP in 2023 (IMF GFS).

Sources: Costa Rica PFR (2019), IMF (2023), Alchoy Sanchez (2019)