

# Evaluating Government Employment and Compensation

Benedict Clements, Sanjeev Gupta, Izabela Karpowicz,  
and Shamsuddin Tareq

*Fiscal Affairs Department*

INTERNATIONAL MONETARY FUND

Fiscal Affairs Department

**Evaluating Government Employment  
and Compensation**

Prepared by: Benedict Clements, Sanjeev Gupta, Izabela Karpowicz, and Shamsuddin Tareq

September 2010

DISCLAIMER: This Technical Guidance Note should not be reported as representing the views of the IMF. The views expressed in this Note are those of the authors and do not necessarily represent those of the IMF or IMF policy.

JEL Classification Numbers:	H0, H11, J38
Keywords:	public sector, employment, wages, compensation, civil service
Author's E-Mail Addresses:	bclements@imf.org; sgupta@imf.org; ikarpowicz@imf.org; stareq@imf.org

# TECHNICAL NOTES AND MANUALS

## Evaluating Government Employment and Compensation

Benedict Clements, Sanjeev Gupta, Izabela Karpowicz, and Shamsuddin Tareq

This note provides criteria for evaluating government employment and compensation and options for reform. The first section discusses the various quantitative indicators that can be used for country analysis and provides an assessment of differences across regions and country groups. The second section addresses short- and medium-term options for reform and country experiences. Data tables, which can be useful for comparative analysis, are provided in an appendix. The note underscores that technical analysis of employment and compensation issues must be accompanied by judgment to weigh the trade-offs between competing objectives. As such, a case-by-case approach is needed.

### I. Suggested Indicators

A range of indicators, rather than a single benchmark, should be used for analyzing compensation and employment in government.<sup>1</sup> Indicators can be grouped into three categories: (i) compensation of employees (the wage bill), (ii) government employment, and (iii) wage levels (Box 1).

#### A. Government Compensation of Employees

The following criteria are useful for evaluating compensation of employees:

- **Government compensation as a share of GDP and as a share of total government spending.** It is often useful to compare government compensation of employees as a share of GDP and total government outlays with regional averages and with countries at similar levels of development. There are distinctive patterns across country groups (Table 1). For example, as a share of GDP, general government compensation of employees is highest in Europe (10 percent of GDP) and lowest in Asia and the Pacific (6½ percent of GDP). The wage bill tends to be a higher ratio of GDP in high- and middle- income countries than in low-income countries. Fragile states tend to have a higher ratio than other low-income countries. The share of total spending absorbed by compensation of employees ranges from a fourth of general government outlays (Europe, Asia and the Pacific) to a third (Africa, Middle

<sup>1</sup> World Bank and IMF (2002).

## Box 1. Indicators

### Compensation of employees

- Compensation of employees as a share of GDP
- Compensation of employees as a share of total spending
- Compensation of employees as a share of domestic revenue
- Compensation of employees compared to spending on non-wage outlays

### Employment

- Government employment as a percentage of private sector employment
- Government employment as a percentage of total employment
- Government employment as a percentage of the population

### Wage level

- Average government wages as a share of comparator private sector wages
- Average government wage as a share of GDP per capita
- Ratio of the highest government wage to the lowest (compression ratio)

East and Central Asia, and the Western Hemisphere). There are also variations in spending across levels of government, reflecting differing degrees of fiscal decentralization. In Europe, for example, the central government accounts for just over half of total general government spending on compensation.

- **Government compensation of employees as a share of domestic revenues.** This indicator points to the sustainability of wage outlays in the absence of donor assistance.<sup>2</sup> On occasion, donors provide assistance for expanding government employment, especially in priority sectors. But these inflows can be volatile and domestic resources may be needed to sustain higher spending on wages going forward.<sup>3</sup> In these circumstances, it may be appropriate to rely on temporary workers or private sector outsourcing to preserve spending flexibility.<sup>4</sup> The ratio of central government compensation of employees to domestic revenues is slightly higher in low-income countries than in middle-income countries (Table 1). Across regions, the ratio is highest in Africa and the Western Hemisphere, at about 30 percent of central government revenues.<sup>5</sup>

<sup>2</sup> For example, in the West African Economic and Monetary Union (WAEMU), compensation of employees is constrained to be less than 35 percent of tax receipts as part of the Convergence, Stability, Growth, and Solidarity Pact adopted by WAEMU governments in 1999. While the CEMAC union does not have an explicit rule, in the 2008 evaluation of the progress towards convergence the Commission used, as secondary surveillance criteria, an indicator limiting growth of the wage bill to growth of revenues. See <http://www.banque-france.fr/fr/eurosys/zonefr/page9.htm>.

<sup>3</sup> Buli and Hamann (2007).

<sup>4</sup> Gupta and others (2008).

<sup>5</sup> High compensation-to-revenue ratios in some low-income countries may also reflect a weak revenue effort.

- **Government compensation of employees in relation to non-wage outlays.** The efficiency of spending depends on the input mix (i.e., wage vs. non-wage costs). Even if spending for wages is low, it must be assessed relative to outlays on other inputs, such as books, drugs, and other operations and maintenance outlays. Between 2001 and 2008, the average compensation of employees in education and health constituted, respectively, 70 percent and 50 percent of total sectoral spending in a sample of about 55–70 countries (Table 2). These ratios were relatively stable across regions and income groups and across time. The lower share of employee compensation in health expenditures owes to the typically higher operations and maintenance outlays of this sector (e.g., for pharmaceuticals). Information on employee compensation, as a share of total sectoral outlays, can often be found in World Bank Public Expenditure Reviews.

### ***Issues in assessing government expenditures on employee compensation***

- **Compensation not captured in wages and salaries.** Non-monetary benefits, such as travel, housing, and other allowances, may be classified as spending under other goods and services. Misclassification can occur when payments to government employees for public investment projects—particularly those financed by donors—are recorded under capital spending. This can result in an understatement of spending on employee compensation. In addition, when consultants play a key role in public sector service provision, either directly or as managers of government contracts, spending on compensation can be underestimated. Furthermore, some countries may classify outlays for temporary workers under use of goods and services.
- **Payment of wages to fictitious workers.** In some cases, average wages may be higher than what is implied by wage and employment data due to the payment of wages to fictitious workers and/or absenteeism.<sup>6</sup>
- **Exclusion of autonomous entities that perform core government functions.** The operations of these entities are typically supported by central government transfers. Examples include revenue authorities, debt management agencies, education boards, and health insurance providers.

## **B. Government Employment**

The following indicators provide a useful starting point for country analysis:

- **Government employment as a percentage of total and private employment.** These indicators give an assessment of the size of government employment relative to the private sector.

<sup>6</sup> Randomized surveys in developing countries have detected large absenteeism rates among teachers and health workers. For example, in a study covering 6 countries, the rate of absenteeism was about 19 percent of teachers and 35 percent of health workers (Banerjee, 2005; Chaudury and others, 2006).

- **Government employment as a percentage of total population.** This ratio can be helpful in assessing whether employment is adequate (or excessively generous) relative to what is needed to provide essential services to the population. Cross-country data on this indicator is more readily available than other employment indicators.

Table 3 shows that government employment ratios are highest in Europe and, in general, in high-income countries as a percentage of the population, while in Africa government employment is lowest. This differences hold across all levels of government. High-income countries in general tend to have a larger number of employees, with considerably higher employment at the sub-national level, which is influenced by employment in the education and health sectors.

### ***Issues in assessing employment***

- **The size and scope of government.** Employment is affected by government size (as measured by the ratio of government spending or value added to-GDP) and the scope of government activity (as measured by the government's role in the production of goods and services across sectors and regulation of private sector activity).<sup>7</sup> In some cases governments may have extended the scope of the public sector beyond a level that is affordable and sustainable. In others, the public sector may be crowding out private sector provision that could be more efficient.
- **Health and education.** These sectors typically employ a large share of the government labor force. Indicators such as student-teacher ratios, or the number of health workers per thousand population, may be useful in assessing staffing levels in these sectors. World Bank Public Expenditure Reviews and sectoral reports often include information on the distribution of employment by category of employee in the social sectors. In general, the education sector employs more people as a share of population than the health sector. This is true across all regions except Europe (Table 3). High-income countries have a larger share of population employed in these two sectors (4½ percent) than low-income countries (1½ percent).
- **Employment guarantees.** Governments may have policies guaranteeing employment for university graduates or graduates of teachers' colleges that foreshadow employment increases.

---

<sup>7</sup> The size and scope of government may be influenced by: trade openness and the degree of integration in the world economy; demographics; preferences and the heterogeneity of the population; and the structure of government (Gupta et al., 2003; OECD, 2007). Ethnic, religious, and racial fragmentation tends to increase demand for public spending (Alesina and others, 2004; Lind, 2003). Reliance on grants and transfers from higher levels of government to finance sub-national governments are also associated with larger governments (de Mello, 2000).

## C. Government Wages

Useful indicators for evaluating government wages are the following:

- **Average government wages as a share of comparator private sector wages.** Appropriate private sector wage comparators are generally difficult to obtain in developing countries. Accurate comparisons must take into account all aspects of compensation, including in-kind and non-monetary benefits and deferred compensation (e.g., pensions or disability and survivor benefits). In addition, the public sector often provides greater job security. If these non-monetary benefits are extensive, the government does not necessarily need to offer salaries that are on par with the private sector in order to retain high-quality employees. In practice, government wages are not always lower for comparable workers. Recent studies suggest that differentials are negligible in Indonesia, France and the United Kingdom; favor lower level employees in Greece; and are large and favor public sector employees in India.<sup>8</sup>
- **Average wage as a share of GDP per capita.** The relationship between the average government wage and GDP per capita measures the condition of an average government employee in relation to living standards and provides an indicator of whether wages are high.<sup>9</sup> As noted above, this measure fails to capture the in-kind and intangible benefits provided to government employees.
- **Compression ratios.** The compression ratio is defined as the ratio of the highest salary to the lowest on the government's main salary scale.<sup>10</sup> It is a useful indicator of the adequacy of pay. Low ratios suggest that highly skilled workers are underpaid, while unskilled workers are overpaid. Low compression ratios are associated with corruption.<sup>11</sup>

### *Issues in evaluating wage levels*

- **Differences in human capital.** Simple comparisons of average wages in the public and private sector do not adequately control for differences in the level of human capital and other characteristics. A more systematic approach can help evaluate whether public sector workers with similar levels of human capital (as measured, for example, by educational attainment levels) have higher or lower wages than

---

<sup>8</sup> Bargain and Melly (2008); Disney and Gosling (2008); Filmer and Lindauer (2001); Glinskaya and Lokshin (2005); and Papapetrou (2006).

<sup>9</sup> The underestimation of nominal GDP in some low-income countries (reflecting weak real sector statistics) may lead to an overstatement of compensation-to-GDP ratios.

<sup>10</sup> An alternative indicator, developed by the OECD, measures wage compression as the mean of salaries in the ninth decile divided by the mean of salaries in the first decile. This approach ensures that a handful of salaries do not dramatically skew the compression ratio (OECD, 2007).

<sup>11</sup> Abed and Gupta (2002); Van Rijckeghem and Weder (2001).

comparable private sector workers. In cases where the public sector is the dominant employer, measures of excess demand, or excess supply of workers at a certain pay grade, would be needed.<sup>12</sup>

- **Wage drift.** When careers are characterized by a system of automatic progression, average wage levels can rise as the public sector workforce becomes more experienced. Under these circumstances, the compensation of employees can increase even in the absence of wage and employment increases. This ‘wage drift’ effect can be large and sometimes higher than the GDP growth rate.<sup>13</sup>
- **Effects of indexation.** Government wage levels may be high and inflexible if the government indexes wages. Only a few governments continue to formally link wage increases to changes in consumer prices and/or economy-wide measures of economic activity. Indexation can also complicate macroeconomic management. The indexation of wages in Bosnia and Herzegovina over the past two years, for example, has contributed to inflationary pressures and jeopardized fiscal sustainability.

## II. Options for Rationalizing Government Employment and Wages

High quality reforms of public sector employment and wages are difficult to implement in a short period of time. However, in periods of severe fiscal pressure, governments may still need to resort to short-term measures to contain employee compensation. These short-term measures should be replaced over time with more sustainable reforms.

### A. Short-Term Options

- **Temporary freeze on wages.** This may include an overall or selective nominal freeze of wage levels for a limited period of time.<sup>14</sup> Assuming unchanged employment levels, this should result in a reduction in the compensation of employees, relative to GDP, as the economy expands in nominal terms. In countries where public wages exceed those in the private sector—adjusted for differences in human capital—a wage freeze can help reduce these disparities. However, a wage freeze may be offset by other policies that compensate for or circumvent it, especially over an extended period. For example, in Benin, the impact of the wage freeze on the government wage bill in 1988 was partly offset through an increase in promotions

---

<sup>12</sup> These include data on job applications per vacancy and retention rates. For more details, see <http://go.worldbank.org/VRU48ZXYE0>.

<sup>13</sup> Pereira and Pereira (2006) estimate that the wage drift for university professors in Portugal was 2.6 percent per year.

<sup>14</sup> In the past, some IMF-supported programs have included a ceiling on the government compensation of employees as a temporary device, in cases where the loss of control over payrolls threatened macroeconomic stability. Under the Fund policy implemented in 2007, ceilings on the wage bill are to be used only in exceptional cases. As of July 2010, there were no such ceilings as performance criteria in any IMF-supported program.



in the 1990s. In Botswana, in spite of the freeze, the wage bill has increased since 2008/09, reflecting the normal “wage creep” that occurs as civil servants move to higher pay scales after meeting time-in-grade requirements. While politically difficult, some countries have also resorted to nominal wage cuts when fiscal sustainability or the exchange rate anchor was in jeopardy, mostly in the midst of severe crises. Examples in 2009 include Bosnia and Herzegovina, Ireland, Latvia, Lithuania, and, in 2010, Spain. However, in Bosnia and Herzegovina, the courts ruled that wage cuts were illegal due to pre-existing contractual agreements with trade unions and had to be cancelled.

- **Streamlining bonuses and allowances.** Tightening eligibility and reducing the number and size of allowances can not only achieve fiscal savings, but can also increase the transparency of remuneration.<sup>15</sup> Similarly, control of overtime can be achieved by substituting monetary compensation with leave time or by suspending the premium on the hourly wage. Some countries are also aiming to achieve savings by reducing the “13<sup>th</sup> salary” that is prevalent in a number of countries.<sup>16</sup> For example, Hungary eliminated the 13<sup>th</sup> salary in late 2009. In early 2010, Greece eliminated the 13<sup>th</sup> and 14<sup>th</sup> salaries and replaced them with a fixed (lower) bonus payment, while also cutting allowances across the board by 10 percent.
- **Partial or selected hiring freeze.** Natural attrition, when combined with a hiring freeze in selected non-priority areas, can help reduce the compensation of employees.<sup>17</sup> One advantage of this approach is that it avoids the short-run fiscal pressures associated with lay-offs and severance payments. Bosnia and Herzegovina, Greece, Romania, and some other countries have frozen government employment during the recent financial crisis. It is important to note, however, that this measure should be applied for a limited time only. An extended hiring freeze could lead to a distorted age structure in the civil service. For example, in Benin, the civil service has faced a very dramatic increase in the number of staff retiring, creating challenges for service delivery. While politically more difficult, some governments have gone further and dismissed employees (Latvia and Lithuania). As in the case of wage cuts, there may be complex legal issues involved in reducing employment. In some instances, the judiciary has reversed or ordered compensation for dismissed employees.

---

<sup>15</sup> A number of countries have multiple bonuses and allowances for meals, transportation, and education.

<sup>16</sup> For instance, in Georgia, Japan, and most countries in Latin America, public sector employees receive 13 or more “monthly” salaries per year.

<sup>17</sup> Employment freezes in education and health sectors should be handled with caution. In these sectors, it is useful to make international comparisons of student/teacher ratios, health workers per thousand population, and hospital occupancy rates to help assess whether or not there is scope to include these sectors in the employment freeze. Improvements in the efficiency of spending can help ensure that public services do not decline in these sectors, despite staffing reductions.

- **Temporary layoffs.** This has been recently used in some states in the US. In Ireland and some other countries, governments are also offering extended sabbatical leave at reduced pay, or on an unpaid basis.
- **Accelerated early retirement.** This option should be assessed carefully, as overly generous retirement packages can result in high fiscal burdens in the future. In the short term, the savings from these options may be very modest if there is a need for upfront payment of severance benefits.

## B. Medium-Term Reforms

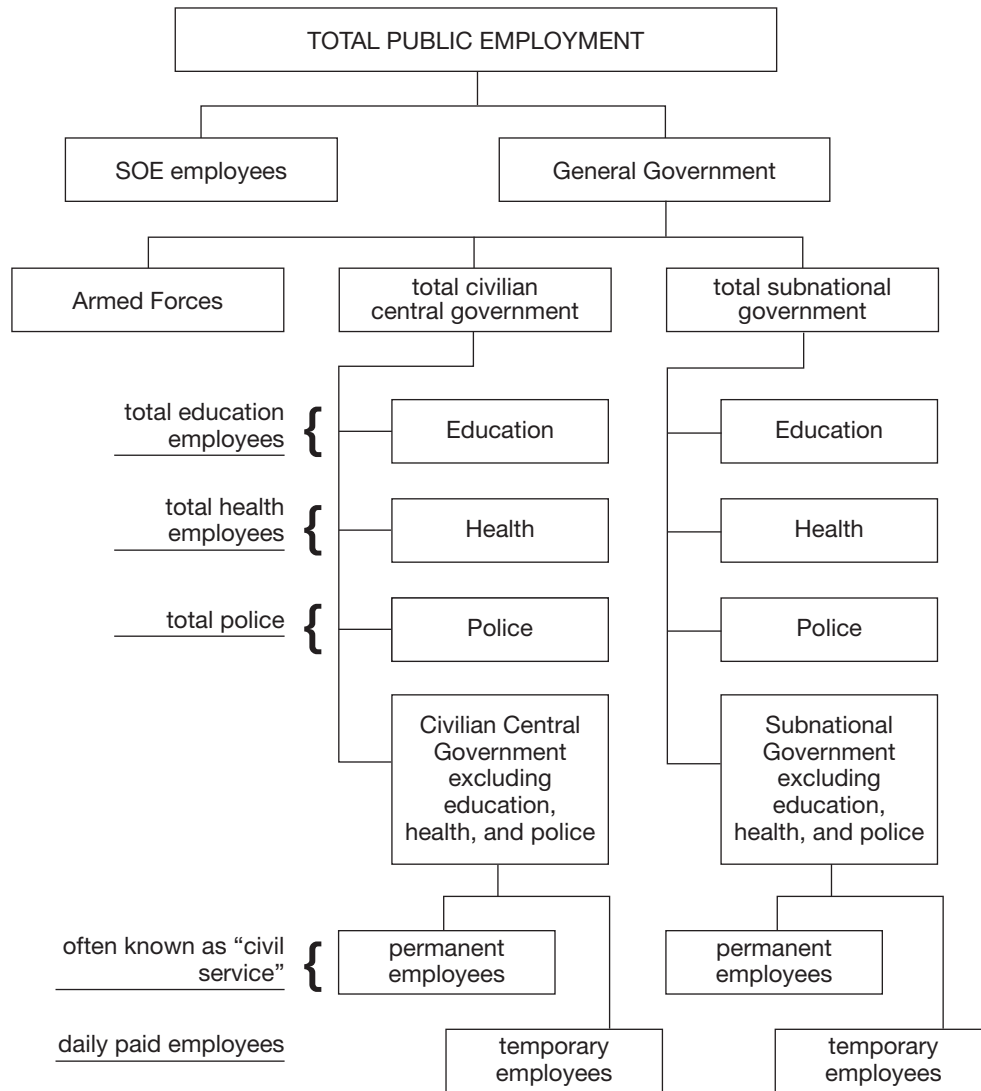
- **Rationalizing the size and structure of government.** A review of employment may need to go hand-in-hand with expenditure reviews that examine the role of government and the cost effectiveness of different policy interventions. Functional reviews of government departments can also help identify areas of duplication and overlap.<sup>18</sup>
- **Tightening the link between pay and performance.** Linking pay increases to performance provides incentives to workers for improving efficiency and productivity. In such cases, reconsideration of career advancement rules might be necessary and should be tailored to decompress the pay scale.
- **Strengthening payroll systems.** High wage bills have often been linked to weak payroll controls. Public financial management (PFM) reforms that strengthen such systems would enable more effective expenditure control, including through the elimination of fictitious workers.
- **Outsourcing of non-core functions.** An alternative to direct provision of public services by the government is to outsource these to the private sector. Noncore functions such as transport, mail, cleaning, catering, and maintenance are potential candidates for outsourcing. The success of outsourcing has varied. For instance, in the United Kingdom, savings from outsourcing ranged between 20 to 30 percent. However, in Grenada savings were negligible and the quality of service varied.<sup>19</sup>

<sup>18</sup> Additional details on the content of functional reviews are available at <http://go.worldbank.org/LCFM2RV5E0>. Selected studies on efficient downsizing of the public sector are available at <http://go.worldbank.org/ODUT9SRX10>.

<sup>19</sup> World Bank (2004).

### III. Appendix

**Figure 1: The Main Components of Government Employment**



Source: <http://go.worldbank.org/Z08HU4GCI0>.

**TABLE 1. GOVERNMENT COMPENSATION OF EMPLOYEES<sup>1</sup>**

Country Groups	Central Government				General Government			
	Sample Size	% of GDP	% of government expenditures	% of government revenues	Sample Size	% of GDP	% of government expenditures	% of government revenues
Africa	41	6.5	30.4	29.5	9	9.8	33.4	30.7
Asia and Pacific	18	5.1	26.2	23.1	11	6.6	27.5	22.9
Europe	41	5.7	17.4	17.5	40	10.2	26.5	25.4
Western Hemisphere	24	8.2	31.0	29.6	15	9.2	36.0	33.2
Middle East and Central Asia	19	7.1	28.9	24.8	11	8.3	32.8	26.4
European Union	27	5.2	15.9	16.3	27	9.9	25.4	25.3
Low-Income Countries	39	5.2	28.6	27.9	6	7.0	25.8	26.8
Middle-Income Countries	68	7.3	27.6	26.0	44	8.7	31.8	28.2
High-Income Countries	36	6.1	20.4	18.6	36	10.4	28.0	25.9

Sources: Government Finance Statistics database (IMF), and IMF staff estimates.

<sup>1</sup>General government, consolidated central government, or budgetary central government, annual averages for 2000–08 depending on availability.

**TABLE 2. HEALTH AND EDUCATION SECTOR WAGE BILLS, 2001-08<sup>1</sup>**  
*(Percent of sectoral expenditures)*

Country Groups	Education		Health	
	Sample size	Wage bill	Sample size	Wage bill
Africa	10	66.7	13	40.6
Asia and Pacific	8	64.7	4	45.1
Europe	40	65.2	26	43.5
Western Hemisphere	8	75.2	7	64.6
Middle East and Central Asia	6	76.1	6	55.5
Low-income	13	69.2	17	45.6
<i>of which: Fragile States</i>	7	65.6	8	42.9
Middle-income	25	73.8	22	52.1
High-income	34	61.4	22	43.5
<i>Memorandum item:</i>				
Median	72	65.6	56	42.8

Sources: Public Expenditure Reviews, The World Bank; Eurostat for EU member states; OECD Stat for non-EU OECD countries and Israel.

<sup>1</sup>Average of annual observations, depending on data availability.

**TABLE 3. PUBLIC SECTOR EMPLOYMENT<sup>1</sup>***(Percent of population)*

	<b>Sample Size<sup>2</sup></b>	<b>Public Sector</b>	<b>General Government</b>	<b>Central Government</b>	<b>Subnational Governments</b>	<b>Education</b>	<b>Health</b>	<b>Armed Forces</b>	<b>Public Enterprises</b>
Africa	12	3.9	3.8	1.9	1.3	1.0	0.9	0.4	1.5
Asia and Pacific	22	4.4	4.2	2.7	1.4	1.1	0.7	0.9	0.6
Europe	41	10.5	7.7	3.6	4.5	2.4	2.5	0.8	3.6
Western Hemisphere	26	6.8	5.3	1.4	2.6	1.8	0.8	0.4	4.1
Middle East and Central Asia	14	6.3	4.6	2.7	5.2	2.0	0.8	1.1	3.6
European Union	27	10.0	7.9	3.4	4.7	2.6	2.3	0.6	2.8
Low-income countries	15	4.0	1.1	0.4	0.9	0.8	0.6	0.4	8.1
Middle-income countries	56	6.8	5.3	2.4	2.7	2.1	1.1	0.7	3.7
High-income countries	44	9.2	7.9	3.6	4.7	2.1	2.4	0.8	1.9

Sources: LABORSTA database (ILO); The Military Balance (International Institute for Strategic Studies).

<sup>1</sup>Annual averages for the 2000–08 period.<sup>2</sup>Sample size varies with variable.

**TABLE 4. PUBLIC SECTOR WAGES<sup>1</sup>**

	<b>Number of countries</b>	<b>Ratio of average public administration wage to per capita GDP</b>	<b>Ratio of public sector to financial sector wages<sup>2</sup></b>	<b>Ratio of public sector to manufacturing wages</b>
Africa	3	1.3	0.7	1.8
Asia and Pacific	7	1.4	0.9	1.4
Europe	28	1.4	0.7	1.3
Western Hemisphere	11	1.4	0.8	1.3
Middle East and Central Asia	8	1.2	0.5	1.3
European Union	17	1.3	0.7	1.3
Low-income countries	4	1.9	0.7	1.4
Middle-income countries	35	1.4	0.6	1.4
High-income countries	18	1.2	0.8	1.3

Sources: LABORSTA database (ILO); WEO (IMF).

<sup>1</sup>Annual averages for the 2000–08 period. Public sector wages include public administration, defense and compulsory social security.

<sup>2</sup>Financial sector includes financial intermediation, insurance and pension funding, except compulsory social security; and activities auxiliary to financial intermediation.

## References

- Abed, G., and S. Gupta, 2002, *Governance, Corruption & Economic Performance* (Washington: International Monetary Fund).
- Alesina, A., B. Reza, and C. Hoxby, 2004, "Political Jurisdiction in Heterogeneous Communities," *Journal of Political Economy*, Vol. 112, No. 2.
- Bargain, O., and B. Melly, 2008, "Public Sector Pay Gap in France: New Evidence Using Panel Data," Discussion Paper No. 3427 (Bonn: Institute for the Study of Labor (IZA)).
- Banerjee, A., and E. Duflo, 2005, "Addressing Absence," BREAD, Dept. of Economics, MIT Dept. of Economics (Cambridge: MIT Press).
- Buli, A., and A. J. Hamann, 2007, "Volatility of Development Aid: An Update," *IMF Staff Papers*, Vol. 54, No. 4, pp. 727–34.
- Calvo, E., and J. B. Williamson, 2008, "Old-age Pension Reform and Modernization Pathways: Lessons for China from Latin America," *Journal of Aging Studies*, Vol. 22, Issue 1, January 2008, pp. 74–87.
- Center for Global Development, 2007, *Does the IMF Constrain Health Spending in Poor Countries: Evidence and an Agenda for Action*, Report of the Working Group on IMF Programs and Health Spending, Center for Global Development (Washington).
- Chaudhury, N., and others, 2006, "Missing in Action: Teacher and Health Worker Absence in Developing Countries," *Journal of Economic Perspectives*, Vol. 20, No. 1.
- de Mello, L. R., 2000, "Fiscal Decentralization and Intergovernmental Fiscal Relations: A Cross-country Analysis," *World Development*, Vol. 28, pp. 365–80.
- Disney, R., and A. Gosling, 2008, "Changing Public Sector Wage Differentials in the UK," The Institute for Fiscal Studies, Working Paper 08/02 (London).
- Fedelino, A., G. Schwartz, and M. Verhoeven, 2006, "Aid Scaling Up: Do Wage Bill Ceilings Stand in the Way?" IMF Working Paper 06/106, (Washington: International Monetary Fund).
- Filmer, D., and D.L. Lindauer, 2001, "Does Indonesia Have a "Low Pay" Civil Service?" Policy Research Working Paper No. 2621 (Washington: The World Bank).
- Gillingham, R., and D. Kanda, 2001, "Pension Reform in India," IMF Working Paper 01/125, (Washington: International Monetary Fund).
- Glinskaya, E., and M. Lokshin, 2005, "Wage Differentials Between the Public and Private Sector in India," Policy Research Working Paper WPS 3574, (Washington: The World Bank).
- Gupta, S., G. Schwartz, S. Tareq, R. Allen, I. Adenauer, K. Fletcher, and D. Last, 2008, *Fiscal Management of Scaled-Up Aid* (Washington: International Monetary Fund).
- Gupta, S., L. Leruth, L. de Mello, and S. Chakravarti, 2003, "Transition Economies: How Appropriate is the Size and Scope of Government?" *Comparative Economic Studies*, Vol. 45, pp. 554–76.
- International Monetary Fund, 2010, "From Stimulus to Consolidation—Revenue and Expenditure Policies in Advanced and Emerging Economies," IMF Policy Paper, April. Available at [www.imf.org/external/np/pp/eng/2010/043010a.pdf](http://www.imf.org/external/np/pp/eng/2010/043010a.pdf).
- Izvorski, I., and S. Kakhonen, 2008, *Public Expenditure Policies in South East Europe*, (Washington: The World Bank).
- Loshkin, M., and B. Jovanovic, 2003, "Wage Differentials and State-Private Sector Employment Choice in the Federal Republic of Yugoslavia," World Bank Policy Research Working Paper 2959, (Washington: The World Bank).
- Organization for Economic Cooperation and Development, 2007, "Towards Better Measurement of Government," OECD Working Papers on Public Governance, 2007/1 (Paris: OECD Publishing).



- Papapetrou, E., 2006, "The Public-Private Sector Pay Differential in Greece," *Public Finance Review*, Vol. 34, No. 4, pp. 450–73.
- Pereira A., and M. Pereira, 2006, "Controlling the Public Wage Bill in Portugal: The Case of University Professors," Working Paper 36, Department of Economics (Williamsburg, Virginia: College of William and Mary).
- Skyt Nielsen, H., and M. Rosholm, 2001, "The Public-Private Sector Wage Gap in Zambia in the 1990s: A Quantile Regression Approach," *Empirical Economics*, Vol. 26, pp. 169–82.
- Tansel, A., 1999, "Public-Private Employment Choice, Wage Differentials and Gender in Turkey," Yale Economic Growth Center Discussion Paper No. 797 (Hartford, Connecticut: Yale University Press).
- Van Rijckeghem, C., and B. Weder, 2001, "Bureaucratic Corruption and the Rate of Temptation: Do Wages in the Civil Service Affect Corruption, and by How Much?" *Journal of Development Economics*, Vol. 65, pp. 307–31.
- Whitehouse. E., and others, 2009, "Two Decades of Pension Reform: What has been Achieved and What Remains to be Done?" *The Geneva Papers on Risk and Insurance—Issues and Practice*, *Palgrave Macmillan Journals*, Vol. 34, No. 4.
- Vuji I. M., K. Ohiri, and S. Sparkes, 2009, *Working in Health Financing and Managing the Public Sector Health Workforce*, (Washington: The World Bank).
- World Bank and IMF, 2002, *Civil Service Reform: Strengthening World Bank and IMF Collaboration* (Washington).
- World Bank, 2006, *Modeling Pay and Employment*, PREM Notes No. 105 (Washington).

## Databases

ILO

<http://laborsta.ilo.org/>

OECD

<http://stats.oecd.org/index.aspx?r=964704>

**TNM/10/15**

**International Monetary Fund**

**Fiscal Affairs Department**

700 19th Street NW

Washington, DC 20431

USA

Tel: 1-202-623-8554

Fax: 1-202-623-6073