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REPUBLIC OF MOZAMBIQUE

TECHNICAL ASSISTANCE REPORT — WAGE BILL AND CIVIL SERVICE REFORM

January 2023

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Disclaimer:
This report was prepared in 2017 and the Republic of Mozambique consented to its publication in 2023. The report is being published as it was written at the time.

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FISCAL AFFAIRS DEPARTMENT

REPUBLIC OF MOZAMBIQUE

WAGE BILL AND CIVIL SERVICE REFORM

Yuan Xiao, Chadi Abdallah, Christopher Bender and Raildy Martins

Technical Assistance Report | September 2017

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F I S C A L A F F A I R S D E P A R T M E N T

Republic of Mozambique
Wage Bill and Civil Service Reform

Yuan Xiao, Chadi Abdallah, Christopher Bender, and Raildy Martins

Technical Assistance Report

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CONTENTS

APPENDIX TABLES

PREFACE

In response to a request from the Minister of Economy and Finance, Mr. Adriano Maleiane, a technical assistance (TA) mission from the Fiscal Affairs Department (FAD) visited Maputo, Mozambique during the period June 15–26, 2017 to advise the authorities on options for rationalizing wage bill spending.

The mission was led by Mr. Yuan Xiao and comprised Mr. Chadi Abdallah (FAD Economist), Mr. Christopher Bender and Mrs. Raildy Martins (FAD Experts).

The mission met with officials of the Ministry of Economy and Finance (MEF), including Minister Mr. Maleiane, Vice Minister Ms. Lucas, and Permanent Secretary Mr. lambo. Within the MEF, the mission met with officials from the Planning and Budget Directorate, Public Accounting Directorate, National Treasury Directorate, and the IT Center. The mission also met with officials from the Ministry of State Administration and Civil Servants, National Statistics Institute, Ministry of Education, Ministry of Health, General Inspectorate of Finance, and Administrative Tribunal, as well as representatives from professional associations for public employees. The mission would like to express its gratitude for the close cooperation and fruitful collaboration provided by the authorities. The mission would also like to thank all the participants to the various meetings for their active and constructive participation.

EXECUTIVE SUMMARY

After two decades of sustained economic growth, Mozambique's economy was hit by commodity price shocks in 2014 and has yet to recover. External imbalances caused the value of the Meticais to depreciate, resulting in a critical loss of international currency reserves and distressed levels of public debt. Inflation spiked—peaking at 26 percent in November 2016—and GDP growth collapsed to 3.8 percent in 2016, down from an average of more than 7 percent over the previous decade. Substantial fiscal adjustment is now required to restore macroeconomic balance over the medium-term.

Containing public wage spending will be essential for fiscal consolidation. The central government wage bill has grown rapidly in recent years, from 8 percent of GDP in 2010 to 11.3 percent in 2016. The growth of the wage bill appears to have been driven by ad-hoc increases in basic salaries and other elements of compensation, a sizeable increase in employment, and weaknesses in public financial management (PFM). Overruns in wage spending occurred in 2016 and the first quarter of 2017.

In the absence of reform, wage spending is forecasted to rise, from 11.3 percent of GDP in 2016 to 12.0 percent by 2021. The level of the wage bill could be even higher than the mission's baseline projection if the economy suffers another external shock, real GDP fails to grow at the rate of 4.7 to 7.0 percent (as was assumed in the baseline), the government makes ad-hoc adjustments that result in average wages growing even faster than allowed under the existing wage rule, or public sector employment grows by more than the rate of overall population growth.

The mission's analysis suggests that wage levels, rather than employment, are the main reason Mozambique's wage bill is high relative to that of its peers. In comparison to a broad sample of low-income and developing countries, Mozambique's government employment lies only slight above the average, whereas its wage bill (11.3 percent of GDP in 2016) is substantially higher than the 6.6 percent median. Further, after accounting for socioeconomic characteristics, statistical analysis suggests that central government workers in Mozambique earn, on average, about 7 percent more than their private sector counterparts. This average, however, masks significant distributional differences; while most central government workers enjoy a sizeable wage premium, those with a university education earn less, on average, than their private sector counterparts.

In the short-term, the growth of wage spending can be contained using three crude measures that address wage levels or employment. Such measures, however, might be politically constrained, hard to target, or unsustainable—risking their reversal or leading to the degradation essential public services. Over the medium-term, wage spending is best controlled with compensation and hiring policies that reduce the need for containment. The driving goal of

wage bill reform, therefore, should be to use short-term measures—consistent with fiscal targets—that can later be complemented by structural reforms.

- ***Wages can be fixed at their current nominal values or allowed to rise at a rate less than the rate of inflation***. Increasing basic salaries in such a manner would generate meaningful short-term fiscal relief but could generate upward wage pressure if the real value of wages is too greatly degraded.

- ***Other elements of compensation can be reduced or eliminated*.** Allowances and other supplements can be streamlined, eliminating those not essential to retaining qualified staff. Overtime can gradually be curtailed through improved workforce planning. The 13th month benefit can be eliminated. Bonuses, while useful for motivating performance, are ultimately discretionary. Concerns about wage adequacy, compression, or disparities between public and private sector remuneration can be addressed through differential policies that treat certain categories of workers and or sectors differently.

- ***Employment can be reduced through attrition*.** Attrition, however, is constrained by the number of persons leaving public employment and can result in the loss of critical skills and deterioration in public services. Attrition-based policies should target non-essential personnel and exempt critical sectors, such as education and healthcare.

In the medium-term, cost containment measures should be complemented by sustainable structural reforms, the most important of which are:

- ***Structural pay reforms to align job-specific requirements with compensation*** and restore parity between public and private sector remuneration. The goal of structural pay reform is to identify the proper level of remuneration—to include basic salaries and other elements of compensation—for each position in the public sector for workers with different qualifications and experience.

- ***A systematic review of elements of compensation with the objective of simplifying remuneration*,** eliminating nonessential allowances and other supplements, and increasing the share of basic salaries in compensation. The objective is to allocate the levels of remuneration identified by structural pay reform to other elements of compensation, revise the wage grids for public employees, and set policies for other elements of compensation.

- ***Functional reviews and restructuring of ministries, departments, and agencies*** to identify areas of overlap or duplication and to clarify and codify organizational goals and responsibilities. Institution-level restructuring and process reengineering can be useful to align personnel resources with mandates and spending priorities and to improve efficiency by leveraging technology and streamlining processes. Ultimately, process reengineering should provide the basis for setting staffing (i.e., the number of authorized positions for every category of employment) with the goal of "right-sizing" overall public employment.

- ***Strengthening PFM to enable more effective wage bill budgeting, execution, and control.*** Of particular importance is developing a PFM reform strategy to guide improvements in forecasting and budgeting, budget execution, IT systems (for budget execution, payroll, and human resources), auditing, and internal controls.

- ***The table, below, presents a menu of short-term options to slow the growth of wages and contain the size of the public workforce.*** Options are evaluated relative to a baseline projection that incorporates assumptions regarding compensation policies and the evolution of the workforce (see Appendix I) and are intended to demonstrate the potential savings associated with the measures described above. Options can be combined in various ways and are not exhaustive. Over time, short-term measures should be complemented by structural reforms intended to bend the trajectory of the wage bill to a more sustainable path and improve the efficiency and efficacy of wage spending.

Savings from Policy Options (Cumulative, in percent of GDP)

Wage Spending (in Percent of GDP) and Savings from Policy Options (Cumulative, in Percent of GDP)

	2016	2017	2018	2019	2020	2021
Baseline projection 1/	**11.3**	**10.9**	**11.4**	**11.6**	**11.8**	**12.0**
Savings relative to the baseline projection (in percent of GDP)						
Options addressing basic salaries						
Suspend wage increases for one year (2018)		-	1.3	1.4	1.4	1.4
Suspend wage increases for two years (2018-2019)		-	1.3	2.2	2.2	2.3
Limit wage increase to inflation (2018-2020)		-	0.3	0.6	1.0	1.0
Limit wage increase to one percentage point below inflation (2018-20		-	0.4	0.8	1.3	1.3
Limit wage increase to two percentage points below inflation (2018-2(		-	0.5	1.0	1.6	1.6
Options addressing overtime, supplements, and bonuses						
Eliminate overtime at the rate of 25 percent per year (2018-2021)		-	0.0	0.1	0.1	0.2
Reduce supplements by 25 percent (2018-2021) 2/		-	0.2	0.2	0.2	0.2
Reduce supplements by 50 percent (2018-2021) 2/		-	0.4	0.4	0.4	0.4
Reduce bonuses by 10 percent (2018-2021)		-	0.3	0.3	0.3	0.3
Reduce bonuses by 25 percent (2018-2021)		-	0.8	0.8	0.8	0.8
Options addressing the "13th month" benefit 3/						
Eliminate for managers and pay half to everyone else (2018-2021)		-	0.3	0.3	0.3	0.3
Eliminate for everyone (2018-2021)		-	0.4	0.5	0.5	0.5
Options addressing employment						
Fix the size of the workforce at its 2017 value (2018-2020)		-	0.3	0.7	1.0	1.3
Replace only two out of three departing workers (2018-2020)		-	0.3	0.7	1.0	1.4
Replace only one out of three departing workers (2018-2020)		-	0.4	0.7	1.1	1.5
Memorandum items						
Inflation (percent change in consumer price index, average)	19.2	18.1	10.5	5.8	5.5	5.6
Real GDP growth	3.8	4.7	5.3	6.0	6.5	7.0

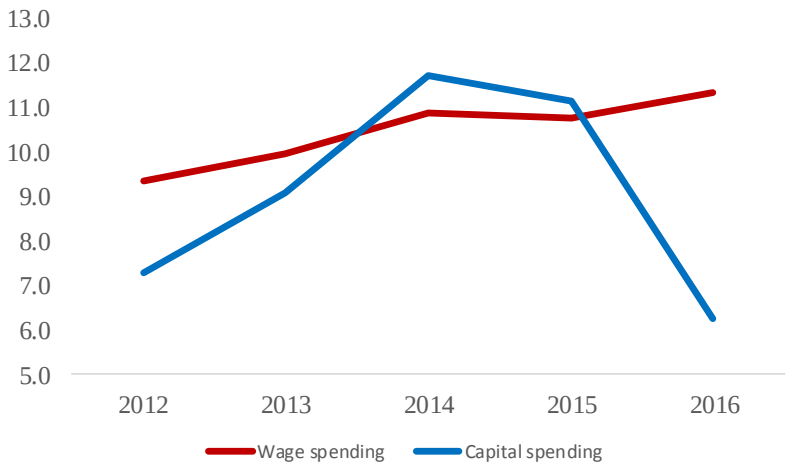
Sources: IMF staff calculation based on data provided by the authorities.
1/ The methodology underlying the baseline is explained in Appendix 1.
2/ For the purpose of estimating savings, supplements exclude the "13th month" benefit.
3/ The 13th month benefit is paid each January on the basis of wages paid in the prior calendar/fiscal year.

I. INTRODUCTION

1. After two decades of sustained economic growth, Mozambique has yet to recover from the international commodity price shocks that first hit the country in late 2014. External imbalances resulted in sharp exchange rate depreciation and loss of international reserves during 2014-16. GDP growth decelerated sharply in 2016 to 3.8 percent—down from an average of 7 percent over the previous ten years—and inflation peaked at 26 percent in November 2016. Monetary policy has been tightened and the external position started to rebalance in recent months, but the outlook remains challenging.

2. Significant fiscal adjustment is required over the medium term to restore macroeconomic balance. Prior to the crisis, strong revenue performance, especially sizeable capital gain taxes from the mining sector, provided amply fiscal space for spending, while the government tapped into non-concessional borrowing to scale up public investment in anticipation of future revenues from natural gas production. However, the lack of fiscal buffers implies that fiscal policy became unsustainable as the crisis hit, while the depreciation and the disclosure in April 2016 of previously hidden debt caused the stock of public debt to surge to a distressed level in 2016.

Figure 1. Central Government Wage and Capital Spending
(in percent of GDP)



Sources: Ministry of Economy and Finance and IMF staff calculations.
Note: Capital expenditures excludes those financed by project grants

3. In particular, policy measures focusing on containing spending on wage bill are at the core of such fiscal consolidation. Mozambique's central government wage bill has experienced a rapid increase in recent years, rising from 8 percent of GDP in 2010 to 11.3 percent in 2016, which is significantly above the median across a sample of countries with similar level of development (around 7 percent of GDP). The observed increase in wage bill spending could

potentially reflect several factors, including ad-hoc wage and salary adjustments, rapid increases in hiring, and public financial management (PFM) issues related to wage bill planning and budgeting, payroll execution and control, as well as performance management in the civil service. Budget execution forecasts for 2016 and 2017 showed systematic wage overruns in both years, pointing to potential issues in wage bill execution.

4. This report reviews compensation and employment policies and developments, and provides options to improve wage bill management. However, the appropriate mix of policy options depends on the objectives, priorities, and preferences of the government. To the extent possible, the report estimates the fiscal impact of the reform options. Section II discusses recent trends in compensation and employment and places these considerations in an international context. Section III discusses issues related to wage bill management and identifies challenges in implementing reforms. The last section provides options for reform and estimates their fiscal impact.

II. TRENDS IN CENTRAL GOVERNMENT COMPENSATION AND EMPLOYMENT

5. Overall, total compensation to employees by the central government reached 11.3 percent of GDP in 2016. The central government's wage bill is set by the legislature as part of the overall budget process and comprises wage bill spending by the budgetary central government, the provinces and districts, the autonomous agencies, and other public bodies that are fully or partially funded by the state's budget. The wage bill expenditure item recorded in the fiscal accounts excludes compensation paid to 3,755 doctors financed by the Common funds (0.15 percent of GDP in 2016), and social security contributions (0.54 percent. Central government employment is estimated at around 393.7 thousand employees in 2016 (1.4 percent of the total population; 3.4 percent of the working age population).[1] This figure is based on data provided by the authorities to the mission. The data covered all sectors except defense, police and security, on which information was not provided.[2] Overall, regular full time employees represent around 80 percent of the total workforce in the central government.

6. As to the functional composition, education and other (non-health) sectors absorb the largest shares of the wage bill (Figure 2). Education is the largest employer, with a share of 52.2 percent of total employment in 2016, absorbing around 40.4 percent of total wage spending. The health sector's share is rather small, at only 12.8 percent of total employment, and

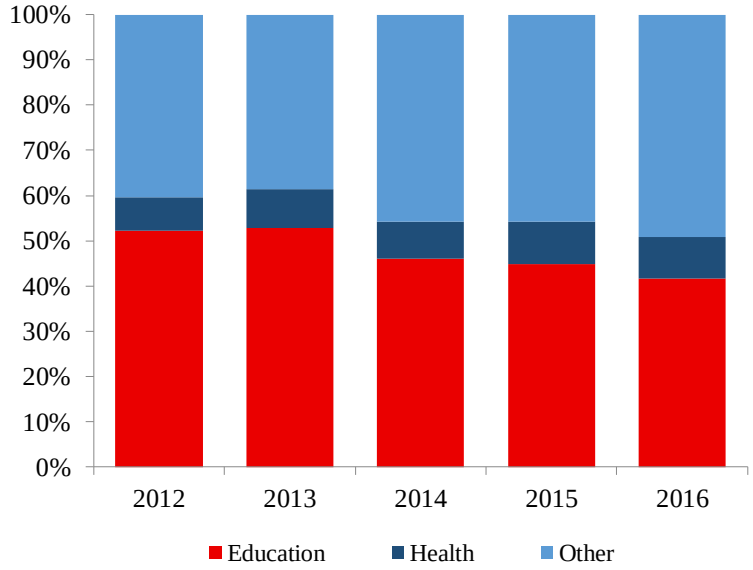
[1] We estimate the numbers of workers in other sectors (for which information were not available) to be around 45,000.

[2] The wage bill that is recorded in the fiscal accounts and is publicly available includes spending on wage and salaries of the defense, security and police workers. While the authorities provided information on total wage spending for these three sectors, they did not provide data on their employment levels.

absorbs 9.6 percent of total compensation. The other sectors (grouped together under one category), and for which a breakdown was not available, form the second largest group of employer in the government at 35.0 percent in 2016, but absorbs the largest share of total compensation (at around 50.0 percent).[3]

Figure 2. Central Government Wage Bill Spending by Sector

(percentage of total)

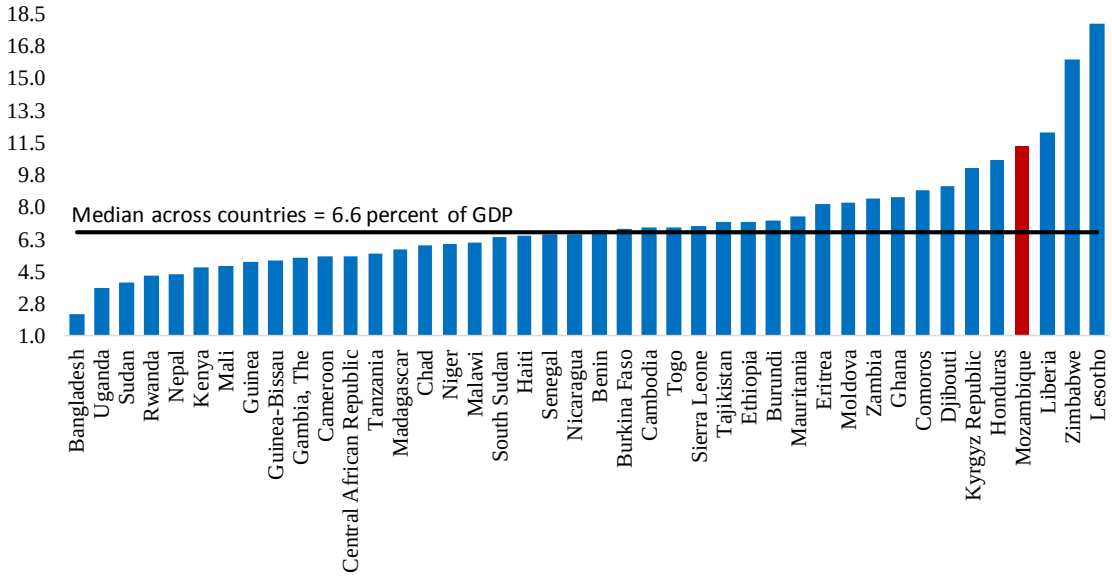


Sources: Ministry of Economy and Finance and IMF staff calculations.

7. The central government wage bill in Mozambique is very high compared to peers. At 11.3 percent of GDP in 2016, the wage bill exceeds the median for a group of 42 low-income and Developing countries (6.6 percent; Figure 3). It is the fourth highest after Zimbabwe, Lesotho, and Liberia. Moreover, it is very high as a share of primary expenditures (40.3 percent) and as a share of domestic revenues (47.11 percent). The former indicator suggests that the control of government spending dynamics can be a very challenging task, while the latter indicator points to sustainability issues of wage outlays in Mozambique.

[3] This category is referred to in the report as the "Other" sector.

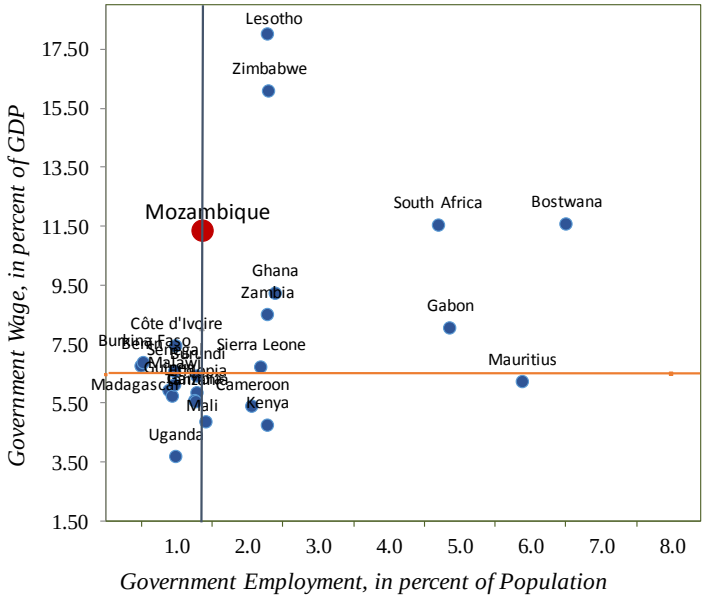
Figure 3. Central Government Wage Bill, Low Income and Developing Countries, 2016
(in percent of GDP)



Sources: Ministry of Economy and Finance and IMF staff calculations.

8. The high wage bill *level* compared to peers seems to reflect high average compensation, rather than high employment levels (Figure 4). The central government employment to population ratio in Mozambique is around the median ratio across peers (a sample of low income and developing countries). This suggests that high wage spending levels in Mozambique most likely reflect higher compensation levels.

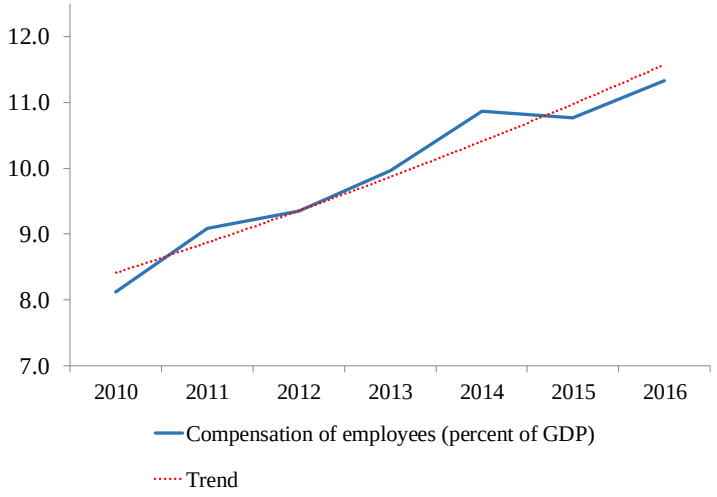
Figure 4. Central Government Wage Bill and Employment
(Low income and developing countries, latest year)



9. Not only is the wage bill relatively high compared to peers, it has also been rising rapidly since 2010, reflecting compensation dynamics in some sectors and employment dynamics in other sectors. The wage bill increased from around 8 percent of GDP in 2010 to around 11.3 percent of GDP in 2016 (Figure 5), raising concerns about fiscal sustainability going forward. This is partly explained by in large differential wage dynamics across different sectors in the government since 2013. Government decisions to grant wage increases to different sectors have favored mostly doctors and medical staff who organized strikes in 2013 demanding higher wages. Teachers and police workers have also received preferential wage increases since 2013. Overall, over 2013-2015, the cumulative, inflation adjusted, granted wage increases amounted to around 32, 18, and 11 percent for doctors, teachers and police, and other civil servants, respectively (Figure 6). By 2016, the cumulative real wage increases that were granted by the government were still relatively high for doctors, teacher and nurses, despite the large increase in inflation from 2.4 percent in 2015 to 19.2 in 2016. On the other hand, the rapid increase in wage spending seems to be also driven by an increase in employment outside the health and education sector, over time (Figure 7).[4]

Figure 5. Central Government Wage Bill Spending, 2010-2016

(in percent of GDP)



Sources: Ministry of Economy and Finance and IMF staff calculations.

10. Increases in wage bill spending have been discretional, driven by both compensation and employment dynamics over time (Figure 8). We decompose the increase in the wage bill into the contributions of compensation and employment over time for the overall central government.[5] The analysis suggests that compensation has been the main driver behind the recent increase in wage bill spending, with about 67 percent (median over 2014-

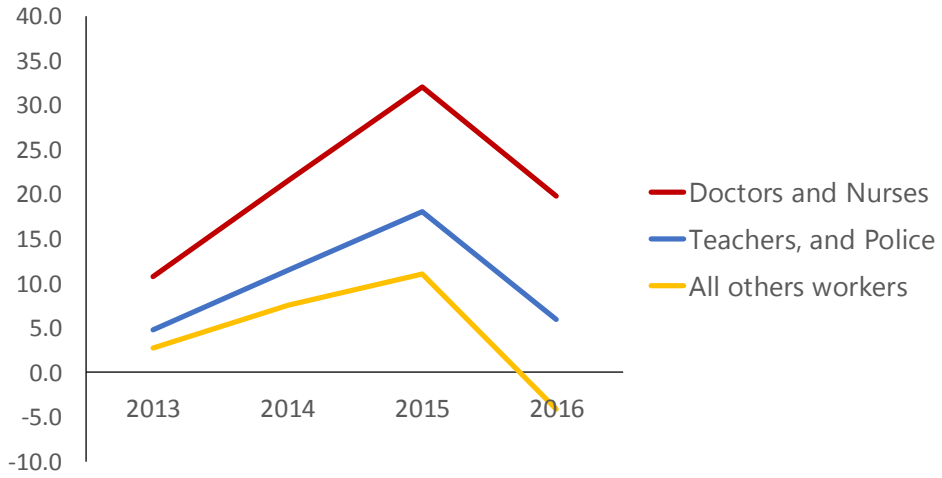
[4] And while these other sectors received relatively more modest wage increases, the rapid increase in employment that they experienced magnified the impact on the wage bill.

[5] For consistency, the decomposition analysis is performed using wage bill spending that excludes the compensation of defense, police and security personnel, since, as pointed earlier, the employment figures for these sectors were not provided to the mission team.

2016) of the growth being due to rising compensation. Such relative importance of compensation as a driver of wage bill growth has increased over time from about 43 percent (median over 2011-2013). Further decomposition of wage bill spending changes by sector over the period from 2014 to 2016 suggests that while compensation has also been the main driver behind the increase in wage bill spending in the health and "Other" sectors, employment dynamics have played a more prominent role in the education sector.

Figure 6. Cumulative Percent Increase Granted by Government Decrees, 2013-2016

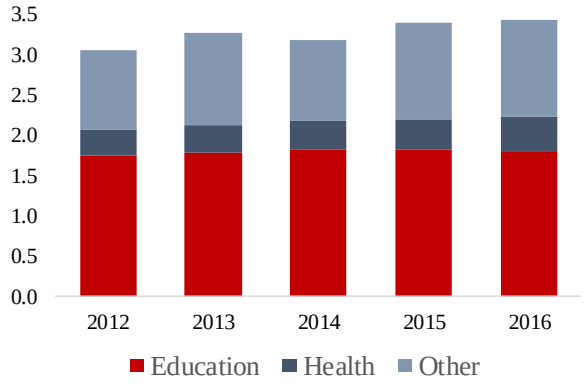
(inflation adjusted, in percent)



Sources: Ministry of Economy and Finance and IMF staff calculations.

Figure 7. Central Government Employment, 2010-2016

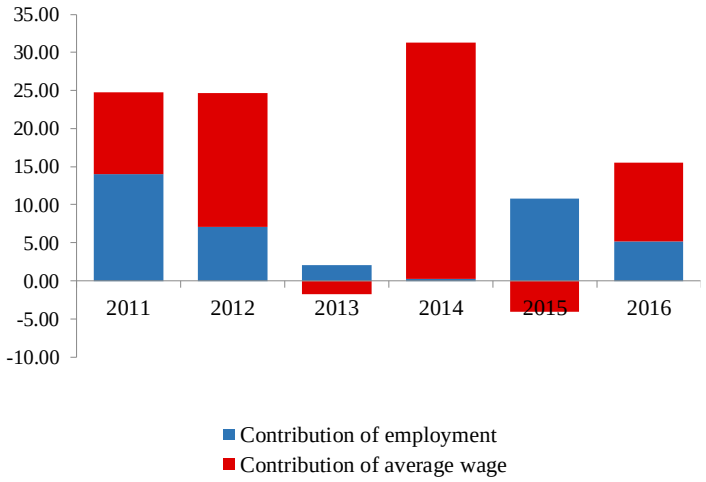
(in percent of working age population)



Sources: Ministry of Economy and Finance and IMF staff calculations.

Figure 8. Contributions of Wages and Employment to the Wage Bill Growth, 2011-2016

(in percent)



Sources: Ministry of Economy and Finance and IMF staff calculations.

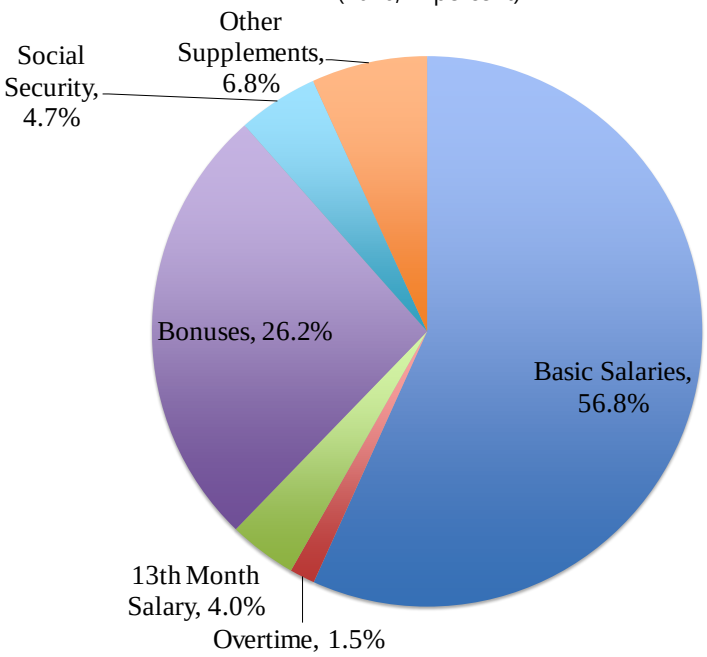
11. Allowances, bonuses, and other supplements account for a large share of total compensation (Figure 9). Allowances, bonuses and other supplements currently account for about 43 percent of the total wage bill. This is well above the level typically found in OECD countries, where the base wage component averages nearly 90 percent of the total wages of civil servants. Furthermore, the share of these salary supplements in the wage bill has been increasing over time, up from around 40 percent in 2012. Other supplements contain several categories of remuneration, including a "13th month" salary.[6]

12. The contribution of seniority-related increments to the wage drift in Mozambique is estimated to be about 1.3 percent per year. The wage drift refers to aspects of government employment policy—such as seniority-related increases in compensation, promotion policies, and the reclassification of employment positions of their salary grade—that often automatically drive public wage growth independently of wage policy and employment decisions. The contribution of seniority-related increments to wage drift in the Mozambique is estimated to be about 1.3 percent per year for civil servants who enter the workforce in their early 20s and retire at the statutory retirement ages (55 for women and 60 for men). Based on this information and on regression analysis using microdata from the government employee registry, the wage drift for the overall central government sector is estimated to be about 1.3 percent per year. While often unnoticed, the wage drift—which is not directly linked to either performance or productivity—is inevitably compounding upward pressure on wage costs.

[6] The 13th month salary is an entitlement for civil servants in Mozambique, and is mandated by the government. It is equal to the base salary of the current fiscal year, but is paid in the following fiscal year (typically in January).

Figure 9. The Composition of Wage Bill Spending

(2016, in percent)



Source: Ministry Economy and Finance and IMF staff calculations

13. Recent slippages in the wage bill in 2016 are concerning and raise questions about compliance issues (Figure 10). The high coverage of database and applications should, at least in principle, ensure that a substantial part of the civil service wage bill management benefit form embedded controls. The process for salary payment should also ensure controls at both the sector and ministry of finance levels. Nevertheless, the recent slippages of the wage bill in 2016 amounted to around 1.2 percent of GDP relative to the budgeted amount.[7]Data provided by the authorities suggest that the health sector only accounts for 14 percent of the slippage, while the bulk of the slippage occurred in the education sector (around 72 percent).[8]Poor forecasting and unrealistic budgeting seems to have played a major role. For instance, salary increases granted by the government in April 2016 (between 4 and 9 percent, depending on the sector) were somehow not incorporated in the revised supplementary budget of August 2016. The deactivation or overriding of the controls embedded in the systems and legal procedures at the central or provincial and district levels may have also played a role. A buildup of wage arrears from previous years, other salary increases beyond those granted in April 2016, and a significant increase in the hiring of new staff in other sectors are additional possible factors. Without

[7] The authorities argue that substantial amount of hiring occurred in the health sector, which explains most of the slippage. Data provided by the authorities suggests that there were no additional hiring above planned budgeted amounts in the education sector.

[8] The category of all other sectors combined explains the remaining 14 percent of the slippage.

detailed data, the mission was not able to uncover the factors behind the observed slippage and quantify their relative contribution.

14. The government has undertaken several encouraging short-term (one-off) measures to contain wage bill spending in 2017, but these are not by themselves adequate to contain the observed rapid increase in the wage bill. The government took a decision in December 2016 to suspend the 13th salary owed from fiscal year 2016 for all managerial level positions in the government, and granted all other employees in the government only half of it.[9] On another front, the government took a decision in April 2017 to increase the salaries of low paid government employees (those earning the minimum wage of around 3800 Meticais per month, as defined in the government sector) by 21 percent, in the context of a social dialogue with the national organization of workers (OTM), a professional association that bargains on behalf of civil servants.[10] The nominal amount of that increase was then granted to all other employees in the government (which is very small relative to their wage levels).

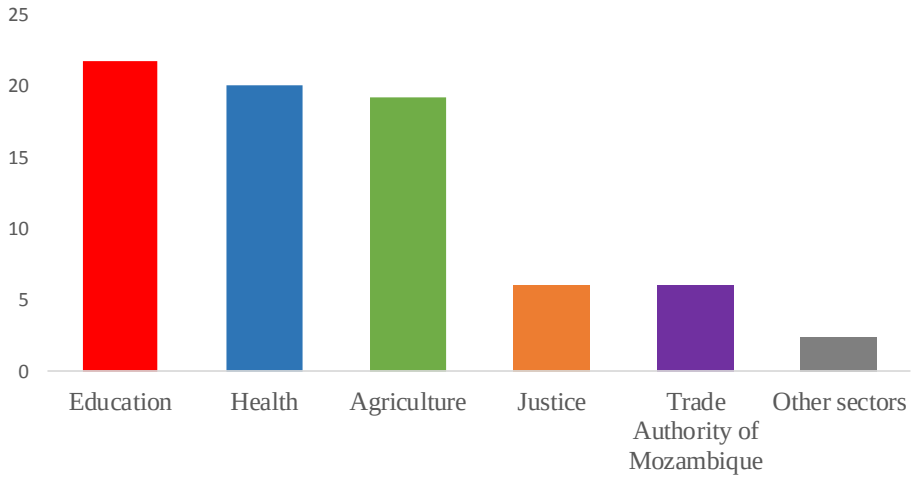
15. In the absence of reforms, the mission projects wage spending to rise from 11.3 percent of GDP in 2016 to 12.0 by 2021. The mission's baseline projection presumes that: (i) basic salaries will rise at the rate of inflation plus one-half the rate of real GDP growth;[11] (ii) the "13th month" salary will be paid in full to all employees from 2018 onwards; (iii) the cost of allowances, overtime, bonuses, and other salary supplements (as a share of basic salaries) will remain unchanged over the projection horizon; (iv) the number of employees in the Education sector will grow in line with the population of persons under the age of 20; and (v) the number of employees in the Health sector and the "Other" sector category will rise in line with overall population growth. Appendix I presents a detailed description of the model as well as the assumptions underlying the mission's baseline projection.

[9] The suspension of the 13th salary may imply unpaid obligations to be paid in the future, especially since it was not the result of a change in the law.

[10] Currently, no labor unions for government employees exist in Mozambique. There are professional associations that engage in social dialogue with the government with respect to the wage adjustment mechanism. This is not due to restrictions on government employees to organize and form labor unions. It is rather an issue of lack of organization that leads to requirements not being met for forming these unions per the laws. However, the recent large increase in inflation and expectations about future inflation in these bad economic times have led some associations such as a National Association of Teachers (ONP) to accelerate procedures to form a union over the next few months.

[11] This is consistent with the wage rule that is used by the government to adjust wages. Section III discusses the wage rule in more detail.

Figure 10. Deviation of Wage Outlays Relative to the Budget, by Sector
(2016, in percent)



Sources: Ministry of Economy and Finance and IMF staff calculations.

16. The baseline is subject to considerable uncertainty, however, and the wage bill could rise further than has been projected. The primary sources of forecasting uncertainty and fiscal risk include: ad hoc increases to basic salaries (which, in turn, drive upward the cost of other elements of compensation), the risk of an exogenous economic shock, slower-than-projected rates of GDP growth, and higher-than-projected levels of recruitment. Table 1, below, illustrates this uncertainty by projecting the wage bill under the mission's baseline and three downside scenarios, all of which are conceivable considering the country's recent trend.

Table 1: Wage Spending Under the Baseline and Alternative Scenarios, 2016-2021
(percent of GDP)

	2016	2017	2018	2019	2020	2021
Baseline Scenario 1/	**11.3**	**10.9**	**11.4**	**11.6**	**11.8**	**12.0**
Economic Shock 2/		10.9	12.1	12.4	12.6	12.8
Sluggish Economic Growth 3/		10.9	11.6	12.2	12.8	13.4
Hiring Exceeds Population Growth 4/		10.9	12.8	14.0	14.2	14.5

Sources: IMF staff calculation based on data provided by the authorities.
1/ The methodology underlying the baseline scenario is explained in Appendix I.
2/ Real GDP contracts by 1.0 percent in 2018 but grows as projected thereafter.
3/ Real GDP grows at half the rate projected in the baseline from 2018 to 2021.
4/ Employment grows in 2017-2019 as projected by MEF in data provided to the mission.

III. KEY ISSUES FOR A REFORM STRATEGY

A. Compensation

17. Public sector wages in Mozambique are set per a formula that introduces a form of indexation, effectively reducing the flexibility of the government in addressing inefficiencies in wage levels and structures and in managing macroeconomic imbalances. Within this framework, the growth of public wages considers (i) the rate of inflation, (ii) half the rate of real GDP growth (as a proxy for productivity), and (iii) a factor "delta" that presumably reflects negotiations between the government and professional employee associations.[12] In practice, the factor "delta" is unpredictable and introduces a subjective and rather ad-hoc element to the wage setting mechanism. This leads to unpredictable dynamics in public wages over time. For instance, the existing wage rule has resulted in basic salaries rising substantially faster than inflation in previous years. In combination with the seniority-based wage tables (which provide an additional increase in basic salaries for each additional year of service), most public sector employees can receive significant real increases in the value of their basic wages every year, regardless of their productivity or performance.

18. While rule-based frameworks for wage setting may appear to offer a remedy against repeated and large public sector wage increases, they can have several disadvantages. These include (i) limiting the ability of the government to use fiscal policy for macroeconomic management[13]; and (ii) potentially locking into place undesirable public sector wage levels and wage structures. The latter reduces the capacity of the public sector to address inefficiencies by automatically granting wage increases to a wide range of workers, regardless of any determination of whether their salaries are at an appropriate level.

19. Regression analysis on individual-level data from the Integrated Household and Labor Force Survey of 2015 suggests that central government employees appear to receive, on average, a wage premium over their private sector counterparts. The mission's analysis suggests that, after accounting for differences in socio-economic characteristics of workers, including age, gender, education, experience, and regional effects, the magnitude of the wage premium varies significantly by education level. The premium, in absolute terms, for lower-skilled employees with primary and secondary education is around 63 and 91 percent, respectively, relative to private sector counterparts with similar socio economic characteristics.

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[12] No labor unions currently exist for government employees in Mozambique. There are professional associations that engage in social dialogue with the government on behalf of civil servants, with respect to the wage adjustment mechanism.

[13] For instance, under inflation indexation, wage bill spending increases at a time when fiscal restraint may be needed to address macroeconomic imbalances. In that sense, it can contribute to inflationary pressures, and further jeopardize fiscal sustainability going forward.

On the other hand, high-skilled government employees with university level education tend to have a wage *discount*, effectively earning around 100 percent *less* than their private sector counterparts. This tends to reflect the observed gap between lower-skilled and high-skilled wage premiums exists across countries, which is especially pronounced in low income and developing economies.[14]

20. There is a widespread heterogeneity in the level of wages and other components of compensation, across government sectors, and even within sectors. Micro data from the registry of public employees (e-CAF) and the payroll management database system (e-Folha),[15] indicates that the median compensation is lowest among government employees working in the health sector and non-education sectors, while it is the highest in the education and other sectors. Besides this relatively large variation across sectors, compensation also displays significant variation *within* sectors (Figure 11a and 11b). For example, compensation dispersion in the education and other (non-health) sectors is particularly high. As Figures 11a and 11b suggest, other salary supplements, rather than the base salary itself, appear to be the major culprit behind such observed dispersion.[16]

21. Further disaggregating salary supplements into different components suggests that the compensation structure is very complex and entails large fiscal costs. Micro data from the e-Folha and e-CAF databases suggests that there are at least 46 different salary supplements. These supplements comprise (i) 19 allowances; (ii) 4 types of bonuses; and (iii) 23 different other salary supplements (including compensation for overtime). Some of these supplements are entrenched in the salary structure, and can lead to large fiscal costs. For example, the profitability bonus, which is awarded to civil servants or state officials who are deemed to have a very good performance assessment, is equal to 100% of the corresponding base salary. Another example is the reintegration allowance, which consists of the inclusion of 75 percent of the base salary, for each year spent in a governing position.[17] For instance, in the case where a civil servant occupies a governing position (e.g., as Head of Administrative Post) for a period of four years, he or she is entitled to receiving a reintegration allowance of 300 percent (75 percent, cumulative over four years) upon returning to his or her original position.

[14] Overall, the estimated premiums do not take account of the fact that government workers have access to numerous generous benefits and are provided with greater job security. For example, generous public sector pension schemes, and in-kind and non-monetary benefits make jobs in the government even more attractive. Thus, the government does not always necessarily need to offer salaries that are on par with the private sector to retain high-quality employees. For this reason, a wage discount for public sector workers is sometimes expected, especially if such benefits are extensive.

[15] The data from the e-CAF and e-Folha systems pertain to the June 2017 vintage.

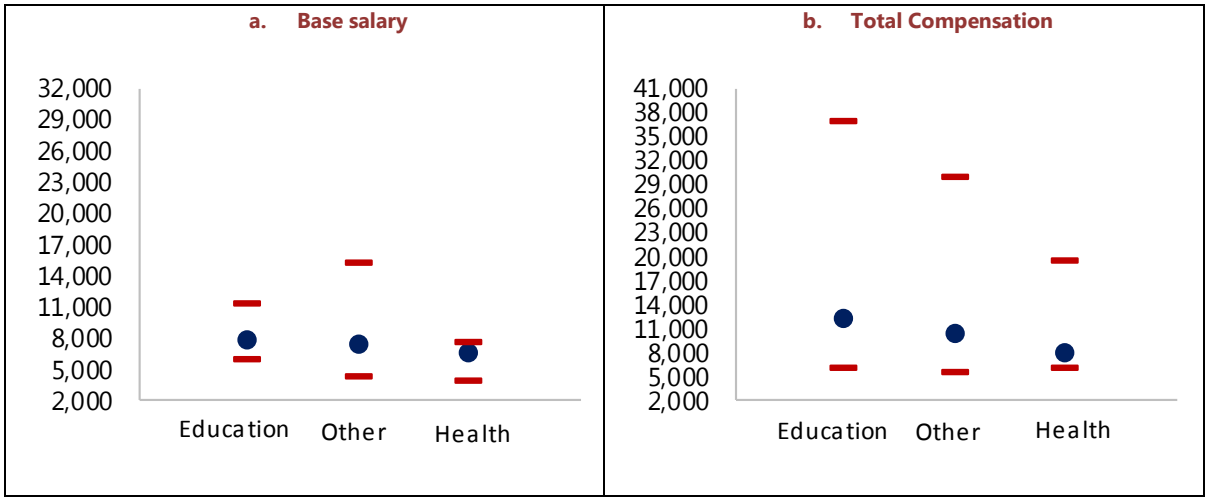
[16] Albeit dispersion in the base salary within the other sectors category is also relatively high compared to that in the education and health sectors.

[17] Law 7/98 establishes the rights and duties of governing positions (article 12(5)). Reintegration occurs when duties are terminated and the employee effectively returns to his/her previous position.

22. Salary supplements varies widely across and within sectors (Table 2). Micro data from the e-Folha and e-CAF databases suggests that allowances represents around 350 percent of the base salary (median estimate across recipients), around 150 percent in the health sector and 100 percent in the other sectors. On the other hand, bonuses represent around 30, 60, and 30 percent of the base salary (median estimate across recipients) in the education, the other category and health sectors, respectively. Finally, overtime compensation represents around 40, 49, and 30 percent of the base salary (median estimate across recipients) in the education, the other category and health sectors, respectively. Furthermore, the percent of recipients of those supplements varies considerably across sectors and within the sectors themselves (Table 2). It is not clear whether and to what extent compensation disparities across and within sectors reflect differences in skills and productivity.

Figure 11. Monthly Wage across Different Government Sectors

(2017, in Meticais)



Sources: Ministry of Economy and Finance; e-Folha database; and IMF staff calculations.

Note: Data excludes employees in the defense, security and police sectors. In each graph, we report the median (blue dot), and the 25th and 75th percentiles (in red) from the distribution of employees in the e-Folha database.

Table 2. Components of Total Compensation and Proportion of Beneficiaries, by Sector

(in percent of the base salary, June 2017)

	Education	Other	Health
Allowances	350.0	100.0	150.0
Recipients, as percent of total employees in the sector	*42.1*	*34.8*	*41.1*
Bonuses	30.0	60.0	30.0
Recipients, as percent of total employees in the sector	*48.0*	*32.1*	*20.7*
Overtime	39.60	49.04	30.00
Recipients, as percent of total employees in the sector	*1.75*	*0.52*	*1.74*
Other supplements	175.51	90.00	53.85
Recipients, as percent of total employees in the sector	*0.02*	*0.62*	*0.79*

Sources: Ministry of Economy and Finance; e-Folha database; and IMF staff calculations.

Note: Data excludes employees in the defense, security and police sectors.

B. Employment

23. The mission identified issues of compliance in the hiring process and the application of rules governing contracting employees. The procedures of appointment are subject to double-control by the Administrative Tribunal (AT)—first at the time of an employee's provisional appointment, and second at the permanent appointment.[18] The TA is responsible for ensuring compliance with established procedures, most importantly with regard to the authorization of appointments, which should reflect the need for the appointment, the presence of vacancies, and resource availability. Nevertheless, despite these procedures, there appear to be problems with procedural compliance. The AT has identified challenges – relating to the adoption of manual procedures for ensuring compliance with hiring – which have led to hiring of employees above the authorized figures.[19]

24. The decentralization process for hiring in some sectors seems to have aggravated these challenges. The TA has identified issues related to (i) weak capacity of staff in decentralized bodies and (ii) the adoption of manual procedures at the level of provinces and districts given weaknesses—or the absence of—IT infrastructure. This has hindered the TA's ability to exercise its control functions in real-time. Currently, the Central TA is only able to observe ex-post information from the decentralized TAs by reviewing their annual reports.

25. Issues related to the identification of core functions within ministries merit examination, as they may be creating hiring pressure. The mission identified issues that may be related to the duplication of roles and responsibilities in some government ministries, departments, and agencies. For instance, in the education sector, a sizeable share of employees who are teachers by training are actually working as public administrators. Effectively, there are teachers in the education sector who do not teach in classrooms. This raises serious concerns about the definition of functions, roles and responsibilities in the sector, particularly given that pressures on the hiring of teachers are mounting and are effectively driving an increase in overtime pay. Overtime pay is costly, and can be reduced by redefining the functions and responsibilities of teachers working as public administrators in the sector.

26. The challenges discussed above also reflect potential weaknesses in PFM. (i) The budgeting and forecasting framework does not always make use of all available information or rely on data with poor quality, resulting in underestimation in the budget. For instance, medical staff who are funded temporarily by donor organizations and whose wage costs are accounted for under investment spending, are not adequately incorporated in the wage bill forecasting and planning process in anticipation of their transfer to the budget. (ii) There is an inadequate degree

[18] The awarding of positions is deemed provisional for the first two years, at the end of which employees are formally entered into the permanent civil service if the requirements specified by the General Statutes for Civil Servants have been met.

[19] This seems to reflect ongoing technical difficulties with existing IT systems, which have, at least, partly compounded compliance issues regarding the enforcement of procedural requirements.

of monitoring and oversight in budget execution following the decentralized control over hiring at levels beneath the central government; (iii) There are capacity limits in the information management (IT) system, which relies on many manual processes and is unable to create useable and timely reports for use in expenditure control. The Administrative Tribunal lacks an adequate IT system that is linked to personnel management and payroll systems at all levels of government (central, provinces and districts). (iv) The auditing and internal control for the payroll systems could be strengthened. There are 8000 employees whose proof-of-life verification process has been pending for over a year. The existence and eligibility of persons receiving public sector pensions also requires a proof-of-life process.

IV. OPTIONS FOR REFORM AND THEIR FISCAL IMPLICATIONS

27. Public wage spending is most efficient—and mostly likely to be sustainable—when it reflects sound compensation and hiring policies. To a limited degree and for the short-term, the growth of wage spending can be contained using crude measures that address wage levels or employment. Such measures, however, are practically and politically constrained, contentious, and typically have limited fiscal reach. Nominal wage levels can always be fixed—or prevented from rising faster than the rate of inflation—but typically cannot be reduced. Measures to reduce public sector employment are, in practice, mostly limited to attrition-based policies—given the job protections enjoyed by most public employees—and, consequently, can provide only limited immediate fiscal relief. Over the medium-term, therefore, public wage spending is best managed by developing and implementing compensation and hiring policies that reduce the need for short-term containment measures.

28. International experience shows that crude measures introduced in support of fiscal consolidation are often unsustainable. Short-term wage policies that greatly degrade the real (i.e., inflation-adjusted) value of employee wages often generate upward pressure for wage increases once consolidation targets have been met. Attrition-based hiring policies are difficult to target, which risks the loss of key personnel and the degradation of essential public services. For these reasons, the driving goal of wage bill reform should be to introduce short-term measures—consistent with the authority's immediate fiscal objectives—that can eventually be complemented by broader and more sustainable structural reforms.

29. Structural reforms should aim to address weaknesses in compensation and hiring policies and strengthen financial management. Specifically, the objectives of structural reforms should include the following: (i) aligning public sector compensation to that paid in the private sector and eliminating existing pay disparities across—and within—the public sector for employees of similar qualifications and experience; (ii) strengthening the link between employee performance and pay; (iii) eliminating duplicative governmental functions, cutting (or curtailing) nonessential public services, and focusing personnel resources more tightly on spending

priorities; (iv) facilitating improvements in public sector efficiency through the use of technology and improved processes and systems; and (v) strengthening wage bill budgeting, execution, and control. Such structural reforms, however, require time and resources to design and implement, but—in the medium-term—they are the best way of bending the trajectory of the wage bill to a sounder and more sustainable path while, at the same time, improving the efficiency and efficacy of wage spending.

A. Reforms Related to Compensation

30. In the short-term, two policy levers are available for constraining the growth of compensation:

- **The existing wage rule can be replaced with a flexible wage policy that enables basic salaries to be increased more slowly.** In general, the mission urges caution with respect to rule-based wage policies and believes that wage-setting mechanisms should take into account private sector wage dynamics and underlying productivity growth. Rule-based policies are better used to limit the growth of public wages than to institutionalize wage increases, particularly at rates higher than inflation. Wages can be fixed at their current nominal values or allowed to rise at a rate less than the rate of inflation. Increasing basic salaries in such a manner would generate meaningful short-term fiscal relief but could generate upward wage pressure if the real value of wages is too greatly degraded.

- **Other elements of compensation can be reduced or eliminated.** Excluding contributions for social insurance, basic salaries represent only about 60 percent of the total compensation paid to public employees. The remaining 40 percent includes a large number of benefits and supplements that, collectively, reduce the transparency and equity of public sector compensation, engender wide disparities in the compensation paid to different categories of workers, and frustrate the task of fiscal management. The provision of overtime pay can gradually be curtailed through improved workforce planning. The tremendous complexity of the provisions governing allowances and other supplements can be greatly streamlined, with the objective of eliminating benefits that are not actually essential to retaining qualified staff. Such a step should be supported by an eligibility review designed to ensure that allowances and supplements are paid only to those employees who qualify for them. The decision to cut the 13th month benefit in half in 2017—and to pay it only to non-managers—can be extended and applied to everyone. Bonuses, while useful in terms of motivating performance, are ultimately discretionary. If the authorities have concerned about issues of wage adequacy for lower income workers, wage compression, or disparities between public and private sector remuneration, short-term measures can, to a degree, be applied differentially to certain categories of workers and to different sectors of government.

31. Over the medium-term, these short-term fiscal consolidation measures can—and *should*—be replaced by structural measures. The most important structural measures relating to compensation include the following:

- Structural pay reforms to align job-specific requirements with compensation and to restore parity—in a systematic way—between public and private sector remuneration for workers of comparable skill and experience. The objective of structural pay reform is to identify the proper level of remuneration—to include basic salaries and other elements of compensation—for each type of position within the public sector for workers with different qualifications and experience. *In this regard, a structural pay reform should be the first step in a two-step process of compensation reform.*

- A systematic review of all elements of compensation with the objective of simplifying remuneration, eliminating nonessential allowances and other supplements, and substantially increasing the share of basic salaries in total compensation. The objective of a systematic review is to allocate the levels of remuneration developed during the structural pay reform across the various components of compensation. *In this regard, a systematic review should be the second and final step in the process of revising the wage grids for public sector employees* and developing new laws and regulations to govern the other elements of compensation paid to public sector workers.

B. Reforms Related to Employment

32. In the short-term, the size of the public sector workforce cannot be easily adjusted in direct proportion to a shrinking fiscal envelope. To some degree, attrition-based measures for cutting employment can be used in pursuit of fiscal consolidation, but their fiscal impact is constrained by the number of persons leaving public employment. Moreover, attrition-based measures are not without risk as they can result in the loss of critical skills—ultimately leading to their subsequent reversal—or in the deterioration in the quality of public services. For this reason, when designing such measures, it is crucial to use—to the extent possible—a targeted approach (e.g., by focusing on non-essential personnel and exempting critical sectors, such as education and healthcare). Other policy measures to reduce the size of the workforce—such as retrenchment and voluntary severance—entail similar risks and, because they take time to design and implement, are unlikely to generate meaningful fiscal relief in the short term.

33. Over the medium-term, attrition-based policies can—and *should*—be replaced by structural measures to "right-size" public employment. The most important structural measures for employment include the following:

- Functional reviews of ministries, departments, and agencies to identify areas of overlap or duplication and to clarify and codify organizational goals and responsibilities. The objective of functional reviews is to look strategically at how the public sector is organized at the institutional level with the goal of eliminating duplicative governmental functions and cutting (or curtailing) nonessential public services.

- Institution-level restructuring and process reengineering. The objective is to look surgically at individual ministries, departments, and agencies with the aim of (i) aligning their personnel

resources with their responsibilities and spending priorities, and (ii) improving public sector efficiency by leveraging technology and streamlining processes and administrative systems. Ultimately, process reengineering should then be used as the basis for streamlining institutional staffing plans (i.e., the number of authorized positions for every category of employment) with the goal of "right-sizing" overall employment.

C. Reforms Related to Public Financial Management

34. The challenge of managing wage spending, however, extends beyond compensation and employment policy to issues of financial management. Managing wage spending requires that public financial management processes and procedures be sufficiently developed to enable effective wage bill budgeting, execution, and control. Of particular importance are the following:

- **PFM Reform Strategy:** develop a medium-term strategy for PFM reform, based on a strategic plan and an appropriate action plan, taking into consideration the advice already provided by development partners, including by the IMF's 2016 PFM technical assistance mission.

- **Forecasting and Budgeting:** expand the quantity and quality of data made available for fiscal analysis, budgeting, and the monitoring of public sector employment and compensation; prepare budgets based on staffing priorities and limit hiring to fit within budgetary resources; this is particularly important with respect to workers funded by donor organizations whose wage costs will eventually be transferred to the budget.

- **Budget Execution:** strengthen procedures governing payroll and address the problems of decentralized control over hiring at levels beneath the central government; develop an operational plan for strengthening oversight over budget execution.

- **Information Management:** invest in the development of IT capabilities to automate existing manual processes, enable real-time monitoring and control over budget execution, and the creation of useable and timely reports for use in expenditure control; develop and maintain an IT system for the Administrative Tribunal and link it to personnel management and payroll systems at all levels of government (central, provinces and districts).

- **Payroll Systems:** automate existing manual systems to improve accuracy and strengthen controls; update and verify employee-related service records on a more routine and timely basis; strengthen the regulations, guidelines, and responsibilities for the periodic reconciliation of payroll expenditures.

- **Auditing:** investigate the 8000 employees who did not complete the proof-of-life verification process to ensure they are not being paid through "parallel systems"; conduct a proof-of-life process to verify the existence and eligibility of persons receiving public sector pensions.

- **Internal Control:** strengthen the internal control body, subordinating it directly to the MEF, and fund it adequately to enable it to fulfill its mandate; update the IGF's normative framework to align it to international standards; refine existing tools and introduce performance auditing, follow-up auditing, and other control procedures.

D. Fiscal Implications of Short-Term Reforms

35. Table 3 presents a menu of options to slow the growth of wages and contain the size of the public workforce in the short-term. These options were evaluated relative to the mission's baseline projection for the wage bill that incorporates assumptions regarding compensation policies and the evolution of the workforce (explained more fully in Appendix I). The estimates shown in the table are cumulative, meaning that the savings in any given year include the fiscal impacts of all prior years (i.e., savings are *not additive over time*). Moreover, when options are combined, their total savings may be less than the sum of their individual savings estimates given interactions between the variables and how they collectively drive wage spending (i.e., savings are *not necessarily additive across measures*).

36. The policy options listed in Table 3 were chosen to illustrate the potential fiscal impact of the short-term measures described above. The options were specified with the objective of demonstrating the range of savings associated with each measure, subject to bounds of feasibility given international experience with wage bill reform. Suspending wage increases, for example, tends to be highly contentious, particularly in countries with high levels of inflation, and, thus, is difficult to do for more than a year or two. Several of the options, such as gradually eliminating the need for overtime through staffing reform, will generate only modest savings because they target compensation that constitutes only a small share of the wage bill. Eliminating the 13th month salary, however, will generate significant—and enduring—savings of 0.4 to 0.5 percent of GDP, making it worthy of serious consideration given the magnitude of its fiscal impact. The options in Table 3 can, of course, be combined in various ways to achieve fiscal consolidation objectives and are not exhaustive. In the end, the overall strategy for containing wage spending in the short-term is a decision only the authorities can make. Ultimately, however, short-term measures should be supplanted by structural reforms intended to bend the trajectory of the wage bill to a more sustainable path and improve the efficiency and efficacy of wage spending.

Table 3. Savings from Policy Options (Cumulative, in percent of GDP)

Wage Spending (in Percent of GDP) and Savings from Policy Options (Cumulative, in Percent of GDP)

	2016	2017	2018	2019	2020	2021
Baseline projection 1/	**11.3**	**10.9**	**11.4**	**11.6**	**11.8**	**12.0**
Savings relative to the baseline projection (in percent of GDP)						
Options addressing basic salaries						
Suspend wage increases for one year (2018)		-	1.3	1.4	1.4	1.4
Suspend wage increases for two years (2018-2019)		-	1.3	2.2	2.2	2.3
Limit wage increase to inflation (2018-2020)		-	0.3	0.6	1.0	1.0
Limit wage increase to one percentage point below inflation (2018-20		-	0.4	0.8	1.3	1.3
Limit wage increase to two percentage points below inflation (2018-2(		-	0.5	1.0	1.6	1.6
Options addressing overtime, supplements, and bonuses						
Eliminate overtime at the rate of 25 percent per year (2018-2021)		-	0.0	0.1	0.1	0.2
Reduce supplements by 25 percent (2018-2021) 2/		-	0.2	0.2	0.2	0.2
Reduce supplements by 50 percent (2018-2021) 2/		-	0.4	0.4	0.4	0.4
Reduce bonuses by 10 percent (2018-2021)		-	0.3	0.3	0.3	0.3
Reduce bonuses by 25 percent (2018-2021)		-	0.8	0.8	0.8	0.8
Options addressing the "13th month" benefit 3/						
Eliminate for managers and pay half to everyone else (2018-2021)		-	0.3	0.3	0.3	0.3
Eliminate for everyone (2018-2021)		-	0.4	0.5	0.5	0.5
Options addressing employment						
Fix the size of the workforce at its 2017 value (2018-2020)		-	0.3	0.7	1.0	1.3
Replace only two out of three departing workers (2018-2020)		-	0.3	0.7	1.0	1.4
Replace only one out of three departing workers (2018-2020)		-	0.4	0.7	1.1	1.5
Memorandum items						
Inflation (percent change in consumer price index, average)	19.2	18.1	10.5	5.8	5.5	5.6
Real GDP growth	3.8	4.7	5.3	6.0	6.5	7.0

Sources: IMF staff calculation based on data provided by the authorities.
1/ The methodology underlying the baseline is explained in Appendix 1.
2/ For the purpose of estimating savings, supplements exclude the "13th month" benefit.
3/ The 13th month benefit is paid each January on the basis of wages paid in the prior calendar/fiscal year.

Appendix I. Projecting the Wage Bill

Forecasts for the evolution of the wage bill from 2017 to 2021 were developed using a Microsoft Excel-based simulation model. In addition to establishing a baseline projection to inform the mission's understanding of the magnitude and potential trajectory of the wage bill over the medium term, the model was used to analyze how the wage bill could evolve under different assumptions regarding inflation and real GDP growth and policies governing hiring and compensation (i.e., to conduct *sensitivity analysis*) and to estimate the fiscal impact of potential options for reform relative to the baseline projection.

Employees in the Education and Health sectors were disaggregated in the model from those working in other sectors. This disaggregation of the workforce was necessary (i) given significant heterogeneity observed across key sectors of the government in the distribution of their employees and their mean wages by age and (ii) to simulate sector-specific options for policy reform. No data was available to enable the mission to further disaggregate the workforce into individual Ministries, Departments, or Agencies.

The model reconstructed the wage bill in 2016 using expenditure data from the authorities and employee records from e-CAF and e-Folha. Individual employee records from e-CAF and e-Folha were used to create distributions for (i) the *relative number of workers by age* and (ii) their associated *relative mean basic salaries by age*. In combination with data on total headcounts and total basic salaries provided by the authorities, these *relative* distributions were then scaled to create *absolute* distributions which were then used in the model as the basis for projecting the age-structure of the workforce and their associated mean salaries forward in time.

One adjustment had to be made to the distributions described above before the distributions could be used in the model. An estimated 45,000 employees working in sensitive areas had to be added to the "Other" sector for reasons of methodological consistency because their basic salaries were already included in the compensation paid to employees working in that sector. Note that employees paid by donors through the Common Fund – and the share of their total compensation attributable to basic salary – were not added to the Health sector.

Table AI.1. Number of Employees and Mean Annual Basic Salaries by Employment Group, 2016

Group	Employees	Share	Salary	Relative Salary
Education	205,288	52.1	87,193	0.77
Health	50,439	12.8	84,678	0.75
Other	137,938	35.0	160,529	1.43
Total	**393,665**	**100.0**	**112,567**	**1.00**

Notes: data provided by the authorities, e-CAF, and e-Folha.

The distribution of the number of employees by age for each employment group was then projected forward from 2016 to 2022. The number of employees by age for each employment group was projected forward on the basis of the following: (i) an input variable representing the

number of new hires in each year of the simulation period (the value for which is expressed in terms of "replacement", so "100%" implies that every employee who retires is replaced by a new hire – resulting in zero net growth in the size of the workforce); and (ii) assumptions regarding the timing of retirement and the mean age of entry of new entrants into the workforce.

The distribution of mean basic salaries by age for each employment group was also projected forward from 2016 to 2021. Basic salaries by age were projected as follows: (i) an input variable representing the annual rate of increase in basic salaries (which, in turn, drives the rate of increase in other elements of compensation, as are described further below); and (ii) an input variable intended to capture the impact of wage drift. The term *wage drift* refers to aspects of public employment policy – such as seniority-related increases in compensation, promotion patterns and policies, and practices regarding the reclassification of employment positions – that drive wage growth independently of broader decisions regarding the overall size of the workforce or wage-levels. Conceptually, the wage drift variable in the model is intended to capture all factors that collectively create upward pressure on wage spending independent of policy-driven changes in the number of employees or to their respective wage tables.

Other elements of compensation were modeled as a share of basic salaries. These elements include (i) overtime, (ii) the "13th month" salary (i.e., the extra month of basic salary paid in January for work performed in the previous fiscal year),[20] (iii) supplements, (iv) bonuses, and (v) contributions for social insurance. These elements of compensation were modeled as a simple share of the basic wages paid to all central government employees (i.e., they were estimated in the aggregate) because no data was available to enable the mission to estimate them separately for each employment group. Apart from the 13th month salary (which can be directly computed based on the prior year's basic salaries), the shares for these other elements of compensation remain unchanged across the entire projection period because no historical data was available to support a different assumption.

Table AI.2. Elements of Compensation, 2016

Elements of Compensation	2016	Share
Basic Salaries	44,313,736,334	56.8
Overtime	1,155,372,433	1.5
Supplements - 13th Month	3,119,559,459	4.0
Supplements - Remainder	5,313,265,534	6.8
Bonuses	20,470,303,863	26.2
Social Insurance	3,699,180,322	4.7
Total	**78,071,417,944**	**100.0**

Sources: data provided by the authorities.

Total wage spending in each year of the simulation period was then computed as the sum of these individual elements of compensation. To enable the output to be used for fiscal

[20] From an accounting perspective, the 13th month salary is included in "supplements" but is treated as a separate line item in the model to facilitate the simulation of reforms that target this element of compensation directly.

policy analysis, wage spending was expressed relative to nominal GDP using the macroeconomic forecast developed by IMF staff in consultation with the authorities. Two additional macroeconomic assumptions are used in the model: inflation and real GDP growth. Both are used to compute wage increases under the existing wage-rule, as well as to inform decisions on the part of model users when designing and simulating policy reforms.

Table AI.3. Macroeconomic Assumptions

	2017	2018	2019	2020	2021	2022
CPI Inflation - Average	18.1	10.5	5.8	5.5	5.6	5.6
Nominal GDP (Meticals billion)	852.2	991.8	1,111.9	1,248.8	1,409.1	1,689.6
Real GDP growth (percent)	4.7	5.3	6.0	6.5	7.0	13.6

Sources: IMF staff estimates developed in consultation with the authorities.

Reform options were evaluated relative to a baseline that reflects assumptions regarding the evolution of the workforce and compensation. The mission's baseline projection presumes that: (i) basic salaries will rise at the rate of inflation plus one-half the rate of real GDP growth (i.e., basic salaries will rise in accordance with the existing wage rule)[21]; (ii) the "13th month" salary was reduced by half in 2017—and was paid only to non-managers—but will be paid in full to all employees in subsequent years; (iii) the cost of overtime, other supplements, and bonuses as a share of basic salaries will remain unchanged over the projection horizon; (iv) the number of employees in the Education sector will grow in line with the population of persons under age 20; and (v) the number of employees in the Health sector and Other sector will rise in line with the overall population.

The design of the simulation model enables it to be used to simulate a broad range of reforms relating to employment and compensation policy. Collectively, the inputs and assumptions enable the model to simulate the impact on wage spending of policies regarding: (i) the extent to which retiring employees are replaced by new recruits; (ii) the hiring of employees into newly-created positions; (iii) changes in the retirement age; (iv) changes to the current policy of providing wage increases annually for all employees in accordance with the wage-rule); (v) changes in the progression of employees across the their respective pay grades; and (vi) changes in policies regarding the provision of overtime, supplements to basic salaries, the "13th month salary, bonuses, and the size of the levy for social insurance. The fiscal impact of policy measures that treat some groups of employees disparately—such as measures that treat employees with higher total compensation differently than those with lower total compensation—must be analyzed separately before being evaluated, in the aggregate, using the model. The design of the simulation model also enables it to be used to conduct sensitivity analysis and "what-if" analysis to evaluate the impact changes in macroeconomic conditions and other variables.

[21] The wage rule also provides for a "Δ" factor that represents an adjustment based on negotiations with labor associations/unions. Because this factor can take on either a positive or negative value—and in the absence of historical data – the mission's baseline projection ignores it.

Appendix II. Estimating the Public-Private Wage Premium

This appendix presents the details of the analysis on the relative competitiveness of compensation levels for government workers in Mozambique, as presented in the report. Specifically, it discusses the empirical approach used in estimating the wage premium of government workers relative to private sector workers using micro-level data from the 2015 Integrated Household and Labor Force Survey.

Data from the labor force survey suggests that in 2015, the average wage was higher in the public sector by about 30 percent. Nevertheless, in Mozambique, the share of better educated workers is much higher in the public sector than in the private sector (Table A2.1). Given that compensation is highly associated with levels of education (and other socio-economic factors), it is important to consider them when assessing wage differentials across individuals working in the public and the private sectors. We turn next to a more careful empirical analysis that allows us to control for such factors when estimating the wage premium.

Table AII.1 Average Wage and Worker Characteristics, 2015

	Number of workers	Average monthly wage (in Meticais)	Educational attainment (share of total)				Average age	Female (percent)
			Primary	*Secondary*	*Tertiary*	*Professional*		
Public sector	*3059*	11189.3	0.075	0.464	0.352	0.109	38	0.375
Private sector	6685	8603.1	0.400	0.478	0.091	0.031	35	0.194

Source: Household and Labor Force Survey for Mozambique (2015) and IMF staff calculations

We use the following Mincer-type wage equation to estimate the public-private wage premium

$$y_i = \alpha + \delta x_i + \lambda^j (x_i^j . public_i) + \varepsilon_i \qquad (1)$$

where y is the logarithm of the monthly compensation, and x is a vector comprising variables that are found to be relevant for explaining wage differentials across individuals, including a set of binary variables indicating educational attainment, age and age squared (to proxy for experience), gender, and area of residence (to control for price effects). The binary variable $public$ takes the value of 1 if an individual works in the public sector. We control for potential heterogeneity in the effects, essentially allowing the wage differential estimate to differ across skill (or educational) levels. To do so, we include interaction terms between the public-sector binary variable and the educational binary variables, where x^j is a subset of x that comprises four binary variables indicating if an individual worker has tertiary, secondary, primary, or professional

education.[22]The difference between the coefficients in λ and the coefficient on the corresponding category of education represents the percent difference of public sector workers' average wage compared to the average wage of private sector counterparts with similar socio-economic characteristics.

The wage equation is estimated using ordinary least squares regression techniques, using data from the 2015 Mozambique Integrated Household and Labor Force Survey. The focus of the analysis is limited to salaried private sector workers who report monthly earnings, and thus excludes self-employed workers. Furthermore, in an attempt to exclude workers in the informal private sector, we drop from the sample (i) workers earning below the minimum wage, (ii) domestic workers, farmers, and agriculture workers, and (iii) workers with no education. For hypothesis testing, we use standard errors that are robust to heteroscedasticity. The estimation results are shown in TableA2.2, and can be summarized as follows:[23]

- There is a wage premium, in absolute terms, for lower-skilled employees with primary education of around 91 percent (Table A2.2).
- There is a wage premium, in absolute terms, for lower-skilled employees with secondary education of around 63 percent (Table A2.2).
- On the other hand, high-skilled government employees with university level education tend to have, on average, a wage *discount* of around 100 percent (Table A2.2).
- Finally, government employees who hold a professional education (e.g., technical education and teacher training) earn a wage discount of around 11 percent relative to their private sector counterparts. However, the estimate is not significantly different from zero at the 5 percent level (Table A2.2).

[22] The category of workers with professional education includes those with technical education and teacher training degrees.

[23] As a robustness check, the regression analysis has also been applied to male and female employees separately and the results remain consistent.

Table AII.2 Estimate of the Public-Private Wage Gap

(by skill or educational level)

	Coefficient	t-statistic
Tertiary x Public	-0.337	-7.33
Professional x Public	-0.112	-1.76
Secondary x Public	0.147	7.14
Primary x Public	0.128	3.08
Tertiary education	0.672	9.73
Secondary education	-0.485	-8.46
Primary education	-0.783	-13.42
Age	0.062	15.85
Age squared	-0.001	-12.64
Male	0.180	10.89
Urban	0.042	1.79
Constant	7.574	78.76
N	9,744	
R-squared	0.3064	

Note: Regressions are estimated by OLS. The t-statistics are computed from White's consistent estimator of the covariance matrix allowing for heteroscedasticity.

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