



ZAMBIA

SELECTED ISSUES

October 2017

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October 3, 2017

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ASSESSING ZAMBIA'S FISCAL SUSTAINABILITY¹

Fiscal sustainability is critical for macroeconomic stability and sustainable growth. Sustainable fiscal policy is understood as continuing with current fiscal policies over the medium-to-long-run without weakening a government's solvency or defaulting on existing debt or accumulating arrears, and not requiring increases in revenues or cuts in expenditures that are not feasible economically or politically. This note assesses the sustainability of Zambia's current fiscal policies and public debt. It evaluates recent trends in revenue, expenditure, and the structure of public debt to help explain the current fiscal stance. Estimates of the required effort in terms of closing primary and revenue gap to restore fiscal sustainability along with options to achieve them as discussed.

A. Background

1. Large fiscal imbalances and rapid increase in government's debt since 2011 have raised concerns about the sustainability of fiscal policies in Zambia (Figures 1 and 2).

After several years of prudent fiscal stance (i.e., average deficit of 1.6 percent of GDP in 2007–11), loose fiscal policies in the form of excessive spending in the face of relatively low and flat revenues began emerging in 2012, and by 2013 the fiscal deficit on a cash basis reached 6.4 percent of GDP. Lack of adequate policy response to external and domestic shocks weakened government revenues and led to significant spending overruns and wider fiscal deficits in 2014–15.

2. Fiscal challenges worsened since the second half of 2015 amid negative market sentiment abroad and tighter liquidity conditions domestically.

In the context of continued lax fiscal policies, financing conditions tighten sharply domestically and abroad. In the domestic market, government had difficulties rolling over maturing securities towards the end of 2015 and in the first half of 2016 due to the liquidity crunch that ensued following the sharp tightening in monetary policy by Bank of Zambia in 2015Q4.² Abroad, the government was not able to access financing in the international capital markets in 2016 as Zambia's spreads over the 10-year U.S. Treasury bonds on the 2012 Eurobond had increased to 1432 basis points by January 2016. Against this background, government deposits were drained and substantial payments arrears were accumulated with the fiscal deficit on a cash deficit becoming of secondary importance: it averaged 6.6 percent of GDP in 2014–16 compared to 10.8 percent of GDP on a commitment basis during the same period.

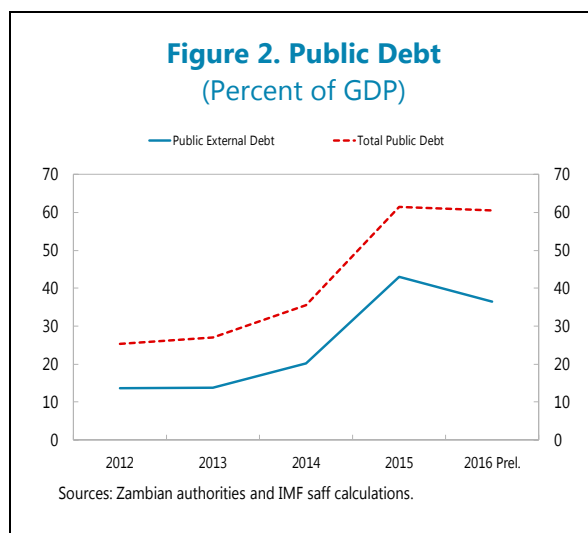
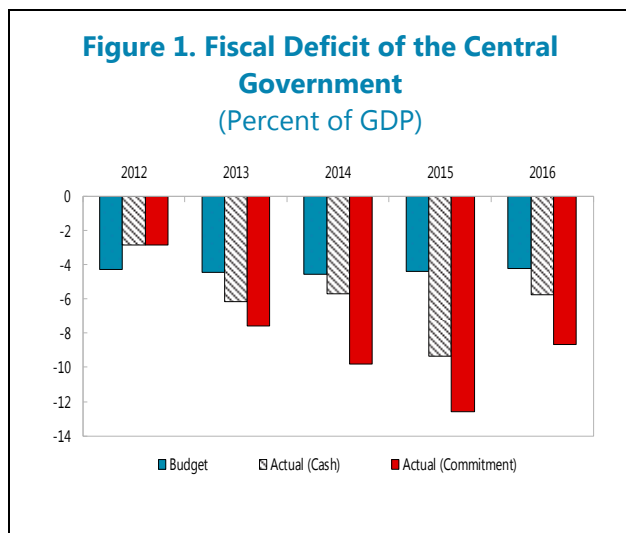
3. Fueled by the rapid exchange rate depreciation in 2014–15 and the heavy reliance on external sources to finance the growing fiscal imbalances, public external debt doubled in 2015 compared to 2014.

The Zambia kwacha lost over 40 percent of its value in 2015 and in slow-growth environment, external debt increased from 20 percent of GDP at end-2014 to 43 percent of GDP at end-2015 demonstrating Zambia is subject to exchange rate risk. In 2016,

¹ Prepared by Manuel Rosales Torres with contributions from Leonard Kipyegon.

² The Policy Rate (PR) was increased by 300 bps to 15.5 percent, the premium on the Overnight Lending Facility from 600 to 1000 bps over the PR. The statutory reserve requirements were increased from 14 percent to 18 percent.

the external debt-to-GDP ratio declined to 36.5 percent driven by the 10 percent appreciation of the Zambia kwacha.



4. **The 2015 Article IV consultation Debt Sustainability Analysis (DSA) for Zambia indicated that risk of debt distress had deteriorated from low to moderate.** The DSA noted that public debt vulnerabilities have heightened owing to growing fiscal deficits and rising vulnerabilities to domestic and external shocks.

5. **The 2017 DSA shows Zambia's risk of debt distress has increased to high driven projected high borrowing requirements over the medium term.** Even though the public debt-to-GDP ratio dropped in 2016, projected disbursements of the \$4 billion in external loans contracted since early 2016 through the first half of 2017 and the additional government's borrowing plans for another \$4 billion mostly on non-concessional terms over the next five years will raise the total debt burden to over 60 percent of GDP and the present value of external debt to over 40 percent of GDP by 2019, both above their respective thresholds, thus moving Zambia to high risk of debt distress. Absent additional strong fiscal consolidation measures besides those implemented in since late 2016 and so far in 2017 (e.g., removal of fuel and electricity subsidies, the streamlining of the Farmer Input Program, among others), debt dynamics will remain weak over the projection period.

6. **In 2016, all major credit rating agencies downgraded Zambia's sovereign rating mainly due to widening fiscal deficits and weaker debt dynamics (Table 1).** The downgrades were also attributed to a lower growth environment, protracted low copper prices, and the negative impact from power shortages on economic activity.

Table 1. Sovereign Credit Ratings, 2012–17

	Fitch Ratings	Standard & Poors	Moody's
March 22, 2011		B+, stable outlook	
March 1, 2012	B+, negative outlook		
November 7, 2012			B1, outlook stable
October 25, 2013		B+, negative outlook	
October 28, 2013	B, outlook stable		
September 19, 2014	B, positive outlook		
March 13, 2015	B, stable outlook		
May 29, 2015			B1, negative outlook
July 1, 2015		B, stable outlook	
September 25, 2015			B2, stable outlook
February 24, 2016	B, negative outlook		
March 18, 2016		B, negative outlook	
April 19, 2016			B3, negative outlook
February 2017	Rating affirmed	Rating affirmed	

Sources: Fitch's Ratings, Standard & Poors, and Moody's Investors Service.

B1 / B+ ratings indicates that "An obligor is more vulnerable than the obligors rated "BB", but the obligor currently has the capacity to meet its financial commitments.

B2 / B ratings indicates that "An obligor is more vulnerable than the obligors rated "BB", but the obligor currently has the capacity to meet its financial commitments.

B3 and B- ratings indicates that "Adverse business, financial, or economic conditions will likely impair the obligor's capacity or willingness to meet its financial commitments.

Caa / CCC "An obligor is currently vulnerable, and is dependent upon favourable business, financial, or economic conditions to meet its financial obligations.

B. Drivers of Zambia's Fiscal Performance and Rapidly Rising Public Debt

Narrow Tax Base

Table 2. Tax Levels for SADC Countries, 2015

	Total Revenue	Tax Revenue	Taxes on goods and services	Income tax	Taxes on international trade and transactions
Zambia	18.8	14.4	6.3	7.0	1.1
Angola	27.3	24.7	1.4	21.0	1.1
Botswana	32.5	23.2	3.8	8.3	10.8
Congo, Democratic Republic	15.9	9.3	4.1	3.2	2.0
Lesotho	51.7	44.0	9.3	12.1	0.8
Madagascar	11.8	10.1	2.5	2.5	5.1
Malawi	21.9	16.2	6.3	8.3	1.5
Mauritius	21.9	19.4	11.6	5.7	0.3
Mozambique	28.0	21.0	9.1	9.0	2.1
Namibia	35.2	33.0	8.1	12.8	12.0
Seychelles	34.7	30.7	15.3	10.1	1.8
South Africa	29.6	24.8	9.1	14.8	0.1
Swaziland	29.2	27.8	6.3	7.6	13.8
Zimbabwe	27.5	26.4	11.8	8.7	2.8
Average SADC	27.6	23.2	7.5	9.4	4.0
Median SADC	27.8	24.0	7.2	8.5	1.9

Source: World Economic Outlook.

7. **Zambia's domestic revenue is low compared to peer countries in the Southern African Development Community (SADC) (Table 2).** At 14 percent of GDP in 2015, Zambia's tax-to-GDP ratio was significantly lower than the un-weighted average for SADC (23.7 percent of GDP). Non-tax revenue on the other hand grew from about 1 percent of GDP in 2009 to 4 percent of GDP in 2015 due to higher collection of mineral royalties associated to growing production and changes

in the mining fiscal regime³ and additional collection of fees due to the introduction of toll roads, among others.

8. **Significant tax exemptions, large thresholds, and a multiplicity of tax rates explain the large gap in the tax ratio between Zambia and SADC countries (Table 3).** Zambia's VAT rate (16 percent) is higher than the rate for Botswana, Lesotho, Seychelles, and South Africa. However, its contribution as a share of GDP in 2015 was much lower than all of them. This is seen by Zambia's relative low VAT C-efficiency rate⁴—estimated at 0.28 percent in 2015, compared to the average of 0.45 percent for SADC members (Figure 3). Zambia's lower efficiency is due to the many exemptions that narrow its tax base (e.g. on kerosene, health, education, rental income, water, transport, some financial services, life insurance, food and agriculture); additionally, books, medicines and medical equipment are zero rated. Under modern VAT, zero-rating should be limited to exports. IMF staff estimate that if current exemptions are kept, Zambia would need to increase its rate to 25 percent to reach SADC's VAT collections levels.

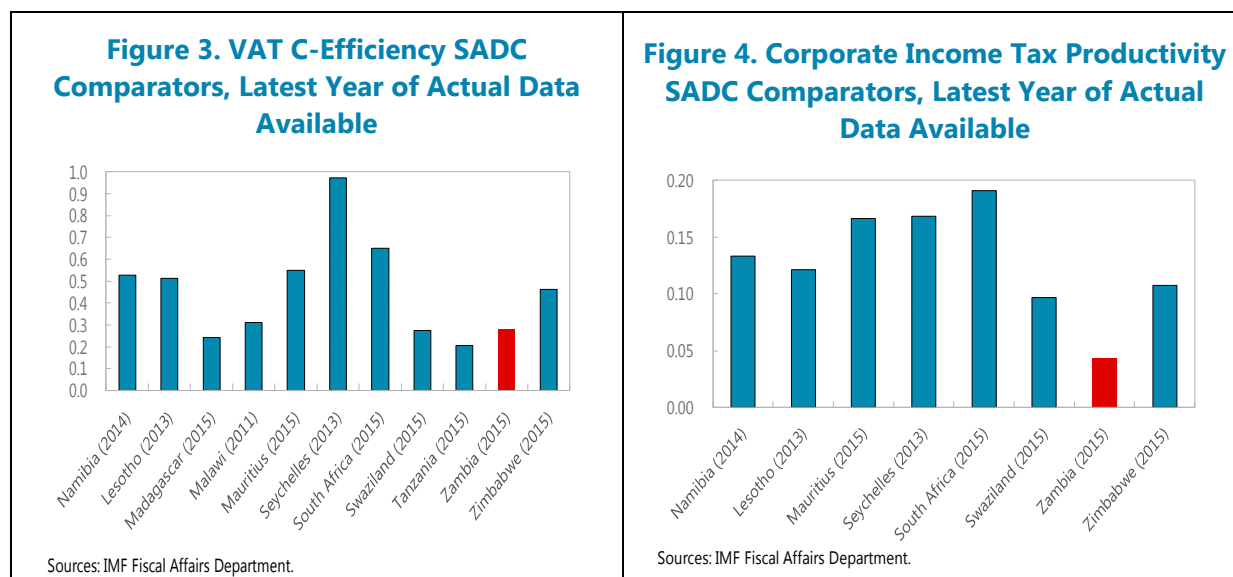
Table 3. Rate Structure of Taxes in EAC and SADC Countries, 2015
(in percent)

	GDP per capita 2015 (US Dollars)	VAT Thresholds (US Dollars)	PIT Thresholds (US Dollars)	Current Standard VAT Rate	Corporate Income Tax Rates
Rwanda	732	27,793	500	18	30
Burundi	319	63,618	1,145	18	30
Kenya	1,439	50,767	-	16	30
Tanzania	957	50	1,025	18	30
Uganda	630	46,289	870	18	30
Zambia	1,310	91,938	4,137	16	35
Angola	3,876	-	288	-	35
Botswana	6,781	93,667	3,372	12	22
Congo, Dem. Rep.	471	86,317	566	16	35
Lesotho	1,223	66,654	-	14	25
Madagascar	402	68,178	85	20	20
Malawi	354	20,016	480	16.5	30
Mauritius	9,115	171,151	-	15	15
Mozambique	529	-	-	17	32
Namibia	5,041	-	3,921	15	33
Seychelles	14,554	150,191	-	15	25
South Africa	5,721	78,417	-	14	28
Swaziland	3,512	39,208	-	14	30
Zimbabwe	1,003	60,000	3,600	15	25.75
Unweighted Average EAC	815	37,704	885	17.6	
Unweighted Average SADC	2,411	78,417	1,969	15.3	

Source: IBFD, IFS.

³ Royalty rates increased from 3 to 6 percent in 2012. A royalty-based regime with high rates (i.e., 20 percent for open pit mines and 8 percent for underground) was in place in the first half of 2015). A unified 9 percent rate was effective July, 2015-June 2016. Since then, a sliding scale mineral royalty system is in place.

⁴ VAT C efficiency is defined as actual VAT collections as the share of its potential base.



9. **Zambia's income tax productivity is also low compared with SADC members.**⁵ (Figure 4). For instance, corporate income tax (CIT) in Zambia only yielded 1.5 percent of GDP in 2015 compared to SADC's average of 3.5 percent of GDP. This relatively poor performance reflects the fact that many sectors in Zambia enjoy tax rates well below the 35 percent standard rate, and widespread tax incentives. Similarly, the personal income tax is limited by a high tax-free threshold, which has trebled since 2011. IMF staff estimate that about two thirds of wage earners in Zambia are below the exempted threshold. Additionally, several components, including capital gains, are excluded from the base.

10. **Large exemptions and rising imports from regional free trade areas are contributing to the decline in trade taxes.** At 1 percent of GDP in 2015, Zambia's customs duty collection is below the average for SADC of 3.8 percent of GDP due to the existence of several exemptions or reduced rates including on import of fuels by the government, irrigation and other farming equipment. Additionally, Zambia's trade taxes have been declining due to increased trade from regional free trade areas. According to the Zambia Revenue Authority, the Value of Imports for Duty Purposes - VIDP (i.e., the tax base for customs duties) narrowed from 24 percent of the total value of imports in 2014 to 19.5 percent in 2015.

11. **Since 2012, foreign grants have declined sharply affecting Zambia's overall resource envelope.** The reduction in foreign grants reflects consolidation efforts by major donors as well as the somewhat limited progress made by Zambia's government in strengthening public financial management, which has limited the country's ability to receive some of the programmed grants.

⁵ CIT productivity is defined as the tax yield in percent of GDP relative to the standard CIT rate.

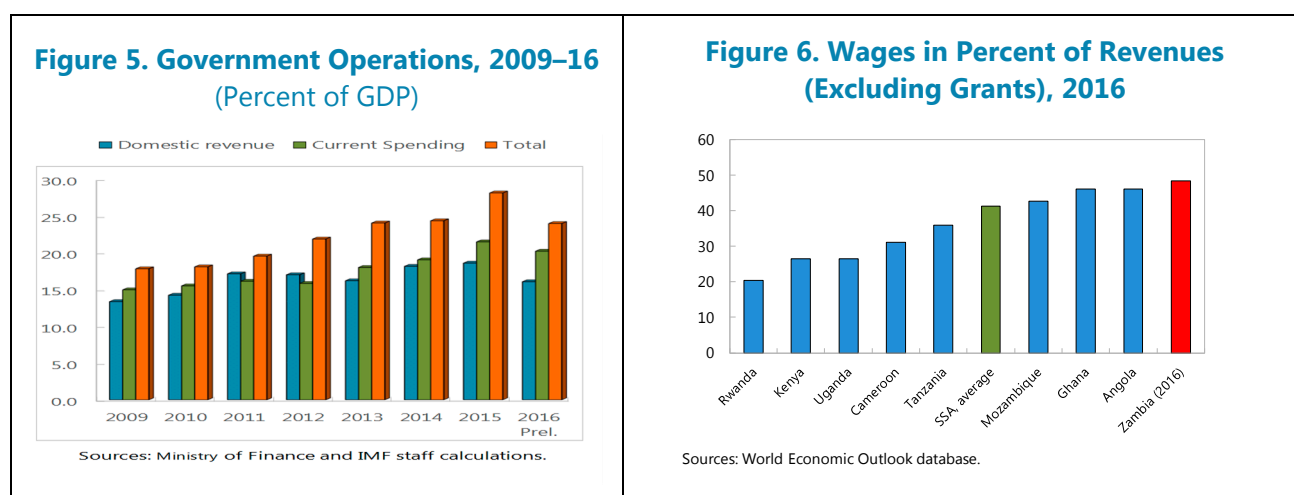
Unsustainable Expenditure Levels

12. **Current spending outpaced domestic revenue mobilization (Figure 5).** In 2016, the wage bill (took 48.4 percent of domestic revenues), energy and agriculture subsidies (29.9 percent), and debt service (24.2 percent), absorbed over 100 percent of the budget's domestic revenues, thus not only leaving no room for operational and other priority spending including social cash transfers, but also requiring some borrowing to cover these three components of the budget.

13. **Zambia's wage bill is high relative to peer countries in the SADC region (Figure 6).** It increased rapidly from less than 38 percent of domestic revenues in 2011 to nearly 52 percent in 2014. The increase was driven by salary increases granted in 2012 and 2013/14. As a result of which, the wage bill jumped from 6.5 percent of GDP in 2011 to 9.4 percent of GDP in 2014, thus representing one of the main sources of pressure on public finances in Zambia.

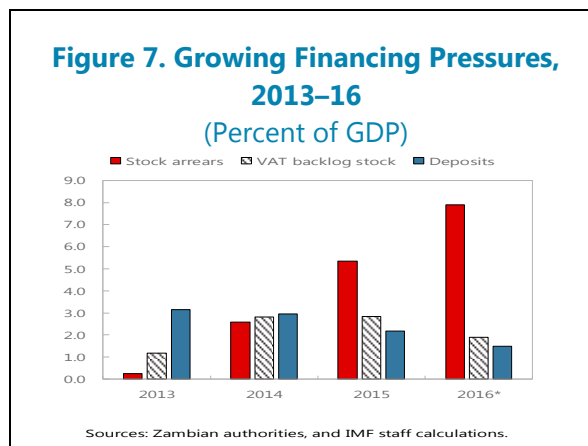
14. **A wage freeze helped to temporarily address the imbalance.** The wage freeze, which lasted from September 2014 to December 2015, lowered the wage bill to 8.5 percent of GDP in 2015 and to less than 48 percent of the domestic revenue mobilized in 2015. Given the salary adjustment granted in 2016 and the new hiring of personnel in key institutions of the government, the share of domestic revenues to cover the wage bill in 2017 is projected to reach 53 percent.

15. **Large and not well targeted subsidies (energy and agriculture) are among the main sources of spending overruns.** Even though full-cost recovery policies are in place for fuel prices and electricity tariffs, energy subsidies stem from the lack of implementation of such policies. They soared from 21 percent of 2015 domestic revenues to nearly 30 percent of 2016 domestic revenues. Fuel and electricity subsidies are poorly targeted as they benefit mostly the middle and high income groups of the population. In the case of fuel, 92 percent of the subsidy is received by the wealthiest 10 percent of the population while in the case of electricity close to 85 percent goes to the richest 20 percent of population while the poorest families get less than one percent in both cases.



Rapidly Rising Public Debt

16. **Despite U.S.\$3 billion raised in the international capital markets, huge liquidity problems emerged since 2014.** The relative static domestic revenue and spending overruns led the government to accumulate arrears since 2014. Negative market sentiment and unfavorable financing conditions aggravated the situation in 2016 and the government ran down on its deposits (from 5 percent of GDP in 2012). New arrears accumulated during the year reached nearly 3.5 percent of GDP and the total stock as of end-2016 stood at 8 percent of GDP (Figure 7).



17. **Government's borrowing requirements have increased and at a rising cost.** Since 2012, Eurobonds (\$750 million in 2012, \$1 billion in 2014, and \$1.25 billion in 2015) helped to finance the budget but at increasing costs due to higher coupon rates since the first issuance and the effect of movements in the exchange rate compared to the exchange rate at the time of original issuance. The relative apparent low cost from Eurobonds (i.e., when looking only at the nominal interest rate in U.S. dollar) ignores the exchange rate risk (Table 4). The effective borrowing cost (coupon plus the average annual kwacha depreciation) is three to four times the nominal interest rate. Against this background, interest payments have tripled since 2011 rising from less than 1 percent of GDP in 2011 to 3 percent of GDP in 2016 reflecting the rapid accumulation of debt, rising borrowing cost, and the impact of the exchange rate depreciation.

18. **The stock of public debt has risen sharply since 2011 with its composition moving towards external and non-concessional debt.** Total public debt rose from less than 21 percent of GDP in 2011 to 61.2 percent of GDP in 2015. Increased reliance on external sources and the sharp depreciation of the Kwacha in 2015 are the major factors behind the huge increase (Figure 8). Over the same period, the structure of debt in terms of sources shifted from domestic to external with the share of external debt to total public debt growing from 40 percent in 2011 to 66 percent in 2015. At the same time, due to the three Eurobonds issued, external debt at commercial terms jumped from 23 percent to over 70 percent in 2015. Conversely, concessional debt from multilateral sources dropped from 65 percent of external debt in 2011 to 25 percent in 2015 (Figure 9).

Table 4. Government Borrowing Cost on the 2012, 2014, and 2015 Eurobonds

	2012	2014	2015
Amount issued (million U.S. dollar)	750	1,000	1,250
Amount issued (million kwacha) ¹	3,770	6,127	9,591
Nominal interest rate (coupon, per cent)	5.375	8.500	8.970
Yield at Issuance (percent)	5.625	8.625	9.375
Yield as at July 5, 2017 (percent)	6.971	7.868	8.210
Issue Price (Percent)	98.108	99.174	97.257
Maturity	Sep-22	Apr-24	Jul - 25, 26, 27
Interest payments			
U.S. dollar, million²	40	85	112
In kwacha, million, estimated at issuance¹	203	521	860
In kwacha, million, effective payment in 2016³	431	812	1,206
Effective Interest payments in 2016	11.4	13.3	12.6
Exchange rate depreciation effect (percent) ⁴	112.8	55.9	40.1
Average annual rate of depreciation (percent)⁵	17.1	19.4	19.4
Effective borrowing cost in Kwacha (percent)⁶	22.5	27.9	28.4

Source: 2012, 2014, and 2015 Offering Circulars, and IMF staff estimates and calculations.

¹ The prevailing exchange rate on issuance date were ZMK5.026/US\$1 (2012), 6.1267/US\$1 (2014) and 7.673/US\$1 (2015).

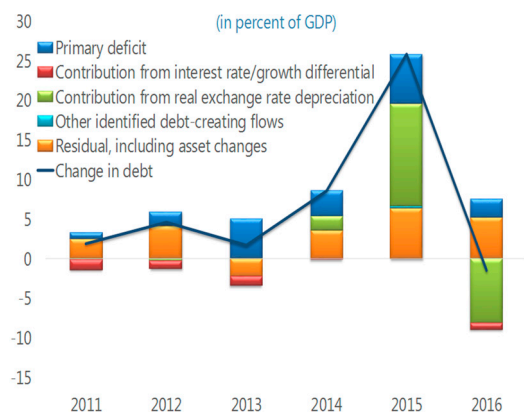
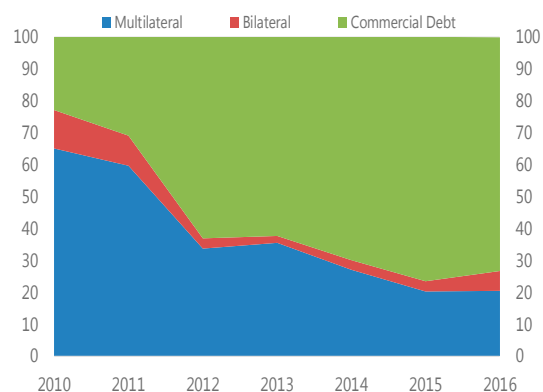
² Fixed annual amount in dollar terms.

³ The prevailing exchange rate on due date for interest payments in 2016 [ZMK 11.25/US\$1 (Jan 30), 11.36(Mar 20), 9.18(Apr 14), 10.25(Jul 30), 10.03(Sep 20) and 9.92(Oct 14).

⁴ Additional effective interest payment in percent of the estimated cost at issuance.

⁵ ZMK/USD, from issue date to December 30, 2016.

⁶ Coupon rate plus ZMK/USD average annual rate of depreciation

Figure 8. Contributors to the Evolution of Public Debt**Figure 9. Composition of Public External Debt (Percent of total external debt)**

Sources: Zambia authorities and IMF staff calculations.

C. Analytical Framework

19. **Fiscal sustainability is critical for macroeconomic stability and sustainable growth.** International experiences and literature show that unsustainable fiscal policies have adverse macroeconomic effects, including inflation pressures, increased interest rates and crowding-out of private investment, and increased uncertainty, thus affecting market sentiment and ultimately hindering economic growth. Through its impact on borrowing, interest rates, and market sentiment, fiscal sustainability is closely linked to public debt sustainability.
20. **There are several definitions of fiscal sustainability. Cotarelli and Moghadam (2011) view fiscal policies as unsustainable if, in the absence of adjustment, sooner or later the government would not be able to service its debt.** If no realistic fiscal adjustment can prevent this situation from arising, not only fiscal policy, but public debt would be unsustainable. For Bakers et al (2008), fiscal sustainability refers to the ability of a government to meet both current and future obligations. Fiscal sustainability for New Zealand's Treasury (2013), refers to the adequacy of government taxation and spending policies and whether the Government will be able to maintain current policies without major adjustments in the future. Blanchard (1990) defines fiscal policies as sustainable if the debt-to-GDP ratio converges back to its original level; in other words, the change in fiscal policies required to maintain the current debt ratio stable.
21. **Two approaches to assess sustainability have emerged.** The first approach, based on empirical tests, aims at testing econometrically the sustainability of past fiscal policies to predict the sustainability of future fiscal policies, but it has had contradictory results even when applied to same countries or same data.⁶ The second approach focuses on selected sustainability indicators and the application of DSA. Buiter (1985) proposes that for fiscal policies to be sustainable, the ratio of public sector net worth to GDP should be maintained over time at its current level. The main caveat with Buiter proposal is the difficulty in determining accurately the level of government's net worth. Blanchard (1990) solved the problem by focusing on indicators that measure the required adjustment in fiscal policies to maintain public debt stable and proposed three indicators: (i) the primary balance gap; (ii) the tax gap; and (iii) a long-term tax gap.
22. **Assessment of fiscal and public debt sustainability features predominantly in the IMF's work and policy discussions with its member countries.** IMF's assessment has mainly focused on evaluating whether member countries' fiscal policies and consequently their public debt and debt service indicators are sustainable against a battery of indicators for which thresholds are defined under applicable DSAs frameworks.
23. **This paper assesses fiscal sustainability applying the primary gap and tax gap indicators (the Blanchard's sustainability indicators).** Chalk and Hemming (2000) conclude that using indicators such as the primary gap and tax gap to tests for fiscal and public debt sustainability

⁶ The classical exercise is that of Hamilton and Flavin (1986) who found that the transversality condition (i.e. the no-Ponzi game condition or that the government does not service debt by issuing new debt) was met during U.S. post-war years even though the data shows uninterrupted fiscal deficits for 1960-81.

entail a prudent approach to sustainability especially in countries where the fiscal position is characterized by high debt and primary deficits as in the case of Zambia. Key advantages of Blanchard's sustainability indicators are their simplicity to calculate and their relative ease of interpretation. However, there are criticisms about these indicators such as suggesting that public debt must remain unchanged, and that for countries that are heavily indebted, sustainable fiscal policies may even require a reduction in public debt or the need for heavily indebted countries, while in the case of some low indebted countries, fiscal policies could still be sustainable even if public debt increases.

24. **The primary balance gap and tax gap are based on the government's intertemporal budget constraint.**⁷ The government's intertemporal budget constraint requires that the net present value of all future primary balances must be sufficient to pay back the stock of debt. For more details on the methodology applied see Annex I.

D. Study Results

25. **Key to the calculation of the sustainability indicators is the macro-framework underpinning the fiscal and public debt projections.** In this context, preparing a baseline scenario that is as realistic as possible is critical. The baseline scenario or under current policies is in line with current Fund staff estimates. Assumptions about growth and real interest rates along with the main fiscal indicators required to calculate the primary gap and the tax gap are presented in Table 6.

	2015	2016	2017	2018	2019
Fiscal Variables					
t	18.8	18.2	17.3	18.4	18.4
ps ¹	25.3	20.5	21.7	22.2	21.6
pd	6.5	2.3	4.5	3.5	2.8
b	61.4	60.5	55.6	60.0	62.4
Macroeconomic Variables					
y	2.9	3.4	4.0	4.5	4.5
r	3.2	1.6	2.4	2.9	2.7

Source: Zambian authorities and IMF staff estimates and projections.
ps¹ Primary spending

26. **Calculations of the sustainability indicators show adjustment is required to avoid public debt from rising permanently.** For 2017-19, the average primary deficit needed to stabilize

⁷ The intertemporal budget constraint basically points out that government cannot expand its indebtedness forever (i.e., it cannot borrow its way out through unsustainable debt levels without adjusting revenues or cutting spending). This ensures that solvency is achieved. Solvency is understood as a no Ponzi game financing.

public debt is estimated at 0.8 percent of GDP compared to the estimated primary deficit average of 3.6 percent of GDP, which implies that an average adjustment of 2.8 percent of GDP over the period—either by increasing revenues or lowering spending—is necessary to avoid further debt accumulation. Similarly, the average permanent tax ratio required to stabilize public debt is estimated at about 20.8 percent of GDP compared to the projected average of 18.1 percent of GDP thus implying that there is a revenue gap of around 2.7 percent of GDP. The adjustment required to stabilize public debt does not necessarily have to come only from the revenue side. Zambia’s main sources of fiscal imbalances in 2015-16 arose from the energy and agriculture subsidies. In this context, reducing their burden on the budget combined with an increase in domestic revenues seems a sensible approach.

Table 7. Primary Deficit and Debt Under Sustainable Ratios
(Percent of GDP)

	2015	2016	2017	2018	2019
t*	25.4	19.4	20.8	21.2	20.3
Revenue gap	-6.6	-1.2	-3.5	-2.8	-1.9
pd*	-0.1	1.1	0.9	0.7	0.9
Primary balance gap	-6.6	-1.2	-3.5	-2.8	-1.9

Source: Zambian authorities and IMF staff estimates and projections.

E. Conclusions and Policy Recommendations

27. **Zambia’s public debt has increased substantially since 2011 due to unsustainable fiscal policies and been exacerbated by a weak local currency.** Low and stagnant revenues combined with large spending overruns stemming from a large wage bill—among the highest in the SSA region, expensive and poorly targeted subsidies, and the government’s efforts to close the country’s infrastructure gap, have pushed public debt to over 60 percent of GDP in 2015, 30 percentage points of GDP higher than the 2011 levels. The most recent DSA indicates that Zambia’s public debt vulnerabilities have increased and is now at high risk of debt distress.

28. **Loose fiscal policies have pernicious effects on the economy.** Absent strong adjustment measures, the fiscal deficit will remain high and public debt metrics will continue weakening. To limit government debt from growing permanently and to stabilize it at current levels, the study results show that the primary balance needs to be adjusted by an average of 1.7 percent of GDP during 2017-19. The revenue gap that needs to be closed to avoid insolvency is estimated at an average of 1.9 percent over the same period. This implies strengthening revenue mobilization and containing current spending to lower the deficit to 4.0 percent of GDP compared to current estimates of about 7 percent of GDP.

29. **Possible measures on the revenue side include:** eliminating or reducing the tax exemptions that erode the tax base for VAT and CIT, harmonizing the corporate income tax rates (by

raising rates on low-tax sectors), revising the personal income tax exempted threshold and its different brackets and rates, rationalizing tax expenditures, and introducing the property tax.⁸

30. **On the spending side, possible measures include:** restraining growth in the wage bill to projected annual inflation rate (including through a comprehensive civil service reform), addressing costly and poorly targeted energy subsidies, including by enforcing the policy of full cost recovery in the pricing of petroleum products and moving to cost-reflective electricity pricing to ease pressure on the budget and attract much needed investments into the energy sector, and rationalizing the subsidies to the agriculture sector (FISP and FRA).

31. **The institutional framework for the budget process and the Medium-Term Expenditure Framework needs to be strengthened.** The current MTEF provides a rolling-three-year budgetary plan, with revenue estimates and spending projections by the main economic categories and with fiscal deficits targets showing a consolidation plan over the medium-term. However, the annual fiscal targets are not binding as executed budgets have typically deviated by significant margins from approved budgets, which has led to the accumulation of arrears.

32. **Poor commitment controls, which led to significant accumulation of payment arrears need to be addressed.** Measures to improve commitment controls include the full implementation of the IFMIS system and the Treasury Single Account bringing all central government institutions under the same financial operational system helping to improve liquidity management and budget credibility. Similarly, rolling-out the output based budget could help to curtail non-essential expenditures. Government's plans to enact the Planning and Budgeting Bill and revise the Public Finance Act are steps in the right direction to enhance budget credibility.

33. **The public investment cycle requires key improvements to help achieve government's developmental objectives on more sustainable way.** Enhancements to the public investment cycle include improving the project selection, appraisal, and execution processes. First, project selection needs to be strengthened to ensure projects are aligned with the national development plan. Second, a proper project appraisal framework needs to be in place to ensure projects to be included in the budget have completed feasibility studies and are selected based on their economic and social rate of returns. Third, strengthening the procurement process is required to ensure value for money. The government's plan to revise the Public Procurement Act is a step in the right direction as this will assist the government in reducing high cost in government procurements.

34. **A sound Medium Term Debt Management Strategy (MTDS) is required to reduce public sector debt vulnerabilities.** Against a background of increased risk of debt distress, borrowing plans need to be balanced between developmental goals and the need to reduce the risk of debt distress. The MTDS should include a strategy to address exchange rate and rollover risks and strengthen the composition of debt between domestic and external as well as creditors base. Key to

⁸ It is estimated that the property tax could generate up to 1.5 percent of GDP. Its fully implementation, however, requires an updated cadaster and country-wide revaluation of properties. An alternative approach while those issues are solved could be to follow a gradual approach with pilot projects in Lusaka and the Copperbelt district.

these objectives is the need to strengthen institutional capacity, including on the collection and monitoring of all public-sector debt data, which should not be limited to central government debt but should also include loans to be on lent and publicly guaranteed debt.

Annex I. Methodology

The government's intertemporal budget constraint requires that the net present value of all future primary balances must be sufficient to pay back the stock of debt.

The budget constraint is given by:

$$B_t = B_{t-1} + PD + IP_t \quad (1)$$

Where B_t is stock of public debt in the current period; B_{t-1} is the stock of public debt in the previous year, PD is the primary balance and IP is the interest payment in the current period (i.e., associated to the stock of debt in the previous period). The primary deficit (surplus) is indicated by a positive (negative) value.

Rewriting equation 1 yields

$$B_t = B_{t-1} + PD_t + rB_{t-1} \quad (2)$$

$$B_t = B_{t-1}(1 + r) + PD_t \quad (3)$$

Rewriting equation 3 in terms of GDP, denoted by Y

$$\frac{B_t}{Y_t} = \frac{B_{t-1}}{Y_t}(1 + r) + \frac{PD_t}{Y_t} \quad (4)$$

Which can be represented by

$$b_t = b_{t-1}(1 + r) + pd_t \quad (5)$$

As the economy grows (g), the capacity of a government to service and repay its debt increases. This yields the following equation

$$b_t = b_{t-1} \left[\frac{(1+r_t)}{(1+g_t)} \right] + pd_t \quad (6)$$

After rewriting equation 6, the *permanent primary balance* required to stabilize the debt ratio is given by

$$pd^* = \frac{(g_t - r_t)}{(1+g_t)} b_t \quad (7)$$

The primary gap indicator required to stabilize the debt ratio is the difference between the estimated permanent primary balance and the projected primary balance under current or expected policies

$$pd^* - pd_t = \frac{(g_t - r_t)}{(1+g_t)} b_t - pd_t \quad (8)$$

A negative primary gap indicates that the current primary balance under current policies is larger than what it is required to stabilize public debt (i.e., public debt will grow monotonically) and thus fiscal policy is considered unsustainable.

As an alternative to the primary gap, Blanchard suggests the calculation of a tax gap indicator. First, the permanent tax ratio required to stabilize the stock of debt as a share of GDP is calculated. This is given by:

$$\tau^* = s_t - \frac{(g_t - r_t)}{(1 + g_t)} b_t \quad (9)$$

Where s is the ratio of spending excluding interest payment (i.e., primary spending) as a share of GDP. The tax gap indicator is then given by

$$\tau_t - \tau^* = t_t + \frac{(g_t - r_t)}{(1 + g_t)} b_t - s_t \quad (10)$$

The tax gap is the difference between the permanent tax to GDP ratio and the current tax ratio. A negative value for the tax gap indicates that current revenues are insufficient to stabilize public debt given the current spending policies implying that an adjustment is required.

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MODERNIZING THE MONETARY POLICY FRAMEWORK IN ZAMBIA¹

"When a storm is raging around you, it is a major advantage to be travelling in a reliable and robust vessel. In terms of an economy, this often means having a well-designed economic policy frameworks and clear and credible ground rules which provide robustness and stability."

Per Jansson (Sveriges Riskbank's Deputy Governor)

A. Background

1. Along with other African countries, such as Uganda, Ghana and Kenya, Zambia has decided to modernize its Monetary Policy Framework (MPF) and eventually move towards an Inflation Targeting Framework (ITF). This decision entails many important challenges on several dimensions, some of which go beyond MP itself. On the operational side, it means that MP's focus changes from quantities to prices, and overall to market-based policies. On MP's strategy, it means that policymakers consider a much broader set of economic indicators in their decisions, but within a coherent framework. More importantly, it means that MP decisions become more forward-looking and transparent. On the institutional side, it requires actions that grant operational independence and mitigate political pressure on central banks' decisions. On the other hand, the central bank (CB) becomes more accountable. These changes ultimately reflect a better understanding of the proper role of MP and how the CB can best contribute to improve society's welfare. This paper analyses how this transition has been faring so far in Zambia, how best to cope with the main challenges looming ahead, taking into consideration not only best practices in modern MP-making but also the lessons learned from some of Zambia's peers.

2. The 21st century has witnessed significant changes in the MP landscape in Africa and elsewhere. Those changes reflect both a longer-term trend – the decreasing appeal of more rigid exchange rate (ER) arrangements – and most current developments – the move towards more forward-looking MPFs. Notwithstanding the recent introduction of the Euro, there has been a worldwide move towards adopting more flexible ER regimes, including in Africa in spite of the fact that it hosts two long-standing monetary unions (WAEMU and CEMAC).^{2,3} This move started in early 1970s with the breakdown of the Bretton Woods system, got an extra push from the exchange rate mechanism crisis, and was consolidated by the adoption of ITFs by several industrial countries in early 1990s (New Zealand, Canada, United Kingdom, Australia and Sweden). Those countries were not pleased with their previous MPFs (i.e. ER and monetary targeting) and were seeking alternative frameworks. That trend gained momentum as many emerging market

¹ Written by Tito Nicias Teixeira da Silva Filho

² Note that although Euro member countries have an implicit fixed ER against each other, the IMF (2015a) classifies their ER regime as floating as the common currency floats against other currencies.

³ Both currency unions involve former French colonies (except Guinea-Bissau in the WAEMU) in Africa and were established many decades ago. They encompass 14 countries (i.e. around 30 percent of SSA economies).

economies (e.g. Brazil, Chile, Mexico, Turkey and South Africa) and an increasing number of other countries (e.g. Czech Republic, Israel, Norway, Poland, Peru and Hungary) decided to modernize their MPFs and adopt ITFs. This new landscape has recently reached Africa, as several African countries have acknowledged the need to modernize their MPFs and have started to transition towards more forward-looking frameworks (e.g. Ghana, Kenya, Uganda and Zambia). Other SSA countries have also expressed their plans to modernize their MPFs (e.g. Malawi, Mozambique, Rwanda and Tanzania).

3. Despite this global move towards more flexible ER regimes, 46 percent of countries worldwide still had *de facto* pegged ER regimes in 2015 (i.e. used the ER as a nominal anchor) (IMF, 2015a).⁴ In Africa, that share is even larger.⁵ Among the SSA economies with more flexible ER arrangements, monetary aggregates have typically initially replaced the ER as the nominal anchor for MP (e.g. Kenya, Mozambique, Malawi, Rwanda, Tanzania and Uganda).⁶ However, similarly to what happened to industrial countries during the 1970s and 1980s, many SSA countries started facing difficulties in running their monetary policies, as the link between monetary aggregates and nominal income broke due to financial innovation and inclusion, and increasing global financial integration.^{7,8}

4. While for some economies an exchange rate anchor is perhaps the best policy option, for many others pegged regimes reflect the quest for rules over discretion. The discussion over the best ER regime is one of the oldest debates in Economics.⁹ The choice for a pegged ER regime possibly makes sense for some African economies, notwithstanding the loss of degrees of freedom

⁴ More specifically, according to IMF (2015a), 46 percent of the countries in the AREAER (Annual Report on Exchange Arrangements and Exchange Restrictions) database adopted some kind of ER anchor in their MP frameworks as of April 30 2015. Among the remaining, 13 percent are classified as monetary aggregate targeters, 19 percent as inflation targeters, and 22 percent as other. The latter "Includes countries that have no explicitly stated nominal anchor but instead monitor various indicators in conducting MP." The AREAER's taxonomy classifies ER regimes into four types: hard pegs, soft pegs, floating regimes and residual. Each type is further broken down into one or more categories, reaching ten in total.

⁵ According to IMF (2015a), 53 percent of the SSA countries peg their ERs. However, this number is highly affected by those countries that are members of the WAEMU and CEMAC (about 25 percent of countries in SSA). When they are excluded, the share drops to around one third.

⁶ That was also the case for many industrial countries (e.g. U.S., Canada and U.K) after the breakdown of the Bretton Woods system.

⁷ For a quick and interesting account of the different performances of monetary targeting in Canada, U.S and the U.K compared to Germany and Switzerland see Mishkin (2000).

⁸ Changes in velocity have also been highlighted as one reason for modernizing SSA MPFs (e.g. IMF, 2014, 2015b). However, this fact does not necessary make monetary targeting unfeasible. For example, if velocity exhibits a trend and that trend is forecastable it should not pose major problems. In addition, monetary targeting hinges on the assumption of a medium-term link between money and nominal income. That means short-run deviations between outcomes and projections are not inconsistent *per se* with monetary targeting. However, it does pose problems for those countries under an IMF-supported economic program, due to the higher frequency of the reviews.

⁹ For example, Friedman (1953), Mundell (1961), Obstfeld and Rogoff (1995), Fischer (2001) and Calvo and Reinhart (2002).

in economic policymaking.¹⁰ However, like most Latin American countries once did (see, for example, Calvo and Végh, 1999), many African economies adopted pegged exchange regimes as a device to impose macroeconomic discipline (i.e. rules), and not because it was considered the best arrangement (i.e. discretion) for their economies.¹¹ This fact remains key to understand the actual MP landscape in Africa – where many countries have some form of pegged ERs – but often implement policies that are inconsistent with those pegs.

5. Around 30 percent of the SSA countries adopting more flexible ER regimes have not yet adopted an explicit nominal anchor for their MPs. Although most of the countries that have opted for a more flexible ER regime have either adopted a monetary targeting or are moving to an ITF, almost one third of them were classified as not having “an explicitly stated nominal anchor, but rather monitor various indicators in conducting MP” in mid-2015 (IMF, 2015a).¹² This situation reveals the inexistence of a *de facto* nominal anchor, reflecting opaque MPFs.

6. MPFs in SSA economies are often fuzzy and cannot be easily defined. In addition to the cases where MP does not have an explicit nominal anchor, many SSA countries adopt explicit hybrid MPFs. For example, countries such as Ethiopia, Nigeria and Rwanda adopt some kind of pegged ER regime and at the same time also set monetary targets (IMF, 2015a). While the feasibility of such arrangements increases under limited capital mobility, such type of MPF imposes serious challenges to policymakers. For example, for the CB to have a coherent MPF both targets need to be consistent with each other and that is not an easy task, mainly in the long-run. However, this is likely not the rationale underpinning those frameworks. Such hybrid regimes are usually indicative of poorly designed MPFs, including due to political interference on the CB. Indeed, according to a survey made with desk economists one third of Africa’s MPFs pursue three or more objectives (IMF, 2015c). In all those cases, countries could potentially reap large benefits from upgrading their MPFs in due time.

B. Regional Context

7. The modernization of MPFs currently taking place in several African countries stem from a much broader set of factors than just a technical-based decision. The decision from a growing number of African CBs to upgrade their MPFs reflects not only the search for a more suitable and efficient nominal anchor for MP but, more importantly, the increasing awareness in the region on the detrimental consequences of MP pursuing objectives that it could not deliver in the long run. In other words, this modernization hinges on the acknowledgement of the need to build more coherent MPFs, as many African CBs have multiple and often conflicting objectives, which translate into erratic and/or inconsistent policies, increasing macroeconomic volatility.

¹⁰ For example, in cases of small and very open economies with a dominant trading partner (e.g. São Tomé e Príncipe and Cabo Verde). See *Mussa et al.*, 2000.

¹¹ The rules vs discretion debate is a long debate in Economics. It delves into different inter-related literatures as those of the best ER regime, the time inconsistency problem and, more recently, in the MP rules debate.

¹² The latter classification also captures cases in which no relevant information on the country is available.

It also fits into wider efforts to implement sounder macroeconomic policies, as it can be seen by the widespread decrease in inflation rates in African economies in recent decades.

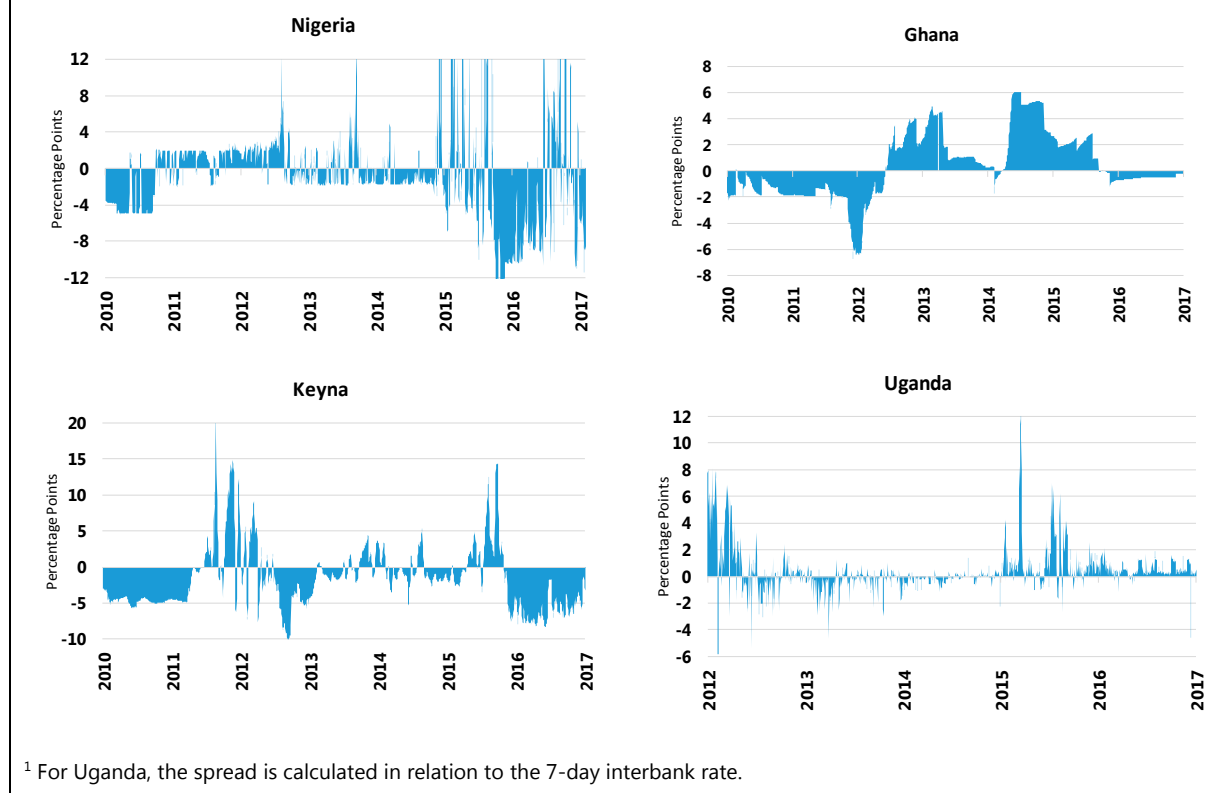
8. The ongoing upgrading in Africa’s MPFs share a key element: the move towards a more forward-looking framework. A consensus is emerging that not only MPFs in Africa need to modernize, given changes in the domestic and external financial landscapes, but crucially that they should be forward-looking. This is key to increase the efficiency of MP and minimize business cycles, as MP actions work with a lag.

9. African CBs that have been deemphasizing the role of monetary aggregates are facing important operational challenges. African CBs are facing extra challenges compared to what their industrial countries’ peers faced some decades ago, when they started abandoning monetary aggregates. Besides the broader challenges brought by the transition to a new MPF (e.g. learning the new framework, building up macroeconomic models, etc.), they are operating under some important constraints. For example, shallow financial systems harm the transmission mechanism of MP, operational difficulties in managing liquidity makes it harder for CBs to use efficiently the interest rate as the new operational target, and data limitations, especially high frequency data, make the job of the CB in assessing current economic conditions harder.

10. The array of challenges facing African CBs modernizing their MPFs go beyond those of analytical and operational nature (Figure 1). Besides implementation and operational challenges, African CBs have been constrained by wider and more relevant institutional-related challenges. One common and revealing problem that has been observed during the transition process is the divergence between the policy rate – that has become the new operating target – and interbank rates. This discrepancy cannot be fully explained by operational challenges alone, and ultimately reflects a weak commitment to the new MPF due the lack of *de facto* operational independence.

11. No MPF could successfully work when political pressure – or, worse, *seignorage* – impose binding constraints on the CB’s decision-making process. Regardless of whether the CB adopts an ER or a monetary aggregate anchor or yet move to a floating ER regime with an implicit anchor (e.g. inflation targeting), no framework will work satisfactorily unless: a) the CB has *de facto* operational independence to fulfill its mandate; b) its mandate is consistent with its abilities; and c) monetary and fiscal policy reinforce each other. Although the operational and analytical challenges facing African CBs are sizable, the main hurdle for an effective MP in Africa has been the presence of fiscal dominance and the adoption of incoherent MPFs, which largely reflect political pressure on the CB’s job. An imperfect understanding on the actual capabilities of MP also seems to play a role.

Figure 1. Spread Between the Policy and Interbank Rates in Selected SSA Countries, 2015¹



12. Most of the ongoing modernization in SSA MPFs is taking place in frontier economies.

Since South Africa successfully adopted an ITF in early 2000s, several African economies have been upgrading or have decided to upgrade their MPFs. Some of them are (for details see IMF, 2015b):

- Ghana:** The Bank of Ghana (BoG) started transitioning from a traditional monetary targeting framework (MTF) towards an ITF in 2007. However, results have been mixed at best, as the move was done without some key preconditions in place. BoG's job has been hindered by fiscal dominance - including by the monetization of deficits - and pressures to keep the MPR at lower than needed levels. Inflation, which had fallen from around 20 percent to around 8 percent, after the official adoption of the ITF (and an IMF-supported program), started to rise after the 2012 elections, and in August 2015 reached 17 percent vis-à-vis an inflation target of 8 percent. The BoG is currently working on improving its MPF, including by strengthening the role of the MPR and, especially, on increasing its independence.
- Uganda:** The Bank of Uganda (BOU) is well ahead in the process of modernizing its MPF, as it successfully transitioned from a flexible MTF to a forward-looking framework in 2011, which has many of the key IT elements, including an unambiguous price stability objective and a medium-term inflation target. Several measures to improve the functioning of the money

market and support the ITF have been taken, such as those to improve liquidity control and enhance the role of the MPR. Inflation has been at relatively low levels for many years now, and well below SSA average.

- **Kenya:** After assessing that its MTF was not working as expected due to frequent monetary target misses, the CB of Kenya (CBK) started upgrading its MPF in late 2011 to make it more forward-looking, aiming at gradually moving to an ITF. One key operational challenge was to increase the importance of the MPR. Although inflation has been falling, results have been mixed. For example, in late 2016 the CBK implemented interest rate ceilings, which is not compatible with an ITF. Additional measures are currently being taken to further strengthen the MPF. For example, the CB Act is being upgraded on many areas, including by setting price stability as the overriding MP objective.
- **Rwanda:** The National Bank of Rwanda (NBR) is at the very first stages of upgrading its MPF. Although formally adopting a monetary targeting, it has de facto a dual-anchor system, as it also puts great emphasis on the ER. The NBR has multiple and often inconsistent objectives (price stability, growth, credit to the private sector and the ER). It is now working to improve the functioning of the money market, the role of the MPR and building models to understand the transmission mechanism of MP and forecasting inflation.

In addition, countries like Mozambique, Malawi and Tanzania, which have floating exchange regimes and monetary targeting, have also indicated and/or have begun modernizing their MPFs.

C. Zambia Context

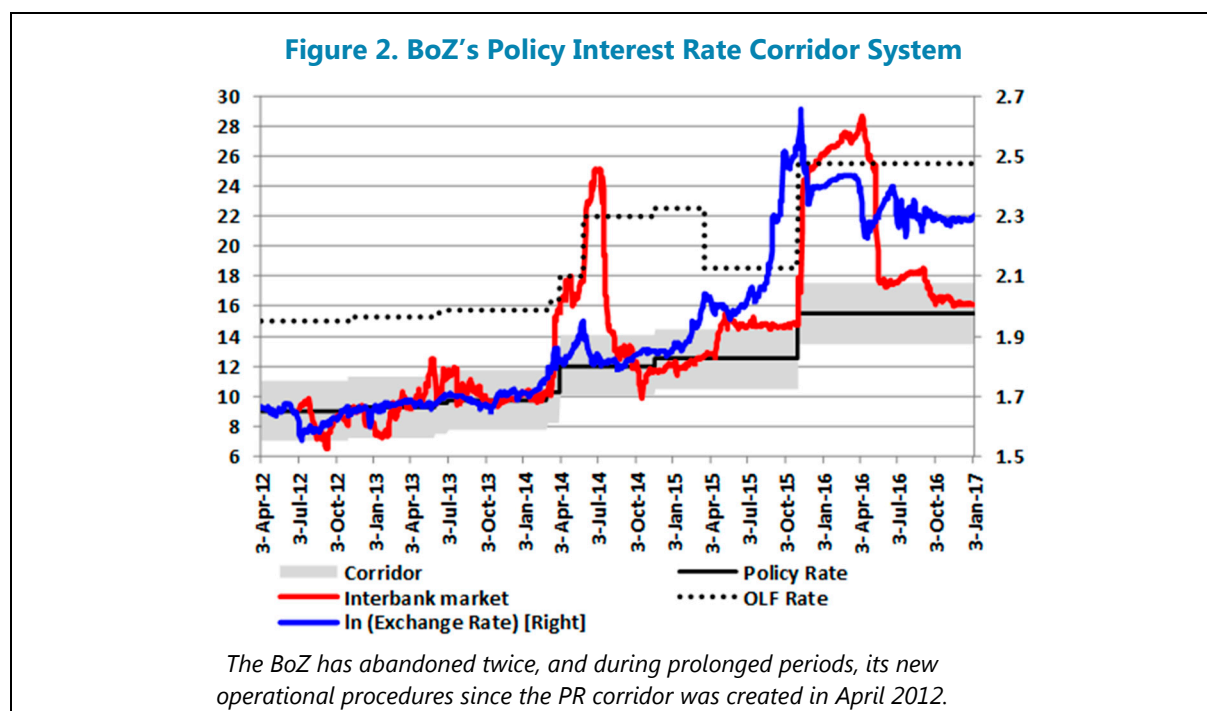
13. The BoZ took the first step towards modernizing its MPF in April 2012, when it changed its operational procedures. It formally shifted its operational procedures – from targeting monetary aggregates (quantities) to interest rates (prices) – in April 2012, when it introduced the PR and established an informal interest rate corridor, set at ± 2 percentage points around the PR. Following that decision, the operational target of MP changed from reserve money to the overnight interbank rate (OIR). Initially, MP aimed at maintaining the 30-day moving average of OIR close to the MPR and within the corridor, but soon afterwards the moving average was reduced to 5 days. Currently, the BoZ aims at maintaining the 5-day weighted average OIR within the policy corridor.

14. The main underlying rationale for introducing the MPR was to mitigate the cost of credit. Although the introduction of the MPR in Zambia was in line with similar measures taken by other African CBs modernizing their MPFs, the decision was taken within a context of the BoZ trying to exert greater control over lending rates.¹³ Indeed, less than one year later the BoZ

¹³ BoZ's Circular 5/2012 introduces the PR corridor. It states, "Accordingly, with effect from 2nd April, 2012 all commercial banks are expected to align their base lending rates to the BoZ Rate. The actual lending rate, therefore, shall be BoZ Rate plus a margin." In March 2013, an amendment to the BoZ's Act was enacted and states (bold

(continued)

introduced a ceiling on commercial banks' lending rates.¹⁴ The ceiling did not produce the expected results and was removed in November 2015, along with several other MP measures taken by the BoZ in an attempt to stabilize the kwacha during a sharp depreciation episode.¹⁵



15. The implementation of the new operational procedures has faced several challenges, which have hindered the modernization of the MPF (Figure 2 and Table 1). In the first two years following the introduction of the MPR the BoZ kept the OIR within the (wide) policy corridor 95 percent of the time. When the OIR went outside the corridor, deviations from both bounds were relatively small and short-lived. However, despite the relatively successful beginning, in recent years the BoZ set aside for prolonged periods its declared operational objective on two occasions. In the first, during six months, from mid-March to mid-August 2014, the OIR deviated substantially from the upper bound of the corridor. In the second, after hovering just outside the upper bound

added) "The Bank [BoZ] may, in support of price and financial system stability, **regulate the rate of interest** and other charges that financial service providers may impose on a banking transaction." In many occasions, the Zambia team has heard from commercial banks the long-standing BoZ's "concerns" over lending costs, and the pressures to keep them down. More recently, the BoZ has transparently included among the MP instruments available to the CB the "direct control of credit", which encompasses credit ceilings and channeling of credit to specific sectors and economic activities (see <http://www.boz.zm/monetary-policy-instruments.htm>).

¹⁴ In December 2012, Circular 25/2012 establishes ceilings on commercial banks' lending rates and provides a formula that gives the maximum allowed lending rate for a given PR. In January 2013, Circular NB 08/2012 introduced caps for all non-bank financial institutions.

¹⁵ In November 2015, the Circular CB 19/2015, which removed caps on lending rates, came with a "moral suasion tone." It states "... the BoZ expects financial service providers to be transparent in the pricing of credit products and to engage in responsible lending practices that are fair to both the credit providers and borrowers." It has also a section on sanctions, including at an individual level, if service providers do not behave in a "reasonable" manner, without defining what it means by "reasonable".

of the corridor from May to early November 2015, the OIR surged well above the MPR for almost a year, from mid-November 2015 to mid-September 2016. In both cases, the discrepancy reached a magnitude as large as 13 percentage points. From July 2012 to December 2016, the OIR remained outside the MPR corridor 40 percent of the time. During 2015 and 2016, the frequency increased to 65 percent, which means that the transition to a more forward-looking framework has proven to be increasingly difficult.

Table 1. Interbank Rate: Frequency Outside the Corridor

First two years	5%
2012.7 to 2016.12	40%
2015.1 to 2016.12	65%

16. The MPR has lost its aspiring role in Zambia's MPF. In an interest-rate framework, the MPR plays a central role by clearly signaling the MP stance. It also conveys, in a forward-looking framework, the CB's assessment on future economic developments. In addition, by being much less volatile than under a MTF, it enhances policy signals, increasing the efficiency of the MP. In a MTF changes in the interest rate could be meaningless, as they might just be reflecting money demand shocks instead of changes in the policy stance. The greater information content conveyed by the PR constitutes a solid reference point upon which longer rates could base on, helping to build a more informative term structure, increasing the efficiency of MP. Thus, the frequent discrepancies between the MPR and the OIR blurs policy signals making MP opaque, harms the transmission mechanism of MP and undercuts the credibility of the new operational framework. In addition, although under these circumstances interbank rates reflect better monetary conditions, they cannot perform properly the role of a meaningful reference rate, as they become very volatile and unpredictable.

17. MP in Zambia appears to be trying to achieve multiple and often conflicting objectives (Table 2). Three policy objectives seem to stand out under the current MPF: containing the cost of credit, controlling inflation and, at certain junctures, controlling the nominal ER.¹⁶ Since those objectives often conflict, the BoZ ends up resorting to a peculiar instrument mix, including the use of unconventional and non-market based measures. The outcome of such setting is consistent with some MP stylized facts for Zambia: a) a "smooth" MPR (i.e. MPR changes are smaller than those implied by economic fundamentals), reflecting concerns over borrowing costs; b) the frequent use

¹⁶ For more details see Da Silva Filho (2016). IMF (2015c) classifies Zambia as having 3 or more objectives.

of quantitative-type measures, despite the move to an interest-rate operational framework, reflecting the unavoidable need for the BoZ to change the policy stance; c) the frequent use of administrative and *ad hoc* measures, including moral suasion and coercive-type measures.¹ These type of measures try to circumvent the constraints imposed by the market mechanism by adding frictions to it, allowing the CB to pursue objectives – at least in short run – that otherwise would not have been possible.

Table 2. The Monetary Policy Instrument Mix

	Policy Rate	Statutory Reserves	Discount Window Facilities & Other Measures
2014	Actions		
March	9.75 % → 10.25%	8% → 14%	OLF cost: 250 bps → 600 bps ¹ OLF access restricted to once a week
April	10.25% → 12.00%		
May			OLF cost: 600 bps → 1000 bps
June		Daily Compliance	Lending rate ceiling increased.
November	12.00% → 12.50%		
2015	Actions		
March			OLF cost: 950 bps → 600 bps
April		14% → 18%	
November	12.50% → 15.5%		Caps on lending rates lifted OLF cost: 600 bps → 1000 bps OLF access restricted to once a week ¹ Forced sale of FX
2016	Actions		
November		Weekly Compliance	Restrictions on OLF access lifted ²
2017	Actions		
February	15.5% → 14.0%	18% → 15.5%	OLF cost: 600 bps → 1000 bps
May	14.0% → 12.5%	15.5% → 12.5%	

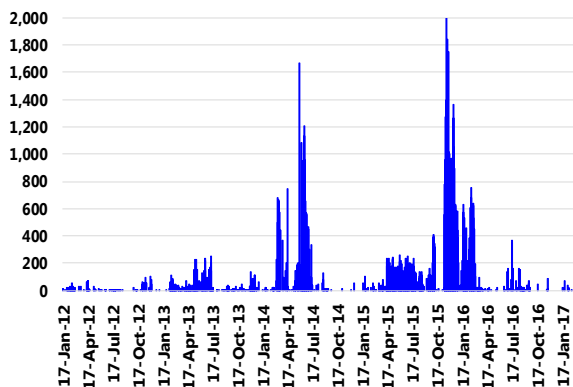
¹ Failure to repay the cash obtained via intraday repo facility treated as default, and securities covering the loan are automatically forfeited to BoZ.
² Automatic roll over of intraday credit into overnight loan (OLF), when banks fail to repay cash obtained via the intraday repo facility.

¹ For example, the forced sale of FX to banks to mop up liquidity in end-2015, and “heightened monitoring of commercial banks activities”. More recently, the BoZ has explicitly acknowledged moral suasion as one of the MP instruments available to the CB (see <http://www.boz.zm/monetary-policy-instruments.htm>).

Figure 3. Some Side-Effects from the end-2015 MP Reaction

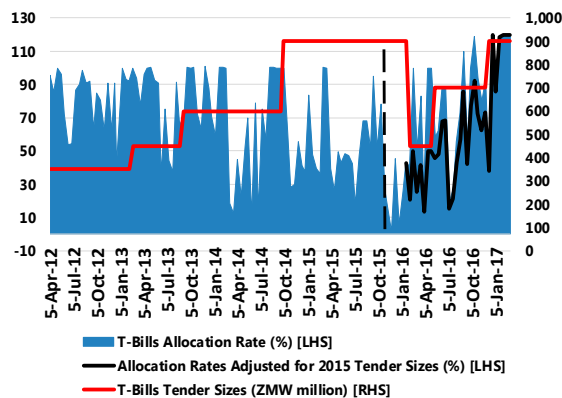
A. Overnight Lending Facility (ZMW Million)

The strong MP reaction of end-2015 created a liquidity crunch in the economy, forcing banks to access en masse costly discount window facilities.



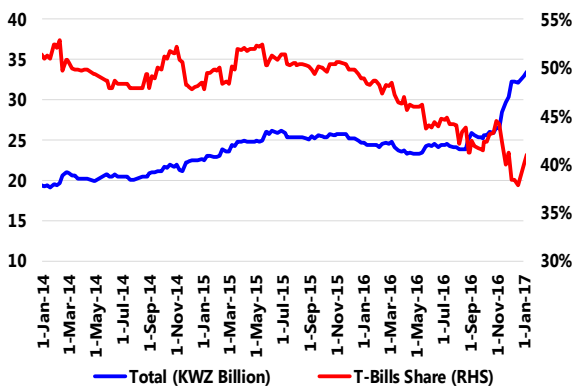
B. T-Bills Allocation Rates and Tender Sizes

Tight liquidity led to a protracted undersubscription of government securities and a decrease in tender sizes, adding to the government serious funding problems.



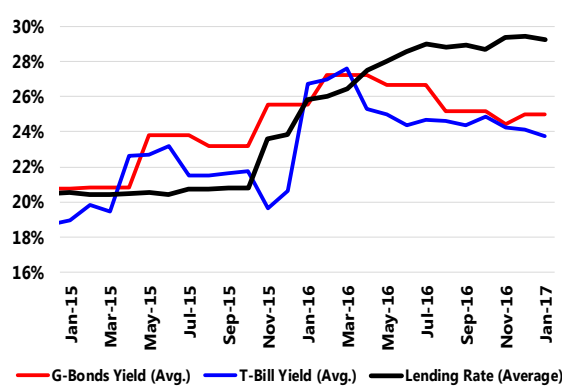
C. Outstanding Government Securities

The stock of government securities fell after November 2015, driven by a decrease in the stock of Treasury Bills, the most liquidity securities.



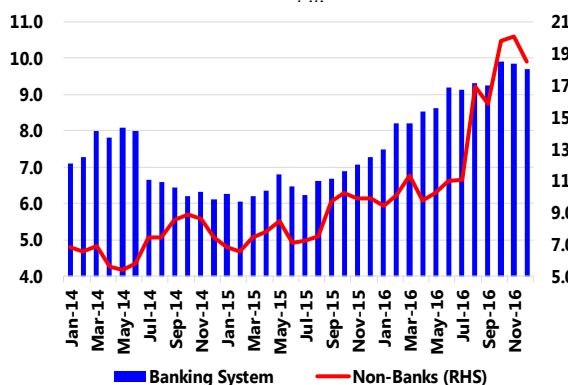
D. Funding Costs

Tight liquidity conditions led to an across the board increase in interest rates, raising government and the private sector's funding costs.



E. Asset Quality (NPLs) (percent)

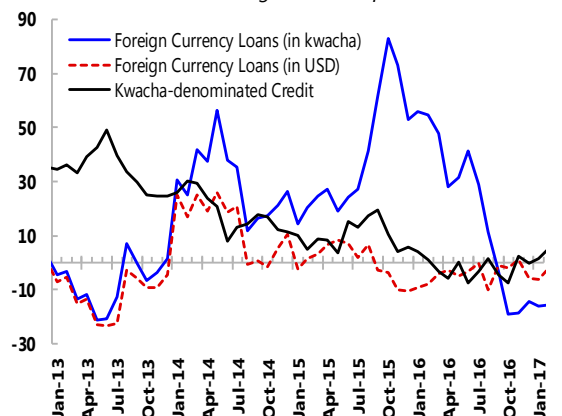
High funding costs have played a key role in the build up of non performing loans, threatening financial ...



F. Credit Growth

(year-on-year percentage change)

Credit growth collapsed.

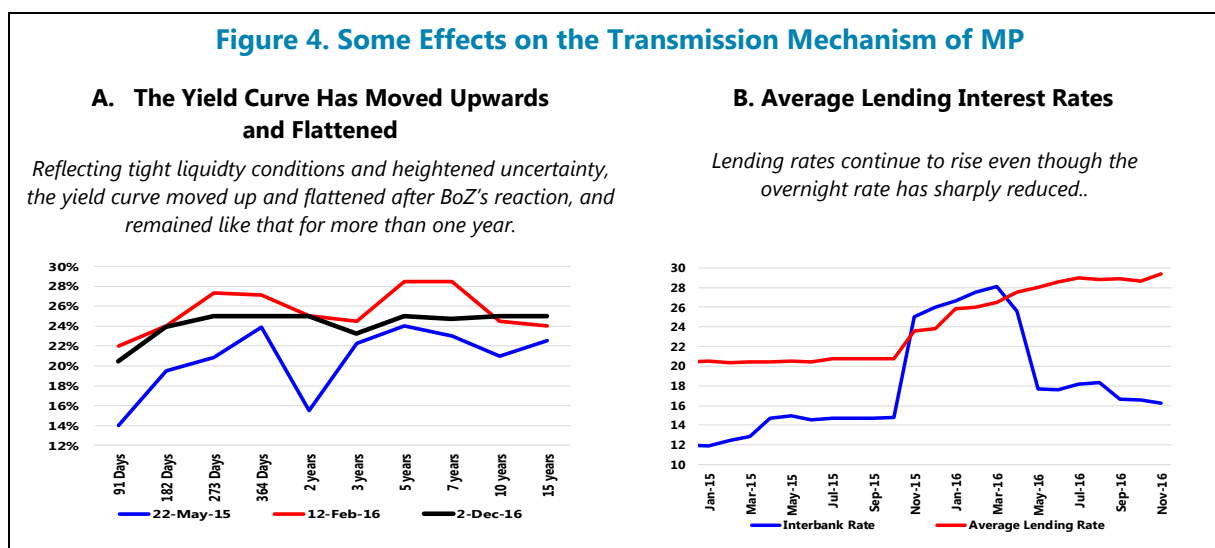


18. One key reason behind the “policy rate smoothness problem” seems to be that the BoZ appears to face constraints on its ability to adjust its PR. There is evidence that the difficulties faced by the BoZ to adjust fully the MPR reflect public and political concerns over the cost of credit and, therefore, growth. While the monetary authority sets the MPR, market conditions determine the interbank rate, which “transfers” to commercial banks the ownership of high interest rates. This kind of constraint is not unique to Zambia and is common in many other countries, and evinces the importance of operational independence.

19. The lack of a coherent MPF not only causes unintended consequences, but also some of them are precisely what the CB is trying to avoid in the first place (Figures 3 and 4).

The events from end-2015 are instrumental to uncover the type of dilemmas the CB can face and the kind of distortions and costs created by the absence of a coherent MPF. Despite the success so far in stabilizing the ER and inflation, the policy response created several distortions and unintended consequences, with large economic costs that could have been largely mitigated. Some of them are:

- **Credit growth has collapsed and lending rates have soared.** Liquidity risks, funding costs and lending rates soared following the liquidity crunch created by November's 2015 MP reaction. Consequently, credit growth plunged, as it has been restricted to prime clients, conflicting with BoZ's objective of containing borrowing costs and increasing the supply of credit, harming financial inclusion and development
- **The MP response has threatened financial stability.** The MP instrument mix chosen by the BoZ transferred the costs and risks to the financial system, increased interest rate uncertainty, harming financial stability risks and hindering financial development.²



² For example, a statutory reserve ratio of 18 percent coupled with an average yield on T-Bills of 25 percent amounts to a tax on banks around 4.5–5 percent, while the lack of average compliance has increased liquidity risks, forcing banks to hold more liquid assets and driving banks' costs up.

- **In a strange turn of events, MP adversely affected fiscal policy.** Fiscal policy – the main source of macroeconomic imbalances in Zambia – was strongly and adversely affected by the liquidity crunch. Facing challenging liquidity conditions and restrictions to access emergency lending, banks started not to fully rolling over maturing public securities. Tender sizes and subscription rates of public securities fell, adding an extra dimension to the fiscal challenges face by the government. This created a curious situation in which "monetary dominance" constrained fiscal policy, which in its turn has also been a major constraint to MP.
- **The transmission mechanism of MP has been impaired by the liquidity crunch.** The yield curve was harmed as the MPR sharply decoupled from the OIR and longer rates, losing its relevance. In addition, lending rates became less responsive to both the MPR and interbank rates, as during the liquidity crunch banks had to pay very high interest rates to get liquidity via one-year term deposits, locking their funding costs for months ahead. Indeed, despite the recent fall in interbank rates, lending rates continue increasing.

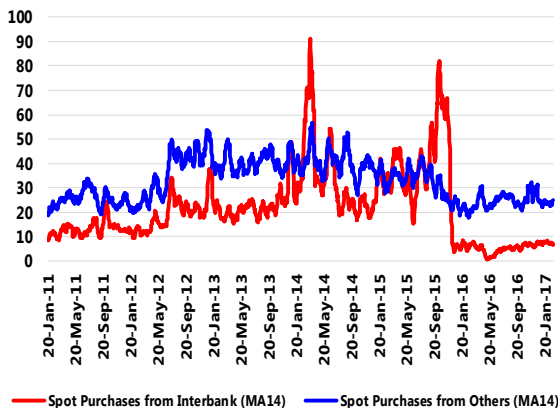
20. The interbank foreign exchange (FX) market has become dysfunctional (Figure 5).

BoZ's heavy intervention in the FX market trying to "discipline" market participants, including through moral suasion and coercive type measures, such as forcing banks to buy a large volume of FX in end-2015, and the imposition of a very narrow bid-offer spread, displaced most FX transactions to bilateral trades, as banks have been afraid to trade through the interbank FX market. As a result, market liquidity has plunged and the ER has been unusually stable since then, potentially preventing the economy from properly adjusting to shocks.

Figure 5. A Dysfunctional Interbank Foreign Exchange Market

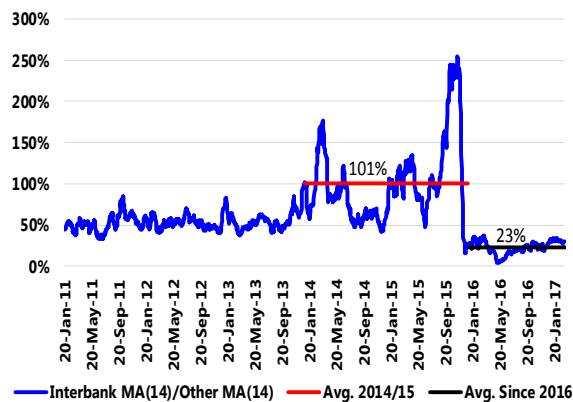
A. FX Transactions Volume: Interbank and Others (USD Million)

After BoZ's strong intervention in the FX market in end-2015,, volumes traded in the interbank market shrank to levels not seen since at least 2011.



B. Relative Size of the Interbank FX Market

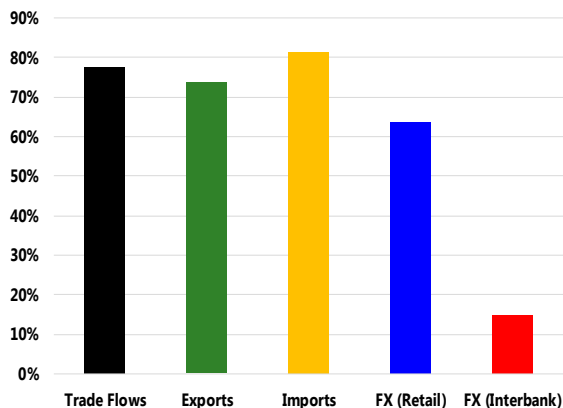
As a consequence, the relative size of the interbank bank plunged.



C. Trade Flows and Volume of FX Transactions

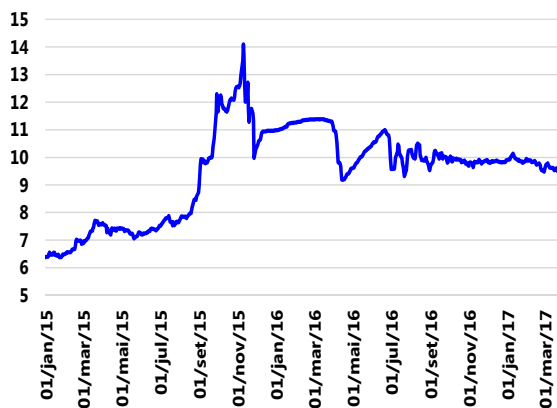
(Ratio of Daily Average Since 2016 to 2014-2015)

While the volume of FX trading outside the interbank market fell by a magnitude compatible to the decrease in trade flows, the fall in interbank FX trading was considerable higher...



D. Nominal ER (ZMW/USD)

... and the nominal ER has been unusually stable since the end of 2015.



D. How Can Zambia Best Update its MP Framework?

21. To best update its MPF and eventually transition towards an ITF, Zambia needs to take several actions and implement a broad-ranging set of reforms. Despite the difficulties encountered so far, the BoZ is resolute in keeping modernizing its MPF. To transition towards a forward-looking MPF while laying the foundation to implement an ITF, there is still a lot of work to do.

22. The modernization of MPFs rests on three pillars. Despite individual countries differences, the process of modernizing MPFs hinges on three common pillars. The first involves monetary operations, and requires changing the operational target from monetary aggregates to interest rates. The second involves MP strategy, and requires setting up an internally consistent MPF, which basically means the absence of multiple, and often conflicting, MP objectives. In addition, it requires implementing the MP in a forward-looking manner. The last pillar involves institutional measures that grant operational independence to the central bank. Those pillars are interconnected, as they depend on each other to provide a solid foundation for the MPF.

23. The departure point of the MPF modernization process is the move to an interest rate-based operational framework. A key advantage of using the interest rate as the operational target is the greater operational flexibility it brings to MP implementation and policy transparency to the MP stance, enhancing policy signals and increasing the efficiency of the MP. As the evidence shows, this move has been a challenge for both Zambia and other African economies, as they suffer from the "policy rate smoothness problem", which is closely linked to a weak second pillar.

24. The lack of an internally consistent MPF explains the large swings in the stance of MP in many African countries. Opaque, inconsistent and confusing monetary policies reflect the lack of a solid and coherent MPF – including due to poor fiscal policies – harming the main role of MP, which is to provide a reliable nominal anchor to the economy. In addition, it often leads to large changes in the MP stance as the CB react too little and/or late to growing imbalances (usually using non-market friendly measures), creating unnecessary economic volatility.

25. Understanding the challenges facing the countries modernizing their MPFs require a broader view, as operational and other challenges are intertwined and interwoven. The sections below provide a somewhat detailed set of measures and actions that would help Zambia modernize its MPF and eventually transition to an ITF. The effectiveness of any MPF depends ultimately on the MP environment, which goes beyond the set of rules and constraints put forward by the former, as it better reflects the actual willingness and commitment to the new MPF.

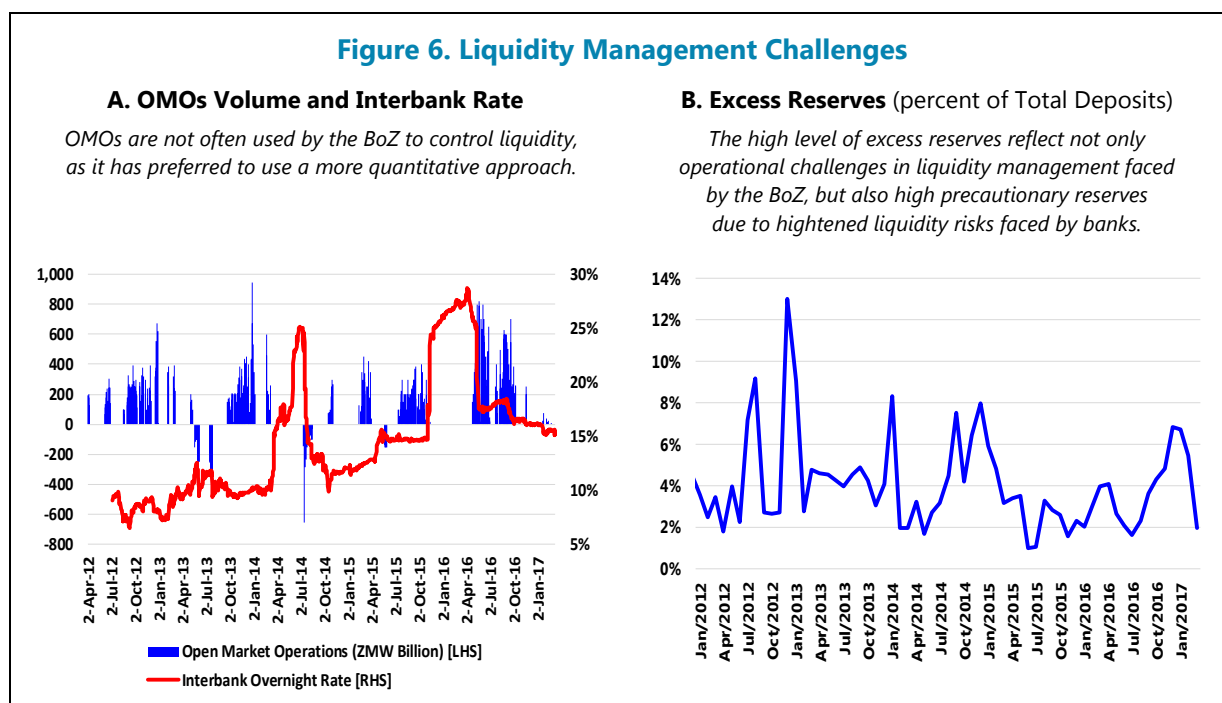
Operational Challenges

26. The BoZ faces some challenges in managing liquidity (Figure 6B). The institutional setting under which the BoZ operates poses some challenges for short-run liquidity management. The absence of a fully operational Treasury Single Account makes it more difficult for the government to assess its liquidity needs, resulting in inaccurate cash flow forecasts. Therefore, it becomes harder for the BoZ to assess the short-run liquidity situation of the banking system, gauge the amount of excess reserves and the needed intervention. In addition, the fact that the government holds several accounts with commercial banks entails a higher level of liquidity in the system.

27. Not all the liquidity management challenges faced by the BoZ reflect structural issues (Table 2, Figure 6A). The MP instrument mix and the intensity of use of each instrument is not optimal, with clear adverse effects on liquidity management. For example, the best instrument

for fine-tuning MP are OMOs, however the BoZ does not carry out OMOs at the frequency required by the new operational framework. On the other hand, it makes intense use of reserve requirements – which are not suited for short-run liquidity management – and discount window facilities.

28. The high level of "structural" liquidity in the banking system also reflect policy uncertainty (Table 2). One important factor behind the high level of "excess" reserves in the banking system is the precautionary behavior by banks due to enhanced liquidity risks. Those risks stem from BoZ's poor liquidity management due to the lack of a coherent MPF, and heterodox reaction during episodes of stress (i.e. sharp ER depreciation). This leads to a suboptimal use of OMOs and frequent *ad hoc* interventions, increasing policy opacity and uncertainty. Indeed, frequent changes in the discount window access, including by restricting its access to once a week, coupled with high statutory reserves, short averaging period and daily compliance, combined with high interest rate volatility, pose serious challenges to liquidity management by banks and firms.³ Heightened uncertainty causes banks to maintain high precautionary balances, increasing costs and reducing their ability to extend credit. Finally, it is interesting to notice that differently from what one might have expected, despite the high level of "structural" liquidity the interbank rate has been above the PR for around 80 percent of the time since the introduction of the PR.



29. There is room for the BoZ to improve liquidity management. The policy rate is at the center of the new operational framework and modernization of the MPF. The closest the BoZ can keep the overnight interbank rate to the MPR the clearest the policy stance will be. That would

³ Weekly compliance was restored in November 2016, but the averaging period is short by international standards.

increase the transparency of the MP and could substantially reduce the premium embedded in the yields of government securities. Some actions that help fine tuning MP are:

- **The BoZ should use OMOs as its main MP instrument.** OMOs are the best-suited MP instrument for controlling short-run liquidity and steer the OIR towards the MPR. They are used at the discretion of the CB, have an immediate effect on liquidity conditions and can be used in different magnitudes, being ideal for fine-tuning the MP. Thus, the BoZ should be more active in the implementation of MP by carrying out OMOs more frequently.
- **The BoZ should minimize the use of reserve requirements.**⁴ As opposed to OMOs, which are well-suited for short-term liquidity control, changes in statutory reserves affect liquidity only with a lag and produce large discrete movements in liquidity conditions. Thus, they are not the proper instrument for the CB to control short-term interest rates, could increase liquidity risks and threaten financial stability. Moreover, when not remunerated, statutory reserves are an implicit tax on the financial system, harming financial development. The BoZ should decrease the rate and use of reserve requirements as an instrument for MP.
- **The BoZ should not mix liquidity management with emergency liquidity assistance to the banking system.** In recent years, the BoZ has often drastically limited access to OLF, most notably by reducing its access to once a week, during extended periods. By administratively limiting OLF use for monetary control purposes, the BoZ has introduced heightened liquidity management risks in the financial system.
- **Refining government security auctions.** The BoZ should consider the introduction of a fixed-rate full allotment system in government security auctions. The ECB has used it successfully during the 2008 crisis. It is also been successfully used in Uganda for better liquidity management and, more recently, Kenya has started using it.

30. Despite the challenges the BoZ faces in managing liquidity, it has shown a good ability to control the interbank rate. For example, before the interbank rate soared above the corridor in 2015 the BoZ kept the OIR hovering very close to the upper bound of the corridor from May to October. During that period, the average absolute deviation from the upper bound was mere 0.27 p.p. In addition, from September 2013 to February 2014 the average absolute deviation around the PR amounted to 0.28 p.p.

31. The policy rate corridor is a virtual corridor and needs to be formalized should the BoZ decide to keep it (Figure 2, Table 1). The BoZ does not have an either *de facto* or *de jure* MP corridor. It is not a *de jure* corridor, since there are no deposit and lending standing facilities in place to prevent the interbank rate from leaving the PR corridor. It is not a *de facto* corridor since the BoZ has often allowed the interbank rate to float outside the PR corridor. During 2015–16 the OIR was outside the PR corridor above 65 percent of time. Thus, should the BoZ wish to proceed

⁴ Since end-2016 the BoZ has sharply decreased reserve requirements (Table 2), and has been more active through OMOs.

with this operational framework, it should formalize the corridor by introducing the necessary standing facilities. That will guarantee that the interbank rate floats inside the corridor, giving more transparency and predictability to the MP, decreasing liquidity risks and fostering financial stability.

32. The policy rate corridor is too wide and should be either narrowed or, preferably, eliminated. The width of the (symmetric) policy rate corridor currently stands at 4 percentage points. This amplitude is too wide and creates uncertainty about future MP stance, as it is compatible with very different monetary conditions. Therefore, the BoZ should consider the possibility of drastically reducing its width or, preferably, eliminating the corridor system altogether. Given the evidence on BoZ's liquidity management capabilities an interest corridor of no more than one percentage point wide seems feasible, and would enhance significantly the signal and effectiveness of MP.⁵

33. The actual choice and use of MP instruments by the BoZ partially reflect cost considerations. Behind BoZ's reluctance in using OMOs as its main MP instrument and implementing a standing deposit facility to formalize its MP corridor, lies their interest-bearing nature. Financial costs are also relevant to explain BoZ's frequent use of non-remunerated reserve requirements as a policy instrument.

34. The financial costs involved in making OMOs the main MP instrument pale compared to the wide-ranging economic costs of poor liquidity management and a less transparent MP. The distortions and opaqueness brought by such a strategy are very costly to the economy and far outweighs any possible first-round savings for the budget. Indeed, it transfers the costs of MP to the financial system, raises liquidity management risks, constrains the credit market and slows financial development, besides producing a more volatile and uncertain MP, harming the MP transmission mechanism.

MP Strategy and Implementation Challenges

35. MP needs to be more forward looking. Although it is at the core of modern MPFs to be forward-looking, this has been a major challenge for the BoZ, both for the reasons laid so far, and due to an inevitable learning process. For example, when the BoZ acted in November 2015, the ER had already depreciated over 60 percent in the previous three months and around 100 percent during the year. The delay in the policy response allowed imbalances to grow and the depreciation to gain momentum, which led to a larger pass-through to inflation. Thus, the required policy response was much stronger than what would have been needed had the BoZ been more forward-looking. In the follow-up, the BoZ maintained MP too tight for too long with adverse consequences on financial stability, as it waited for annual inflation to fall before starting unwinding MP. Other areas that lacked a more forward-looking content, and which are developed below, regard the frequency of MPC meetings, communication and inflation targets.

⁵ The BoZ has recently followed staff advice and reduced the PR corridor width from ± 2 p.p. to ± 1 p.p. It has also increased the use of OMOs and reduced reserve requirements from 18 to 12 percent.

36. MP analysis and forecasting capabilities need improvements. The transition to a forward-looking MPF is fraught with many difficulties. One major challenge is to put in place a coherent analytical framework that captures the basic key economic links between the main variables most relevant for MP. To do that capacity building is crucial. BoZ's staff has good analytical background, which is crucial to effective capacity building. Currently, the BoZ is taking its first steps towards implementing a Policy Analysis and Forecasting System (FPAS) with the help of the IMF, and this should be a priority for the modernization of its MPF going forward.

37. The BoZ's monetary policy committee (MPC) should meet more frequently. The BoZ's MPC meets on a quarterly basis. This frequency is too low for an economy subject to frequent shocks that needs regular assessments on the adequacy of the MP stance. Indeed, the BoZ holds MPC meetings at a much lower frequency than that observed in main CBs, even though their economies are much more stable. For example, the Bank of England's MPC meets "at least once a month", while the Fed's FOMC and the Bank of Canada's Governing Council meets 8 times per year. The MPCs of two of the main emerging economies also meet more frequently: the CB of Brazil's Copom meets 8 times per year, while the South African Reserve Bank's MPC meets 6 times per year. Finally, the MPCs of two of Zambia's' main African peers also meet more frequently: the CBK's MPC meets "at least once every two months", while the BOU's MPC meets 6 times per year. More crucially, frequent reassessments of the stance of MP vis-à-vis current economic conditions are key to implement a forward-looking framework. Finally, recurrent guidance to the market is particularly valuable to mitigate the uncertainty brought by the modernization of the MPF.

38. The BoZ should intervene in the FX market only to smooth excessive volatility and to build buffers (Figure 5). Although the nominal ER has floated substantially in recent years, the BoZ has heavily intervened in the FX market at key junctures, trying to affect the trend of the market. Consequently, the BoZ ended up compromising scarce international reserves, in part because the policy stance did not change early and large enough.⁶ Given its limited success in curbing depreciation, the BoZ has resorted to non-market measures, which not only have harmed the functioning of the interbank FX market and hindered ER adjustment to changing economic conditions, but also blurred the MP strategy. Indeed, since end-2015 the nominal ER has been unusually stable, which might imply that it is not duly adjusting to changing economic fundamentals.

39. Dollarization poses several challenges to MP, as it makes the CB's job of achieving price and financial stability harder. The Zambian economy is significantly financially dollarized, an inheritance from the times of high inflation. Around 45 percent of the deposits in the banking system and 30 percent of loans are in dollars. Furthermore, as some prices are either quoted in or informally indexed to the dollar, they automatically increase when the ER depreciates.

⁶ In 2014 the BoZ sold a net amount of USD 700 million in the FX market, while in 2015 the net intervention surpassed USD 750 million – a total amount larger than the 2015 Eurobond placement (USD 1.25 billion) – in a context of growing current account deficits and limited international reserves.

That creates challenges to MP and increases vulnerabilities, with potential spillovers to the financial sector. More specifically:

- *Dollarization hinders the transmission mechanism of MP.* This is particularly relevant in times of stress when agents seeking hedge against a weakening currency convert their domestic deposits into dollar deposits. This "flight to quality" behavior boost depreciation, potentially increasing the pass-through via nonlinear effects, making it more difficult to control inflation.
- *Monetary conditions become more difficult to assess in dollarized economies.* ER changes have a direct impact on monetary aggregates and credit figures, which are measured in domestic currency, making more challenging the assessment of monetary conditions. For example, changes in monetary aggregates due to valuation effects do not indicate desired changes in the MP stance. On the other hand, ER effects might not be neutral (i.e. purely accounting), as consumption might be affected by wealth-induced effects.
- *Dollarization increases risks to financial stability.* It adds one important risk source to financial institutions and households: currency risk. Sharp depreciation imposes a large burden to agents indebted in dollars, which may in turn pose asset quality problems for banks. Large depreciation coupled with balance sheet mismatches imply greater financial stability risks.

40. The BoZ should consider the possibility of introducing real bonds. The BoZ and the Treasury would benefit from the introduction of inflation-indexed securities. The Treasury would benefit from lower costs as the public would require a lower risk premium to buy these securities compared to their nominal counterpart, since they mitigate the costs of inflation uncertainty. Most crucially, the BoZ could use them, along with the correspondent nominal bonds, to extract market inflation expectations. Despite some technical difficulties from disentangling inflation expectations and risk *premia* (e.g. maturity, liquidity) they allow for a solid and meaningful estimate of inflation expectations, as those expectations reflect the beliefs of those that are betting their monies. Thus, real bonds would help to provide an additional valuable source for expectations measurement. In addition, these expectations would be available at higher frequencies, as opposed to those from surveys of expectations helping to implement a more efficient and forward-looking MP.

41. The BoZ should carry out survey of expectations more frequently. The BoZ currently conducts a semi-annual Survey of Business Opinion and Expectations, even though it conducted it on a quarterly basis until 2013. The survey's actual frequency makes it of very limited usefulness for the implementation of the MP, as new information comes out only twice per year. Thus, surveys that are more frequently conducted would be particularly valuable for MP, mainly in the actual context in which the BoZ is transitioning to a more forward-looking framework. In the worst-case scenario, this survey should done on a quarterly basis, but ideally monthly, with a small lag between

data collection and reporting.⁷ With the substantial technological progress in information technology surveys can be easily carried out on-line with high frequency and low cost.⁸

Communication Challenges

42. There is scope for the BoZ to improve its communication. Although communication is a crucial ingredient of the new forward-looking MPF the BoZ is transitioning towards, its communication strategy and guidance have fallen short at key junctures, harming the credibility of the aspiring framework. For example, after drastically tightening MP in November 2015 the BoZ did not clearly communicate the rationale behind its actions to the market, especially its departure from its yet new operational procedure, nor did it communicate its MP strategy going forward. Later, just before elections, the BoZ did not hold his third scheduled MP meeting of the year and did not communicate the fact to the market until one week later. When it did it, the BoZ did not set a new date for the meeting, which ended up not taking place. Market participants have frequently expressed to the team their difficulties in understanding BoZ' actions and objectives. Communication and guidance are central to a forward-looking MPF, and heightened uncertainty is not a sound reason not to hold MP meetings. On the contrary, knowing how the monetary authority sees the outlook, its intentions and strategy are particularly valuable at uncertain times.

43. The BoZ should start publishing its inflation report as soon as it feels comfortable. The BoZ has been working on the production of an inflation report for some time. It has made great progress and now a fully structured inflation report is issued for internal use before every MP meeting. The BoZ argues that the still limited understanding on the transmission mechanism of MP has been one important reason why it has not yet published the inflation report externally, although it plans to do so in the near term. The BoZ should only publish its inflation report once it feels comfortable, however it should not underestimate the benefits of transparency and guidance, even when ideal conditions have not yet been met. Indeed, the learning process is a continuous and gradual one, especially in the initial phase of the transition, both for the BoZ and for the market. It is better to provide a rough yet transparent and coherent assessment of its actions than to leave the public guessing on the next policy moves. When communication falters, policy uncertainty adds to economic uncertainty.

44. The more coherent is the MPF the easiest the communication. Although there is space for the BoZ to improve its communication skills in the short run, the non-optimal level of communication should not be analyzed in isolation, as it also reflects the absence of a coherent and fully functional policy framework and the lack of operational independence. From a MP perspective, it is more important that the BoZ provides a coherent view of the way the MP works and the inherently contingent content of its MP decisions than to try to deliver accurate forecasts.

⁷ Since early 2017, the survey is back to its previous quarterly frequency.

⁸ For example, the CB of Brazil carries out a survey of expectations completely on line in which respondents can update their forecasts daily should they wish to do so. The survey results are updated every week.

Institutional Challenges

45. The overriding objective of MP should be price stability. The CB should have a clear mandate enshrined in the law to pursue price stability as its overriding objective. There are two main reasons why price stability should take precedence over other objectives. First, there is no long-run trade-off between inflation and real variables, while inflation impinge many economic costs, especially on the poor. Thus, the best way the CB can contribute to maximize welfare is to achieve price stability. Second, because there is a short run trade-off between inflation and growth, this could give rise to opportunistic behavior and generate political business cycles, which tend to reinforce themselves over time. Therefore, by making price stability the focal point of the MP the CB provides a coherent MPF, decreasing macroeconomic uncertainty. In addition, a more stable economic environment decreases macroeconomic risks, reduce real interest rates (via lower risk premium) and, therefore, is conducive to financial development. Thus, price stability is a necessary condition for financial stability, another key objective of the CB.

46. The CB's operational independence has a multidimensional nature that goes well beyond a formal guarantee granted by law. There is vast and convincing evidence that the CB can best pursue its mandate of price stability when it has operational independence.⁹ Therefore, it should formally have operational independence to fulfill its price stability mandate. However, in practice things are not that simple. The mere fact that the CB has been granted a *de jure* operational independence does not mean it would be immune from political pressures and undue interference, as those work in different and sometimes subtle ways. Myriad of other factors are relevant to insulate the CB and allow it to perform its functions in the best technical way possible.

- The law should provide operational independence to the CB, which means it should be granted by the constitution.
- The MPC members should have fixed-term mandates. Moreover, they should only be fired in very specific situations duly described in the legislation (e.g. conflict of interest, corruption).
- The mandates of the MPC members should not overlap with that of the president of the country. In this way, during each presidential term only a share of the MPC members are replaced, limiting any possible improper influence on the formulation of MP.
- The members of the MPC should have clear expertise in MP, and should be approved by Congress. Those that are from the CB staff should come from those departments that are closely related to the mandate of the CB (e.g. research, economics).

⁹ See Nordhaus (1975) on how undue political interference on the central bank could generate political business cycles. For evidence on the negative correlation between indicators of central bank independence and inflation, see Grilli, *et al.* (1991), Cukierman *et al.* (1992), Alesina and Summers (1993) and Eijffinger and de Haan (1996). For more recent assessments see Cukierman (2008) and Bodea and Hicks (2015). For an analysis on the impact of the Big Financial Crisis on central bank independence, see de Haan & Eijffinger (2017) and Blinder *et al.* (2017). See also Fischer (2015).

- No member of the Ministry of Finance or any other governmental body should participate in any internal committee of the CB, even as an *ex officio* member. This is crucial to separate monetary from other policies (e.g. fiscal, developmental).
- The CB needs to be financially independent. This is another key dimension of independence, which has particular relevance in less developed countries. The CB needs adequate resources to carry out its main duties (e.g. pay interest on OMOs) and to cover its operational expenses (e.g. wages, operational costs, etc.).
- The CB should not provide advances and direct financing to the government. It is not uncommon in less developed countries to find institutional settings in which the CB has *de jure* operational independence while at the same time the CB Act allows financing to the government (e.g. Kenya), a practice that goes against the very rationale of independence.

47. The BoZ should set clear and meaningful short and medium-run inflation targets.

The inflation target should not be next year's inflation forecast (or driven by it), nor should it be set just a few months before the end of the year. The inflation target should be the focal point of any forward-looking MPF, and any meaningful target needs to embody two main considerations:

- **The target should be set well in advance.** There are at least two reasons why the inflation target should be set with the due antecedence:
 - *It should consider the lags in the MP transmission mechanism.* Since MP takes some time to affect inflation, the CB needs to start acting early to meet the target. In addition, by acting preemptively the MP plays a stabilizing role in the economy, not only by preventing imbalances to grow but also because smaller adjustments in the MP stance are needed, minimizing economics fluctuations.
 - *It should ideally reflect the longer-term MP strategy.* If inflation is above its aimed long-run level, the CB should define a clear disinflation path, so that agents can plan accordingly and under lower uncertainty. Targets set well in advance could also help the CB's intertemporal optimization problem. For example, if expected inflation undershoots next year's target due to, say, a benign supply shock, the CB could opt not to loose MP if the following year's inflation target is lower.
- **The target should be clearly defined.** Although there is no consensus on the best target design (e.g. point, range, interval), it seems undisputed that the ideal inflation target should not cause ambiguity, acting like a focal point to economic agents' expectations. This would suggest that the CB should define a point target, rather than a range target (or interval). However, it is neither feasible, because MP works with a lag and the economy is frequently hit by shocks, nor always desirable, because of short-run trade-offs, to meet a point target at all times. This would suggest that the CB should set a target range to add flexibility and highlight the imprecise control it has over inflation in the shorter term. However, unless that range is very narrow, which risks inflation being often outside the target, ambiguity might dominate flexibility. Thus, a nice

balance seems either to set a point target with an implicit interval or a tolerance interval in which the CBs clearly states that it would seek to reach its mid-point in the medium-run.

E. Final Remarks

48. The modernization of Zambia's MPF has proven to be difficult. Five years after the BoZ introduced the policy rate, and early encouraging signs, the modernization of Zambia's MPF has stalled and even slid backwards, as reveals the growing frequency in which the BoZ has set aside its new operational framework and allowed the policy rate to deviate from the MPR corridor.

49. Zambia's MP has been characterized by a smooth policy rate, and yet very volatile monetary conditions. During this transitioning period Zambia's MP can be described by three features: a) a "smooth" MPR (i.e. whose changes are smaller than those required by economic fundamentals); b) frequent use of quantitative-type measures, despite the move to an interest-rate operational framework; c) frequent use of administrative and *ad hoc* measures, including moral suasion and coercive-type measures. As a result, monetary conditions have been very volatile, even though the policy rate has been relatively stable, adding unnecessary volatility to the economy.

50. While MP has been overburden trying to maintain price stability, it appears that it has been trying to achieve multiple and often conflicting objectives. Although the BoZ has faced challenging macroeconomic conditions (e.g. falling copper prices, load shedding) in recent years, including a loose fiscal policy stance, Zambia's MP has been opaque due to the lack of an internally consistent MPF. The evidence suggests that MP has tried to achieve three policy objectives – which often conflict with each other – in recent years: a) containing the cost of credit; b) controlling inflation; and c) at certain junctures, controlling the nominal ER. This assessment is consistent and helps to explain the observed MP instrument mix.

51. Zambia can reap large benefits from modernizing its MPF. An internally consistent and forward-looking MPF would have a key stabilizing effect on the economy. This would materialize from the absence of conflicting goals, requiring smaller changes in the policy stance and less *ad hoc* measures. In addition, by acting preemptively needed policy adjustments are of smaller magnitude, contributing to mitigate economic cycles. Finally, an early and structured policy response help to decrease uncertainty and allows economic agents to take decisions that are more efficient.

52. Operational independence and the precedence of price stability are key ingredients of a modern MPF. Politicians' perverse incentives to explore the short-run trade-off between inflation and unemployment – while there is no such trade-off in the long-run – and the often policy dilemmas that the central bank faces in the short-run, makes operational independence a requirement and price stability as the overriding objective of MP necessary conditions for an effective MPF.

53. The BoZ has renewed and increased its commitment to modernize Zambia's MPF. It has recently taken encouraging steps to deepen and speed up the modernization of the MPF.

The BoZ has decreased the width of the MPR corridor, increasing MP transparency and predictability, increased the use OMOs to implement MP, and set a medium-term inflation target. It intends to start publishing its inflation report in the coming months and has increased efforts to strengthen its analytical and forecasting capacity. These measures will help the BoZ pave a solid ground towards a forward-looking MPF and, ultimately, upgrade to an ITF. While there still is a long way to go, there is also ample room to reap the large potential benefits of a solid and coherent MPF.

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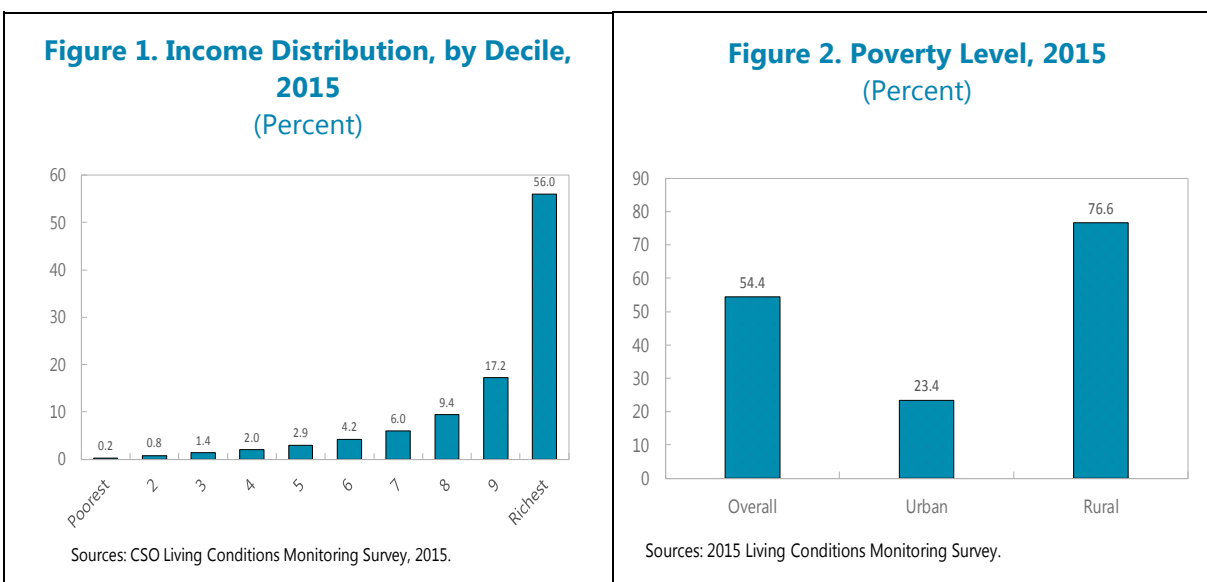
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DISTRIBUTIONAL IMPACT OF SUBSIDIES AND PROPOSED REFORMS¹

A. Introduction

1. Zambia recorded strong growth in the past decade and a half, but income distribution is highly skewed and poverty is widespread. Annual real GDP growth averaged 6.7 percent during 2001-2015; average population growth in the period is estimated at 3 percent. The 2015 Living Conditions Monitoring Survey (LCMS), summarized in CSO (2016), indicated that the richest 10 percent of households accounted for 56 percent of total income, while the poorer half of households accounted for 7.3 percent (Figure 1). The Gini coefficient is reported to be 0.69.² CSO (2016) reported an overall poverty rate of 54.4 percent, with a sharp divide between rural and urban areas (Figure 2).



2. Subsidies and social protection programs have been important elements in the authorities' strategies for poverty reduction and inclusive growth. Subsidies have been used to protect consumers and small and medium scale enterprises (SMEs) from rising costs/prices, and to provide incentives to boost productivity and income of small-holder farmers. The subsidies have arisen from (Table 1): (i) the pricing of petroleum products and electricity at below cost-covering levels; (ii) the Farmer Input Support Program (FISP); and (iii) the operations of the Food Reserve Agency (FRA). Zambia's social protection system comprises a wide range of programs, including free access to healthcare, a social cash transfer program (SCT), and programs aimed

¹ Prepared by Tsidi Tsikata and Manuel Rosales.

² Based on World Bank estimates, Zambia is among the 10 countries with the most unequal income distributions (i.e., highest Gini coefficients) in the world.

at empowering women and the youth. The 2017 Budget provided for a substantial increase in spending on social protection programs, including on the flagship SCT program.

3. Spending on subsidies has been a major source of pressure on public finances in recent years (Table 2). The overall fiscal deficit rose sharply from nearly 3 percent of GDP in 2012 to 6½ percent in 2013. In 2014, the cash deficit fell to under 6 percent, but because of massive accumulation of payment arrears and delays in paying VAT refunds, on a commitment basis the deficit amounted to nearly 9½ percent of GDP. The deficit on a commitment basis has remained elevated, with subsidies being a major contributor; expenditure commitments on subsidies increased from 3½ to 5½ percent of GDP between 2014 and 2016.

Table 1. Cost of Government Subsidies, 2006–16 (Cash and Commitment)
(Percent of GDP)

	Cash						Commitment					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Subsidies	1.4	3.3	2.0	3.9	3.5	2.0	1.4	3.3	3.6	4.8	5.4	1.3
Fuel	0.6	1.1	0.2	1.5	1.8	0.1	0.6	1.1	1.1	2.2	2.4	0.0
Electricity	0.0	0.0	0.0	0.2	0.5	0.3	0.0	0.0	0.0	0.3	0.9	0.1
FISP	0.6	0.7	0.9	1.2	0.9	1.1	0.6	0.7	1.2	1.4	1.6	0.7
FRA	0.2	1.5	0.9	1.0	0.4	0.5	0.2	1.5	1.2	0.9	0.5	0.5

Source: Ministry of Finance and IMF staff calculations.

Table 2. Central Government Operations, 2006–16 (Cash and Commitment)
(Percent of GDP)

	Cash						Commitment					
	2012	2013	2014	2015	2016	2017	2012	2013	2014	2015	2016	2017
Revenue and grants	18.7	17.6	18.9	18.8	18.2	17.3	18.7	16.5	17.1	19.0	18.7	17.8
Revenue	17.0	16.2	18.1	18.6	17.9	16.5	17.0	15.0	16.4	18.8	18.4	17.0
Grants	1.7	1.5	0.8	0.2	0.2	0.7	1.7	1.5	0.8	0.2	0.2	0.7
Total spending	21.9	24.0	24.3	27.6	23.8	25.3	21.9	24.3	26.7	30.7	27.2	23.4
Current	15.8	18.0	19.0	21.0	20.1	20.0	15.4	18.2	21.4	22.3	22.4	18.5
Personal Emoluments	7.2	7.9	9.4	8.8	8.7	8.7	7.2	7.9	9.4	8.8	8.7	8.7
Goods and services	3.5	3.2	3.0	3.0	2.3	2.3	3.5	3.2	3.5	3.2	2.6	2.1
Interest payments	1.3	1.5	2.2	2.8	3.4	3.6	1.3	1.5	2.2	2.8	3.4	3.6
Subsidies	1.4	3.3	2.0	3.9	3.5	2.0	1.4	3.3	3.6	4.8	5.4	1.3
Other transfers	2.0	2.1	2.4	2.5	2.2	3.4	2.0	2.4	2.6	2.7	2.3	2.8
Capital	6.0	6.0	5.3	6.6	3.8	5.3	6.0	6.0	5.3	8.4	4.8	4.9
Statistical discrepancy	0.3	0.2	(0.3)	(0.5)	(0.1)	0.0	0.3	0.2	(0.3)	(0.5)	(0.1)	0.0
Overall balance	(2.8)	(6.2)	(5.7)	(9.3)	(5.8)	(8.0)	(2.8)	(7.6)	(9.8)	(12.1)	(8.6)	(5.6)

Source: Ministry of Finance and IMF staff calculations.

4. The 2017 Budget aimed to reduce the fiscal deficit by, among other measures, reducing spending on subsidies. In his 2017 Budget Speech delivered to the National Assembly in November 2016, the Minister of Finance lamented "unsustainable fiscal outlays on subsidies on fuel and electricity" and announced plans to move to cost-reflective electricity tariffs by the end of 2017. A month earlier (October 2016), the authorities had increased fuel prices to cost-covering levels and announced that henceforth retail prices would be adjusted as often as needed to eliminate the subsidy. The Minister also announced limits on the operations of FRA and reforms to improve the efficiency of FISP.

5. This note assesses the distributional impact of subsidies and proposed measures to eliminate or reform them. It draws on existing literature and from new fiscal incidence work using a tool developed by the Commitment to Equity (CEQ) Institute. This new work—undertaken jointly by staffs of the IMF, World Bank and the CEQ Institute—estimates the impact of taxes and expenditures on household-level income inequality and poverty.³ In this SIP, we focus on the impact of fuel and electricity subsidies and FISP. We also consider scaling-up of the SCT as a mitigating measure. The main questions addressed are:

- Who benefits from the subsidies?
- What will be the impact of proposed measures to eliminate fuel and electricity subsidies on inequality and poverty?
- What measures should be implemented to mitigate adverse effects of eliminating the subsidies?

6. The rest of the note is organized as follows. Section B summarizes the main features of each subsidy and proposals for elimination or reform. Social protection programs are described briefly in section C, with a focus on the SCT. Section D presents the CEQ methodology, how it was applied to Zambia and the main results, including simulation of a few combinations of subsidy elimination and scaling up of the SCT. Section E contains concluding remarks.

B. The Subsidies and Proposed Reforms

Petroleum Products (Fuel)

7. Nearly all petroleum products in the country are procured by the government. Currently, about half of domestic supply is imported in the form of feedstock through the port of Dar-es-Salaam for the INDENI refinery using the TAZAMA pipeline.⁴ Reflecting capacity constraints at the refinery, the other half is imported as refined products (delivered by road).

³ Fuller results from the broader work are presented in De la Fuente, Rosales and Jellema (2017).

⁴ The feedstock is a blend of crude oil, condensate, naphtha, and gasoil (diesel). The TAZAMA pipeline and INDENI refinery date back to the late-1960s and early-1970s.

INDENI is fully state (Zambia) owned, while the TAZAMA pipeline is jointly owned by Zambia (66 percent) and Tanzania (34 percent).

8. Fuel subsidies arose from the failure to systematically adjust retail prices in line with the Cost-Plus Model (CPM) introduced in 2008.¹ The CPM is designed to cover all costs in the supply chain and a fair profit margin. Because margins at the different stages of the price build-up are largely fixed, changes in the calculated total cost are mainly driven by changes in the international oil price and the exchange rate (K/US\$). The government announced the elimination of fuel subsidies in April 2013, but the subsidies re-emerged in 2014 and 2015 when the effect of lower international prices was more than offset by the effect of depreciation of the kwacha. Pump prices were not adjusted to full cost-recovery levels thus requiring the government to subsidize prices through the budget. [It is estimated that the cost to the budget in 2015 alone was about \$350 million and about \$525 million accrued in 2016.]

9. The Government's rationale for eliminating fuel subsidies in 2013 included the argument that the benefits had accrued mostly to the rich. While fiscal pressures were largely responsible for the decision to do away with the fuel subsidies, the authorities emphasized that the savings from the measure would be used to support programs that would deliver greater benefits to the poor (e.g., expansion of social protection programs, and investment in health and education facilities). In a case study that evaluated the impact of the removal of the subsidies in four towns two provinces, CUTS (2013), the authors found that on average, the impact on household expenditures was more pronounced in urban areas and increased with household income. However, relative to average household incomes, the impact was more significant for low income households.

10. Pump prices have been set at cost-covering levels since October 2016 and efficiency enhancing reforms are planned for the petroleum sub-sector. In line with declining import costs (partly reflecting the impact of appreciation of the kwacha), fuel prices were adjusted downwards in January and August 2017. The 2017 Budget Speech indicated that the government would disengage from the procurement of finished products—leaving this function to the private sector—and limit its role to regulation. Government is also examining the viability of the refinery and pipeline.

Electricity

11. Electricity subsidies emerged in 2015 as the cost of power skyrocketed. Poor rainfalls during the 2014/15 season and already low water levels in hydro-power reservoirs led to a halving in electricity generation and widespread load shedding. The Zambian Electricity Corporation (ZESCO) entered into contracts for the importation of emergency power, and also contracted power from recently commissioned private domestic producers. The average cost on these contracts was \$0.12/kWh; substantially higher than the average tariff of \$0.051/kwh (\$0.028 for non-mining and \$0.067 for mining customers) charged by ZESCO. A sharp (180 percent) hike in tariffs

¹ See Chiyaba and Rasmussen (2015) for a detailed description of the cost-plus model and how it has been implemented in practice.

to non-mining consumers that was approved by the Energy Regulation Board (ERB) to take effect from December 2015, was reversed by the government in early January 2016, following a public outcry over the magnitude of the tariff adjustment. The reversal led to the government having to subsidize ZESCO operations; the subsidy amounted to about US\$225 million in 2016.

12. Less than one third of households have access to electricity. The LCMS found that only 31.4 percent of households are connected to the national grid, dominated by households in urban areas (67.3 percent); only 4.4 percent of rural households are connected. A recent study, PMRS (2017), found that electricity subsidies are highly regressive; it estimated that the richest 20 percent of households receive about 70 percent of the subsidies while the poorest 20 percent of households receive less than 1 percent. However, it also found that the impact of tariff increases on disposable income is felt most keenly by the poorest households (mainly indirectly, for example, through the impact on food prices).

13. The move to cost-reflective tariffs is aimed at attracting investment into the sector to boost generation capacity. The authorities believe that insufficient investment in electricity generation capacity has been a major factor in the emergence of the current power deficit. The PMRS (2017) study concluded that tariff increases are needed but must be accompanied improved and more reliable supply of power to boost productivity. Electricity tariffs to non-mining customers were recently raised in two steps: a 50 percent increase in May 2017, followed by a second adjustment (16 percent) in September for a cumulative headline increase of 75 percent. However, because the lifeline threshold was doubled, we estimate that the increase in the effective average tariff is about 48 percent. For the mining companies, the authorities have recently completed negotiations to increase their average tariff from about 6 cents/kwh to 9.3 cents, effective retroactively from January 2017. An ongoing cost-of-service study which is expected to be completed in 2018 will provide a firmer basis for establishing cost-covering tariff levels. The government is considering options to improve the technical and commercial efficiency of ZESCO.

Farmer Input Support Program (FISP)

14. FISP was introduced in 2002 with the objectives of increasing maize production and improving the incomes and food security of small-holder farmers, by subsidizing the prices of fertilizer and improved maize seed. The program also sought to promote private sector participation in the delivery of inputs to farmers. Zambia's production of maize has increased substantially since the introduction of FISP, but the increase has come more from increased acreage under cultivation than through productivity growth.² Moreover, the program has not had success in graduating small-holder participants into commercially viable farmers. Studies have noted that the benefits of the program have accrued mainly to larger farmers who can afford to pay their share of the costs of the fertilizer and seeds.³ The huge amount of resources devoted to the program

² IAPRI (2016).

³ IAPRI (2016), IAPRI (2017).

has forced the Ministry of Agriculture to neglect other areas that are critical to increase productivity and diversification of agriculture such as extension services and research and development (Kuteya et al, 2016, IAPRI 2017).

15. FISP has grown enormously in scope. The number of farmers supported increased from 120,000 in 2002/03 to about 1.6 million in 2016/17, and the number of crops covered has increased from one (maize) to nine (white maize, orange maize, sorghum, rice, groundnuts, beans, soya beans, cotton and sunflower). The program has benefited farmers with plots exceeding 5 hectares.

16. The program is migrating to an electronic voucher (E-voucher) system. A pilot scheme was introduced in 13 districts during the 2015/16 season to run alongside the conventional FISP. It involves the use of prepaid cards to access inputs of the farmers' choosing; inputs for crops, livestock and fisheries are covered. The government has announced full migration to the new system in the 2017/18 season. The main objectives of the move to E-vouchers include: increasing private sector participation in the marketing of agricultural inputs, ensuring timely access to inputs by farmers, improving the targeting of beneficiaries, and promoting diversification in the agriculture sector. The number of beneficiaries is expected to be reduced by stricter application of eligibility criteria.

Operations of the Food Reserve Agency (FRA)

17. FRA has played a large, sometimes dominant, role in the maize market, out of line with its primary mandate. FRA was established in 1996 with an original mandate of establishing and managing a national food reserve. Over time, FRA has become a very active participant in the maize market, in some years significantly exceeding the announced target level of maize purchases. IAPRI (2016) noted that it had tended to buy at above market price and then sell to millers at a subsidized price, and that the scale of FRA activities crowds out private sector investment and inhibits agricultural diversification.

18. Studies have found FRA interventions to be regressive. IAPRI (2016) found that purchases are poorly targeted and that the subsidies received by millers are not passed on to consumers. CUTS (2016a) reported that while interventions have been based on welfare considerations (providing adequate production incentives and stabilizing maize prices for farmers) they have been regressive and harm a large proportion of rural households who are net buyers of maize.

19. The 2017 budget announced that FRA operations will be limited to procurement and management of the strategic food reserve. This is in line with the recommendations in CUTS (2016b) which draws lessons from other countries' experiences for Zambia. FRA has announced that it will limit its maize purchase in the 2017/18 season to 500,000 metric tons.

C. Social Protection Programs

20. Zambia's social protection system comprises a wide range of programs (Table 3), including:

- Social Cash Transfers (SCT); provides unconditional cash transfers to the disabled, poor and vulnerable.
- Public Welfare Assistance Scheme; targets vulnerable persons not covered by the SCT. Provides access to health care, education (up to secondary level), food and shelter for orphans, neglected children, and chronically ill persons.
- Home Grown School Feeding Program; provides daily meals to about 1 million students aimed at promoting access to education and enhancing students' learning capacities. The program seeks to source its supplies from local small-scale farmers.
- Food Security Pack; provides inputs and technical assistance to small farming households affected by adverse weather events (floods, droughts).
- Women Empowerment Program; provides micro credits to groups of poor and vulnerable women entrepreneurs. scheme, reproductive health.
- Youth Empowerment Program; youth vocational and entrepreneur training and provision of start-up capital.

21. The reach of the SCT has expanded but it remains a small program. At its launch in 2003 as a pilot project, it was to provide support to 159 households in one district. By 2011, it provided support to about 33,000 households in 12 districts of the country. It reached 242,000 beneficiaries in 78 districts in 2016 (Table 4). Up to 2016, it provided a K70/month transfer to poor households and K140/month to households with members suffering disabilities. The 2017 budget provided for expanding its coverage to 500,000 poor households in all 103 districts, and increasing the monthly benefit by 28 percent.

22. Evaluations of SCT pilots report significant positive impact on the beneficiaries. The results of a randomized controlled trial show significant impacts on poverty reduction, food security, school enrollment, asset ownership, and housing conditions (AIR 2015, Handa et al 2016). Despite its positive impact, actual transfers have been unpredictable, declining relative to the budget in recent years.

Table 3. Central Government Social Spending
(Millions of Kwacha and number of beneficiaries, unless otherwise specified)

	2014	2015	2016	2014	2015	2016
	Millions of kwacha			Number of beneficiaries		
Social cash transfers	135	128	119	145,072	200,000	242,000
Food security pack	35	25	20	30,100	30,100	32,300
School feeding program						1 million
Women empowerment	18	3	0	n.a.	n.a.	7,000
Public Welfare Assistance Program		2		33,477	20,050	
Ministry of Health	8,061	9,415	9,413			
Ministry of Education	3,828	4,464	4,866			
Total social spending	12,076	14,038	14,418			
Social spending (percent of budget)	29.2	26.8	26.9			
Social spending (percent of GDP)	7.2	7.7	6.7			

Sources: Zambian authorities and IMF staff calculations.

Table 4. Social Cash Transfer
(Millions of Kwacha, unless otherwise specified)

	2011	2012	2013	2014	2015	2016
Budget	5.0	11.5	17.5	150.0	150.0	250.0
Actual disbursements	N.A.	11.4	16.5	134.6	127.8	119.0
Share of actual to budget (percent)	...	99.1	94.3	89.7	85.2	47.6
Number of households	32,643	51,106	61,000	145,072	200,000	242,000

Sources: Zambian authorities.

D. Fiscal Incidence Analysis

Concepts and Methodology

23. The CEQ assessment tool quantifies the impact of fiscal policy and its various components (e.g., taxes, social spending, subsidies) on income distribution and poverty (Lustig and Higgins, 2016). In the CEQ methodology, taxes and transfers are allocated to households based on patterns derived from household expenditure surveys. It requires the construction of “pre-fiscal” and “post-fiscal” incomes of households, to trace the impact of various components of the fiscal system on income and income distribution. Starting from the households' pre-fiscal (pre-tax and pre-government transfers) or market income, particular interventions (taxes paid, transfers received) are allocated to each household or individual to determine various post-fiscal income concepts (Annex II): (i) disposable income is market income adjusted for the impact of direct transfers and direct taxes; (ii) consumable income is disposable income adjusted for the impact of indirect transfers (subsidies) and indirect taxes; and (iii) final income is consumable income adjusted for the impact of in-kind transfers. A comparison of market income and final income gives an indication of the how redistributive the fiscal system as a whole is. The tool follows an “accounting approach”; it does not capture behavioral responses or general equilibrium effects.

24. Assessments of impact on inequality and poverty. The change in the measures of inequality (e.g., Gini coefficient) and poverty (head count) between the pre- and post-fiscal distributions give the magnitude of the impact. For example, the extent to which the system reduces inequality is derived by tracing how inequality evolves as different transfers and taxes are added or subtracted from income. Similarly, the impact on poverty is obtained by tracing the change in poverty across income concepts. Two key concepts used to describe how progressive or regressive interventions are “concentration shares” and “incidence”.

- **Concentration shares:** Share of total benefit received (or taxes paid) by household distributed by income decile.
- **Incidence:** The benefit received (or taxes paid) by households as a share of their market income.

25. The application to Zambia used micro-data from the LCMS to allocate shares of taxes and benefits. Subsidies received by households (FISP and energy) were allocated based on the data on spending from the LCMS. Given some limitation with the LCMS data, some imputation was applied in the case of the cash transfer program. In this case, the allocation was based on the provinces covered by the program and the benefit allocated to the households in those areas that met the program requirement.

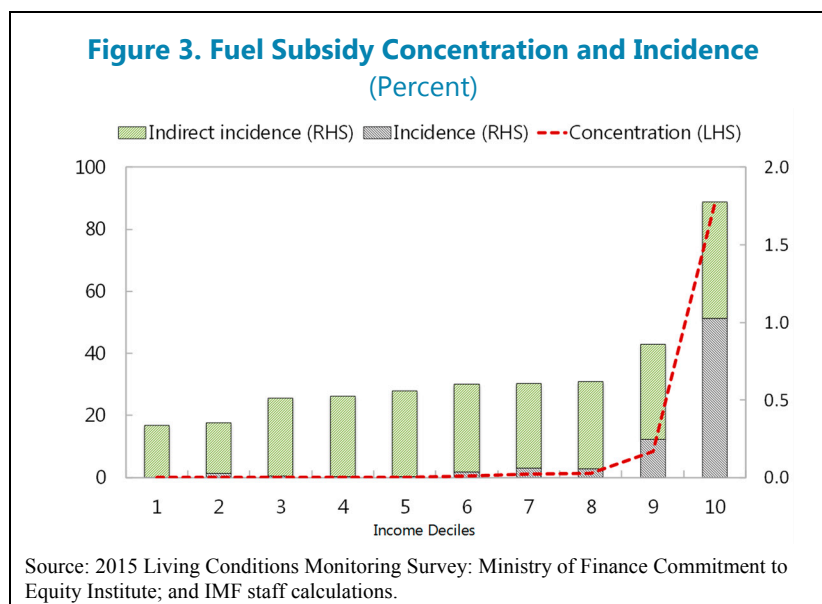
26. For the broader study (De la Fuente et al), the authors calculated a Gini coefficient based on consumption expenditure rather than income. CSO (2016) reported a Gini coefficient of 0.69, based on household incomes. Because of concerns about the reliability of income data

reported in the LCMS, the team undertaking the broader study derived a Gini coefficient from more reliable consumption expenditure data to come up with a Gini coefficient of 0.546.

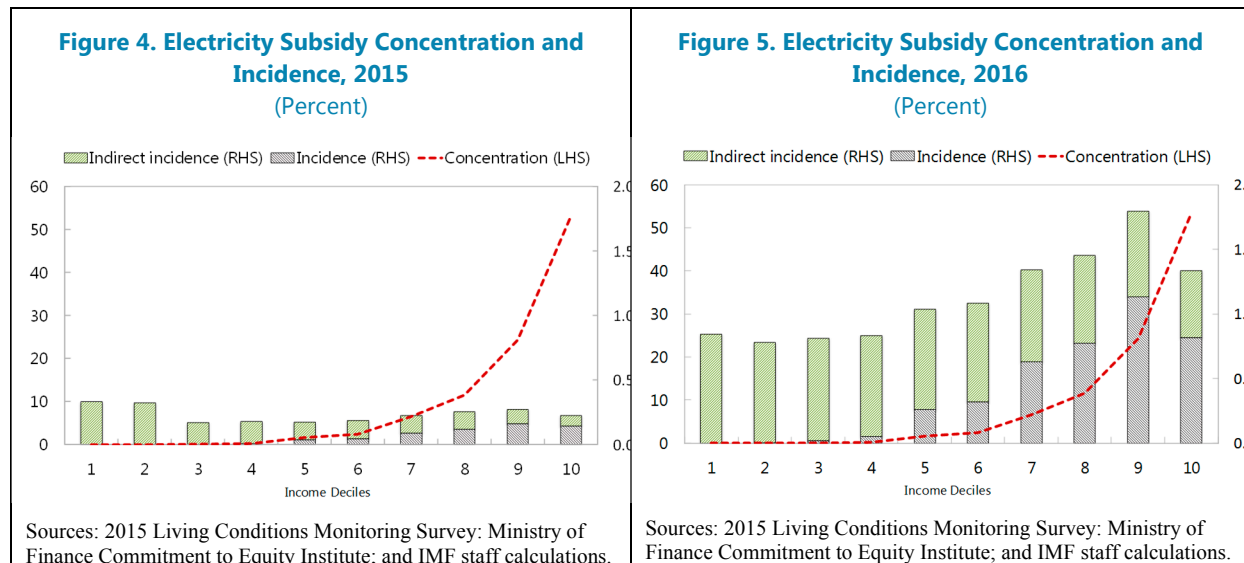
The Distribution of Subsidy Benefits

27. Concentration and incidence measures were calculated to determine the progressivity of the subsidies of interest and the SCT. The subsidies of interest were those for electricity, fuel and FISP. FRA was dropped because of complications in allocating benefits from its operations to households.

28. Fuel subsidies are very regressive. They are very concentrated in the highest income households: 92 percent of the subsidy goes to the wealthiest 10 percent of the households. By contrast, the poorer half of households receive less than one percent of the benefit. Low income households derive mostly indirect benefits (e.g., through cheaper transportation costs). The pre-subsidy income for the poorest 20 percent households improves by less than 0.5 percent. In the case of the richest decile of households, their pre-subsidy income increases by about 1¾ percent through both direct and indirect effects.

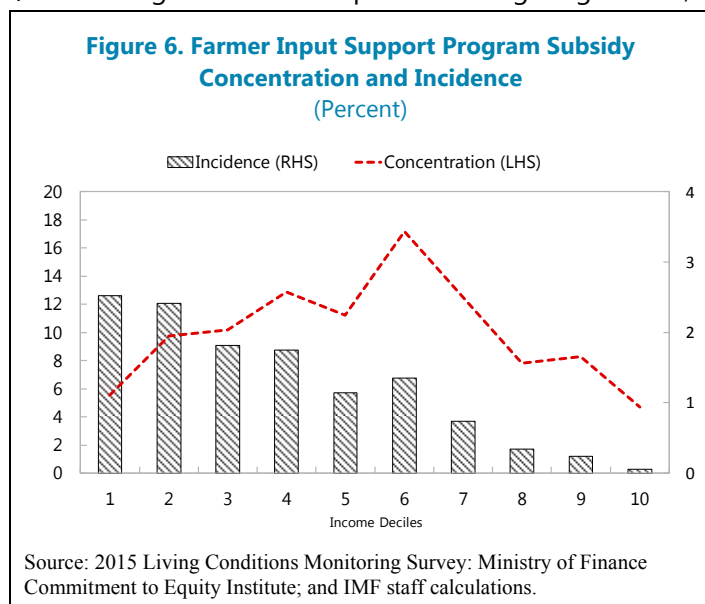


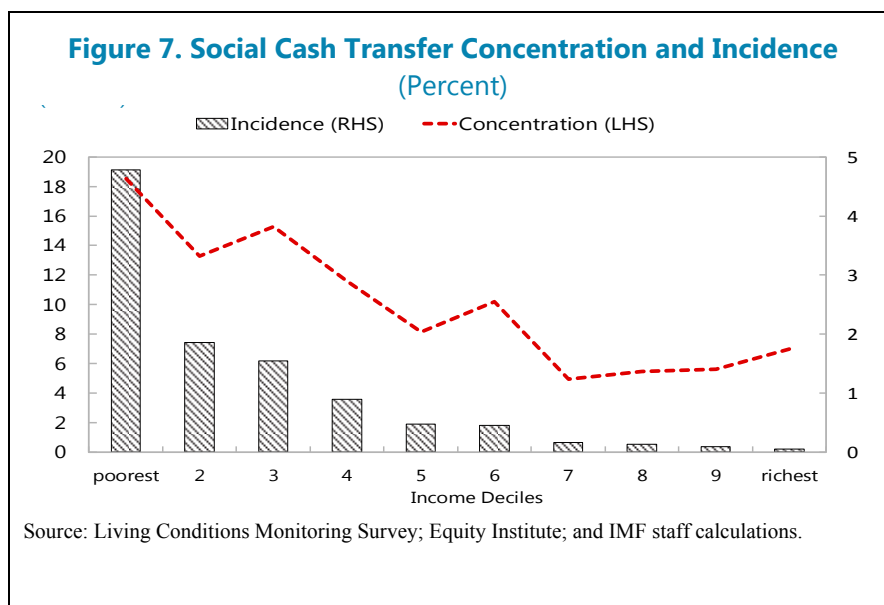
29. The electricity subsidy is also quite regressive. The richest decile get 64 percent of the subsidy, while the poorer half receive 1.5 percent of the total, which reflect the fact that most of the poor households do not have access to electricity. Using the 2015 cost of the electricity subsidy (i.e., approximately \$37 million), yields a very small impact on households' market income with the poorest households improving by about 0.2 percent. Its impact increases with the size of the subsidy as shown when we use cost of the subsidy incurred in 2016; nonetheless, its impact remains limited as the poorest households' market income improves by about 1.2 percent through indirect effects compared to more than 1.5 percent for the richest households through both direct and indirect effects (Figures 2 and 3).



30. The Farmer Input Support Program can be considered neutral in terms of progressivity. The results show that 48 percent of the benefit accrues to the lower 50 percent of the households and 52 percent accrues to higher income households. However, the poorest households only receive around 5.5 percent of the total amount. The incidence of FISP on the poor is much larger than the fuel and electricity subsidies combined; their pre-FISP income increases by 2½ percent. In the context of the government's plan to reduce the number of beneficiaries from 1.6 million to 1 million during the 2017/18 Farming season and improve the targeting of FISP, a better fit for the poorest families might be the Food Security Pack.

31. The social cash transfer (SCT) is a better targeted program. The results show that 19 percent of the social cash transfers are received by the 10 percent poorest households. In terms of its incidence, the income of the poorest households is boosted by almost 5 percent. Overall, nearly 60 percent of the cost of the social cash transfer program are accrued by the 40 percent lowest income households.





Results from Broader Study and Simulations

32. Key findings from the broader study beyond those reported above include:

- In 2015, Zambia's fiscal system reduced inequality. The largest impact arose from in-kind public expenditures on education.
- Fiscal policy increased poverty. The burden of taxes collected from the poor was greater than the amounts received in benefits. The number of poor and vulnerable individuals/households who experienced net cash subtractions from their incomes exceeded those who experienced net additions.
- Eliminating subsidies and moving to directly compensate poorer households would help reduce the poverty headcount.

33. Two scenarios were simulated and contrasted to a baseline (Table 5). The gradual reform scenario entails the elimination of fuel and electricity subsidies and scaling up the SCT as indicated in the 2017 budget (increase coverage to 500,000 households and increase benefit amount by 28 percent). Under the accelerated reform scenario, the SCT amount is doubled. The results indicate that fully eliminating the subsidies on fuel and electricity while scaling up SCT coverage and benefits could reduce poverty significantly.

Table 5. Simulated Effects of Subsidy Reforms and Scaling up Social Cash Transfers

Scenario	Disposable Income		Consumable Income	
	Poverty	Inequality	Poverty	Inequality
Baseline (2015)	54.4	0.546	56.3	0.543
Gradual	53.9	0.539	56.0	0.534
Accelerated	50.3	0.539	53.3	0.537

Source: Commitment to Equity Institute and IMF staff calculations.

"Gradual" reform includes the elimination of fuel and electricity subsidy, a 28 percent increase in the benefit level, and coverage of 500,000 beneficiaries. "Accelerated" reform refers to the full elimination of fuel and electricity subsidies, a 100 percent increase in the benefit level, and coverage of 500,000 beneficiaries.

E. Conclusions

34. Fuel and electricity subsidies have been very costly and poorly targeted. Most of the benefits go to the richest households, with the poor only benefiting marginally and mainly through indirect effects. The results from various studies support the government's decision to phase out the fuel and electricity subsidies.

35. The FISP program while neutral in terms of its progressivity, can be enhanced by better targeting of beneficiaries and increased efficiency in the delivery of inputs. The migration to the E-voucher system, if implemented effectively, has the promise of saving resources which could be used to support productivity enhancing activities such as extension services and research and development.

36. The social cash transfer is a better targeted intervention and should be scaled-up to mitigate the negative impact from the increases in fuel prices and electricity tariffs.

Annex I. Selected Demographic, Income and Poverty Indicators (2015)¹

Total population: 15.5 million

- Rural: 9 million
- Urban: 6.5 million

Households: 3 million

- Rural: 1.7 million
- Urban: 1.3 million

Average household size: 5.1

- Rural: 5.2
- Urban: 5.0

Gini coefficient: 0.69

Poverty Headcount (proportion of population living below the national poverty line)

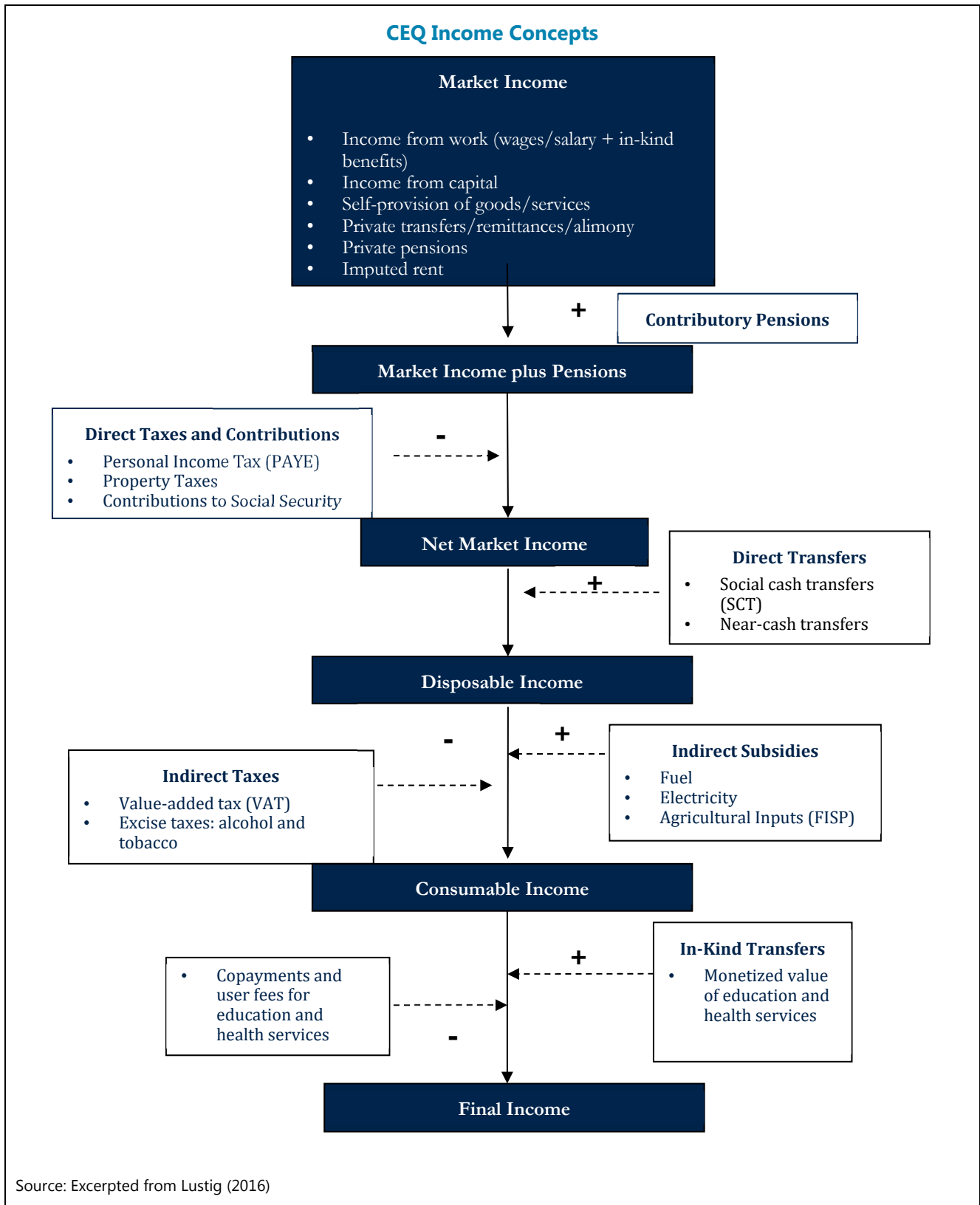
- All Zambia: 54.4 percent
 - Rural: 76.6 percent
 - Urban: 23.4 percent

Distribution of Population by Level of Poverty

- Poor: 54.4 percent
 - Extreme: 40.8 percent
 - Moderate: 13.6 percent
- Non-poor: 45.6 percent

¹ Source: CSO (2016)

Annex II. CEQ Income Concepts



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