2. Fiscal Policy and Economic Performance in Sub-Saharan Africa: Effectiveness, Challenges, and Prospects

Introduction and Main Messages

The impact of the global financial crisis on sub-Saharan African (SSA) countries brings to the forefront the role of fiscal policy in stabilization and development. The fiscal impact of the crisis is large; in particular, revenues have suffered because of less economic activity and lower commodity prices. Because of their remarkable gains in raising growth and achieving economic stability, most sub-Saharan African countries are able to use available fiscal space to limit the impact of the crisis on growth and poverty, as recommended in the previous Regional Economic Outlook: Sub-Saharan Africa (IMF, April 2009).

Recognizing that the global financial crisis threatened to hit the region hard, previous staff analysis focused on the potential for fiscal expansion and the design of fiscal stimulus packages (IMF, 2009; Berg and others, 2009). It found that (i) key determinants of the scope for fiscal stimulus are the size of the output gap, financing options, and debt sustainability; (ii) fiscal stimulus packages need to be timely, targeted, and reversible; (iii) many sub-Saharan African countries have scope to let automatic stabilizers work; and (iv) a few countries also have scope for discretionary stimulus, such as social measures to protect the poor. Fiscal targets have been loosened in about three fourths of African countries that have an active IMF arrangement.

Building on previous staff analysis, this chapter looks at the role of fiscal policy in promoting sound economic performance in sub-Saharan Africa in three areas: (i) countercyclical support during periods of sluggish economic growth or recessions; (ii) safeguarding debt sustainability; and (iii) facilitating long-term growth. The chapter addresses the following four questions:

- How has fiscal performance in sub-Saharan Africa evolved since the early 1990s?
- What factors explain the success or failure of fiscal policy in sub-Saharan Africa in stabilizing the economy?
- How might the current downturn affect debt sustainability?
- How can countries use fiscal space more effectively to support long-term growth and achieve development objectives, such as the Millennium Development Goals (MDGs)?

The main findings are that

- A steady improvement in fiscal performance has been a key feature of economic policies since the early 1990s. Since then the number of countries that have achieved primary fiscal surpluses has nearly tripled, and, supported by debt relief, external debt has been reduced significantly. This improvement has been instrumental in allowing for the use of fiscal policy to limit the adverse consequences of the current global financial crisis.

Note: This chapter was prepared by Norbert Funke, Robert Keyfitz, Alexei Kireyev, Victor Lledó, and Gustavo Ramirez, with editorial assistance from Anne Grant and administrative assistance from Natasha Minges.
Fiscal procyclicality has on average declined during the past two decades. Making countercyclical fiscal policy more effective will require reinforcing automatic stabilizers, enhancing fiscal institutions, relaxing financing constraints, and addressing technical and administrative constraints, such as building up data collection and analytical capacity to identify where the economy is in the cycle. Special institutions, such as fiscal rules, fiscal responsibility laws, and commodity stabilization funds, may be helpful, in particular if basic fiscal institutions are in place and political institutions generally meet basic governance standards.

Provided that economic growth picks up as anticipated, concessional financing is available to finance the fiscal expansion, and policies are adjusted over the medium term so that financing needs return to their precrisis baseline scenario, the crisis does not seem to significantly add to debt vulnerabilities in most countries. But a more prolonged global slowdown could exacerbate vulnerabilities and push more countries into a higher debt-risk category. To minimize that risk, sub-Saharan African countries must prepare to transition back to lower deficits once the recovery from the current crisis becomes firm, and must move to improve public financial management (PFM). Adequate amounts of grants and concessional lending will also be critical.

As soon as the global downturn abates and fiscal positions return to sustainable trajectories, longer-term growth and development goals will once again top the list of policy priorities. The level and composition of fiscal policy greatly influence medium- to long-term growth and poverty reduction. Because deficits in infrastructure and human capital are still significant in sub-Saharan Africa, public investment in physical and human capital will be key. Improving the efficiency of spending in sub-Saharan Africa, which is the least efficient among developing regions, needs to be supported by better institutions.

Fiscal Policy and Economic Performance in Sub-Saharan Africa

Over the past two decades sub-Saharan Africa has made remarkable gains in promoting growth and economic stability. Last fall’s Regional Economic Outlook: Sub-Saharan Africa (IMF, 2008b) investigated in depth the causes of “the great sub-Saharan Africa growth takeoff.” Dividing the region into roughly equal numbers of fast-, medium-, and low-growth countries, the analysis concluded that though there were many contributing factors,1 better policy and economic management was central, coupled with a favorable external environment, especially terms of trade improvements, foreign direct investment (FDI), debt relief from the international community, and the attenuation of regional conflicts.

One aspect of better economic policies has been steady improvement in fiscal positions, which together with debt relief has helped lower debt burdens and the risk of debt distress (Table 2.1). The improvements have contributed to higher per capita growth. At the beginning of the 1990s only 12 percent of countries averaged more than 2½ percent per capita growth; by 2006–08 nearly 70 percent did so.

Fiscal positions improved in all groups (Figure 2.1). Oil exporters that began with massive and unsustainable deficits reversed them through a combination of buoyant revenues, supported by rising commodity prices, and spending restraint.

1 Countries classified as high growth averaged annual real per capita GDP growth above 2½ percent for 1995–2007; countries classified as low growth averaged ½ percent or less. Oil exporters were grouped separately because these countries had very different fiscal experiences during the recent commodity cycle.
Table 2.1. Sub-Saharan Africa: Percentage of Countries Satisfying Various Stability Criteria

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Per capita growth &gt; 2.25 percent</td>
<td>12</td>
<td>23</td>
<td>48</td>
<td>68</td>
</tr>
<tr>
<td>CPI inflation &lt; 6 percent</td>
<td>12</td>
<td>48</td>
<td>48</td>
<td>39</td>
</tr>
<tr>
<td>Real exchange rate volatility &lt; 6 percent(^1)</td>
<td>12</td>
<td>30</td>
<td>25</td>
<td>64</td>
</tr>
<tr>
<td>Primary balance in surplus</td>
<td>28</td>
<td>31</td>
<td>38</td>
<td>72</td>
</tr>
<tr>
<td>External debt &lt; 60 percent of GDP</td>
<td>33</td>
<td>27</td>
<td>39</td>
<td>71</td>
</tr>
</tbody>
</table>

Source: IMF staff calculations based on *World Economic Outlook* data.
\(^1\) Standard deviation of real exchange rate volatility in the corresponding period.

Figure 2.1. Sub-Saharan Africa: Fiscal Indicators\(^1\)

Source: IMF, *World Economic Outlook*.
\(^1\) Simple average.
Fast-growing non-oil exporters held spending as a share of GDP roughly constant while bringing in more revenue. By the end of the period they too were in surplus. Low-growth countries did spend more but managed to narrow their deficits with the help of official grants, which averaged 6.5 percent of GDP in 2001–05 and 12.7 percent in 2006–08. Debt indicators also improved dramatically, especially for oil exporters and high-growth non-oil exporters (Figure 2.2).\(^2\) The latter have been the main beneficiaries of debt forgiveness, especially since the MDRI was introduced in 2006. As a group, low-growth non-oil exporters ended the period with high levels of debt.

**Fiscal Policy as a Stabilization Tool**

The global economic slowdown and its impact on sub-Saharan Africa have intensified discussion about the appropriateness of using fiscal policy as a stabilization tool. Fiscal deficits are projected to rise in many countries in sub-Saharan Africa (Figure 2.3). By letting them rise during slowdowns and adopting a more restrictive fiscal stance during booms, the authorities try to reduce output volatility, smooth consumption, and limit debt buildup.

To be effective, fiscal policy should be reinforced by appropriate monetary policies. Compared to advanced economies, in sub-Saharan Africa monetary policy alone would have less scope to smooth output fluctuations.

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\(^2\) Data only through 2007.
because of weak transmission channels, the need to anchor inflationary expectations, or, for some countries, participation in a currency union (IMF, 2008b, Chapter 2; Frankel, Smit, and Sturzenegger, 2008).

Fiscal policy directed to stabilization needs to be designed to maximize its impact, implemented quickly, and withdrawn early enough to minimize risks to debt sustainability. In particular, it must cope with two challenges: uncertainty about the size of fiscal multipliers and the risk of becoming procyclical.

**Fiscal Multipliers: Size and Determinants**

The effectiveness of fiscal policy depends on the size of the fiscal multipliers. A fiscal multiplier is the ratio of the change in output to an exogenous change in the fiscal balance relative to its baseline. The size of fiscal multipliers varies from country to country, can change over time, and depends on circumstances.

In advanced economies estimated multipliers range from about negative 2 up to 3. The few studies for developing countries find a lower range (Table 2.2). Multipliers tend to be smaller in developing countries, where the crowding-out effects of fiscal policy may be larger than in advanced economies due to less access to international capital markets, smaller domestic financial markets, or less accommodative monetary policy. Multipliers can be negative if fiscal expansions lead to a loss in confidence and raise debt sustainability concerns, which is more likely in countries with high debt.3

There has been hardly any systematic analysis of the size and determinants of fiscal multipliers in sub-Saharan Africa. Evidence from a recent study of the size of tax and government spending multipliers for selected countries in eastern and southern Africa suggests that in some countries the size of multipliers may be small beyond two years.4 But, there remains significant uncertainty, and cross-country variation seems to be larger than in developing countries in other regions.

What can countries do to increase fiscal multipliers? Spending could be targeted to poorer and more liquidity-constrained consumers and to goods and services where leakages into savings and imports are few. Crowding-out effects are likely mitigated when monetary authorities can accommodate fiscal expansion. Over the medium term, deepening and developing domestic financial markets would also limit crowding out.

**Fiscal Procyclicality in Sub-Saharan Africa**

Procyclical fiscal behavior is characterized by fiscal expansions in good times and contractions in bad times, both of which exacerbate rather than smooth output volatility. Procyclicality can be measured in several ways, such as correlations between cyclically adjusted measures of government activity and the output gap or on the basis of refined statistical models. Owing to a shortage of high-frequency data and reliable estimates for cyclically adjusted fiscal positions for sub-Saharan Africa, these methods cannot reliably be applied in the region.

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3 Under certain circumstances, especially for countries with high debt ratios and when accompanied by cuts in unproductive spending, fiscal adjustments have been found to be expansionary (Gupta and others, 2005).

4 See Davoodi, Kaendera, and Agu (forthcoming).

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**Table 2.2. Range of Fiscal Multipliers**

<table>
<thead>
<tr>
<th>Multipliers at different horizons</th>
<th>One quarter</th>
<th>One year</th>
<th>Two or more years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced economies</td>
<td>0.2 – 1.0</td>
<td>-0.7 – 5.0</td>
<td>-1.7 – 3.0</td>
</tr>
<tr>
<td>Developing countries2</td>
<td>0.6</td>
<td>0.1 – 0.4</td>
<td>-0.2 – 0.2</td>
</tr>
</tbody>
</table>

Source: Spilimbergo and others (2009).  
1Ranges based on alternative methodologies and country samples. See source for details.  
2Includes emerging markets.
However, fiscal procyclicality can be gauged by two simple approaches: (i) pairwise correlation coefficients between changes in real government spending and real GDP growth, and (ii) the difference in growth in real expenditure between good and bad times ("fiscal amplitude"). Good times are defined as those with real GDP growth above the median and bad times as those with growth below the median. A positive fiscal amplitude implies that real spending has grown more in good times than in bad. Fiscal policy is more procyclical in countries with larger correlation coefficients and fiscal amplitudes.

Both pairwise correlations and fiscal amplitude suggest that fiscal policy in sub-Saharan Africa has on average been procyclical (Figure 2.4). These results also corroborate a number of studies showing that fiscal policy is on average more procyclical in developing than in advanced countries (e.g., Kaminsky, Reinhart, and Végh, 2004; Ilzetski and Végh, 2008).

In line with previous studies (Gavin and Perotti, 1997; Manasse, 2006; and Balassone and Kumar, 2007), correlation coefficients and fiscal amplitude components seem to imply that procyclical fiscal behavior in sub-Saharan Africa is asymmetric along the cycle but without any clear pattern.

Fiscal policy may have tended to be more procyclical in sub-Saharan Africa than in more advanced economies for several reasons. Automatic stabilizers in sub-Saharan Africa tend to be smaller, technical and administrative capacities more limited, financing constraints more binding, and political and fiscal institutions for enforcing sustainable fiscal positions less well developed than in more advanced economies and most emerging markets.

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5 This analysis replicates the methodology developed in Kaminsky, Reinhart, and Végh (2004).

6 While both measures may be subject to reverse causality, this is likely to be less of an issue in countries where fiscal multipliers are small. Also, qualitatively similar results to those reported here emerge if real export growth, for which endogeneity issues are arguably less relevant, is used instead of real GDP growth.

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7 Controlling for reverse causality, Lledó, Yackovlev, and Gadenne (forthcoming) reach similar results.
Table 2.3. Fiscal Procyclicality in Sub-Saharan Africa, 1980–2008: Groups and Spending Categories

<table>
<thead>
<tr>
<th>Groups</th>
<th>Central government</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total spending</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>27.5*</td>
</tr>
<tr>
<td>High debt3</td>
<td>32.0*</td>
</tr>
<tr>
<td>Low debt</td>
<td>21.0*</td>
</tr>
<tr>
<td>More financially developed4</td>
<td>29.2*</td>
</tr>
<tr>
<td>Less financially developed</td>
<td>24.8*</td>
</tr>
<tr>
<td>More aid dependent5</td>
<td>28.1*</td>
</tr>
<tr>
<td>Less aid dependent</td>
<td>27.2*</td>
</tr>
<tr>
<td>Strong policy6</td>
<td>22.8*</td>
</tr>
<tr>
<td>Weak policy</td>
<td>36.1*</td>
</tr>
<tr>
<td>Strong political controls7</td>
<td>24.1*</td>
</tr>
<tr>
<td>Weak political controls</td>
<td>29.4*</td>
</tr>
</tbody>
</table>

Source: IMF staff estimates.
1 Spending categories deflated by CPI, percent change.
2 Pairwise correlation (percent) between changes in central government spending and real GDP.
3 Countries with high debt are those with public external debt-to-GDP ratios above sample median (56 percent); low debt is below the median.
4 More financially developed countries are those with credit to the private sector-to-GDP ratios above 21 percent, and less developed are those below.
5 More aid dependent countries are those with aid-to-GDP ratios above the sample median 9.7 percent.
6 Countries with strong policies are those with a CPIA rate above sample median 3.3.
7 Countries with strong political controls are those with CHECKS score above sample median 3.2.
*Statistically significant at the 10 percent level.

Similar factors may also explain significant variations in the degree of fiscal procyclicality observed among sub-Saharan African countries. In particular, it appears that the degree of procyclicality in sub-Saharan Africa is influenced by several factors and sometimes varies by spending category (Table 2.3):8

- Financing restrictions. Fiscal policy is more procyclical in countries with binding financing restrictions because they are not able to finance a countercyclical fiscal policy during an economic downturn. Results suggest that countries with higher debt-to-GDP ratios and therefore less fiscal space have on average a more procyclical fiscal response. Results are less clear-cut with regard to financial sector development, possibly because countries with more developed financial markets, though subject to less domestic financing constraints, are more exposed to the volatility of international capital markets, which have been shown to be highly procyclical (Kaminsky, Reinhart, and Végh, 2004). Similarly, and unlike in Thornton (2008), aid-dependent countries do not appear to be more procyclical than less aid-dependent countries, except perhaps with respect to capital spending. This is consistent with sensitivity analyses indicating that these results generally hold if the past three decades are analyzed separately.

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8 Sensitivity analyses indicate that these results generally hold if the past three decades are analyzed separately.
with findings that procyclical patterns in aid flows have been mild (Bulir and Hamman, 2003, 2008) and declining over the last two decades (Chauvet and Guillamont, 2008).

- Policy and institutions. Countries with sound policy and institutions, including controls on the executive, tend to have a less pronounced procyclical behavior by ensuring fiscal restraint in good times (Calderón, Duncan, and Schmidt-Hebbel, 2004; Akitoby and others, 2004; and Diallo, 2009). In sub-Saharan Africa, fiscal procyclicality has been more pronounced among countries with lower scores on the World Bank’s Country Policy and Institutional Assessment (CPIA); in general, the same holds for countries with lower “checks and balances” (CHECKS) scores as computed in the World Bank’s Database of Political Institutions (DPI).9

- Spending categories. In line with findings for OECD countries (Lane, 2003), capital spending tends to be more procyclical than current spending.

As sub-Saharan African countries have made progress in some of these areas, fiscal procyclicality has on average declined somewhat since the 1980s, as it has in other developing countries (Table 2.4).

Table 2.4. Changes in Fiscal Procyclicality by Decade, 1980–2008

<table>
<thead>
<tr>
<th>Regions</th>
<th>1980s</th>
<th>1990s</th>
<th>2000s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-Saharan Africa</td>
<td>17.3</td>
<td>10.8</td>
<td>8.2</td>
</tr>
<tr>
<td>Middle-income countries</td>
<td>8.2</td>
<td>11.8</td>
<td>7.2</td>
</tr>
<tr>
<td>Low-income countries</td>
<td>20.4</td>
<td>10.5</td>
<td>8.6</td>
</tr>
<tr>
<td>Commodity exporters</td>
<td>15.9</td>
<td>11.6</td>
<td>9.0</td>
</tr>
<tr>
<td>Commodity importers</td>
<td>18.2</td>
<td>10.3</td>
<td>7.7</td>
</tr>
<tr>
<td>World</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced economies</td>
<td>1.5</td>
<td>-2.1</td>
<td>0.8</td>
</tr>
<tr>
<td>Other developing countries</td>
<td>10.3</td>
<td>9.2</td>
<td>6.6</td>
</tr>
</tbody>
</table>

Source: IMF staff estimates.

1 Amplitude of central government total spending in percent.

Overcoming Challenges

The effectiveness of fiscal policy as a stabilization tool can be enhanced by reinforcing automatic stabilizers and fiscal institutions, relaxing financing restrictions, and addressing technical and administrative constraints. Continuing close cooperation with donors will be crucial.

Reinforcing Automatic Stabilizers

Reinforcing automatic stabilizers should be the first priority. Automatic stabilizers are smaller in sub-Saharan African countries because revenue-to-GDP ratios are generally lower and tax systems and public expenditure structures are not very sensitive to the cycle. Reinforcing automatic stabilizers would require continuous efforts to mobilize revenue and develop social insurance programs. The average revenue-to-GDP ratio in non-oil-exporting sub-Saharan African countries is 21 percent, compared with more than 40 percent in developed countries. Since a large share of revenues in sub-Saharan African countries is generated from indirect taxes, revenue mobilization efforts should...
include business tax reform and measures to improve tax compliance, particularly for large taxpayers, both personal and corporate. This would generate important efficiency gains and help improve the de facto progressivity of the tax system—an attractive feature of automatic stabilizers in more advanced economies. On the expenditure side, it would be desirable, with external support, to adopt and gradually scale up social safety net programs, targeting them carefully and building in countercyclical properties. Existing programs that are performing well should be scaled up first; in the short run, though, the capacity of sub-Saharan African countries to set up new programs is limited.

Enhancing Fiscal Institutions

In most cases, improving fiscal controls by enhancing basic institutions should be a priority. Basic fiscal institutions are those that support a sound PFM system that emphasizes budget formulation, execution, and reporting, such as (i) a budget law and the institutions necessary to enforce it; (ii) a ministry of finance empowered to control the budget activities of line ministers and other executive branch leaders and to coordinate reforms; (iii) a comprehensive and credible budget that eliminates extrabudgetary activities and accounts; and (iv) a transparent system of accounting and control that prevents payment arrears and allows regular fiscal reports to be produced on time. Such institutions are crucial not only to impose political controls to curb procyclical fiscal bias in good times but also to reduce administrative constraints that lengthen implementation lags and make it hard to target expenditure well.

Fiscal rules or rules-based (often referred to as special) fiscal institutions, such as fiscal responsibility laws, cyclically adjusted budget targets, and commodity stabilization funds may also be useful. Kim and Saito (2009) show, for instance, that while a zero net domestic financing target has served Tanzania well in recent years, contributing to prudent expenditure policy and debt sustainability, it lacks the flexibility to respond to sharp shocks; instead, they propose a rule centered on long-term debt sustainability, which would provide flexibility for countercyclical policy and define fiscal space for priority spending. For commodity exporters, Box 2.2 presents some evidence that special fiscal institutions can be effective, in particular if basic fiscal institutions are functioning well and political institutions in general meet basic governance standards.

Relaxing Financing Restrictions

Fiscal restraint in good times should continue to be the anchor that ensures adequate financing for countercyclical fiscal policies in bad times. The fact that most sub-Saharan African countries now adopting countercyclical policies were more restrained in the previous upswing and commodity boom (see Chapter 1) supports this argument. For commodity exporters this would imply running fiscal surpluses during a revenue boom and building up precautionary savings to cushion a plunge in revenues during downturns. Any tendency toward an easing bias—significant easing during downturns and little tightening during upturns—needs to be curtailed to minimize the risk of debt rising.

Building up local debt markets will help relax financing constraints in downturns. Improving access to external capital markets could also help if complemented by measures that help sustain investor confidence particularly during downturns so as to contain procyclical capital flows. Among emerging and frontier markets with well-functioning PFM systems, such measures include fiscally responsible policies based on credible medium-term fiscal frameworks and debt strategies. With regard to debt structure, it would be important in expansionary periods to adopt a strategy that limits the issuance of debt with short-term maturities and in foreign currency so as to
reduce immediate financing needs during downturns.

Addressing Technical and Administrative Constraints

Technical and administrative constraints increase lags in the formulation and implementation of fiscal policy. They arise from difficulties in identifying downturns and recoveries in real time, weak capacity to appraise and implement new projects, and in some cases the need to comply with multiple, sometimes conflicting, procedures of development partners.

Reliable indicators of the cyclical position of the economy and its impact on the budget are an important precondition for countercyclical fiscal policy. Cyclically adjusted fiscal balances (CAB) are a natural candidate, but in sub-Saharan Africa the estimation of CAB is constrained by statistical problems, such as (i) minimal availability and timeliness of the high-frequency indicators necessary to estimate accurately the timing and magnitude of deviations from trend output; (ii) difficulties in estimating trend output itself, given high volatility and structural breaks in the data; and (iii) the absence of reliable estimates of budget elasticities. Efforts to collect and disseminate timely quarterly GDP and monthly production indices and to derive more reliable estimates of elasticities from tax and expenditure data should continue. Further improving donor coordination and country ownership over the reform process would help address administrative constraints, such as conflicting procurement policies and multiple reporting requirements, that delay aid disbursements and increase project implementation lags.

Fiscal Policy and Debt Sustainability

Many sub-Saharan African countries had fiscal space available to respond to the global financial crisis. This section will address three questions:

- How has debt evolved over time?
- How will the current global crisis and countries’ fiscal response affect debt sustainability?
- Which reforms are needed to transition back to the long-run optimal trajectory?

Recent Patterns in Debt Accumulation

In recent years debt indicators in sub-Saharan Africa have improved significantly (Figure 2.5), thanks to sound economic policies, a favorable external environment, more aid, and in particular debt relief. Heavily Indebted Poor Countries (HIPC) Initiative and Multilateral Debt Relief Initiative (MDRI) debt relief has significantly reduced the debt burden of eligible sub-Saharan African countries. To date, US$73 billion in 2008 present-value terms has been committed for debt relief to 28 of 30 HIPC-eligible sub-Saharan African countries (Figure 2.6), freeing substantial resources to help finance priority spending. Post-completion point debt has been reduced by as much as 95 percent (excluding traditional relief).

However, the problem of unsustainable debt has not yet been fully resolved. Based on debt sustainability analyses (DSAs), mostly done in 2008 (see Box 2.1), 61 percent of sub-Saharan African countries were classified as at low or moderate risk of debt distress, the others as at high risk or in debt distress. Debt vulnerabilities differed between two groups of sub-Saharan African countries (Table 2.5):
Countries that are eligible but have not yet fully benefited from debt relief from the HIPC Initiative and the MDRI (pre–completion point countries). These clearly show a higher risk of debt distress, highlighting their need for relief to achieve debt sustainability; 90 percent are classified as at high risk of debt distress or as already in distress.

Countries that are not eligible for debt relief from the HIPC Initiative and the MDRI (non-HIPCs) and those that have already fully benefited from debt relief (HIPC completion point countries). Of these, more than 80 percent are classified as at low or moderate risk of debt distress.

**Impact of the Financial Crisis**

The global financial crisis, like the food and fuel price crisis that preceded it, has put extra pressure on sub-Saharan African fiscal balances, potentially compromising progress these countries have made in reducing debt vulnerabilities. The crises affected their debt indicators through several interrelated channels: (i) more borrowing, external and domestic, than was projected previously was needed to finance higher deficits, which led to faster buildup of public debt; (ii) real GDP growth was slower;
Box 2.1. Debt Sustainability Analysis

The objective of the IMF-World Bank debt sustainability framework, which was introduced in 2005, is to support low-income countries in their efforts to achieve their development goals without creating future debt problems. A debt sustainability analysis using the DSF looks at five debt burden indicators to evaluate the risk of external debt distress: the ratios of (i) present value (PV) of debt-to-GDP; (ii) PV of debt-to-exports; (iii) PV of debt-to-revenues; (iv) debt service-to-revenues; and (v) debt service-to-exports.

The risk of debt distress is derived by reviewing the evolution of debt burden indicators compared to their indicative policy-dependent debt-burden thresholds using a baseline scenario, alternative scenarios, and stress tests.

The thresholds depend on the quality of a country’s policies and institutions as measured by the three-year average of the World Bank’s Country Policy and Institutional Assessment (CPIA) index.

Note: This box was prepared by Christian Beddies, François Painchaud, and Gustavo Ramirez.

The direct impact of the crisis and the risks to debt sustainability depend on each country’s circumstances, the initial conditions, and the scale of new borrowing. A comparison of recent and precrisis DSAs combined with simulations of the impact of the crisis suggests that on average, capacity to repay has fallen and debt burden indicators have risen. However, while almost all countries have been affected, debt vulnerabilities in most countries are not projected to rise significantly (see Box 2.3). These results are based on the assumption that growth will pick up over the next two years, concessional financing is available to finance the fiscal expansion, and policies will be implemented so that financing needs gradually return to their precrisis baseline scenarios. Risks to debt sustainability relate to the strength of the recovery in sub-Saharan Africa, financing conditions, and the ability of country authorities to transition back to a sustainable fiscal policy.

Table 2.5. Risk of Debt Distress by Country Grouping

<table>
<thead>
<tr>
<th>Country Groupings</th>
<th>Number of Countries</th>
<th>Low risk</th>
<th>Moderate risk</th>
<th>High risk</th>
<th>In debt distress</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRGF-eligible countries(^1)</td>
<td>70</td>
<td>31.4</td>
<td>32.9</td>
<td>22.9</td>
<td>12.9</td>
</tr>
<tr>
<td>Sub-Saharan Africa LICs</td>
<td>36</td>
<td>30.6</td>
<td>30.6</td>
<td>19.4</td>
<td>19.4</td>
</tr>
<tr>
<td>Non-HIPCs and completion point HIPCs</td>
<td>26</td>
<td>42.3</td>
<td>38.5</td>
<td>15.4</td>
<td>3.8</td>
</tr>
<tr>
<td>Non-HIPCs</td>
<td>6</td>
<td>50.0</td>
<td>33.3</td>
<td>0.0</td>
<td>16.7</td>
</tr>
<tr>
<td>Completion-point HIPCs</td>
<td>20</td>
<td>40.0</td>
<td>40.0</td>
<td>20.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Other HIPCs (pre–completion point)</td>
<td>10</td>
<td>0.0</td>
<td>10.0</td>
<td>30.0</td>
<td>60.0</td>
</tr>
<tr>
<td>Post-decision point countries</td>
<td>8</td>
<td>0.0</td>
<td>12.5</td>
<td>25.5</td>
<td>62.5</td>
</tr>
<tr>
<td>Pre-decision point countries</td>
<td>2</td>
<td>0.0</td>
<td>0.0</td>
<td>50.0</td>
<td>50.0</td>
</tr>
</tbody>
</table>

Source: IMF staff calculations.
\(^1\)Based on debt sustainability analyses available as of end-June 2009. Excludes eight PRGF-eligible countries, for which LIC DSAs are unavailable.
Policy and Reform Options

While an expansionary fiscal policy may be appropriate in the short term, sub-Saharan African countries need to prepare to transition back to medium-term fiscal objectives. The speed of the transition back depends on the size of the shock as well as country-specific characteristics. The transition entails both short- and medium-term measures.

In the short term, countries need to determine the appropriate time frame for the fiscal stimulus to help ensure that it does not lead to a permanent expansion of the deficit and increased concern about debt sustainability. Additional crisis-related borrowing should be viewed as an exceptional measure to address balance of payments needs, counter the cyclical downturn, and reduce the impact of the crisis on the most vulnerable. Given the risk that the crisis could permanently lower output growth, authorities should also review the need for additional growth- and competitiveness-enhancing structural measures to return to precrisis growth levels.

In the medium term, institutional arrangements may need to be strengthened in areas like PFM, debt management, and tax policy and administration.

- An efficient PFM system gives a government timely and reliable information on how its budget policy is playing out and enables it to manage outcomes more consistently with intentions. Better PFM is linked to better budget balances and lower debt (Figures 2.7 and 2.8; see also Prakash and Cabezon, 2008).
- A well-articulated debt-management strategy (DMS) allows countries to evaluate the cost-risk tradeoffs related to debt accumulation and composition. Building on the medium-term fiscal framework and the DSF, a solid DMS would help keep debt sustainable by managing the risks embedded in the debt portfolio, such as liabilities arising from government guarantees and innovative investment vehicles like public-private partnerships, and possible variations in the cost of debt servicing and its budget implications.
In the area of tax policy and administration, efforts to raise more revenue should continue by expanding the tax base and reinforcing revenue administration.

**Fiscal Policy for Growth**

As the global downturn abates and fiscal positions return to more sustainable trajectories, longer-term growth and development will once again top the list of policy priorities (Adam and Bevan, 2004; Selassie and others, 2006). Beyond short-term stabilization, fiscal policy—defined broadly to include public sector management and resource allocation—exerts a major influence on longer-term outcomes. This section first reviews the potential linkages between the composition and efficiency of fiscal policy and growth focusing on the expenditure side. It then considers implementation issues.

**Composition of Spending**

Needs and circumstances vary by country, but both the level and the composition of expenditure emerge as important determinants of the effectiveness of fiscal policy. A signal finding in the literature is that investment is more robustly associated with growth than is current spending (Easterly and Rebelo, 1993; Gupta and others, 2005). Indeed, Barro and Sala-i-Martin (1995) find the impact of government consumption to be unambiguously negative. Figure 2.9 (left panel) shows that high-growth sub-Saharan African countries have allocated a significantly higher share of GDP to public investment.

Nevertheless, a recommendation to move resources from current to capital spending would need to be carefully nuanced. First, not all current spending is the same. Gupta and others (2005) find that nonwage spending has more impact on growth, though spending on wages is obviously essential to delivering services, especially in health and education. The World Bank (2009) documents how inadequate spending on maintenance has contributed to sub-Saharan Africa’s infrastructure deficit and undermined the effectiveness of capital investments. Also, in most countries revenue constraints limit the scope for spending more on priority areas by reallocating budget resources.

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10 Nor, of course, is all capital spending the same—a “magic bullet” able to overcome every development constraint.
In Figure 2.9 (right panel), low-growth countries seem to have some scope to raise the share of capital budgets in total expenditure but in most cases still could not reach the level of spending needed to address infrastructure needs without raising additional revenue. Or, as Briceño-Garmendia, Smits, and Foster (2008) put it, although public investment in infrastructure is a respectable share of GDP in sub-Saharan Africa, in most countries it still amounts to less than $50 per capita, far below what is needed to close the infrastructure gap.

What types of spending are most conducive to long-term growth? The answer cannot be conclusive because of data limitations, long gestation periods, and difficulties in establishing causal relationships.11 Besides, spending that is useful in one country may fail to address the constraints to growth in another.

Nevertheless, a substantial number of studies have explored in detail the link between growth and various types of public spending. Nijkamp and Poot (2004) give a good sense of the overall results. They group the results of 93 studies into expenditure on education, infrastructure, government consumption, and defense (Figure 2.10), and classify the growth impacts of each category as positive, negative, or inconclusive. Education and infrastructure spending has significant positive effects, government consumption is inconclusive, and defense spending is negative.

**Investing in human capital.** There is overwhelming support for the importance of human capital for economic development. In an influential early study, Mankiw, Romer, and Weil (1992) found that education explained as much of the income variation between countries as did physical capital. Education promotes growth by facilitating innovation and adoption of new technologies (Nelson and Phelps, 1966; Romer, 1990). While there has been less research into the economic impacts of health, on balance the literature points to its potential importance for sub-Saharan African countries, not least because it increases the return on education by increasing life expectancy (Schultz, 1999; Gyimah-Brempong and Wilson, 2004). Sub-Saharan Africa’s under-5 mortality rate is the highest of any region and its gross school enrollment rates the lowest (see Figure 2.11). Comparatively poor health and education outcomes have been used to explain lower growth rates in sub-Saharan Africa (Ghura and Hadjimichael, 1996; Jung and Thorbecke, 2003).

Though the private sector contributes a significant share of spending on health and education in most countries, the public sector’s role is pivotal. Because of spillover effects and increasing returns, private incentives will undersupply human capital. More resources are needed to train doctors and build schools to overcome sub-Saharan Africa’s human capital deficit even though, surprisingly, cross-country comparisons show relatively little

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2. FISCAL POLICY AND ECONOMIC PERFORMANCE IN SUB-SAHARAN AFRICA

**Figure 2.11. Health and Education Indicators, 2001–07**


The association between public spending, and health and education outcomes.\(^{12}\) Intuitively, other aspects of policy and management are also critical, including better expenditure tracking and PFM to ensure that budgeted expenditures actually reach their intended destinations (Reinikka and Svensson, 2001; Devarajan, Miller, and Swanson, 2002).

**Building infrastructure.** Sub-Saharan Africa has a huge infrastructure deficit and service costs there are high, even compared with other LICs. Figure 2.12 shows the ratio of infrastructure indicators of various sub-Saharan Africa subgroupings to global LIC and middle-income averages for 2001–07. In part this shortfall is explained by geographic and demographic factors (low population density, rapid urbanization) and economic factors (low income), but even after controlling for these factors, sub-Saharan Africa’s infrastructure lags far behind what would be expected. Moreover, the region has been losing ground since the early 1990s in terms of both the quantity and quality of infrastructure (Calderón and Servén, 2008).

The growth impacts are likely to be significant. Calderón and Servén estimate that halving the gap with comparators in the rest of the world would raise growth in the region by as much as 2 percentage points. Estache (2005) reports very high payoffs to infrastructure investment, lending further support to this conclusion. Rates of return on donor-funded infrastructure projects through the late 1990s averaged as much as 30–40 percent, well above the cost of even nonconcessional funds. Improving the state of sub-Saharan Africa’s infrastructure would raise returns to private investment and likely crowd in private investment.

A study by the World Bank (2009) estimates that sustained spending of nearly $100 billion annually is needed to redress the region’s infrastructure deficit—two-thirds in capital expenditure and the rest in operations and maintenance (Table 2.6). Recent experience with cost escalation suggests this estimate should be considered a lower bound. The greatest needs are in power generation, followed by transport and water and sanitation. Most of the funding will need to be channeled through the public sector, although there has been substantial private interest in telecommunications.

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\(^{12}\) Moreover, where they do, the direction of causality is ambiguous. Al-Samarrai (2003) finds in case studies that rising school enrollment is likely to be accommodated initially by more students per classroom and higher pupil-teacher ratios. The fact that changes in spending tend to lag rather than lead changes in enrollment suggests that public choice is the primary driver and that spending is an effect rather than a cause.
Finally, broader reforms including regional integration would help to maximize the benefits of infrastructure investment. Many countries are too small to achieve minimum efficient scale of production in some services, and exploiting network effects in road, rail, and communications systems requires coordination. Moreover, some of the most cost-effective resources may be located across borders from major demand centers. Making the best use of infrastructure also requires regulatory reform to improve port efficiency and intermodal freight processing. Institutional reforms should also cover such areas as performance contracts, independent audits, and parastatal governance reform (World Bank, 2009).

### Achieving Long-Term Fiscal Policy Goals

#### Financing

Fiscal frameworks need to respect long-term debt sustainability constraints, but policymakers have considerable latitude to increase high-value spending through (i) reallocating expenditure from lower priority uses; (ii) improving overall public sector efficiency and effectiveness; (iii) raising additional revenue; (iv) borrowing for projects that are supported by careful cost-benefit analysis; and (v) attracting additional concessional aid flows through well-designed structural reforms.

While any given country’s optimal choices will depend on specific circumstances, in general using fiscal space creatively can achieve substantial progress toward long-term fiscal goals. For instance, compared to the $99 billion required to close sub-Saharan Africa’s infrastructure gap, the World Bank (2009) estimates current spending at $45 billion; hence there is a shortfall of $54 billion. Improving efficiency by adequately funding maintenance, raising utility tariffs to full cost-recovery level, increasing the currently low execution rates of capital budgets, and shelving low-return projects could narrow the gap by nearly a third. Substantial private money could be obtained for some sectors, such as power, roads, and ports, though some institutional reform would likely be needed.

Africa will also need additional aid, especially for low-income fragile states where essential infrastructure spending may represent as much as 30 percent of GDP or more. Moreover, aid flows tied to improvements in governance and macroeconomic management—as is the case with IDA allocations linked to the World Bank’s CPIA scores—may have benefits well beyond the infrastructure they finance.

#### The Role of Efficiency

Efficiency is another determinant of the effectiveness of fiscal policy. Tanzi (2006) emphasizes that the relevant concept is systemic, involving (i) identifying strategically important projects that are aligned with national priorities, (ii) implementing them cost-effectively, and (iii) minimizing the cost of mobilizing the necessary financing.

Public sector efficiency in sub-Saharan Africa seems to be relatively low. Data envelopment analysis is a widely used approach that estimates an efficient production frontier using comparable cross-country data on inputs (typically spending as a percent of GDP) and outputs (social or economic indicators). Each country’s relative efficiency is then computed as its distance from...
the frontier. According to estimates from Herrera and Pang (2005), sub-Saharan Africa’s efficiency is the lowest of any developing region—on average 40 percent below best practice in education and 25 percent below in health (Figure 2.13). The conclusions are reminiscent of an earlier study by Gupta and Verhoeven (2001) based on data from the 1980s and 1990s, which suggests the gap has not significantly narrowed in the last few decades.

In general, the efficiency of public investment needs to be raised through better project selection and management. Some estimates suggest that in low-income countries capital budgets may be converted into physical infrastructure with efficiency as low as 50 percent or less (Pritchett, 2000; Arestoff and Hurlin, 2006). Thus sub-Saharan Africa needs not only more investment but smarter investment based on improving the allocation of budget resources, building capacity for project management, and strengthening PFM systems.

Last but not least, efficiency gains are especially valuable as a source of fiscal space because they do not require additional resources, which could crowd out private sector activity or, if financed externally, cause Dutch disease. Simulations by Agénor and colleagues (2005) demonstrate that raising efficiency could significantly amplify the impact of debt relief or increased aid on MDG outcomes.

**Governance and PFM**

Public sector outcomes are tightly linked to the quality of governance. When the quality of governance is low, projects and programs are less likely to be targeted and implemented well. If PFM systems are weak, simply committing more resources to development priorities may fail to achieve desired outcomes. Figure 2.14 shows the average values for 2002–08 for high- and low-growth countries of the World Bank’s World Governance Indicators in five areas: control of corruption, government effectiveness, rule of law, regulatory quality, and voice and accountability. The panel on the left shows the average value of the governance indicators for 2002–08. Fast-growing countries evidence higher standards of governance in all categories. The panel on the right shows the change in governance scores over the period. High-growth countries improved their scores, but oil exporters and low-growth countries evidence a deterioration. Notably, the majority of low-growth countries are classified as “fragile.”

Controlling for various economic and demographic factors, Rajkumar and Swaroop (2008) find that quality of bureaucracy and level of corruption have significant explanatory power for health and education outcomes in a pooled time series regression. Figure 2.15 illustrates the linkage between governance and outcomes, with partial regressions of two public sector–related outcomes (gross school enrollment and under-5 mortality) against an index of World Bank governance indicators. Both figures control for public spending as a percent of GDP. The data represent averages for 37 sub-Saharan Africa oil importers over the period 2001–05. Gross school enrollment increases with better governance (first panel), and
under-5 mortality decreases (second panel). Notably, regressing these outcomes against public spending alone finds a statistically significant relationship. But when governance is added to the equation, the coefficient on expenditure actually becomes marginally insignificant. However, more careful modeling by Baldacci and others (2008) finds that both expenditure and the quality of governance play an important role.

Overall, it appears that while fiscal policy priorities for individual countries may vary depending on unique conditions and circumstances, widespread shortages of infrastructure and human capital in sub-Saharan Africa offer a clear agenda for spending in the medium term. Improving efficiency would enhance the value of expenditure; that, in turn, depends on building capacity for strategic planning and project implementation and on stronger PFM systems.
Box 2.2. Coping with Commodity Price Fluctuations in Sub-Saharan Africa: The Role of Fiscal Institutions

Abrupt fluctuations in commodity prices exacerbate economic cycles in commodity-exporting countries.1 In many sub-Saharan African countries, fluctuations in commodity prices have caused macroeconomic variables to become highly volatile (Figure 1), particularly where commodities represent a large share of exports.2 This has not only adversely affected investment and private consumption, it has also complicated fiscal policy because governments are a principal beneficiary of export revenues. In particular, many commodity exporters have found it difficult to smooth and decouple government expenditures from the short-term volatility of revenues.

Figure 1. Macroeconomic Indicators for Commodity Exporters and Non-Commodity Exporters in Sub-Saharan Africa

Dramatic fluctuations in commodity prices tend to exacerbate economic cycles in commodity-exporting countries more than in noncommodity-exporting countries.

Some sub-Saharan African commodity exporters have established special fiscal institutions (SFIs) to enhance fiscal management and contain cyclical responses to commodity price fluctuations.3 Several countries have also focused on improving medium-term fiscal frameworks (MTFFs):

- Fiscal rules, including reference oil price rules: Many commodity exporters have implemented fiscal rules in an effort to decouple commodity price volatility and government expenditure. For example, while oil-producing countries like Norway and Timor-Leste have targeted the non-oil primary balance (NOPB), Angola, Nigeria, and some other oil producers in sub-Saharan Africa have chosen to use a conservative oil price rule. While the use of such a rule provides a clear and transparent way to explain to the public how the portion of oil revenues to be saved is determined, it may not do much to contain spending pressures, if there is heavy public pressure to spend oil savings and to revise the rule, especially when the gap between budgeted and actual oil prices widens; this tends to undercut the credibility of the reference oil price rule as well as the entire budget process. In some cases, such a rule also leads to procyclical fiscal policy.

Note: This box was prepared by Nir Klein and Lamin Leigh.

1 The analysis here focuses on broad trends because there is significant diversity among commodity exporters in sub-Saharan Africa.
2 The sub-Saharan African sample consists of the 10 largest exporters of oil, diamonds, gold, and copper and the 10 largest noncommodity exporters.
3 As in Ossowski and others (2008), here SFIs refer to fiscal rules, oil funds, and fiscal responsibility acts.

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Moreover, the rule on its own is neither designed to be consistent with the country’s macroeconomic and administrative capacity nor oriented to its general development objectives. To alleviate these shortcomings, it is well to set a budget oil price consistent with an NOPB target based on national macroeconomic and administrative capacity and with the country’s sustainable non-oil primary balance and its underlying oil price assumption. This can help smooth expenditure plans over the medium term. Nigeria has attempted to follow such an approach and, compared with previous oil price cycles, it has helped to reduce the procyclicality of fiscal policy in recent oil price cycles.

- **Natural resource funds**: stabilization and savings funds have generally been set up to smooth the net flow of natural resource revenues into the budget, thus helping to delink government spending from the volatility and unpredictability of such revenues over time. However, the effectiveness of these funds in restraining expenditure seems to be limited. Chad, for instance, had a Fund for Future Generations (FFG) in an account held abroad, with clear rules for funding and withdrawal and periodic releases of information. However, perhaps because there was no clear policy commitment, the growing FFG balances were largely offset by increasing domestic borrowing and arrears. The FFG was not well integrated into the government’s general asset-liability strategy. In some other countries stabilization fund resources were earmarked for special purposes and largely used through extrabudgetary spending, which has complicated fiscal and asset management and made allocation of budgetary resources less efficient.

- **Medium-term fiscal frameworks**: Cameroon, Chad, Gabon, and Nigeria either have or are developing medium-term fiscal frameworks (MTFFs). In general when MTFFs are combined with effective savings mechanisms, such as well-designed oil funds, they tend to help reduce the procyclicality of expenditures when there are volatile commodity price swings. The medium-term national development plan of Botswana, a major diamond exporter, sets broad fiscal objectives and specifies actions consistent with the country’s medium-term fiscal strategy. São Tomé and Príncipe offers an example of an oil account whose management is fully integrated into the budget process and whose objective is to finance the non-oil deficit over the medium term.

Outside sub-Saharan Africa, Norway and Chile offer examples of good management of resource revenue volatility that reduces procyclical spending. Both have fiscal policy guidelines built around cyclically adjusted balances (the non-oil structural balance for Norway, the structural balance including copper revenue at “long-term” prices for Chile). They have been able to build up substantial deposits in recent years and to implement transparent and credible countercyclical policies. This approach also suggests a linkage (though indirect) between current policies and long-term fiscal issues. As for oil funds, in both Norway and Timor-Leste, the fund has no authority to spend; decisions on spending and fiscal policy are made within the budget process with stringent transparency and accountability provisions that have a stabilization effect when oil revenues fluctuate drastically.
Globally, SFIs seem generally to be more effective in countries where general fiscal institutions function well, as is also suggested by a comparison between oil-intensive and non-oil-intensive countries.

- Low-oil-intensive countries have proved more successful than their higher-oil-intensive counterparts in containing procyclical fiscal behavior and keeping non-oil primary fiscal balances relatively sustainable (Figure 2.). These countries have accumulated sizable savings in recent years, to a large extent because of fiscal restraint during the commodity price boom. This has allowed them to offset the revenue shortfall in the recent commodity price bust by drawing down these savings or borrowing.

- As a possible explanatory factor, the quality of political and fiscal institutions tends to be better in countries with low oil intensity, indicating that the effectiveness and quality of SFIs may be higher in low-oil-intensive countries. According to the World Bank’s government effectiveness indicator (Kauffmann and others, 2008), governments in general tend to be more effective in countries with low oil intensity (Figure 3).

Another indicator that may reflect the quality of public finance is budget transparency (Figure 4). Although available for only 12 countries in the sample, the open budget index (OBI), calculated by the International Budget Partnership, is also negatively correlated with oil intensity.5

The analysis suggests three conclusions about factors that help commodity producers to cope better with price fluctuations:

- Some resource-rich countries in sub-Saharan Africa showed greater fiscal restraint during the most recent commodity price boom than in previous booms, which has helped to reduce the risk of a procyclical cut in government spending and adjustment costs as commodity prices decline. This suggests that commodity producers should run surpluses during a revenue boom and build up precautionary savings to account for uncertainty during price downturns.

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4 The indicator, which is based on 2007 data, is measured in units ranging from about –2.5 to 2.5, with higher values corresponding to more effective government.

5 The OBI assigns a score to each country based on the information it makes available to the public throughout the budget process. See http://www.openbudgetindex.org/index.cfm?fa=rankings.
Box 2.2 (concluded)

- SFIs in sub-Saharan Africa have not all been equally effective in coping with commodity price volatility. Success in dealing with price fluctuations seems to depend on whether the SFIs are combined with robust MTFFs, fully integrated into the budget process, and underpinned by good PFM systems.

- How effectively countries cope with oil price fluctuations depends heavily on their degree of oil intensity: Controlling for other factors, such as initial conditions, the analysis finds that in high-oil-intensive economies, stronger rent-seeking behavior in the public sector relative to low-oil-intensive economies may weaken the incentives to strengthen both fiscal and private sector institutions. This in turn leads to negative intersectoral externalities between the oil and non-oil sectors and makes it more difficult for them to cope with oil price volatility.

\[
y = -1.0979x - 0.6443
\]

1Countries with income per capita below 10,000 U.S. dollars.

\[
y = -43.654x + 28.422
\]
Box 2.3. The Impact of the Crisis on Debt Sustainability in Sub-Saharan African Countries

The continuing economic and financial crisis may exacerbate debt vulnerabilities in sub-Saharan African countries because it is adversely affecting their capacity to repay, as traditionally measured by exports, GDP, and government revenues. At the same time, external borrowing has increased in some countries to cushion the impact of the crisis and safeguard social and development objectives.

We use debt sustainability analysis (DSA) to assess the possible impact of the crisis on debt vulnerabilities of sub-Saharan Africa LIC countries by comparing the results of two DSAs. For countries for which DSAs were presented to the IMF Executive Board after June 1 and which are assumed to fully capture the impact of the crisis, the most recent DSA is compared with the previous one, typically prepared a year before, that does not take into account the impact of the crisis. For DSAs issued before June 1, the impact of the crisis on debt sustainability is simulated using the most recent country projections from the *World Economic Outlook* database.

Two sets of DSA simulations are produced, with financing needs being derived from either the external or the fiscal accounts. In the first scenario (the WEO fiscal scenario) financing needs are defined as government revenues + grants – expenditures. In the second (the WEO external scenario) financing needs are defined as exports + current transfers + net FDI – imports.3

The following are the main assumptions:

- For 2008–14, WEO country forecasts are used to update the evolution of measures of capacity to repay and the variables affecting financing needs (external and fiscal).

- Starting in 2015, the measures of capacity to repay, net FDI, and net transfers and grants grow at the rate envisaged in the initial LIC DSA. Accordingly, transitory shocks to growth are not reversed in later years, resulting in a permanent shock to the level of variables. This methodology results in more conservative estimates. A return to the previous levels for key variables would imply much higher growth rates than in the pre-shock DSA.

- For 2015–19, financing needs (as a percent of GDP) in the WEO scenarios return smoothly to their LIC DSA levels. The spending variables (government expenditures and imports) adjust to achieve the targeted financing needs.

Note: This box was prepared by Christian Beddies and François Painchaud.

1 Sub-Saharan African countries for which simulations are not undertaken are Benin, Burkina Faso, Cameroon, the Central African Republic, the Republic of Congo, Ghana, Mozambique, Rwanda, and Senegal.

2 Some DSAs issued before June 1, 2009, may, to at least some extent, take into account the impact of the crisis; thus, simulation results may somewhat understate its impact.

3 A deterioration in financing needs compared with the initial LIC DSA is assumed to translate into additional external borrowing only if the country is running a deficit in the WEO scenario. This rule prevents borrowing by countries running surpluses in the LIC DSA and smaller surpluses in the WEO scenario. Where a country is running a surplus in the LIC DSA and a deficit in the WEO scenario, the country is assumed to borrow only the amount of the deficit. Unlimited additional external financing is assumed to be available with a grant element of 45 percent.

...continued
Box 2.3 (continued)

The results of the simulation need to be interpreted carefully. The primary objective of the exercise is to assess changes in debt vulnerabilities rather than to arrive at a risk of debt distress. Accordingly, while some countries could be deemed to have become more vulnerable, the risk assessment must consider the current risk rating. For example, countries classified as at low or moderate risk of debt distress that are deemed vulnerable might face simply a deterioration in their debt outlook rather than an impending debt crisis. However, countries already at high risk of debt distress could experience more severe and pressing debt-related problems. While this exercise does not determine risk ratings, countries can be deemed more vulnerable if they meet the following criteria:

- Countries initially classified as at low risk of debt distress are deemed more vulnerable if they experience a breach of threshold in the stress tests or the baseline WEO scenarios.
- Countries initially classified as at moderate risk of debt distress are deemed more vulnerable if they experience a breach of threshold in the baseline WEO scenarios.
- Countries initially classified as at high risk of debt distress are deemed more vulnerable if at least two debt burden indicators are on average 15 percent higher than their thresholds, which is consistent with an increase in the probability of debt distress of about 10 percent.

Overall, the crisis is expected to have an impact on the capacity of SSA countries to repay (Figure 1). On average, GDP was revised down by about 6 percent, exports by about 8 percent, and government revenue by 11 percent. All debt burden indicators are likely to experience a sustained deterioration. The deterioration is generally more important in the external scenario, reflecting higher external than internal financing needs over the projection period. A detailed country-by-country assessment of debt vulnerabilities is SSA countries based on the DSA simulations indicates that vulnerability will likely increase for only a few countries. In summary, while the crisis will have somewhat undermined debt sustainability in sub-Saharan African countries, it is unlikely to lead to a major increase in debt vulnerabilities. Nonetheless, the situation should be closely monitored and potential remedial measures considered to safeguard debt sustainability. To do so, and to avoid excessive adjustments, LICs should continue to seek highly concessional resources.

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4 For countries with recent DSAs, the results of those DSAs substitute for the simulations. Both recent DSAs and simulations are compared with older DSAs. Where available, early 2008 DSAs are used for comparison in order to identify the impact of the crisis on macroeconomic variables and debt burden indicators.

5 While the more recent DSAs typically show increased debt vulnerability, no country has been downgraded. In recent DSAs, only the Central African Republic has experienced a change in its risk of debt distress (improvement from high risk to moderate) after it received HIPC and MDRI debt relief.
Box 2.3 (concluded)

Figure 1. Debt Sustainability: Impact of the Financial Crisis—Scenarios

Impact of the Crisis on All SSA Countries:
Average Impact on Measures of Capacity to Repay

PV of Debt-to-GDP Ratio
(All SSA countries)

PV of Debt-to-Exports Ratio
(All SSA countries)

PV of Debt-to-Revenues Ratio
(All SSA countries)

Debt Service-to-Revenues Ratio
(All SSA countries)

Debt Service-to-Exports Ratio
(All SSA countries)

Note: Includes all SSA countries that are PRGF eligible, except Niger and Zimbabwe, for which full DSA were not available. Also excludes São Tomé and Príncipe because of its large impact on debt burden indicators.