

INTERNATIONAL MONETARY FUND

**Fiscal Policy Response to Scaled-Up Aid:  
Macro-Fiscal and Expenditure Policy Challenges**

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(In consultation with other departments)

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**ABBREVIATIONS AND ACRONYMS**

|          |   |
|----------|---|
| CPIA     | Country Policy and Institutional Assessment             |
| DAC      | Development Assistance Committee                        |
| DEA      | Data Envelopment Analysis                               |
| DSA      | Debt Sustainability Analysis                            |
| HIPC–AAP | Highly Indebted Poor Country–Assessment and Action Plan |
| ICPR     | International Country Performance Rating                |
| IEO      | Independent Evaluation Office                           |
| IMF      | International Monetary Fund                             |
| LIC      | Low-Income Country                                      |
| MDGs     | Millennium Development Goals                            |
| MONA     | Monitoring of Fund Arrangements                         |
| MTBF     | Medium-Term Budget Framework                            |
| MTDS     | Medium-Term Debt Strategy                               |
| MTEF     | Medium-Term Expenditure Framework                       |
| MTF      | Medium-Term Framework                                   |
| MTFF     | Medium-Term Fiscal Framework                            |
| NCG      | Net Credit to the Government                            |
| NDF      | Net Domestic Financing                                  |
| NGO      | Nongovernmental Organization                            |
| ODA      | Official Development Assistance                         |
| OECD     | Organization for Economic Co-operation and Development  |
| PAF      | Poverty Action Fund                                     |
| PFM      | Public Financial Management                             |
| PPP      | Purchasing-Power Parity                                 |
| PRGF     | Poverty Reduction and Growth Facility                   |
| PRSP     | Poverty Reduction Strategy Papers                       |
| ROSC     | Review of Standards and Codes                           |
| SSA      | Sub-Saharan Africa                                      |
| TA       | Technical Assistance                                    |
| VAT      | Value-Added Taxes                                       |
| WEO      | World Economic Outlook                                  |

## EXECUTIVE SUMMARY

**Fiscal policy will play a key role in helping low-income countries (LICs) make effective use of scaled-up aid to accelerate progress toward the millennium development goals (MDGs).** Yet, managing these aid flows is a challenge, as aid recipient countries have to ensure that additional spending is effectively transformed into outcomes and contributes to macroeconomic stability and fiscal sustainability. This paper attempts to provide operational guidance for fiscal policy formulation in the context of scaled up but volatile and uncertain aid flows.

**A medium-term framework (MTF) is essential to effectively anchor fiscal policies in the context of scaled-up aid.** Yet, many LICs do not yet have an MTF in place. Moreover, many LICs do not have the capacity to design and implement such frameworks, and will require substantial technical assistance in this area.

**LICs should take a phased approach toward developing an MTF, starting with a fairly simple medium-term fiscal framework (MTFF).** The MTFF projects broad fiscal aggregates (e.g., total revenue, expenditure, overall fiscal balance, and debt) over a medium-term horizon based on projected paths for key macroeconomic variables. Macroeconomic scenarios developed in the context of debt sustainability analyses (DSAs) could provide much of the information needed for designing an MTFF. The annual expenditure level in the MTFF should become the short-term fiscal anchor, as it is the variable that governments control most directly. Where expenditure data are weak or not available in a timely fashion, governments can use various balance indicators for monitoring fiscal developments (e.g., the overall balance). Building upon the MTFF, a medium-term budget framework (MTBF) allocates overall spending among competing sectors. As a final step, which is many years away still for most LICs, an even more detailed medium-term expenditure framework (MTEF) can be put in place.

**Several issues make fiscal policy formulation in the context of aid scaling up a challenging exercise.** Donor preferences for earmarking their aid for specific functions or sectors reduce the flexibility of recipient countries to manage their budgets effectively, and further strain already weak public financial management (PFM) systems. The growing importance of private aid that flows through parallel channels outside the budget process further adds to the complexity of fiscal management. Finally, aid volatility and uncertainty can translate into expenditure volatility with adverse consequences.

**LICs can take several steps to address these issues.** Better tracking and monitoring of aid flows, both public and private, would facilitate improved budget formulation and execution. Building up some additional reserves and strengthening domestic revenue mobilization can help countries self-insure against aid volatility and uncertainty. Better expenditure prioritization can help protect priority programs in the case of aid shortfalls.

**Ultimately, however, the success of scaled-up aid will depend on how efficiently countries translate higher spending into better social and economic outcomes.** Many of the countries most in need of additional aid also have relatively low expenditure efficiency, which raises questions about their ability to use scaled-up aid effectively. The analysis presented in this paper suggests that improving expenditure efficiency in LICs is critical for achieving the MDGs, and that, in most LICs, effective utilization of scaled-up aid will require a further strengthening of fiscal institutions, including PFM systems. LICs will need additional technical assistance for strengthening their fiscal institutions.

## I. INTRODUCTION AND OVERVIEW

1. **Prospects of scaled-up aid present LICs with both opportunities and challenges.** More aid provides additional “fiscal space,” thereby offering LICs a unique opportunity to increase spending to accelerate progress toward the MDGs. Yet managing additional aid resources also poses significant challenges for macroeconomic management, including from the uncertainty and volatility surrounding aid disbursements and the impact of scaled-up aid on macroeconomic stability and debt sustainability.

2. **Fiscal policy plays a key role in managing the dual challenge of increasing spending efficiently while maintaining macroeconomic stability and debt sustainability when aid is scaled up.** Although still very little is known about the exact relationship between the composition of spending and economic outcomes, accelerating progress toward the MDGs will require both more spending and more efficient spending in order to generate the desired social and economic outcomes. At the same time, higher spending will have implications for macroeconomic stability, growth, competitiveness, and debt sustainability. Fiscal policies are the main instrument for safeguarding debt sustainability while pursuing higher economic growth. The maintenance of macroeconomic stability and competitiveness also depends crucially on the coordination between fiscal, monetary, and exchange rate policies.<sup>1</sup>

3. **The key fiscal policy challenges faced by LICs in the context of scaled-up aid ultimately evolve around two main issues: how to spend more and how to spend better.** More resources do not automatically translate into more and better spending. To assess how much additional spending is consistent with given capacity constraints, macroeconomic stability, and fiscal sustainability, governments need to have an appropriate framework for formulating fiscal policies that is anchored in a medium-term context. This will require selecting a spending envelope that is consistent with both macroeconomic stability and the related short-run fiscal targets. These issues are addressed in Section II. At the same time, more spending will only translate into progress toward the MDGs and other desired outcomes<sup>2</sup> if spending is done efficiently. Much of this relates to strengthening planning, prioritization, and implementation on the basis of better PFM systems, all topics that are addressed in detail in the companion background paper.<sup>3</sup>

4. **Progress on both issues will also require addressing some specific factors that affect fiscal policy making when aid is scaled up.** For example, how should governments

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<sup>1</sup> See Berg and others (2007) for details.

<sup>2</sup> Outcomes are measures of the status of sectoral performance in a country. For example, the literacy rate is a measure of the level of education in a country, and it is affected by the educational system. Similarly, child and infant mortality rates are measures of the health status and are also indicators of health system quality.

<sup>3</sup> IMF (2007c).

handle aid volatility and uncertainty, particularly when a large part of spending is financed by aid; how can government priorities be aligned with private-sector aid disbursements, and how should earmarked aid be handled? These issues are taken up in Section III. The paper also offers two appendixes that try to identify lessons from past episodes of aid scaling up, and present a cross-country analysis of expenditure efficiency in health and education.

## II. FRAMEWORKS FOR ANCHORING FISCAL POLICIES

5. **In an environment of scaled-up aid, a key challenge for LICs is to ensure that additional spending helps to achieve the MDGs and maintain macroeconomic stability.** Achieving the MDGs will require undertaking ambitious spending programs spanning several years. Financing requirements for such programs may exceed immediate aid commitments. Consequently, countries need to take a longer-term view of their spending needs and potential resource availability—both domestic and external—in fiscal policy formulation. This raises several questions. First, what is the appropriate fiscal framework for determining the overall spending path when the resource envelope is expanding? Second, what are appropriate short-term targets for monitoring fiscal developments? Third, how can fiscal targets in Fund-supported programs be made consistent with scaled-up aid?

### A. Medium-Term Fiscal Frameworks—An Overview

6. **The basic framework for determining fiscal policy in a context of scaled-up aid is fundamentally the same as in other settings.** Scaled-up aid relaxes budget constraints in recipient countries but does not eliminate them. This leaves governments with a familiar optimization exercise: they must choose a time path of revenue and expenditure policies that maximizes society's expected utility, subject to the constraint that spending cannot exceed available resources. Scaled-up aid is just a specific case of this exercise.

7. **Still, in the context of aid scaling up, several specific issues have to be addressed.** With aid flows expected to increase significantly and then diminish gradually as countries reduce their reliance on aid, governments must be prepared to take decisions in a context that may be characterized by significant volatility of aid, uncertainty regarding the future path of aid, and uncertainty regarding the impact of aid on economic growth.<sup>4</sup>

8. **When aid is scaled up, governments should base fiscal policies on their longer-run fiscal outlook.** This would allow policymakers to base their fiscal policy decisions on future projections of available resources and avoid disruptive changes in spending patterns due to temporary variations in aid or revenue.<sup>5</sup> In particular, having longer-

<sup>4</sup> This analysis is largely analogous to Barnett and Ossowski (2003) and their discussion of an oil exporting country managing a boom in oil prices.

<sup>5</sup> It is often difficult to determine when variations are temporary and when they are not. Temporary delays in aid inflows can include procedural delays that are unrelated to conditionality; bottlenecks in recipient countries related to completing donors' administrative requirements; or unmet conditionality that can be quickly resolved.

term horizons should help prevent spending from rising to unsustainable levels due to temporary aid surges, or compressing spending unduly due to temporary aid shortfalls.

9. **MTFs, which come in three different forms, are the tool for making this approach operational.** MTFs are planning devices in which key fiscal and macroeconomic variables are projected forward in a consistent fashion. This involves three steps: (i) determining the overall spending envelope; (ii) allocating overall spending across different sectors; and (iii) allocating sectoral envelopes across specific programs and projects.<sup>6</sup> Fully-developed MTFs come in different forms with different levels of detail: MTFFs, MTBFs, and MTEFs.

10. **MTFFs form the basis of medium-term fiscal planning.** MTFFs program broad fiscal aggregates (e.g., total revenue, expenditure, overall balance, and debt), typically over a 5–20 year time horizon. They usually start by projecting paths for key macroeconomic variables such as real GDP growth, commodity prices, interest and exchange rates, inflation, and external inflows. Revenue and key nondiscretionary spending items (such as pensions) are then projected forward, based on underlying macroeconomic trends and any planned policy measures. Discretionary spending, divided into current and capital spending, is then programmed to fit this resource envelope. Consequently, the resulting primary balances are used to project paths for debt and debt service.

11. **MTFFs follow an iterative process to ensure that projections for growth, spending, and all other variables are consistent.** Economic growth is both an important objective of public spending and a determinant of the size of the resource envelope available for expenditure. If, for example, projected growth is inconsistent with planned public investment, the path of either variable could be reconsidered. Such considerations inevitably involve significant judgment given the uncertainty regarding the quantitative relationship between economic growth and public investment (as well as other components of spending) (IMF, 2004a).<sup>7</sup> Similarly, policymakers should ensure that the programmed allocations for current spending are sufficient to maintain the capital stock implied by the path of investment spending.

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<sup>6</sup> The institutional arrangements for developing MTFs are discussed in more detail in the accompanying background paper on PFM issues (IMF, 2007c).

<sup>7</sup> The complex relationship between spending and growth is reflected in the empirical evidence. Estimates of the contribution of different expenditure components to economic growth are highly sensitive to the methodology and data used. For example, Briceño-Garmendia, Estache, and Shafik (2004) report that of 102 studies that were reviewed, 53 percent showed a positive effect of infrastructure investment on productivity or growth, 42 percent showed no significant effect, and 5 percent showed a negative effect. Similar results were also found in eight pilot studies carried out by the IMF (IMF, 2005; Akitoby, Hemming, and Schwartz, 2007). The growth effects of health and education spending, which are more long-term in nature, are more difficult to measure. Estimates suggest that a 1 percent of GDP increase in such spending can increase growth by 0.5–1.0 percent of GDP, provided resources are spent efficiently and fiscal institutions are strong.

12. **To ensure that fiscal policy objectives are met, policymakers should examine the paths of different variables in the MTFF and adjust policies as necessary.** In choosing appropriate paths for revenue and expenditure, governments have to balance multiple objectives. The primary objectives for fiscal policy should be to promote growth and poverty reduction while maintaining fiscal sustainability and macroeconomic stability. If an MTFF expenditure path yields excessively high levels of debt, spikes in annual gross financing needs, or spikes in debt servicing, policymakers should consider adjusting the spending path to reduce the risk of debt distress. Alternatively, if the envisioned spending path is insufficient to meet priority development needs, policymakers could consider possible avenues for obtaining additional resources, including through additional financing or new revenue measures. Adjustments to the MTFF should continue until it converges to a spending level that is appropriate, given realistic assumptions and consistent projections. In this way, the MTFFs should help anchor fiscal policies, assist policymakers in assessing the trade-offs between different policy choices, and clarify their medium-term effects.

13. **In addition to the central MTFF scenario, governments may also want to show alternative scenarios.** Additional scenarios that set out different spending paths and relate these to development and fiscal policy objectives may assist countries in mobilizing additional donor support for achieving the MDGs. They would also help countries to assess the implications of scaled-up aid for the MTFF (e.g., the implications of higher donor-aided investment for future spending needs for operations and maintenance and the sustainability of additional hiring in priority sectors funded by donors) as well as policies that may be required to address macroeconomic issues such as potential Dutch disease effects and growth bottlenecks (e.g., due to labor skills shortages or governance problems).

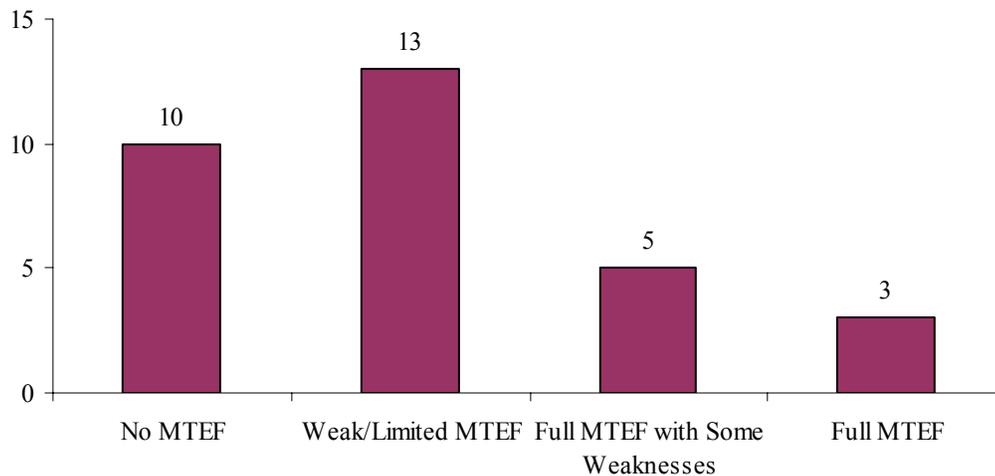
14. **MTBFs and MTEFs build on MTFFs and allow governments to make better spending decisions.** Once the overall expenditure envelope has been set by an MTFF, an MTBF can help allocate spending across different sectors, based on a country's economic and social development priorities. The resulting allocation of expenditures should also be consistent with priorities set out in the poverty reduction strategy papers (PRSPs) and informed by sectoral analysis. MTBFs typically have a time horizon of 3–5 years. An MTEF extends the analysis further with more detailed costing of specific programs within sectors and the setting of performance measures, again with a typical time horizon of 3–5 years. The MTEF sets priorities within sectors and accounts for the recurrent cost implications of specific capital projects.

## **B. Current Medium-Term Fiscal Planning Practices**

15. **While most LICs do not have an MTF in place, even where an MTF exists, it is often not well integrated with the budget and not used for analytical purposes.** Out of

31 LICs examined,<sup>8</sup> only 3 had a fully-fledged macro-fiscal framework in place, 5 had a relatively comprehensive framework, 13 had a basic framework, and 10 had no MTF (Figure 1). Only 10 of the 21 LICs that had an MTF systematically aligned their yearly budgets with these frameworks. In addition, (i) medium-term fiscal projections and macroeconomic assumptions were often unrealistic and therefore lacked credibility;<sup>9</sup> (ii) the underlying macroeconomic assumptions for forecasts were often not explicit, with fiscal ROSCs suggesting that 9 out of the 21 LICs with an MTF did not explicitly state key macroeconomic assumptions; (iii) the fiscal effects of different macroeconomic scenarios were often not quantified; (iv) on occasion long-term policy scenarios were not prepared; and (v) medium-term expenditure estimates often did not reflect expenditure priorities or changing priorities and were not adjusted in a rolling fashion.

**Figure 1. MTF Rating by Category  
(Number of countries in each category)**



Source: Fiscal ROSC reports for 31 countries in Africa, Asia, Europe, and Latin America.

### C. Toward Strengthened Medium-Term Fiscal Planning

16. **There is an urgent need to develop and/or strengthen medium-term planning mechanisms.** While many LICs do not have any MTF in place, the MTFs that do exist are

<sup>8</sup> Based on information collected from the fiscal module of the review of standards and codes (ROSCs). The country sample includes: Albania, Armenia, Azerbaijan, Bangladesh, Benin, Burkina Faso, Cameroon, El Salvador, Equatorial Guinea, Georgia, Ghana, Guatemala, Guyana, Honduras, India, Kyrgyz Republic, Malawi, Mali, Mauritania, Moldova, Mongolia, Mozambique, Nicaragua, Pakistan, Papua New Guinea, Rwanda, Samoa, Sri Lanka, Tanzania, Uganda, and Zambia.

<sup>9</sup> Some LICs even invite spending agencies to draw up their own macroeconomic assumptions to determine expenditure levels for the annual budget, which are not in line with the budget document.

usually weak and likely to be overwhelmed by higher aid flows. The higher volatility and uncertainty associated with increased aid flows is likely to prove a particular challenge for medium-term planning.

17. **Medium-term planning instruments will need to be developed gradually and in a well-sequenced fashion.**<sup>10</sup> This will likely require significant technical assistance (TA) from various donors and the IMF. In general, this work should be sequenced as follows:

- **Developing an MTFF should be a top priority.** MTFFs are the starting point for medium-term planning and do not require detailed, sector-specific analysis. In developing MTFFs, country authorities could draw on macroeconomic scenarios used in the DSAs, which are essentially already a rudimentary MTFF. To facilitate this, Fund staff routinely share DSA templates and results with the authorities and provide TA to build up capacity for DSAs.<sup>11</sup>
- **Next would be the development of an MTBF.** An MTBF requires further indications on relative sectoral priorities, and is often relatively easy to implement where budgetary priorities are fairly clearly defined.
- **Finally, an MTEF should be developed.** Developing an MTEF is a complex task that involves detailed costing of specific projects, and is likely to take many years for most LICs. Yet, governments could start with a pilot MTEF for a key sector, such as health or education, drawing on public expenditure reviews provided by the World Bank and other donors. Aligning MTEFs and MTBFs with the yearly budget should be a priority in this context.

18. **Where capacity to develop MTBFs and MTEFs is weak, a simple exercise for allocating resources across sectors could be carried out initially.** This would consist of aligning top-down budgeting with bottom-up sectoral needs. To do this, sector ministries should draw up estimates of resources needs, based on priorities identified in PRSPs. These ministerial estimates would then be confronted with budget projections for the expenditure envelope, with a view to allocating outlays across sectors according to policy priorities. A disconnect between sectoral spending execution and the overall expenditure envelope should be avoided through early consultation in the budget preparation cycle.

19. **In addition, governments should pilot major new spending initiatives before moving to full-scale implementation, and develop expenditure tracking surveys.** To help channel funds into the most cost-effective interventions, governments could assess the costs and benefits of new programs on a pilot basis, if possible using randomized trials. For

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<sup>10</sup> These issues are explored in more detail in IMF (2007c).

<sup>11</sup> The development of MTFFs will be an important element of developing more sophisticated medium-term debt strategies (MTDSs), as advocated in IMF (2006b).

example, randomized trials in Kenya have found that providing deworming drugs to school children is one of the most cost-effective methods of improving school attendance rates (Miguel and Kremer, 2004). Similarly, simple monitoring mechanisms have proven to reduce teacher absenteeism and increase test scores (Duflo and Hanna, 2006) significantly.<sup>12</sup> If such assessments strain the capacity of LICs, donors, nongovernmental organizations (NGOs), and academics (e.g., MIT's Poverty Action Lab) could be approached to carry out these evaluations. Finally, governments should develop expenditure tracking surveys to assess and improve the administrative efficiency of service delivery structures. Such surveys have been used successfully to identify and reduce expenditure leakages in Uganda and other countries (Reinikka and Svensson, 2006).

#### D. Choosing an Expenditure Path When the Resource Envelope is Expanding

##### 20. A key decision in MTFs relates to the choice of an appropriate spending path.

A given resource envelope is consistent with many different spending paths, and the choice of a particular path will depend on country-specific factors, including macroeconomic conditions, absorptive capacity, and debt sustainability. In general, three specific stylized options are available: “smoothing,” “front loading,” and “saving.”

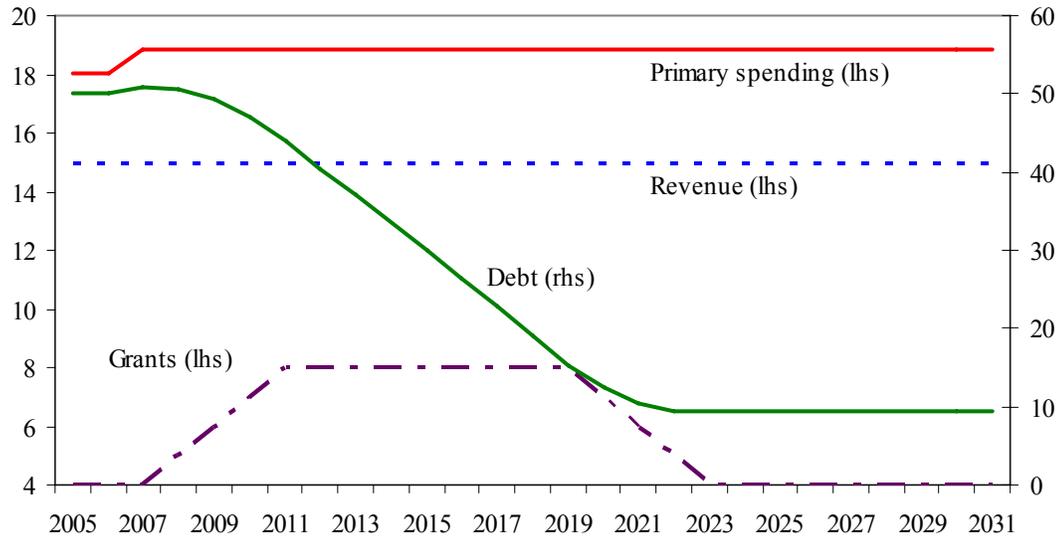
- **The expenditure smoothing approach** would imply that governments keep spending fairly stable as a share of GDP. Analogous to some models of economic growth (Barro and Sala-I-Martin, 1995), expenditure smoothing would be optimal under most circumstances. In a scenario of scaled-up aid, the smoothing approach would imply that spending increases to a new, higher level when aid is scaled up. The new spending level is calibrated to be sustainable indefinitely, given the expected present value of the new aid inflows.<sup>13</sup> Figure 2 presents a stylized case of this approach in which aid jumps to a new, higher level for a few years and diminishes in the long run. Part of the temporary aid surge is spent, but part is saved, reducing debt. Interest savings from lower debt allow stable spending as a share of GDP even after the aid surge diminishes.
- **The front-loaded approach** would have spending increase rapidly when aid is scaled up, gradually declining thereafter as a share of GDP, either because spending is reduced in real terms (relative to the smoothing approach) or because real GDP grows faster as a result of increased public investment. Front loading is most appropriate

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<sup>12</sup> For more on using randomization to evaluate development effectiveness, see Duflo and Kremer (2005).

<sup>13</sup> Quantitatively, the amount by which spending can be permanently increased as a share of GDP is  $(r-g) \cdot A$ , where  $r$  is the real market interest rate,  $g$  the real GDP growth rate, and  $A$  the expected present value of the new aid flows. Intuitively, this equation says that sustainable spending out of assets is the interest earned minus the amount that needs to be saved in order to have assets grow at the same rate as spending. This condition assumes that  $r > g$ . While “aid” here refers to grants, it could also be the grant element of concessional loans.

**Figure 2. The Smoothing Approach  
(In percent of GDP)**



Source: Staff calculations.

when absorptive capacity is not a bottleneck, and (i) the returns to government investment are high;<sup>14</sup> (ii) government investment is subject to increasing returns due to, for example, “poverty traps” that require a large boost in government spending to overcome multiple, interconnecting development bottlenecks (Azariadis and Stachurski, 2005); or (iii) the benefits of government consumption are significantly higher today than in the future, due, for example, to a famine or a temporary medical crisis. In general, front-loading entails considerable risks. If future aid flows or the impact of government spending on economic growth turn out to be lower than expected due to poor quality of spending or wastage, the approach may lead to unsustainable spending levels that may trigger debt distress or abrupt adjustments, particularly when countries already have high debt.

- **The saving approach** would imply that most additional aid would initially be saved, with spending rising only gradually while reserves are built up (or debt is reduced). Spending as a share of GDP would then gradually rise over time, eventually stabilizing at an even higher level than under the smoothing approach, since the higher assets (or lower debt) would increase interest income (or lower interest spending). The approach may be appropriate where macroeconomic stability is yet to be achieved or spending efficiency is low and expected to increase only over time. Also, LICs that face relatively high income volatility (whether from aid or other

<sup>14</sup> For example, Takizawa, Gardner, and Ueda (2004) find that spending oil wealth upfront can be appropriate when the initial capital stock is far below its steady-state level and the return to investment is therefore high.

sources), have weak absorptive capacity, and are burdened with high debt, may want to save a relatively high share of aid for precautionary reasons—that is, build up reserves (or reduce debt) to self-insure against aid volatility. Although LICs may save aid in the short term, there are limits to the approach. In particular, donors may not be willing to provide aid to build up reserves rather than increase spending for achieving the MDGs and other social or economic objectives. Therefore, a pure saving approach can only be a temporary solution while LIC governments strengthen their capacity to spend aid efficiently.

21. **The experience with aid scaling up shows that countries have adopted different spending paths.** Of the 51 cases of aid surges in the sample of countries analyzed in Appendix I, spending in the year following the aid surge increased in only 16 cases; in the remaining 35 cases, the additional aid was saved initially. In 12 of the 16 cases where spending was raised, the increase in the first year following the surge was much higher than in the following two years, indicating a clear preference for front loading. A recent study by the Independent Evaluation Office (IEO, 2007) has shown that how much countries with PRGF-supported programs in sub-Saharan Africa (SSA) spent out of anticipated aid increases has depended on macroeconomic conditions, particularly inflation. In particular, the report suggests that the threshold for deciding whether additional aid should be used toward retiring debt or increasing spending lies in the range of 5–7 percent of annual inflation.

### E. Setting Short-Term Fiscal Targets

22. **In most cases, the expenditure level in the MTFE for the next year should become the short-term operational target.** Expenditure is a natural operational target, as it is directly controlled by governments. Focusing on expenditure would help promote expenditure smoothing, since moderate fluctuations in revenue, aid, and other grants would not affect in-year spending decisions. Each year, the spending and revenue paths would be reevaluated in light of recent developments and in the context of updating the MTFE. Expenditure ceilings could also be revised in-year in the context of a supplementary budget if there are major shocks to the economy.

23. **Where measurement of expenditure is weak or where reporting is delayed, using balance indicators that are measured from below-the-line may be preferable.** When below-the-line (financing) data are of much higher quality or more timely, fiscal targets based on these data could be used as the binding short-run operational target to ensure that budgetary expenditure limits are adhered to.

24. **Various balance indicators may help to monitor fiscal developments in the short run, depending on country-specific circumstances.** The precise fiscal indicator should be decided on a case-by-case basis, based on a country's key overall macroeconomic priorities (e.g., controlling inflation and ensuring debt sustainability). For instance, it may be

appropriate to focus on the overall balance including external grants, allowing scaled-up aid to pass through into higher public spending without a deterioration in the reported fiscal balance. However, no single indicator fully summarizes the macroeconomic effects of fiscal policy, and it is useful to complement the main indicator that is used with other measures of fiscal sustainability.<sup>15</sup> For instance, the overall balance excluding grants is a key indicator of the effect of fiscal policy on aggregate demand. In addition, countries may want to continue monitoring the debt-stabilizing primary balance as aid is scaled up. The domestic balance is another fiscal indicator that has sometimes been used to anchor the fiscal framework.<sup>16</sup> However, under the domestic balance concept, the higher domestic spending in priority areas (e.g., health and education) that would be afforded by scaled-up aid would result in a significant deterioration of the reported balance. This may indicate the extent to which the import component of spending should be raised to facilitate absorption of scaled-up aid.<sup>17</sup>

## **F. Implications for Fund-Supported Programs**

**25. Fiscal targets in Fund-supported programs should be derived from the central scenario developed in the MTFF.** Staff projections for revenue, expenditure, the overall balance, and debt should be consistent with projections in the MTFF. Aid projections should also be in line with the authorities' fiscal framework. However, staff should ensure that these projections also reflect all relevant information, such as donor commitments and indications, and avoid being deliberately optimistic or overly cautious.<sup>18</sup> In collaboration with the authorities, staff teams should strive to program an expenditure path that is consistent with the country's macroeconomic conditions and absorptive constraints.

**26. Country teams should stand ready to work with the authorities on prioritizing between competing spending needs and protect poverty-reducing expenditure.** Fund staff should discuss whether the authorities' MTFF is effective in providing a complete prioritization of sectoral programs within the broad resource envelope to ensure that spending is consistent with national development objectives. In countries where capacity is weak, country teams should assist the authorities in formulating a basic MTFF, using macroeconomic scenarios drawn up in DSAs, as outlined above. A rudimentary prioritization of expenditure across sectors could be achieved by aligning sector resource needs with the overall expenditure envelope. In collaboration with the World Bank, Fund staff could help the authorities with this exercise.

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<sup>15</sup> If grants are volatile and countries smooth expenditures, then the overall balance including grants could be a fairly volatile indicator. Where this is the case, it would be useful also to look at other, more stable, fiscal indicators for monitoring short-term fiscal developments.

<sup>16</sup> The domestic balance excludes external grants, foreign interest payments, and externally financed projects.

<sup>17</sup> For a discussion of short-term fiscal indicators see Daniel and others (2006).

<sup>18</sup> For a detailed discussion of these issues, see IMF (2007a).

27. **In case of large and sustained aid shortfalls, staff should work with the authorities to avoid disruptive expenditure cuts.** Small and temporary aid shortfalls should be smoothed through additional domestic financing and/or drawing down reserves. For a substantial aid shortfall, however, staff should assist the authorities in stabilizing priority spending. Consistent with the sectoral prioritization outlined in the MTEF, expenditure cuts should focus on low-priority outlays, thereby protecting poverty-reducing spending without adding to budgetary rigidities. Staff should also actively seek donor support to ensure that emerging financing gaps can be closed, revise fiscal scenarios on a regular basis, and incorporate any new information on the overall resource envelope.

### G. Determining Fiscal Targets in Fund-Supported Programs

28. **Fiscal targets in Fund-supported programs have been criticized for preventing faster progress toward the MDGs.** In particular, some critics contend that Fund-supported programs that include targets on the fiscal deficit excluding grants have prevented countries from increasing spending when grant financing exceeds program assumptions, even though such spending would not add to the debt burden. Moreover, the use of asymmetric adjustors in Fund-supported programs has also been criticized as they are seen to prevent spending from increasing when aid inflows exceed projections by reducing domestic financing pro tanto, while allowing for only a partial increase in domestic financing when aid inflows are below projections, thereby requiring spending to be reduced.<sup>19</sup>

29. **The evidence from Fund-supported programs is more varied in this regard:**

- **Often, program design accommodated all programmed aid flows.** A recent independent review of Fund-supported programs in SSA (IEO, 2007) noted that, in countries with low inflation, programs were designed flexibly to spend almost all of the anticipated aid.
- **Most programs did not constrain capital spending financed by project-related grants (Table 1).**<sup>20</sup> However, these programs usually did not allow additional aid to be used for current spending. Fund-supported programs also included a ceiling on net credit to government, sometimes as a complement to the fiscal balance target and sometimes independently. In these programs, the degree to which additional external financing could be spent depended on the design of fiscal adjustors.

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<sup>19</sup> Goldsbrough (2007) summarizes the key arguments of the IMF's critics and the IMF's response.

<sup>20</sup> Findings are based on the most recent staff reports for 43 PRGF-supported programs approved by the IMF's Executive Board during 2002–06. Table 1 shows that in 14 out of 22 PRGF arrangements, all foreign-funded investment was excluded from the targeted fiscal balance. For seven countries, the targeted balance included grants (and the investments financed by these grants). The various programs used a variety of deficit concepts, and only six included a ceiling on the overall fiscal deficit. Twelve countries targeted the primary balance, and four the basic balance (also called the current balance, i.e., excluding capital revenues and expenditures). For a review of how aid has been accommodated in PRGF programs, see IMF (2007a).

**Table 1. Short-Term Fiscal Targets in PRGF Countries 1/**

|       | Fiscal Balance Targets |                 |                 |               |                      | Other Targets                                 |     |     |             |                        |
|-------|------------------------|-----------------|-----------------|---------------|----------------------|---|-----|-----|-------------|------------------------|
|       | Number of countries    | Overall balance | Primary balance | Basic balance | Balance incl. grants | Balance excluding foreign-financed investment | NCG | NDF | Adjustor 2/ | Asymmetric adjustor 3/ |
| Total | 43                     | 6               | 12              | 4             | 7                    | 14  | 21  | 16  | 39          | 20                     |
| AFR   | 25                     | --              | 8               | 3             | --                   | 11  | 13  | 11  | 23          | 13                     |
| APD   | 4                      | --              | 1               | --            | --                   | 1   | 1   | 3   | 4           | 3                      |
| EUR   | 2                      | 1               | --              | --            | 1                    | --  | 1   | 0   | 2           | --                     |
| MCD   | 6                      | 3               | 1               | 1             | 3                    | 2   | 4   | 0   | 5           | 2                      |
| WHD   | 6                      | 2               | 2               | --            | 3                    | --  | 2   | 2   | 5           | 2                      |

Source: IMF Staff Reports.

1/ Data are based on the latest staff reports for 43 countries with PRGF programs approved in 2002–2006, and only cover performance criteria on fiscal balance, net domestic financing (NDF), and/or net credit to the government (NCG) from the banking sector in program conditions.

2/ Adjustors exist for excesses and/or shortfalls in external assistance relative to program baselines.

3/ The adjustors for excesses or shortfalls in external assistance differ.

30. **Looking ahead, program design should continue to use fiscal balance targets and adjustors that respond best to country specific-conditions when aid is scaled up.** Where macroeconomic conditions permit, fiscal targets should allow maximum flexibility for spending additional aid. Adjustors in Fund-supported programs should be designed to avoid having to cut back priority expenditures in response to aid shortfalls.

31. **Some PRGF-supported programs have included ceilings on government wage bills as an instrument to promote macroeconomic stability and to improve the quality of government spending, but their incidence is on the decline.** The share of such programs with wage-bill ceilings declined from 40 percent during 2003–05 to about 30 percent as of May 2007. Critics have argued that ceilings on the government wage bill have prevented countries from expanding employment in social sectors, even when concessional financing was available, and that this has had adverse implications for meeting the MDGs. However, a recent review indicates that the use of wage bill ceilings reflected valid concerns regarding macroeconomic stability and the need for protecting critical non-wage spending such as medicine, books, and public investment in line with budget priorities.<sup>21</sup> Moreover, they provided sufficient flexibility to expand employment in priority sectors when external financing was available. As such, they can be and are regularly adjusted in Fund-supported programs as resource availability and priorities change.

32. **Wage-bill ceilings have typically covered the overall government.** In no instance have wage bill ceilings been defined for a specific sector, such as education or health. Indeed in some cases, priority sectors, such as education, have been excluded from the wage bill ceiling (e.g., in Benin).

33. **Wage-bill ceilings should be used in Fund-supported programs only in exceptional cases.** These are a second-best option for controlling wage spending. In particular, their use should be based on the following:

- **Clear justification.** The rationale for wage bill ceilings should be guided by macroeconomic considerations. Program documentation should justify their use in a transparent manner, including their consistency with the MDGs.
- **Limited duration.** Wage-bill ceilings are a temporary device. Governments should tackle the root causes of wage-related fiscal problems, such as the need for civil service reform and strengthened payroll management.
- **Sufficient flexibility.** Wage-bill ceilings should be sufficiently flexible to accommodate spending of scaled-up aid, particularly for sustainable donor-financed employment in priority sectors such as education and health.

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<sup>21</sup> Fedelino, Schwartz, and Verhoeven (2006).

- **Periodic reassessments.** The need and rationale for wage-bill ceilings should be reassessed at the time of program reviews.

34. **It is expected that over time the need for wage-bill ceilings will decline further.** While wage bill ceilings may still be needed on occasion, the use of medium-term frameworks and effective budget and payroll systems will gradually obviate the need for them. Countries, in collaboration with donors, are putting considerable efforts into strengthening such systems.

### III. FACTORS AFFECTING FISCAL POLICIES WHEN AID IS SCALED UP

35. **Several important considerations arise in formulating and managing fiscal policies in the context of scaled-up aid.** These include issues related to aligning of government priorities with extrabudgetary aid inflows, handling earmarked aid, and dealing with aid uncertainty and volatility. These issues are explored in more detail in this section.

#### A. Aligning Extrabudgetary Aid with Fiscal Policy Priorities

36. **Part of the scaled-up aid will likely not be channeled through the budget.** Already, significant parts of official development assistance (ODA) are disbursed through extrabudgetary channels. A recent OECD survey on 31 countries concluded that only about 37 percent of external aid is channeled through the budget.<sup>22</sup> Often, this reflects donor concern about the country's PFM system. Moreover, a significant portion of aid flows distributed by global health initiatives, like the President's Emergency Plan for AIDS Relief, are not channeled through recipient countries' budgets, but rather through parallel structures in the private sector.<sup>23</sup> In some cases, the private sector may account for a significant portion of total spending in any particular sector. In Rwanda, for example, NGOs account for 55 percent of spending in the health sector, while the government accounts for only 14 percent (Ntawukuliryayo, 2006).

37. **Efforts to increase aid effectiveness by harmonizing and aligning aid with national development strategies have only recently started to include private aid.** Initiatives to coordinate and harmonize donor interventions in LICs center on official (multilateral and bilateral) donors, while civil society (private-sector) initiatives have only recently become involved in this effort.<sup>24</sup> As a result, government spending plans and aid from official donors are not always well harmonized with private-sector aid, in part due to a scarcity of data on the latter.

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<sup>22</sup> OECD (2006).

<sup>23</sup> Global health initiatives delivering funding for HIV/AIDS have grown particularly fast and are more important than traditional sources of multilateral and bilateral aid in this area (Williams and Hay, 2005).

<sup>24</sup> The major exception to the general trend toward improved aid coordination, harmonization, and alignment are private global health initiatives (Williams and Hay, 2005).

38. **Going forward, both recipient countries and the donor community should make additional efforts by:**

- **Monitoring extrabudgetary aid flows.** Both donors and aid recipients should strive to collect systematic data on all aid flows, including extrabudgetary aid. Private donors should provide recipient countries with detailed and regular information on committed and actual aid flows, similar to the information provided by multilateral and bilateral donors (DAC, 2003 and Paris High Level Forum (PHLF), 2005).
- **Increasing private donor representation and harmonization.** Governments should encourage private aid organizations to strengthen their representation in recipient countries and attach high priority to aid harmonization. Multilateral and bilateral donors should reach out to private donors and invite them to participate in existing donor coordination structures (DAC, 2003).
- **Aligning government expenditure priorities with private aid flows.** In collaboration with private donors, recipient governments should strive to harmonize their own expenditure with private-sector interventions, particularly in the social sectors. For example, if sufficient private sector financing is available for a particular project/program, this may enable the government to allocate more resources elsewhere. Parallel implementation structures should be avoided (DAC, 2003 and PHLF, 2005).

## **B. Handling Earmarked Aid**

39. **A substantial part of scaled-up aid is likely to be earmarked, and not necessarily in line with national development plans.** Earmarking aid to specific uses preferred by individual donors has not been uncommon, and comes in different disguises, such as providing direct financing for specific projects and/or tying aid to purchases from vendors in the donor country. For the latter, the United Nations (2005) recently estimated that it reduces the value of aid by 11–30 percent. While official donors and civil society organizations have reaffirmed their intention to reduce earmarking so as to increase aid effectiveness by aligning aid better with country strategies,<sup>25</sup> it is widely recognized that progress in this area has been limited (OECD, 2005). Going forward, a significant portion of scaled-up aid might continue to be earmarked for specific purposes. An example is the new International Drug Purchase Facility (UNITAID), which raises funds that are earmarked for drug purchases, financed by a levy on air travel.<sup>26</sup>

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<sup>25</sup> PHLF (2005). Reducing earmarked aid and avoiding parallel implementation structures for projects are two of the indicators of progress on improving aid effectiveness.

<sup>26</sup> There are different reasons why donors may want to earmark aid, including the desire to finance specific activities to satisfy domestic constituencies and concerns with governance issues in recipient countries.

40. **Earmarked aid introduces significant rigidities.** The basic framework outlined in Section II above seeks to ensure that spending is geared toward promoting an efficient use of resources. Implicitly, it assumes that expenditure decisions are separate from financing sources so that aid can be allocated flexibly. Yet, for earmarked aid these decisions are not separate, generating rigidities that may lead to suboptimal outcomes. By requiring that aid be spent on specific projects and programs, the government's discretionary choices are constrained, leaving it with little flexibility to reallocate spending in response to changing needs. Overspending in sectors that donors have prioritized is possible, at the expense of other sectors that have been identified as priorities in poverty reduction strategies.

41. **Earmarked aid also strains the capacity of weak PFM systems in LICs, and integration into national budgets is also hampered by a lack of data.** Currently, many countries do not keep reliable data on aid that is tied to specific projects and therefore struggle to integrate the related expenditures into their fiscal planning. As earmarked funds are often provided off-budget, they are also often not captured by the government's PFM system. However, while integrating all earmarked funds into the PFM system is important for effective spending of available resources, substantial weaknesses in PFM systems already stretch the capacity of many LICs to effectively plan, allocate, and control budgetary resources. In the absence of further reforms to PFM systems, as outlined in the companion paper (IMF, 2007c), these problems are likely to be accentuated further where countries are overwhelmed by aid resources targeted to a narrow range of activities in particular sectors, in line with specific donor priorities.

42. **In addressing these issues, governments should aim for:**

- **Tracking earmarked aid.** In collaboration with donors, governments should collect timely data on committed and disbursed earmarked aid. This will often require additional resources to be allocated for this purpose. Also, existing donor coordination structures should strive to cover earmarked aid, rather than only budget support (OECD, 2003).
- **Aligning earmarked aid with government priorities.** Governments should strive to direct earmarked aid toward spending that forms part of their medium-term fiscal strategy. This effectively releases resources (by directing tied aid to projects that the government would have undertaken anyway) and avoids overlap and duplication of spending. At a more technical level, all project accounts should be fully monitored and integrated with the MTEF.
- **Strengthening PFM.** Improved PFM systems will strengthen the ability of countries to track spending and provide comfort to donors that aid is being used for its intended

purposes. Strengthened PFM systems will also contribute to improved governance, as well as better expenditure allocation and overall efficiency.<sup>27</sup>

- **Seeking to reduce requirements to purchase from specific vendors or countries.** In cooperation with the donors, government should push to reduce such requirements in order to enhance aid effectiveness.

### C. Dealing with Aid Volatility and Uncertainty

43. **Aid volatility and uncertainty pose important challenges to fiscal policymaking.** While aid volatility may reflect various factors related both to donors and aid recipients, it is not likely to be reduced when aid flows increase. Aid volatility can cause mismatches between available resources and planned spending and could translate into expenditure volatility with adverse consequences for economic and social outcomes. The implementation of the medium-term expenditure path as determined in an MTF is also likely to be challenging in the context of aid volatility. However, countries with better fiscal institutions tend to experience less aid volatility (Appendix I).

44. **LICs currently cope with aid volatility by adjusting domestic financing and expenditure.** However, this response appears to be asymmetric—Celasun and Walliser (2006) find that governments react to *shortfalls* in budget aid by increasing domestic bank financing and cutting domestically-financed investment spending.<sup>28</sup> In response to aid *overruns*, governments reduce domestic financing, but do not increase domestically-financed investment spending. Celasun and Walliser (2005) also find that both negative and positive errors in projecting budget aid disbursements are large, hampering budget management. On average, the deviation of disbursed aid from projections was close to 1 percent of GDP.<sup>29</sup>

45. **Anchoring expenditure decisions in a medium-term framework can help countries to mitigate aid volatility.** As discussed in Section II, only permanent deviations of aid flows from projections should lead to significant revisions of spending plans. Temporary deviations in aid, like delays in disbursements, would not affect the expenditure target, thereby protecting key expenditure items. Assuming that such temporary deviations are not

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<sup>27</sup> For example, the analysis in Appendix I suggests that countries which improved budget execution systems tend to have lower current spending and higher capital spending. Similarly, the analysis presented in Appendix II found no evidence that the level of aid is correlated with efficiency scores in health, but established that governance and the quality of fiscal institutions have a strong positive correlation with efficiency scores for health. That is, countries with better governance and better fiscal institutions tend to achieve better health outcomes at lower levels of spending.

<sup>28</sup> They study a group of eight African countries with longstanding Fund arrangements during 1994–2004. Fedelino and Zakharova (2006) report that African PRGF-supported programs typically allowed domestic financing to compensate, at least up to a threshold, for any shortfall in external program assistance.

<sup>29</sup> These projections were drawn up by country authorities and Fund staff before the beginning of the budget year, reflecting donor commitments.

very large, they would be addressed either by changes in reserve accumulation or borrowing. Very large fluctuations in domestic borrowing may be destabilizing for countries lacking deep financial markets.

46. **MTFFs should be subjected to regular stress tests to identify risks related to aid volatility and to determine the appropriate reserve buffer.**<sup>30</sup> The results from the stress tests could be used to calibrate the reserve buffer needed in order to cope with fluctuations in aid disbursements, particularly aid shortfalls. The optimal size of the buffer will be country-specific but will probably amount to 50 to 100 percent of annual aid-financed spending.<sup>31</sup> Such a buffer would supplement other reserves that countries might accumulate to provide cover for imports and/or short-term debt, and enable countries to smooth expenditures without recourse to costly bridge financing from their domestic banking systems in the event of an aid shortfall. However, building up reserve buffers also requires that countries have in place appropriate strategies to invest and manage the reserves efficiently during aid windfalls.

47. **Strengthening domestic revenue is another key way for governments to self-insure against aid volatility.** At only 12.2 percent of GDP, revenue ratios in LICs are low by international standards, especially in SSA (Table 2 of Appendix I). However, this is not due to low tax rates—standard corporate tax rates already average 34.2 percent in SSA, compared to 20.3 percent in OECD countries and 28.9 percent in Asia, while value-added taxes (VAT) rates average 16.4 percent in SSA, compared to 17.6 percent in OECD countries and 10.9 percent in Asia (IMF, 2006a). In fact, lowering distortionary tax rates may be part of the strategy of some LICs to promote private-sector led development.<sup>32</sup> Instead, low tax ratios mainly reflect narrow revenue bases (due in part to exemptions and tax incentives) and weak administration (Sellassie and others, 2006). Countries could thus reduce the share of their fiscal resources that are sensitive to aid volatility by broadening their tax bases and improving administration. Measures to strengthen relatively stable forms of revenue, such as VAT, would be especially helpful in this regard.

48. **Governments should also aim to enhance expenditure flexibility.** For example, to make wage spending more flexible, governments can use temporary and flexible contracts, and contract out more services (Davies, Gunnarsson, and Verhoeven, 2007). Contractual service arrangements can be adjusted more easily in the event of an aid shock, and may also increase spending efficiency—for example, in Cambodia, contracting out health services to NGOs in five randomly selected districts increased targeted outcomes by 0.5 standard deviations relative to comparison districts (Bloom and others, 2006). Contracting out services

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<sup>30</sup> See also IMF (2007b).

<sup>31</sup> Eifert and Gelb (2005).

<sup>32</sup> Gupta, Powell, and Yang (2006).

can also alleviate capacity constraints, especially if it results in the importation of skilled labor.

49. **Protecting priority spending might also prove a viable policy option to counteract aid volatility.** Since poverty-reducing expenditure is often discretionary, explicitly protecting it from cuts if resources fall short can be an effective mechanism. However, protecting specific programs also adds to budget rigidities and decisions in this regard require carefully assessing the benefits from protecting certain spending items versus the drawbacks of creating additional rigidities. Expenditure identified as priority should be aligned with the PRSP.

50. **Similarly, automatic fiscal adjustors can limit the impact of aid volatility on fiscal policies under PRGF-supported programs.** Automatic adjustors in Fund-supported programs offer flexibility in case of deviations of actual aid flows from projected flows and avoid unplanned ad hoc adjustments in spending. For example, an adjustor that allows temporary shortfalls in aid to be compensated through larger domestic financing would obviate the need for ad hoc reductions in spending. Adjustors should be capped at levels that do not jeopardize domestic debt sustainability and macroeconomic stability. Also, shortfalls in financing for highly discretionary spending items, e.g., project financing, are often excluded from adjustors.

51. **Finally, donors should continue efforts to increase the overall predictability of aid.** The international community has acknowledged that aid volatility may hamper policy-making in LICs, and committed itself in the Paris Declaration to provide aid in a more predictable way. Continued implementation of the steps to improve aid delivery outlined in the Declaration is crucial.

#### **D. Promoting Efficient Spending**

52. **Ensuring efficient spending of both scaled-up aid and existing resources is critical for achieving the MDGs.** Appendix II discusses differences in expenditure efficiency across countries. One important implication is that higher levels of spending do not always translate into better outcomes, with poorer countries generally tending to have worse outcomes. Governance and the quality of fiscal institutions have a critical impact on the relationship between spending and outcomes, suggesting that effective utilization of scaled-up aid will require efforts to strengthen fiscal institutions.

## APPENDIX I. COUNTRY EXPERIENCES WITH AID SCALING UP

53. **In the past, aid recipients have often experienced sharp swings in aid flows.** Net aid flows to Pakistan, for example, increased by a factor of 2.5 between 1997 and 2004, and nearly tripled to Ethiopia during the same period.<sup>33</sup> Analyzing country experiences around such aid spurts can be useful, both for understanding the transmission mechanism of scaled-up aid to various fiscal variables as well as for drawing lessons regarding appropriate institutional arrangements for facilitating aid management and absorption.

### A. Some Statistical Properties of Aid Flows

54. **Many LICs already receive more funds in the form of aid than they collect in the form of own revenues (Table 2).**<sup>34</sup> This is particularly true for African countries, which comprise almost 60 percent of the sample. African countries received on average 16 percent of GDP in aid flows, substantially more than the Latin American or Asian countries in the sample. In contrast, the average revenue-to-GDP ratio in African countries was less than 10 percent. Breaking down the sample into five-year intervals shows that aid levels, expressed as a share of GDP, have declined in many countries.

**Table 2. Aid and Revenue, 1990–2004  
(Means and median are in percent of GDP)**

|                 | Number | Revenue/GDP |        |              | Aid/GDP |        |              | Relative<br>Variance<br>1/ |
|-----------------|--------|-------------|--------|--------------|---------|--------|--------------|----------------------------|
|                 |        | Mean        | Median | Std.<br>dev. | Mean    | Median | Std.<br>dev. |                            |
| Full sample     | 51     | 12.2        | 10.7   | 4.7          | 13.8    | 11.6   | 5.2          | 1.2*                       |
| Africa          | 30     | 9.4         | 8.2    | 4.7          | 16.0    | 13.0   | 5.9          | 1.6**                      |
| East Africa     | 11     | 7.4         | 6.8    | 5.6          | 19.3    | 16.8   | 7.9          | 2.0**                      |
| Latin America   | 7      | 18.7        | 21.2   | 6.5          | 9.4     | 7.5    | 4.6          | 0.5                        |
| Asia            | 9      | 13.0        | 12.9   | 3.2          | 8.2     | 6.6    | 2.7          | 0.7                        |
| Pacific Islands | 5      | 18.2        | 19.1   | 5.1          | 16.5    | 14.6   | 6.5          | 1.6                        |

Source: DAC database, WEO, staff estimates.

1/ Ratio of variances between the aid and revenue variables, a la Bulir and Hamann (2003)

\* and \*\* denote significance at 5 and 10 percent levels.

<sup>33</sup> See Mattina (2006) for a detailed discussion.

<sup>34</sup> The analysis presented here is based on panel data from 51 PRGF-eligible countries during 1990–2004. Data on aid flows are taken from the OECD's Development Assistance Committee (DAC) database, which captures the majority of (but not all) aid flows to the sample countries. The rest of the information is obtained from the World Economic Outlook (WEO), and the Fund's Monitoring of Fund Arrangements (MONA) databases.

55. **Also, at least for Africa, aid flows have remained substantially more volatile than revenues (Table 2).** While the absolute volatility of both aid and revenues has declined, aid flows remain more volatile than revenues, a finding that is similar to the findings of other researchers.<sup>35</sup> Volatility of aid is higher in African countries than for the sample as a whole reflecting the quantitative importance aid (both grants and loans). On the other hand, relative aid volatility, which is measured as a ratio of the variances of aid and revenues, has worsened in recent years. Volatility of aid has contributed to additional fiscal uncertainties in aid recipient countries.

56. **Among the main components of aid, grants are much more volatile than loans (Table 3).** The fairly large standard deviation around the mean for grants underscores that spending financed by external grants faces larger uncertainty than spending financed by loans. While, statistically, this simply reflects the fact that grants are usually substantially larger than loans, for actual fiscal management *absolute* volatility is more relevant than *relative* volatility (i.e., a normalized measure of volatility such the coefficient of variation).

**Table 3. Total Aid, Loans, and Grants  
(Means are in percent of GDP)**

|                    | 1990–1994 |           | 1995–1999 |           | 2000–2004 |           |
|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|
|                    | Mean      | Std. Dev. | Mean      | Std. Dev. | Mean      | Std. Dev. |
| <i>Full Sample</i> |           |           |           |           |           |           |
| Total Aid          | 16.9      | 4.1       | 12.6      | 3.6       | 11.9      | 3.2       |
| Loans              | 3.9       | 2.6       | 2.7       | 2.2       | 2.0       | 1.7       |
| Grants             | 12.9      | 3.3       | 9.9       | 2.6       | 9.9       | 2.9       |
| <i>Africa</i>      |           |           |           |           |           |           |
| Total Aid          | 19.5      | 4.6       | 14.3      | 4.0       | 14.2      | 3.9       |
| Loans              | 4.8       | 2.6       | 3.1       | 2.7       | 2.4       | 2.0       |
| Grants             | 14.7      | 3.1       | 11.3      | 2.7       | 11.8      | 3.6       |

Source: DAC database, staff estimates.

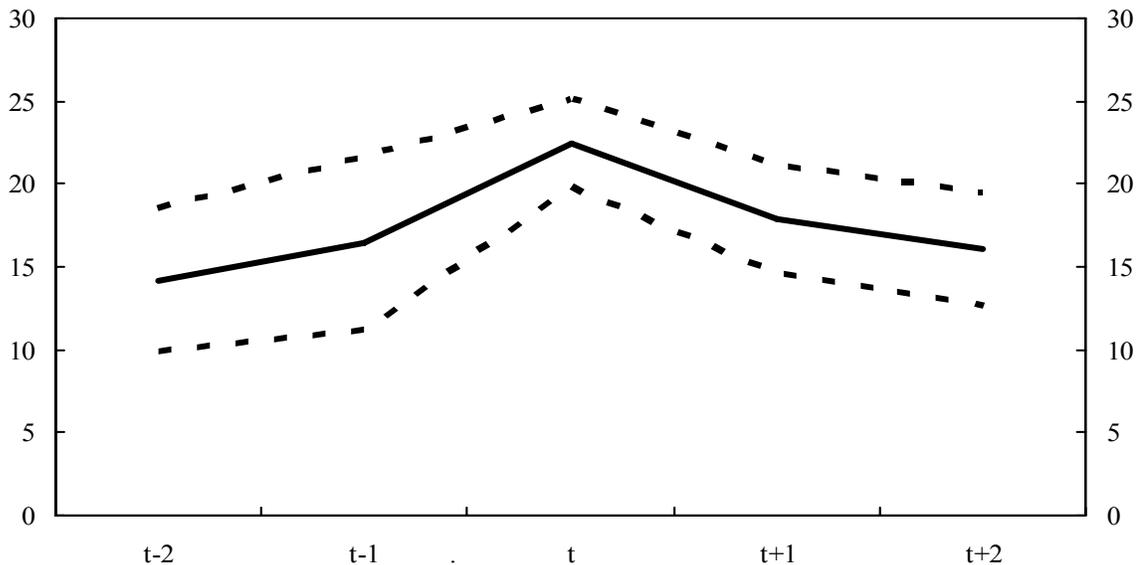
57. **Past aid surges have been relatively short-lived.** Achieving the MDGs would require countries to manage and execute ambitious social and infrastructure projects that often have long gestation periods. Aid inflows for financing such projects would have to be much smoother and more sustained in the coming years than what appears to have been the norm in the past.

<sup>35</sup> Bulíř and Hamann (2006) find that the average volatility of countries' aid share in GDP is about 40 times higher than that of the revenue share in GDP.

## B. AID FLOWS, GOVERNMENT SPENDING, AND FISCAL INSTITUTIONS

58. **In general, aid flows have remained difficult to predict while past aid surges have been short-lived.** A set of panel regressions of aid show that only revenues and lagged values of aid consistently explain aid flows, and that too with relatively weak explanatory power (Table 4).<sup>36</sup> The negative relationship between aid and revenues conforms to the findings of other researchers (e.g., see Gupta and others, 2004). There is also some indication that aid flows rise with growth, and behave counter-cyclically with respect to the output gap and revenues (i.e., as the output gap widens and revenues increase, aid flows decline). For the most part, however, and despite trying out a wide range of explanatory variables, regression residuals remained very large. The significantly smaller than unity coefficient of the lagged dependent variable suggests that aid is mean reverting, meaning a large aid spurt seldom persists. Various event studies that were carried out to probe deeper into the issue of aid flow volatility confirm that large increases in aid have consistently been followed by a tapering off (Figure 3).<sup>37</sup>

**Figure 3. Event Study: Aid Flows After an Aid Spurt  
(In percent of GDP)**



Note: t denotes years, and the dotted lines denote 1 standard deviation error bands.

Source: DAC database and staff estimates.

<sup>36</sup> The regressions use a fairly large number of explanatory variables, including economic growth, outcome gaps, commodity prices, political risk, revenues, and past values of aid. To test for robustness, the regressions were run in various permutations, using levels and changes of the variables, and with different estimation techniques. Some of the selected regression results are presented in Table 4.

<sup>37</sup> Aid spurts were defined as periods when a country's aid flows were notably higher than its average aid flows (by  $\frac{3}{4}$ , 1, or  $1\frac{1}{2}$  standard deviation), and then the average aid flows before and after these events were plotted.

Table 4. Selected Regression Results

|                            | Dependent Variable |                            |                      |                      |                        |                     |                   |                   |
|----------------------------|--------------------|----------------------------|----------------------|----------------------|------------------------|---------------------|-------------------|-------------------|
|                            | Total aid/GDP      | Revenue (minus grants)/GDP | Capital spending/GDP | Current spending/GDP | Education spending/GDP | Health spending/GDP |                   |                   |
| Total Aid/GDP              |                    |                            | 0.44**<br>(0.06)     | 0.43**<br>(0.07)     | 0.58**<br>(0.16)       | 0.43**<br>(0.14)    | 0.03<br>(0.03)    | 0.06**<br>(0.01)  |
| Total Aid/GDP squared      |                    |                            | -0.01**<br>(0.01)    | -0.01**<br>(0.01)    | -0.01<br>(0.01)        | -0.01<br>(0.01)     | -0.01<br>(0.01)   | -0.01**<br>(0.01) |
| Lagged Total Aid/GDP       | 0.53**<br>(0.04)   |                            |                      |                      |                        |                     |                   |                   |
| Revenue (minus grants)/GDP |                    |                            |                      |                      |                        |                     |                   |                   |
| Loans/GDP                  |                    | 0.16*<br>(0.08)            |                      |                      |                        |                     |                   |                   |
| Lagged Loans/GDP           |                    | 0.18*<br>(0.08)            | 0.36**<br>(0.09)     | 0.05<br>(0.11)       | 1.04**<br>(0.22)       | 0.35<br>(0.21)      | 0.04<br>(0.02)    | 0.02<br>(0.01)    |
| Grants/GDP                 |                    | -0.92**<br>(0.04)          | 0.23**<br>(0.03)     | 0.21**<br>(0.03)     | 0.25**<br>(0.07)       | 0.24**<br>(0.05)    | 0.01<br>(0.01)    | 0.03**<br>(0.01)  |
| Lagged Grants/GDP          |                    | -0.06<br>(0.07)            |                      |                      |                        |                     |                   |                   |
| Political Risk             | 0.05<br>(0.04)     | 0.14**<br>(0.04)           |                      | -0.01<br>(0.04)      | 0.08<br>(0.04)         | -0.21*<br>(0.09)    | 0.09**<br>(0.01)  | 0.03**<br>(0.01)  |
| Output Gap                 | 0.09<br>(0.05)     | 0.05<br>(0.05)             | 0.02<br>(0.03)       | 0.08*<br>(0.04)      | 0.05<br>(0.09)         | 0.12<br>(0.07)      | 0.01<br>(0.01)    | 0.01<br>(0.01)    |
| IMF - Supported program    | 0.43<br>(0.80)     | -1.13<br>(0.79)            | 0.54<br>(0.55)       | 0.84<br>(0.79)       | -5.26**<br>(1.55)      | -0.67<br>(1.59)     | -0.05<br>(0.26)   | 0.01<br>(0.11)    |
| High Inflation             | 4.58*<br>(1.87)    | 3.47<br>(1.82)             |                      |                      |                        |                     | -0.74<br>(0.50)   | -0.50**<br>(0.22) |
| Africa                     | -2.29<br>(1.78)    | -9.00**<br>(1.72)          |                      |                      |                        |                     | -1.34*<br>(0.58)  | -0.53*<br>(0.25)  |
| Latin America/Caribbean    | -2.86<br>(2.00)    | -9.91**<br>(1.93)          |                      |                      |                        |                     | -0.53<br>(0.66)   | 0.58*<br>(0.28)   |
| Asia                       | -4.45*<br>(1.90)   | -10.68**<br>(1.85)         |                      |                      |                        |                     | -2.41**<br>(0.64) | -0.45<br>(0.27)   |
| Growth                     | 0.11*<br>(0.05)    |                            |                      |                      |                        |                     |                   |                   |
| Observations               | 315                | 315                        | 126                  | 87                   | 126                    | 87                  | 248               | 247               |
| Number of countries        | 28                 | 28                         | 30                   | 20                   | 30                     | 20                  | 26                | 26                |

Standard errors in brackets, \* significant at 5 percent; \*\* significant at 1 percent. Generalized Least Squares regression results are reported. Most results were robust under Ordinary Least Squares regression specifications as well.

59. **Own revenues are correlated positively with loans and negatively with grants.**<sup>38</sup>

The contemporaneous correlation findings do not necessarily imply that grants induce reduced tax effort; rather, the finding could well be associated with the fact that donors give more grants to less-developed, fiscally constrained countries. This argument is also advanced in a recent paper by Morrissey (2006). Adding an indicator of political risk as an explanatory variable yields positive and statistically significant coefficients, indicating that countries with better political institutions and lower risk tend to be associated with higher revenue collection.

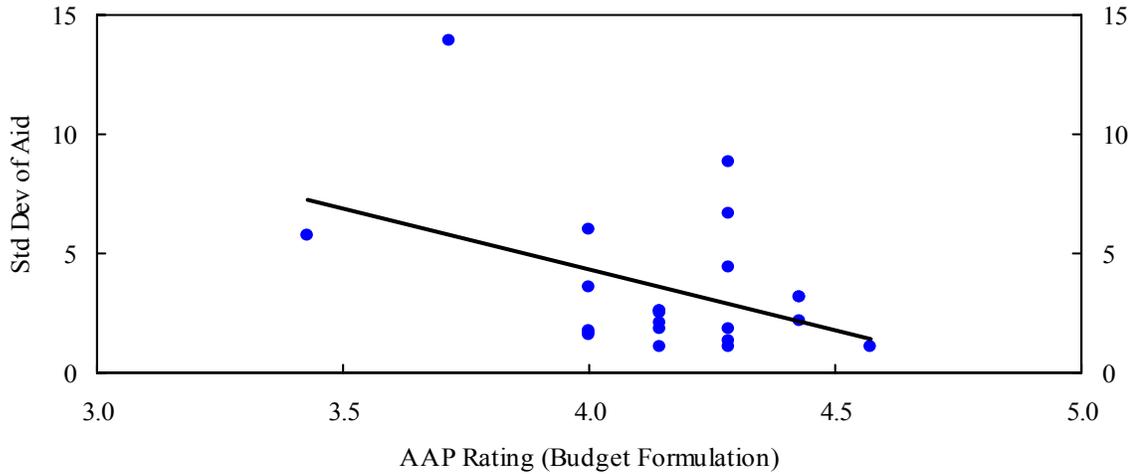
60. **The impact of aid on spending was analyzed with four regressions that use different spending aggregates as dependent variable (Table 4).** The main results were:

- **Capital spending rises with total aid, although the result is more robust with increases in grants as opposed to loans.** However, capital spending does not increase proportionately with more aid, with a negative but small coefficient in the squared aid-to-GDP term.
- **Current spending also increases with grants, and, overall, tends to rise with aid flows by more than capital spending does.**
- **Social spending (i.e., health and education) is fairly unaffected by aid flows.** Health spending is positively correlated with grants (but not with loans), although the parameter is very small. There is no statistically significant effect of different aid aggregates on education spending. In general, countries with better political risk ratings are also associated with higher levels of health and education spending. The lack of responsiveness of health and education spending to aid flows may reflect government attempts to maintain such spending even when funding is volatile and uncertain. Indeed, countries use various mechanisms to protect certain spending items in these sectors from allocation shortfalls.

61. **While data on the quality of fiscal institutions are scarce, countries with better fiscal institutions also tend to experience less aid volatility (Figure 4).** Scatter plots of the standard deviations of aid flows with total HIPC-AAP scores—or any of the components (i.e., budget formulation, execution, and reporting)—all suggest that a higher institutional quality score goes hand-in-hand with lower aid volatility. Similar results hold when the HIPC-AAP scores are replaced by the fiscal portion of the World Bank CPIA ratings for a larger group of countries.

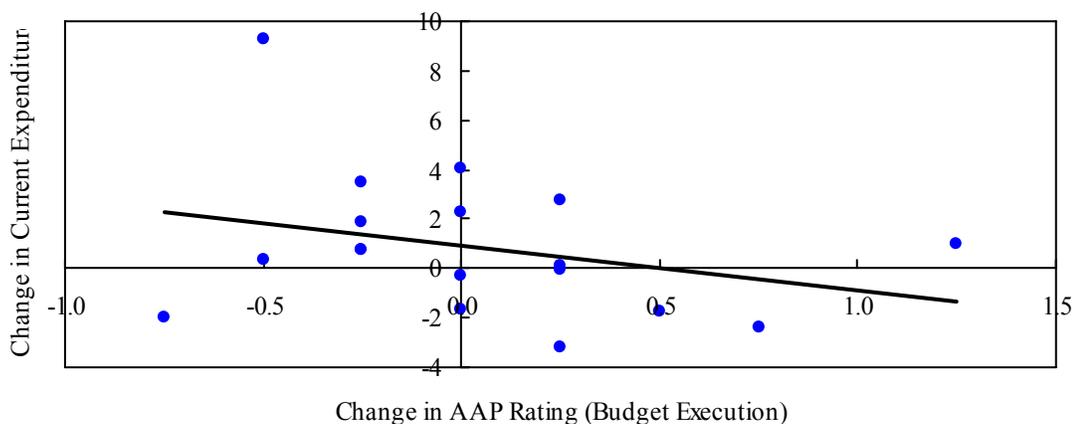
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<sup>38</sup> Only selected regression results are reported. The initial set of regressions was run with data from the 51-country sample for the period 1990–2004. Adding the political risk variable in the specification significantly reduces the number of observations. The core results discussed in this section, however, hold across both the larger and smaller samples. Overall, the results are strong and survive a battery of controls and robustness tests.

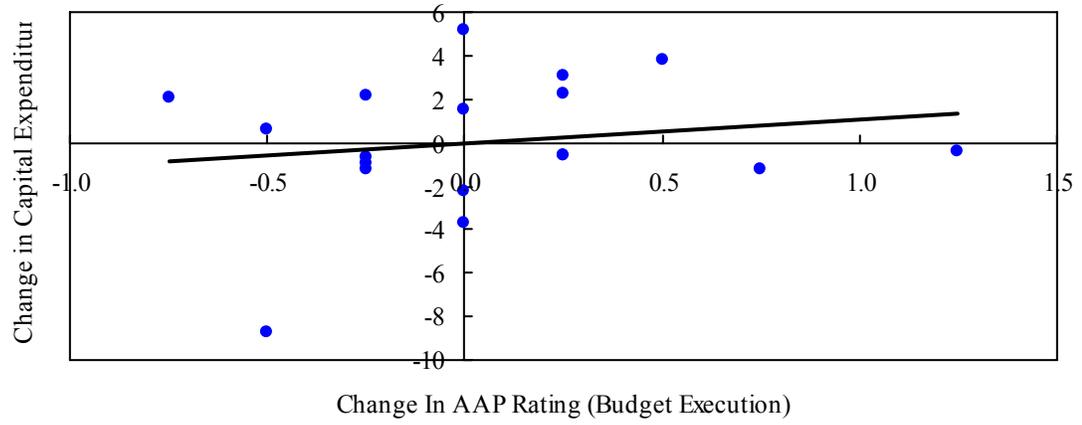
**Figure 4. Aid Volatility and Fiscal Institutional Quality**

Sources: IMF country documents, PEFA secretariat, and Fund staff estimates.

62. **Also, countries that improved their ratings for budget execution also tended to reduce current spending while increasing capital spending (Figures 5 and 6).** The two HIPC-AAP surveys, done with a separation of few years, allow analyzing the impact of *improvements* in fiscal institutions on budgetary activities. The data suggest that five out of seven countries with a deterioration in budget execution ratings during 2001–04 increased current spending relative to GDP; similar results were found for other components of the HIPC-AAP scores. Conversely, countries that improved their budget execution ratings during 2001–04, also increased their capital spending, on average, although only slightly.

**Figure 5. Changes in Current Spending and Institutional Quality**

Sources: IMF country documents, PEFA secretariat, and Fund staff estimates.

**Figure 6. Changes in Capital Spending and Institutional Quality**

Sources: IMF country documents, PEFA secretariat, and Fund staff estimates.

## APPENDIX II. EXPENDITURE EFFICIENCY—AN EMPIRICAL ASSESSMENT

63. **It will be essential for LICs to make efficient use of scaled-up aid to ensure sustained progress toward the MDGs.** In particular, efficient spending in priority areas—e.g., health care, education, public investment—will be critical. This appendix describes how a sample of PRGF-eligible countries<sup>39</sup> have fared in transforming inputs into outcomes in health and education; this may help to shed light on current absorptive capacities and the likely efficiency of using scaled-up aid. In addition, this Appendix attempts to identify factors that may help explain differences in expenditure efficiency across countries.

**Table 5. List of Countries Included in the Efficiency Analysis 1/**

|    |                      |    |                        |    |                  |
|----|----------------------|----|------------------------|----|------------------|
| 1  | Angola               | 18 | Ghana                  | 35 | Niger            |
| 2  | Bangladesh           | 19 | Guinea                 | 36 | Nigeria          |
| 3  | Benin                | 20 | Guinea-Bissau          | 37 | Pakistan         |
| 4  | Bolivia              | 21 | Guyana                 | 38 | Papua New Guinea |
| 5  | Burkina Faso         | 22 | Haiti                  | 39 | Rwanda           |
| 6  | Burundi              | 23 | Honduras               | 40 | Senegal          |
| 7  | Cambodia             | 24 | India                  | 41 | Sierra Leone     |
| 8  | Cameroon             | 25 | Kenya                  | 42 | Sri Lanka        |
| 9  | Central African Rep. | 26 | Lao People's Dem. Rep. | 43 | Sudan            |
| 10 | Chad                 | 27 | Lesotho                | 44 | Tanzania         |
| 11 | Congo, Dem. Rep. of  | 28 | Madagascar             | 45 | Togo             |
| 12 | Congo, Republic of   | 29 | Malawi                 | 46 | Uganda           |
| 13 | Côte d'Ivoire        | 30 | Mali                   | 47 | Vietnam          |
| 14 | Djibouti             | 31 | Mauritania             | 48 | Yemen Arab Rep.  |
| 15 | Eritrea              | 32 | Mozambique             | 49 | Zambia           |
| 16 | Ethiopia             | 33 | Nepal                  | 50 | Zimbabwe         |
| 17 | Gambia, The          | 34 | Nicaragua              |    |                  |

1/ This list includes countries that were PRGF-eligible in September 2006, excluding island economies and transition countries. The list also excludes PRGF-eligible countries without available data on health and education spending. Countries with missing information on outcome measures were dropped from the analysis of that outcome measure.

### A. Expenditure Efficiency in Health and Education in LICs—The Scoreboard

64. **Expenditure efficiency is assessed here by measuring how effective countries are in producing health and education outcomes.** An implicit assumption is that spending affects outcomes and that a relatively more efficient country achieves the same outcome with lower spending. The analysis is done in two stages. In the “first stage,” the spending efficiency for each country in the sample is measured using Data Envelopment Analysis

<sup>39</sup> See Table 5 for a list of countries included in the sample.

(DEA).<sup>40</sup> This methodology estimates overall spending efficiency of the use of inputs (e.g., health expenditure) in “producing” outputs (e.g., health outcomes). The countries which provide the best combination (i.e., the maximum outputs for a given level of inputs or, alternatively, the minimum inputs for the level of outputs) define the best-practice frontier. The countries that are not on the frontier are then ranked according to the distance from the frontier, which is a measure of relative efficiency expressed as the efficiency score. The “second stage” attempts to identify key factors that account for differences in the relative efficiency scores, using correlation coefficients and multivariate truncated regressions that relate relative efficiency scores to various control variables. The inputs used in the analysis are per-capita health and education spending<sup>41</sup> in purchasing-power parity (PPP) dollars, while the outcomes are indicators that are used to monitor progress toward the MDGs.<sup>42</sup>

### First stage results

**65. First stage results point to large variances in spending efficiency implying that higher levels of spending do not always translate into better outcomes.** More specifically:

- **Countries with the lowest per capita incomes tend to have the lowest efficiency scores for health (Table 7).** This general conclusion holds broadly irrespective of the outcome indicator used or whether total health spending or only public health spending is considered.<sup>43</sup> Three outcome indicators—infant mortality, child mortality, and maternal mortality—were used in the analysis. Overall, only about 40 percent of the countries in the poorest half of the sample ranked in the top half with respect to their outcome efficiency scores.<sup>44</sup>

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<sup>40</sup> The DEA methodology derives from the literature on the estimation of production functions (for a detailed exposition of DEA and other methods of assessing efficiency, see Zhu, 2003). DEA has the advantage of being sparse in its assumptions about the characteristics of the production technology. This is particularly important for assessing spending efficiency, because little is known about the nature of the relationship between spending and outcomes.

<sup>41</sup> Health spending includes both public and private spending. However, education spending data relates to public spending only as private spending data are not available.

<sup>42</sup> Table 6 shows the different indicators used, their definition, the MDGs they relate to, and the availability of data. Because of a relative paucity of data that directly measure outcomes, the analysis also uses intermediate indicators of outcomes, such as enrollment rates and the numbers of births attended by skilled staff.

<sup>43</sup> Taking into account both private and public health spending is important for assessing health outcomes. Some countries with low public health spending have relatively better health outcomes. While it would be reasonable to assume that this could reflect higher private spending, no direct relationship was found between the share of private spending in health and relative efficiency scores.

<sup>44</sup> The first stage efficiency scores computed with the three health outcome indicators are strongly correlated indicating that the results are robust.

**Table 6. Spending and Outcome Indicators for the Efficiency Analysis**

| Spending Indicators /1                              | Indicators  | Spending Years<br>(period averages) | Indicator Years | N  | Type of<br>Indicator | MDG /2 |
|---|---|-------------------------------------|-----------------|----|----------------------|--------|
| <b>Education</b>                                    |   |                                     |                 |    |                      |        |
| Public education expenditure 3/<br>(in PPP dollars) | Literacy rate, youth (percent of people ages 15-24)       | 1999-2002 4/                        | 2004            | 39 | Outcome              | MDG 2  |
|   | Primary school enrollment (percent net)                   | 1999-2002 4/                        | Ave. 2000-04 4/ | 39 | Output               | MDG 2  |
|   | Persistence to grade 5 (percent of cohort)                | 1999-2002 4/                        | Ave. 2000-03 4/ | 33 | Outcome              | MDG 2  |
|   | Ratio of girls to boys in primary and secondary (percent) | 1999-2002 4/                        | Ave. 2002-04 4/ | 54 | Output               | MDG 3  |
|   | Ratio of literate females to males (percent ages 15-24)   | 1999-2002 4/                        | 2004            | 36 | Outcome              | MDG 3  |
|   | Trained teachers in primary education (percent of total)  | 1999-2002 4/                        | Ave. 2001-04 4/ | 32 | Output               | n/a    |
| <b>Health</b>                                       |   |                                     |                 |    |                      |        |
| Public health expenditure<br>(in PPP dollars)       | Immunization, measles (percent of children 12-23 mo.)     | 1998-2001                           | 2004            | 78 | Output               | MDG 4  |
| Private health expenditure 5/<br>(in PPP dollars)   | Mortality rate, infant (per 1,000 live births)            | 1998-2001                           | 2004            | 78 | Outcome              | MDG 4  |
| Total health expenditure 5/<br>(in PPP dollars)     | Mortality rate, under-5 (per 1,000)                       | 1998-2001                           | 2004            | 78 | Outcome              | MDG 4  |
|   | Maternal mortality ratio (per 100,000 live births)        | 1998-2001                           | 2000 6/         | 61 | Outcome              | MDG 5  |
|   | Births attended by skilled health staff (% of total)      | 1998-2001                           | Latest 2000-04  | 57 | Output               | MDG 5  |
|   | Health worker density (per 1,000 people)                  | 1998-2001                           | Latest 2000-03  | 39 | Output               | n/a    |

1/ Spending variables have been corrected for differences in purchasing power.

2/ MDG 2 is "Achieve universal primary education", MDG 3 is "Promote gender equality and empower women", MDG 4 is "Reduce child mortality" and MDG 5 is "Improve maternal health."

3/ Data on private spending on education not available.

4/ Of years with available data.

5/ Available for broadly the same number of countries and the same years.

6/ World Bank model estimate.

**Table 7. Percent of Countries in Top Half of the Efficiency Distributions for Health by Income Level 1/**

| Annual<br>GDP Per Capita 2/ | Health Outcome Indicators |                 |                    |
|-----------------------------|---------------------------|-----------------|--------------------|
|                             | Infant mortality          | Child mortality | Maternal mortality |
| ≤ 1,457                     | 40.0                      | 40.0            | 37.5               |
| > 1,457                     | 60.0                      | 60.0            | 62.5               |

1/ Countries in the first two quartiles of the efficiency distribution have better efficiency scores than the median country.

2/ In PPP U.S. dollars. The median per capita income in the sample is \$1,457 in PPP terms.

- **Relative efficiency analysis for education spending yields comparable results (Table 8).** The two indicators used for this exercise are the primary enrollment rate and youth literacy rate. Only one-third of the poorest countries in the sample are ranked in the top half of efficient countries on the basis of the primary enrollment rate. The results are more favorable for youth literacy rates, with as much as 64 percent of the poorest countries in the top half based on efficiency scores.

**Table 8. Percent of Countries in Top Half of the Efficiency Distribution for Education by Income Level 1/**

| Annual<br>GDP Per Capita 2/ | Education Outcome Indicators |                |
|-----------------------------|------------------------------|----------------|
|                             | Primary school enrollment    | Youth literacy |
| ≤ 1,457                     | 33.3                         | 64.3           |
| > 1,457                     | 66.7                         | 35.7           |

1/ Countries in the first two quartiles of the efficiency distribution have better efficiency scores than the median country.

2/ In PPP U.S. dollars. The median per capita income in the sample is \$1,457 in PPP terms.

## Second stage results

66. **Second stage results point to several factors that may help to explain differences in spending efficiency in the sample.**<sup>45</sup>

- **Governance and the quality of fiscal institutions have a strong positive correlation with efficiency in health.** Several indicators of governance and institutions were used in the analysis such as the International Country Performance Rating (ICPR), the average Country Policy and Institutional Assessment (CPIA)

<sup>45</sup> See Table 9 for a detailed list of control variables. The second stage analysis is limited to efficiency of health spending due to data constraints.

score, and some of its components for the quality of fiscal institutions. Table 10 below presents the correlation coefficients between the relative efficiency scores and the control variables that are robust.<sup>46</sup> Thus, on average, countries with better governance and fiscal institutions achieve higher health outcomes at lower levels of spending.<sup>47</sup>

**Table 9. List of Control Variables**

| Group                              | Factors  |
|------------------------------------|--|
| Income and human development       | GDP (in PPP dollars per capita)<br>Prevalence of HIV<br>Adult literacy rate<br>Infant mortality rate   |
| Conflict                           | Country in war anytime between 1995–2005<br>Military expenditure (percent of GDP)  |
| Infrastructure                     | Improved sanitation facilities access (percent of population)<br>Improved water source access (percent of population)<br>Urban population (percent of total)   |
| Level and volatility of aid 1/     | Total ODA aid received<br>Technical cooperation aid<br>Development food aid<br>Emergency aid<br>Other aid<br>Total loans (net)<br>Grants   |
| Governance and fiscal institutions | ICPR: Governance rating<br>CPIA 12: Property Rights & Rule-based Governance<br>CPIA 13: Quality of Budget & Financial Management<br>CPIA 15: Quality of Public Administration<br>CPIA 16: Transparency, Accountability & Corruption Control<br>CPIA 12-16: Average |

1/ The level of aid received is measured as aid received as a percent of GDP for each type of aid. Volatility of aid received is measured in three ways; standard deviation of aid, coefficient of variation of aid and the relative variance of aid to revenue.

<sup>46</sup>A control variable is considered correlated with the health efficiency scores when the correlation coefficient of that variable is statistically significant at the 10 percent level or higher and with the expected sign. To be considered robustly correlated, the relationship has to hold for at least 3 out of 5 efficiency score indicators.

<sup>47</sup> The sample size does not allow computing correlation coefficients for education with sufficient confidence.

Table 10. Correlation Matrix of Relative Efficiency Scores and Control Variables 1/

| Control Variables  | Relative Efficiency Scores |    |  |                  |    |  |                 |    |  |                    |    |  |   |   |         |        |    |
|--|----------------------------|----|--|------------------|----|--|-----------------|----|--|--------------------|----|--|---|---|---------|--------|----|
|  | Immunization, measles      |    |  | Infant mortality |    |  | Child mortality |    |  | Maternal mortality |    |  | Births attended by skilled health staff |   |         |        |    |
|  | Coefficient                | N  |  | Coefficient      | N  |  | Coefficient     | N  |  | Coefficient        | N  |  | Coefficient                             | N |         |        |    |
| Prevalence of HIV  |                            |    |  | 0.30**           | 44 |  | 0.29*           | 44 |  | 0.39**             | 43 |  |   |   |         |        |    |
| Adult literacy rate  |                            |    |  | -0.35**          | 36 |  | -0.43**         | 36 |  | -0.28*             | 36 |  |   |   | -0.31*  | 35     |    |
| Improved sanitation facilities                             |                            |    |  | -0.25*           | 50 |  | -0.26*          | 50 |  |                    |    |  |   |   | -0.43** | 46     |    |
| ICPR: Governance rating                                    | -0.40**                    | 50 |  | -0.30**          | 50 |  | -0.26*          | 50 |  |                    |    |  |   |   |         |        |    |
| CPIA 12: Property Rights & Rule-based Governance           | -0.33**                    | 50 |  | -0.30**          | 50 |  | -0.29*          | 50 |  |                    |    |  |   |   |         |        |    |
| CPIA 15: Quality of Public Administration                  | -0.40**                    | 50 |  | -0.33**          | 50 |  | -0.31**         | 50 |  |                    |    |  |   |   |         |        |    |
| CPIA 16: Transparency, Accountability & Corruption Control | -0.29**                    | 50 |  | -0.24*           | 50 |  |                 |    |  |                    |    |  |   |   |         |        |    |
| CPIA fiscal indicators average                             | -0.40**                    | 50 |  | -0.31**          | 50 |  | -0.25*          | 50 |  |                    |    |  |   |   |         | -0.27* | 46 |

1/ A negative sign means that more of the control variable is negatively correlated with the efficiency score and hence positively correlated with level of efficiency. Significance at the 10 percent level is indicated with a \* while \*\* denotes significance at the 5 percent level.

- **The level of aid and aid volatility are not correlated with health efficiency scores.**<sup>48</sup> This is because aid volatility does not translate into similar changes in health spending (see Appendix I) or health outcomes. In other words, short-term changes in aid do not affect the relationship between spending and outcomes in the health sector, and therefore do not impact spending efficiency.
- **The efficiency of health sector spending is correlated positively with outcomes in the education sector, the prevalence of HIV/AIDS, and infrastructure.** Higher adult literacy rates and improved access to sanitation are associated with higher efficiency of health spending (Table 10). These results reflect the importance of adequate sanitation infrastructure on health outcomes and the well-known fact that better education and health outcomes reinforce each other: better education leads to better decisions on health-related matters, and improved child health promotes investment in education.<sup>49</sup> The prevalence of HIV/AIDS in a country lowers the relative expenditure efficiency in the health sector.

67. **Multivariate truncated regressions confirm these findings.**<sup>50</sup> Efficiency scores for infant mortality were regressed on the prevalence of HIV, adult literacy rate, access to sanitation services, and the average CPIA scores for fiscal institutions. The coefficients for all variables are significant and of the expected sign (Table 11). It is worth noting that the coefficient for the CPIA indicator is significant in each of the three alternative specifications.

68. **This analysis of the efficiency of education and health spending should be interpreted with some caution.** Health and education outcomes are influenced by a host of factors beyond spending which can only be partially captured by the use of controls in the second stage of the analysis. Also, the methodology focuses on quantifiable inputs and outcomes, and only partially takes into account harder-to-measure factors such as quality. Finally, efficiency is measured in relative terms implying that if a country is on the frontier, it is relatively more efficient than other countries in the sample. In relatively small samples, such as for this analysis, this may result in some bias in the result. Nevertheless, the thrust of the findings presented here is consistent with those reported in the literature on expenditure efficiency.<sup>51</sup>

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<sup>48</sup> However, Herrera and Pang (2005) find that countries with high ratios of aid to fiscal revenues tend to score lower on efficiency.

<sup>49</sup> Miguel and Kremer (2004).

<sup>50</sup> The number of control variables that could be included was limited by the number of observations available.

<sup>51</sup> For example, Baldacci and others (2004) find that increased public spending has a lower effect on outcomes when the quality of spending and the governance and institutional arrangements are weak. A paper by the IMF's Policy Development and Review Department (IMF, 2004b) states that improved country policies, institutions, and public expenditure management in low-income countries are important for aid to be more effective. Estache, González, and Trujillo (2007) find that low-income countries have lower expenditure efficiency in

**Table 11. Truncated Regressions of Expenditure Efficiency Scores 1/**

|  | Specification 1     | Specification 2     | Specification 3     |
|--|---------------------|---------------------|---------------------|
| Prevalence of HIV                        | 0.008*<br>(0.108)   | 0.002**<br>(0.022)  | 0.001*<br>(0.051)   |
| CPIA fiscal indicators average           | -0.018**<br>(0.026) | -0.018**<br>(0.027) | -0.012*<br>(0.096)  |
| Adult literacy rate                      |                     | -0.001**<br>(0.014) |                     |
| Access to improved sanitation facilities |                     |                     | -0.001**<br>(0.020) |
| Constant                                 | 1.106<br>(0.000)    | 1.139<br>(0.000)    | 1.109<br>(0.000)    |
| Sigma 2/                                 | 0.025               | 0.024               | 0.023               |
| N  | 40                  | 32                  | 40                  |

1/ A negative sign means that more of the control variable is negatively correlated with the efficiency score and hence positively correlated with level of efficiency. Significance at the 10 percent level is indicated with a \* while \*\* denotes significance at the 5 percent level.

2/ Sigma is the standard error of the regression.

### **B. Fiscal Policy Implications for Aid Scaling Up**

69. **The above analysis points to two important implications for expenditure policy in the context of scaled-up aid:** (i) improving efficiency of spending in LICs is critical for achieving the MDGs; and (ii) in most LICs, effective utilization of scaled-up aid will require a further strengthening of fiscal institutions. These reforms will contribute to enhancing efficiency of spending in LICs.

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achieving health and education outcomes than do lower-middle-income, upper-middle-income and high-income countries. Finally, Gupta, and Verhoeven (2001) find that efficiency of education spending is lower in African countries compared to Asian and Western Hemisphere countries.

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