IMF Working Paper

The Macroeconomic Challenges of Scaling Up Aid to Africa

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INTERNATIONAL MONETARY FUND

IMF Working Paper

African Department

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September 2005

Abstract

This Working Paper should not be reported as representing the views of the IMF. The views expressed in this Working Paper are those of the author(s) and do not necessarily represent those of the IMF or IMF policy. Working Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.

This paper surveys the economic literature on the scaling-up of aid to Africa. It provides a checklist of issues that need to be considered when preparing a long term macroeconomic projection for a country involving the assumption of a significant increase in aid. Such scaling-up scenarios are most likely to be developed in the context of a country's efforts to achieve the Millennium Development Goals (MDGs) with the support of the international donor community. The paper stresses that when preparing a scaling-up scenario it is critical to have a detailed understanding of the likely use of additional aid flows.

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I. INTRODUCTION

This paper provides a checklist of the macroeconomic challenges that low-income countries are likely to face if they receive significantly higher official assistance than they have received in the recent past. The checklist is derived from a survey of the economic literature and should be considered when developing illustrative macroeconomic scenarios in response to a scaling up of aid flows for individual countries. A scaling-up scenario might involve a doubling of official resource transfers as a share of a recipient country's GDP, with higher aid being sustained for a decade or more. Such scenarios are most likely to be developed in the context of a country's efforts to achieve the Millennium Development Goals (MDGs) with the support of the international donor community.

Estimates of the costs of reaching the MDGs vary widely. The 2005 Group of eight (G-8) Gleneagles declaration calls for raising annual aid flows to Africa by $25 billion by 2010, while the UN Millenium Task Force has argued for $70 billion of annual additional resources to achieve the MDGs in Africa. Most studies which attempt to "cost" the achievement of the MDGs in Africa focus only on direct costs of providing services in particular sectors (e.g., health and education) and ignore the need for investments in complementary growth-oriented sectors, such as infrastructure. Consistent with the G-8 proposals, World Bank and IMF (2005) has argued that a conservative estimate of the *additional* official development assistance (ODA) that Africa could use effectively in both infrastructure and human development ranges from $14–18 billion per year during 2006-2008, rising to $24–28 billion by 2015. ODA (including debt relief) to sub-Saharan Africa (SSA) averaged about $17 billion per year during 2000–2003.

Individual African countries have received very different amounts of external resources in the past. World Bank data suggest that net official transfers to individual African countries have varied considerably over the past quarter century.[2] Of the 44 countries covered by the IMF's African Department, 14 have received net official transfers of 5 percent of GDP or less, on average, between 1980 and 2003. These are generally the wealthier countries in terms of GDP per capita and some are oil producers. Twenty-four countries received between 6 and 16 percent of GDP on average, while a group of six countries, mainly small economies, received and absorbed transfers in excess of 20 percent of GDP on a sustained basis. Following the cessation of conflicts, many countries have also received large aid inflows.[3,4]

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[2] In the Appendix, Table A1 shows individual country data from *Global Development Finance* (2005).

[3] See Collier and Hoeffler (2004).

A number of countries in Africa have seen modest surges of aid in the recent past (Table 1).[5] All the countries in the sample received debt relief over the period, which, in turn, permitted them to clear their external arrears in some cases and increase their net aid inflows. In an assessment of the impact of an aid surge, private inflows (for example, foreign direct investment) can also be important and need to be considered in conjunction with the public inflows. If, for example, a surge in aid is offset by a corresponding fall in private inflows, the challenge of macro management would be considerably different.

Table 1. Recent Patterns of Aid Inflows
(In percent of GDP)

	1999	2000	2001	2002	2003
Ethiopia 1/					
Net aid inflows		4.7	6.0	**8.8**	**16.1**	**15.0**
Gross aid inflows		11.7	8.8	**24.3**	**18.1**	**17.5**
Net private inflows		6.6	8.1	**6.8**	5.7	**7.7**
Ghana					
Net aid inflows	3.2	2.8	-0.3	**10.6**	2.6	**7.1**
Gross aid inflows	8.7	7.5	8.8	**14.9**	6.1	**9.5**
of which program aid	1.8	1.9	3.8	**5.6**	2.6	**5.1**
Net private inflows	6.0	6.3	11.2	**13.0**	12.0	**13.7**
Mozambique					
Net aid inflows	11.6	11.4	**20.4**	**15.4**	**16.4**	**15.0**
Gross aid inflows	13.4	13.4	**20.0**	16.7	18.5	17.4
of which program aid	6.3	6.3	5.3	**7.0**	**7.9**	6.6
Net private inflows	5.9	15.8	**10.7**	**6.3**	15.1	7.7
Tanzania 1/					
Net aid inflows	4.6	6.6	7.5	**7.9**	**6.6**	7.6
Gross aid inflows	13.3	12.7	12.8	**12.5**	10.5	10.5
of which program aid	2.0	1.8	2.3	**2.7**	**3.8**	**5.1**
Net private inflows	2.1	2.0	2.2	**4.2**	**3.0**	**2.6**
Uganda 1/					
Net aid inflows		6.5	6.8	**15.5**	**10.5**	9.9
Gross aid inflows		10	11.1	**16.3**	14.6	12.4
of which program aid		2.5	3.6	**8.3**	7.6	6.7
Net private inflows		3.0	3.2	**2.8**	**3.2**	**3.3**

Source: IMF (2005a)

Note: Figures in bold represent periods of aid surges.
 1/ In Ethiopia, Tanzania, and Uganda, the fiscal year begins in July.
Hence, for example, 1999 = July 1998–June 1999.

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[4] The ability of post-conflict countries to absorb aid is somewhat different from that of countries that have a reform program supported by the World Bank or the IMF. The challenges facing post-conflict countries are discussed further in Section IV.

[5] Net aid flows are defined as disbursements of grants and loans plus debt relief, net of amortization, interest payments and the change in external arrears. This measure captures the actual inflows of foreign exchange and, hence, the scale of the macroeconomic challenge faced by the recipient.

A. Purpose of a Scaling-Up Scenario

Scaling-up scenarios are intended to illustrate a potential medium-term macroeconomic outcome, but they are not an unconditional forecast of the impact of higher aid flows on an economy. They are normally designed to illustrate the potential impact on a country of a sustained increase in external aid, if the country also implements economic policies that allow it to use and absorb the assumed aid flows without damaging or destabilizing the macroeconomic environment. In practice, donors might be less likely to offer higher aid and recipient governments might be less likely to accept it on a sustained basis if one party or the other started to observe significant absorption problems—such as rising inflation, severe skill shortages, or other bottlenecks—or a serious loss of international competitiveness. However, the point at which an economy is no longer able to absorb higher aid flows effectively—that is, when the challenges start to outweigh the benefits—is difficult to predict.

The goal of preparing medium-term scaling-up scenarios is to identify some of the key measures and policies that would help countries absorb a higher level of aid and ensure that it is used efficiently. The scenarios can be updated regularly with the changing medium-term visions of both donors and recipient countries (also, see below the discussion on monitoring and evaluation). The precise form of scaling-up scenarios will vary depending on the goals of the country and the availability of other information. Some countries may choose to prepare a scaling-up scenario for inclusion in their Poverty Reduction Strategy Paper. There are several possible approaches to preparing scaling-up scenarios:

- *Assessing the macroeconomic implications of a fiscal scenario that is based on an explicit costing of achieving the MDGs that do not target poverty reduction and income (for example, those in health, education, and water access).* The costing exercise typically carried out with assistance of development partners (for example, the World Bank) indicates a judgment about the extent of the resources required in each sector. It may also illustrate the trade-offs between the strength of policies, required resources, and macroeconomic outcomes, as well as supply bottlenecks that need to be addressed.

- *Assessing the macroeconomic impact of a significant but arbitrary increase of external assistance (for example, a doubling as a share of GDP).* Here, the higher level of resources is assumed, but it is not grounded in an explicit costing of the MDGs. The scenario indicates how these resources might be used in a fiscal projection (including possible trade-offs between competing sectors or MDGs) and the potential impact of the higher spending on key macroeconomic indicators. This approach may be appropriate when an explicit MDG costing is not available or when the implied additional resources are judged to be too large for a country to absorb without harmful macroeconomic implications. Even

when a comprehensive costing of the MDGs is not available, preparing broad-brush scaling-up estimates serves to put important issues on the table for discussion between country authorities and donors.

- *Assessing the implications of a specific target growth rate in an environment of scaling up*. In this approach, target growth rates are given (with a view to achieving the income-poverty MDG); higher external resources are assumed to be available; and the analysis suggests the kind of improvements in productivity and/or other policies that might be required to meet the macroeconomic goals for a given increase in aid.

B. Key Considerations

The amount of additional aid and the macroeconomic and sectoral policies required to achieve the MDGs will vary from country to country. To determine the appropriate assumptions, it will be critical for countries to seek assistance and advice from development partners, including from the World Bank. For some countries, the World Bank, the United Nations (UN), or other donors may have carried out a detailed sectoral assessment of the estimated costs of reaching the individual MDGs and associated sectoral policies considered necessary for the goals to be achieved.[6] This costing analysis, when available, forms an important foundation for the associated macroeconomic projections of scaling up. In other cases, however, a fully articulated MDG costing exercise may not be available, and more broad-brush assumptions may be necessary as the basis for scaling-up projections. Moreover, if the projected aid requirements are considered too unrealistic, it may be appropriate to prepare a less ambitious scaling-up scenario that assumes more limited external resources and that therefore illustrates the potential trade-offs between competing policy goals. Under all these approaches, a number of fundamental *assumptions* or judgments must be made. Key among these are:

- How large should the higher level of external assistance be and over what period should it be assumed to be available? After the temporary increase, how quickly will the assistance fall back to "normal" levels?

- In what sectors (for example, health, education, roads, infrastructure) are the additional resources assumed to be spent? For how long will a country's individual sectoral budgets be increased? Are the near-term (for

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[6] For example, for Ethiopia, the World Bank prepared scaling-up scenarios in the context of the 2003 Public Expenditure Review (PER). More recently, the Bank has developed a standard (recursive) dynamic general equilibrium model with an additional MDG module that links specific MDG-related interventions to MDG achievement; see Lofgren and Diaz-Bonilla (2005). For a full description of the IMF's scaling-up scenario for Ethiopia, see IMF (2004b and c) and Andrews, Erasmus, and Powell (2005).

example, 3-year) financing assumptions sufficiently realistic to be incorporated into the country's Medium-Term Expenditure Framework (MTEF)?

- Will the additional assistance take the form of project finance or budget support, and will it be provided as grants or loans? Is it tied aid?

- What is the balance between current and capital expenditures, and what share of additional public spending is likely to be earmarked for imports?

- What are the recurrent cost implications of public investment spending?

The following key *issues* must be analyzed:

- What will be the impact of higher government spending and other assumed polices on private investment and saving rates?

- What will be the impact of higher expenditures (including private investment) on real GDP growth and productivity, and how quickly will it be seen?

- What will be the impact of higher aid on the real exchange rate and trade volumes, and what will be the time profile of these effects?

- What are the implications of higher resource flows for monetary management?

- What are the implications of higher aid flows for domestic revenue mobilization? Does the composition of aid (grants or loans) affect revenue performance?

Assessing the macroeconomic impact of scaling up is, in principle, no different from making any other macroeconomic projection. All the basic identities that form the foundation of the IMF's financial programming framework continue to hold: the budget deficit must be fully financed from either external or domestic sources; projections for reserve money and broad money growth should be consistent with the output and inflation forecasts and based on realistic assumptions about the velocity of circulation and the money multiplier; the real GDP growth and trade projections should be consistent with the assumed path for both public and private investment, the real exchange rate, private credit growth, and expected developments in productivity, including those resulting from scaling up; and debt sustainability (both external and domestic) needs to be maintained through a prudent debt-management strategy. And, as with any macroeconomic scenario, it must also be accompanied by a set of country-specific policy assumptions that provides some validation to the economic assumptions made.

An important characteristic of the scaling-up scenario is its long time horizon, in contrast with the relatively shorter period underlying a typical financial programming exercise. The longer time horizon allows an assessment of both debt sustainability of

the MDG scenarios as well as the impact of higher spending on growth and on non-income MDGs. It is important to decompose the budget expenditures into those that enhance growth in the short-to-medium term and those that boost growth in the long run.

The policy environment (including governance) underlying different scenarios is critical to assessing the likely impact of higher aid flows on macroeconomic performance. Scenarios that incorporate countries' adoption of strengthened policy options would illustrate how constraints on the absorption of higher aid flows can be alleviated. Moreover, it is critical to assume the implementation of a policy framework that will encourage increased private sector saving and, hence, a "crowding in" of private sector investment, along with the assumed higher levels of public investment.

The fragility of assumptions and the long time period under consideration calls for a range of scenarios. Alternative scenarios can "accommodate" systematic differences between the policies and assumptions that the IMF and other members of the international community find plausible and those the country authorities wish to adopt. While discussions of scaling up are likely to focus primarily on a single best-case scenario, alternative scenarios may also be helpful on occasion to illustrate the implications of a range of possible policy environments and outcomes.

A regular updating and revision of scenarios is required. In this regard, it is necessary to continuously monitor and evaluate the impact of higher aid flows on important macroeconomic variables (for example, wages, prices, and export volumes). It should also be ascertained whether the assumptions underlying the scenarios were being falsified, and, if so, what alternative policies or assumptions could be considered. It is possible that the original assumptions about the adverse effects of aid were unduly pessimistic or optimistic. Different scenarios can also illustrate the potential differences in outcome associated with various policy assumptions.

The remainder of this paper provides a summary of some of the recent empirical literature to assist in making the judgments required in preparing scaling-up scenarios. Section II looks at issues regarding the real exchange rate, including examples of empirical analysis of the impact of aid on the real exchange rate, and the impact of a rising real exchange rate on exports and competitiveness. Section III considers issues in monetary management and projecting inflation. Section IV discusses the potential impact of scaling up on revenue mobilization, and highlights the importance of maintaining revenue effort throughout the scaling-up period. Section V looks at the impact of higher public expenditure and different components thereof on growth, noting that how the aid is spent and the policy environment into which it is disbursed are critical to assessing its potential impact. Section VI consider other fiscal issues, including the importance of allowing sufficient current spending, containing unproductive expenditures, and targeting the poor, as well as the need to

monitor sectoral bottlenecks. Section VII stresses the importance of governance for enhancing growth and absorption, as well as public expenditure management, while Section VIII looks at external and fiscal debt-sustainability issues. Section IX concludes.

II. ISSUES ASSOCIATED WITH REAL EXCHANGE RATE

A. Aid Absorption and Spending

A key issue in assessing the macroeconomic implications of scaling up official resource transfers to Africa is the impact on the real exchange rate, exports, and competitiveness. Standard analysis of the macroeconomics of aid flows suggests that foreign aid flows augment domestic resources, leaving the economy, as a whole, better off. But the macroeconomic impact depends on how a country spends the resources and the assumed policy response**.** In particular, it is the interaction of fiscal policy with monetary and exchange rate management that is key. To highlight this interaction, IMF (2005a) discusses two related but distinct concepts: absorbing and spending aid flows.

- *Aid absorption is defined as the extent to which a country's nonaid current account deficit widens in response to an increase in aid inflows.*[7] This measure captures the quantity of net imports financed by an increase in aid and represents the additional transfer of real resources enabled by the aid. Absorption captures both the direct and indirect increase in imports financed through aid, that is, the government's direct purchases of imports as well as second-round increases in net imports resulting from aid-driven increases in government or private expenditures. For a given fiscal policy, absorption is controlled by the central bank, through its decision about how much of the foreign exchange associated with aid to sell and through its interest rate policy, which influences the demand for private imports through aggregate demand. If central bank sales of foreign exchange are matched by private accumulation of foreign assets, however, this would be a case of non-absorption by the economy as a whole.

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[7] This definition of aid absorption in IMF (2005a) differs from that of domestic absorption (the sum of private consumption and investment, and government expenditure). The nonaid current account balance is the current account balance excluding official grants and interest on external public debt, whereas the nonaid capital account balance is the capital account net of aid-related capital flows, such as loan disbursements and amortization.

- *Spending is defined as the widening in the government fiscal deficit net of aid that accompanies an increase in aid*:[8] Spending captures the extent to which the government uses aid to finance an increase in expenditures or a reduction in taxation. Even if the aid comes tied to particular expenditures, governments can choose whether or not to increase the overall fiscal deficit as aid increases. The aid-related increases in expenditures could be for imports or domestically produced goods and services.

Absorption and spending are policy choices. If the government spends aid resources directly on imports or if the aid is in-kind (for example, grain or drugs), spending and absorption are equivalent, and there is no direct impact on macroeconomic variables like the exchange rate, the price level, or the interest rate. But when a country receives foreign exchange resources and the government immediately sells them to the central bank, the government must decide how much of the local currency counterpart to spend domestically, while the central bank must decide how much of the aid-related foreign exchange to sell on the market. In general, therefore, spending is likely to differ from absorption.

Different combinations of absorption and spending are possible in response to a scaling up of aid. Four basic combinations of absorption and spending are plausible, with each one having different macroeconomic implications:

- *Aid is absorbed and spent*. Both spending and absorbing the aid is the situation assumed in most discussions of scaling-up scenarios. The government spends the aid increment and the central bank sells the foreign exchange, which is absorbed by the economy through a widening of the current account deficit. The fiscal deficit is larger but is financed through higher aid.

- *Aid is neither absorbed nor spent*. The authorities could choose to respond to the aid inflow by simply building international reserves. This might be an appropriate short-run strategy if aid inflows are volatile or the country's international reserves are too low. In this scenario, government expenditures are not increased, and taxes are not lowered. Hence, there is no expansionary impact on aggregate demand and no pressure on the exchange rate or prices.

- *Aid is absorbed but not spent*. Increased aid inflows can be used to reduce inflation if it remains excessive**.** The authorities choose to sell the foreign exchange associated with increased aid inflows to sterilize the monetary

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[8] The deficit net of aid is equal to total expenditures (G) less domestic revenue (T) and is financed by a combination of net aid and domestic financing: $G\text{-}T$=Nonaid fiscal deficit = Net aid + Domestic financing. A few countries may also supplement their resources with access to non-concessional borrowing.

impact of domestically financed fiscal deficits. The result would typically be slower monetary growth, a more appreciated nominal exchange rate, and lower inflation. It may also allow for lower domestic debt and interest rates.

- *Aid is spent but not absorbed*. A final possibility is that the fiscal deficit, net of aid, increases with the jump in aid, but the authorities do not sell the foreign exchange required to finance additional net imports. The macroeconomic effects of this fiscal expansion are similar to increasing government expenditures in the *absence* of aid, except that international reserves are higher. The increased deficits inject money into the economy, and inflation increases.

The composition and quality of spending and their impact on growth are also relevant. In assessing the overall macroeconomic impact of aid flows, it is important to distinguish between different types of aid (project or program), the components of expenditures (capital or current) that aid finances, and the efficiency with which aid is used. At the same time, a complete absorption of aid through an equivalent increase in imports is unlikely to boost growth directly in the short term, but may do so through spillover effects over time. These issues will be addressed in Sections IV and V.

B. Real Exchange Rate

In a donor-financed scaling-up exercise the focus is typically on the case where most (though not necessarily all) aid is both absorbed and spent. In this case, some real exchange rate adjustment may be necessary and, indeed, appropriate in response to a sustained higher level of aid. The aid will boost demand for both imports and domestically produced nontradable goods, including such public services as health care and education. Bevan (2005) notes that the public sector is typically assumed to have a higher propensity to consume domestically produced goods and services than the private sector. Thus, the domestic component of demand will most likely be higher if the aid finances higher public expenditures than if it finances tax cuts, transfers to the private sector, or lower domestic borrowing. A country can import goods directly from the world market, but only domestic producers can supply nontradables. Unless there is considerable excess supply in the economy, the prices of nontradables must be higher than the prices of tradables (that is, the real exchange rate rises), in order to encourage resources, including labor, to switch from the production of exportables to the production of nontraded goods. As the real exchange rate appreciates, the tradable goods sector contracts compared with the nontradable sector—that is the so-called Dutch disease.

Dutch disease effects are likely to be stronger when trade is more restricted, production is at full capacity, and the ability of consumers to switch between domestic and imported goods in response to relative price changes is, as a result, more limited. It is important to assess the contemplated changes in trade policy, since

increased trade liberalization can facilitate aid absorption without leading to Dutch disease effects. Trade liberalization is thus one of the policy options available to a government. Nkusu (2004) stresses that a failure to take sufficient account of idle capacity may lead to excessive concern about Dutch disease effects. However, unemployed capital and labor are relevant only if they can be brought into productive use in response to higher domestic demand. Hence, if critical inputs in short supply (for example, specialized labor) cannot be replaced by abundant factors, full capacity can coexist with a generalized unemployment of factors.

The mechanism for real appreciation varies depending on the exchange rate regime. In a pure float, the central bank sells the foreign exchange associated with the aid, causing a nominal (and real) exchange rate appreciation. In a fixed exchange rate, a period of inflation raises the real exchange rate, with the central bank accommodating higher government expenditure. The increase in aggregate demand and the real appreciation increase net import demand, causing the central bank to sell foreign exchange to defend the fixed nominal exchange rate.

The macroeconomic impact of aid is likely to depend on how the aid is used. If aid is used to boost supply capacity, its macroeconomic consequences are likely to be mitigated. On the other hand, if aid finances social sector spending, its macroeconomic consequences are likely to be exacerbated. The interaction of demand and supply effects may cause the real exchange rate to "overshoot" its long-run value. This might mean a real appreciation in the short run, followed by a depreciation of the real exchange rate in the medium term. The costs of such real exchange rate volatility will be high if domestic firms face high adjustment costs and domestic financial markets are relatively underdeveloped. In these circumstances, exporting firms may run down their capital, lay off skilled workers, or even close down, even though the sector's long-term prospects are favorable.

Aid can directly boost supply capacity. For instance, in the Adam and Bevan (2002) model, aid is used to enhance the supply response of nontraded goods, moderating the relative price adjustment. Infrastructure provides a particular instrument for improving supply response in their model because of the range and scale of efficiencies that it can bring. Bevan (2005) suggests that there may be a case for prioritizing scaled-up infrastructure investment sooner than social sector spending because it will yield a better supply response and offset some of the adverse macroeconomic consequences of scaled-up aid. If the government attaches a higher priority to improvements in social indicators in the near term, it may find it to be more effective to fine-tune existing social spending than to allocate new aid flows to the social sector. This is discussed further in Section VI.

Once appropriate consideration is taken of the supply-side impact of aid flows, there is no clear presumption as to whether, over the medium term, there will be a real exchange rate appreciation or depreciation or whether the tradable sector will

contract or expand. This is essentially an empirical issue, on which individual country circumstances are likely to differ.

Attempts to measure the relationship between aid flows and the real exchange rate in sub-Saharan Africa (SSA) date back to the early 1980s (Appendix Table 2). Although a number of studies have found a tendency for aid inflows to be associated with an appreciation of the real exchange rate (see Younger (1992) for Ghana, and Kasekende and Atingi-Ego (1999) for Uganda, as well as cross-country analysis by Adenauer and Vagassky (1998)), this evidence is not overwhelmingly significant. Econometric estimates often show the impact of aid on the exchange rate to be small and statistically insignificant. Bulir and Lane (2002) call these "traces" of aid-induced real exchange rate appreciation. Prati, Sahay, and Tressel (2003), using a panel data model, suggest that for countries whose official development assistance (ODA) is in excess of 2 percent of GDP a year, a doubling of aid would appreciate the level of real exchange rate by, at most, 4 percent in the short run, rising to about 18 percent over a five-year period, and 30 percent over a decade. Time- series models tend to reveal that the real exchange rate responds less to aid variations than to other exogenous factors, such as terms of trade variations. Moreover, some studies of African countries find that aid inflows appear to be associated with a real depreciation, reflecting increased productivity (supply-side response) as a result of aid (see, for example, Nyoni 1998, Sackey 2001, and IMF 2005a). IMF (2005a) observes that aid that is not absorbed is not associated with any real exchange rate appreciation, noting that in a number of cases, aid surges went largely into reserves.

The evidence suggests that real exchange rate effects on export growth can be significant in SSA. Region-specific studies do find real exchange rate changes to be a significant determinant of the share of exports in GDP. Balassa (1990) estimates that a 1 percent change in the level of the real exchange rate is associated with a change of 0.8 percent to 1 percent in the share of exports in GDP. Similarly, Ghura and Grennes (1993) find that an actual exchange rate that is 1 percent above a model-based equilibrium exchange rate lowers the share of exports by 0.096 percent. Rajan and Subramanian (2005a) argue that in countries that receive more aid, export-oriented, labor-intensive industries grow more slowly than other industries, suggesting that aid does create Dutch disease. In cases where negative effects are evident, therefore, it is important to ensure that the benefits of aid to the poor are greater than the costs. However, the impact of exchange rate *instability* on exports can also be an important consideration. With a smaller sample of countries, Sekkat and Varoudakis (2000) estimate a higher elasticity between exchange rate misalignment and the share of exports in some sectors, but this result is not always significant. These studies, however, do not estimate the real exchange rate effects in the context of other factors that might hinder export growth.

Recent studies find that growth accelerations are associated with real depreciation, suggesting that a large real appreciation associated with scaling-up could have long-term growth costs. Several studies have built on Hausmann, Pritchett, and Rodrik's

(2004) analysis of jumps in countries' medium-term growth trends, which they label growth accelerations. Their study found that the onset of accelerations had a strong correlation with real exchange rate depreciation. This finding has been confirmed for SSA in IMF (2005c). Almost all the sustained growth cases in SSA avoided overvaluation during the growth period. The study also notes the close link between avoidance of exchange rate misalignment and macroeconomic stability, reinforcing the case for aid inflows to be accompanied by prudent macroeconomic management.

Studies find overvaluation of the exchange rate dampens growth. With a data set that includes 73 developing countries, spanning the period from 1975 to 1992, Razin and Collins (1997) find that overvaluation does have a significant negative impact on growth, while there is no statistically significant relationship between undervaluation and growth. According to their estimates, a 1 percent overvaluation is associated with a 0.06 percent decline in the real per capita growth rate. Dollar (1992) estimates that a 1 percent distortion of the exchange rate dampens per capita growth rate by about 0.02 percent, for 95 developing countries between 1976 and 1985.[9] Similarly, Cottani, Cavallo, and Khan (1990) estimate that for a group of 24 developing countries over the period 1960-83, the growth dampening effect of exchange rate misalignment was about 0.1 percent. Ghura and Grennes find that a 1 percent overvaluation dampens real per capita GDP growth by about 0.02 percent. Bleaney and Greenway (2001) also estimate a negative effect of lagged exchange rate misalignment on growth. They estimate, with data covering 14 SSA countries over the period 1980–95 that a 1 percent lagged misalignment dampens GDP growth by 0.04 percent.

One of the channels through which a temporarily stronger exchange rate may influence the growth rate is the impact on investment. Razin and Collins (1997) posit that, in addition to its effect on the competitiveness of the tradables sector, a stronger exchange rate may also affect domestic and foreign investment, thereby influencing the capital accumulation process. Bleaney and Greenway (2001) suggest that an overvaluation might hurt investment even though it lowers the price of imported capital goods, because it reduces the returns to investment in the tradables sector and because the resulting current account deficit creates the need for tighter macroeconomic policies.

To the extent that higher aid flows alleviate supply bottlenecks, they can offset the effect of an exchange rate appreciation on export growth. In a study covering 60 developing countries, Elbadawi (2002) finds that real exchange rate depreciation did play a significant role in export growth (with the elasticity varying between 0.54 and 0.64 for the entire group). But the coefficients of regional dummies in the study

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[9] In this case, the right-hand-side variable is not exchange rate misalignment but exchange rate distortion. Whereas misalignment indicates the extent to which an exchange rate is overvalued given the fundamentals, Dollar's index specifically measures the extent to which the exchange rate is distorted away from its free trade level.

suggest that all other things equal, nontraditional exports from East Asia and Latin America would be higher than those from SSA, implying that supply constraints, not included in the model, might significantly account for the poor performance of nontraditional exports in this region.

When aid flows build up public infrastructure and thus augment the productivity of private factors, it is possible to realize significant medium-term welfare gains from aid, even in the presence of some short-run Dutch disease (Adam, 2005). Bevan (2005) has suggested that the best practical approach is often to ignore real exchange rate effects except when there is specific information on their likely magnitudes. This neutral assumption would be more appropriate in a scenario with a gradual scaling up rather than with a very rapid increase, and where the supply pay off (for example, from physical infrastructure) is judged likely to be more rapid. As an example, IMF (2004c) could find no evidence that past aid flows to Ethiopia after 1991 (that is, following the overthrow of the Derg regime) had caused a real appreciation or harmed noncoffee exports. Indeed it was found that foreign aid had a positive impact both on Ethiopia's noncoffee exports and on their share in total exports. However, historical relationships might not be a reliable guide to the future, and, given that the resource flows required for SSA to achieve the MDGs would be significantly higher than in the past, upward pressure on wage and price levels could cause a real exchange rate appreciation. It would thus be prudent to implement policies to counter such pressures. For the purposes of Ethiopia's scaling-up projection the real exchange rate was kept constant because this could be justified by the evidence and a prudent assessment of the likely effects of the increased aid. Other country scenarios may find that the evidence points to an appreciation in response to aid flows. An assumption of appreciation may also be warranted if the proportion of aid allocated to domestic goods is high (as discussed below). These judgments will necessarily be tailored to the specific country circumstances.

III. Issues Associated with Monetary Management

A. Options for Sterilization Policy in a Scaling-Up Scenario

If the monetary authorities are concerned with the liquidity impact of increases in aid-induced spending, they can choose to sterilize the liquidity injection either domestically or through foreign exchange sales. Foreign sterilization involves selling central bank foreign reserves in order to absorb the increased domestic liquidity. Some countries have used a mixture of both foreign and domestic sterilization. However, the increased supply of foreign exchange creates pressure for a nominal appreciation of the exchange rate.[10] Given concerns about competitiveness,

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[10] To mitigate appreciation pressures, the authorities can choose to relax controls on capital outflows, such as by easing surrender requirements on foreign exchange earnings or permitting local institutions to invest abroad.

authorities are often reluctant to accept such an appreciation and instead choose domestic sterilization.

There are various ways of sterilizing the liquidity impact of aid inflows domestically.[11] One overall concern with this type of policy is its negative impact on private sector lending and investment.[12]

- *Sales of government securities or central bank sterilization bonds*. Monetary authorities often use this type of operation to sterilize the liquidity impact of capital inflows. However, increasing the outstanding stock of domestic debt may lead to higher domestic interest rates, especially in shallow financial markets. Besides increasing domestic debt service, sales of such instruments would lead to a crowding out of loans to the private sector and, ultimately, of investment. This policy could result in domestic interest rates becoming extremely volatile in the short term, as was observed in Uganda.

- *An increase in reserve requirements*. This instrument can be effective for manipulating liquidity conditions. but has some drawbacks. Some banks may already hold reserve assets in excess of statutory requirements, which would reduce the impact of the policy change; the presence of weak banks may make higher requirements difficult or dangerous to implement, especially if the remuneration of required reserves is significantly below market rates. Reserve requirements cannot be increased to manage short-term liquidity (which may be needed when aid flows are highly volatile) because frequent changes can undermine the efficient management of bank portfolios. Finally, for countries trying to liberalize their financial markets, changing reserve ratios is often seen as sending the wrong signal and may discourage financial intermediation, weakening the central bank's monetary control.

- *Transfer of public sector deposits from commercial banks to central bank accounts*. There may be limited scope for such operations in SSA countries where central government deposits in commercial banks amount to about 2 percent of GDP, on average. Such a sterilization policy which entails fewer fiscal or quasi-fiscal costs than open market operations was highly effective in Thailand and Malaysia in the 1990s. However, such a transfer could only be a one-off operation; similar to the concern about reserve requirements, frequent

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[11] Given that international capital mobility is highly limited in African countries, monetary policy controls the nominal interest rates because there are no capital inflows that can offset the tightening of the monetary policy stance.

[12] However, although a reduction in commercial bank liquidity could deter private sector lending, African banks are, in the first place, often reluctant to extend credit to the private sector because of structural factors, such as, a weak legal environment or the absence of credit bureaus.

movements of large amounts of public sector deposits may prevent optimal management of commercial bank portfolios.

There remains the question of whether to use sales of domestic bonds or foreign reserves to sterilize aid inflows. Atingi-Ego (2005) suggests roughly a 50:50 rule, but experience in Uganda seems to argue more heavily in favor of sterilizing through foreign exchange sales. This view is premised on the grounds that in Uganda, exchange rate appreciation has not hurt non-traditional exports. A similar kind of response is emerging in Tanzania because of the need to balance the pressure on prices from increased liquidity versus the pressure on interest rates from domestic sterilization, and exchange rates from increased foreign exchange sales. Finally, IMF (2005a) suggests that countries create these sterilization headaches for themselves by not letting more absorption happen in the first place. The paper suggests that countries receiving higher aid flows need to show a greater willingness to absorb (and, ultimately, spend) aid, selling the foreign exchange over time, and letting the exchange rate appreciate. However, the sale of foreign exchange can reduce the share of domestic assets in private banks and may crowd out private sector credit, if lending in foreign currency is limited.

B. Projecting Inflation

Scaling-up needs to be reflected in the inflation targets. Some additional inflationary pressure is inevitable as domestic demand increases. IMF (2005c) argues that while high inflation is clearly harmful to economic growth, the gains from continued moderate inflation on growth are ambiguous. As inflation accelerates, a negative effect on growth is likely given the associated increase in inflation uncertainty, clouding price signals, limiting both the quantity and quality of investments. On the other hand, some inflation could enhance real wage flexibility, and if nominal prices are inflexible, an excessively low inflation target can render an economy more vulnerable to prolonged downturns in case of adverse supply shocks.

An inflation target below 5 percent may be not be appropriate. The existence of a negative relationship between inflation and growth at higher rates of inflation is empirically well supported. By contrast, identifying the growth effects of moving from, say, 20 percent inflation to 5 percent, has been challenging. According to Bruno and Easterly (1998), only for generally short-lived periods of high inflation, can significant adverse growth effects be found, after which growth tends to return to its long-run path. However, several other studies indicate this may understate the adverse growth effects of moderate inflation.

Quantifying the association between inflation and growth requires careful attention to the nonlinearities in the relationship between inflation and growth. This relation appears to be convex: a given increase in inflation is associated with a larger negative growth effect, the lower the initial inflation. But at low rates, higher inflation may have no effect on growth or its effect may even be positive. Since Fischer (1993),

several authors have tried to identify and locate such a "kink" in the relation between inflation and economic growth—associated with a maximum growth rate. Empirical studies using panels of countries have located this kink in the inflation-growth nexus at a level of inflation somewhere between 3 percent and 40 percent, with a majority suggesting a level in the 5-10 percent range (see Appendix Table 3). In the Ethiopia scaling-up scenario of IMF (2004b and c), while the inflation target in the base case projection was 3 percent, in the "doubled aid" scenario the inflation target was increased to 6 percent.

IV. IMPACT OF SCALING UP ON REVENUES

This section discusses the potential impact of scaling up on revenue mobilization. Any scaling-up scenario needs to take into account the possible effects of aid on revenues, and the associated policy package should stress the need for revenues to be maintained or strengthened during the period of higher aid, both to guard against uncertainty associated with donor behavior and to prepare for the eventual tapering off of aid flows.

A. Scaling Up and Revenue Effort

There is some concern that policymakers will view external aid resources as substitutes for domestic revenues. In these circumstances, a substantial scaling up of aid flows could dampen a county's domestic revenue effort. In some cases, to the extent that a weaker tax effort reduces domestic distortions, it might help spur economic activity. In other cases, where the lower revenue collections reflect weak compliance or unnecessary tax exemptions, they are more likely to breed aid dependency. The weaker tax effort can have an adverse effect on domestic institutions because citizens are less likely to hold the government accountable when they pay lower taxes (Bevan, 2005). Although it might be argued that reducing tax rates could be an optimal response to permanently higher aid flows this argument has less weight in countries that are currently below their potential for raising tax revenues and when scaled-up aid inflows are temporary and require the countries to establish a strategy for coping with a drop in aid flows.

In the past, aid flows have been volatile and unpredictable raising the concern that an increased reliance on external aid resources to finance expenditure might constrain a policymaker's ability to undertake medium-term plans. Bulir and Hamann (2005) estimate that, on average, aid flows are between 6 and 40 times more volatile than fiscal revenues and that the relative volatility of aid is the highest in the most aid-dependent countries. They calculate that, on average, aid delivery falls short of pledges by more than 40 percent, especially for the poorest countries. So, in addition to being more volatile, aid flows are also unpredictable.

Aid volatility can be mitigated in various ways, including through debt relief, reserve buffers, and changed donor behavior. From the recipient country's perspective, one clear advantage of debt relief over other forms of aid is that it permanently releases domestic resources. Debt relief thus mitigates the problem identified by Eifert and Gelb (2005): if aid pledges are highly volatile, recipients can slip into a low-level equilibrium as they heavily discount commitments of aid in their medium-term budget plans, while donors, seeing lower funding gaps, may reduce their pledges as a result. However, Eifert and Gelb also show that relatively small amounts of reserves accumulation (on the order of two to three months of imports) can be used to manage much of the exogenous volatility of aid, especially that arising from administrative delays.[13]More generally, aid should be absorbed only if it is well spent and generates sufficient gains to compensate for any costs associated with a real appreciation. Even when the consequences of Dutch Disease are limited, the need to insure against shocks, including future aid shortfalls, justifies some accumulation of reserves when aid flows are considered high. Over time, however, there may be a practical limit to the potential reserve accumulation if donors observe that aid flows are not being absorbed by the economy.

B. Projecting Revenues in a Scaling-Up Scenario

The empirical evidence on how aid flows affect domestic revenue collections is mixed, with the magnitude, sign, and significance of the impact of aid varying by study. With a few notable exceptions, however, the impact of aid is found to be either negative or insignificant. Appendix Table 4 summarizes these empirical findings.

The composition of aid (loans or grants) as well as the level of corruption are important in assessing the likely pressures on revenue effort. Gupta and others (2004) suggest that the need to repay loans leads policymakers to increase their domestic revenues, or at least maintain their existing collections. Grants are free resources that can substitute for domestic revenues, and, hence, are more likely to dampen domestic efforts to collect more revenue. Their baseline results indicate that, for every additional dollar of aid in the form of grants, 28 percent is offset by reduced domestic revenues.[14] But the results for countries with a high level of corruption suggest that any increase in aid would be fully offset by reduced revenue effort. When aid consists of foreign-financed projects, their tax treatment presents an additional complication. If the projects are tax exempt, then the fiscal component of the scenario should be adjusted accordingly. However, tax exemptions can be difficult to manage when a

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[13] In addition, donors are placing increased emphasis on evaluating their own performance in aid management. For the case of Mozambique, this is manifested in an agreed performance assessment framework for the donor community (World Bank, 2005).

[14] Their sample includes 107 developing countries from 1970 to 2000. Otim (1996), in his study of three low-income South Asian countries, finds that both grants and loans increase revenue.

country's administrative capacity is weak. Some African countries have had success in implementing exemptions through vouchers rather than administrative provisions (de Mariz Rozeira, 2005).[15] However, a case can be made on grounds of both simplicity and fiscal revenue protection for having donors pay the taxes and duties applicable to foreign projects. These decisions have to be examined on a country-by-country basis.

Experience points to a tax ratio of at least 15 percent of GDP as a reasonable target for most low-income countries.[16] At the same time, donors should bear in mind the composition of tax revenue in scaling-up scenarios because countries in SSA, on average, derive about one-third of their total revenue from trade taxes (Agbeyege, Stotsky, and WoldeMariam, 2004). If aid recipients were to liberalize trade to facilitate aid absorption (Section II), revenue from trade taxes would decline unless there were scope for eliminating exemptions and reducing tariffs to revenue-maximizing levels. They would also have to strengthen their indirect tax system including the value-added tax (VAT), by reducing exemptions and broadening the base. A country would have to build transitional revenue losses into its scaling-up scenario, and the aid recipients would need to seek donor and other assistance to improve domestic tax systems and recoup losses from trade taxes.

The most appropriate assumption for scaling-up scenarios is that accompanying policies would at least ensure that revenue effort is strengthened, possibly in the form of revenue benchmarks, particularly in those countries where the revenue-to-GDP ratio is well below the above threshold of 15 percent. A strengthened revenue effort would enable aid-dependent countries to wean themselves gradually from aid. (see below). It is also consistent with the recommendations of the UN Millennium Project (2005), which called for countries to mobilize additional domestic resources of 4 percent of GDP through, for example, more vigorous tax collection efforts. In many countries, the tax effort is below potential, in part because of a narrow tax base. In countries like Tanzania and Uganda, there has been emphasis on broadening the tax base with the objective of reducing aid dependency over time. McGillvray and Morrisey (2004) note that it is useful to distinguish between the impact of aid on total tax revenue and the impact of aid on revenue from international trade taxes. Scaling-up scenarios should also factor in support to revenue institutions so as to strengthen their capacity to generate additional revenue on a permanent basis. Addressing

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[15] Under the voucher system, normal tax and customs procedures apply to projects receiving tax incentives. Instead of payment, the beneficiary presents a voucher or treasury check issued by the ministry of finance to the relevant customs or tax office. The associated paper trail makes monitoring and costing much easier than with a tax exemption.

[16] Adam and Bevan (2004) speak of a consensus that the tax ratio for post stabilization countries should be on the order of 15-20 percent, and IMF (2005c) suggests a ratio of at least 15 percent as a reasonable target for most low income countries.

weaknesses in revenue administration is high on the reform agenda of Tanzania and Uganda, for example. Appendix Table 5 summarizes recent trends in total tax revenue, and import and export duties, in different regions.

V. Projecting Impact of Scaling Up on Growth

A. Historical Relationship Between Aid and Growth

The debate on the effectiveness of aid in stimulating growth goes back many years and there remains considerable uncertainty about the aid growth relationship. Some researchers suggest either no effect or a negative one; others suggest a positive effect, but with diminishing returns. Yet others argue that aid works in some circumstances (when a country has good policies) but not in others.

The earliest skepticism about the role of aid in promoting economic growth is based on the potential disincentive effect of aid on investment, and private sector development (Bauer,1972). Some of the subsequent empirical research did in fact find little or no relation between aid and growth (Mosley, 1980; Singh, 1985). Similarly, Easterly (2001) questions the channels of the "financing gap" model of the impact of aid on growth, wherein aid flows lead to higher investment levels and hence growth.[17] While aid can ease the liquidity and foreign exchange constraints to investment, it might actually worsen the incentive to invest, and hence is more likely to finance consumption. Empirical support for this idea can be found in Boone (1996). A related but distinct strand of the literature examines the impact of aid flows on the tradable goods sector. Most recently, Rajan and Subramanian (2005a) find that aid flows do have adverse effects on growth, wages and unemployment in labor-intensive and export sectors. However, their model does not allow for inferences regarding the overall growth rate.

Among those researchers finding an impact from aid, Burnside and Dollar (2000) suggest that the effectiveness of aid depends on the policy environment in the recipient country. In a similar vein, Radelet (2004) relates aid effectiveness to the quality of governance in the recipient country. Other studies have examined whether the impact of aid is conditional on such factors as large export price shocks (Collier and Dehn, 2001), climatic shocks and trends in or the volatility of terms of trade (Guillaumont and Chauvet, 2001; Chauvet and Guillaumont, 2002), and the presence of totalitarian regimes (Islam, 2003).

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[17] The "financing gap" or alternatively the "two-gap" model of Chenery and Strout (1966) identifies the gaps between savings and investment requirements and foreign exchange earnings and import requirements as the major constraints to growth in developing countries.

Different types of aid are likely to have different relationships with growth, and not all aid is targeted at stimulating growth (Radelet and others, 2004). A distinction can be drawn between the likely impact of three types of aid:

- aid provided in the context of disasters, emergencies, and humanitarian relief, which may actually have a negative correlation with observed growth rates because it is often provided when a country is hit by a negative shock (for example, food aid).

- aid that might affect growth but, if so, only indirectly and over a long time. Radelet et al give examples of aid to halt environmental degradation or to support democratic or judicial reform. They also include some aid to support health and education, which may have an effect on labor productivity only over many years.

- aid that might reasonably be expected to affect growth within a fairly short time (for example, four years). Examples include aid to build infrastructure--roads, irrigation, ports, and electricity.

In attempting to project the impact of scaling up on real growth rates one might start, therefore, with how the aid is spent and the policy environment into which it is disbursed. It is important to decompose the projected aid inflows and the associated higher budget expenditures into those that can reasonably be expected to enhance growth in the short to medium term and those directed at longer-run growth or at supporting activities unlikely to be related to growth. Cross-country econometric studies, which often use 5- or 10- year averages of growth rates, may not provide sufficient guidance on the short-run impact of higher public spending on output in individual countries. Moreover, most empirical work on the impact of spending on growth provides estimates of the average impact of small changes in spending as a share of GDP, which may not directly translate into the impact of a substantial scaling up of aid, in which diminishing returns and other supply bottlenecks must figure more prominently.

B.   Diminishing Returns and Limits to Absorptive Capacity

Projecting the total response of output to scaled-up public expenditure requires taking account of diminishing returns to spending, the pace of convergence of output to its new steady state, and supply constraints and bottlenecks. An underlying notion is that the link between spending and growth reflects intermediate outputs (such as education or health capital or public infrastructure) the production of which is subject to diminishing returns, supply constraints or other bottlenecks. Assessing these potential constraints in individual sectors is key to preparing a realistic assessment of the impact of scaling-up.

However, information on the extent of diminishing returns and the rate of convergence is subject to considerable uncertainty. Although guidance is available on the initial response coefficient (see below), there are few estimated production functions for government spending or aggregate output in low-income countries that could inform the selection of the diminishing returns and convergence parameters. Existing estimates of convergence parameters are averages from cross-country studies and would have to be adjusted on a country-by-country basis to take account of local conditions and assumed policies. Other things being equal, low-income countries have more scope to catch up with richer countries and should therefore be able to maintain a growth rate higher than the steady state for a long time**.** However, studies that control for other causes of growth (for example, strength of institutions) suggest that low-income countries may be close to their steady state already. Therefore, convergence in response to a policy change may be more rapid, and the long-run impact of aid on growth is correspondingly muted. Hence, measures accompanying scaling up that also raise the steady-state level of income, such as strengthened governance and building up of institutions, are important in ensuring that increased spending leads to sustained growth.

Studies find a very wide range of aid saturation points, that is, the point at which the positive impact of aid falls to zero. Diminishing returns to aid are often captured in the empirical literature through the inclusion of a quadratic aid share variable in an aid impact regression along with the standard linear term**.** Clemens and Radelet, (2003) summarize eight such studies relating the share of aid to per capita growth. All find a negative coefficient on the quadratic aid term, which, when combined with a positive coefficient on the level of aid, implies that the marginal return on aid is initially positive but then declines. While considerable caution needs to be exercised in using these results because they are tentative, Hansen and Tarp (2001) show aid share saturation points between 14 and 27 percent of national income. Other studies find that saturation occurs at about 40 percent, well above the level of current aid inflows for most countries. For their short-impact aid component, Radelet Clemens, and Bhavnani (2004) find the marginal impact of aid reaches zero at about 8-9 percent of GDP. But since short-impact aid is about half of total aid, the corresponding point for total aid occurs at about 16-18 percent of GDP, a range currently exceeded in only a small number of countries.[18] The growth effects of most social sector expenditure, which would be seen as having a long-term impact on growth are more difficult to estimate. In addition, these estimates are derived from historical data, and saturation points in the future may be at significantly higher levels, particularly if aid absorption is accompanied by improved policy environment and governance.

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[18] Aid saturation points will be lower for postconflict countries, especially in the initial stages of reconstruction. But these aid flows will themselves help raise absorptive capacity over the medium term. This issue is discussed further below.

There is evidence that countries' aid saturation points are higher, as is their absorption capacity, in good policy environments. Several of the studies surveyed in Clemens and Radelet (2003) allow the impact of aid on growth to depend on an indicator of the quality of the country's institutions and policy stance. Collier and Dollar (2002) model a link between aid impact and the World Bank's Country Policy and Institutional Assessment index, which ranges from 1 (lower quality) to 6 higher quality). For a country with a score of 2 the saturation point is about 19 percent of GDP. With a score of 4.5 the saturation point occurs at 43 percent of GDP. This result is consistent with other evidence that the effectiveness of public expenditure depends on the quality of institutions (Baldacci and others, 2004).More recent evidence in Rajan and Subramanian (2005b) is more cautious about the existence of such a link.

The sequencing and composition of aid requires special attention in post-conflict countries. These countries face more severe constraints than the typical recipient of increased aid: basic institutions have to be rebuilt before attention can turn to prospects of reaching the MDGs. If rebuilding is successful, growth in these countries can rebound rapidly, reflecting the restoration of functions like law and order and the return of dislocated people. Collier and Chauvet (2004) confirm that aid is effective in these circumstances, but, to be optimal its composition should change over time. However, Collier and Hoeffler (2004) find that donors tend not to time aid properly. Aid tapers off after three to five years just when a country's opportunity to build capacity and achieve sustained poverty reduction is best. The amount of aid that they recommend for postconflict countries is quite similar to that of a scaling-up program. This suggests that, once the first stage of state rebuilding is complete, the challenges discussed in this paper are relevant for postconflict countries as well.

C. Private Savings and Investment

Public investment can crowd-in private investment in SSA. Crowding-in likely reflects the complementarity of private investment with some components of public investment, especially infrastructure (Odedokun, 1997). Appendix Table 6 summarizes some of the relevant studies. Crowding-in has been found across a variety of datasets and methodologies. Greene and Villanueva (1991) had noted this effect for a small sample of developing countries in SSA, Asia, and Latin America, using a pooled approach. Hadjimichael and Ghura (1995) found it in a panel regression for a large SSA sample, while Ghura and Goodwin (2000), also using panel methods, found that the effect was present only for SSA while crowding out was observed for Asia and Latin America. Belloc and Vertova (2004) investigate the effect at the country level, and confirm crowding in for four of the five SSA countries that they examine (the exception being Malawi).

Strengthening the investment climate and the financial sector are important elements of a scaling-up scenario. In recent years many countries have prepared Diagnostic Trade Integration Studies (DTIS) as a means of integrating trade and investment issues into their development strategies.[19] For example, the 2004 DTIS for Ethiopia recommended improvements in trade policies, the legal and regulatory environment, institutions, and trade facilitation services, in order to encourage greater integration into the world economy, and increased foreign direct investment. More generally, in any scaling-up scenario, strengthening of financial sector institutions, through international standards of bank supervision, a competitive environment, and well functioning financial markets, as well as taking steps to enhance the microfinance sector and access to credit, should all help in raising private sector savings and investment over the medium-term, and a country's eventual graduation to a reliance on private rather than official sources of finance.

D. Econometric Evidence on Impact of Raising Spending as a Share of GDP

Evidence on the initial impact of public spending on growth is sensitive to the data and the methodology used. The methodology is clearest when public spending can be related to the stocks of the factors of production, such as physical capital, which is augmented by public investment. Appendix Table 5 summarizes studies using either production function or growth regressions and drawing on data from Africa.[20] Studies confirm a productive role for various types of infrastructure in low-income countries. Canning and Bennathan (2000) find high rates of response of output to infrastructure, but also strong complementarities between different components of capital spending. The implication is that rates of return decline very quickly for an increase in any one component of capital. For low income countries, the study finds that electricity projects yielded the highest returns. Calderon and Serven (2004) construct composite indices of infrastructure stocks and estimate large gains in growth from the closing of infrastructure gaps between average countries and regional leaders.

Growth regressions find the average impact of a 1 percent of GDP increase in social sector or public investment spending on per capita growth to be in the range of 0.5-1.0 percent over a five-year period. These studies are summarized in Appendix Tables 7 and 8. The methodological debate associated with these studies has confirmed the need to control for reverse causality from output growth to public investment. Of particular relevance to SSA is the study by Gupta and others (2004) covering 39 IMF program countries, of which 24 are in SSA. It finds a long-run effect on the growth rate of a one percent of GDP increase in capital outlays of 0.7 percent over a five-year period. In a larger sample of 120 countries, Baldacci and others

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[19] The Integrated Framework (IF) was established in 1997 by the World Trade Organization (WTO) in order to facilitate the coordination of trade related technical assistance to low income countries, in cooperation with other development partners.

(2004) simulate the increment to long-run growth from increases of one percent of GDP in education and health spending. For education, per capita GDP growth is, on average, 0.9 percent higher, and, for health outlays, it is 0.4 percent higher. These estimates are derived from the experiences of countries in which the elasticity to import is less than one, and, hence, there is less than full leakage of higher aid flows to imports.

E. Case Studies on the Impact of Aid

Case studies confirm a positive impact of aid on growth, although precise attribution is difficult given variation in country circumstances and use of aid inflows. The multidonor Pro-Poor Growth study (Agence Française de Développement and others, 2005) finds that aid inflows fostered higher growth in the 1990s for the African case study countries. The underlying studies focus both on the impact of aid on growth and the ability of the poor to participate in growth. Aid impact on growth was strongest in Uganda, operating through reconstruction, improved economic management, social sector programs, and improvements in public administration. Aid also played an important role in relaxing constraints on growth due to debt burdens. Similarly, the Ghana case study finds that aid had twin roles of supporting macroeconomic stabilization and boosting social sector programs that might otherwise have been cut due to scarce resources. While the other case studies (Zambia, Burkina Faso, and Senegal) explore the impact of aid in less detail, all note the importance of aid for financing health and education programs and thus the human capital component of the growth process.

Studies also find that the strength of public expenditure management systems is an important determinant of the growth impact of aid inflows. This emerges from studies of the fiscal impact of aid in Uganda, Zambia, and Malawi by the Overseas Development Institute (Fagernäs and Roberts, 2004). The studies find the strongest discernible growth impact of aid in Uganda, while for the other countries the main benefit was the ability to protect some critical social sector and public investment programs at a time of overall fiscal stringency and policy slippage. One clear difference among the three countries considered was in the performance of the aid allocative mechanisms. Uganda was much closer to a single integrated budget framework for all funding sources, allowing aid to be directed to its most productive use and accentuating the growth impact. In Malawi and Zambia however, a traditional assignment of aid inflows to specific development programs persisted, even when these did not offer the highest growth impact.

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[20] Of the individual developing country studies reported in Briceño-Garmendia, Estache, and Shafik (2004), all find that infrastructure has a positive effect on output, although none covers Africa specifically.

The experience with resource windfalls can provide lessons for scaling up countries and points to the need for effective expenditure management and targeting of aid inflows. While an analogy of aid inflows with natural resource inflows is imperfect, they do generate similar policy challenges, including Dutch disease, risk of misappropriation, and perhaps institutional deterioration, e.g. with diminished revenue mobilization incentives (Hausmann and Rigobon, 2003) [21]. Studies of resource windfalls in developing countries cited in Hausmann and Rigobon have found dissipation of resource wealth and even negative growth. This reinforces the importance of aid being delivered within a policy framework likely to be supportive of the efficient use of the additional resources.

VI. OTHER FISCAL ISSUES IN SCALING UP

This section considers a number of additional fiscal issues that may need to be considered in a scaling up scenario. As noted by Heller (2005), fiscal policy can become more complicated in a high-aid environment. Once a government scales up its expenditure program, which is associated with hiring workers, delivering services to the public, and maintaining new infrastructure, it faces the challenge of what to do if and when donors do not sustain the aid. If governments find it difficult to reduce expenditures from previously aid-financed levels, the pressure for higher domestic financing of the deficit may increase significantly. This also underlines the importance of projecting an "exit strategy," that is, the macroeconomic path the country envisages following after scaled-up aid flows fall again to more normal levels or, perhaps, if aid flows have been front loaded, to lower-than-normal levels. If a government chooses to smooth the impact of aid volatility, for example, it might plan to accumulate a certain amount of reserves (or use some of its reserves), with associated effects on monetary management (see Section III).

A. Importance of Current Spending

Countries should incorporate into their medium-term expenditure framework (MTEF) adequate current expenditures to support the projected increases in investment over the medium-term. Hood, Husband and Yu (2002) calculate average proportions of annual recurrent costs to investment expenditure for World Bank and Asian Development Bank projects across a range of sectors. The proportions were up to 7 percent in health, 5 percent in transport and energy, and 33 percent in education, but there was also enormous variation even within similar types of project. Certain types of variation were straightforward to explain; for instance, the upgrading of existing facilities imposes lower current costs than the building of new facilities because the recurrent obligations of the former were in place before the project began. A scaled-

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[21] The analogy of aid inflows and natural resource booms is imperfect because aid is normally provided by donors after agreement on appropriate policy conditions. Moreover, if it becomes clear that aid flows are not being fully absorbed, aid inflows are likely to diminish.

up public investment program is therefore likely to encounter high marginal recurrent costs even if average current costs are low.

A scaling-up scenario should be particularly cautious about expenditures on new facilities when current expenditure is already inadequate for existing ones and is not part of the MTEF. The factors that contribute to neglect of current expenditure are well known: donors' past preference for capital projects, the perception that political advantage attaches to new projects, and the lack of immediate negative consequences from postponed maintenance. Governments have found it challenging to mobilize domestic resources for operations and maintenance (for example, user charges), especially when the service might be considered essential. On the other hand, the existence of underused facilities offers the prospect of fairly quick returns to additional current spending, as long as these facilities can be rehabilitated for less than it costs to construct new facilities. Over the longer term, governments will need to strengthen their budgeting systems to incorporate reliable estimates of current spending requirements into their spending plans.

B. Containing Unproductive Spending and Targeting the Poor

Although Africa has raised social sector spending in recent years, there is considerable evidence that existing spending has not always been well targeted toward poor households. Davoodi, Tiongson, and Asawanuchit (2003) review the experience of 56 countries from 1960 to 2000 and find that the targeting of social sector spending on the poor in SSA was very ineffective, although improved somewhat in the 1990s. While it is fairly well known that secondary and tertiary education spending tends to benefit richer households, SSA does not compare well with other regions even in the targeting of spending on public primary education where the lowest quintile's share of benefits is 18 percent. Similarly, SSA has a wide gap in benefit incidence between the poorest and the richest households for public health spending, especially for hospitals where the poorest quintile receives 12 percent of the benefits and the richest receives 31 percent. Davoodi, Tiongson, and Asawanuchit also find a positive association between health and education outcomes, governance, and targeting effectiveness, suggesting that equity and efficiency complement each other in the overall impact of public spending. This finding underscores the importance of ensuring that projected increases in sectoral spending are accompanied by appropriate policies aimed at ensuring that existing spending is appropriately targeted at poverty outcomes and at reducing unproductive spending.[22]

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[22] Unproductive spending is defined as the difference between actual spend on a program and the reduced spending that would yield the same social benefit with maximum cost effectiveness (see Cui and others, 1995).

There may also be a trade-off between poverty or sectoral growth and overall growth rates. Adam and Bevan (2002) suggest that aid has the highest return and promotes the highest growth rate when used to enhance the supply response of the nontraded sector. However, this policy may not be "pro poor" if the incomes of the poor are not closely linked to the recipient sector, such as if assistance is mainly directed toward the urban formal sector.

Higher aid flows can lead to wage pressures. Since social sector employment is typically in the formal sector, when formal sector wages rise because they are financed by aid the pressure to raise formal sector wages elsewhere in the domestic economy—for example, manufacturing—might also rise. This channel from higher aid to higher manufacturing wages leads Rajan and Subramanian (2005a) to find that aid has a negative impact on recipient countries. They suggest that when aid is instead allocated toward enhancing the export supply response, the poor gain more because they often have stronger link to the export sector. But this would imply that overall growth is lower and that the relative price of nontradables could increase substantially.

C. Bottlenecks and Coordination

Because sectoral bottlenecks are difficult to anticipate, studies recommend frequent monitoring of aid impact indicators. Ideally, aid allocation would be guided by an in-depth diagnostic assessment of sectoral capacity. A sectoral investment plan prepared by the World Bank and other partners would provide guidance on, for example, countries' projected employment needs in education or health to meet the MDGs for those sectors. The general principle is to avoid imposing a rapid adjustment on any one sector. For instance, the World Bank's MAMS model suggests that Ethiopia can achieve the MDG2 on universal primary education. But the current student-teacher ratio is about 75 to 1, and achievement of the goal would require 52,000 more teachers (a 66 percent increase) even at the current ratio. To raise the quality of education by getting the ratio to 40 to 1 would require 160,000 more teachers–a doubling of the current total. Such a large relative expansion in the number of teachers could trigger a substantial increase in wages or a decline in average skills.

Special problems arise when donors channel aid through non-governmental organizations. For example, the USA has set up the President's Emergency Program for AIDS Relief, which will allocate $15 billion over five years (beginning in 2004) with spending increasing as implementation capacity improves. The World Health Organization is supporting the global "3 by 5" initiative which aims to supply anti-retroviral drugs to 3 million additional HIV-positive persons by the end of 2005. A significant proportion of these funds will flow through NGOs. Relying on NGOs can be useful if capacity within the public sector to absorb scaled-up aid is impaired. However, shifting allocations to NGOs does not in itself avert macroeconomic absorption constraints, which relate to *aggregate* supply responses in the traded and nontraded goods sectors. Furthermore, it is important to ensure that NGO spending

plans are coordinated with those in the government budget to prevent duplication. Channeling aid through NGOs does carry the risk of detracting from efforts to build capacity for social sector delivery within the public sector. If poor countries are unable to absorb aid anywhere in their domestic economies in the short term, donors can divert part of the aid to financing global public goods (for example, malaria research) outside the recipient country. This would prevent the macroeconomy of the country receiving aid from experiencing adverse effects.

Strengthening the capacity of subnational governments is essential in countries where a substantial proportion of social sector spending is devolved to lower levels of government. For example, Uganda has devolved the provision of most social services to the local governments. For this purpose, about 40 percent of the central government budget is transferred to the highest local government tiers. However, the central government's ability to monitor the use of these resources remains weak. Therefore, scaling-up scenarios need to assess the ability of the subnational governments to execute and report social sector spending and the capacity-building needs at different levels that can be supported by donors.

When public sector capacity for expanded service delivery is limited, it can be useful to build on existing private sector presence in these sectors. While this may raise concerns about the access of the poor to these services, studies find that the poor are often heavy users of private services in health and education, because of failures in public service delivery to poor areas. For instance, the *World Development Report* 2004 shows that private expenditures on health in SSA are as large as public expenditures and that the richest households in the region had higher proportions of attended births and respiratory disease treatment in public facilities than poorer households. The public-private mix differs by type of service, with public facilities generally more important for preventive care like vaccinations and private facilities more important for treatment. Private provision is also a significant factor in education, but less so in SSA for utilities and infrastructure. Where private participation has taken root, the sector's response to scaled-up demand for services may well be more rapid than the public sector, ameliorating sectoral capacity constraints. Transfer schemes such as vouchers may be used to maintain access of the poor as private participation expands.

Box 1. Absorption of Financing for HIV/AIDS Programs[1]

External grants have been the dominant source of funding HIV/AIDS-related expenditures in low-and middle-income countries. In several countries, financing needs for HIV/AIDS programs exceed total public health expenditure, and they could rise to up to 10 percent of GDP for some low-income countries. Thus, HIV/AIDS programs can attain a scale similar to the examples of aid surges discussed in Section I.

Absorption of grants for HIV/AIDS depends on the composition of spending. Much of the HIV/AIDS-related spending finances antiretroviral drugs, which are imported in almost all low-and middle-income countries. In the countries with high prevalence rates (and thus disproportionally high treatment costs), much of the external financing is likely to be spent on imports, thus mitigating the macroeconomic implications of high aid inflows for HIV/AIDS. However, other components of HIV/AIDS programs, such as prevention and orphan support, largely take the form of domestic spending on nontraded goods and services.

HIV/AIDS programs also have implications for economic growth and the government's fiscal balance. Programs reduce the human losses, as well as the number of new infections. To the extent that productive capacity is preserved, this has a positive effect on government revenues. At the same time, a successful prevention program means that the demand for HIV/AIDS-related services will eventually decline. Masha (2004), for example, estimates that these indirect savings will amount to at least 15 percent of the annual costs of Botswana's National Strategic Program on HIV/AIDS.

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[1] This box was prepared by Markus Haacker and draws on Haacker (2004, 2005).

D. Exit Strategy

Planning for an "exit" strategy is a critical element of a scaling up scenario. If a scenario assumes a temporary spike in aid inflows over e.g. a ten year period, followed by a corresponding "scaling-down" of aid flows back to normal levels over the following 10 years, it is important to illustrate the potential impact of the scaling-down period on the macroeconomic projections. Outer year projections are, of course, highly uncertain, but it is nonetheless important to illustrate the potential issues that may arise. While the temporary increase in aid allows government current and capital spending to increase as a share of GDP, policies have to be consistent with a smooth transition to the eventual lower aid environment. As noted above, the scaling-up of spending programs is typically associated with hiring workers, delivering services to the public, and maintaining new infrastructure. If governments find it difficult to reduce expenditures from previously aid-financed levels, the pressure for higher domestic financing of the deficit may increase significantly.

Private sources of finance must eventually substitute for official aid flows in stimulating economic activity. The temporary nature of the exceptional aid flows underlines the need to maintain or enhance the domestic revenue effort (see Section

IV above) , and to encourage, over time, higher private sector savings and investment, including polices to stimulate foreign direct investment. A strong private sector response (and hence the real expansion of the tax base) will lessen the fiscal adjustment required if and when external aid is reduced. It will also reduce any negative impact of scaling-down on growth. In preparing the exit strategy, it is likely that public current and capital spending will be assumed to fall as a share of GDP. However, it is important that this scaling down of aid is sufficiently gradual to allow current spending to be maintained in real terms, if possible. A higher level of reserve build up during the scaling-up period may also allow for a more gradual scaling down of public expenditures in the outer years.

VII. GOVERNANCE AND GROWTH

The Commission for Africa (2005) report argues that good governance is essential for higher aid flows to be effective. Major donors have also made this point, most recently at the July 2005 summit of the Group of eight industrial countries in Gleneagles, Scotland. Including strengthened governance as a part of the supporting program of reforms will therefore increase the probability that donors will actually provide the assumed higher aid flows in any scaling-up scenario.[23]

In recent years, researchers have increasingly recognized the adverse impact of corruption and poor governance on countries' economic and social outcomes. This section surveys some of the recent research on the economic and social effects of corruption thereby illustrating the potential benefits of reducing corruption for growth and aid absorption. Although rent-seeking behavior is found in all countries, it is more severe in some than others. Pervasive corruption tends to be associated with poorly enforced property rights, a weak rule of law, and weak incentives for productive investment, all of which are damaging to economic growth.   Beyond the growth impact, there is a self-reinforcing cycle of poor governance and detached governments; citizens demand little from their government because they do not expect their demands to be met. This is an important contribution of improved governance to the scaling-up agenda, but one that is difficult to quantify.

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[23] The link between aid and governance is a central feature of the U.S. Millennium Challenge Account (MCA), which channels aid directly to specific country priorities. Country eligibility for aid is determined by a set of indicators, including one for corruption.   For 2005, seven SSA countries are eligible: Benin, Ghana, Lesotho, Madagascar, Mali, Mozambique, and Senegal.   Seven additional SSA countries have "threshold" status, meaning that they are already close to meeting the eligibility criteria and can access some aid flows to make additional progress. These countries are Burkina Faso, Kenya, Malawi, São Tomé and Principé, Tanzania, Uganda, and Zambia. See http://www.mca.gov/.

A. Impact of Corruption on Economic Performance

A considerable amount of research work in recent years has focused on the links between the level of corruption in a country and its economic growth performance. Of the different aspects of governance, corruption has received particular attention because the availability of corruption measures has helped to quantify its extent and allows for international comparisons. Most studies have relied on measures of corruption developed by Business International, International Country Risk Guide, and Transparency International. But, in recent years, two sets of World Bank indicators have gained prominence. The Country Policy and Institutional Assessment scores from 2005 onward will be public information, and the World Bank Institute is maintaining indicators on six components of governance for nearly all countries; these have been available biannually since 1996.

Empirical research has highlighted the impact of corruption on growth, public finances, poverty, income inequality, and the provision of social services. Appendix Table 9 summarizes some of the results. A number of studies have explicitly identified the negative impact of corruption on economic growth. Mauro (1995) finds that increasing corruption by one unit (on a scale of 1 to 10) would lower real per capita GDP growth by 0.3 to 1.8 percentage points; Leite and Weidman (2002) and Abed and Davoodi (2002) have reported a somewhat narrower range centered on about 1 percent.

In these studies corruption is shown to lower growth by reducing private investment, attracting talented individuals into unproductive activities, and encouraging poor management of natural resources. Abed and Davoodi argue that structural reforms designed to rationalize the role of the state, increase reliance on market-based pricing, and create a sound regulatory environment should contribute to growth directly and indirectly by lowering the incidence of corruption; they provide supporting evidence from the former Soviet Union and Eastern Europe.

A number of other studies have also found that corruption distorts the composition of public expenditures in favor of sectors in which bribes are easier to collect. Corruption typically shifts spending away from routine maintenance and repair and education and health to excessive and inefficient public investments and higher military spending. Gupta, Davoodi and Tiongson (2002) find that higher corruption has adverse consequences for social indicators such as child mortality rates and student dropout rates. Baldacci and others (2004) identify a key role for governance in influencing the effectiveness of education and health interventions. They find that health spending has no impact on social indicators in countries suffering from poor governance. Human capital and investment are similarly impeded by poor governance, limiting the growth impact of social sector spending. Ghura (2002) suggests that corruption in the form of abuse of public funds, and resulting in weak social indicators, also weakens revenues because it contributes to tax evasion, improper tax exemptions, and weak tax administration.

In a country with weak governance, a successful anticorruption strategy could be expected to strengthen the growth impact of a scaling-up scenario. Successful anticorruption strategies have typically been predicated on the presence of a real and effective deterrent to curb individuals' instinct to abuse their public office for personal gain**.** It is widely accepted that, to be effective, public officials need to believe that if they abuse their office, they run a substantial risk of being caught, convicted, and punished. Moreover, Klitgaard, Maclean-Abaroa, and Parris (1999) point out that experience indicates that prosecuting serious high-profile corrupt actors is "an essential element of an anticorruption strategy so that a cynical citizenry believes that an anti corruption drive is more than just words." Independent anti-corruption bodies may have a role to play in this context. Their work needs to be supplemented by an ongoing education program that informs the public about the negative implications of corruption and by a system that allows the public to report acts of corruption without fear of retaliation. It is also critically important to liberalize and reform institutions and practices to reduce the opportunities for rent seeking and corruption and to strengthen public audit functions. These reforms would support domestic revenue mobilization by signaling the ability of the government to account for how revenue is spent.

B. Public Expenditure Management Systems

Well-functioning PEM systems are critical for higher aid flows to be absorbed effectively. They also provide assurance to donors that their resources are being used for intended purposes and help aid-recipient countries reduce transaction costs in terms of meeting donor-specified requirements. They also contribute to improved governance by assuring citizens that public resources are used transparently and efficiently and help governments in implementing the scaling-up scenarios by tilting expenditures toward certain areas.

Various assessments have shown that most African countries PEM systems need considerable upgrading. The last assessment of PEM systems in Highly Indebted Poor Countries (HIPCs) by both the Bank and the IMF indicated that 16 countries in Africa required substantial upgrading, four required some upgrading, and only two required little upgrading.[24] This suggests that scaling-up scenarios will have to include resources for strengthening PEM systems, which donors have identified as a priority. There are over 50 donor agencies, in addition to the Bank and IMF active in this area that could be called upon to assist.

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[24] See update on the Assessments and Implementation of Action Plans to Strengthen Capacity of HIPCs to Track Poverty-Reducing Public Spending, SM/05/134.

Well-functioning PEM systems are one part of a greater effort to consolidate fiscal institutions. Policies to introduce greater transparency, strengthened rules governing budget procedures and reporting, and the preparation of medium term expenditure frameworks (MTEF) can all provide additional assurance to donors. For example, in the Republic of Congo, the recent publication of fiscal data, audit reports on oil activities, and reports on external verification of government revenues, oil contracts, and data has been significant in signaling to its development partners that a concerted change in the policy regime is under way (World Bank and IMF, 2005).

VIII. DEBT-SUSTAINABILITY AND DEBT-MANAGEMENT ISSUES

All scaling-up scenarios must be consistent with maintaining public and external debt sustainability. Increased aid can have a significant impact on macroeconomic developments that are fundamental to debt dynamics in a recipient country and will probably affect its GDP growth, fiscal position, interest rates, and balance of payments. Even if *all* the additional financing included in the scaling-up scenario is assumed to be in the form of external grants, the results of a DSA will not necessarily show improved debt burden indicators over time compared with the underlying baseline scenario. And if part of the scaling up involves the contracting of higher levels of concessional loan financing or higher domestic borrowing, an updated DSA for both external and total public debt becomes an absolutely essential part of the scaling-up scenario.

The updated DSA should cover a long time horizon, such as 20 years from the base year. This long time frame is necessary because the maturity (and, hence, the debt servicing implications) of scaling-up loans may be long, and principal repayments on new loans could raise debt-service obligations precisely when the scaling up of new aid inflows is being reversed.

A. External Debt Dynamics

The most difficult part of a DSA is to evaluate the impact of scaling up on various macroeconomic variables that affect a country's debt dynamics. From the perspective of an external DSA, the impact of scaling-up on the economy is depicted in Figure 1. As discussed in earlier sections, scaling up will almost certainly increase the country's imports as aid-financed spending increases, but it is also likely to change the country's exports, depending on how aid inflows are used and how they affect the exchange rate (see Section II). If aid is used to enhance domestic supply capacity and reduce transport costs, for example, it may increase exports; but if aid leads to an appreciation of the real exchange rate, then it could reduce the country's export prospects compared with the baseline scenario. Thus, while a real exchange rate appreciation will also directly reduce the foreign debt stock as well as debt service obligations measured in domestic currency, it may reduce the availability of foreign exchange to service debt. On the other hand, a real exchange rate depreciation

resulting from a tapering off of aid or a sudden decline of aid inflows increases the burden of foreign debt in domestic currency, although it may boost exports over time.

Figure 1. Impact of Scaling Up on External Debt
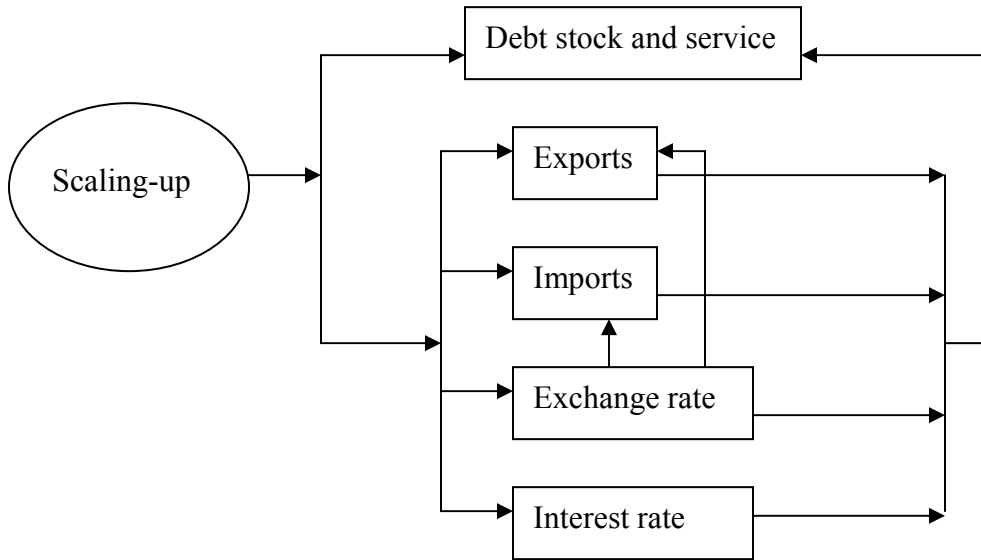
B. Fiscal Debt Sustainability

Scaling up is also likely to have significant implications for total fiscal (external and domestic) debt dynamics through its impact on macroeconomic variables (Figure 2). More specifically, scaling up should accelerate GDP growth and, hence, generate more government revenue, though it may or may not change revenue buoyancy, depending on whether additional policy measures are assumed. Increased aid may also allow countries whose domestic debt is considered excessive to reduce their domestic debt ratios. A change in the domestic interest rate as a result of the need to sterilize increased aid inflows would also affect the cost of servicing domestic debt.

Figure 2. Impact of Scaling Up on Fiscal Debt
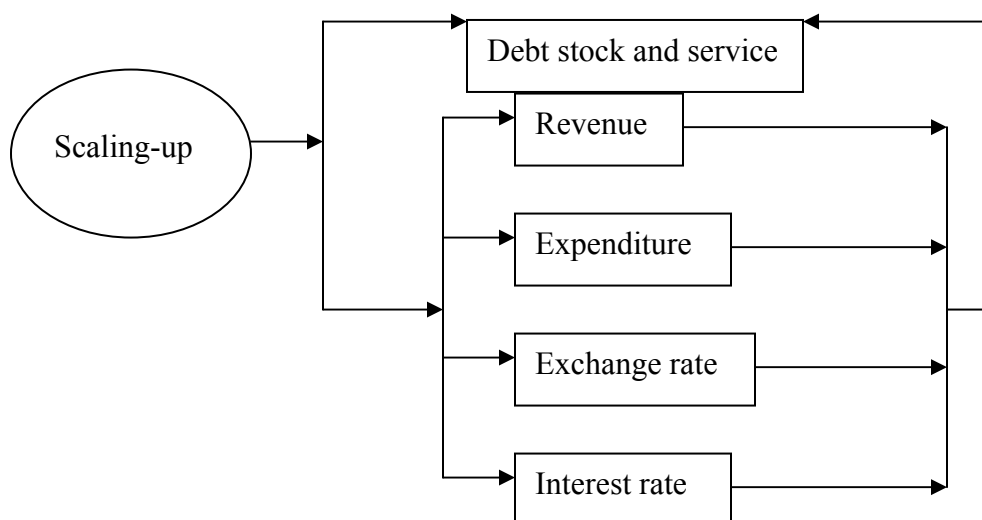
C. Assessing and Ensuring Debt Sustainability

If initial projections suggest that a country's debt becomes unsustainable when its aid is scaled up, it may then achieve debt sustainability through a combination of adjustments to the policy framework and, if it is possible, aid composition (loans versus grants, or the grant element of new borrowing). The mix of the required adjustment will clearly vary from country to country, depending on constraints on domestic policies and assumed donor resource flexibility, but its aim would be to provide an advisable borrowing (and lending) strategy consistent with the requirements of scaling up that limits the risk of debt stress and is supported by a sound macroeconomic framework and debt-management institutions.[25] The basic ingredient of a sustainable debt strategy for scaling-up countries is to seek to maximize the concessionality of a country's external financing.

The IMF and the World Bank have agreed on standard templates that can be used to conduct the DSA for scaling up.[26] The key feature of this framework is its policy-dependent indicative debt-burden thresholds, beyond which debt is considered

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[25] See Daseking and Joshi (2005) for a discussion of the appropriate mix of grants and loans for low-income countries.

[26] Detailed interim guidelines can be found at http://www-int.imf.org/depts/pdr/MemosAndGuidanceNotes/Surveillance_InterimLIC_GNotes2005.pdf. Also see "Operation Framework for Debt Sustainability Assessments in Low-Income Countries–Further Considerations," SM/05/109. A DSA using the new framework has been carried out for Ethiopia, though not in the context of scaling up. See SM/04/301.

excessive. Countries that have strong domestic policies and institutions are judged better able to carry external debt than those with weaker policies and institutions. The classification of countries by the quality of their policies and institutions is based on the World Bank's Country Policy and Institutional Assessment (CPIA) index. A strong performer (CPIA ≥ 3.75) is considered able to sustain a net present value (NPV) of debt-to-exports ratio of 200 percent and an NPV of debt-to-GDP ratio of 50 percent. A poor performer (CPIA≤ 3.25) is limited to an NPV of debt-to-export ratio of 100 percent and an NPV of debt-to-GDP ratio of 30 percent.

The external DSA should use multiple indicators. As suggested by the Fund-Bank DSA Guidance Note, these indicators should include three NPV of external debt ratios (relative to GDP, exports, and revenues) and two debt service ratios (relative to exports and revenues). The NPV of debt ratios indicate the future debt obligations a country has taken on and the debt-service ratios point to possible liquidity constraints over time.

It may turn out that a country's domestic debt is not sustainable even when its external debt is below the sustainability thresholds. Reiterations of both the external and fiscal DSAs may therefore be necessary through the adjustment of the policy framework and aid composition. Here again, the standard Fund template can be used to facilitate the DSA after the projections have been completed.[27] The following issues should also be considered:

- Data permitting, all public enterprise debt that arises from quasi-fiscal activities and imposes a contingent liability on the government should be included in the analysis. In practice this excludes the debt of commercially run public enterprises.[28]

- Should the fiscal DSA be conducted on net domestic debt? It is important to look at not only the debt a government owes but also the assets that a government has to help repay its debt. If, however, government assets are illiquid for the purpose of debt repayment, the DSA should be conducted on gross debt.

- The fiscal DSA should also use multiple indicators to show both the government's capacity to pay its debt obligations and possible liquidity problems. Such indicators may include NPV of debt to GDP and revenue ratios, foreign currency-denominated public debt as a share of GDP, and the debt

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[27] The fiscal DSA Guidance Note and template are available at http://www-int.imf.org/depts/pdr/MemosAndGuidanceNotes/opguide.htm.

[28] See IMF (2005b)

service to revenue ratio. The appropriate mix of these indicators depends on which aspects of the domestic debt have the greatest risk of debt distress.

D. Debt-Management Issues

Strengthening debt-management institutions will help reduce the possibility that scaled-up lending will cause a country to build up excessive debt in the future. In a scaling-up scenario with a focus on grants, there may be a temptation to allow the institutions associated with debt-management to become weakened. An effective debt management system needs to be maintained and, indeed, strengthened. Bangura, Kitabire, and Powell (2000) note that, although institutions may differ from country to country, their activities should focus on (i) formulating and communicating debt-management policies and strategies, (ii) providing the projections and analysis to support policymaking, and (iii) undertaking operations to implement terms of loan agreements and maintaining comprehensive and up-to-date loan records. All public and publicly guaranteed debt needs to be contracted under rules that are clearly understood by all public agencies and that are monitored centrally. The law should clearly state who is able to contract new borrowing on behalf of the state and for what purpose. Preferably all public borrowing should require the approval of the Minister of Finance. And although private nonguaranteed debt is typically not high in low-income countries (LICs), it should, where possible also be monitored by the central government because the servicing of obligations on private nonguaranteed debt may have significant macroeconomic implications. Where no exchange controls are in place (providing a potential source of data on private debt), data will need to be obtained through commercial bank records or surveys of private companies.

IX. Conclusion

In surveying the recent literature on the scaling up of aid to Africa, this paper has stressed that, to prepare a projection involving a significant increase in official transfers to a country, it is critical to have a detailed understanding of the likely uses of additional aid flows. Ideally, this is based on a detailed assessment by the country authorities, in cooperation with the World Bank, the UN, or other donors, of the sectoral needs required to reach the MDGs and the likely pace at which the sectors can absorb such funds without encountering major supply bottlenecks.

When aid flows increase, a country has to choose how much to absorb and how much to spend. In a scaling-up scenario, it is typically assumed that a country may take the opportunity afforded by higher aid to build up its foreign exchange reserves and reduce its domestic debt burden, but that it will both absorb and spend most of the aid. This raises the possibility of an appreciation of the real exchange rate, as higher domestic demand raises the price of nontradables in relation to tradables, and productive resources are diverted away from the exporting sectors. The empirical literature does not tell us if such Dutch-disease effects will necessarily occur. The evidence on Africa is mixed. It appears that, in a number of countries, aid surges have

been associated with real exchange rate depreciation, suggesting that supply effects have more than offset the impact of higher domestic demand on nontradable sectors or that aid has not been absorbed. When aid is fully absorbed, a real appreciation is likely, at least in the short run. A sound understanding of what a country will spend additional aid on, as well as the likely policy response of the central bank, is therefore critical to projecting the likely macroeconomic impact. Full absorption will put upward pressure on real exchange rates, while a high import content in additional public spending; a focus of higher spending on infrastructure, which may have a faster impact on productivity; and trade-liberalization policies can all help mitigate against the Dutch disease.

Governments should aim to implement policies that strengthen the potential impact of aid on growth. Aid does not automatically increase growth. The debate on the impact of higher aid on growth increasingly differentiates among the types of aid, stressing that not all aid is directed at activities that will boost growth and that, for some categories of spending, growth may increase only with long lags. Hence, there is no simple method to estimate the likely growth impact of higher government spending. There may also be a trade-off between directing aid toward achieving growth (for example, spending on infrastructure) and focusing aid on relieving poverty (for example, aid to rural sectors). Diminishing returns from aid will set in more quickly in sectors with serious supply bottlenecks, but these are often difficult to identify in advance. It is important, therefore, for governments to focus on developing policies that will allow them to absorb higher aid effectively and to remain alert to emerging supply pressures in different sectors. A gradual increase in aid is likely to be absorbed more easily than a sharp increase. Sound institutions for public expenditure management, public auditing bodies, and good governance are also likely to increase the benefits of aid, allowing more funds to be effectively channeled to productive uses and reassuring aid donors that their money is being well spent. These institutions would support the development bargain emphasized by the Commission for Africa (2005): that country-led reforms should be backed by increased aid.

Governments receiving higher aid flows also face the challenge of what to do if and when the aid is not sustained by donors. It may be difficult to reduce expenditures that had previously been financed by aid, and the pressure for higher domestic financing of the deficit may increase significantly. This underlines the importance of countries' projecting an "exit strategy" as part of a scaling-up scenario, to be put into effect when aid once again falls to normal (or perhaps subnormal) levels. They need to maintain their revenue efforts and strengthen their tax systems. In the past, aid has been unpredictable and volatile, and governments may choose to smooth the impact of aid volatility by projecting some accumulation reserves (or decumulation), with associated effects on monetary management. Sufficient current spending must be allowed for to ensure that capital investment can be maintained. And in a scaling-up scenario, with significant new loans, it is critical to regularly update the DSA and create government institutions that can develop and administer a clear and widely

understood public debt strategy. This is important for all low-income countries whether or not they have been granted comprehensive debt relief.

Scaling-up scenarios should not be considered forecasts. They are conditional on both sustained higher aid flows and countries' implementation of policies that will allow them to absorb the additional aid flows without causing damaging or destabilizing macroeconomic side effects, such as inflation, loss of competitiveness, or a rise of debt to unsustainable levels. But the scenarios are highly uncertain, and projecting the point at which the returns on aid fall to zero is highly imprecise. Scenarios should therefore be considered tools to help countries identify the important policy issues that they face in using higher aid flows effectively and to provide a regularly updated vision for both donors and recipients.

Table A1. Official Net Transfers in Sub-Saharan African Countries
(In percent of GDP)

1980-84		1985-89		1990-94		1995-99		2000-03		1980-2003	
(More than 15 percent)											
Equatorial Guinea	47	São Tomé and Príncipe	38	São Tomé and Príncipe	78	São Tomé and Príncipe	52	Eritrea	34	São Tomé and Príncipe	46
Cape Verde	39	Guinea-Bissau	35	Mozambique	36	Guinea-Bissau	24	São Tomé and Príncipe	33	Guinea-Bissau	30
Guinea-Bissau	36	Cape Verde	30	Guinea-Bissau	29	Mozambique	23	Mozambique	29	Mozambique	27
Comoros	29	Equatorial Guinea	29	Eritrea	26	Rwanda	23	Sierra Leone	28	Eritrea	25
São Tomé and Príncipe	26	Gambia, The	26	Cape Verde	21	Liberia	20	Congo, Dem. Rep. of	25	Cape Verde	23
Mozambique	22	Mozambique	22	Equatorial Guinea	20	Malawi	18	Guinea-Bissau	25	Equatorial Guinea	21
Gambia, The	18	Comoros	20	Rwanda	20	Eritrea	18	Burundi	22	Comoros	16
Lesotho	16	Lesotho	17	Burundi	20	Cape Verde	15	Malawi	17	Gambia, The	16
Ethiopia	15			Malawi	19					Malawi	15
				Gambia, The	17						
				Uganda	17						
				Tanzania	16						
				Zambia	15						
(Between 5 and 15 percent)											
Mali	12	Malawi	14	Chad	13	Sierra Leone	12	Ethiopia	14	Burundi	15
Senegal	11	Chad	14	Niger	13	Burundi	11	Rwanda	11	Liberia	14
Burundi	11	Mali	13	Lesotho	13	Niger	10	Uganda	11	Rwanda	14
Seychelles	10	Burundi	12	Comoros	13	Chad	10	Niger	11	Ethiopia	12
Central African Rep.	9	Niger	12	Sierra Leone	12	Central African Rep.	10	Tanzania	11	Sierra Leone	12
Tanzania	9	Zambia	12	Ethiopia	12	Burkina Faso	10	Zambia	11	Lesotho	11
Malawi	9	Ethiopia	11	Central African Rep.	12	Zambia	10	Liberia	10	Mali	11
Burkina Faso	9	Tanzania	10	Mali	11	Comoros	10	Burkina Faso	10	Tanzania	11
Chad	8	Central African Rep.	10	Benin	10	Madagascar	9	Gambia, The	9	Niger	11
Niger	7	Benin	10	Madagascar	10	Mali	9	Mali	9	Zambia	11
Botswana	6	Burkina Faso	9	Burkina Faso	10	Ethiopia	8	Cape Verde	9	Chad	11
Benin	6	Benin	8	Guinea	9	Uganda	8	Ghana	8	Burkina Faso	9
Madagascar	6	Senegal	8	Ghana	9	Tanzania	8	Chad	7	Central African Rep.	9
Rwanda	6	Guinea	8	Senegal	9	Benin	7	Comoros	7	Uganda	8
Zambia	6	Madagascar	7	Togo	7	Senegal	7	Benin	6	Madagascar	8
Congo, Rep. of	6	Togo	7	Kenya	6	Gambia, The	7	Madagascar	6	Senegal	8
Kenya	5	Rwanda	6	Côte d'Ivoire	6	Ghana	7			Benin	8
		Seychelles	6	Zimbabwe	5	Togo	6			Congo, Dem. Rep.	6
		Ghana	6			Guinea	5			Ghana	6
		Sierra Leone	6			Lesotho	5			Togo	6
		Kenya	5							Guinea	6
(Less than 5 percent)											
Swaziland	4	Congo, Rep. of	5	Cameroon	4	Equatorial Guinea	5	Central African Rep.	5	Seychelles	5
Togo	4	Uganda	5	Congo, Dem. Rep. of	4	Congo, Rep. of	3	Senegal	4	Kenya	4
Zimbabwe	4	Botswana	5	Angola	4	Angola	2	Lesotho	4	Congo, Rep. of	4
Mauritius	4	Congo, Dem. Rep. of	3	Congo, Rep. of	4	Congo, Dem. Rep.	2	Togo	3	Zimbabwe	3
Sierra Leone	3	Zimbabwe	3	Seychelles	3	Seychelles	2	Seychelles	3	Angola	2
Côte d'Ivoire	2	Mauritius	2	Gabon	1	Zimbabwe	2	Guinea	2	Botswana	2
Uganda	2	Angola	2	Botswana	1	Swaziland	1	Cameroon	2	Côte d'Ivoire	2
Cameroon	2	Gabon	2	Swaziland	0	Kenya	1	Kenya	2	Cameroon	2
Guinea	2	Cameroon	2	South Africa	0	Côte d'Ivoire	1	Zimbabwe	1	Swaziland	1
Congo, Dem. Rep. of	1	Côte d'Ivoire	1	Mauritius	0	Cameroon	0	Côte d'Ivoire	1	Mauritius	1
Ghana	1	Swaziland	0	Nigeria	-2	South Africa	0	Equatorial Guinea	1	South Africa	0
Gabon	1	Nigeria	0	Liberia	n.a.	Botswana	0	Angola	1	Gabon	-1
Nigeria	0	Liberia	n.a.	Namibia	n.a.	Mauritius	-1	Swaziland	1	Nigeria	-1
South Africa	n.a.	South Africa	n.a.			Nigeria	-2	Congo, Rep. of	1	Namibia	n.a.
Eritrea	n.a.	Namibia	n.a.			Gabon	-3	South Africa	0		
Namibia	n.a.	Eritrea	n.a.			Namibia	n.a.	Mauritius	0		
Angola	n.a.							Botswana	0		
Liberia	n.a.							Nigeria	-2		
								Gabon	-5		
								Namibia	n.a.		

Source: World Bank (2005).

Note: n.a. denotes not available.

Table A2. Aid Inflows and Real Exchange Rate Appreciation: Empirical Evidence

Cross-Sectional Studies	Sample	Aid and Real Exchange Rate Appreciation Relationship	Effect of 1 Percent Real Increase in Aid;
Van Wijnbergen (1985)	6 African countries, 1969-83	Mixed	Appreciation of 0.2 – 0.9 percent over 2 years for some countries' no significant change for others
Adenauer & Vagassky (1998)	4 CFA franc zone countries, 198-092	Positive	Appreciation of 0.13 percent over 2 years
Bulir & Lane (2002)	9 developing countries	Positive	N/A
Prati, Sahay &Tressel (2003)	87 developing countries, 1960-98	Positive	Appreciation of 0.04 percent in the first year
Elbadawi (1999)	62 developing countries (28 from Africa), 1984-85,1989-90, 1994-95	Positive	Appreciation of 0.09 percent in the first year*
Yano and Nugent (1999)	44 developing countries, 1970-90	Mixed	N/A

Country-Specific Studies	Aid Inflows and Real Exchange Rate Appreciation: Empirical Evidence		
Younger (1992)	Ghana, 1960-88	Positive	N/A
Kasekende & Atingi-Ego (1999)	Uganda, 1970-96	Positive	Appreciation of 0.03 percent in the first year
Nyoni (1998)	Tanzania, 1967-93	Negative	Depreciation of 0.13 percent in the first year
Sackey (2001)	Ghana, 1962-96	Negative	Depreciation of 0.03 percent in the first year
IMF (2005b)	Ethiopia, Ghana, Mozambique, Tanzania, Uganda	Negative	depreciation of 1.5–6.5 percent the year following an aid surge**

Sources: As cited

Notes: N/A indicates that the study does not yield an elasticity measure.
* indicates response to1 percent increase in ratio of official development assistance to GNP.
** indicates response to an aid surge with inflows ranging between 2 percent and 11 percent of GDP
All other elasticities measure the impact of a 1 percent increase in the volume of aid flows.

Table A3. Empirical Studies of Kinks in Relationship
Between Inflation and Growth

	Inflation threshold (percent)	Growth effect of higher inflation below the threshold	Countries	Period	Inflation measure	Remarks
Fischer (1993)	15	Negative	80	1960-89	CPI	
Barro (1996)	10-20	Not significant	117	60-1990	10-year average CPI	
Sarel (1996)	8	Positive	87	1970-90	5-year average CPI	
Bruno and Easterly (1998)	40	Not significant	97	1961-92	CPI	
Ghosh and Phillips (1998)	>5	Positive	145	1960-96	Average annual CPI	
Kochhar and Coorey (1999)	5	Positive	84 (low and middle income countries only)	1981-95	Average annual CPI	
Khan and Senhadji (2000)	7-11 (for developing countries only)	Positive	140	1960-98	5-year average CPI	1-3 percent threshold for industrial countries. Controlled for investment and unemployment
Burdekin, Denzou, Keil, Sitthiyot, and Willett (2000)	3 (for developing countries only)	Positive	51	1967-92		8 percent threshold for industrial countries
Gylfason and Herbertsson (2001)	10-20	Positive	170	1960-92	5-year average GDP deflator	

Table A4. Incremental Effect of Aid on Domestic Revenue

Study	Sample	Domestic Revenue
Heller (1975)	9 Anglophone African countries, 1960–71	-0.42
Pack and Pack (1990)	Indonesia, 1966–86	0.29
Cashel-Cordo and Craig (1990)	46 Least Developed Countries, 1975–80	(African countries)
		10.29
		(non-African countries)
		-4.25
Gang and Khan (1990)	India, 1961–84	0.00
Khilji and Zampelli	Pakistan, 1960–86	-0.01
Leuthold (1991)	8 African countries, 1973–81	0.00
Khan and Hoshino (1992)	5 Asian countries, 1955–76	1.20
Gupta (1993)	India, 1969–93	0.01
Pack and Pack (1993)	Dominican Republic, 1968–86	-0.39
Rubino (1997)	Indonesia,	-1.40
Iqbal (1997)	Pakistan, 1976–95	0.00
Franco-Rodrigues and others (1998)	Pakistan, 1960–95	(Direct effects) -2.90
		(Total effects) -3.60
MacGillivray & Ahmed (1999)	The Philippines, 1960–92	0.10
Franco-Rodriguez (2000)	Costa Rica, 1971–94	1.10
McGillivray (2000)	Pakistan, 1956–95	0.00
Swaroop and others (2000)	India, 1970–95	0.00

Source: McGillivray and Morrisey (2001); Feeny and McGillivray (2003); as cited.
Notes: Figures are the total effect of a one unit increment in aid on domestic revenue collections.

Table A5. Tax Revenue and Trade Taxes, by Region
(In percent of GDP)

| | Tax Revenue | | International Trade Taxes | | | |
| | | | Import duties | | Export duties | |
	Early 1990s	Early 2000s	Early 1990s	Early 2000s	Early 1990s	Early 2000s
Americas	14.9	16.3	2.5	1.9	0.2	0.0
Sub-Saharan Africa	16.3	15.9	4.9	3.5	1.0	0.4
Central Europe and BRO[1]	27.3	23.4	1.4	0.9	0.8	0.4
North Africa and Middle East	15.1	17.1	3.6	3.0	0.1	0.1
Asia and Pacific	13.6	13.2	3.2	1.9	0.3	0.2
Small islands	25.5	24.5	13.5	9.7	0.3	0.0
Unweighted average						
Developing countries[2]	17.9	17.6	3.9	2.7	0.5	0.2
High-income countries	26.6	27.5	2.0	1.3	0.0	0.2
PRGF-eligible countries	15.2	14.8	4.8	3.5	0.6	0.3

Source: Keen and Simone (2004).
Notes: Subgroups contain only developing countries.
The Baltic countries, Russia, and the other countries of the former Soviet Union.
Defined as low- and middle-income countries.

Table A6. Relationship Between Public and Private Investment in Sub-Saharan Africa

Study	Data and Coverage	Results
Greene and Villanueva (1991)	23 developing countries (Asia, SSA and Latin America); pooled sample.	Public investment increases private investment
Hadjimichael and Ghura (1995)	41 SSA countries; panel data	Public investment increases private investment; also studied other policy determinants of private investment
Odedokun (1997)	48 developing countries (SSA, Asia, Europe and North Africa); panel data	Public infrastructure investment increases private investment; non-infrastructure crowds-out private investment
Ghura and Goodwin (2000)	31 developing countries (Asia, SSA and Latin America); panel data	Public investment increases private investment in SSA, but crowds-out in Asia and Latin America
Belloc and Vertova (2004)	7 HIPC countries, 5 in SSA; country level vector autoregressions	Public investment increases private investment in 6 of 7 countries

Table A7. The Effect of Public Investment on Output

Study	Data and Coverage	Results
Canning and Bennathan (2000)	Penn World Tables and specialized infrastructure data; annual; all country income levels	Output elasticity with respect to roads and electricity in range of 0.05–1.0; highest for middle-income countries; strong input complementarity
Calderon and Serven (2003)	World Bank data with infrastructure indices; 5-year averages; all country income levels	Large output gains to closing infrastructure gaps
Barro (1991)	Penn World Tables, World Bank and UN; averages, 1960–85; all country income levels	No impact of public investment on growth
Easterly and Rebelo (1993)	Specialized data capturing broad public investment; 10-year averages; all country income levels	No impact of public investment aggregate on per capita growth, but big impact (0.6) for transport and communication and direct public investment of the government (0.4)
Devarajan, Swaroop, and Zou (1996)	*Government Financial Statistics;* 5 year averages; low- and middle-income countries (LICs and MICs)	Studies impact of changes in budget *composition*; capital spending has negative effect
Khan and Kumar (1997)	Penn World Tables, World Bank, *World Economic Outlook*; 10 year averages; LICs and MICs	Public investment has positive impact on per capita growth (0.3), but weakening in recent samples
Clements, Bhattacharya, and Nguyen (2003)	World Bank; 3-year averages; LICs	Public investment has (0.2) when not deficit-financed
Gupta and others, (Clements, Baldacci, and Mulas-Granados) (2004)	IMF; annual; LICs	Positive impact of public capital outlays (0.7) on per capita growth

Source: Adapted from Table 1 in IMF (2004) to those studies that include evidence from Low Income Countries.

Note: Growth regression studies use country average growth rates typically calculated over five or ten year periods. The numbers in brackets in the third column indicate the estimated response of this average to a permanent increase in the expenditure share of 1 percent of GDP. They should thus be interpreted as the long-run response to a small permanent change in the expenditure share. While Gupta and others (2004) use annual growth data, their specification allows them to distinguish short and long run impacts.

Table A8. Impact of Health and Education Sectors on Output

Study	Data and Coverage	Results
Barro (1991)	Penn World Tables, World Bank and UN; averages 1960–85; all country income levels	Significant role for human capital (especially initial stock of secondary education)
Barro and Sala-i-Martin (1995)	Data similar to Barro's (1991); 10 year averages; all country income levels	Positive impact of education spending on per capita growth (0.2)
Devarajan, Swaroop, and Zou (1996)	Government Financial Statistics; 5 year averages; LICs and MICs	Impact of changes in budget composition; current spending has positive impact, mixed results for functional breakdown
Krueger and Lindahl (2001)	Similar to Barro (1991) augmented with World Values Survey; data averages of various lengths; all country income levels	Big impact of change in schooling on growth, but only detectable in long-period averages (10–20 years); size of effect varies with econometric specification
Baldacci, and others (2004)	World Bank and IMF; 5-year averages; LICs and MICs	Positive impact of spending on education (0.5) and health (0.4) after 5 years; education impact rises to 1.4 after 15 years; diminishing returns to level of education and health spending
Canning, and Sevilla Bloom, (2003)	Penn World Tables, UN, and World Bank; 10-year averages; all country income levels	Studies impact of health indicators and not expenditure; 1 year increase in average life expectancy raises output by 4 percent

Note: These studies use country average growth rates typically calculated over 5- or 10-year periods. The numbers in parentheses in the third column indicate the estimated response of this average to a permanent increase in the expenditure share of 1 percent of GDP. They should thus be interpreted as the long-run response to a small permanent change in the expenditure share.

Table A9. Impact of Increasing Corruption by One Unit 1/2/

Author(s)	Impact on	Finding
Mauro (1995)	Real per capita GDP growth	-0.3 to –1.8 percentage points
Leite and Weidmann (2002)	Real per capita GDP growth	-0.7 to –1.2 percentage points
Tanzi and Davoodi (2002)	Real per capita GDP growth	-0.6 percentage points
Abed and Davoodi (2002)	Real per capita GDP growth	-1 to –1.3 percentage points
Mauro (1995)	Ratio of investment to GDP	-1 to –2.8 percentage points
Mauro (1998)	Ratio of public education spending to GDP	-0.7 to –0.9 percentage points
Mauro (1998)	Ratio of public health spending to GDP	-0.6 to –0.9 percentage points
Gupta, Davoodi and Alonso-Terme (2002)	Income inequality (Gini coefficient)	+3.5 to +4.25 Gini points
Gupta, Davoodi and Alonso-Terme (2002)	Income growth of the poor	-2 to -10 percentage points
Ghura (2002)	Ratio of tax revenues to GDP	-1 to –2.9 percentage points
Tanzi and Davoodi (2002)	Measures of government revenues to GDP ratio	-0.1 to –2.7 percentage points
Gupta, de Mello and Sharan (2002)	Ratio of military spending to GDP	+ 1 percentage point
Gupta, Davoodi and Tiongson (2000)	Child mortality rate	+ 1.1 to 1.5 deaths per 1,000 live births
Gupta, Davoodi and Tiongson (2002)	Primary student dropout rate	+1.1 to 1.4 percentage points
Tanzi and Davoodi (1998)	Ratio of public investment to GDP	+0.5 percentage points
Tanzi and Davoodi (1998)	Percent of paved roads in good condition	-2.2 to –3.9 percentage points

1/ Corruption is measured on a scale of 0 (highly clean) to 10 (highly corrupt).
2/ Most of the above studies use the Transparency International (TI) corruption measure, rescaled so that higher values in the range 1-10 correspond to higher corruption. When the International Country Risk Guide (ICRG) measure of corruption was used, it was rescaled in the same way. Both the TI and ICRG measures rely on expert perceptions. For Gupta, Davoodi and Tiongson (2000), an index was constructed from National Service Delivery Surveys. This has the advantage of being based on reported service client experience.

Sources: IMF, Fiscal Affairs Department; Transparency International (2001).

References

Abed, G. and Davoodi, H., 2002, "Corruption, Structural Reforms, and Economic Performance in the Transition Economies," Chapter 18 in *Governance, Corruption, and Economic Performance*, ed. by George T. Abed, and Sanjeev Gupta, (Washington: International Monetary Fund).

Adam, Christopher, 2005, "Exogenous Inflows and Real Exchange Rates: Theoretical Quirk or Empirical Reality?" paper presented at IMF Seminar on Foreign Aid and Macroeconomic Management, Maputo, Mozambique, March 14–15.

_____,2002, "Aid, Public Expenditure, and Dutch Disease," Department of Economics Working Paper (Oxford, United Kingdom: University of Oxford).

_____, 2004, "Fiscal Policy Design in Low-Income Countries," in Fiscal Policy for Development, ed. by Addison and Allan Roe (New York: Palgrave MacMillan).

Adenauer, Isabell, and Laurence Vagassky, 1998, "Aid and the Real Exchange Rate: Dutch Disease Effects in African Countries," *Intereconomics: Review of International Trade and Development,* Vol. 33 (July/August), pp.177–85.

Agbeyegbe, Terence, Janet G. Stotsky, and Asegedech WoldeMariam, 2004, "Trade Liberalization, Exchange Rate Changes, and Tax Revenue in Sub-Saharan Africa," IMF Working Paper 04/178 (Washington: International Monetary Fund).

Agence Française de Développement, Bundesministerium für Wirtschaftliche

Zusammenarbeit und Entwicklung, Kreditanstalt für Wiederaufbau Entwicklungsbank, Deutsche Gesellschaft für Technische Zusammenarbeit, Department for InternationalDevelopment and the World Bank, 2005. *Pro-Poor Growth in the 1990s: Lessons and Insights from 14 Countries*.

Andrews, David, Louis Erasmus, and Robert Powell, 2005, "Ethiopia: Scaling Up— assessing of the Macroeconomic Implications of a Dramatic Increase in Aid," *Finance and Development*, vol. 42 (September), pp.32–35.

Atingi-Ego, Michael, 2005. "Choice of Appropriate Monetary Policy Instrument Mix by Bank of Uganda" (mimeograph; Kampala: Bank of Uganda).

Balassa, Bela, 1990, "Incentive Policies and Export Performance in Sub-Saharan Africa," *World Development*, Vol. 18, (March), p.p. 383–91.

Baldacci, Emanuele, Benedict J. Clements, Sanjeev Gupta, and Qiang Cui, 2004. "Social Spending, Human Capital, and Growth in Developing Countries: Implications for Achieving the MDGs," IMF Working Paper No. 04/217 (Washington: International Monetary Fund).

Baldacci, Emanuele and Kevin Fletcher, 2004, "A Framework for Fiscal Debt Sustainability Analysis in Low-Income Countries," in *Helping Countries Develop: The Role of Fiscal Policy* Sanjeev Gupta, Benedict Clements, and Gabriela Inchauste (Washington: International Monetary Fund).

Bangura, Sheku, Damoni Kitabire, and Robert Powell, 2000, "External Debt Management in Low-Income Countries," IMF Working Paper, No. 00/196 (Washington: International Monetary Fund).

Barro, Robert J., 1991, "Economic Growth in a Cross Section of Countries," *Quarterly Journal of Economics*, Vol. 106 (May), pp. 407–43.

———,and Xavier Sala-i-Martin, 1995, *Economic Growth* (New York: McGraw Hill).

Bauer, Peter, 1972, *Dissent on Development* (Cambridge: Harvard University Press).

Belloc, Marianna and Pietro Vertova, 2004. "How Does Public Investment Affect Economic Growth in HIPC? An Empirical Assessment," working paper, University of Siena Department of Economics.

Berg, Andy, 2005, "High Aid Inflows Case Study: Ghana," IMF (Unpublished; Washington: International Monetary Fund).

Bevan, David L. 2005. "An Analytical Overview of Aid Absorption: Recognizing and Avoiding Macroeconomic Hazards," paper presented at IMF Seminar on Foreign Aid and Macroeconomic Management, Maputo, Mozambique, March 14–15.

Bleaney, Michael, and David Greenaway, 2001, "The Impact of Terms of Trade and Real Exchange Rate Volatility on Investment and Growth in Sub-Saharan Africa," *Journal of Development Economics*, Vol. 65, (August), 491-500.

Bloom, David E., David Canning, and Jaypee Sevilla, 2004. "The Effect of Health on Economic Growth: A Production Function Approach," *World Development*, Vol. 32, (January), pp. 1–13.

Boone, Peter, 1996, "Politics and the Effectiveness of Foreign Aid," *European Economic Review*, Vol. 40(2), pp. 269-76.

Briceño-Garmendia, Cecilia, Antonio Estache, and Nemat Shafik, 2004, "Infrastructure Services in Developing Countries: Access, Quality, Costs and Policy Reform," World Bank Policy Research Working Paper No. 3468 (Washington: World Bank).

Bruno, Michael and William Easterly, 1998, Iinflation Crises and Long Run Growth" *Journal of Monetary Economics*, Vol. 41, pp.3-26.

Bulir, Ales, and A. Javier Hamann, 2005, "Volatility of Development Aid: From the Frying Pan into the Fire?" paper presented at IMF Seminar on Foreign Aid and Macroeconomic Management, Maputo, Mozambique, March 14–15.

Bulir, Ales, and Timothy Lane, 2002, "Aid and Fiscal Management," IMF Working Paper 02/112 (Washington: International Monetary Fund).

Burnside, Craig, and David Dollar, 2000,"Aid, Policies and Growth," *American Economic Review*, Vol. 90 (September), pp. 847-68.

Calderon, Cesar, and Luis Serven, 2004, "The Effects of Infrastructure Development on Growth and Income Distribution," World Bank Policy Research Working Paper No. 3400 (Washington: World Bank).

Canning, David, and Esra Bennathan, 2000, "The Social Rate of Return on Infrastructure Investments," World Bank Policy Research Working Paper No. 2390 (Washington: World Bank).

Cashel-Cordo, Peter, and Steven Craig 1990, "The Public Sector Impact of International Resource Transfers," *Journal of Development Economics*, Vol. 32 (January), pp.17–42.

Chauvet, Lisa, and Patrick Guillaumont, 2002, "Aid and Growth Revisited : Policy, Economic Vulnerability and Political Instability," Presented at Annual Bank Conference on Development Economics, Oslo.

Chenery, Hollis B., and Alan M. Strout, 1966, "Foreign Assistance and Economic Development," *American Economic Review*, Vol 56(4), pp. 679-733.

Chu, Ke-young, and others, 1995, *Unproductive Public Expenditures: A Pragmatic Approach to Policy Analysis*. IMF Pamphlet No. 48 (Washington: International Monetary Fund, Fiscal Affairs Department).

Clemens, Michael, and Steven Radelet, 2003, "Absorptive Capacity: How Much Is Too Much," in *Challenging Foreign Aid: A Policymaker's Guide to the Millennium Challenge Account* ed. by Steven Radelet (Washington: Center for Global Development).

Clements, Benedict, Rina Bhattacharya, and Toan Quoc Nguyen, 2003, "External Debt, Public Investment, and Growth in Low-Income Countries," IMF Working Paper 03/249 (Washington: International Monetary Fund).

Collier, Paul, and Lisa Chauvet, 2004. "Development Effectiveness in Fragile States: Spillovers and Turnarounds," CSAE Working paper (Oxford, United Kingdom: Centre for the Study of African Economies, Oxford University).

Collier, Paul, and Jan Dehn, 2001, "Aid, Shocks , and Growth," Policy Research Working Paper No. 2688 (Washington: World Bank).

Collier, Paul, and David Dollar, 2002, "Aid Allocation and Poverty Reduction," *European Economic Review,* Vol. 46, (September), pp. 1475–1500.

Collier, Paul, and Anke Hoeffler, 2004. "Aid, Policy, and Growth in Post-conflict societies," *European Economic Review*, Vol. 48 (October), pp 1125–1145.

Collier, Paul, and Steve O'Connell, 2005. "Opportunities, Choices and Syndromes," draft chapter for *Explaining African Economic Growth* project, Nairobi, Kenya: (African Economic Research Consortium).

Commission for Africa, 2005, *Our Common Interest: Report of the Commission for Africa* (London: Department for International Development).

Cottani, Joaquim A, Domingo F. Cavallo, and M. Shahbaz Khan, 1990, "Real Exchange Rate Behavior and Economic Performance in LDCs," *Economic Development and Cultural Change*, Vol. 39 (October), pp. 61–72.

Daseking, Christina, and Bikas Joshi, 2005, Debt and New Financing in Low Income Countries, " paper presented at IMF Seminar on Foreign Aid and Macroeconomic Management, Maputo, Mozambique, March 14-15.

Davoodi, Hamid R., Erwin R. Tiongson, and Sawitree S. Asawanuchit, 2003, "How Useful Are Benefit Incidence Analyses of Public Education and Health Spending?" IMF Working Paper No. 03/227 (Washington: International Monetary Fund).

De Haan, Jakob, and Ward Romp, 2005, "Public Capital and Economic Growth: A Critical Survey," *European Investment Bank Papers,* Vol. 10, 1 (June)

de Mariz Rozeira, Christine, 2005, "Tax Treatments Applicable To Foreign-Financed Projects: Experience and Principles,"(mimeograph; International Monetary Fund Fiscal Affairs Department).

de Renzio, Paolo, 2004, "The Challenge of Absorptive Capacity," report on a seminar held at DFID (London: Overseas Development Institute, and UK Department for International Development).

_____, 2005, "Scaling Up Versus Absorptive Capacity: Challenges and Opportunities for Reaching the MDGs in Africa," ODI Briefing Paper (London: Overseas Development Institute Briefing Paper).

Devarajan, Shantayanan, Vinaya Swaroop, and Heng-fu Zou, 1996, "The Composition of Public Expenditure and Economic Growth," *Journal of Monetary Economics*, Vol. 37 (April), pp. 313–44.

Dollar, David, 1992, "Outward-Oriented Developing Economies Really Do Grow More Rapidly: Evidence from 95 LDCs, 1976–1985," *Economic Development and Cultural Change*, Vol. 40 (April), pp. 523-44.

———, 2003, "Can Foreign Aid Buy Growth?" *Journal of Economic Perspectives*, Vol. 17, 3 (Summer), pp. 23–48.

Easterly, William, and Sergio Rebelo, 1993, "Fiscal Policy and Economic Growth:" An Empirical Investigation *Journal of Monetary Economics*, Vol. 32 (December), pp. 417–58.

Eifert, Benn, and Alan Gelb, 2005, "Improving the Dynamics of Aid: Towards More Predictable Budget Support" (draft, Washington: World Bank).

Elbadawi, Ibrahim, 1999, "External Aid: Help or Hindrance to Export Orientation in Africa?" *Journal of African Economies,* Vol. 8 (December) pp. 578–616.

_____,2002, "Real Exchange Rate Policy and Non-Traditional Exports in Developing Countries," in *Non-traditional Export Promotion in Africa: Experience and Issues, ed. by* Gerald K Helleiner (New York: Palgrave).

Fagernäs, Sonja and John Roberts, 2004. "Fiscal Impact of Aid: A Survey of Issues and Synthesis of Country Studies of Malawi, Uganda and Zambia," Economic and Statistics Analysis Unit, Overseas Development Institute.

Feeny, Simon, and Mark McGillivray, 2003, "Aid and Public Sector Borrowing in Developing Countries," *Journal of International Development*, Vol. 15, (November) pp. 989–98.

Fischer, Stanley 1993, "The Role of Macroeconomic Factors in Growth", *Journal of Monetary Economics*, Vol.32, pp 45–66.

Franco-Rodriguez, Susana 2000, "Recent Advances in Fiscal Response with an Application to Costa Rica,"*Journal of International Development*, Vol. 12 (April), pp. 429–41.

————, Mark McGillivray, and Oliver Morrissey 1998, "Aid and the Public   Sector in Pakistan: Evidence with Endogenous Aid," *World Developmen,*. Vol. 26 (March) pp.1241–50.

Gang, Ira N, and Haider A. Khan, 1990, "Foreign Aid, Taxes and Public Investment," *Journal of Development Economics*, Vol. 34 (November), pp. 355–69.

Gatheru, Wamuyu, and Robert Shaw, eds.,1998, Our Problems, Our Solutions: An Economic and Public Policy Agenda for Kenya (Nairobi*: Institute of Economic Affairs).*

Ghura, Dhaneshwar 2002, "Tax Revenue in Sub-Saharan Africa: Effects of Economic Policies and Corruption," in *Governance, Corruption, and Economic Performance*, ed. by Abed, George T., and Sanjeev Gupta, 2002 (Washington: International Monetary Fund).

_____, and Goodwin, B. 2000. "Determinants of private investment: a cross-regional empirical investigation," *Applied Economics*, 32, 1819-1829.

_____,and Thomas J. Grennes, 1993, "The Real Exchange Rate and Macroeconomic Performance in Sub-Saharan Africa, *Journal of Development Economics*, Vol. 42, (October) pp.155–74.

 Greene, J., and D. Villanueva, 1991. "Private investment in developing countries: an Empirical Analysis," *IMF Staff Papers*, Vol. 38(1), pp. 33–58.

Guillaumont, Patrick and Lisa Chauvet, 2001, "Aid and Performance: A Reassessment," *Journal of Development Studies*, Vol 37 (August), pp. 66-92.

Gupta, Kanhaya, 1993, "Sectoral Fungibility of Foreign Aid: Evidence from India" mimeo; Edmonton, Alberta, Canada: University of Alberta.

Gupta, Sanjeev, Benedict Clements, Emanuele Baldacci, and Carlos Mulas-Granados, 2004, "Fiscal Policy, Expenditure Composition, and Growth in Low Income Countries," in Sanjeev Gupta, Benedict Clements, and Gabriela Inchauste, eds., *Helping Countries Develop: The Role of Fiscal Policy* (Washington: International Monetary Fund, 2004).

Gupta, S., B. Clements, A. Pivovarsky, and E.R. Tiongson, 2004, "Foreign Aid and Revenue Response: Does the Composition of Aid Matter?" in *Helping Countries Develop: The Role of Fiscal Policy ed. by* Sanjeev Gupta, Benedict Clements, and Gabriela Inchauste, (Washington: International Monetary Fund).

Gupta, S., Hamid Davoodi, and Rosa Alonso-Terme, 2002, "Does Corruption Affect Income Inequality and Poverty ?" *Governance, Corruption, and Economic Performance*, ed. by George T. Abed and Sanjeev Gupta (Washington: International Monetary Fund.

————, Hamid Davoodi, and E. Tiongson, 2002, "Corruption and the Provision of Health Care and Education Services," in *Governance, Corruption, and Economic Performance*, ed. by Abed, George T., and Sanjeev Gupta (Washington: International Monetary Fund).

Gupta, S., L de Mello, and R. Sharan, 2002,"Corruption and Military Spending," in Abed, George T., and Sanjeev Gupta (editors), *Governance, Corruption, and Economic Performance*, International Monetary Fund.

Haacker, Markus, 2004a, *The Macroeconomics of HIV/AIDS*, (Washington: International Monetary Fund).

————, 2004b, "The Impact of HIV/AIDS on Government Finance and Public Services," in: Haacker (2004a).

————, 2005, "Fiscal and Macroeconomic Aspects of the Response to HIV/AIDS," forthcoming in Beck, Eduard, and others (2005), *The HIV Pandemic: Local and Global Implications* (Oxford University Press).

Hadjimichael, Michael T. and Dhaneshwar Ghura, 1995. "Public Policies and Private Savings and Investment in Sub-Saharan Africa: An Empirical Investigation" Washington IMF Working Paper No. 95/19.

Hansen, Henrik, and Finn Tarp, 2001, "Aid and Growth Regressions,"*Journal of Development Economics,* Vol. 64 (April) pp. 547–70.

Hausmann, Ricardo, Lant Pritchett and Dani Rodrik, 2004, "Growth Accelerations," National Bureau of Economic Research Working Paper 10566.

Hausmann, Ricardo, and Roberto Rigobon, 2003. "An Alternative Interpretation of the 'Resource Curse:' Theory and Policy Implications," Chapter 2 in Davis, J.M., R. Ossowski, and A. Fedelino, *Fiscal Policy Formulation and Implementation in Oil-Producing Countries,* (Washington: International Monetary Fund)

Heller, Peter S., 1975, "A Model of Public Fiscal Behavior in Developing Countries: Aid, Investment and Taxation,"*American Economic Review*, Vol. 65, pp. 429–45.

———,2005, "Pity the Poor Finance Minister: Facing the Challenge of Scaled–Up Aid Flows," (unpublished; International Monetary Fund).

———, and Sanjeev Gupta, 2004, "More Aid: Making It Work for the Poor," in *Helping Countries Develop: The Role of Fiscal Policy,* ed. by Sanjeev Gupta, Benedict Clements, and Gabriela Inchauste (Washington: International Monetary Fund).

Hood, Ron, David Husband, and Fei Yu, 2002, "Recurrent Expenditure Requirements of Capital Projects: Estimation for Budget Purposes," World Bank Policy Research Working Paper No. 2938 (Washington: World Bank).

International Monetary Fund (IMF), 2004a, "Public Investment and Fiscal Policy," Fiscal Affairs Department, http://www.imf.org/external/np/fad/2004/pifp/eng/index.htm (Washington: International Monetary Fund).

_____, 2004b, The Federal Democratic Republic of Ethiopia: 2004 Article IV Consultation and Sixth Review Under the Three-Year Arrangement Under the Poverty Reduction and Growth Facility—Staff Report, IMF Country Report No. 05/25 (Washington: International Monetary Fund).

_____, 2004c, The Federal Democratic Republic of Ethiopia: Selected Issues and Statistical Appendix, IMF Country Report No. 05/25 (Washington: International Monetary Fund).

_____, 2004d, "Rebuilding Fiscal Institutions in Post-Conflict Countries," Fiscal Affairs Department http://www.imf.org/external/np/fad/2005/022505.htm (Washington: International Monetary Fund).

_____, 2004e, "Public-Private Partnerships," http://www.imf.org/external/np/fad/2004/pifp/eng/031204.htm, Fiscal Affairs Department. (Washington International Monetary Fund).

_____, 2005a, "The Macroeconomics of Managing Increased Aid Flows: Experiences of Low-Income Countries and Policy Implications" http://www.imf.org/external/np/pp/eng/2005/080805a.htm (Washington: International Monetary Fund).

_____, 2005b, "Public Investment and Fiscal Policy – Lessons from the Pilot Country Studies," Fiscal Affairs Department, http://www.imf.org/external/np/pp/eng/2005/040105b.htm (Washington: International Monetary Fund).

_____, 2005c, "Monetary and Fiscal Policy Design Issues in Low Income Countries" http://www.imf.org/external/np/pp/eng/2005/080805m.htm (Washington: International Monetary Fund).

Iqbal, Z., 1997, "Foreign Aid and the Public Sector: A Model of Fiscal Behaviour in Pakistan,"*Pakistan Development Review*, Vol. 36 (Summer), pp. 115–29.

Islam, Muhammed, 2003, "Political Regimes and the Effect of Foreign Aid on Economic Growth," *Journal of Developing Areas*, Vol 37(1), pp 35-53.

Joint United Nations Program on HIV/AIDS (UNAIDS), 2004, *2004 Report on the Global HIV/AIDS Epidemic* (Geneva: UNAIDS).

Kasekende, L.A., and M. Atingi-Ego, 1999, "Uganda's Experience with Aid,"*Journal of African Economies*, Vol. 8 (December), pp. 617–49.

Keen, Michael, and Alejandro Simone, 2004, "Tax Policy in Developing Countries: Some Lessons from the 1990s and Some Challenges Ahead," in *Helping Countries Develop: The Role of Fiscal Policy ed. by* Sanjeev Gupta, Benedict Clements, and Gabriela Inchauste, (Washington: International Monetary Fund).

Khan, Haider A., and Eiichi Hoshino, 1992, "Impact of Foreign Aid on the Fiscal Behavior of LDC Governments,"*World Development*, Vol. 20 (October), pp. 1481–88.

Khan, Mohsin S., and Manmohan S. Kumar, 1997, "Public and Private Investment and the Growth Process in Developing Countries,"*Oxford Bulletin of Economics and Statistics*, Vol. 59 (February), pp. 69–88.

Khilji, Nasir and Ernest Zampelli, 1991, 'The Fungibility of US Assistance to Developing Countries and the Impact on Recipient Expenditures: A Case Study of Pakistan," *World Development*, Vol. 19, pp. 1095–1105.

Klitgaard, Robert, H. Lindsey, R. Maclean-Abaroa, and Parris, 1999, *Corrupt Cities: A Practical Guide to Cure and Prevention,* (Oakland, California: ICS Press).

Krueger, Alan, and Mikael Lindahl, 2001,"Education for Growth: Why and for Whom?" *Journal of Economic Literature,* Vol. 39, (December) pp.1101–36.

Lee, Jang-Yung, 1997, "Sterilizing Capital Inflows," Economic Issues No.7, (Washington: International Monetary Fund. www.imf.org/external/pubs/ft/issues7/index.htm).

Leite, Carlos and Jens Weidmann, 2002, "Does Mother Nature Corrupt? Natural Resources, Corruption, and Economic Growth," in *Governance, Corruption, and Economic Performance ed. by* Abed, George T., and Sanjeev Gupta, 2002, (Washington: International Monetary Fund.

Leuthold, Jane H., 1991, "Tax Shares in Developing Economies: A Panel Study,"*Journal of Development Economics*, Vol. 35 (January), pp. 173–85.

Lofgren, Hans and Carolina Diaz-Bonilla, 2005, An "Ethiopian Strategy for Achieving the Millennium Development Goals: Simulations with the MAMS model," World Bank.

Masha, Iyabo, 2004, "An Economic Assessment of Botswana's National Strategic Assessment for HIV/AIDS," in: Haacker (2004a).

Mauro, Paolo, 1995, "Corruption and Growth,"*Quarterly Journal of Economics*, Vol. 110, (August) pp. 681–712.

_____,1998, "Corruption and the Composition of Government Expenditure, *Journal of Public Economics,* Vol. 69 (August) pp. 263–79; also reprinted in *Governance, Corruption, and Economic Performance* ed. by George T. Abed, and Sanjeev Gupta 2002, (Washington: International Monetary Fund).

McGillivray, Mark, 2000, "Aid and Public Sector Behavior in Developing Countries,"*Review of Development Economics*, Vol. 4 (June), Fagernäs, Sonja and John Roberts, 2004. "Fiscal Impact of Aid: A Survey of Issues and Synthesis of Country Studies of Malawi, Uganda and Zambia," Economic and Statistics Analysis Unit, Overseas Development Institute

pp.156–63.

_____,and A. Ahmed, 1999, "Aid, Adjustment and Public Sector Fiscal Behaviour in the Philippines,"*Journal of the Asia-Pacific Economy*, Vol. 4, pp. 381–391.

McGillivray, Mark, and Oliver Morrisey, 2001, "A Review of Evidence on the Fiscal Effects of Aid," Credit Research Paper No. 01/13 (Nottingham: Centre for Research in Economic Development and International Trade).

Mosley, Paul, 1980, "Aid, Savings, and Growth Revisited,"*Oxford Bulletin of Economics and Statistics*, Vol. 42(2), pp.79–96.

Nkusu, Mwanza, 2004**, "**Aid and the Dutch Disease in Low-Income Countries: Informed Diagnosis for Prudent Prognoses." IMF Working Paper 04/49 (Washington: International Monetary Fund).

Nyoni, Timothy. S., 1998,"Foreign Aid and Economic Performance in Tanzania," *World Development*, Vol. 26, (July) pp. 1235–40.

Odedokun, M. O. 1997. "Relative Effects of Public versus Private Investment Spending on Economic Efficiency and Growth in Developing Countries," *Applied Economics*, 10(28), 1325–1336.

Otim, S., 1996, "Foreign Aid and Government Fiscal Behaviour in Low-Income South Asian Countries," *Applied Economics*, Vol. No. 28 (August), pp. 927–33.

Pack, Howard, and Janet R. Pack,1990, "Is Foreign Aid Fungible? The Case of Indonesia," *Economic Journal*, Vol. No. 100, pp. 188–94.

_____,1993, "Foreign Aid and the Question of Fungibility,"*Review of Economics and Statistics*, Vol. No. 75, (May), pp. 258–65.

Prati, Alessandro, Ratna Sahay, and Thierry Tressel, 2003, "Is There a Case for Sterilizing Foreign Aid," [*mimeo* (European Economic Association, Stockholm, August 2003)] IMF Seminar series No. 2003–88 (Washington: International Monetary Fund)

Prati, Alessandro, and Thierry Tressel, 2005, "What Monetary Policy for Aid-Receiving Countries?" draft, IMF.

Radelet, Steven, 2004, "Aid Effectiveness and the Millennium Development Goals,", Center for Global Development Working Paper No 39.

_____,2005a, "What Undermines Aid's Impact on Growth?" IMF Working Paper No. 05/126, (Washington: International Monetary Fund).

_____,2005b "Aid and Growth: What Does the Cross-Country Evidence Really Show?" IMF Working Paper 05/127 (Washington: International Monetary Fund).

_____, Michael Clemens, and Rikhil Bhavnani, 2004. "Aid and Growth: The Current Debate and Some New Evidence," CGD Working Paper (Washington: Center for Global Development).

Rawlings, Laura, Lynne Sherburne-Benz, and Julie Van Domelen, 2002, *Evaluating Social Fund Performance: A Cross-Country Analysis of Community Investments* (Washington: World Bank).

Razin, Ofair, and Susan M. Collins, 1997, "Real Exchange Rate Misalignments and Growth," NBER Working Paper No. 6174 (Cambridge, Massachusetts: National Bureau of Economic Research).

Rijckeghem, Caroline van. and Beatrice Weder, 1997, "Bureaucratic Corruption and the Rate of Temptation: Do Wages in the Civil Service Affect Corruption and by How Much?" in Abed, George T., and Sanjeev Gupta (editors), *Governance, Corruption, and Economic Performance*, International Monetary Fund).

Rubino, C., 1997, "Aid, The Public Sector and the Real Exchange Rate: The Case of Indonesia," (Unpublished PhD thesis; Warwick, United Kingdom: Department of Economics, University of Warwick).

Sackey, Harry A., 2001, "External Aid Flows and the Real Exchange Rate in Ghana," AERC Research Paper 110 (Nairobi: African Economic Research Consortium).

Sekkat, Khalid, and Aristomene Varoudakis, 2000, "Exchange Rate Management and Manufactured Exports in Sub-Saharan Africa," *Journal of Development Economics*, Vol. 61, No. 1, p.p. 237–53.

Singh, Ram D., 1985 "State Intervention, Foreign Economic Aid , Savings and Growth in LDCs: Some Recent Evidence," *Kyklos*, Vol. 38(2), pp.216–32.

Summers, Todd, and Jennifer Kates, 2003, "Global Funding for HIV/AIDS in Resource-Poor Settings" (Washington: Kaiser Family Foundation).

Sundberg, Mark, Hans Lofgren, and Francois Bourguignon, 2005, "Absorptive Capacity and Achieving the MDGs: The Case of Ethiopia" World Bank Development Economics Working Paper (Washington DC:World Bank).

Swaroop, V., S. Jha, and A. Rajkumar 2000, "Fiscal Effects of Foreign Aid in a Federal System of Governance: The Case of India," *Journal of Public Economics*, Vol. 77, pp. 307–30.

Tanzi, V. and H. Davoodi, 2002, "Corruption, Growth and Public Finances," in Abed, George T., and Sanjeev Gupta (editors), *Governance, Corruption, and Economic Performance*, International Monetary Fund).

Tanzi, V. and H. Davoodi, 1998, "Corruption, Public Investment, and Growth," in *The Welfare State, Public Investment, and Growth* ed. by Shibata, Hirofumi and Ihori Toshihiro, (Tokyo; New York: Springer).

Transparency International, 2001, *Global Corruption Report, (Berlin).*

Transparency International–Kenya, 2002, *The Kenya Urban Bribery Index.*

United Kingdom, Department for International Development, 2004, "Macroeconomic Issues for Scaling Up Aid Flows," macroeconomic guidance note (London: DFID).

UN Millennium Project, 2005. *Investing in Development: A Practical Plan to Achieve the Millennium Development Goals*. (London; sterling, virginia: Erthscan; New York: United Nations Development Program).

van Wijnbergen, Sweder, 1985, "Aid, Export Promotion, and the Real Exchange Rate: An African Dilemma," CEPR Discussion Paper No. 88 (London: Centre for Economic Policy Research).

World Bank, 2005, *Global Monitoring Report 2005*. (Washington)

Yang, Yongzheng, and Sanjeev Gupta, 2005, "Regional Trade Arrangements in Africa: Past Performance and the Way Forward," IMF Working Paper No. 05/36 (Washington: International Monetary Fund).

Yano, Makoto, and Jeffrey B. Nugent, 1999, "Aid, Nontraded Goods, and the Transfer Paradox in Small Countries," *American Economic Review*, Vol. 89 (June) pp. 431–49.

Younger, Stephen D., 1992, "Aid and the Dutch Disease: Macroeconomic Management When Everybody Loves You," *World Development,* Vol. 20, (November) pp.1587–97.