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## Aid and Fiscal Management

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**Aid and Fiscal Management**

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**Abstract**

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 focuses on the macroeconomic aspects of fiscal management in aid-receiving countries. Despite the declining share of aid in budgets of donor countries, aid continues to play an important role in many developing countries. The paper first discusses the implications of aid in the economy as a whole and highlights the possibility of Dutch-disease effects of aid. Second, it discusses the implications of aid for short-term fiscal policy management—in particular, how actual or anticipated changes in aid receipts should be reflected in government spending.

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## I. INTRODUCTION

Foreign aid has dwindled in the budgets of many donor countries during the past several years, but it continues to loom very large for many of the recipients.<sup>2</sup> In many developing countries, foreign aid receipts are an important source of revenue and thus a key element in fiscal policy. Where domestic resources are very limited, aid may be an indispensable source of financing, in particular, for expenditures in areas such as health, education, and public investment that are essential to raise the living standards of poor people in developing countries.

Given that aid is limited, it is particularly important to use it wisely. This requires not only establishing appropriate systems to manage aid funds with a view to avoiding corruption and mismanagement—important though this aspect is—but also to designing aggregate fiscal policy to take proper account of the macroeconomic implications of aid-financed spending. Both aspects are essential to maximize the benefits for the recipients—and thereby convince donors that aid is money well spent.

This paper focuses on the macroeconomic aspects of fiscal policy management in aid-receiving countries. The paper first discusses the implications of aid in the economy as a whole. Second, it discusses the implications of aid for short-term fiscal policy management—in particular, how actual or anticipated changes in aid receipts should be reflected in government spending.

In discussing the fiscal implications of aid, a basic question is whether aid receipts are any different from any other source of revenue. The literature has focused on two elements. First, in the long run, aid—unlike, for instance, tax revenues—tends to taper off as the economy develops (and, in some cases, much sooner); this should be taken into consideration in determining the appropriate intertemporal fiscal policy. Second, while all revenues are subject to uncertainty, the nature of the uncertainty is different for aid than for domestic tax revenues, as the former stems from the spending processes of donor countries and the design of conditionality. Thus, an important empirical question is how the uncertainty of aid compares with that of tax revenues. To the extent that aid receipts are relatively uncertain,

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<sup>2</sup> The first fact—that industrial countries presently devote only about one-quarter of 1 percent, significantly less than the goal of 0.7 percent, of GNP to foreign aid—has received more attention than the second fact that aid has hardly declined in importance to the countries that continue to receive it. In recent years, donors seem to have become more selective vis-à-vis economic policies pursued by recipient countries, and an increasing share of aid is being distributed based on economic and social considerations (World Bank, 2002) as opposed to geopolitical and historical considerations (Alesina and Dollar, 2000). Easterly (2002) challenged, however, the World Bank's findings and claimed that up to 1999 no link between economic performance and aid disbursements can be observed.

the issue from the donors' standpoint is how to reduce this uncertainty and, from the recipients' standpoint, how to take it into account in designing fiscal policy.<sup>3</sup>

The remainder of the paper is structured as follows. Section II discusses the macroeconomic implications of aid, focusing first on the allocative effects and then the implications for growth. Section III discusses short-term fiscal policy management. Section IV presents some concluding remarks.

## II. MACROECONOMIC IMPLICATIONS OF AID

Aid generally expands the recipient country's opportunities by expanding consumption and investment beyond the level of domestically generated income and saving, respectively. Aid has been sizable in many countries and reasonably stable during the 1990s (Table 1). The sheer magnitude of aid in a number of countries suggests that it may have important macroeconomic effects.<sup>4</sup> These can be considered at two levels: the allocative effects on the structure of production, consumption, and relative prices; and the effects on economic growth.

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<sup>3</sup>Discussions of the role of aid in fiscal policy have, at times, been overshadowed by the question of how to measure the fiscal deficit: with or without grants? There is a strong case for using the definition that includes grants, provided that grants are measured accurately (and projected realistically), since grants by definition do not generate an obligation to repay. A second issue is whether the grant element of concessional borrowing should be included as revenues. To avoid double counting, this would need to be offset on the expenditure side by imputing the costs of servicing outstanding concessional debt at market rates. But imputing the entire net present value of interest subsidy when the loan is received while spreading the interest costs paid with the subsidy over the life of the loan would seem to reduce, rather than enhance, the clarity of the accounts. Moreover, the imputation of the implicit grant element would depend heavily on assumptions regarding future exchange rates and interest rates.

<sup>4</sup> Some economists have argued that aid is an inefficient instrument for spurring development in low-income countries and that it played a significantly negative role in those countries by encouraging waste and corruption (Bauer, 1979).

Table 1. Selected Countries: ODA and FDI in Aid-Dependent Countries, 1989-99 1/  
(In percent of GNI, unless stated otherwise)

	1990-99 Average	1990	1999	Compared to 1989, aid in 1999 was:	FDI 2/	GDP 3/
Bhutan	22.6	17.6	16.1	Lower	0.1	656
Cape Verde	27.2	31.7	23.7	Lower	1.9	1,461
Djibouti	21.3	n.a.	14.2	Lower	0.0	742
Guinea-Bissau	51.5	55.1	25.7	Lower	0.7	183
Kiribati	25.5	36.0	25.6	Lower	0.0	600
Malawi	26.7	28.6	25.1	Lower	1.3	156
Mauritania	23.7	22.0	23.6	Higher	0.5	483
Micronesia, Fed. States of	34.5	n.a.	48.9	Higher	0.0	1,707
Mongolia	23.6	n.a.	25.4	Higher	1.8	457
Mozambique	45.0	42.4	23.2	Lower	2.7	198
Nicaragua	40.7	33.6	33.0	Lower	4.4	472
Rwanda	29.8	11.3	19.2	Higher	0.2	235
Samoa	25.2	31.5	12.9	Lower	2.7	1,011
Sao Tome and Principe	112.7	104.2	65.1	Lower	0.0	337
Vanuatu	20.5	30.6	16.3	Lower	11.7	1,347
Zambia	26.5	16.0	20.8	Higher	3.5	389

Source: World Development Indicators; authors' calculations.

Note: GNI denotes gross national income.

1/ Countries where the 1990-99 average aid-to-GNI ratio was higher than 0.2.

2/ Foreign direct investment; in percent of GDP.

3/ In constant 1995 U.S. dollars; per capita terms.

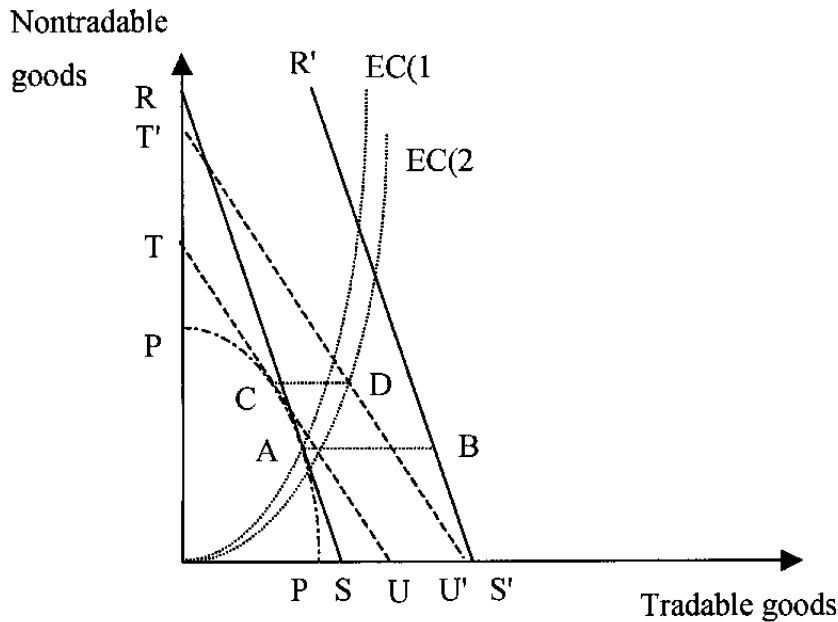
## A. Allocative Effects

### *Theory*

The allocative effects of aid-financed spending can be illustrated first of all in a simple two-sector general equilibrium model with tradables and nontradables (Michaely, 1981). The economy produces and consumes tradable and nontradable goods, constrained by the production possibility frontier PQ. The initial equilibrium relative price RS—which also gives the economy's consumption possibilities—determines the optimum at point A. We also draw an Engel curve, EC(1), with the income elasticity of demand for nontraded goods being greater than one, an assumption fairly common in the literature (White, 1992).<sup>5</sup>

<sup>5</sup> Given that the bulk of nontradables comprises services and construction, they both can be seen as "luxuries." In any case, changing the elasticity to one or even to less than one does not effect the results substantially.

Figure 1. The Effect of Aid on the Relative Price of Traded and Nontraded Goods



In this framework, aid can be represented as transfer in the form of traded goods (AB), expanding the country's consumption possibility frontier to R'S'. Assuming that the aid is provided as an in-kind transfer of tradables to residents, the new consumption equilibrium at unchanged domestic relative prices would be at point B. However, this would imply excess supply of traded goods, lowering their price relative to that of nontradable goods. The equilibrium relative price would be TU (or T'U'), corresponding to the new Engel curve EC(2), and equilibrium consumption would be at point D. Production remains on the production possibility frontier at point C, but its composition is shifted toward nontradables, reflecting their higher relative price.

What is overall impact? Consumers are obviously better off: they consume more of both tradable and nontradable goods, while the change in relative shares of tradable and nontradable goods depends on the elasticity assumptions. Depending on the relative price change, the structure of the economy and factor rewards change also. If labor and capital are free to move between sectors, the factor used intensively in the nontradables sector gains and the other factor loses; on the usual assumption that nontradables are more labor-intensive than tradables, economy-wide real wages rise and real returns to capital fall.<sup>6</sup> Suppliers of any factor of production that is specialized in nontradables—e.g. workers with specialized skills—tend to gain at the expense of specialized factors used in the tradables sector.

<sup>6</sup> This is, of course, a result of the Stolper-Samuelson theorem: a change in relative prices benefits the factor used intensively in the industry that expands (Stolper and Samuelson, 1941).

Donors provide aid mostly with a view of easing the domestic saving constraint and, hence, contributing to investment. It is relatively easy to adjust the model to reflect this effect by relaxing the assumption that aid is provided as a direct consumption transfer. First, there is the possibility that donors may insist that aid is consumed as tradables, say by financing projects that use only imported materials. In such a case, the impact on the relative price and composition of traded-to-nontraded goods will depend on fungibility of aid. If aid merely frees domestic resources that would have been used to finance these projects irrespective of aid—that is, if aid is fully fungible—the effect of aid would be identical to that described above.

A second possibility is that aid is used for investment in productive capacity that would not have been implemented in the absence of aid. In this case, the production possibility frontier would shift outward, with the nature of this shift depending on whether the investment is allocated to the production of tradables or nontradables. The effect on the structure of demand also depends on the extent to which aid-financed investment involves tradable versus nontradable goods as inputs.

This model illustrates the possibility that aid-financed spending could lead to “Dutch disease”—that is, a reduction in the recipient country’s production of tradable goods.<sup>7</sup> But in this model, there is nothing wrong with the shift in production away from tradables; it is merely an efficient adaptation of the economy to the receipt of a transfer, which is unambiguously welfare-improving for the recipient country. For the effects of aid to be a problem, some other elements would need to be taken into consideration.<sup>8</sup> First, the shift away from tradables production can generate distortions, such as the possibility of a loss of positive externalities associated with “learning by doing.” In that case, however, the distortion ought to be tackled directly as opposed to discouraging aid inflows.<sup>9</sup> Second, aid may be temporary, in which case the intertemporal use of aid is at issue: it would not be desirable for the structure of production and consumption to adapt fully to aid received this

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<sup>7</sup> In practice, the upward pressure on the real exchange rate will be greater (i) the greater is the marginal propensity to spend on nontradable goods, (ii) the lower is their supply responsiveness, (iii) the higher the demand responsiveness to price changes, and (iv) the lower the policy coordination to sterilize aid inflows.

<sup>8</sup> Another class of models dealing with the impact of aid looks at the political economy impact of aid flows and these models are mostly skeptical about any positive aid effects. The most prominent are: (i) “the war of attrition” models (Bulow and Klemperer, 1999), where aid results in bad policies, because individual factions in the recipient country cannot agree on how aid should be allocated and spent and (ii) “the voracity effect” models (Tornell and Lane, 1999), where weak institutional structure combined with fractionalization of the governing elite produce wasteful spending of aid inflows. Empirical support for these models was provided by Casella and Eichengreen (1996) and Alesina and Weder (2002), respectively.

<sup>9</sup> This argument goes back to Romer (1986). See also Lucas (1988) and Barro and Sala-i-Martin (1995).



period if it will not continue next period. Finally, large aid inflows may lead to a relaxation of tax discipline, effectively keeping the resource constraint at the pre-aid level, but with a less sustainable fiscal position.

### *Empirical evidence*

The simple model just presented illustrates that aid-financed spending may increase the relative price of nontradables and reduce the production of tradables, i.e., cause “Dutch disease”. But it is an empirical question whether this hypothetical effect of aid outweighs the positive effect on productive capacity of aid-financed investment and welfare effect of aid-financed consumption.

As a starting point, we may consider the behavior of aid flows and real exchange rates in a number of aid-receiving countries. Figure 2 shows a diverse sample of aid receiving countries, illustrating that aid inflows and appreciation of real exchange rates have often gone hand in hand.

This impression is borne out by a substantial body of more systematic empirical evidence.<sup>10</sup> Traces of aid-induced real exchange rate appreciation were found by van Wijnbergen (1986) and Elbadawi (1999) in two samples of African countries and these early results were subsequently confirmed by Younger (1992), Vos (1998), and Atingi-Ego and Sebudde (2000) for Ghana, Pakistan, and Uganda, respectively. However, Nyoni, 1998 found aid inflows to depreciate the real exchange rate in Tanzania and Dijkstra and van Donge (2001) found no impact in Uganda.<sup>11</sup>

Of course, real appreciation may not necessarily depress exports; moreover, other developments, such as the terms of trade, the overall fiscal balance, or country’s openness, can mitigate or even offset the change in relative prices. There are several channels which

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<sup>10</sup> Dutch disease models—see Edwards and van Wijnbergen (1989) for a model and White (1992) for a review—were originally formulated for countries with sudden discoveries of natural resources, but were eventually extended to the effects of aid inflows in developing countries and even foreign direct investment surges in transition and emerging economies (Frait and Komárek, 1999).

<sup>11</sup> From a technical point of view, the single-country studies are vulnerable to sample changes and regime switching: most of these countries have had alternating periods of very low and very high periods of aid inflows, casting doubts on the stability of the estimated parameters. Moreover, those models invariably use short time series only.

Figure 2. Selected Countries: Real Effective Exchange Rate and Aid  
(1990=100 and in percent of GNI)

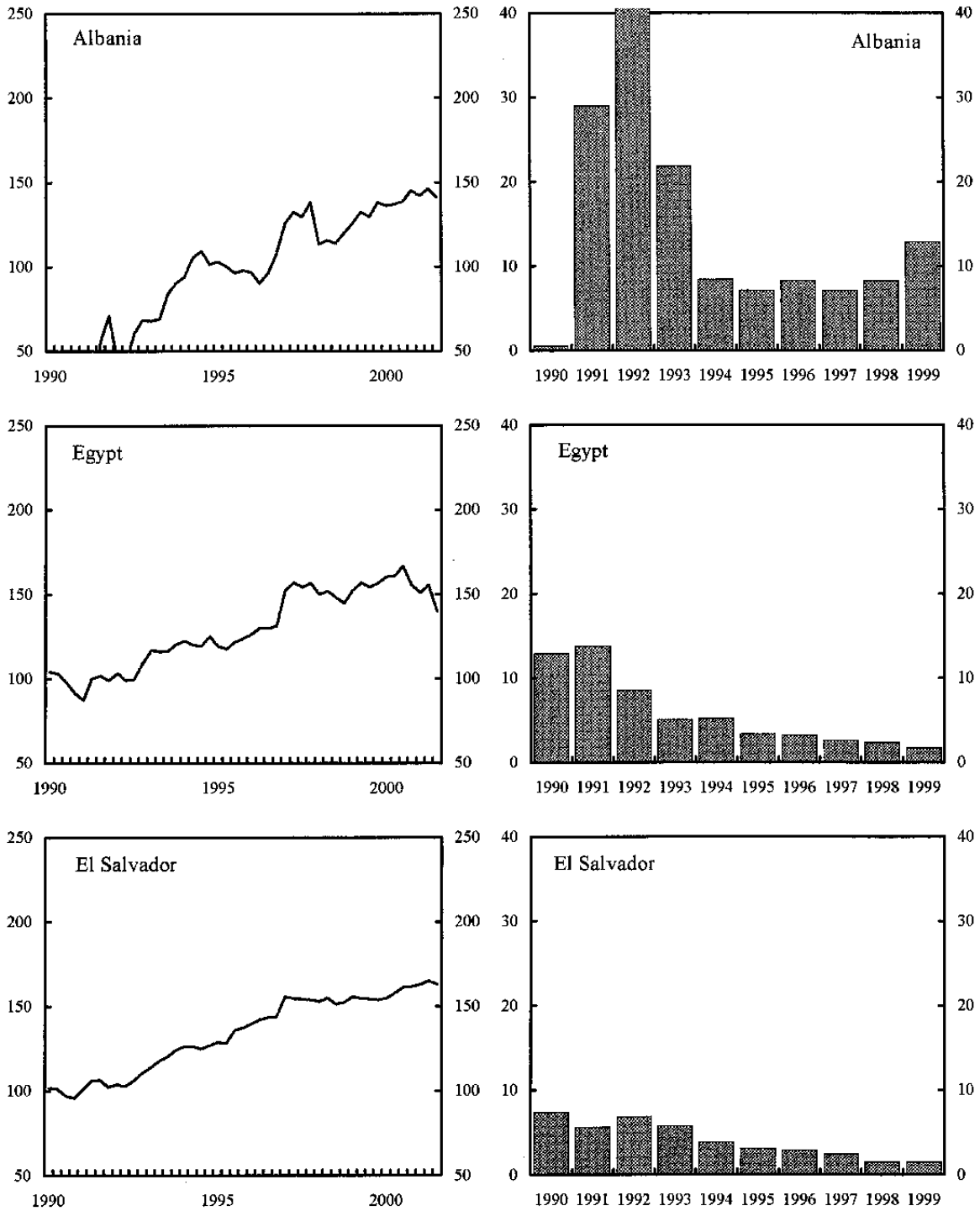


Figure 2 (continued). Selected Countries, Real Effective Exchange Rate and Aid  
(1990=100 and in percent of GNI)

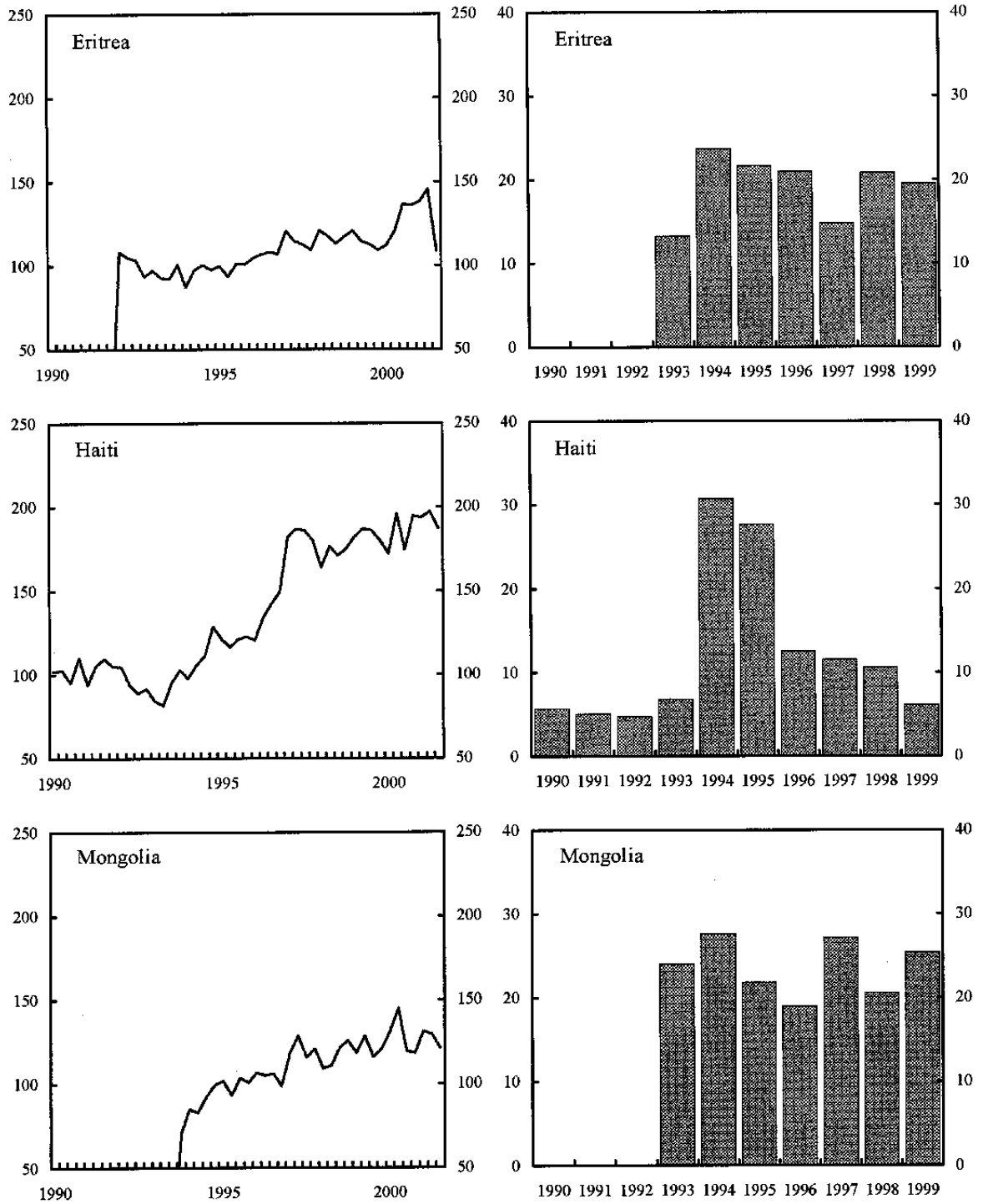
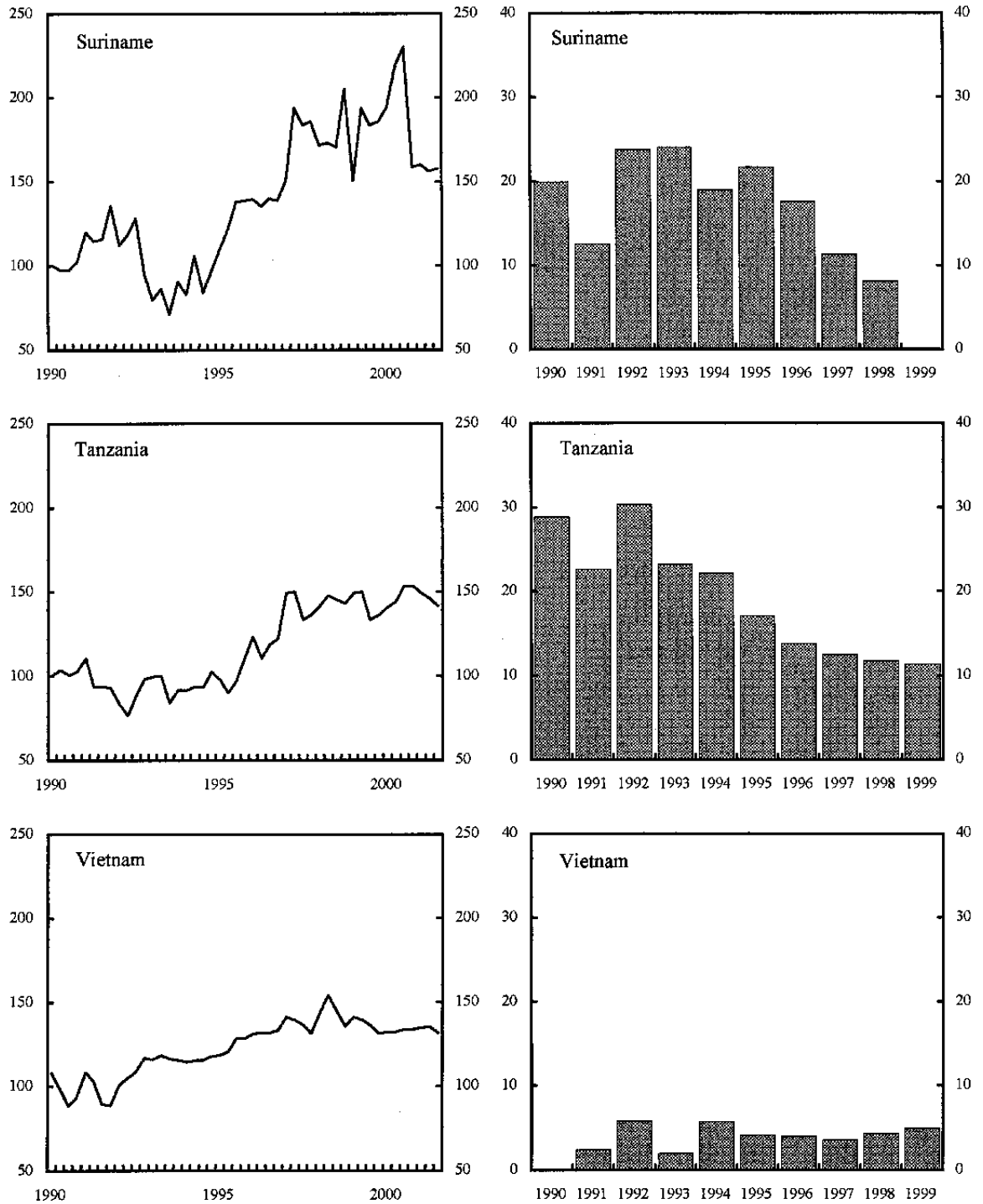


Figure 2 (concluded). Selected Countries: Real Effective Exchange Rate and Aid  
(1990=100 and in percent of GNI)



Source: INS and WDI.

Note: GNI denotes gross national income.

can negate the impact of appreciation on exports.<sup>12</sup> First, the aid-induced inflow of foreign commodities may have a deflationary impact by increasing the supply of commodities or by easing supply bottlenecks in the economy, see Hjertholm, Laursen, and White (1998). Second, real appreciation can be beneficial. As long as imports are used toward “productive” investments in a broad sense, say, physical, capital, health or education products, appreciated currency will accommodate more of those imports, ultimately contributing to future growth.<sup>13</sup> Third, some shift of resources out of tradable goods may be desirable providing the increase in aid is permanent (Adam *et al*, 1994). Falck (2001) claims to have found evidence of the latter effect in Mozambique. Finally, aid may lower transaction costs of doing business in low-income countries (Collier, 2000). But it is unclear to what extent such effects may mitigate, or dominate, the effects of real appreciation on production of tradables.<sup>14</sup>

Empirical evidence on the exchange rate-exports nexus of Dutch disease has not been convincing, a result which is to be expected given the circumstance in most aid-dependent countries. Exports in countries such as Ghana, Uganda, or Tanzania before the surge in aid in the 1980s and 1990s were falling both because the official exchange rate made those exports uncompetitive and because of high transaction cost owing to dilapidating infrastructure, bad macroeconomic policies, and high export taxes. Consequently, many of these economies have been able to increase their overall exports at appreciated real exchange rates simply on the account of policies lowering barriers to trade.

It has been argued recently that Dutch disease may affect the structure of exports rather than their overall level. In these models, aid supports employment in the low-skill nontradables sector and the correspondingly high wages then crowd out employment in the traded goods sector. There seems to be some evidence to support this hypothesis: manufacturing good exports in many of the less developed countries are substantially below what is predicted on the basis of their labor and capital endowments, and the rate of growth of exports is slower than predicted. These results have been documented in single-country studies for Ghana, Cameroon and some South Pacific States by Teal (1999), Söderling (2000), and Laplagne,

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<sup>12</sup> These channels also seem to imply that the traditional thinking about private investment crowding out through higher real interest rates is less relevant in developing economies.

<sup>13</sup> This may not be an easy assumption to make. Even in relatively well-run countries, diversion of public funds may reach staggering proportions. For example, Reinikka and Svensson (2002) report that in Uganda “... on average, during the period 1991-95, schools received only 13 percent of what the central government contributed to the schools’ nonwage expenditures. The bulk of the allocated spending was either used by public officials for purposes unrelated to education or captured for private gain.”

<sup>14</sup> Elbadawi (1998) estimated the relative role of endowment, transaction costs, and exchange rates for manufacturing exports in a sample of African countries. He found that high transaction costs and exchange rates misalignment explain the bulk of Africa’s export underperformance vis-à-vis East Asia.

Treadgold, and Baldry (2001), respectively, and in a large panel-data study of African countries by Sekkat and Varoudakis (2000).

We find that the tradable sector has shrunk dramatically in most aid-dependent countries between 1985 and 1999 (Figure 3).<sup>15</sup> The average decline in constant prices was more than 8 percentage points of GDP, while the decline increased to more than 10 percentage points of GDP when measured in current prices. Historically, the share of nontraded goods on GDP has been growing in all countries, especially in those that reached a certain level of development. In contrast, output in per capita terms either declined or stagnated in all but three countries (Bhutan, Burkina Faso, and Uganda) of our sample. In other words, these results imply an absolute decline in tradable output per capita as opposed to a relative decline in developed countries.

## B. Aid and Growth

### *Conceptual issues*

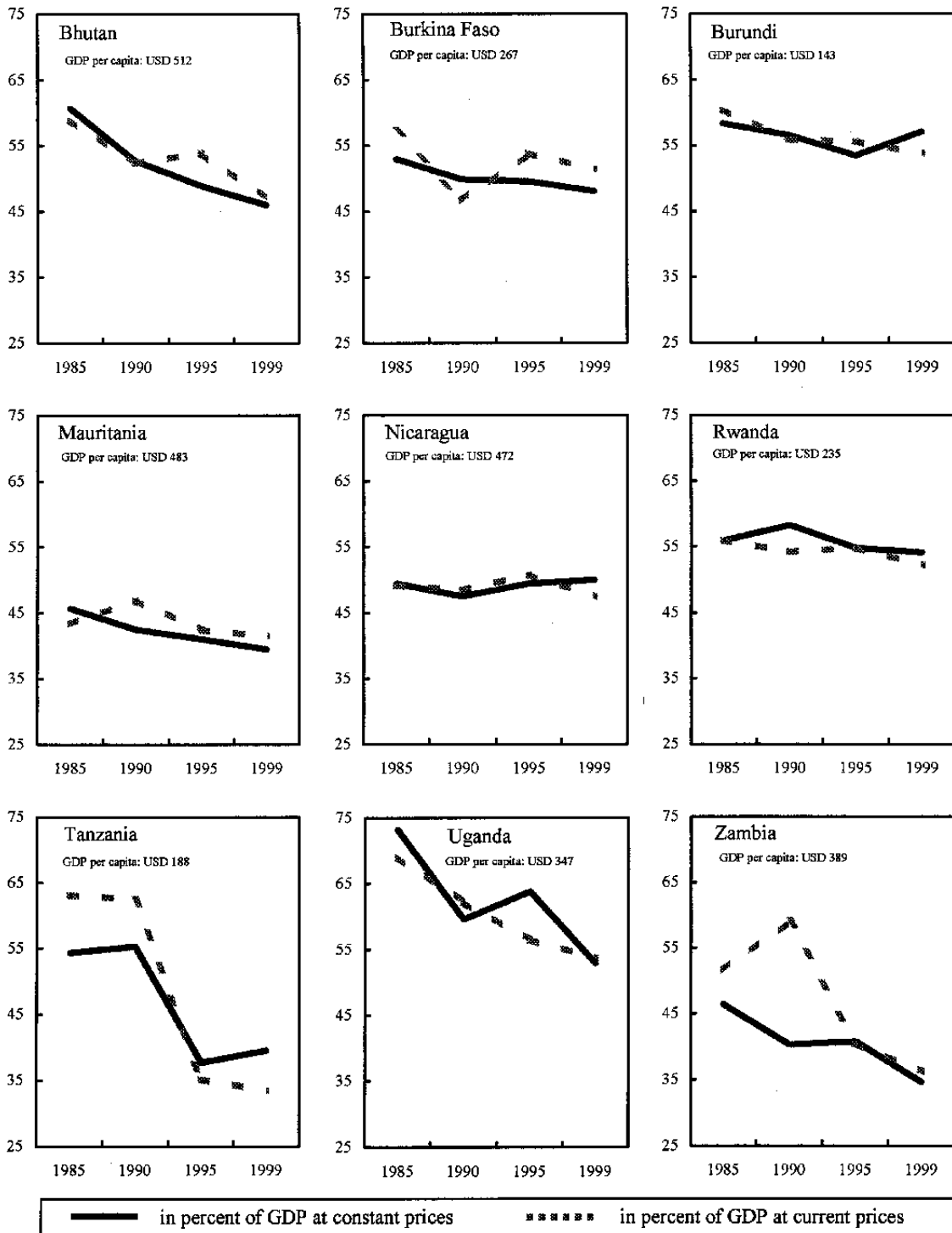
There are different ways of modeling the linkage between aid and growth. From one perspective, aid fosters growth by enabling the country to finance more rapid accumulation of capital, supplementing private savings. This perspective is represented by the Harrod-Domar model, in which the effectiveness of aid in contributing to growth depends on the productivity of capital, as represented by the incremental capital output ratio (ICOR). This assumes that there is no scarcity of complementary factors of production such as labor. According to this model, a sustainable growth path may generate a financing gap which can be filled through aid or other sources of financing.

The Harrod-Domar model was supplanted in the academic literature about 40 years ago by the Solow growth model, which allows for the possibility of substitution between capital and labor. It implies that the economy approaches a steady state in which the economy's savings are balanced by the need for investment to maintain a constant capital-labor ratio given labor force growth and productivity increases. In this model, the steady state growth rate is equal to the rate of population growth plus the rate of technical change. A flow of aid thus does not affect the economy's growth rate once it reaches the steady state, but it does imply that this growth rate is reached at a higher level of GDP—itself a desirable outcome—and moreover, implies a higher growth rate during the transition.

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<sup>15</sup> We approximate the share of traded goods by the share of agriculture (including fishing), mining, and manufacturing. We show results for those countries from Table 1 where the appropriate data were available. Our results are similar to those reported by Laplagne (1997), who reported the share of tradable goods for a sample of small South Pacific economies.

Figure 3. Selected Countries: Developments in Traded Goods Sector, 1985-99 1/2/  
(In percent of GDP)



Sources: IMF, Recent Economic Development and Statistical Appendix, various countries and issues.

1/ The traded goods sector is approximated by agriculture, mining, and manufacturing.

2/ Data for Uganda are for the following fiscal years: 1984/85, 1989/90, 1994/95, 1998/1999; and the 1986 data are used for Mauritania and Nicaragua.

Endogenous growth models emerged during the 1980s, motivated by concerns that the Harrod-Domar and Solow models did not explain some of the key facts about development in an international perspective—notably, the persistence of international differences in per capita incomes and in growth rates (Lucas, 1988). Endogenous growth models explain growth on the basis of some form of increasing returns to scale, often linked to human capital accumulation and positive externalities associated with “learning-by-doing.” Because endogenous growth models leave open the possibility that the equilibrium growth rate is path-dependent (i.e., it depends on the previous history of production in the country) they open the way to empirical work on various factors that influence growth. In particular, in an endogenous growth model, aid may influence growth to the extent that it is used to add to human capital. This has focused attention in particular on the role of health and education spending in development. A related literature has focused on the role of institutions in influencing total factor productivity (Ensminger, 1997).

### *Empirical evidence*

The literature showed rather convincingly that aid inflows are associated with higher rates of growth (Hansen and Tarp, 2001a). It has also been shown, however, that too much aid can be detrimental to economic growth, even though the estimates are rather imprecise as to what is the exact amount of aid necessary to bring about negative returns of aid (Durberry, Gemmill, and Greenway, 1998, Lensink and White, 1999, or Elbadawi, 1999). It is troubling, however, that in none of the major development success stories, such as in Taiwan, China, Botswana, Korea, or Chile, does aid seem to have played important role. In these cases either aid was small through the whole period or the country was weaned off aid early.

The empirical literature offers little agreement on what actually explains the growth performance of less-developed countries and what has been the role of aid during the last three decades. Nevertheless, the results can be summarized relatively easily. First, most studies found that aid increases total savings, albeit by less than the amount of aid inflows. In the underlying Harrod-Domar model, aid relaxes the saving constraint on investment and, hence, should contribute positively to economic growth. Second, the results from reduced form regression imply that the aid-investment link is positive and whenever aid increases saving, it also increases investment and growth. Aid does not, however, generate any multiplier effect: although the estimated coefficients are positive, they are generally smaller than one. Third, whether “good economic policies” are necessary for aid to be effective is debated. Although countries with “good policies” obviously grow faster than those with “poor policies,” it is not clear that aid given to the latter countries is simply wasted or that “good-policies” countries with sufficient aid can be assured of success in their economic development.<sup>16</sup> Finally, there is an apparent paradox in the aid effectiveness literature: on the

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<sup>16</sup> See Hadjimichael *et al* (1995), Burnside and Dollar (2000), and Collier and Dehn (2001) for the good policies-aid-growth nexus and the critique by Lensink and White (2000), Guillaumont and Chauvet (2001), Dalgaard and Hansen (2001), Hansen and Tarp (2001b), and Easterly (2002). In contrast, Easterly (2001) argues that neither good policies nor exogenous shocks can explain much of the poor growth performance in developing countries  
(continued...)



one hand, numerous microeconomic studies have shown that most development projects yield respectable rates of return; on the other hand, U.S. dollar per capita GDP barely moved in the poorest countries that are major aid recipients.

The empirical findings on the aid-growth nexus provide limited insights on the quality of economic growth in aid-recipient countries. One of the key results from endogenous growth models is that an economy's ability to make use of new technologies is an important determinant of its growth. In this regard, many poor, aid-dependent countries fail and the level of foreign direct investment remains well below the level necessary to achieve sustainable growth (Table 1).<sup>17</sup> Although many alternative explanations have been suggested to account for this failure, the aid-driven expansion of the nontradable sector and a lack of support for the high-skill, traded goods sector is clearly one of them.<sup>18</sup> Indeed, the causality may run in the opposite direction: foreign direct investment tends to flow into countries with vibrant tradable good sectors, which tend to deteriorate with large aid inflows (Figure 3). Effectively, aid has left nontradables-driven growth vulnerable to its fluctuations.<sup>19</sup>

### *Policy implications*

The models used to examine the impact of aid and the accompanying empirical results have implications for the appropriate time profile of aid. The Harrod-Domar and Solow models both imply that the bulk of aid should be provided when the country is poorest, as this will be the time when additional capital financed through aid will be most productive. Consequently, that analysis suggests that aid should taper out as the economy develops. Endogenous growth models, on the other hand, suggest that the productivity of capital may instead increase as the economy develops, suggesting that aid may do more good at a later stage. Empirical studies suggesting that aid is more effective in promoting growth in good policy environments also indicate that aid should "taper in" rather than "taper out" (Gunning, 2000). This path also implies that, during the early years of development, the aid ought to be used to support a higher level of government spending and/or to lower the burden of distortionary taxes on the country.

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and finds a strong link to the rate of growth in OECD countries in the context of a leader-follower model.

<sup>17</sup> See, for example, Ajayi (2001) or Basu and Srinivasan (2002).

<sup>18</sup> The most frequently cited reason for low foreign direct investment are negative investors' perceptions about poor countries economic and political stability, inadequate infrastructure, and a weak legal framework, particularly for the enforcement of contracts.

<sup>19</sup> See Guillaumont and Chauvet (2001) for a similar argument in the context of the Dollar-Burnside regression: once "structural vulnerability" is taken into account, the aid-policy interactive term becomes insignificant.

As a general principle, the argument for aid that “tapers in” seems rather compelling: it would provide support for infrastructure and human capital development while enabling the country to maintain a minimum level of consumption, especially for the poor. But applying this approach poses a number of challenges. First, one would need to project an appropriate path for development and financing, to identify the points at which aid should be increased, and at which it should taper out. For example, the recipient country authorities and donors could specify a comprehensive, long-term development plan with clear progress toward the goal of a sustainable path.<sup>20</sup> Second, donors would need to commit themselves to financing such a path, giving substance to the promise to deliver more aid—in a predictable manner—sometime in the future. The latter aspect is particularly important in view of the poor track record of aid commitments in predicting actual disbursements (see Section IV below).

The view that the contribution of aid to growth depends very much on the policies in place focuses greater attention on the policy conditionality associated with aid. It can be used to justify a significant level of conditionality regarding economic governance, particularly the management of budgetary resources. In other words, conditionality would be attached to measures to build better institutions. At the same time, the argument that aid should be back-loaded (i.e., “tapering in”) goes hand in hand with a shift toward outcomes-based conditionality—in contrast to traditional conditionality based on policy actions taken by the authorities. Outcomes-based conditionality is intended to ensure that aid is disbursed in the a most productive environment while also giving recipient countries more freedom in selecting their policies. Its drawback from the standpoint of the recipient country is that it exposes it to greater uncertainty regarding future disbursements, as aid would continue to flow only if outcomes meet donor expectations (International Monetary Fund, 2002).<sup>21</sup>

Regardless of the form of conditionality, the issue remains whether the conditions attached to aid can in fact ensure that it is disbursed in a supportive policy environment. On the one hand, the evidence suggests that the number of conditions typically attached to aid has increased but, on the other hand, countries with higher aid-to-GNI ratios have tended to meet fewer of those conditions (Figure 4, upper panel).<sup>22</sup> More generally, it is increasingly believed that economic reforms are likely to be implemented only to the extent that they are strongly supported within the country itself (Khan and Sharma, 2001).

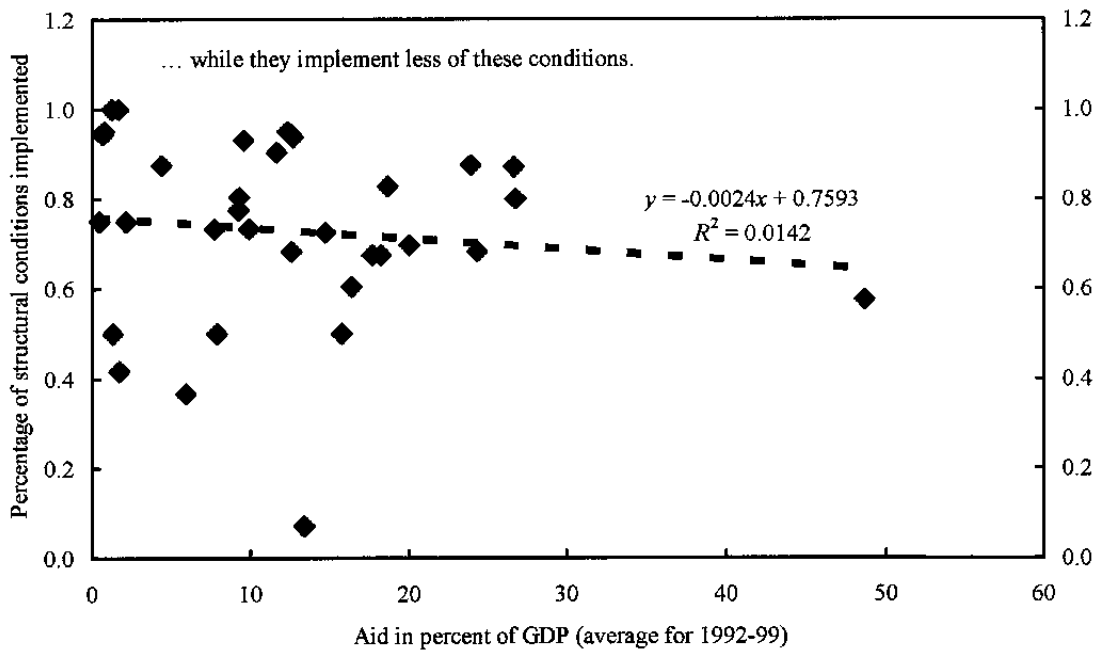
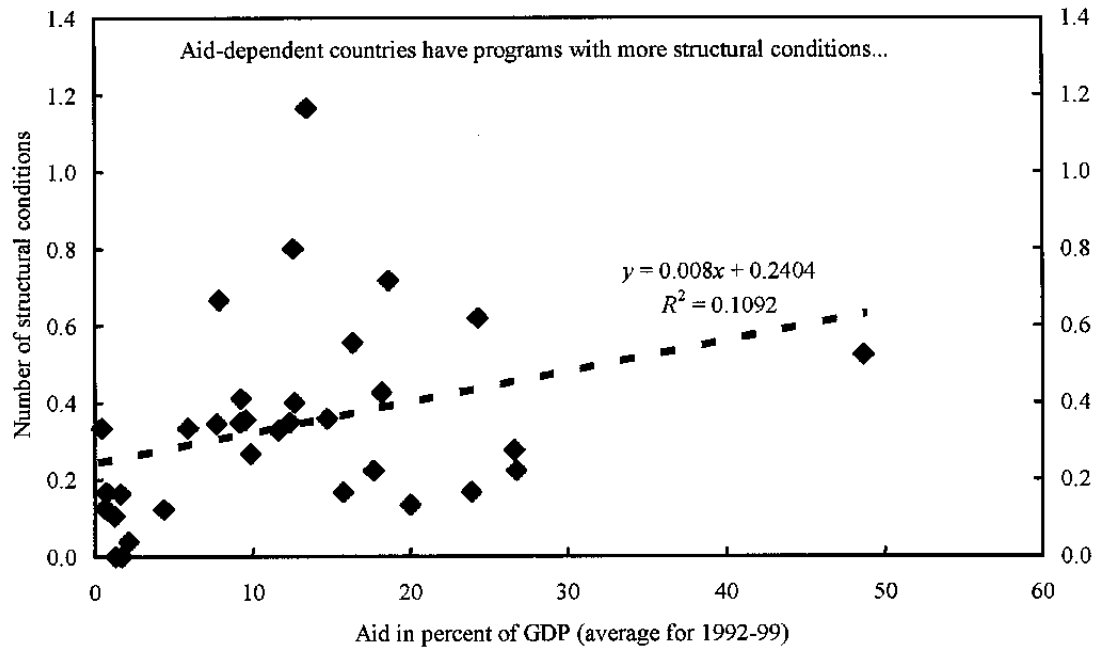
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<sup>20</sup> Past attempts at formulating such long-term paths, such as the 25-year, UNDP- funded Vision 2020 that were formulated for a number of developing countries in the mid 1990s, failed to garner support both from the authorities and key donors.

<sup>21</sup> It is not difficult to imagine situation when the domestic authorities bargain with the donor agencies about interpretation of outcomes in the same way they presently bargain about the thrust of future policies.

<sup>22</sup> For example, IMF-supported programs during 1993-96 contained somewhat more structural measures in aid-dependent countries than in those where the role of aid has been negligible. The estimated parameter in regression of the number of structural conditions on aid in percent of GDP is statistically significant at the 90 percent level.

Figure 4. Selected Countries: Aid Dependency and Program Ownership  
(Sample of 33 countries with IMF-supported programs during the 1990s)



Source: Data from Bulif and Moon (2002).

Note: The number of structural conditions is normalized by the length of the program.

### III. AID AND SHORT-TERM FISCAL MANAGEMENT

Large aid inflows, sustained or temporary, have a powerful impact on the short-term conduct of fiscal and monetary policies. If aid is volatile, then some of the potential positive effects of aid may not materialize: volatility is welfare-reducing and more so in developing countries that have limited domestic financial instruments to offset external shocks. Aid-heavy budgets may take the overall fiscal stance outside of the control of the recipient country, owing to limited predictability of aid disbursements. Also, to the extent that donors place conditions on spending, such budgets may lack flexibility on the expenditure side.

#### A. Volatility of Aid

Most empirical studies that have examined the volatility of aid have found aid to be significantly more volatile than domestic fiscal revenue (Gemmell and McGillivray, 1998, Pallage and Robe, 2001, and Bulíř and Hamann, 2001).<sup>23</sup> Of course, some volatility of aid is to be expected and may indeed have a stabilizing impact: certain forms of aid, such as food aid or balance of payment support, are disbursed only if the country is hit with an exogenous shock (say, a drought or a sudden drop in terms of trade). To confirm this hypothesis, one would require aid disbursements to be negatively correlated with those shocks. In fact, however, most researchers have reported that aid is positively correlated with economic activity, i.e. aid is weakly procyclical (Gemmell and McGillivray, 1998, Barrett, 2001, and Bulíř and Hamann, 2001).<sup>24</sup> Highly volatile and procyclical aid is obviously less beneficial to recipient countries than a similar mean level of aid delivered in a less volatile form (Pallage and Robe, 2003); aid volatility is also likely to substantially attenuate the growth effects of aid (Lensink and Morrissey, 2000).

The results presented below, drawn from Bulíř and Hamann, 2001, show that aid—measured by the OECD as the total development assistance (ODA)—has been much more volatile than domestic fiscal revenue, up to seven times in the case of heavily aid-dependent countries (Table 2). The volatility of aid increases with the aid dependency: when the sample is narrowed down to countries with aid-to-revenue ratio of 50 percent or more, the relative volatility increases by an additional 50-75 percent as compared to sample countries with aid-to-revenue ratio of 10 percent or more. The volatility of aid depends on whether aid is

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<sup>23</sup> One widely-cited and influential paper reports the opposite result (Collier, 1999), but this is mainly a reflection of some particular features of the empirical methodology used, including the failure to de-trend the data and the exclusive focus on U.S. dollar measures of aid and tax revenues (discussed below). For a discussion of empirical issues in estimating the volatility of aid, see Bulíř and Hamann, 2001.

<sup>24</sup> Collier (1999) reported that aid was negatively correlated with revenue in a sample of African countries; however, his estimated covariance term incorporates the same empirical features as in the previous footnote, and moreover it is not significantly different from zero.

Table 2. Which Is More Volatile—Aid or Revenue?<sup>1</sup>  
 (The ratio of variances of aid and revenue)

	Countries with the aid-to-revenue ratio of 10 percent or more	Countries with the aid-to-revenue ratio of 50 percent or more
Aid and revenue in percent of GDP		
Average	4.96**	7.42**
Median	2.19**	4.91**
Correlation coefficient (average)	0.08	0.05
Number of countries	57	33
Aid and revenue in U.S. dollars per capita		
Average	1.73*	3.00**
Median	0.80	2.25
Correlation coefficient (average)	0.09*	0.11
Number of countries	55	29

Source: Data from Bulíř and Hamann (2001). The dataset covers the period from 1975 to 1997 and excludes countries with end-period population of less than 400,000.

<sup>1</sup> The statistical significance of the average and median estimates is measured by the *F*-test and “runs test,” respectively. The significance at the 95 percent and 99 percent levels is indicated by \* and \*\*, respectively.

measured in U.S. dollar terms or in percent of domestic GDP, each measure having some limitations. The former metric would be relevant if aid and tax revenues were spent entirely on tradables with prices fixed in U.S. dollars; the latter would be relevant if the government wanted to use aid and tax revenues to finance spending equivalent to a given slice of GDP. In addition, there is not much evidence of a counter cyclical character of aid. While in a few countries the correlation coefficient between aid and revenue was negative, on average aid appears to be modestly procyclical, although this result is not statistically significant in most samples.<sup>25</sup>

These results suggest that aid is quite volatile in relation to other sources of revenues, and this may pose challenges for short-term fiscal management.<sup>26</sup> Of course, there is little reason to assume that aid volatility and procyclicality must be taken as given, indeed, there is significant room for both aid-recipients and donors to improve the pattern of aid disbursements.

One major source of aid variability is conditionality—not only the conditions attached by bilateral donors, but frequently the requirement by donors that aid recipients have the seal of approval of an on-track, IMF-supported program. There are two sides to this issue. From the country's point of view, it means that complying with conditionality is important not only because of the merits of the policies to which conditions are attached but because it reduces volatility in aid inflows. But from the perspective of the donors and the international financial institutions, there is an obvious tension between the need to ensure that “good policies” are being implemented versus the negative impact of disruptions in aid disbursements. This gives a particular point to recent efforts to ensure that conditionality is appropriately focused on those elements that are genuinely needed—a key element in the IMF's recent review of conditionality (International Monetary Fund, 2001a and 2001b).

However, there are also factors that lead to disruptions in aid disbursements over which the recipient country has less control: the tendency for aid commitments to be scaled down through the domestic budget-making processes in the donor countries. This will be discussed in the next section.

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<sup>25</sup> Aid was found to be countercyclical mostly in countries with large, short-lived shocks and post-conflict countries. From the donor perspective, French-speaking countries were more likely to receive aid in a countercyclical pattern, but as before, the results do not seem to be robust.

<sup>26</sup> These results do not necessarily mean that aid-financed budgets are more variable than budgets financed by the same level of tax revenues. This is because the variance of total revenues equals the sum of the variances of aid and non-aid revenues plus their covariance—an effect analogous to portfolio diversification. But this will be true in most cases, given that aid is several times as volatile as tax revenues and the covariance term is either zero or positive in most countries.

## B. Predictability of Aid

There has long been a perception that aid commitments err on the optimistic side of what is likely to be deliverable, even when the country's economic policy program remains on track. To the extent that this occurs, it implies that such commitments are a weak basis on which to base spending plans, particularly when aid is a large component of the budget. In turn, projected fiscal deficits including committed aid will tend to overstate the strength of the fiscal position.

Bulř and Hamann (2001) examine aid commitments as a predictor of disbursements and find that aid commitments explain only a negligible part of the actual disbursement in a simple time series model and that short-term predictions—even those unrelated to commitments—have been excessively optimistic. These findings are robust to the type of aid: project aid vs. program aid or loans vs. grants.<sup>27</sup> Moreover, conditionality does not seem to be a factor here: the poor record of predicting aid has been found also for countries with on-track programs.

Total aid disbursements in countries with IMF-supported programs were on average some 20 percent less than what was projected at the beginning of the period (Table 3).<sup>28</sup> Contrary to intuition, these results change only little when the sample is divided into countries with and without interruptions in their programs.<sup>29</sup> We find, however, that the prediction error differs markedly for project and program aid. Average project aid disbursements were about 10 percent below predictions, although the median estimate was again around 20 percent. We also find that project aid disbursements are independent of the status of their IMF-supported programs: countries with program interruptions received on average more project aid than was predicted, while countries with program interruptions received some 10 percent less. In contrast, average program aid disbursements were some 32 percent and 25 percent smaller than commitments in all countries and in countries without program interruptions, respectively. The penalty for program interruption was sizeable: aid in those countries fell by more than 80 percent below the committed level.

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<sup>27</sup> Project ("tied") aid constitutes payments for investment projects agreed between the donor and recipient and its fungibility depends on whether the authorities intended to finance these projects themselves, prior to the aid commitment (White, 1992). In contrast, program aid (also called balance of payment support or "untied" aid) generally comes in a "cash" form and is perfectly fungible—the authorities have complete control over the use of these resources.

<sup>28</sup> See Table 4 for the list of countries.

<sup>29</sup> Program interruption occurs if either: (i) the last scheduled program review was not completed; or (ii) all scheduled reviews were completed but the subsequent annual arrangement was not approved in ESAF/PRGF arrangements.

Table 3. How Good Are Short-Term Predictions of Aid?

(In percent of GDP; sample averages)

	Aid projections		Aid disbursements	
	Average	Median	Average	Median
Total aid	9.2	7.6	7.4	5.9
All countries				
<i>Of which:</i>				
No program interruptions	9.3	7.4	7.7	5.8
Program interruption	8.5	7.8	5.8	7.5
Project aid				
All countries	5.2	5.1	4.8	4.1
<i>Of which:</i>				
No program interruptions	5.3	4.8	4.7	3.9
Program interruption	4.6	5.8	5.2	7.5
Program aid				
All countries	4.7	3.6	3.2	1.9
<i>Of which:</i>				
No program interruptions	5.0	3.6	3.7	2.2
Program interruption	3.4	3.6	0.6	0.7

Source: Data from Bulir and Hamann (2001), a survey based on responses from 37 IMF desk economists. The period covered is 1998 for most countries. Aid projections correspond to projections in IMF-supported programs.



Table 4. List of Countries Used in the Survey 1/

Country	Period	Type of Fund Arrangement
Albania	January 1998–December 1998	ESAF
Algeria	July 1998–June 1999	EFF
Azerbaijan	January 1998–December 1998	ESAF
Bolivia	January 1998–December 1998	ESAF
Burkina Faso	January 1998–December 1998	ESAF
Cambodia	January 1998–December 1998	ESAF
Cameroon	July 1998–June 1999	ESAF
Cape Verde	Jan 1998–Dec 1998	Stand-By
Central African Republic *	January 1998–December 1998	ESAF
Côte d'Ivoire	January 1998–December 1998	ESAF
Djibouti	January 1998–December 1998	ESAF
Dominican Republic	January 1998–December 1998	None
Ecuador	January 1998–December 1998	None
Egypt	June 1998–June 1999	Stand-By
El Salvador	December 1997–December 1998	Stand-By
FYR Macedonia	January 1998–December 1998	ESAF
Gabon	January 1998–December 1998	EFF
Ghana	January 1998–December 1998	ESAF
Guyana	January 1998–December 1998	ESAF
Indonesia	April 1998–March 1999	Stand-By/EFF
Jordan	January 1998–December 1998	EFF
Kyrgyz Republic	January 1998–December 1998	ESAF
Lao P.D.R.	October 1997–September 1998	None
Madagascar	January 1998–December 1998	ESAF
Mauritania	January 1998–December 1998	ESAF
Mongolia	January 1998–December 1999	ESAF
Mozambique	December 1997–December 1998	ESAF
Nepal	July 16, 1998–July 15, 1999	None
Nigeria	January 1998–December 1998	None
Panama	January 1998–December 1998	EFF
Papua New Guinea *	January 1998–December 1998	None
Republic of Congo *	December 1997–December 1998	ESAF
Sierra Leone	January 1998–December 1998	ESAF
Tajikistan	July 1998–June 1999	ESAF
Yemen	January 1998–December 1998	ESAF
Zambia *	January 1998–December 1998	ESAF
Zimbabwe *	January 1998–December 1998	Stand-By

1/ Countries denoted with an asterisk had an interruption in the IMF-supported program.

Aid cannot be predicted reliably on the basis of donors' commitments, as there seems to be a tendency for all parties involved (donors, the local authorities, and the IMF itself) to systematically overestimate aid disbursements.<sup>30</sup> The prediction errors are not symmetric—more countries experience unexpected shortfalls in aid than unexpected increases in aid.

### **C. What Are the Policy Alternatives for Aid Recipients?**

If aid is volatile or unpredictable, or both, the recipient countries have two basic options: they could devise a flexible fiscal framework in which tax and spending plans can be adjusted in response to aid receipts; or they could try to smooth out fluctuations in aid disbursements by running down international reserves. A third option is to rely on domestic nonmonetary financing to handle variations in aid. Each of these options will be discussed in turn.

From a fiscal perspective, aid can be used to increase expenditure, lower taxes, reduce debt, or a combination of all three. The actual composition should reflect expectations of the nature of aid: for example, temporary aid increases should not be used for permanent tax reductions or for an increase in mandatory expenditures (entitlements), but should mainly be saved. In contrast, expected "permanent" increases could be channeled into higher spending or lower taxes with little consequences for fiscal stability.

The empirical evidence suggests that countries tend to treat all aid inflows as permanent in the long run, but as a financing item in the short run (see Heller, 1975 and White, 1992). First, the available studies noted that past temporary increases were mostly consumed, leading to a permanently higher level of expenditure: a ratchet effect of aid-induced expenditure (McGillivray and Morrissey, 2001a). Second, strongest short-term interactions were found between aid and government borrowing, implying that aid windfalls or shortfalls tend to be mirrored in adjustments in deficits, see Gemmell and McGillivray (1998). McGillivray and Morrissey (2001b) report similar findings from a sample of fiscal response studies. In other words, there is little evidence that aid recipients try to make the distinction between permanent and temporary aid flows.

Budgets can be designed to accommodate aid disbursements in excess of the conservative fiscal baseline, providing that established budgetary procedures are made more flexible. For example, domestic-currency funds could be released to the line ministries only after the equivalent foreign-currency denominated aid has been deposited at the central bank. But the flexibility of fiscal frameworks to make up for variations in aid receipts is limited. Fiscal flexibility is an idea that harks back to the heyday of Keynesian fiscal activism, when it was thought that taxes and spending plans could be shut on and off in response to new information on macroeconomic conditions.

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<sup>30</sup> To some extent, this may reflect the strategic behavior by the IMF, given its role in giving a "seal of approval" as the basis for other external assistance.

In industrial countries, enthusiasm for the concept of fiscal flexibility was dampened by further analysis and experience. On the revenue side, variations in tax rates to compensate for temporary fiscal shortfalls shifts uncertainty onto the taxpayers and, through their effects on expectations, may result in changes in behavior that vitiate these intended effects (time inconsistency problem). On the expenditure side, it is generally disruptive to turn expenditures on and off at short notice, unless these expenditures are not serving an important purpose in the first place. Moreover, expenditures that are turned off for short-term reasons are often difficult to turn on again. For this reason, industrial countries have relied increasingly on “built-in fiscal flexibility” stemming from the income sensitivity of tax and spending items, rather than hoping to fine-tune activist policies. It is hard to believe that low-income countries can succeed where industrial countries failed.

The second option, allowing foreign exchange reserves to ride out fluctuations in aid receipts, poses different, but equally daunting problems. It implies that if aid falls short of projected levels, reserves are allowed to decline below the levels envisaged and domestic credit expanded to finance a larger-than-projected fiscal deficit. This approach requires that the country plan to follow conservative fiscal and monetary policies in order to build a cushion of reserves that can be drawn down to cover aid shortfalls;<sup>31</sup> this cushion represents resources that could be put to better use in the country if aid were delivered more reliably. Moreover, to the extent that aid shortfalls are chronic, as discussed in the previous section, this approach introduces an element of artificiality into fiscal plans, making fiscal targets look more conservative than probable outturns.

The third option mentioned, using domestic bond financing to maintain spending plans in the face of aid shortfalls, can be also be used, subject to quantitative limitations. A necessary condition for this approach is to have functioning domestic financial markets. But even if those markets exist, there is a limit to the amount the government can finance domestically: for example, the evidence suggests that sub-Saharan countries cannot issue more domestic debt than equivalent to 15 percent of GDP without a recourse to printing money. Moreover, given the shallowness of domestic financial markets in most aid-dependent countries, heavy use of these markets by the government may to a significant degree crowd out private borrowing. Finally, the cost of domestic financing is generally higher than that of concessional external financing, even when the impact of devaluation is taken into account (Beaugrand *et al*, 2002).

Thus, any of these ways of adapting to short-term variations in aid—fiscal flexibility, using a cushion of reserves, or domestic borrowing—has limitations.<sup>32</sup> As long as uncertainties on

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<sup>31</sup> The majority of IMF-supported programs include adjusters to ensure that quarterly spending plans can continue even if aid falls short of projected levels. See International Monetary Fund (2002), Annex I for a discussion.

<sup>32</sup> As a related issue, empirical evidence on a direct impact of aid in the monetary area is rather scanty and outdated (see White, 1992 for a review). Recently, Fanizza (2001) illustrated, in the case of Malawi, inflationary pressures resulting from the government's

(continued...)

aid receipts remain substantial, it is likely that some combination of the three will need to be used, depending on the extent to which variations in aid are expected to be permanent or transitory. But these considerations also point to the need for aid recipients to formulate their fiscal plans on the basis of more realistic projections of the aid that is likely to materialize, and for donors to make stronger efforts to keep their promises.

#### IV. CONCLUSIONS

Despite the declining share of aid in budgets of donor countries, aid continues to play an important role in many developing countries. While the impact of aid is typically divided between supplementing domestic saving and contributing to consumption, there is less agreement on the potential effects of aid on growth. The impact of large aid inflows on the relative price of traded and nontraded goods is well known, and several recent papers confirmed the importance of real exchange rate appreciation for the decline of the traded goods sector in developing countries. But in a dynamic context, the effects of aid depend on how aid-financed spending affects the productive capacity of the economy. While several empirical studies suggest that aid tends to enhance growth, they also suggest that the linkage is neither direct nor automatic, but depends very much on the environment that influences the use of aid.

The positive impact of aid has been undermined in some cases by the volatility and unpredictability of aid. Aid is significantly more volatile than domestic fiscal revenue, and volatility increases with aid dependency. In addition, aid is procyclical vis-à-vis domestic fiscal revenue—rather than smoothing out cyclical shocks, it tends to exacerbate them. Moreover, aid is not well predicted even in countries with “on-track” programs and the prediction error is asymmetric: aid commitments are more likely to overestimate disbursements than vice versa.

The paper has highlighted a number of issues that aid poses for fiscal management. None of these findings alters the view that donors should be more generous with aid. However, it is important to take those issues into account to ensure that aid has its intended effect of boosting growth and alleviating poverty.

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inability to sell sufficient amount of foreign exchange, owing to the country's small and isolated foreign exchange market.

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