Aid and Fiscal Management

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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.[2] In many developing countries, foreign aid receipts are an important source of revenue and thus a key element in fiscal policy. 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 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

[2] The former fact—that industrial countries presently devote only about one-quarter of a percentage point of their GNP, significantly less than the goal of 0.7 percent of GNP—has received more attention than the latter fact that aid has hardly declined in countries that continue to receive it. However, 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 as opposed to geopolitical and historical considerations (Alesina and Dollar, 2000).

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 inter-temporal fiscal policy. Second, while all revenues are subject to uncertainty, the nature of the uncertainty is somewhat different for aid than domestic tax revenues, as it stems from the spending processes of donor countries and the design of conditionality. An important empirical question is then how the overall degree of uncertainty of aid compares with that of tax revenues. To the extent that aid receipts are relatively uncertain, the issue from the donors' standpoint is how to reduce this uncertainty and, from the recipients, how to take it into account in designing fiscal policy.[3]

[3]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 with 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.

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 supplementing the proceeds from domestic production. The contribution of aid has been relatively large in many countries and reasonably stable in levels during the 1990s (Table 1). The sheer magnitude of aid in a number of countries suggests that it may have important effects at a macroeconomic level. 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.

Table 1. Selected Countries: ODA and FDI in Aid-Dependent Countries, 1989-1999 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
Djibuti	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.
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 US dollars; per capita terms.

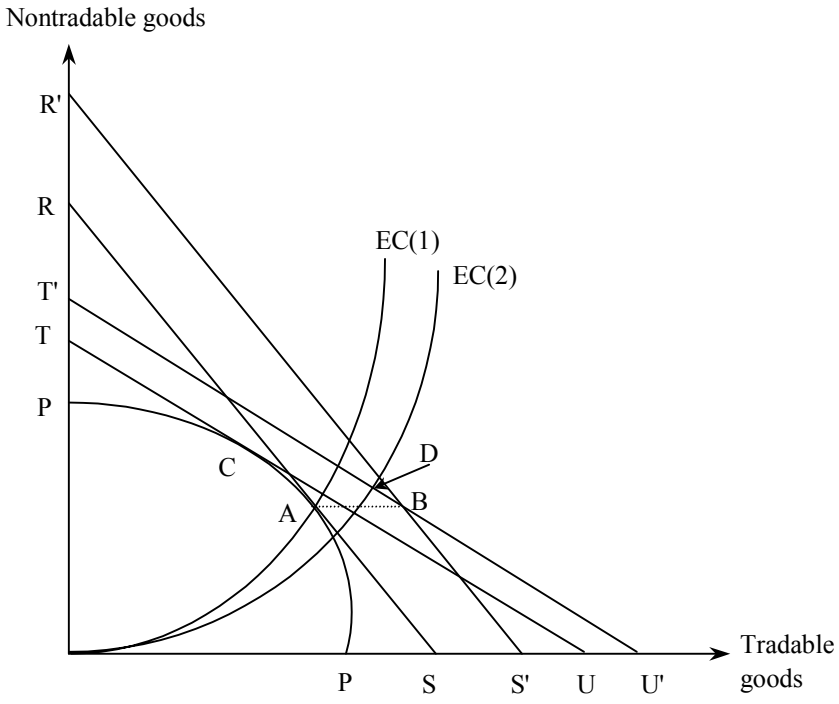
A. Allocative Effects

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 non-tradables (Michaely, 1981). The economy produces and consumes tradable and non-tradable 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 non-traded goods being greater than one, an assumption fairly common in the literature (White, 1992).[4]

Figure 1. The Effect of Aid on the Relative Price of Traded and Non-traded 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 non-traded goods. The

[4] Given that the bulk of non-tradables 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.

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 non-tradables, reflecting their higher relative price.

What is overall impact? Consumers are obviously better off: they consume more of both tradable and non-tradable goods, while the change in relative shares of tradable and non-tradable goods depends on the elasticity assumptions. Depending on the relative price change, the structure of the economy and factor rewards change. If labor and capital are free to move between sectors, the factor used intensively in the non-tradables sector gains and the other factor loses; on the usual assumption that non-tradables are more labor-intensive than tradables, economy-wide real wages rise and real returns to capital fall.[5] Suppliers of any factor of production that is specialized in non-tradables—e.g. workers with specialized skills—tend to gain at the expense of specialized factors used in the non-tradables sector. If aid is large compared to GDP, the effects on the structure of production and on relative prices and factor returns may well be substantial.

If we relax the assumption that aid is provided as a direct consumption transfer, the effects will be different. 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

[5] 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).

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. 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 non-tradables. The effect on the structure of demand also depends on the extent to which aid-financed investment involves tradable versus non-tradable goods as inputs.

This model illustrates the possibility that aid-financed spending could lead to "*Dutch disease*", i.e., a reduction in the recipient country's production of tradable goods.[6] 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 element would need to be taken into consideration. One possibility would be some kind of distortion—which could include the possibility that production of tradables generates positive externalities such as those associated with "learning-by-doing;" in that case, the

[6] Other things being equal, the upward pressure on the real exchange rate will be greater (i) the greater is the marginal propensity to spend on non-tradable 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 those inflows.

solution is to tackle the distortion directly.[7] Another possibility is that aid is temporary, in which case the inter-temporal 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 period if it will not continue next period.

Empirical evidence

The simple model just presented illustrates that aid-financed spending may increase the relative price of non-tradables 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.

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 real exchange rates have often gone hand in hand.

This impression is borne out by a substantial body of more systematic empirical evidence.[8] Traces of aid-induced real exchange rate appreciation were found by van Wijnbergen (1986)

[7] This argument goes back to Romer (1986). See also Lucas (1988) and Barro and Sala-i-Martin (1995).

[8] 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).

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.[9]

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 really can negate the impact of appreciation on exports. 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. 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 above effect in Mozambique. Still, most of these effects justify only limited and temporary real appreciation.

[9] 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.

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 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 (Collier, 2000). 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, 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).[10] The average decline in constant prices was more than 8 percent, while the decline increased to more than 10 percent when measured in current prices. Historically, the share of nontraded goods has been growing in all countries, especially in those that reached a certain level of development or continued to grow, or both. In contrast, in our sample all but three countries (Bhutan, Burkina Faso, and Uganda) either declined or stagnated in per capita terms. In other words, these results imply an absolute decline in tradable output per capita.

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.

[10] 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 that reported by Laplagne (1997), who reported the share of tradable goods for a sample of small Pacific economies.

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.

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.

Empirical evidence

The empirical literature showed rather convincingly that aid inflows increase the rate of growth. It also has been shown 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 (Durbarry, Gemmell, and Greenway, 1998, Lensink and White, 1999, or Elbadawi, 1999).

The literature offers little agreement on what actually explains the growth performance of less-developed countries and has been the role of aid during the last two or three decades. Nevertheless, the results from empirical literature 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. 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.[11] Finally, there is an apparent paradox in the aid effectiveness literature: on the 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).[12] While 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.[13] Also, the data regarding the share of the traded goods sector and foreign direct investment do not seem to

[11] See Hadjimichael *et al* (1995) and Burnside and Dollar (2000) for the good policies-aid-growth nexus and the critique by Lensink and White (2000), Guillaumont and Chauvet (2001), and Hansen and Tarp (2001b). Collier and Dehn (2001) provided a new justification for the Burnside and Dollar regressions. In contrast, Easterly (2001) argues that neither good policies nor exogenous shocks can explain much of the poor growth performance in developing countries and finds a strong link to the rate of growth in OECD countries in the context of a leader-follower model.

[12] See, for example, Ajayi (2001).

[13] 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.

support the notion that past aid led to expansion in sustainable growth capacity (Figure 3). On the contrary, it has left nontradables-driven growth vulnerable to aid fluctuations.[14]

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; 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 initially "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.

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

[14] 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.

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. Second, donors would need to commit themselves to financing such a path, giving substance to the promise to deliver more aid 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 in particular regarding economic governance, particularly in relation to the management of budgetary resources. 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 an environment in which it can be most productive 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).[15] But, regardless of the form of conditionality, there remains the issue of whether the conditions attached to aid can in fact ensure that it is

[15] 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.

disbursed in a supportive policy environment; evidence suggesting that the number of conditions typically attached to aid has increased but that countries with higher aid-to-GNI ratios have tended to meet fewer of those conditions, is not encouraging in this regard (Figure 4, upper panel).[16] 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).

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 clearly welfare-reducing and more so in developing countries that have limited domestic financial instruments to offset external shocks. Similarly, 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.

[16] 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.

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).[17] 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).[18] 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, 2000); aid volatility is also likely to substantially attenuate the growth effects of aid (Lensink and Morrissey, 2000).

[17] 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.

[18] 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 is not significantly different from zero.

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 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 measured in U.S. dollar terms or in percent of domestic GDP, both of which measures have some limitations: the former metric would be relevant if aid and tax revenues were spent entirely on tradables whose prices were 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 countercyclical 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.[19]

[19] 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.

Table 2. Which Is More Volatile: Aid or Revenue?[1]
(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	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	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.

[1] 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.

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.[20] 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).

[20] 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.

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.

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 is on track. To the extent that this occurs, it implies that such commitments are a weak reed on which to base spending plans, particularly when aid is a large component of the budget. Moreover, projected fiscal deficits including committed aid will tend to overstate the strength of the fiscal position.

The recent paper by Bulíř and Hamann (2001) examines aid commitments as a predictor of disbursements. It found that aid commitment explains 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.[21] Moreover, conditionality

[21] 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

(continued)

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 disbursement 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).[22] Contrary to intuition, these results change only little when the sample is divided into countries with and without interruptions in their programs.[23] We find, however, that the prediction error differs markedly for project and program aid. Average project aid disbursements were about 10 percent above 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.

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and is perfectly fungible—the authorities have complete control over the use of these resources.

[22] See Table 4 for the list of countries.

[23] 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				
Of which:				
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
Of which:				
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
Of which:				
No program interruptions	5.0	3.6	3.7	2.2
Program interruption	3.4	3.6	0.6	0.7

Source: Data from Bulíř 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.

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. 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 non-monetary financing to handle variations in aid. Each of these options will be discussed in turn.

As a starting point, 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, 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 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.

Budgets can be designed to accommodate aid disbursements in excess of the conservative 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 there are limits to the extent to which one can rely on fiscal flexibility to make up for variations in aid receipts. 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. But in industrial countries, enthusiasm for this concept was dampened by further analysis and experience. On the revenue side, variations in tax rates to compensate for temporary shortfalls shifts uncertainty onto the taxpayers and, through their effects on expectations, may result in changes in behavior that vitiate these intended effects. 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 on for short-term reasons are often difficult to turn on again. For this reason, industrial countries 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 problems. This implies that in the event that 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. To be prudent, 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;[24] 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 some limitations. A necessary condition for this approach is to have functioning domestic financial markets. But even in this case, there is a limit to the amount the government can finance domestically.[25] Moreover, given the shallowness of domestic financial markets in most poor countries, heavy use of these markets by the government may to a significant degree crowd out private borrowing.

[24] 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.

[25] The anecdotal evidence from sub-Saharan countries suggests that domestic debt equivalent to 15 percent of GDP is at the limit that can be handled without a recourse to printing money.

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.[26] As long as uncertainties on 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 budget 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

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

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 the level of 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.

References

Adam, Chris, Arne Bigsten, Paul Collier, Eva Julin, and Steve O'Connell, 1994, *Evaluation of Swedish Development Co-Operation with Tanzania: A Report for the Secretariat for Analysis of Swedish Development Assistance*, The Secretariat for Analysis of Swedish Development Assistance, Ministry for Foreign Affairs, Stockholm.

Alesina, Alberto and David Dollar, 2000, "Who Gives Foreign Aid to Whom and Why?" *Journal of Economic Growth*, Vol. 5, No. 1 (March), pp. 33-63

Atingi-Ego, Michael and Rachel Kaggwa Sebudde, 2000, "Uganda's Equilibrium Real Exchange Rate and Its Implications for Non-Traditional Export Performance," *Bank of Uganda Staff Papers*, Vol. 2, No. 1, pp. 1-43.

Ajayi, S. Ibi, 2001, "What Africa Needs to Do to Benefit from Globalization," *Finance and Development*, Volume 38 (December), pp. 6-8.

Barro, Robert J. and Xavier Sala-i-Martin, 1995, *Economic Growth*, (MIT Press: Cambridge, Massachusetts).

Bulíř, Aleš and A. Javier Hamann, 2001, "How Volatile and Unpredictable Are Aid Flows, and What Are the Policy Implications?" *IMF Working Paper*, WP/01/167 (International Monetary Fund: Washington DC).

Bulíř, Aleš and Soojin Moon, 2002, "The Composition of Fiscal Adjustment and Structural Conditionality Under IMF-Supported Programs," mimeo, (International Monetary Fund: Washington DC).

Burnside, Craig and David Dollar, 2000, "Aid, Policies, and Growth," *American Economic Review*, Vol. 90, No. 4, pp. 847-68

Collier, Paul, 1999, "Aid 'Dependency': A Critique," *Journal of African Economies*, Vol. 8, No. 4, pp. 528-45.

_____, 2000, "Africa's Comparative Advantage," in *Industrial Development and Policy in Africa*, Jalilian H., M. Tribe, and J Weiss editors, (Edward Elgar: Cheltenham)

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

Dijkstra, A. Geske and Jan Kees van Donge, 2001, "What Does the 'Show Case' Show? Evidence of and Lessons from Adjustment in Uganda," *World Development*, Vol. 29, No. 5, pp. 841-863.

Durbarry, Ramesh, Norman Gemmell, and David Greenaway, 1998, "New Evidence on the Impact of Foreign Aid on Economic Growth," *CREDIT Research Paper,* No. 98/8, Centre for Research in Economic Development and International Trade, University of Nottingham.

Easterly, William, 2001, "The Lost Decades: Developing Countries' Stagnation in Spite of Policy Reform 1980-1998," *Journal of Economic Growth*, Vol. 6, (June), pp. 135-57.

Edwards, Sebastian and Sweder van Wijnbergen, 1989, "Disequilibrium and Structural Adjustment", in *Handbook of Development Economics*, Vol. II, ed. by H. Chenery and T.N. Srinivasan (Amsterdam: Elsevier Science Publishers).

Elbadawi, Ibrahim A., 1999, "External Aid: Help or Hindrance to Export Orientation in Africa?" *Journal of African Economies*, Vol. 8, No. 4, pp. 578-616.

Falck, Hans, 2001, "Dutch Disease in Mozambique?" Institute for Economic Research, mimeo, Lund University, Sweden.

Fanizza, Domenico, 2000, "Foreign Aid, Macroeconomic Stabilization, and Growth in Malawi," in *Malawi—Selected Issues and Statistical Appendix*, (International Monetary Fund: Washington, DC), pp. 11-30. http://www.imf.org/external/pubs/cat/longres.cfm?sk=3949.0

Frait, Jan and Luboš Komárek, 1999, "Dlouhodobý rovnovážný reálný měnový kurz koruny a jeho determinanty," VP. 9, (Czech National Bank: Prague).

Franco-Rodriguez, Susana et al, 1998, "Aid and the Public Sector in Pakistan: Evidence with Endogenous Aid", *World Development,* Vol. 26, No. 7, pp. 1241-1250.

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

Gunning, Jan W., 2000, "Rethinking Aid," paper presented at the 12th Annual Bank Conference on Development Economics (World Bank: Washington DC).

Hadjimichael, Michael T., Dhaneshwar Ghura, Martin Mühleisen, Roger Nord, and E. Murat Uçer, 1995, "Sub-Saharan Africa : Growth, Savings, and Investment, 1986-93," *Occasional Paper*, No. 118 (International Monetary Fund: Washington DC).

Hansen, Henrik and Finn, Tarp, 2001a, "Aid and Growth Regressions" *Journal of Development Economics,* Vol. 64, pp. 547-570.

_____, 2001b, "Aid Effectiveness Disputed" *Journal of International Development,* Vol. 12, pp. 375-398.

Heller, Peter S., 1975, "A Model of Public Fiscal Behavior in Developing Countries: Aid, Investment, and Taxation," *American Economic Review*, Vol. 65, No. 3, pp. 429-445.

Herbertsson, Tryggvi Thor, Marta Skuladottir, and Gylfi Zoega, 2000, "Three Symptoms and a Cure: A Contribution to the Economics of the Dutch Disease", *CEPR Discussion Paper*, No. 2364, (Centre for Economic Policy Research: London).

Hermann, Roland, Kees Burger, and Hidde P. Smit, 1990, 'Commodity Policy: Price Stabilisation Versus Financing', in Sapsford, D.A. and Winters, L.A., eds., *Primary Commodity Prices: Economic Models and Policy*, (Cambridge University Press: Cambridge).

Hjertholm, Peter, Jytte Laursen, and Howard White, 1998, "Macroeconomic Issues in Foreign Aid", revised paper presented at the conference on *Foreign Aid and Development: Lessons of Experience and Directions for the Future*, Copenhagen (October 9-10, 1998).

International Monetary Fund, 2001a, "Conditionality in IMF-Supported Program—Policy Issues," (International Monetary Fund: Washington DC). http://www.imf.org/external/np/pdr/cond/2001/eng/policy/021601.pdf

_____, 2001b, "Streamlining Structural Conditionality: Review of Initial Experience," (International Monetary Fund: Washington DC). http://www.imf.org/external/np/pdr/cond/2001/eng/collab/review.htm

_____, 2002, "The Modalities of Conditionality—Further Considerations," (International Monetary Fund: Washington DC).

Kasekende, L.A. and M. Atingi-Ego, 1999, "Uganda's Experience with Aid," *Journal of African Economies*, Vol. 8, No. 4, pp. 617-649.

Khan, Mohsin S. and Sunil Sharma, 2001, "IMF Conditionality and Country Ownership of Programs," IMF Working Paper, WP/01/142 (Washington DC: International Monetary Fund).

Lancaster, Carol, 1999, "Aid Effectiveness in Africa: the Unfinished Agenda", *Journal of African Economies*, Vol. 8, No. 4, pp. 487-503.

Laplagne, Patrick, Malcolm Treadgold, and Jonathan Baldry, 2001, "A Model of Aid Impact in Some South Pacific Microstates" *World Development* Vol. 29, No. 2, pp. 365-383.

Laplagne, Patrick, 1997, "Dutch Disease in the South Pacific: Evidence from the 1980s and Beyond," *Pacific Economic Bulletin*, Vol. 12, No. 1 (June), pp. 84-96.

Leite, Sergio Pereira, Anthony Pellechio, Luisa Zanforlin, Girma Begashaw, Stefania Fabrizio, and Joachim Harnack, 2001, "Ghana: Economic Development in a Democratic Environment", *Occasional Pape*r, No. 199 (International Monetary Fund: Washington DC).

Lensink, Robert and Oliver Morrissey, 2000, "Aid Instability as a Measure of Uncertainty and the Positive Impact of Aid on Growth," *Journal of Development Studies*, Vol. 36, (February), pp. 31-49.

Lensink, Robert and Howard White, 1999, "Is there an Aid Laffer Curve?" *CREDIT Research Paper,* No. 99/6, Centre for Research in Economic Development and International Trade, University of Nottingham.

_____, 2000, "Assessing Aid: A Manifesto for Aid in the 21st Century?" *Oxford Development Studies,* Vol. 28, No. 1, pp. 6-17.

Lucas, Robert, 1988, "On the Mechanics of Economic Development," *Journal of Monetary Economics*, Vol. 22, (July), pp. 3-42.

McGillivray, Mark and Oliver Morrissey, 2001a, "Aid Illusion and Public Sector Fiscal Behaviour," *Journal of Development Studies,* Vol. 37, (August), pp.118-36.

_____, 2001b, "A Review of Evidence on the Fiscal Effects of Aid," *CREDIT Research Paper,* No. 01/13, Centre for Research in Economic Development and International Trade, University of Nottingham.

Michaely, Michael, 1981, "Foreign Aid, Economic Structure, and Dependence," *Journal of Development Economics*, Vol. 9, December, pp. 313-330.

Nyatepe-Coo, Akorlie A., 1994, "Dutch Disease, Government Policy and Import Demand in Nigeria", *Applied Economics*, Vol. 26, pp. 327-336

Nyoni, Timothy S., 1998, "Foreign Aid and Economic Performance in Tanzania" *World Development,* Vol. 26, No. 7, pp. 1235-1240.

Pallage, Stéphane and Michel A. Robe, 2001a, "Foreign Aid and the Business Cycle," *Review of International Economics*, Vol. 9, No. 4, pp. 636-67.

_____, 2001b, "On the Welfare Cost of Business Cycles in Developing Countries", University of Québec, Montréal, mimeo, (October).

Rattsø, Jørn and Ragnar Torvik, 1998, "Economic Openness, Trade Restrictions and External Shocks: Modeling Short Run Effects in Sub-Saharan Africa," *Economic Modelling,* Vol.15, pp. 257-286.

Rattsø, Jørn and Ragnar Torvik, 1999, "The Macroeconomics of Foreign Aid in Sub-Saharan Africa: Dutch Disease Effects Reconsidered," in *Foreign Aid: New Perspectives*, K.L. Gupta, editor, (Kluwer Academic Publishers: Boston).

Roemer, Michael, 1994, "Dutch Disease and Economic Growth: The Legacy of Indonesia", *Development Discussion Paper,* No. 489*,* Harvard Institute for International Development, Harvard University.

Romer, Paul M., 1986, "Increasing Returns and Long-Run Growth," *Journal of Political Economy*, Vol. 94, (October), pp. 1002-1037

Sekkat, Khalid and Aristomene Varoudakis, 2000, "Exchange Rate Management and Manufactured Exports in Sub-Saharan Africa," *Journal of Development Economics,* Vol. 61, pp. 237-253.

Söderling, Ludvig, 2000, "Dynamics of Export Performance, Productivity and Real Effective Exchange Rate in Manufacturing: the Case of Cameroon," *Journal of African Economies*, Volume 9, No. 4, pp. 411-429.

Stolper, Wolfgang F. and Paul A. Samuelson, 1941, "Protection and Real Wages," *Review of Economic Studies*, Vol. 9 (November), pp. 58-73.

Svensson, Jakob, 2000, "When Is Foreign Aid Policy Credible: Aid Dependence and Conditionality," *Journal of Development Economics,* Vol. 61, pp. 61-84.

Teal, Francis, 1999, *"Why can Mauritius Export Manufactures and Ghana Not?"* WPS/99-10, Centre for the Study of African Economies, Oxford.

Vos, Rob, 1998, "Aid Flows and 'Dutch Disease' in a General Equilibrium Framework for Pakistan", *Journal of Policy Modeling,* Vol. 20, No. 1, pp. 77-109.

van Wijnbergen, Sweder, 1986, "Macroeconomic Aspects of the Effectiveness of Foreign Aid: On the Two-Gap Model, Home Goods Disequilibrium and Real Exchange Rate Misalignment," *Journal of International Economics*, Vol. 21, No. 1-2, pp. 123-136.

White, Howard, 1992, "The Macroeconomic Impact of Development Aid: A Critical Survey," *Journal of Development Studies*, Vol. 28, No. 2, pp. 163-240.

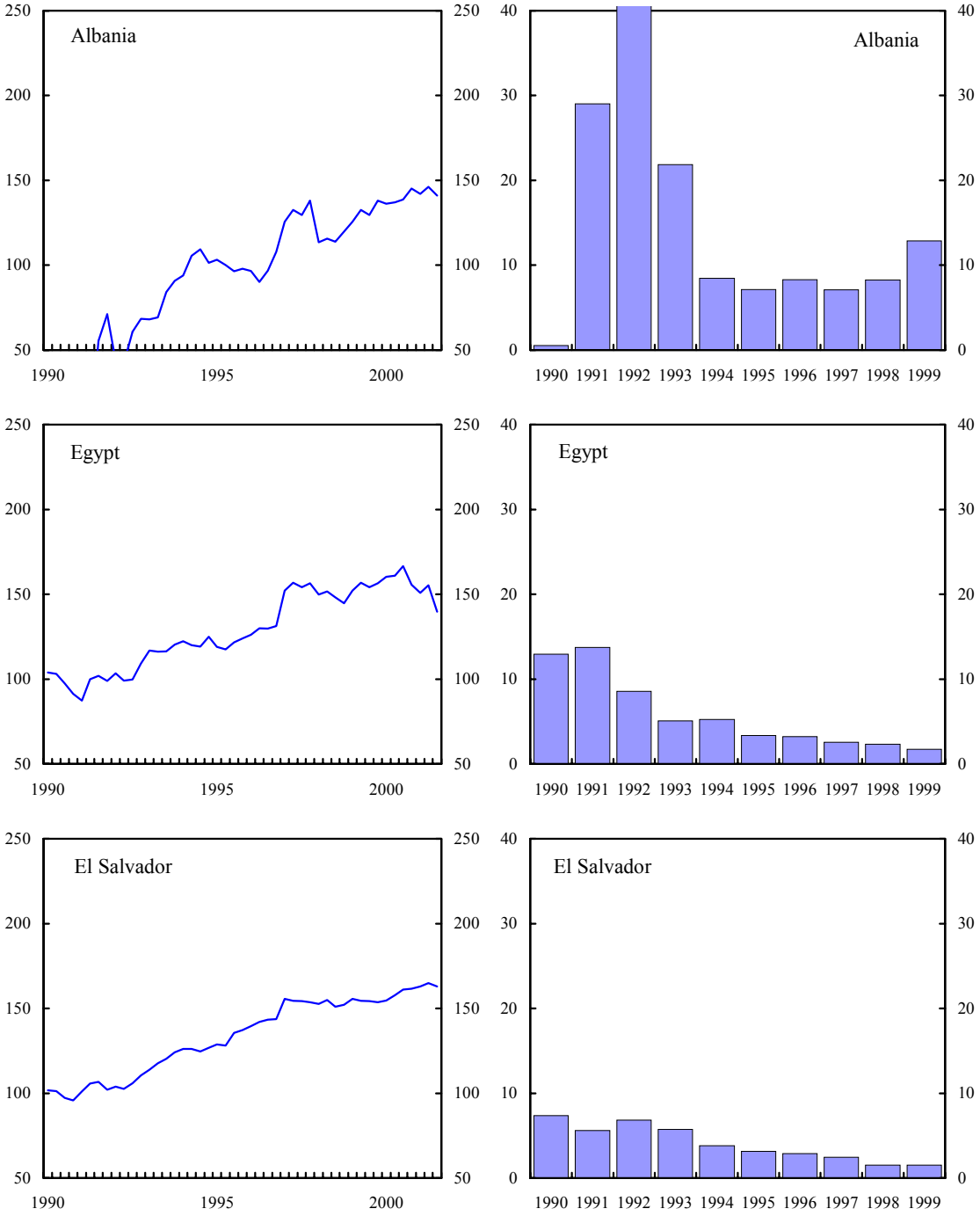
Younger, Stephen D., 1992, "Aid and the Dutch Disease: Macroeconomic Management When Everybody Loves You" *World Development,* Vol. 20, No. 11, pp. 1587-1597.

Table 4. List of Countries Used in the Survey

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

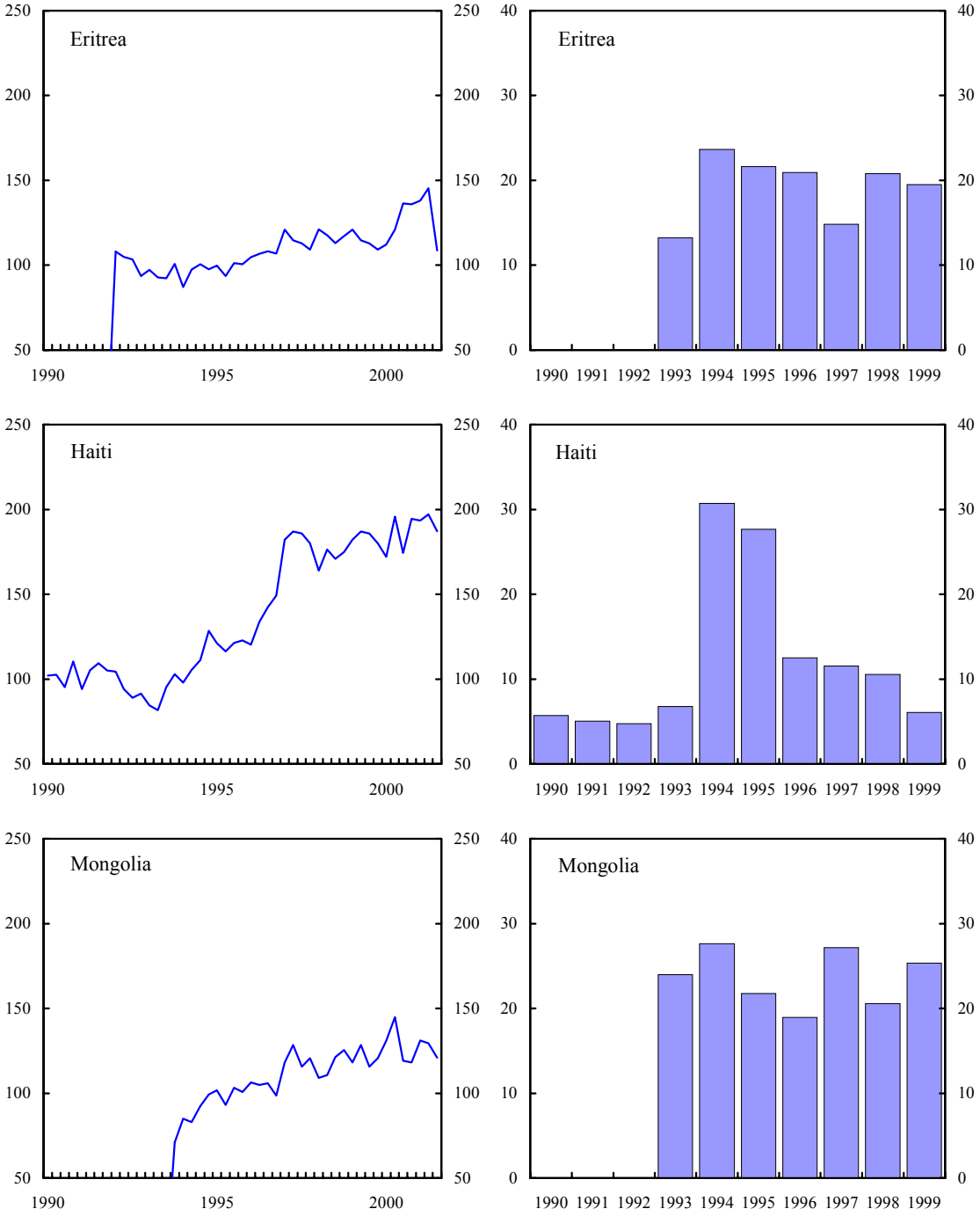
Countries denoted with an asterisk had an interruption in the IMF-supported program.

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



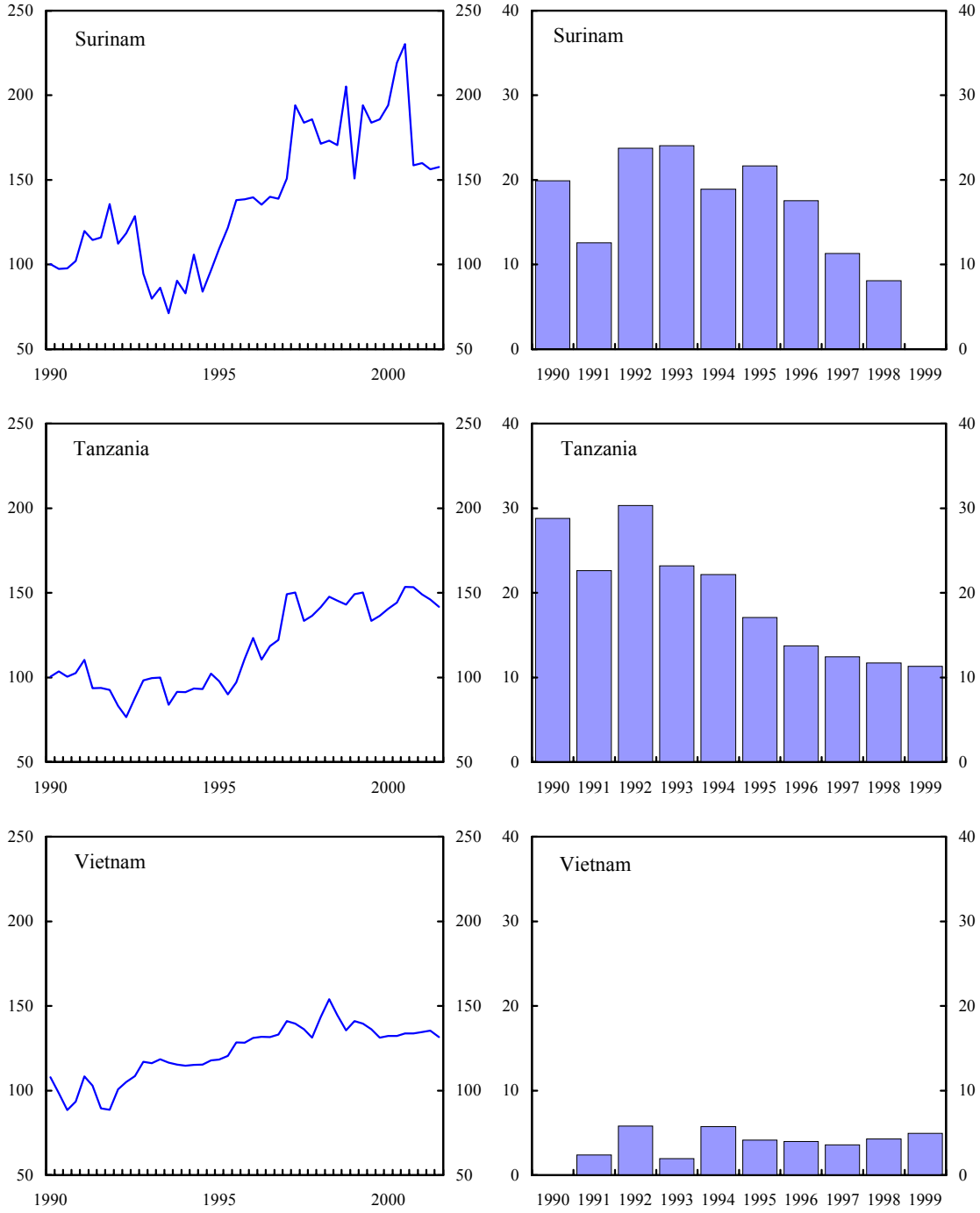
Source: INS and WDI.

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



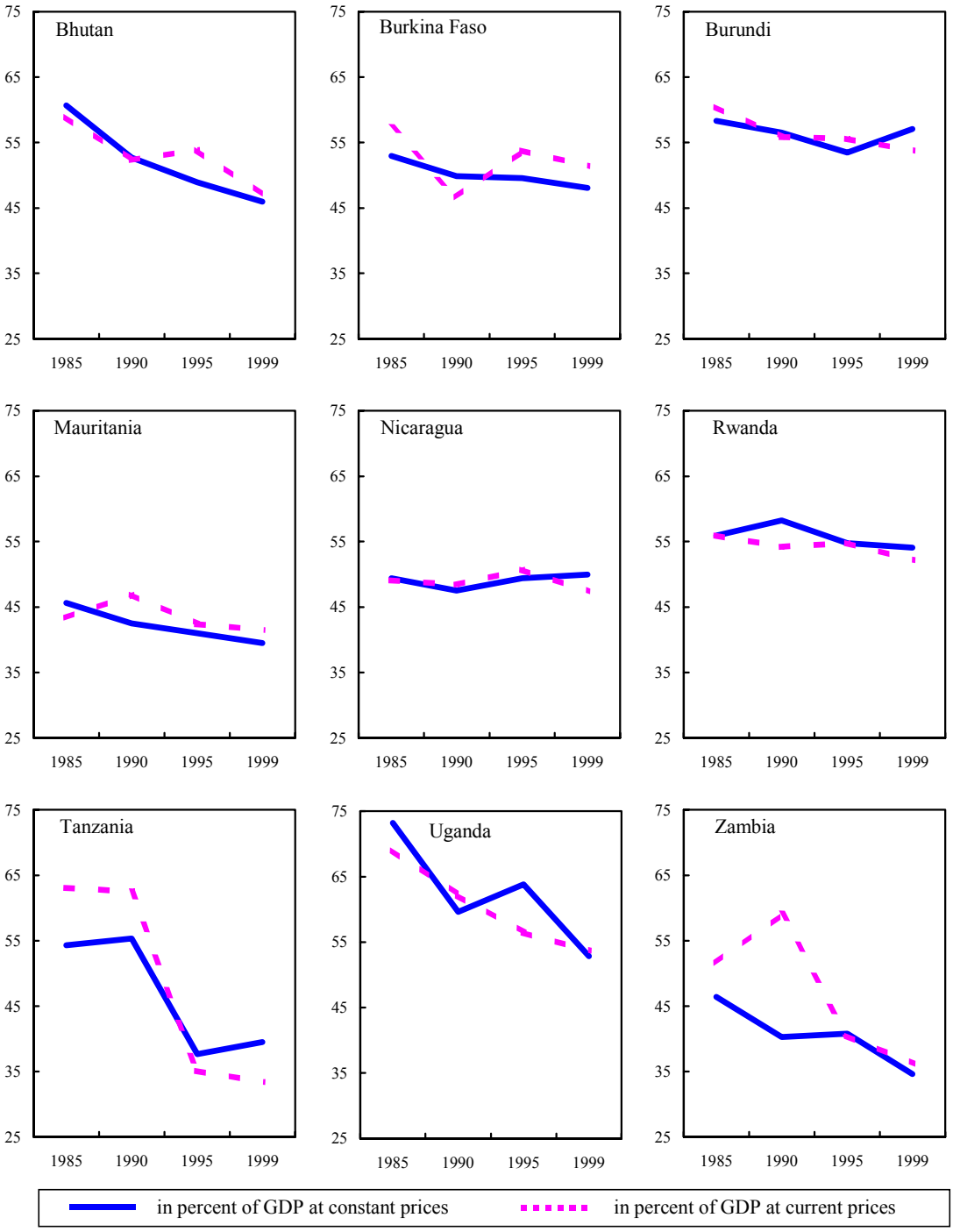
Source: INS and WDI.

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



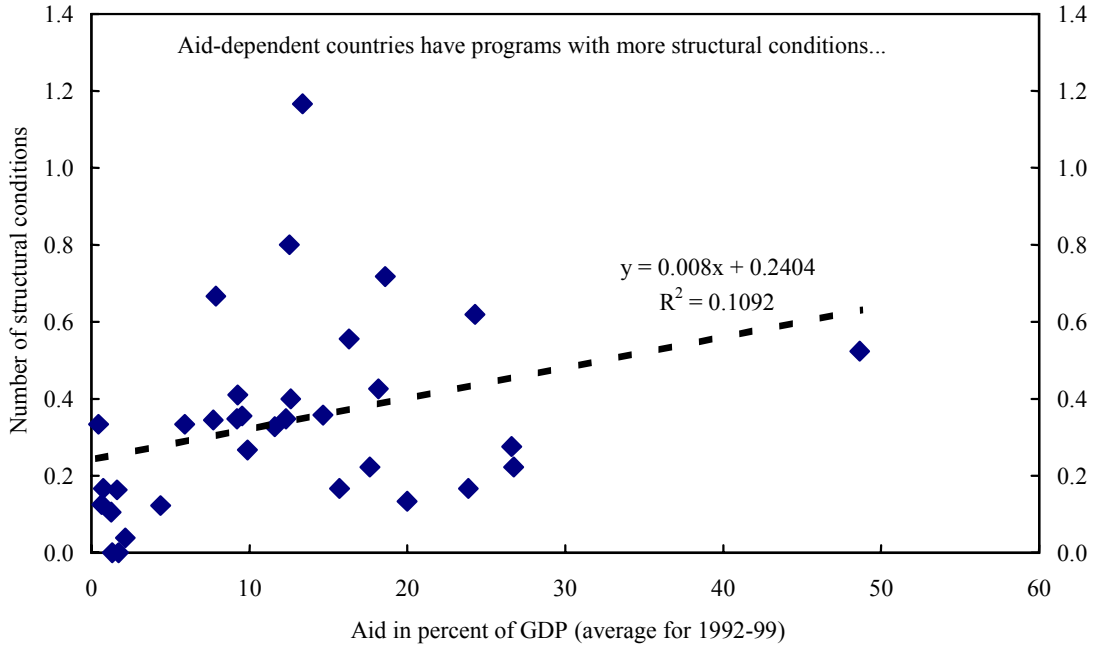
Source: INS and WDI.

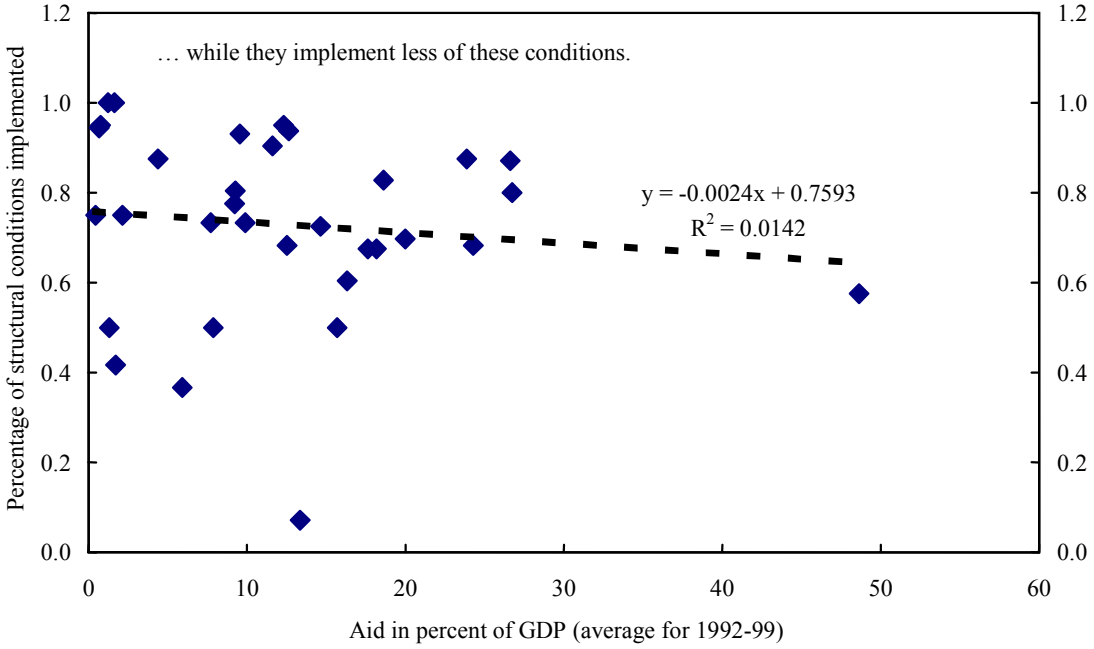
Figure 3. Selected Countries: Developments in Traded Goods Sector, 1985-1999 1/,2/
(In percent of GDP)



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.

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





Source: Data from Bulíř and Moon (2002).

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